



 west virginia department of environmental protection

Office of Oil and Gas
 601 57th Street, S.E.
 Charleston, WV 25304
 (304) 926-0450
 fax: (304) 926-0452

Austin Caperton, Cabinet Secretary
www.dep.wv.gov

Wednesday, April 3, 2019
 WELL WORK PERMIT
 Horizontal 6A / Drilling Deeper

EQT PRODUCTION COMPANY
 625 LIBERTY AVE., SUITE 1700

PITTSBURGH, PA 15222

Re: Permit approval for 514460
 47-095-02257-00-00

This well work permit is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to any additional specific conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas Inspector.

Please be advised that form WR-35, Well Operators Report of Well Work is to be submitted to this office within 90 days of completion of permitted well work, as should form WR-34 Discharge Monitoring Report within 30 days of discharge of pits, if applicable. Failure to abide by all statutory and regulatory provisions governing all duties and operations hereunder may result in suspension or revocation of this permit and, in addition, may result in civil and/or criminal penalties being imposed upon the operators.

Per 35 CSR 4-5.2.g this permit will expire in two (2) years from the issue date unless permitted well work is commenced. If there are any questions, please feel free to contact me at (304) 926- 0450.

James A. Martin
 Chief

Operator's Well Number: 514460
 Farm Name: WELLS, VIVIAN J.
 U.S. WELL NUMBER: 47-095-02257-00-00
 Horizontal 6A Drilling Deeper
 Date Issued: 4/3/2019

API Number: 4709502257

PERMIT CONDITIONS

West Virginia Code § 22-6A-8(d) allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

CONDITIONS

1. Operator shall install signage per § 22-6A-8g (6) (B) at all source water locations included in their approved water management plan within 24 hours of water management plan activation.
2. Oil and gas water supply wells will be registered with the Office of Oil and Gas and all such wells will be constructed and plugged in accordance with the standards of the Bureau for Public Health set forth in its Legislative rule entitled *Water Well Regulations*, 64 C.S.R. 19. Operator is to contact the Bureau of Public Health regarding permit requirements. In lieu of plugging, the operator may transfer the well to the surface owner upon agreement of the parties. All drinking water wells within fifteen hundred feet of the water supply well shall be flow tested by the operator upon request of the drinking well owner prior to operating the water supply well.
3. 24 hours prior to the initiation of the completion process the operator shall notify the Chief or his designee.
4. During the completion process the operator shall monitor annular pressures and report any anomaly noticed to the chief or his designee immediately.
5. If any explosion or other accident causing loss of life or serious personal injury occurs in or about a well or well work on a well, the well operator or its contractor shall give notice, stating the particulars of the explosion or accident, to the oil and gas inspector and the Chief, within 24 hours of said accident.
6. The operator shall provide to the Office of Oil and Gas the dates of each of the following within 30 days of their occurrence: completion of construction of the well pad, commencement of drilling, cessation of drilling, completion of any other permitted well work, and completion of the well. Such notice shall be provided by sending an email to DEPOOGNotify@wv.gov.

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
WELL WORK PERMIT APPLICATION

1) Well Operator: EQT Production Company 306686 Tyler McElroy Shirley
Operator ID County District Quadrangle

2) Operator's Well Number: 514460 (SHR60H1) Well Pad Name: SHR60

3) Farm Name/Surface Owner: Vivian J. Wells, et. al. Public Road Access: 60/2

4) Elevation, current ground: 1,011 (As-built) Elevation, proposed post-construction: 1,011

5) Well Type (a) Gas Oil _____ Underground Storage _____

Other _____

(b) If Gas Shallow Deep _____

Horizontal _____

6) Existing Pad: Yes or No Yes

JCB
3/7/2019

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):

Target - Marcellus; Depth - 6,600'; Anticipated Thickness - 52'; Anticipate Target Pressure - 2,747 psi

8) Proposed Total Vertical Depth: 6,600'

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 20,895

11) Proposed Horizontal Leg Length: 13,921

12) Approximate Fresh Water Strata Depths: 83,133,570,906

13) Method to Determine Fresh Water Depths: By offset wells

14) Approximate Saltwater Depths: 1198,1865

15) Approximate Coal Seam Depths: 19,420,686,875,1315

16) Approximate Depth to Possible Void (coal mine, karst, other): None reported

17) Does Proposed well location contain coal seams directly overlying or adjacent to an active mine? Yes _____ No

(a) If Yes, provide Mine Info: Name: _____

Depth: _____

Seam: _____

Owner: _____

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MAR 27 2019

18)

CASING AND TUBING PROGRAM

TYPE	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft.)/CTS
Conductor	20	New	A-500	78.6	60	60	58ft^3 / CTS
Fresh Water	13 3/8	New	J-55	54.5	997	997	839 ft^3 / CTS
Coal							
Intermediate	9 5/8	New	A-500	40	2,779	2,779	1084ft^3 / CTS
Production	5 1/2	New	P-110	20	20,895	20,895	500' above top producing zone
Tubing	2 3/8		J-55	4.7		May not be run, if run set 40' above top perf or 80° inclination	
Liners							

JCB
3/7/2019

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Anticipated Max. Internal Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	20	24	.375	1378	26	Class A	1.18
Fresh Water	13 3/8	17 1/2	.38	2700	2160	See Variance	1.19
Coal							
Intermediate	9 5/8	12 3/8	.395	3950	3160	See Variance	1.19
Production	5 1/2	8 1/2	.361	12640	10112	Class A/H	1.123/2.098
Tubing	2 3/8	NA	.19	7700			
Liners							

PACKERS

Kind:				
Sizes:				
Depths Set:	RECEIVED			
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19) Describe proposed well work, including the drilling and plugging back of any pilot hole:

Drill and complete a new horizontal well in the Marcellus Formation. Drill the vertical to an approximate depth of 4993'. Kick off and drill curve. Drill the lateral in the Marcellus. Cement casing.

JCB
3/7/2019

20) Describe fracturing/stimulating methods in detail, including anticipated max pressure and max rate:

Hydraulic fracturing is completed in accordance with state regulations using water recycled from previously fractured wells and obtained from freshwater sources. This water is mixed with sand and a small percentage (less than 0.1%) of chemicals (including 15% Hydrochloric acid, friction reducer, biocide, and scale inhibitor), referred to in the industry as a "slickwater" completion. Maximum anticipated internal casing pressure is expected to be approximately 10000 psi, maximum anticipated treating rates are expected to average approximately 100 bpm. Stage lengths vary from 150 to 300 feet. Average approximately 350,000 gallons of water per stage. Sand sizes vary from 100 mesh to 20/40 mesh. Average approximately 400,000 pounds of proppant per stage.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): N/A - Existing Site

22) Area to be disturbed for well pad only, less access road (acres): N/A - Existing Site

23) Describe centralizer placement for each casing string:

- Surface: Bow spring centralizers – One centralizer at the shoe and one spaced every 500'.
- Intermediate: Bow spring centralizers– One centralizer at the shoe and one spaced every 500'.
- Production: One solid body centralizer spaced every joint from production casing shoe to KOP

24) Describe all cement additives associated with each cement type:

Conductor: Class A no additives
Surface (Type 1 Cement): 0-3% Calcium Chloride. Used to speed the setting of cement slurries
Intermediate (Type 1 Cement): 0-3% Calcium Chloride. Used to speed the setting of cement slurries.
Production:
Lead (Class A Cement): 0.2% CD-20 (dispersant makes cement easier to mix). .15% SuperFL-300 (fluid loss/lengthens thickening time) .15% SEC-10 (fluid loss) 50:50 POZ (extender)
Tail (Class H Cement): 0.2% Super CR-1 (Retarder). Lengthens thickening time. .3% Super FL-200 (fluid loss) .2% SEC-10 (Fluid loss). .2% SuperFL-350 (fluid loss) Reduces amount of water lost to formation. 60 % Calcium Carbonate. Acid solubility.

25) Proposed borehole conditioning procedures:

Surface: Circulate hole clean while rotating & reciprocating the drill string until cuttings diminish at surface.
Intermediate: Circulate hole clean while rotating & reciprocating the drill string until cuttings diminish at surface.
Production: Pump marker sweep with nut plug to determine actual hole washout. Calculate a gauge holes bottoms up volume. Perform a cleanup cycle by pumping 3-5 bottoms up or until the shakers are clean. Check volume of cuttings coming across the shakers every 15 minutes.

*Note: Attach additional sheets as needed.

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

API 47-095-02257 County TYLER District McElroy
Quad SHIRLEY Pad Name SHR60 Field/Pool Name N/A
Farm name WELLS, VIVIAN J. et al Well Number 514460
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 N 4,360,607.42 Easting 516,268.70
Landing Point of Curve Northing N 4,360,500.46 Easting 516,270.91
Bottom Hole Northing N 4,356,602.53 Easting 518,009.11

Elevation (ft) 1011 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 Oil Based Mud 12.9 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, ferrocchrome lignosulfonate, calcium carbonate, fibrous cellulose

Date permit issued 07/23/2015 Date drilling commenced 07/24/2015 Date drilling ceased 09/15/2017
Date completion activities began _____ Date completion activities ceased _____
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 906 Open mine(s) (Y/N) depths N
Salt water depth(s) ft 1865 Void(s) encountered (Y/N) depths N
Coal depth(s) ft 19, 420, 686, 875, 1315 Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed by: _____

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API 47-095 - 02257 Farm name WELLS, VIVIAN J. et al Well number 514460

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	24"	20"	60'	NEW	A-500 84LB/FT	NONE	Y
Surface	17.5"	13.375"	997'	NEW	J-55 54 5LB/FT	413'	Y
Coal							
Intermediate 1	12.375"	9.625"	2779'	NEW	A-500 40LB/FT	1889'	N
Intermediate 2							
Intermediate 3							
Production	8.5"	5.5"	20984'	NEW	P-110 20LB/FT	NONE	N
Tubing							
Packer type and depth set							

Comment Details Intermediate Cement - Hydraulics on cement company's equipment went down. Ran CBL TOC determined at 740'. Per Slate, grout cement to surface with 223 sacks.

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	80	15.6	1.18	69.62	0	8
Surface	CLASS A	873	15.6	1.2	1047.6	0	8
Coal							
Intermediate 1	CLASS A	800/115/223	15.2/15.6/15.6	1.25/1.18/1.18	1125/135/263	740	8/6
Intermediate 2							
Intermediate 3							
Production	CLASS H / CLASS H	357/1746	15.2/ 15.6	1.25 / 2.06	446/3597	5850'	8
Tubing							

Drillers TD (ft) 21,001' MD Loggers TD (ft) N/A
 Deepest formation penetrated MARCELLUS Plug back to (ft) 5135'
 Plug back procedure AIR DROP CEMENT PLUG WITH 537 SACKS

Kick off depth (ft) 5017' 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, 11, 21
 INTERMEDIATE- 7 CENTRALIZERS RAN AT LEAST EVERY 500 FEET
 PRODUCTION- Every Joint from TD to 4885' MD

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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API 47- 950 - 2257 Farm name WELLS, VIVIAN J. et al Well number 514460

PRODUCING FORMATION(S)	DEPTHS	
	TVD	MD

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface _____ psi Bottom Hole _____ psi DURATION OF TEST _____ hrs

OPEN FLOW Gas _____ mcfpd Oil _____ bpd NGL _____ bpd Water _____ bpd GAS MEASURED BY
 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	
	0		0		

Please insert additional pages as applicable.

Drilling Contractor ALPHA HUNTER DRILLING (RIG 5)
 Address P.O. BOX 430 City RENO State OH Zip 45773

Logging Company BAKER HUGHES OILFIELD OPERATIONS, INC.
 Address 837 Philippi Pike City CLARKSBURG State WV Zip 26301

Cementing Company BAKER HUGHES OILFIELD OPERATIONS, INC.
 Address 837 Philippi Pike City CLARKSBURG State WV Zip 26301

Stimulating Company _____
 Address _____ City _____ State _____ Zip _____

Please insert additional pages as applicable.

Completed by Adam Hughey Telephone (412) 553-5884
 Signature  Title Director Completions Date 11/29/2018

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

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WR-35
Rev. 8/23/13

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API 47- 950 - 2257 Farm name WELLS, VIVIAN J. et al Well number 514460

Drilling Contractor Savanna Drilling (Rig 655)
Address 125 Industry Road City Waynesburg State PA Zip 15370

Logging Company GYRODATA
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 _____
Address _____ City _____ State _____ Zip _____

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Well # 514460 Final Formations API # 47-950-2257

Formation Name	Drill Top MD	Drill Top TVD	Drill Bottom MD	Drill Bottom TVD	Gas At
SAND/SHALE	1	1	26	26	
COAL	22	22	26	26	
SAND/SHALE	26	26	423	423	
COAL	423	423	427	427	
SAND/SHALE	427	427	689	689	
COAL	689	689	693	693	
SAND/SHALE	693	693	878	878	
COAL	878	878	882	882	
SAND/SHALE	882	882	1318	1318	
COAL	1318	1318	1322	1322	
SAND/SHALE	1322	1322	1537	1537	
WAXTON	1537	1537	1590	1590	
SAND/SHALE	1590	1590	1832	1832	
BIG LIME	1832	1832	2114	2113.9	
SAND/SHALE	2114	2113.9	2254	2253.9	
WEIR	2254	2253.9	2320	2319.9	
SAND/SHALE	2320	2319.9	2371	2370.9	
SANTZ	2371	2370.9	2418	2417.9	
SAND/SHALE	2418	2417.9	2464	2463.9	
50F	2464	2463.9	2496	2495.9	
SAND/SHALE	2496	2495.9	2598	2597.9	
30F	2598	2597.9	2639	2638.9	
SAND/SHALE	2639	2638.9	2689	2688.9	
GORDON	2689	2688.9	2703	2702.9	
SAND/SHALE	2703	2702.9	2894	2893.9	
5TH SAND	2894	2893.9	2923	2922.9	
SAND/SHALE	2923	2922.9	3010	3009.9	
JAYARD	3010	3009.9	3070	3069.9	
SAND/SHALE	3070	3069.9	3342	3341.8	
WARREN	3342	3341.8	3416	3415.8	
SAND/SHALE	3416	3415.8	3436	3435.8	
SPEECHLEY	3436	3435.8	3554	3553.8	
SAND/SHALE	3554	3553.8	3858	3857.8	
BALLTOWN A	3858	3857.8	3928	3927.8	
SAND/SHALE	3928	3927.8	4551	4550.8	
RILEY	4551	4550.8	4558	4557.8	
SAND/SHALE	4558	4557.8	4968	4967.7	
BENSON	4968	4967.7	5005	5004.7	
SAND/SHALE	5005	5004.7	5225	5222.6	
ALEXANDER	5225	5222.6	6318	6274.5	5376, 5392, 5498, 5514, 6233, 6249
SONYEA	6318	6274.5	6446	6386.5	
MIDDLESEX	6446	6386.5	6508	6433.2	
GENESSEE	6508	6433.2	6641	6511	
GENESE0	6641	6511	6707	6537.8	
TULLY	6707	6537.8	6774	6561.6	
HAMILTON	6774	6561.6	6829	6578.5	
MARCELLUS	6829	6578.5	21001	6632.5	6563

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Actual Wellpath Report

SHR-60 514460 ST01 AWP Proj: 21001'

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4709502257
BAKER HUGHES
a GE company
04/05/2019

REFERENCE WELLPATH IDENTIFICATION

Operator	EQT	Slot	Slot 514460
Area	Tyler County, WV	Well	SHR-60 514460 ST01
Field	Tyler	Wellbore	SHR-60 514460 ST01 AWB
Facility	SHR-60 Pad	Sidetrack from	SHR-60 514460 AWP Proj: 6657' at 4903.00 MD

REPORT SETUP INFORMATION

Projection System	NAD27 / Lambert West Virginia SP, Northern Zone (4701), US feet	Software System	WellArchitect® 5.0
North Reference	Grid	User	Edsaryar
Scale	0.999949	Report Generated	23/Aug/2017 at 20:14
Convergence at slot	0.84° West	Database/Source file	WA_MPL_EASTERNUS_Defn\SHR-60_514460_ST01_AWP_Proj_21001_.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North(ft)	East(ft)	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	0.00	0.00	1629438.62	328582.21	39°23'41.019"N	80°48'40.465"W
Facility Reference Pt			1629438.62	328582.21	39°23'41.019"N	80°48'40.465"W
Field Reference Pt			609601.22	0.00	38°23'48.753"N	84°21'09.765"W

WELLPATH DATUM

Calculation method	Minimum curvature	Savanna 655 (RKB) to Facility Vertical Datum	1027.00ft
Horizontal Reference Pt	Slot	Savanna 655 (RKB) to Mean Sea Level	1027.00ft
Vertical Reference Pt	Savanna 655 (RKB)	Savanna 655 (RKB) to Ground Level at Slot (Slot 514460)	16.00ft
MD Reference Pt	Savanna 655 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	157.45°

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Actual Wellpath Report

SHR-60 514460 ST01 AWP Proj: 21001'

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4709502257



04/05/2019

REFERENCE WELLPATH IDENTIFICATION

Operator	EQT	Slot	Slot 514460
Area	Tyler County, WV	Well	SHR-60 514460 ST01
Field	Tyler	Wellbore	SHR-60 514460 ST01 AWP
Facility	SHR-60 Pad	Sidetrack from	SHR-60 514460 AWP Proj: 6657' at 4903.00 MD

WELLPATH DATA (341 stations)

† = Interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	TVDS [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [ft/100ft]	Build Rate [ft/100ft]	Turn Rate [ft/100ft]	Comments
0.00†	0.00	157.800	0.00	-1027.00	0.00	0.00	0.00	0.00	0.00	0.00	
16.00	0.00	157.800	16.00	-1011.00	0.00	0.00	0.00	0.00	0.00	0.00	
103.00	0.39	157.800	103.00	-924.00	0.30	-0.27	0.11	0.45	0.45	181.38	VES Gyro <B-34> (103-6603)
203.00	0.37	160.430	203.00	-824.00	0.96	-0.89	0.35	0.03	-0.02	2.63	
303.00	0.29	187.790	303.00	-724.00	1.53	-1.45	0.51	0.08	-0.05	7.35	
403.00	0.25	203.500	402.99	-624.01	1.93	-1.89	0.48	0.17	-0.04	35.71	
503.00	0.19	183.940	502.99	-524.01	2.23	-2.26	0.38	0.10	-0.06	-19.55	
603.00	0.11	123.790	602.99	-424.01	2.45	-2.48	0.45	0.17	-0.08	-60.15	
703.00	0.17	72.440	702.99	-324.01	2.55	-2.49	0.67	0.13	0.08	-51.35	
803.00†	0.42	308.870	802.99	-224.01	2.24	-2.21	0.52	0.53	0.25	-323.57	
903.00	0.28	65.160	902.99	-124.01	1.91	-1.89	0.44	0.58	-0.18	116.29	
1003.00	0.23	335.060	1002.99	-24.01	1.70	-1.61	0.57	0.35	-0.03	-90.10	
1103.00	0.56	333.100	1102.99	75.99	1.01	-0.99	0.26	0.33	0.33	-1.96	
1203.00	0.48	341.850	1202.98	175.98	0.11	-0.16	-0.09	0.11	-0.08	8.78	
1303.00†	0.48	335.870	1302.98	275.98	-0.73	0.62	-0.39	0.05	0.00	-6.01	
1403.00	0.55	321.210	1402.98	375.98	-1.61	1.38	-0.66	0.15	0.07	-14.66	
1503.00	0.59	316.690	1502.97	475.97	-2.55	2.13	-1.52	0.06	0.04	-4.52	
1603.00	0.45	328.670	1602.97	575.97	-3.42	2.84	-2.08	0.18	-0.14	11.98	
1703.00	0.41	336.240	1702.96	675.96	-4.16	3.50	-2.42	0.07	-0.04	7.57	
1803.00†	0.52	315.560	1802.96	775.96	-4.94	4.18	-2.85	0.20	0.11	-20.68	
1903.00	0.59	306.670	1902.96	875.96	-5.81	4.79	-3.62	0.11	0.07	-8.89	
2003.00	0.67	307.580	2002.95	975.95	-6.76	5.45	-4.49	0.08	0.08	0.88	
2103.00	0.81	309.780	2102.94	1075.94	-7.89	6.26	-5.50	0.14	0.14	2.22	
2203.00	0.90	305.360	2202.93	1175.93	-9.18	7.16	-6.68	0.11	0.09	-4.42	
2303.00†	0.80	308.860	2302.92	1275.92	-10.53	8.12	-7.92	0.07	-0.01	4.50	
2403.00	0.81	304.080	2402.91	1375.91	-11.81	9.01	-9.10	0.12	-0.08	-5.78	
2503.00	0.79	306.070	2502.90	1475.90	-12.99	9.81	-10.24	0.03	-0.02	1.98	
2603.00	0.76	301.500	2602.89	1575.89	-14.13	10.57	-11.38	0.06	-0.01	-4.57	
2703.00	0.85	298.830	2702.88	1675.88	-15.26	11.29	-12.61	0.08	0.07	-2.67	
2803.00	0.83	295.710	2802.87	1775.87	-16.38	11.96	-13.91	0.05	-0.02	-3.12	

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Actual Wellpath Report

SHR-60 514460 ST01 AWP Proj: 21001'

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REFERENCE WELLPATH IDENTIFICATION

Operator	EQT	Slot	Slot 514460
Area	Tyler County, WV	Well	SHR-60 514460 ST01
Field	Tyler	Wellbore	SHR-60 514460 ST01 AWB
Facility	SHR-60 Pad	Sidetrack from	SHR-60 514460 AWP Proj: 6657' at 4903.00 MD

WELLPATH DATA (341 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	TVDSS [ft]	Vert Sect [ft]	North [ft]	East [ft]	DL5 [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]	Comments
2903.00	0.630	292.140	2902.86	1875.86	-17.31	12.48	-15.08	0.21	-0.20	-3.57	
3003.00	0.430	277.210	3002.86	1975.86	-17.88	12.73	-15.96	0.24	-0.20	-14.93	
3103.00	0.430	270.420	3102.85	2075.85	-18.21	12.78	-16.79	0.05	0.00	-8.78	
3203.00	0.380	261.340	3202.85	2175.85	-18.44	12.74	-17.41	0.08	-0.05	-9.08	
3303.00	0.360	260.720	3302.85	2276.85	-18.60	12.63	-18.08	0.00	0.00	-0.62	
3403.00	0.370	257.070	3402.85	2375.85	-18.73	12.51	-18.71	0.03	-0.01	-3.65	
3503.00	0.400	250.090	3502.84	2475.84	-18.79	12.32	-19.35	0.06	0.03	-7.07	
3603.00	0.420	249.520	3602.84	2575.84	-18.82	12.07	-20.02	0.02	0.02	-0.48	
3703.00	0.460	234.110	3702.84	2675.84	-18.74	11.71	-20.69	0.12	0.04	-15.41	
3803.00	0.470	222.660	3802.83	2775.83	-18.48	11.17	-21.28	0.09	0.02	-11.45	
3903.00	0.510	222.320	3902.83	2875.83	-18.12	10.54	-21.87	0.04	0.04	-0.34	
4003.00	0.520	226.690	4002.83	2975.83	-17.77	9.90	-22.50	0.04	0.01	4.37	
4103.00	0.550	220.560	4102.82	3075.82	-17.39	9.22	-23.14	0.06	0.03	-6.13	
4203.00	0.560	223.600	4202.82	3175.82	-16.98	8.50	-23.79	0.03	0.01	3.04	
4303.00	0.720	218.250	4302.81	3275.81	-16.45	7.84	-24.50	0.18	0.16	-7.32	
4403.00	0.940	208.580	4402.80	3375.80	-15.61	6.42	-25.26	0.26	0.22	-7.70	
4503.00	0.980	207.780	4502.79	3475.79	-14.55	4.93	-26.06	0.05	0.05	-0.62	
4603.00	0.960	206.320	4602.77	3575.77	-13.43	3.40	-26.84	0.03	-0.01	-1.44	
4703.00	0.990	206.790	4702.76	3675.76	-12.31	1.85	-27.61	0.01	0.01	0.47	
4803.00	0.930	201.990	4802.74	3775.74	-11.17	0.34	-28.30	0.10	-0.05	-4.60	
4903.00	0.940	202.640	4902.73	3875.73	-10.01	-1.17	-28.92	0.01	0.01	0.65	Syro Tie In=4903' MD
4993.00	0.890	197.450	4992.72	3965.72	-8.95	-2.52	-29.41	0.11	-0.05	-5.77	KOP 1=4993' MD
5024.00	1.020	238.490	5023.71	3996.71	-8.73	-2.89	-29.72	2.20	0.42	132.39	
5055.00	2.780	288.520	5054.70	4027.70	-9.18	-2.80	-30.67	7.30	5.68	161.39	
5087.00	5.160	303.710	5086.62	4058.62	-10.88	-1.75	-32.60	8.07	7.44	47.41	
5118.00	7.150	305.350	5117.44	4090.44	-13.68	0.14	-35.34	6.44	6.42	5.29	
5150.00	8.950	306.710	5149.12	4122.12	-17.50	2.78	-38.96	5.68	5.62	4.29	
5181.00	11.070	310.390	5179.65	4152.65	-22.23	6.15	-43.16	7.14	6.84	11.87	
5213.00	13.200	316.890	5210.93	4183.93	-28.39	10.81	-48.00	7.90	6.66	20.31	
5245.00	15.550	323.590	5241.93	4214.93	-35.97	16.93	-53.04	6.97	7.34	20.61	

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SHR-60 514460 STD1 AWP Proj: 21001'

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REFERENCE WELLPATH IDENTIFICATION

Operator	EQT	Slot	Slot 514460
Area	Tyler County, WV	Well	SHR-60 514460 STD1
Field	Tyler	Wellbore	SHR-60 514460 STD1 AWB
Facility	SHR-60 Pad	Sidetrack from	SHR-60 514460 AWP Proj: 6657' at 4903.00 MD

WELLPATH DATA (341 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	TVDSS [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [ft/100ft]	Build Rate [ft/100ft]	Turn Rate [ft/100ft]	Comments
5276.00	17.840	328.110	5271.63	4244.63	-44.69	24.30	-58.02	8.51	7.39	14.71	
5307.00	18.030	328.820	5301.12	4274.12	-54.12	32.44	-63.01	0.93	0.61	2.29	
5339.00	17.990	327.180	5331.55	4304.55	-53.87	40.82	-68.25	1.60	-0.25	-5.12	
5370.00	18.310	325.150	5361.02	4334.02	-73.33	48.83	-73.62	2.35	1.16	-6.95	
5401.00	18.210	323.330	5390.45	4363.45	-82.78	58.71	-79.90	1.87	-0.32	-5.81	
5433.00	18.340	322.810	5420.84	4393.84	-92.50	64.73	-85.32	0.65	0.41	-1.62	
5465.00	18.370	322.670	5451.21	4424.21	-102.25	72.75	-91.43	0.17	0.09	-0.44	
5496.00	18.340	323.840	5480.64	4453.64	-111.71	80.57	-97.27	1.19	-0.10	3.77	
5528.00	18.360	325.540	5511.01	4484.01	-121.54	89.79	-103.09	1.67	0.06	5.31	
5559.00	18.380	328.100	5540.48	4513.43	-131.14	96.97	-108.43	2.60	0.06	8.29	
5591.00	18.390	328.470	5570.80	4543.80	-141.10	105.55	-113.74	0.36	0.00	1.16	
5623.00	18.290	328.040	5601.18	4574.18	-151.03	114.11	-119.03	0.56	-0.37	-1.34	
5654.00	18.300	327.140	5630.61	4603.61	-160.61	122.31	-124.24	0.92	0.13	-2.90	
5686.00	18.250	326.160	5661.00	4634.00	-170.46	130.70	-129.76	0.97	-0.16	-3.06	
5718.00	18.300	324.970	5691.08	4664.39	-180.30	138.93	-135.44	1.24	0.41	-3.72	
5749.00	18.190	323.430	5720.81	4693.81	-189.77	146.88	-141.13	1.67	-0.61	-4.97	
5781.00	17.920	322.000	5751.24	4724.24	-199.36	154.77	-147.14	1.62	-0.84	-4.47	
5810.00	17.730	320.820	5778.84	4751.84	-207.89	161.71	-152.67	1.41	-0.68	-4.07	
5843.00	18.450	320.150	5810.21	4783.21	-217.69	169.61	-159.20	2.27	2.18	-2.03	
5875.00	18.110	319.230	5840.60	4813.60	-227.28	177.28	-165.69	1.39	-1.06	-2.87	KOP 2=5875 MD
5907.00	14.990	315.740	5871.27	4844.27	-235.82	184.00	-171.83	10.23	-9.75	-10.91	
5938.00	11.410	308.270	5901.45	4874.45	-242.23	188.77	-177.03	12.77	-11.55	-24.10	
5970.00	8.640	296.490	5932.96	4905.96	-246.81	191.80	-181.67	10.73	-8.69	-36.81	
6001.00	6.660	280.400	5963.68	4936.68	-249.54	193.17	-185.52	9.35	-6.39	-51.80	
6033.00	5.210	260.190	5995.52	4968.52	-250.87	193.25	-188.78	7.68	-4.53	-63.45	
6064.00	5.090	230.640	6026.40	4999.40	-250.79	192.14	-191.23	8.47	-0.39	-95.32	
6096.00	6.760	214.380	6058.23	5031.23	-249.35	189.69	-193.39	7.35	5.22	-50.81	
6127.00	9.020	205.820	6088.93	5061.93	-246.74	185.99	-195.48	8.20	7.29	-27.61	
6159.00	10.390	200.180	6120.47	5093.47	-242.95	181.03	-197.57	5.21	4.29	-17.62	
6190.00	10.920	188.070	6150.94	5123.94	-238.37	176.49	-198.95	7.41	1.71	-35.06	

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REFERENCE WELLPATH IDENTIFICATION			
Operator	EQT	Slot	Slot 514460
Area	Tyler County, WV	Well	SHR-60 514460 ST01
Field	Tyler	Wellbore	SHR-60 514460 ST01 AWB
Facility	SHR-60 Pad	Sidetrack from	SHR-60 514460 AWP Proj: 6657' at 4903.00 MD

WELLPATH DATA (341 stations)											
MD	Inclination	Azimuth	TVD	TVSS	Vert Sect	North	East	DLS	Build Rate	Turn Rate	Comments
[m]	[°]	[°]	[m]	[m]	[m]	[m]	[m]	[°/100m]	[°/100m]	[°/100m]	
6222.00	12.030	175.530	6182.31	5155.31	-232.59	169.17	-199.11	8.51	3.47	-39.19	
6251.00	14.240	169.090	6210.55	5183.55	-226.22	162.65	-198.20	9.13	7.62	-22.27	
6283.00	16.740	166.880	6241.38	5214.38	-217.82	154.30	-196.41	8.03	7.89	-6.97	
6314.00	20.300	165.410	6270.77	5243.77	-208.09	144.74	-194.04	11.58	11.48	-4.68	
6348.00	24.154	163.890	6300.39	5273.39	-196.08	133.08	-190.82	12.71	12.03	-4.78	
6378.00	26.110	162.720	6329.12	5302.12	-182.06	119.58	-186.76	12.48	12.31	-3.63	
6409.00	31.890	161.030	6355.96	5328.96	-166.61	104.86	-181.93	12.49	12.15	-5.43	
6441.00	36.050	159.860	6382.49	5355.49	-148.76	88.02	-175.94	13.16	13.00	-3.66	
6472.00	40.400	159.150	6406.84	5379.84	-129.60	70.06	-169.22	14.10	14.03	-2.23	
6503.00	44.780	158.330	6429.66	5402.66	-108.63	50.52	-161.61	14.24	14.13	-2.89	
6535.00	49.050	157.350	6451.51	5424.51	-85.26	28.88	-152.79	13.53	13.34	-3.08	
6567.00	53.040	157.080	6471.62	5444.62	-60.38	5.94	-143.15	12.49	12.47	-0.84	
6599.00	57.130	156.970	6489.94	5462.94	-34.15	-18.21	-132.91	12.78	12.78	-0.34	
6630.00	61.240	156.940	6505.81	5478.81	-7.53	-42.70	-122.49	13.26	13.26	-0.10	
6662.00	64.890	157.170	6520.28	5483.28	21.00	-88.98	-111.37	11.74	11.74	0.74	
6694.00	68.250	157.210	6532.98	5505.98	50.37	-96.06	-99.98	10.19	10.19	0.13	
6725.00	69.110	157.440	6544.25	5517.25	79.25	-122.70	-88.85	2.86	2.77	0.74	
6757.00	69.080	157.650	6555.67	5528.67	109.14	-150.33	-77.43	0.62	-0.09	0.66	
6789.00	71.030	157.890	6566.58	5539.58	139.22	-176.17	-66.05	6.13	6.09	0.75	
6821.00	73.720	158.210	6576.27	5549.27	169.71	-206.48	-54.65	8.45	8.41	1.00	
6852.00	77.180	158.480	6584.06	5557.06	199.71	-234.34	-43.58	11.19	11.18	0.87	
6884.00	81.290	159.070	6590.03	5563.03	231.13	-263.64	-32.21	12.97	12.84	1.84	
6915.00	85.160	159.090	6593.69	5566.69	261.80	-292.39	-21.22	12.48	12.48	0.08	
6947.00	89.320	159.100	6595.23	5568.23	293.84	-322.24	-9.81	13.00	13.00	0.03	P-6947 MD / 6595 23' TVD
6978.00	90.180	158.540	6595.37	5568.37	324.83	-351.15	1.39	3.23	2.62	-1.81	
7011.00	89.820	157.120	6595.39	5568.39	387.83	-409.49	25.16	2.31	-0.52	-2.25	
7104.00	89.750	155.990	6595.63	5568.63	450.82	-467.28	50.22	1.80	-0.11	-1.78	
7167.00	89.630	155.380	6595.97	5568.97	513.79	-524.69	76.16	0.99	-0.16	-0.97	
7230.00	89.660	154.900	6596.36	5569.36	576.73	-581.86	102.65	0.76	0.04	-0.76	
7294.00	89.631	154.890	6596.75	5569.75	640.67	-639.61	128.80	0.05	-0.04	-0.02	

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REFERENCE WELLPATH IDENTIFICATION			
Operator	EQT	Slot	Slot 514460
Area	Tyler County, WV	Well	SHR-60 514460 ST01
Field	Tyler	Wellbore	SHR-60 514460 ST01 AWB
Facility	SHR-60 Pad	Sidetrack from	SHR-60 514460 AWP Proj: 6557' at 4903.00 MD

WELLPATH DATA (341 stations)											
MD	Inclination	Azimuth	TVD	TVDSS	Vert Sect	North	East	DLS	Build Rate	Turn Rate	Comments
[m]	[°]	[°]	[m]	[m]	[m]	[m]	[m]	[°/100m]	[°/100m]	[°/100m]	
7348.00	89.660	155.820	6597.09	5570.09	694.63	-688.89	152.32	1.72	0.00	1.72	
7411.00	89.660	157.230	6597.46	5570.46	757.62	-746.67	177.41	2.24	0.00	2.24	
7474.00	89.660	157.770	6597.84	5570.84	820.62	-804.87	201.52	0.86	0.00	0.86	
7538.00	89.660	157.650	6598.22	5571.22	884.62	-864.09	225.80	0.19	0.00	-0.19	
7601.00	89.660	158.000	6598.62	5571.62	947.62	-922.49	249.58	0.60	-0.10	0.60	
7665.00	89.850	158.290	6598.93	5571.93	1011.61	-981.63	273.40	0.60	0.39	0.45	
7728.00	90.220	158.450	6598.89	5571.89	1074.60	-1040.39	296.62	0.64	0.59	0.22	
7790.00	90.030	159.360	6598.76	5571.76	1136.58	-1098.24	318.94	1.50	-0.31	1.47	
7853.00	90.280	161.100	6598.59	5571.59	1199.50	-1157.52	340.25	2.79	0.40	2.76	
7916.00	90.180	160.740	6598.33	5571.33	1262.39	-1217.06	360.84	0.59	-0.16	-0.57	
7979.00	90.250	159.290	6598.10	5571.10	1325.32	-1276.26	382.37	2.30	0.11	-2.30	
8042.00	90.460	158.190	6597.71	5570.71	1388.30	-1334.97	405.21	1.78	0.33	-1.75	
8106.00	90.310	156.420	6597.28	5570.28	1452.30	-1394.02	429.90	2.78	-0.23	-2.77	
8168.00	90.180	155.330	6597.01	5570.01	1514.28	-1450.60	455.25	1.77	-0.21	-1.76	
8231.00	90.090	155.360	6596.84	5569.84	1577.23	-1507.66	481.63	0.15	-0.14	0.09	
8294.00	90.220	155.890	6596.69	5569.69	1640.20	-1565.24	507.53	0.87	0.21	0.84	
8357.00	90.150	156.160	6596.49	5569.49	1703.18	-1622.80	533.13	0.44	-0.11	0.43	
8420.00	90.090	158.010	6596.36	5569.36	1766.16	-1680.39	558.68	0.26	-0.10	-0.24	
8483.00	90.280	155.650	6596.15	5569.15	1829.14	-1737.87	584.46	0.65	0.30	-0.57	
8546.00	90.250	155.070	6595.86	5568.86	1892.09	-1795.13	610.72	0.92	-0.05	-0.92	
8609.00	90.180	153.960	6595.62	5568.62	1955.01	-1852.00	637.83	1.77	-0.11	-1.76	
8672.00	90.220	153.480	6595.40	5568.40	2017.88	-1908.49	665.72	0.76	0.08	-0.76	
8735.00	90.280	152.330	6595.13	5568.13	2080.68	-1964.57	694.42	1.83	0.10	-1.83	
8799.00	90.120	152.940	6594.91	5567.91	2144.45	-2021.41	723.84	0.99	-0.25	0.95	
8862.00	90.060	153.940	6594.81	5567.81	2207.29	-2077.78	752.01	1.69	-0.10	-1.69	
8925.00	90.080	155.190	6594.74	5567.74	2270.21	-2134.66	779.06	1.98	0.00	1.98	
8988.00	89.940	156.350	6594.74	5567.74	2333.18	-2192.10	804.92	1.85	-0.18	1.84	
9051.00	90.000	157.350	6594.77	5567.77	2396.18	-2250.03	829.68	1.59	0.10	1.59	
9114.00	90.090	157.890	6594.73	5567.73	2459.18	-2308.29	853.67	0.67	0.14	0.86	
9177.00	90.150	157.270	6594.59	5567.59	2522.18	-2366.52	877.70	0.99	0.10	-0.98	

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REFERENCE WELLPATH IDENTIFICATION			
Operator	EQT	Slot	Slot 514460
Area	Tyler County, WV	Well	SHR-60 514460 ST01
Field	Tyler	Wellbore	SHR-60 514460 ST01 AWB
Facility	SHR-60 Pad	Sidetrack from	SHR-60 514460 AWP Proj: 6657' at 4903.00 MD

WELLPATH DATA (341 stations)											
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	TVDSS [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]	Comments
9240.00	90.120	156.780	6594.44	5567.44	2565.18	-2424.53	902.29	0.78	-0.09	-0.78	
9304.00	90.090	156.590	6594.33	5567.33	2649.17	-2483.30	927.63	0.32	-0.05	-0.31	
9366.00	89.940	156.640	6594.31	5567.31	2711.16	-2540.20	952.24	0.26	-0.24	0.16	
9429.00	90.120	157.740	6594.28	5567.28	2774.16	-2598.27	976.66	1.77	0.25	1.75	
9492.00	90.090	158.460	6594.18	5567.18	2837.16	-2656.73	1000.18	1.14	-0.05	-1.14	
9555.00	90.090	159.070	6594.06	5567.06	2900.14	-2715.45	1022.98	0.97	0.00	0.97	
9618.00	90.090	158.930	6593.96	5566.96	2963.12	-2774.26	1045.55	0.22	0.00	-0.22	
9681.00	90.120	158.040	6593.85	5566.85	3026.11	-2832.87	1068.66	1.41	0.03	-1.41	
9744.00	90.090	158.370	6593.73	5566.73	3089.10	-2891.37	1092.05	0.53	-0.03	0.52	
9807.00	90.034	158.954	6593.67	5566.67	3152.09	-2950.55	1114.97	0.94	-0.10	0.94	
9870.00	90.150	159.480	6593.57	5566.57	3215.06	-3008.95	1137.32	0.85	0.13	0.83	
9933.00	90.120	158.620	6593.42	5566.42	3278.03	-3067.79	1159.85	1.37	-0.09	-1.37	
9996.00	90.180	157.200	6593.26	5566.26	3341.03	-3126.16	1183.54	2.26	0.10	-2.25	
10059.00	90.090	155.530	6593.11	5566.11	3404.01	-3183.88	1208.60	2.65	-0.14	-2.65	
10122.00	90.060	154.790	6593.02	5566.02	3468.96	-3241.04	1235.28	1.24	0.04	-1.24	
10185.00	89.970	156.060	6593.01	5566.01	3529.92	-3298.32	1261.50	2.08	-0.14	-2.08	
10248.00	90.090	157.030	6592.98	5565.98	3592.91	-3356.11	1286.58	1.55	0.19	1.54	
10311.00	90.060	157.210	6592.89	5565.89	3655.91	-3414.16	1311.07	0.29	-0.03	0.29	
10375.00	90.030	158.560	6592.84	5565.84	3719.91	-3473.45	1335.16	2.11	-0.03	2.11	
10438.00	90.120	160.150	6592.76	5565.76	3782.87	-3532.40	1357.38	2.63	0.14	2.62	
10501.00	90.150	159.100	6592.61	5565.61	3845.82	-3591.46	1379.31	1.67	0.09	-1.67	
10564.00	90.520	155.990	6592.24	5565.24	3908.82	-3649.67	1403.37	4.97	0.58	-4.94	
10628.00	90.180	153.950	6591.85	5564.85	3972.75	-3707.66	1430.45	3.23	-0.53	-3.19	
10690.00	89.970	153.060	6591.77	5564.77	4034.60	-3763.15	1458.10	1.47	-0.34	-1.44	
10753.00	90.090	164.080	6591.74	5564.74	4097.48	-3819.56	1488.16	1.63	0.19	1.62	
10818.00	90.080	154.310	6591.65	5564.65	4162.35	-3878.08	1514.44	0.36	-0.09	0.35	
10879.00	90.090	155.730	6591.57	5564.57	4223.30	-3933.37	1540.20	2.33	0.09	2.33	
10941.00	90.090	157.160	6591.52	5564.52	4285.29	-3990.20	1564.98	2.31	-0.13	2.31	
11004.00	90.060	158.470	6591.49	5564.49	4348.28	-4048.54	1588.76	2.08	0.10	2.08	
11067.00	90.060	158.350	6591.43	5564.43	4411.26	-4107.32	1611.49	1.40	0.04	1.40	

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Actual Wellpath Report

SHR-60 514460 ST01 AWP Proj: 21001'

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REFERENCE WELLPATH IDENTIFICATION

Operator	EQT	Slot	Slot 514460
Area	Tyler County, WV	Well	SHR-60 514460 ST01
Field	Tyler	Wellbore	SHR-60 514460 ST01 AWB
Facility	SHR-60 Pad	Sidetrack from	SHR-60 514460 AWP Proj: 6657' at 4903.00 MD

WELLPATH DATA (341 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	TVDSS [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [ft/100ft]	Build Rate [ft/100ft]	Turn Rate [ft/100ft]	Comments
11130.00	90.150	158.700	6591.31	5564.31	4474.24	-4166.14	1633.99	1.04	0.14	-1.03	
11194.00	90.260	159.470	6591.07	5564.07	4538.21	-4225.92	1656.63	1.22	0.20	-1.20	
11257.00	90.520	158.150	6590.63	5563.63	4601.19	-4264.66	1679.60	2.13	0.38	-2.10	
11320.00	90.180	155.650	6590.25	5563.25	4664.16	-4342.61	1704.32	4.60	-0.54	-3.97	
11383.00	89.910	153.070	6590.20	5563.20	4727.14	-4399.67	1730.58	1.02	-0.45	-2.52	
11446.00	89.750	155.150	6590.38	5563.38	4790.09	-4457.02	1757.10	0.28	-0.25	0.13	
11509.00	89.850	155.760	6590.60	5563.60	4853.05	-4514.32	1783.27	0.98	0.16	0.67	
11573.00	89.850	155.990	6590.77	5563.77	4917.02	-4572.73	1809.43	0.38	0.00	0.38	
11635.00	89.850	156.080	6590.93	5563.93	4979.00	-4629.39	1834.61	0.15	0.00	0.15	
11698.00	89.720	157.500	6591.17	5564.17	5042.00	-4687.29	1859.44	2.26	-0.21	2.26	
11762.00	89.820	159.790	6591.43	5564.43	5105.98	-4746.89	1882.74	3.58	0.10	3.58	
11826.00	89.780	161.890	6591.65	5564.65	5168.87	-4807.30	1903.65	2.97	-0.04	2.97	
11889.00	89.600	160.990	6591.99	5564.99	5232.72	-4866.99	1924.01	1.15	-0.23	-1.11	
11952.00	89.720	158.990	6592.36	5565.36	5295.65	-4926.18	1945.57	3.20	0.18	-3.19	
12015.00	89.540	156.900	6592.77	5565.77	5358.65	-4984.56	1969.23	3.31	-0.28	-3.30	
12078.00	89.860	157.080	6593.21	5566.21	5421.65	-5042.55	1993.85	0.34	0.19	0.29	
12141.00	89.690	157.270	6593.57	5566.57	5484.64	-5100.62	2018.29	0.31	0.05	0.30	
12205.00	89.690	156.150	6593.91	5566.91	5548.64	-5159.40	2043.60	1.75	0.00	-1.75	
12269.00	89.780	154.780	6594.21	5567.21	5612.60	-5217.62	2070.17	2.15	0.14	-2.14	
12332.00	89.750	154.660	6594.47	5567.47	5675.52	-5274.66	2097.12	0.35	-0.04	-0.36	
12395.00	89.450	154.620	6594.91	5567.91	5738.44	-5331.47	2124.16	0.49	-0.46	0.10	
12458.00	89.420	155.080	6595.53	5568.53	5801.37	-5388.49	2150.93	0.73	-0.05	0.73	
12521.00	89.380	155.110	6596.19	5569.19	5864.32	-5445.63	2177.46	0.08	-0.08	0.09	
12585.00	89.480	156.120	6596.83	5569.83	5928.28	-5503.92	2203.88	1.59	0.16	1.58	
12649.00	89.510	157.990	6597.38	5570.38	5992.27	-5562.85	2228.83	2.92	0.05	2.92	
12713.00	89.540	158.660	6597.92	5570.92	6056.26	-5622.32	2252.47	1.05	0.05	1.05	
12776.00	89.570	157.000	6598.41	5571.41	6119.26	-5680.66	2276.24	2.64	0.05	-2.63	
12839.00	89.350	157.700	6599.00	5572.00	6182.25	-5738.60	2300.50	1.16	-0.39	1.11	
12902.00	89.510	159.520	6599.63	5572.63	6245.24	-5797.45	2323.47	2.90	0.23	2.86	
12966.00	89.510	159.160	6600.16	5573.16	6309.20	-5857.33	2346.06	0.56	0.00	-0.56	

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REFERENCE WELLPATH IDENTIFICATION

Operator	EQT	Slot	Slot 514460
Area	Tyler County, WV	Well	SHR-60 514460 ST01
Field	Tyler	Wellbore	SHR-60 514460 ST01 AWB
Facility	SHR-60 Pad	Sidetrack from	SHR-60 514460 AWP Proj: 6657' at 4903.00 MD

WELLPATH DATA (341 stations)

MD (ft)	Inclination (°)	Azimuth (°)	TVD (ft)	TVDSS (ft)	Vert Sect (ft)	North (ft)	East (ft)	DLS (%/100ft)	Build Rate (%/100ft)	Turn Rate (%/100ft)	Comments
13029.00	89.600	157.560	6600.67	5573.67	6372.19	-5915.89	2369.28	2.54	0.14	-2.54	
13092.00	89.480	156.530	6601.17	5574.17	6435.18	-5973.90	2393.85	1.65	-0.19	-1.63	
13156.00	89.450	155.970	6601.77	5574.77	6499.16	-6032.47	2419.63	0.88	-0.05	-0.88	
13219.00	89.510	155.670	6602.34	5575.34	6562.14	-6089.94	2445.43	0.49	0.10	-0.48	
13282.00	89.540	155.670	6602.85	5575.85	6625.10	-6147.33	2471.33	0.05	0.08	0.00	
13346.00	89.510	153.470	6603.40	5576.40	6689.02	-6205.14	2498.87	3.44	-0.05	-3.44	
13409.00	89.350	152.300	6604.01	5577.01	6750.82	-6260.32	2527.12	1.80	-0.20	-1.68	
13472.00	89.420	154.570	6604.70	5577.70	6814.65	-6317.56	2555.74	3.55	0.11	3.55	
13535.00	89.420	156.300	6605.34	5578.34	6877.61	-6374.85	2581.93	2.75	0.00	2.75	
13598.00	89.420	157.050	6605.97	5578.97	6940.60	-6432.70	2608.87	1.18	0.00	-1.18	
13662.00	89.510	157.040	6606.57	5579.57	7004.59	-6491.63	2631.83	0.14	0.14	-0.00	
13724.00	89.510	156.840	6607.10	5580.10	7068.59	-6548.67	2656.11	0.32	0.00	-0.32	
13788.00	89.720	157.490	6607.53	5580.53	7130.59	-6607.85	2680.96	1.05	0.33	1.00	
13851.00	89.860	158.150	6607.87	5580.87	7193.58	-6665.99	2704.74	1.07	-0.10	1.00	
13914.00	89.830	159.500	6608.26	5581.26	7256.58	-6724.73	2727.50	2.14	-0.05	2.14	
13978.00	89.890	161.020	6608.64	5581.64	7320.48	-6784.97	2749.12	2.38	0.05	2.38	
14041.00	89.850	160.200	6608.90	5581.90	7383.39	-6844.39	2770.03	1.33	0.25	-1.30	
14103.00	89.750	159.360	6609.11	5582.11	7445.35	-6902.38	2791.97	2.97	-0.16	-2.97	
14167.00	89.780	157.030	6609.39	5582.39	7509.35	-6961.59	2816.25	2.08	0.05	-2.08	
14230.00	89.850	158.250	6609.65	5582.65	7572.34	-7018.48	2841.23	1.23	0.11	-1.23	
14293.00	89.750	155.700	6609.80	5582.80	7635.32	-7076.97	2866.87	0.90	-0.16	-0.89	
14357.00	89.720	153.550	6610.09	5583.09	7699.29	-7135.27	2893.29	0.24	-0.05	-0.23	
14421.00	89.750	155.760	6610.39	5583.39	7763.25	-7193.57	2919.67	0.33	0.05	0.33	
14484.00	89.820	155.630	6610.63	5583.63	7826.22	-7250.99	2945.60	0.23	0.11	-0.21	
14547.00	89.860	156.640	6610.79	5583.79	7889.21	-7308.60	2971.09	1.61	0.10	-1.60	
14610.00	90.000	157.300	6610.88	5583.88	7952.20	-7366.58	2995.73	1.06	0.15	1.05	
14674.00	89.940	159.460	6610.89	5583.89	8016.20	-7425.87	3019.83	1.81	-0.05	1.81	
14738.00	89.970	159.860	6610.94	5583.94	8080.19	-7485.48	3043.12	0.63	0.05	0.63	
14801.00	90.220	158.680	6610.84	5583.84	8143.17	-7544.21	3065.94	0.49	0.40	-0.29	
14864.00	90.030	158.700	6610.70	5583.70	8206.15	-7602.80	3088.83	0.30	-0.30	0.00	

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REFERENCE WELLPATH IDENTIFICATION			
Operator	EQT	Slot	Slot 514460
Area	Tyler County, WV	Well	SHR-60 514460 ST01
Field	Tyler	Wellbore	SHR-60 514460 ST01 AWB
Facility	SHR-60 Pad	Sidetrack from	SHR-60 514460 AWP Proj: 6557' at 4903.00 MD

WELLPATH DATA (341 stations)												
MD [m]	Inclination [°]	Azimuth [°]	TVD [m]	TVDSS [m]	Vert Sect [m]	North [m]	East [m]	DLS [°/100m]	Build Rate [°/100m]	Turn Rate [°/100m]	Comments	
14927.00	89.940	158.150	6610.72	5583.72	8269.15	-7661.48	3112.00	0.89	-0.14	-0.87		
14991.00	89.970	158.370	6610.77	5583.77	8333.14	-7720.93	3135.70	0.35	0.09	0.34		
15054.00	89.970	158.260	6610.78	5583.78	8396.13	-7779.47	3158.98	0.18	0.09	-0.17		
15117.00	89.970	158.890	6610.75	5583.75	8459.13	-7837.71	3183.01	2.18	0.10	-2.17		
15180.00	89.970	158.150	6610.87	5583.87	8522.12	-7895.49	3208.11	1.18	0.09	-1.17		
15243.00	89.970	158.070	6610.63	5583.63	8585.10	-7953.09	3233.63	0.23	-0.19	-0.13		
15307.00	89.940	155.430	6610.69	5583.69	8649.08	-8011.46	3259.88	0.91	-0.09	-0.91		
15370.00	89.910	154.790	6610.77	5583.77	8712.03	-8069.62	3286.37	1.11	-0.09	-1.11		
15433.00	89.940	153.720	6610.85	5583.85	8774.93	-8125.37	3313.73	1.70	0.09	-1.70		
15497.00	89.940	153.470	6610.92	5583.92	8838.78	-8182.68	3342.19	0.30	0.00	-0.30		
15560.00	89.970	153.270	6610.95	5583.95	8901.62	-8239.01	3370.43	0.33	0.10	-0.33		
15623.00	89.970	154.420	6610.93	5583.93	8964.50	-8295.56	3398.20	1.83	0.09	1.83		
15686.00	89.970	155.770	6610.93	5583.93	9027.44	-8352.70	3424.73	2.14	-0.10	2.14		
15750.00	89.910	156.440	6611.00	5584.00	9091.42	-8411.21	3450.66	1.05	-0.09	1.05		
15813.00	89.910	157.090	6611.10	5584.10	9154.42	-8469.10	3475.51	1.03	0.00	1.03		
15876.00	89.660	158.030	6611.34	5584.34	9217.42	-8527.33	3499.56	1.54	-0.40	1.49		
15939.00	89.690	158.270	6611.69	5584.69	9280.41	-8585.80	3523.00	0.38	0.09	0.38		
16002.00	89.720	158.530	6612.02	5585.02	9343.40	-8644.38	3546.20	0.42	0.09	0.41		
16065.00	89.690	159.710	6612.35	5585.35	9407.37	-8704.17	3569.01	1.84	-0.09	1.84		
16129.00	89.750	160.190	6612.68	5585.68	9470.31	-8763.35	3590.61	0.75	0.10	0.75		
16192.00	89.690	159.710	6612.96	5585.96	9533.25	-8822.53	3612.21	0.75	-0.10	-0.75		
16255.00	89.690	159.230	6613.30	5586.30	9596.21	-8881.53	3634.31	0.76	0.00	-0.76		
16318.00	89.750	158.540	6613.61	5586.61	9659.19	-8940.30	3657.00	1.10	0.10	-1.10		
16381.00	89.630	157.370	6613.95	5586.95	9722.19	-8998.69	3680.65	1.87	-0.19	-1.86		
16445.00	89.820	157.010	6614.28	5587.28	9785.18	-9057.69	3705.46	0.64	0.10	-0.64		
16508.00	89.690	157.470	6614.53	5587.53	9849.18	-9115.78	3729.83	0.76	-0.21	0.73		
16572.00	89.780	156.210	6614.83	5587.83	9913.18	-9174.62	3755.00	1.97	0.14	-1.97		
16635.00	89.780	154.960	6615.07	5588.07	9976.14	-9231.98	3781.04	1.98	0.00	-1.98		
16698.00	89.690	154.840	6615.36	5588.36	10039.08	-9289.03	3807.76	0.24	-0.14	-0.19		
16761.00	89.750	155.190	6615.67	5588.67	10102.02	-9346.13	3834.28	0.55	0.10	0.54		

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REFERENCE WELLPATH IDENTIFICATION

Operator	EQT	Slot	Slot 514460
Area	Tyler County, WV	Well	SHR-60 514460 ST01
Field	Tyler	Wellbore	SHR-60 514460 ST01 AWB
Facility	SHR-60 Pad	Sidetrack from	SHR-60 514460 AWP Proj: 6657' at 4903.00 MD

WELLPATH DATA (341 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	TVDSS [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]	Comments
16824.00	89.750	154.820	6615.94	5586.94	10164.96	-9403.23	3861.00	0.57	0.00	-0.57	
16887.00	89.750	153.950	6616.22	5589.22	10227.87	-9460.04	3888.24	1.38	0.00	-1.38	
16951.00	89.660	152.700	6616.55	5589.55	10291.70	-9517.22	3916.97	1.96	-0.14	-1.95	
17015.00	89.600	151.260	6616.96	5589.96	10355.41	-9573.72	3947.03	2.25	-0.09	-2.25	
17078.00	89.720	150.040	6617.33	5590.33	10417.96	-9628.63	3977.81	1.96	0.19	-1.94	
17141.00	89.420	152.990	6617.61	5590.61	10480.62	-9684.00	4007.95	4.71	-0.48	4.68	
17204.00	89.780	157.310	6618.25	5591.25	10543.55	-9741.15	4034.42	6.88	0.57	6.88	
17267.00	89.660	157.710	6618.55	5591.55	10606.55	-9799.36	4058.52	0.66	-0.15	0.63	
17330.00	89.630	156.370	6618.94	5591.94	10669.54	-9857.36	4083.10	2.13	-0.09	-2.13	
17394.00	89.660	155.660	6619.34	5592.34	10733.62	-9915.83	4109.11	1.11	0.09	-1.11	
17458.00	89.570	156.150	6619.77	5592.77	10797.50	-9974.26	4135.24	0.78	-0.14	0.77	
17521.00	89.593	157.420	6620.18	5593.18	10860.49	-10032.15	4160.07	2.02	0.19	2.02	
17584.00	89.690	158.860	6620.52	5593.52	10923.48	-10090.62	4183.53	2.29	0.00	2.29	
17647.00	89.720	159.120	6620.84	5593.84	10986.46	-10149.43	4206.11	0.42	0.05	0.41	
17710.00	89.720	158.870	6621.16	5594.16	11050.44	-10209.18	4228.66	0.39	0.00	-0.39	
17775.00	89.530	159.690	6621.52	5594.52	11114.40	-10269.04	4251.70	1.29	-0.14	1.28	
17838.00	89.680	161.580	6621.89	5594.89	11177.30	-10328.47	4272.59	3.00	0.10	3.00	
17901.00	89.690	159.590	6622.23	5595.23	11240.20	-10387.88	4293.53	3.16	0.00	-3.16	
17965.00	89.750	158.610	6622.55	5595.55	11304.19	-10447.26	4317.40	4.66	0.09	-4.66	
18029.00	89.630	155.360	6622.89	5595.89	11368.17	-10505.72	4343.44	1.96	-0.19	1.95	
18092.00	89.690	154.680	6623.27	5596.27	11431.11	-10562.82	4370.05	1.08	0.10	-1.08	
18155.00	89.750	154.810	6623.57	5596.57	11494.03	-10619.75	4397.02	0.15	0.10	-0.11	
18219.00	89.720	158.670	6623.87	5596.87	11558.01	-10676.49	4422.39	6.34	-0.05	6.34	
18282.00	89.780	164.090	6624.15	5597.15	11620.84	-10738.17	4442.50	8.60	0.10	8.60	
18345.00	89.820	166.090	6624.37	5597.37	11683.28	-10799.05	4458.71	3.18	0.06	3.17	
18409.00	90.180	170.670	6624.37	5597.37	11745.10	-10861.72	4471.60	7.18	0.58	7.16	
18440.00	90.460	173.150	6624.19	5597.19	11776.11	-10892.41	4475.96	8.05	0.90	8.00	
18472.00	90.740	171.610	6623.86	5596.86	11807.03	-10924.12	4480.20	4.89	0.68	-4.81	
18504.00	89.880	168.170	6623.68	5596.68	11838.28	-10955.62	4485.82	11.08	-2.69	-10.75	
18536.00	89.660	164.180	6623.61	5596.61	11869.60	-10986.69	4493.46	12.40	-0.64	-12.47	

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Actual Wellpath Report

SHR-60 514460 ST01 AWP Proj: 21001'

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REFERENCE WELLPATH IDENTIFICATION

Operator	EQT	Slot	Slot 514460
Area	Tyler County, WV	Well	SHR-60 514460 ST01
Field	Tyler	Wellbore	SHR-60 514460 ST01 AWB
Facility	SHR-60 Pad	Sidetrack from	SHR-60 514460 AWP Proj: 6657' at 4803.00 MD

WELLPATH DATA (341 stations)

MD [m]	Inclination [°]	Azimuth [°]	TVD [m]	TVDSS [m]	Vert Sect [m]	North [m]	East [m]	DLS [°/100m]	Build Rate [°/100m]	Turn Rate [°/100m]	Comments
18567.00	90.180	159.870	6623.88	5596.88	11900.79	-11016.17	4503.03	14.00	1.68	-13.90	
18598.00	90.580	156.280	6623.65	5596.65	11931.78	-11044.92	4514.60	11.65	1.29	-11.58	
18661.00	90.460	153.420	6623.08	5596.08	11994.71	-11101.94	4541.37	4.54	-0.19	-4.54	
18725.00	90.430	153.820	6622.58	5595.58	12058.57	-11159.27	4569.81	0.63	-0.05	0.63	
18788.00	90.220	153.010	6622.22	5595.22	12121.41	-11215.61	4598.00	1.33	-0.32	-1.32	
18851.00	90.490	153.210	6621.83	5594.83	12184.23	-11271.80	4626.49	0.53	0.43	0.32	
18915.00	90.370	152.350	6621.35	5594.35	12248.01	-11328.71	4655.77	1.36	-0.19	-1.34	
18978.00	90.090	152.520	6621.15	5594.15	12310.77	-11384.55	4684.92	0.65	-0.59	0.27	
19042.00	89.570	153.460	6621.39	5594.39	12374.57	-11441.57	4713.99	1.62	-0.67	1.47	
19105.00	89.570	154.170	6621.86	5594.86	12437.44	-11498.11	4741.78	1.19	0.03	1.13	
19169.00	90.060	153.510	6622.07	5595.07	12501.32	-11555.55	4770.00	1.28	0.77	-1.93	
19232.00	90.150	153.560	6621.95	5594.95	12564.17	-11611.95	4799.08	0.16	0.14	0.08	
19296.00	90.060	153.620	6621.84	5594.84	12628.02	-11669.27	4826.54	0.17	-0.14	0.09	
19359.00	90.090	153.640	6621.75	5594.75	12690.88	-11725.71	4854.53	0.06	0.05	0.03	
19423.00	90.120	154.200	6621.84	5594.84	12754.76	-11783.19	4882.66	0.89	0.09	0.87	
19486.00	89.880	154.930	6621.64	5594.64	12818.68	-11840.09	4909.72	1.22	-0.38	1.16	
19550.00	89.600	155.840	6621.93	5594.93	12881.64	-11898.27	4936.38	1.49	-0.44	1.42	
19613.00	89.570	156.880	6622.38	5595.38	12944.63	-11955.98	4961.64	1.65	-0.05	1.65	
19675.00	89.480	156.620	6622.90	5595.90	13006.62	-12012.94	4986.11	0.44	-0.15	-0.42	
19738.00	89.630	156.610	6623.38	5596.38	13068.61	-12070.77	5011.11	0.24	0.24	-0.62	
19802.00	89.630	156.780	6623.80	5596.80	13133.60	-12129.55	5036.43	0.27	0.00	0.27	
19866.00	89.630	157.500	6624.21	5597.21	13197.60	-12188.52	5061.30	1.12	0.00	1.12	
19929.00	89.720	158.380	6624.57	5597.57	13260.60	-12246.90	5084.96	1.40	0.14	1.40	
19992.00	89.720	159.210	6624.88	5597.88	13323.58	-12305.64	5107.74	1.32	0.00	1.32	
20056.00	89.600	159.760	6625.26	5598.26	13387.54	-12365.58	5130.17	0.88	-0.19	0.88	
20119.00	89.510	159.500	6625.75	5598.75	13450.49	-12424.63	5152.10	0.44	-0.14	-0.41	
20182.00	89.510	159.070	6626.29	5599.29	13513.45	-12483.66	5174.38	0.68	0.00	-0.68	
20246.00	89.720	158.450	6626.72	5599.72	13577.44	-12543.21	5197.57	1.02	0.33	-0.97	
20309.00	89.570	158.170	6627.11	5600.11	13640.43	-12601.75	5220.85	0.50	-0.24	-0.44	
20373.00	89.540	158.000	6627.60	5600.60	13704.42	-12661.12	5244.74	0.27	-0.05	-0.27	

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REFERENCE WELLPATH IDENTIFICATION			
Operator	EQT	Slot	Slot 514460
Area	Tyler County, WV	Well	SHR-60 514460 ST01
Field	Tyler	Wellbore	SHR-60 514460 ST01 AWB
Facility	SHR-60 Pad	Sidetrack from	SHR-60 514460 AWP Proj: 6657' at 4903.00 MD

WELLPATH DATA (341 stations)												
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	TVDSS [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]	Comments	
20436.00	89.600	157.070	6628.08	5601.08	13767.42	12719.53	5266.35	0.11	0.10	-0.05		
20500.00	89.530	157.510	6628.51	5601.51	13831.41	12778.76	5292.60	0.72	0.05	-0.72		
20564.00	89.450	157.080	6629.02	5602.02	13895.41	12837.79	5317.30	0.73	-0.28	-0.67		
20627.00	89.600	157.010	6629.54	5602.54	13958.41	12895.80	5341.87	0.26	0.24	-0.11		
20693.00	89.510	156.560	6630.03	5603.03	14021.40	12953.70	5366.70	-0.73	-0.14	-0.71		
20754.00	89.510	156.090	6630.58	5603.58	14085.39	13012.31	5392.40	0.73	0.00	-0.73		
20818.00	89.510	156.120	6631.13	5604.13	14149.37	13070.82	5418.32	0.05	0.00	0.05		
20881.00	89.540	155.940	6631.65	5604.65	14212.35	13128.39	5443.92	0.29	0.05	-0.29		
20945.00	89.570	156.200	6632.15	5605.15	14276.32	13186.89	5469.87	0.41	0.05	0.41		
20971.00	89.660	156.600	6632.32	5605.32	14302.32	13210.71	5480.20	1.58	0.35	1.54	Line Survey=20871' MD / 6632.32' TVD	
21001.00	89.660	156.600	6632.50	5605.50	14332.32	13238.24	5492.20	0.00	0.00	0.00	Projection to TD=21001' MD / 6632.50' TVD, Deepest Point of Well=21001' MD / 6632.50' TVD	

HOLE & CASING SECTIONS - Ref Wellbore: SHR-60 514460 ST01 AWB Ref Wellpath: SHR-60 514460 ST01 AWP Proj: 21001'									
String/Diameter	Start MD [ft]	End MD [ft]	Interval [ft]	Start TVD [ft]	End TVD [ft]	Start N/S [ft]	Start EW [ft]	End N/S [ft]	End EW [ft]
26in Conductor	16.00	63.00	47.00	16.00	63.00	0.00	0.00	-0.06	0.03
17.5in Open Hole	63.00	1000.00	937.00	63.00	999.99	-0.08	0.03	-1.62	0.57
13.375in Casing Surface	16.00	1000.00	984.00	16.00	999.99	0.00	0.00	-1.62	0.57
12.25in Open Hole	1000.00	2781.00	1781.00	999.99	2780.87	-1.62	0.57	11.82	-13.63
9.625in Casing Intermediate	16.00	2781.00	2765.00	16.00	2780.87	0.00	0.00	11.82	-13.63
8.75in Open Hole	2781.00	4903.00	2122.00	2780.87	4902.73	11.82	-13.63	-1.17	-28.92
8.5in Open Hole	4903.00	21001.00	16098.00	4902.73	6632.50	-1.17	-28.92	-13238.24	5492.20
5.5in Casing Production	16.00	21001.00	20985.00	16.00	6632.50	0.00	0.00	-13238.24	5492.20

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REFERENCE WELLPATH IDENTIFICATION			
Operator	EQT	Slot	Slot 514460
Area	Tyler County, WV	Well	SHR-60 514460 ST01
Field	Tyler	Wellbore	SHR-60 514460 ST01 AWB
Facility	SHR-60 Pad	Sidetrack from	SHR-60 514460 AWP Proj: 6657' at 4903.00 MD

TARGETS								
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
SHR-60 514460 LP Rev-2	6587.96	-342.08	0.31	1629438.93	328240.15	39°23'37.638"N	80°48'40.397"W	point
SHR-60 514460 BHL Rev-2	6605.43	-13231.40	5495.22	1634933.65	316351.52	39°21'31.046"N	80°47'28.054"W	point
SHR-60 HL1 Rev-1	7000.00	0.00	0.00	1629438.62	328582.21	39°23'41.019"N	80°48'40.465"W	polygon
SHR-60 HL2 Rev-1	7000.00	0.00	0.00	1629438.62	328582.21	39°23'41.019"N	80°48'40.465"W	polygon
SHR-60 HL3 Rev-1	7000.00	0.00	0.00	1629438.62	328582.21	39°23'41.019"N	80°48'40.465"W	polygon

WELLPATH COMPOSITION - Ref Wellbore: SHR-60 514460 ST01 AWB Ref Wellpath: SHR-60 514460 ST01 AWP Proj: 21001'					
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore	
16.00	4903.00	VESSI GyroFlex v4	01_VES Gyro <8-3/4"> (103-6603)	SHR-60 514460 AWB	
4903.00	20971.00	BHI AutoTrak Curve (Short)	02_BHI AT Curve <8-1/2"> (4903)(4993-20971)	SHR-60 514460 ST01 AWB	
20971.00	21001.00	Blind Drilling (std)	Projection to bit	SHR-60 514460 ST01 AWB	

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REFERENCE WELLPATH IDENTIFICATION

Operator	EQT	Slot	Slot 514460
Area	Tyler County, WV	Well	SHR-60 514460 ST01
Field	Tyler	Wellbore	SHR-60 514460 ST01 AWP
Facility	SHR-60 Pad	Sidetrack from	SHR-60 514460 AWP Proj: 6657' at 4903.00 MD

WELLPATH COMMENTS

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
103.00	0.390	157.800	103.00	VES Gyro <8-3/4"> (103'-6603')
4903.00	0.940	202.640	4902.73	Gyro Tie In=4903' MD
4993.00	0.890	197.450	4992.72	KOP 1=4993' MD
5875.00	18.110	319.230	5840.60	KOP 2=5875' MD
6947.00	89.320	159.100	6595.23	LP=6947' MD / 6595.23' TVD
20971.00	89.660	156.600	6632.32	Final Survey=20971' MD / 6632.32' TVD
21001.00	89.660	156.600	6632.50	Projection to TD=21001' MD / 6632.50' TVD, Deepest Point of Well=21001' MD / 6632.50' TVD

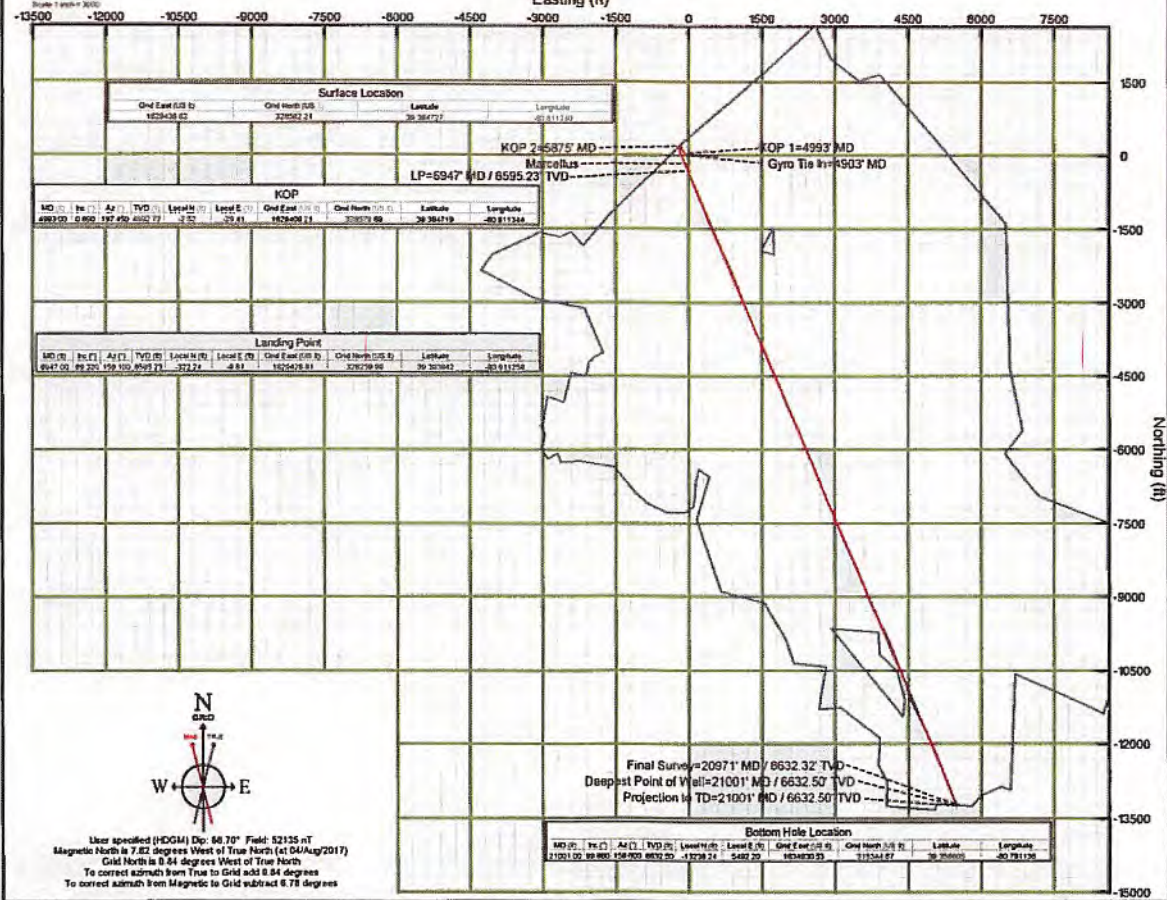
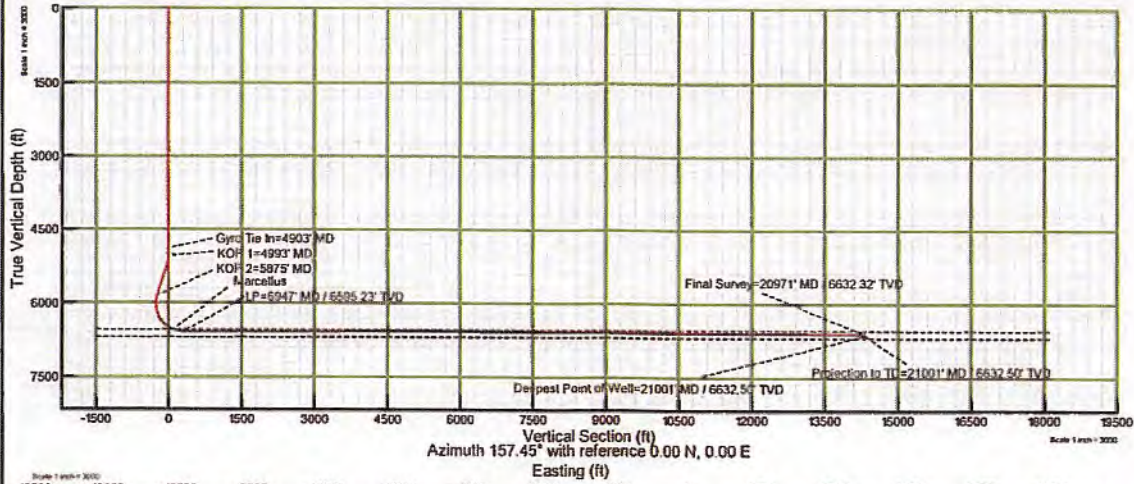
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Project: Tyler County, WV
Site: SHR-60
Well: SHR-60 514461
Wellbore: ST01
Design: As-Drilled Surveys

KB Elevation=1027 FT
Ground Elevation=1011 FT
All measurements were taken from KB Elevation



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514460 SHR 60 – Plug Back – Revised Plan 1

Well No: 514460 SHR 60
State: West Virginia
County: Tyler

Well Status:

Well Currently shut In. No frac stages completed. Toe popper opening has not been attempted. Made two attempts to back off 5-1/2 casing at 6200 ft and screw back into with DV tool above back off point for re-cementing of the casing. Unable to get connection at screw-in point to pressure test.

Float collar at – 20,959 ftKB
Team toe sub at – 20,925 ftKB
KB – 16 ft

Max TVD – 6,633 ftKB
KOP – 5,087 ftKB

Top of Marcellus Formation – 6578 Ft TVD — 6830 Ft MD

Halliburton DV Tool set at 6153 ftKB
Screw in and suspected leak point at 6244 ftKB

Two Halliburton Obsidian Bridge Plugs Set at 6450 ftKB and 6500 ftKB

Fluid in hole:

- 8.3# water below Bridge Plug at 6500 ftKB
- 13.3# Synthetic Oil Base Mud above the Bridge Plug at 6450 ftKB

Objective:

Plug well back

- Planned sidetrack depth is 6750 ft

Steps:

- Move in Workover Rig and WL unit
- NU BOP and test
- Drill out DV tool at 6153 ftKB and the two composite bridge plugs at 6,500' and 6,450'.
- Set one new bridge plug at 6820 ftKB (Revised Plan)
- Cut 5-1/2 casing at 6700 ft
- Pull 5-1/2 casing from well
- Make clean out run with 8-1/2 Bit to top of the cut off 5-1/2 casing
- RIH with open ended with 2-7/8 tubing to 10 ft above the cut off 5-1/2 casing
- Set three 400 ft cement plugs
 - Plug one from 6700 – 6300 ftKB
 - Plug two from 6300 – 5900 ftKB
 - Plug three from 5900 – 5500 ftKB
- Trip 2-7/8 tubing from well
- RDMO work over rig

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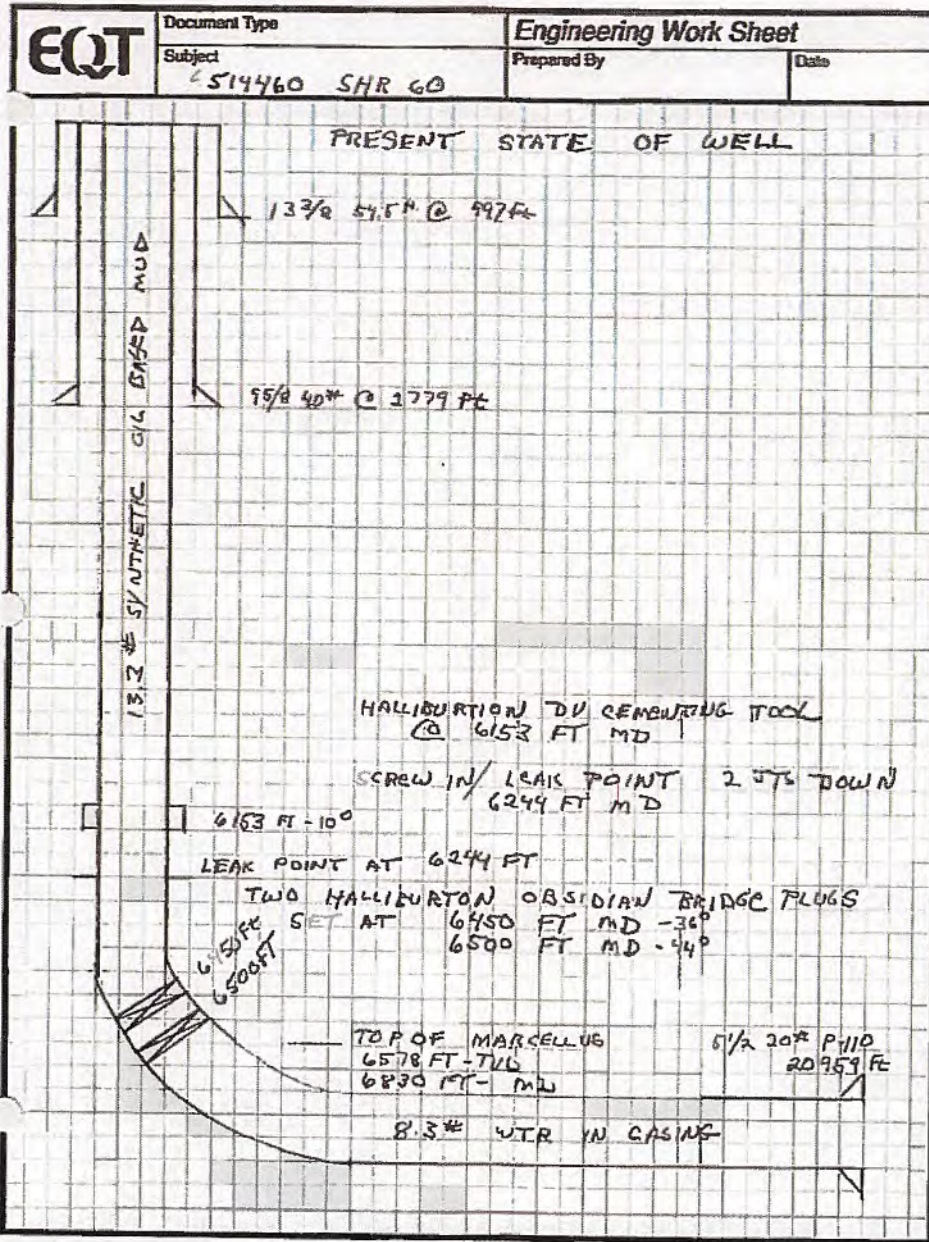
Wellbore Information -

NOTABLE PRESSURE/DEPTH	MASP (psig):	9,500	CASING BURST (psi)	12,640	MAX TVD (ft KB)	6,633	PBTD Depth (ft)	20,959
	KOP (ft)	5,087	Treated Interval (BP - TP + CS) (ft)	9,960	KB (ft.)	16	TOC (ft)	10,500

CURRENT WELL STATUS			
13 3/8", 54.5 lb/ft. J-55 Casing	Set at 997'	Feet from Kelly Bushing	Drilling pumped surface cement job on 8-02-15.
9 5/8", 40 lb/ft. A-500 Casing	Set at 2,779'	Feet from Kelly Bushing	Drilling pumped intermediate cement job on 8-04-15.
5 1/2", 20 lb/ft. P-110 Casing	Set at 20,984'	Feet from Kelly Bushing	Pump cement as follows: Test lines to 6,000 psi. Pump 50 bbls of Ultrabond @ 13.5 ppg. Pump 102bbls Multibond @ 13.5 ppg. Pump lead cement. 79 bbls (357 sacks) of Class H @ 15.2 ppg 1.25 yield 5.71 gal sk. followed by tail cement. 726 bbls (1746 sacks) of Class H @ 15.6 ppg 2.06 yield 8.39 gal sk Shut down. Wash lines to rig floor. Spot dyed sugar water to half round & drop double plug. Displace with 474 bbls fresh water Final pressure 1890psi bump plug held 2512psi for 30 minutes. Released pressure. 4.5bbl flowback Plug down @ 0900 hrs. No cement or spacer returned to surface

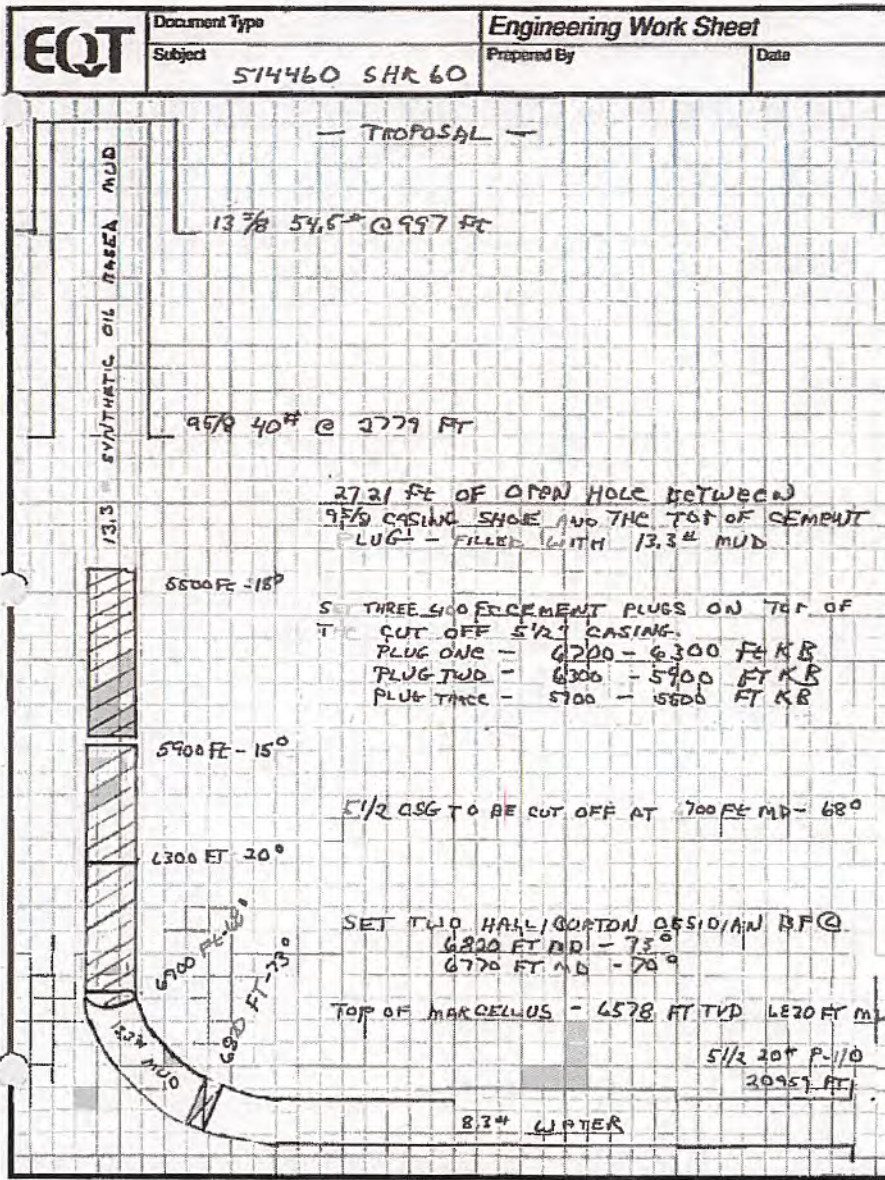
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Present Condition of Well



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Proposed Plan



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514480 SHRSOH1 (SHRO) - 1st Stage Procedure - wt

NO (ft)	Incl (°)	Azim (°)	TVD (ft)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)
4,403	0.94	208.58	4,403	6.4	(25.3)	(15.6)	0.3
4,503	0.99	207.76	4,503	4.9	(26.1)	(14.5)	0.1
4,603	0.98	206.32	4,603	3.4	(26.8)	(13.4)	0.0
4,703	0.99	206.79	4,703	1.9	(27.6)	(12.3)	0.0
4,803	0.93	201.99	4,803	0.3	(28.3)	(11.2)	0.1
4,903	0.94	202.64	4,903	(1.2)	(28.9)	(10.0)	0.0
4,993	0.89	197.45	4,993	(2.5)	(29.4)	(9.0)	0.1
5,024	1.02	238.49	5,024	(2.9)	(29.7)	(8.7)	2.2
5,055	2.78	288.52	5,055	(2.8)	(30.7)	(9.2)	7.3
5,087	5.16	303.71	5,087	(1.8)	(32.6)	(10.9)	8.1
5,118	7.15	305.35	5,117	0.1	(35.3)	(13.7)	6.4
5,150	8.95	306.71	5,149	2.8	(39.0)	(17.5)	5.7
5,181	11.07	310.39	5,180	6.2	(43.2)	(22.2)	7.1
5,213	13.20	316.89	5,211	10.8	(48.0)	(28.4)	7.9
5,245	15.55	323.55	5,242	16.9	(53.0)	(36.0)	9.0
5,276	17.84	328.11	5,272	24.3	(58.0)	(44.7)	8.5
5,307	18.03	328.82	5,301	32.4	(63.0)	(54.1)	0.9
5,339	17.95	327.18	5,332	40.8	(68.3)	(63.9)	1.6
5,370	18.31	325.15	5,361	48.8	(73.6)	(73.3)	2.4
5,401	18.21	323.33	5,390	56.7	(79.3)	(82.8)	1.9
5,433	18.34	322.81	5,421	64.7	(85.3)	(92.5)	0.7
5,465	18.37	322.67	5,451	72.8	(91.4)	(102.2)	0.2
5,496	18.34	323.84	5,481	80.6	(97.3)	(111.7)	1.2
5,528	18.36	325.54	5,511	88.8	(103.1)	(121.5)	1.7
5,559	18.38	328.10	5,540	97.0	(108.4)	(131.1)	2.6
5,591	18.38	328.47	5,571	105.6	(113.7)	(141.1)	0.4
5,623	18.26	328.04	5,601	114.1	(119.0)	(151.0)	0.6
5,654	18.30	327.14	5,631	122.3	(124.2)	(160.6)	0.9
5,686	18.25	326.16	5,661	130.7	(129.8)	(170.4)	1.0
5,718	18.38	324.97	5,691	139.0	(135.4)	(180.3)	1.2
5,749	18.19	323.43	5,721	146.9	(141.1)	(189.8)	1.7
5,781	17.92	322.00	5,751	154.8	(147.1)	(199.3)	1.6
5,810	17.73	320.82	5,779	161.7	(152.7)	(207.9)	1.4
5,843	18.45	320.15	5,810	169.6	(159.2)	(217.7)	2.3
5,875	18.11	319.23	5,841	177.3	(165.7)	(227.2)	1.4
5,907	14.99	315.74	5,871	184.0	(171.8)	(235.8)	10.2
5,938	11.41	308.27	5,901	188.8	(177.0)	(242.2)	12.8
5,970	8.64	296.49	5,933	191.8	(181.7)	(246.8)	10.7
6,001	6.66	280.40	5,964	193.2	(185.5)	(249.5)	9.4
6,033	5.21	260.19	5,996	193.3	(188.8)	(250.8)	7.9
6,064	5.09	230.64	6,026	192.1	(191.2)	(250.8)	8.5
6,096	6.76	214.38	6,058	189.7	(193.4)	(249.3)	7.4
6,127	9.02	205.82	6,089	186.0	(195.5)	(246.7)	8.2
6,159	10.39	200.18	6,120	181.0	(197.6)	(242.9)	5.2
6,190	10.92	188.07	6,151	175.5	(199.0)	(238.3)	7.4

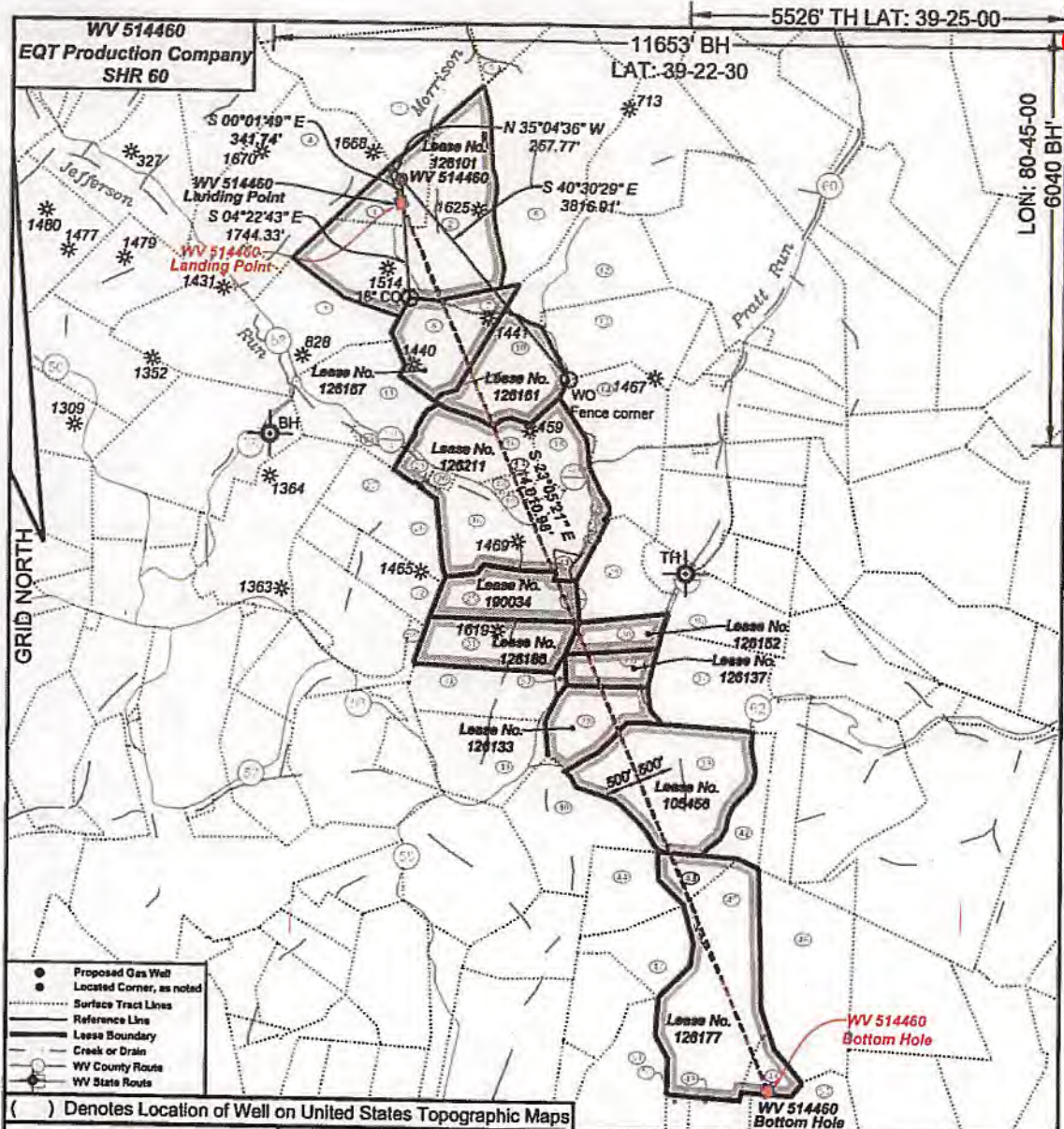
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514480 SHR60H1 (SHR60) - 1st Stage Procedure - v1

AMD (ft)	Ind (")	Ann (")	TVD (ft)	NS (ft)	EW (ft)	VS (ft)	DIS ("/100ft)
6,222	12.03	175.53	6,182	169.2	(199.1)	(232.6)	8.5
6,251	14.24	169.09	6,211	162.7	(198.2)	(226.2)	9.1
6,283	16.74	166.86	6,241	154.3	(196.4)	(217.8)	8.0
6,314	20.30	165.41	6,271	144.7	(194.0)	(208.1)	11.6
6,346	24.15	163.88	6,300	133.1	(190.8)	(196.0)	12.2
6,378	28.11	162.72	6,329	119.6	(186.8)	(182.0)	12.5
6,409	31.89	161.03	6,356	104.9	(181.9)	(166.6)	12.5
6,441	36.05	159.86	6,382	88.0	(175.9)	(148.7)	13.2
6,472	40.40	159.15	6,407	70.1	(169.2)	(129.6)	14.1
6,503	44.78	158.33	6,430	50.5	(161.6)	(108.6)	14.2
6,535	49.05	157.35	6,452	28.9	(152.8)	(85.2)	13.5
6,567	53.04	157.08	6,472	5.9	(143.2)	(60.3)	12.5
6,599	57.13	156.97	6,490	(18.2)	(132.9)	(34.1)	12.8
6,630	61.24	156.94	6,506	(42.7)	(122.5)	(7.5)	13.3
6,662	64.99	157.17	6,520	(69.0)	(111.4)	21.0	11.7
6,694	68.25	157.21	6,533	(96.1)	(100.0)	50.4	10.2
6,725	69.11	157.44	6,544	(122.7)	(88.9)	79.3	2.9
6,757	69.08	157.65	6,556	(150.3)	(77.4)	109.2	0.6
6,789	71.03	157.89	6,567	(178.2)	(66.1)	139.3	6.1
6,821	73.72	158.21	6,576	(206.5)	(54.7)	169.8	8.5
6,852	77.18	158.48	6,584	(234.3)	(43.6)	199.8	11.2
6,884	81.29	159.07	6,590	(263.6)	(32.2)	231.2	13.0
6,915	85.16	159.09	6,594	(292.4)	(21.2)	261.9	12.5
6,947	89.32	159.10	6,595	(322.2)	(9.8)	293.9	13.0
6,978	90.15	158.54	6,595	(351.2)	1.4	324.9	3.2
7,041	89.82	157.12	6,595	(409.5)	25.2	387.9	2.3
7,104	89.75	155.99	6,596	(467.3)	50.2	450.9	1.8
7,167	89.63	155.38	6,596	(524.7)	76.2	513.8	1.0
7,230	89.66	154.90	6,596	(581.9)	102.7	576.8	0.8
7,294	89.63	154.89	6,597	(639.8)	129.8	640.7	0.1
7,348	89.66	155.82	6,597	(688.9)	152.3	694.7	1.7
7,411	89.66	157.23	6,597	(746.7)	177.4	757.7	2.2
7,474	89.66	157.77	6,598	(804.9)	201.5	820.7	0.9
7,538	89.66	157.65	6,598	(864.1)	225.8	884.7	0.2
7,601	89.60	158.00	6,599	(922.4)	249.6	947.7	0.6
7,665	89.85	158.29	6,599	(981.8)	273.4	1,011.7	0.6
7,728	90.22	158.45	6,599	(1,040.4)	296.6	1,074.6	0.6
7,790	90.03	159.36	6,599	(1,098.2)	318.9	1,136.6	1.5
7,853	90.28	161.10	6,599	(1,157.5)	340.3	1,199.5	2.8
7,916	90.18	160.74	6,598	(1,217.1)	360.8	1,262.4	0.6
7,979	90.25	159.29	6,598	(1,276.3)	382.4	1,325.4	2.3
8,042	90.46	158.19	6,598	(1,335.0)	405.2	1,388.4	1.8
8,106	90.31	156.42	6,597	(1,394.0)	429.9	1,452.3	2.8
8,168	90.18	155.33	6,597	(1,450.6)	455.3	1,514.3	1.8
8,231	90.09	155.36	6,597	(1,507.9)	481.5	1,577.3	0.2

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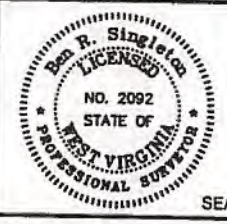
- Proposed Gas Well
- Located Corner, as noted
- Surface Tract Lines
- Reference Lines
- Lease Boundary
- Creek or Drain
- WV County Route
- WV State Route

() 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: 208-13
DRAWING NO: 208-13 SHR 80 H1
SCALE: 1" = 2000'
MINIMUM DEGREE OF ACCURACY: 1:2500
PROVEN SOURCE OF ELEVATION: NGS CORS Station



DATE: September 29 20 17
OPERATOR'S WELL NO.: WV 514480
API WELL NO
47 - 95 - 02257
STATE COUNTY PERMIT

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
 (IF GAS) PRODUCTION: STORAGE DEEP SHALLOW
 LOCATION: ELEVATION: As-Built 1,011' WATERSHED Morrison Run of McElroy Creek QUADRANGLE: Shirley
 DISTRICT: McElroy COUNTY: Tyler
 SURFACE OWNER: Vivian J. Wells, et al.
 ROYALTY OWNER: George Birklein, et al. ACREAGE: 35.38
 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: 6596

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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04/05/2019



west virginia department of environmental protection

Office of Oil and Gas
601 57th Street, SE
Charleston, WV 25304
(304) 926-0450
(304) 926-0452 fax

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
dep.wv.gov

March 18, 2014

Nabors Completion & Production Services Company
1380 Route 286 Hwy E #121
Indiana PA 15701

Re: Cement Variance Request

Dear Sir or Madam,

This agency is approving a variance request for the cement blend listed below to be used on surface and coal protection strings for the drilling of oil and gas wells in the state of West Virginia. The variance cannot be used without requesting its use on a permit application and approval by this agency:

- Type 1 (2% Calcium Chloride-Accelerator, 0.25% Super Flake-Lost Circulation, 5.2% Water, 94% Type "1" Cement)

If you have any questions regarding this matter feel free to contact me at 304-926-0499, ext. 1653.

Sincerely,

James Peterson
Environmental Resources Specialist / Permitting

Promoting a healthy environment.

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Office of Oil and Gas
601 57th Street, SE
Charleston, WV 25304
(304) 926-0450
(304) 926-0452 fax

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
dep.wv.gov

**BEFORE THE OFFICE OF OIL AND GAS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
STATE OF WEST VIRGINIA**

IN THE MATTER OF A VARIANCE FROM) ORDER NO. 2014 - 17
REGULATION 35 CSR § 4-11.4/11.5/14.1)
AND 35 CSR § 8-9.2.h. 4/5/6/8 OF THE)
THE OPERATIONAL)
REGULATIONS OF CEMENTING OIL)
AND GAS WELLS)

REPORT OF THE OFFICE

Nabors Completion & Production Services Co. requests approval of a different cement blend for use in cementing surface and coal protection casing of oil and gas wells.

FINDINGS OF FACT

- 1.) Nabors Completion & Production Services Co. proposes the following cement blend:
 - 2% Calcium Chloride (Accelerator)
 - 0.25 % Super Flake (Lost Circulation)
 - 94% Type "1" Cement
 - 5.20 % Water
- 2.) Laboratory testing results indicate that the blend listed in Fact No.1 will achieve a 500 psi compressive strength within 6 hours and a 2,435 psi compressive strength within 24 hours.

Promoting a healthy environment.

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WV Department of
Environmental Protection

CONCLUSIONS OF LAW

Pursuant to Articles 6 and 6A, Chapter 22 of the Code of West Virginia, the Office of Oil and Gas has jurisdiction over the subject matter embraced in said notice, and the persons interested therein, and jurisdiction to promulgate the hereinafter prescribed Order.

Pursuant to 35 CSR § 4-11.5 and 35 CSR § 8-9.2.h.8 the Chief of the Office of Oil and Gas may approve different cement blends upon the well operator providing satisfactory proof that different cement types are adequate.

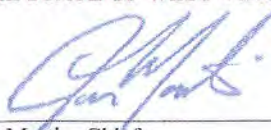
ORDER

It is ordered that Nabors Completion & Production Services Co. may use the cement blend listed in Findings of Fact No.1 for the cementing of surface and coal protection casing of oil and gas wells in the State as may be requested by oil and gas operators. The waiting time on the cement blend shall be 8 hours. The cement blend shall be mixed in strict accordance with the specifications for each blend and weight measurements made on-site to assure the cement slurries meet the minimum weight specifications. A sample shall be collected and, if after 8 hours the cement is not set up, additional time will be required. Nabors Completion & Production Services Co. shall keep a record of cement blend jobs in which the cement blend approved under this order is to be used and made available to the Office of Oil and Gas upon request.

Dated this, the 18th day of March, 2014.

IN THE NAME OF THE STATE OF WEST VIRGINIA

OFFICE OF OIL AND GAS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OF THE STATE OF WEST VIRGINIA



James Martin, Chief
Office of Oil and Gas

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Environmental Protection

Well **SHR60H1 (514460)**

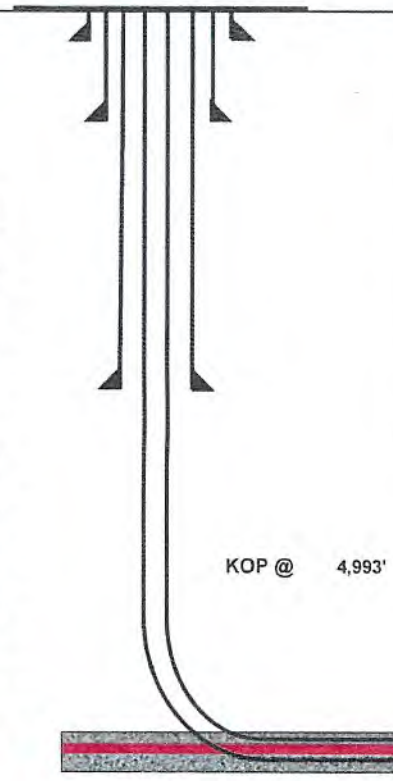
EQT Production Shirley Quad
Tyler County, WV

Azimuth 157
Vertical Section 14294
Enertia # 514460

Note: Diagram is not to scale

Formations	Top TVD	Base TVD
Conductor	60	
Base Fresh Water	906	
Surface Casing	997	
Maxton	1534 - 1587	
Big Lime	1829 - 2111	
Base Red Rock	1876	
Weir	2251 - 2317	
Gantz	2368 - 2415	
Fifty foot	2461 - 2496	
Thirty foot	2595 - 2636	
Gordon	2686 - 2700	
Intermediate Casing	2779	
Bayard	3007 - 3067	
Warren	3339 - 3413	
Speechley	3433 - 3551	
Balltown A	3855 - 3925	
Riley	4548 - 4585	
Benson	4965 - 5002	
Alexander	5222 - 5294	
Sonyea	6212 - 6381	
Middlesex	6381 - 6425	
Genesee	6425 - 6501	
Geneseo	6501 - 6530	
Tully	6530 - 6554	
Hamilton	6554 - 6571	
Marcellus	6571 - 6623	
Production Casing	20895	MD
Onondaga	6623	

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MP 9772019



Casing and Cementing				Deepest Fresh Water: 906'
Type	Conductor	Surface	Intermediate	Production
Hole Size, In.	24	17 1/2	12 3/8	8 1/2
Casing Size, OD In.	20	13 3/8	9 5/8	5 1/2
Casing Wall Thickness, In.	0.375	0.380	0.395	0.361
Depth, MD	60'	997'	2,779'	20,895'
Weight	78.6#	54.5#	40#	20#
Grade	A-500	J-55	A-500	P-110
New or Used	New	New	New	New
Burst (psi)	1378	2,700	3,950	12,640
Cement Class	A	A / Type 1	A / Type 1	A / H
Cement Yield	1.18	1.19	1.19	1.123 / 2.098
Top of Cement (Planned)	Surface	Surface	Surface	500' above top Producing Zone
Method	Displacement	Displacement	Displacement	Displacement
Est. Volume (cu ft)	58	839	1,084	4,197
Possible Additives	N/A	Calcium Chloride	Calcium Chloride	Calcium Carbonate, Fluid Loss, Extender, Dispersent, Viscosifier, Defoamer, POZ, Bonding Agent, Retarder, Anti-Settling/Suspension Agent

KOP @ 4,993'

Land curve @ 6,600' TVD
6,974' MD

Est TD @ 6,600' TVD
20,895' MD

13,921' Lateral

Proposed Well Work:
Drill and complete a new horizontal well in the Marcellus formation.
Drill the vertical to an approximate depth of 4993'.
Kick off and drill curve. Drill lateral in the Marcellus. Cement casing.

3/7/2019
OCB

WEST VIRGINIA GEOLOGICAL PROGNOSIS

Horizontal Well
SHR60H1 (514460)

v 2016 5 SHR60H1 (514460)
Enertra # 514460

Drilling Objectives: Marcellus
County: Tyler
Quad: Shirley
Elevation: 1024 KB 1011 GL, as built
Surface location: Northing: 328582.21 Easting: 1629438.62
Landing Point: Northing: 328144.23 Easting: 1629367.22
Toe location: Northing: 315343.91 Easting: 1634830.82
Recommended Azimuth: 157 Degrees
TVD: 6600
Recommended LP to TD: 13,921'

Proposed Logging Suite: Formation tops based on pilot hole logs from SHR60 well 514460 (deep) and 514463 (intermediate).
 An elog should be run for the first well on every horizontal well pad.
 Please have mudloggers rigged up on location by 6151' TVD.

Recommended Gas Tests: 1800, 2050, 2600, Intra Csg Pt., 3400, 4900, 5250, KOP. (Gas test at any mine void)
 Gas test during any trip or significant downtime while drilling the lateral section

ESTIMATED FORMATION TOPS

Formation	Top (TVD)	Base (TVD)	Lithology	Comments	Top RR	Base RR
Fresh Water Zone	1	906		FW @ 83,133,570,906	23	559
Coal	19	23	Coal		57	67
Coal	420	424	Coal	No past, present, or planned mining	326	345
Coal	686	690	Coal		391	402
Coal	875	879	Coal		425	665
Coal	1315	1319	Coal		533	990
Maxton	1534	1587	Sandstone	SW @ 1198,1865	686	701
Big Lime	1829	2111	Limestone		741	752
Werr	2251	2317	Sandstone		780	833
Top Devonian	2368				836	845
Gantz	2368	2415	Silty Sand		907	937
Fifty foot	2461	2496	Silty Sand		968	972
Thirty foot	2595	2636	Silty Sand		1285	1315
Gordon	2686	2700	Silty Sand		1833	1876
Int csg pt	2779					Base of Red Rock
Fifth Sand	2891	2920	Silty Sand			
Bayard	3007	3067	Silty Sand	Base of Offset Well Perforations at 5027' TVD		
Warren	3339	3413	Silty Sand			
Speckley	3433	3551	Silty Sand			
Balltown A	3855	3925	Silty Sand			
Roley	4548	4585	Silty Sand			
Benson	4965	5002	Silty Sand			
Alexander	5222	5294	Silty Sand			
Elks	5294	6212	Gray Shales and Silts			
Sonyea	6212	6381	Gray shale			
Middlesex	6381	6425	Shale			
Genesee	6425	6501	Gray shale interbedded			
Genesee	6501	6530	Black Shale			
Tully	6530	6554	Limestone			
Hamilton	6554	6571	Gray shale with some			
Marcellus	6571	6623	Black Shale			
Purcell	6580	6589	Limestone			
-Lateral Zone	6600			Start Lateral at 6600'		
Cherry Valley	6606	6614	Limestone			
Onondaga	6623		Limestone			

Target Thickness	52 feet
Max Anticipated Rock Pressure	2747 PSI

Comments:
 Note that this is a TVD prog for a horizontal well (azimuth of 157 degrees; target formation = Marcellus). All measurements taken from estimated KB elevation. Water and coal information estimated from surrounding well data.
 Intermediate casing point is recommended beneath the Gordon to shut off any water production from the Upper Devonian sands. Intermediate casing should be cemented into the surface string, per WV regulations.
 The estimated landing point TVD is 6600'; rig geologist may adjust landing point. After the well is landed, drill to reported bed dips/ geologists' recommendation. The geologic structure is unknown at this time.

LATERAL DRILLING TOLERANCES

Mapview - Lateral: Deviate as little as possible to the left or right of the planned wellbore
Mapview - TD: DO NOT EXTEND beyond recommended wellbore to avoid leasehine

RECOMMENDED CASING POINTS

Fresh Water/Coal	CSG OD	13 3/8	CSG DEPTH	997	As set	Below the freshwater
Intermediate I:	CSG OD	9 5/8	CSG DEPTH	2779	As set	Beneath the Gordon formation
Production:	CSG OD	5 1/2	CSG DEPTH	@ TD		

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MAR 27 2019



04/05/2019

February 4, 2019

Mr. Taylor Brewer
West Virginia Department of Environmental Protection
Office of Oil and Gas
601 57th Street SE
Charleston, WV 25304

Re: Casing on SHR60

Dear Mr. Brewer,

The 13-3/8" surface casing has been set at 997' KB, 91' below the deepest fresh water. The 9-5/8" intermediate string has been set at 2779' KB, 76' below the base of the Alexander formation to shut off any water production from the Upper Devonian sands.

If you have any questions, please do not hesitate to contact me at 724-746-9073.

Sincerely,

A handwritten signature in blue ink, appearing to read 'John Zavatchan'.

John Zavatchan
Landman - Permitting

Enc.

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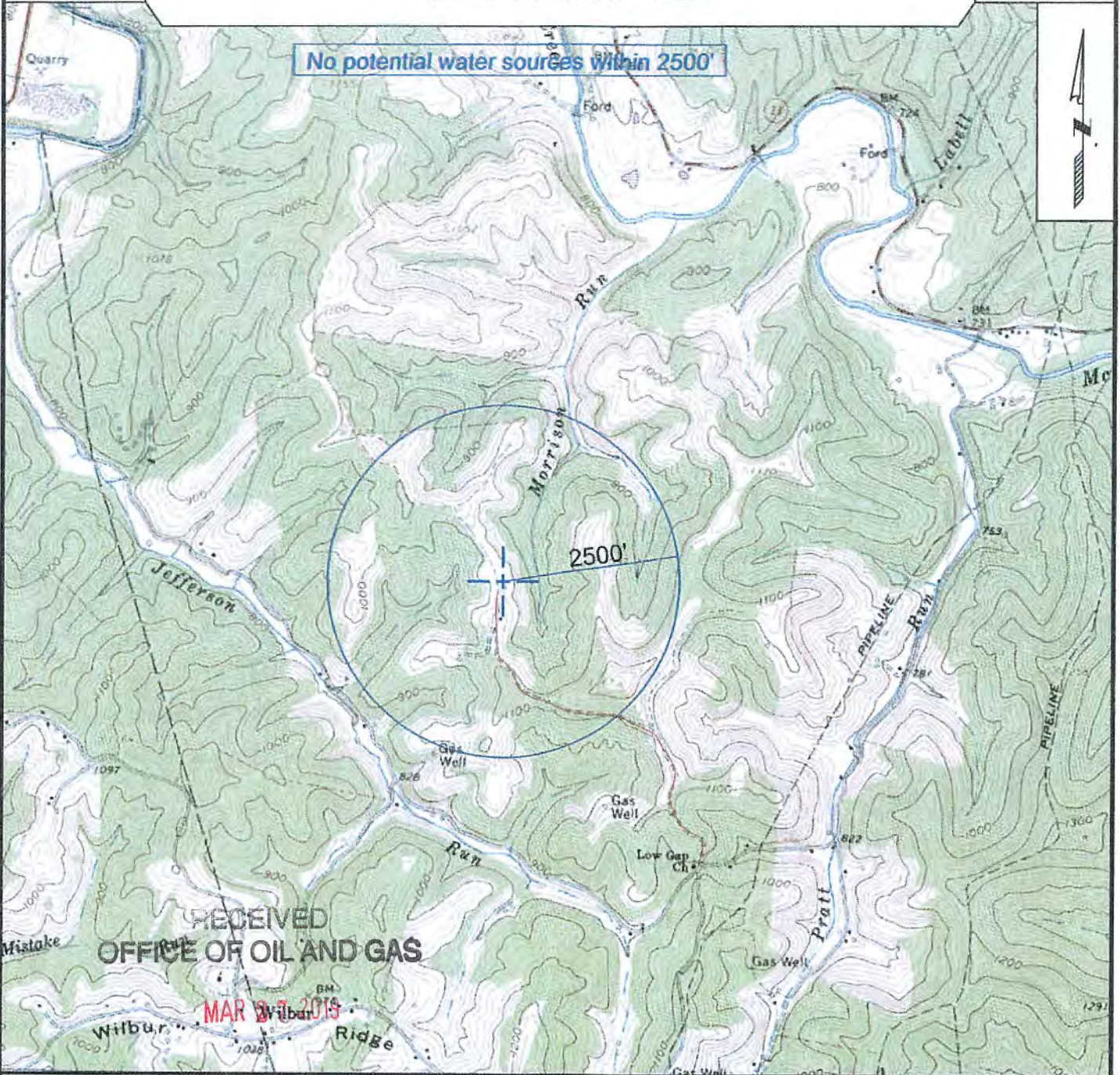
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WV Department of
Environmental Protection

Topo Quad: Shirley 7.5' Scale: 1" = 1000'
 County: Tyler Date: May 3, 2016
 District: McElroy Project No: 208-12-C-13

Water

SHR 60 Well PAD



SURVEYING AND MAPPING SERVICES PERFORMED BY:
ALLEGHENY SURVEYS, INC.
 1-800-482-8606
 237 Birch River Road
 Birch River, WV 26610
 PH: (304) 649-8606
 FAX: (304) 649-8608

PREPARED FOR:
EQT Production Company
 P.O. Box 280
 Bridgeport, WV 26330

04/05/2019

WW-9
(4/16)

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MAR 27 2019

API Number 47 - 095 - 02257
Operator's Well No. 514460 (SHR60H1)

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name EQT Production Company OP Code 306686

Watershed (HUC 10) Morrison Run of McElroy Creek Quadrangle Shirley

Do you anticipate using more than 5,000 bbls of water to complete the proposed well work? Yes No

Will a pit be used? Yes No

If so, please describe anticipated pit waste: N/A

Will a synthetic liner be used in the pit? Yes No If so, what ml.? N/A

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Underground Injection (UIC Permit Number 0014, 8462, 4037)
- Reuse (at API Number Various)
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain _____)

JCB
3/7/2019

Will closed loop system be used? If so, describe: Yes, The closed loop system will remove drill cuttings from the drilling fluid. The drill cuttings are then prepared for transportation to an off-site disposal facility.

Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc. See Attached

-If oil based, what type? Synthetic, petroleum, etc. Synthetic Mud

Additives to be used in drilling medium? See Attached

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. Landfill

-If left in pit and plan to solidify what medium will be used? (cement, lime, sawdust) N/A

-Landfill or offsite name/permit number? See Attached List

Permittee shall provide written notice to the Office of Oil and Gas of any load of drill cuttings or associated waste rejected at any West Virginia solid waste facility. The notice shall be provided within 24 hours of rejection and the permittee shall also disclose where it was properly disposed.

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations of any term or condition of the general permit and/or other applicable law or regulation can lead to enforcement action.

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment.

Company Official Signature _____

Company Official (Typed Name) John Zavatchan

Company Official Title Landman - Permitting

Subscribed and sworn before me this _____ day of _____, 20_____

Notary Public

My commission expires _____

WW-9 Attachment

Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc.

- Air is used to drill the top-hole sections of the wellbore (surface, intermediate, and pilot). Water based mud may be necessary depending on hole conditions to stabilize and drill the intermediate section. The pilot hole, curve, and lateral sections will be drilled with either air, water based mud, or oil based mud.

Additives to be used in drilling medium?

- Air - biodegradable oil lubricant, detergent, defoaming, water. Water based mud – Barite, viscosifer, alkalinity control, lime, filtration control, deflocculates, biodegradable oil lubricant, defoaming, walnut shell, salt, x-cide, carbonates. Oil based mud – synthetic base oil, emulsifier, salt, lime, viscosifer, alkalinity control, filtration control, deflocculates, biodegradable oil lubricant, defoaming, carbonates.

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04/05/2019

Form WW-9

Operator's Well No. 514460 (SHR60H1)

EQT Production Company

Proposed Revegetation Treatment: Acres Disturbed No additional disturbance Prevegetation pH _____

Lime 3 Tons/acre or to correct to pH 6.5

Fertilizer type Granular 10-20-20

Fertilizer amount 1/3 lbs/acre

Mulch 2 Tons/acre

Seed Mixtures

Temporary		Permanent	
Seed Type	lbs/acre	Seed Type	lbs/acre
KY-31	40	Orchard Grass	15
Alsike Clover	5	Alsike Clover	5
Annual Rye	15		

Attach:

Maps(s) of road, location, pit and proposed area for land application (unless engineered plans including this info have been provided). If water from the pit will be land applied, include dimensions (L x W x D) of the pit, and dimensions (L x W), and area in acreage, of the land application area

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: J Cragin Blevins

Comments: _____

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MAR 27 2019

Title: Oil & Gas Inspector Date: 3/7/2019

Field Reviewed? Yes No



Where energy meets innovation.™

Site Specific Safety and Environmental Plan

EQT

SHR60 Pad

Shirley

Tyler County, WV

For Wells:

514460 (SHR60H1)

Date Prepared: February 20, 2019

[Signature]
EQT Production

Lawson - Permitting
Title

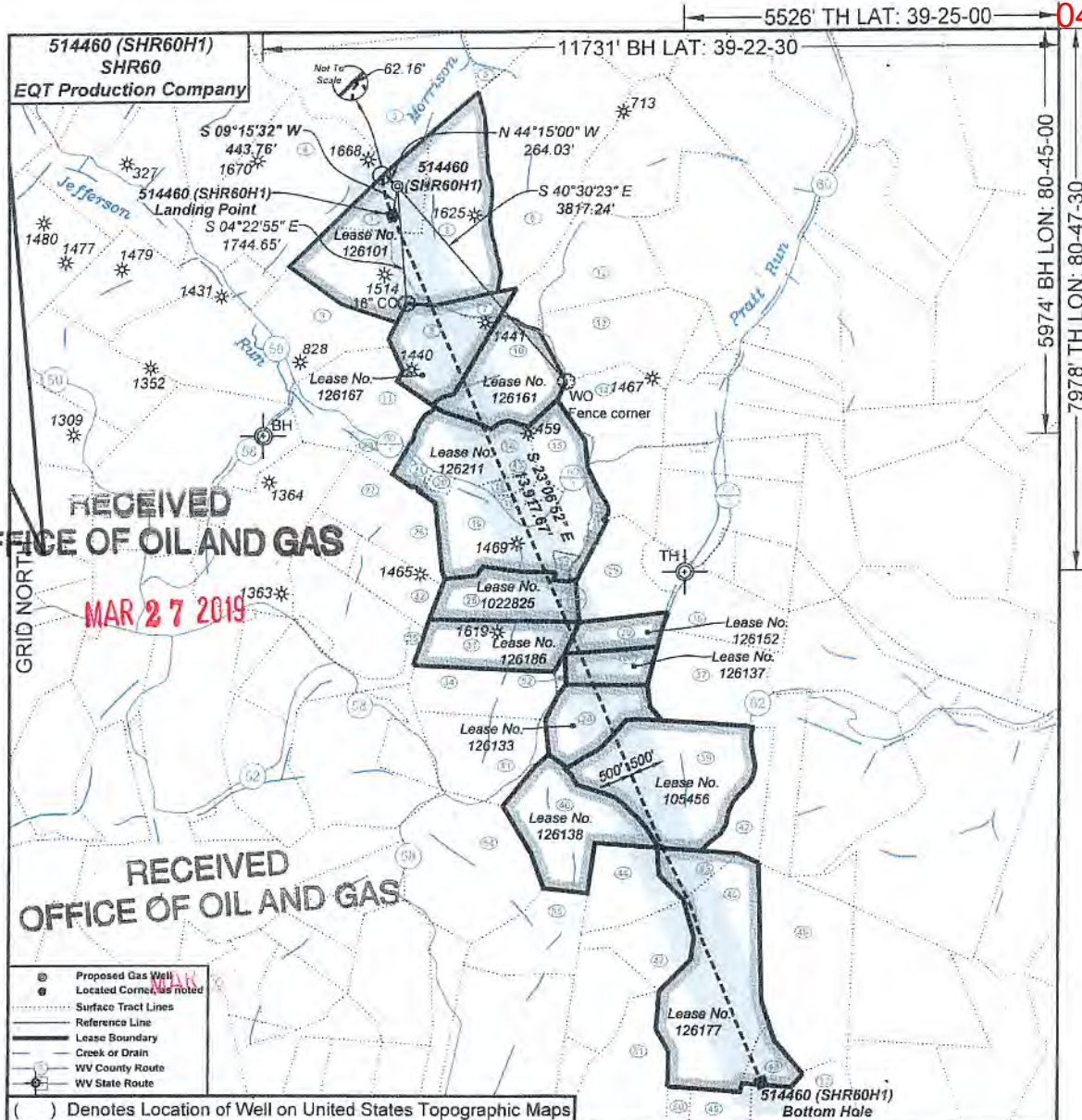
3/20/19
Date

[Signature]
WV Oil and Gas Inspector

Oil & Gas Inspector
Title

3/21/2019
Date

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WV Department of
Environmental Protection



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- Proposed Gas Well
- Located Corners Noted
- Surface Tract Lines
- Reference Line
- Lease Boundary
- Creek or Drain
- WV County Route
- WV State Route



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.

P.S. 2092



FILE NO: 208-13
DRAWING NO: 208-13 514460 (SHR60H1)
SCALE: 1" = 2000'
MINIMUM DEGREE OF ACCURACY: 1:2500
PROVEN SOURCE OF ELEVATION: NGS CORS Station

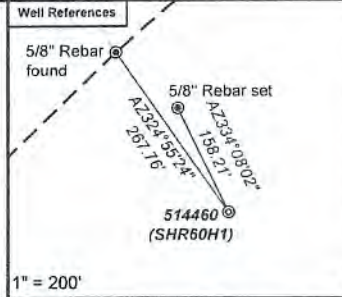
STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OIL AND GAS DIVISION

DATE: January 31 20 19
OPERATOR'S WELL NO.: 514460 (SHR60H1)
API WELL NO
47 95 02257
STATE COUNTY PERMIT

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
(IF GAS) PRODUCTION: STORAGE DEEP SHALLOW
LOCATION: ELEVATION: As-Built 1,011' WATERSHED Morrison Run of McElroy Creek QUADRANGLE: Shirley
DISTRICT: McElroy COUNTY: Tyler
SURFACE OWNER: Vivian J. Wells, et al. ACREAGE: 35.38
ROYALTY OWNER: George Birklein, et al. LEASE NO: 126101 ACREAGE: 240
PROPOSED WORK: DRILL CONVERT DRILL DEEPER FRACTURE OR STIMULATE PLUG OFF OLD FORMATION
 REPERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY)
 PLUG AND ABANDON CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus ESTIMATED DEPTH: 6,600'

WELL OPERATOR: EQT Production Company DESIGNATED AGENT: Jason Ranson
ADDRESS: 2400 Ansys Drive, Suite 200 Canonsburg, PA 15317
ADDRESS: 115 Professional Place PO Box 280 Bridgeport, WV 26330

514460 (SHR60H1) SHR60 EQT Production Company						
Tract ID	Tax Map No.	Parcel No.	County	District	Surface Tract Owner	Acres
1	18	12	Tyler	McElroy	Hanna A. Underwood Estate	35.00
2	18	13	Tyler	McElroy	Blaine Underwood Estate, et al.	104.73
3	18	9	Tyler	McElroy	Lawrence Reibum, et al.	100.00
4	18	7.1	Tyler	McElroy	Patricia A. Keys, et al.	102.31
5	18	10	Tyler	McElroy	Susan Spencer	7.97
6	18	11	Tyler	McElroy	Susan Spencer	112.00
7	18	15	Tyler	McElroy	Susan Spencer	6.00
8	18	16	Tyler	McElroy	Donald E. Bible Sr.	35.50
9	18	23	Tyler	McElroy	Glyde Seckman Estate	111.75
10	18	17	Tyler	McElroy	Allen Dale Fornah, et al.	43.00
11	18	22	Tyler	McElroy	Donald E. Bible Sr.	19.26
12	18	14	Tyler	McElroy	Terry J. Cumberledge, et al.	54.81
13	18	18	Tyler	McElroy	Terry J. Cumberledge, et al.	49.87
14	18	19	Tyler	McElroy	John Paul Davis	35.00
15	18	20.2	Tyler	McElroy	Richard E. Hanson	19.36
16	18	20	Tyler	McElroy	Clarence G. Dillon, et al.	113.42
17	18	20.6	Tyler	McElroy	Clarence G. Dillon Jr.	0.71
18	18	20.5	Tyler	McElroy	Clarence G. Dillon Jr.	1.34
19	18	20	Tyler	McElroy	Clarence G. Dillon, et al.	111.42
20	18	20.4	Tyler	McElroy	John A. Dillon	7.04
21	18	20.3	Tyler	McElroy	Peter H. Muzler	4.69
22	18	20.1	Tyler	McElroy	William R. Doll Jr, et al.	1.06
23	21	44	Tyler	McElroy	William R. Doll Jr, et al.	7.43
24	21	45	Tyler	McElroy	Clarence G. Dillon, et al.	7.43
25	21	15	Tyler	McElroy	Paul Weekley	36.00
26	21	14	Tyler	McElroy	Donnie N. & Kim M. Wilmoth	73.39
27	21	13	Tyler	McElroy	Donnie N. & Kim M. Wilmoth	73.39
28	18	21	Tyler	McElroy	Barbara Wilcox	5.90
29	22	20	Tyler	McElroy	James B. Scott	30.00
30	21	10	Tyler	McElroy	Richard E. & Barbara A. Mullins	20.00
31	21	16	Tyler	McElroy	Paul Weekley	46.00
32	21	13	Tyler	McElroy	Donnie N. & Kim M. Wilmoth	73.39
33	21	19	Tyler	McElroy	Richard E. & Barbara A. Mullins	20.00
34	21	12	Tyler	McElroy	Paul Weekley	32.95
35	21	27	Tyler	McElroy	Donnie N. & Kim M. Wilmoth	7.50
36	21	21	Tyler	McElroy	James B. Scott	30.00
37	22	19	Tyler	McElroy	Berdina Rose, et al.	55.00
38	21	21	Tyler	McElroy	James B. Scott	30.00
39	22	18	Tyler	McElroy	Bruce W. Boland	86.75
40	21	33	Tyler	McElroy	Bruce W. Boland	52.46
41	21	23	Tyler	McElroy	Peggy A. White	45.28
42	22	18.1	Tyler	McElroy	Bruce W. Boland	38.91
43	22	17	Tyler	McElroy	David R. & Elizabeth A. Beveridge	12.00
44	22	16	Tyler	McElroy	Leah Weekley	29.00
45	2	48	Doddridge	West Union	David R. & Elizabeth A. Beveridge	125.00
46	2	1	Doddridge	West Union	James M. Petrovich, et al.	70.00
47	22	45	Tyler	McElroy	Isaiah Weesley	25.00
48	2	5.4	Doddridge	West Union	David R. & Elizabeth A. Beveridge	15.50
49	2	5.1	Doddridge	West Union	David R. & Elizabeth A. Beveridge	20.88
50	2	4.1	Doddridge	West Union	Robert B. & Mary E. Simpson	30.00
51	2	4	Doddridge	West Union	Robert B. & Mary E. Simpson	30.00
52	21	20	Tyler	McElroy	Robert B. & Mary E. Simpson	30.00
53	2	9	Doddridge	West Union	Robert B. & Mary E. Simpson	30.00
54	21	32	Tyler	McElroy	Robert B. & Mary E. Simpson	30.00
55	21	34	Tyler	McElroy	Bruce W. Boland	35.43

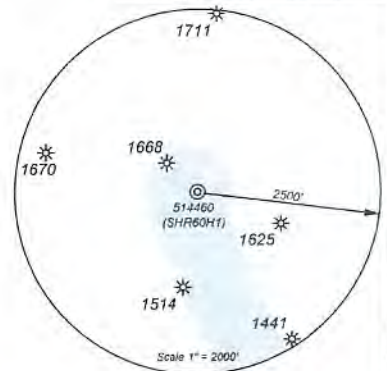


- SHR60
- H1
 - H2
 - H3
 - H4
 - H5
 - H6
 - H7
 - H8
 - H9
 - H10
 - H11
 - H12

Notes

514460 (SHR60H1) coordinates are
 NAD 27 N 328,592.21 E 1,529,438.63
 NAD 27 Lat. 39.39472° Long. -80.811240
 NAD 83 UTM N 4,360,607.42 E 516,268.70
 514460 (SHR60H1) Landing Point coordinates are
 NAD 27 N 328,144.31 E 1,629,367.19
 NAD 27 Lat. 39.393522 Long. -80.811470
 NAD 83 UTM N 4,360,473.65 E 516,249.16
 514460 (SHR60H1) Bottom Hole coordinates are
 NAD 27 N 315,343.92 E 1,634,830.82
 NAD 27 Lat. 39.358599 Long. -80.791489
 NAD 83 UTM N 4,356,801.79 E 517,978.74

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
126187	43	Berdina Rose, et al.
126161	43	John A. Dillon, et al.
126211	145	John A. Dillon, et al.
1022825	36	Paul Weekley
126186	36	Bruce L. Stoneking, et al.
126137	20	S.A. Smith & C. Burke Morris Trust, et al.
126152	20	Linda Sue Lamb, et al.
126133	40	Dorothy H. Bode
105456	96	Kimberly Wilcox
126138	82	Sandra Lee Freeman-Corral, et al.
126177	138	Regina M. Buck, et al.

- Proposed Gas Well
- Located Corner, as noted
- Surface Tract Lines
- Reference Line
- Lease Boundary
- Creek or Drain
- WV County Route
- WV State Route

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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.

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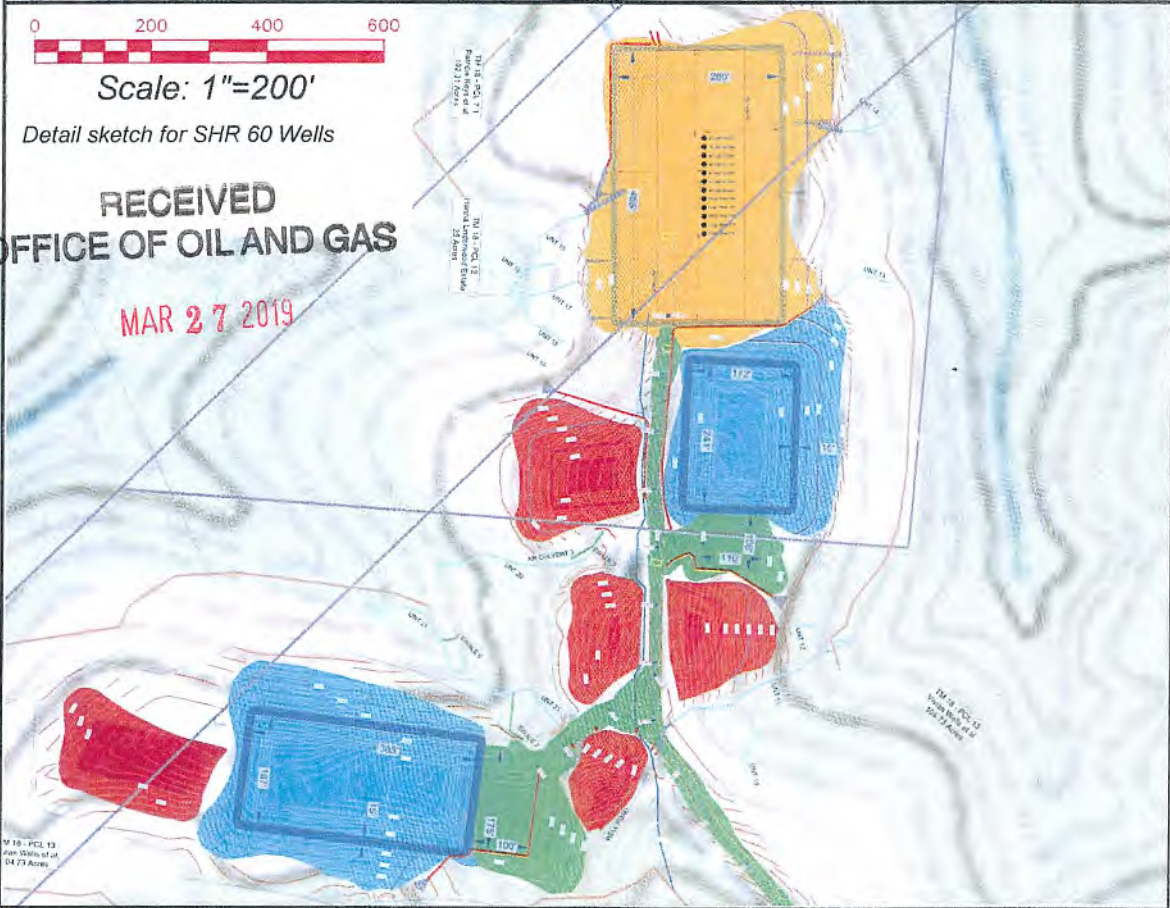
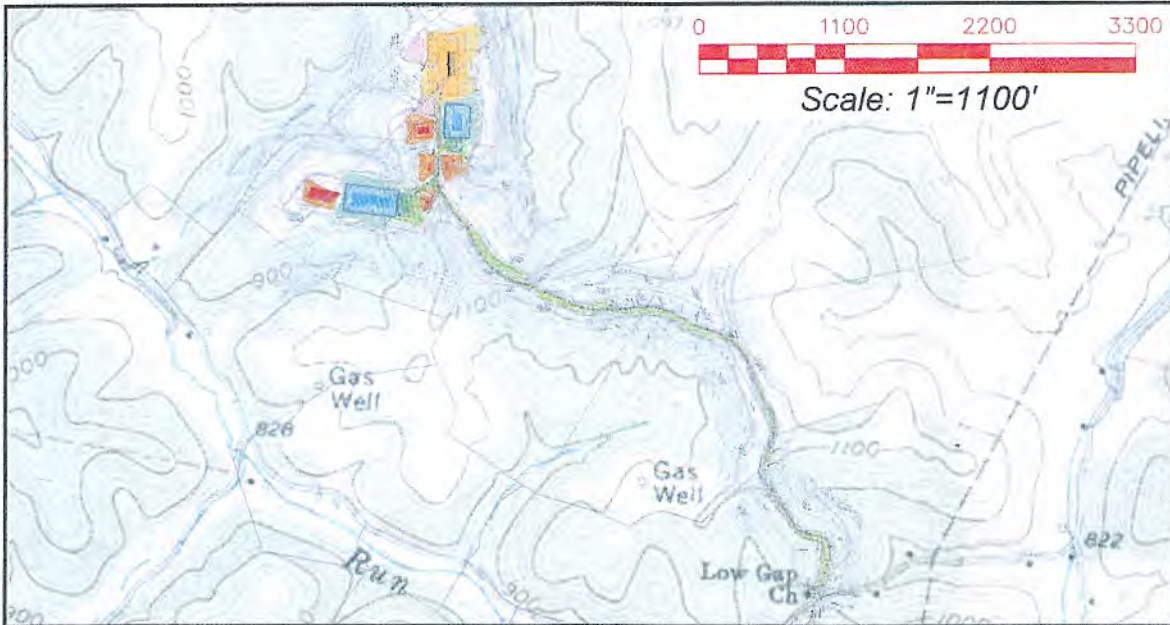
FILE NO: 208-13
 DRAWING NO: 208-13 514460 (SHR60H1)
 SCALE: 1" = 2000'
 MINIMUM DEGREE OF ACCURACY: 1:2500
 PROVEN SOURCE OF ELEVATION: NGS CORS Station

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

DATE: January 31 20 19
 OPERATOR'S WELL NO.: 514460 (SHR60H1)
 API WELL NO
 47 95 02257
 STATE COUNTY PERMIT

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
 (IF GAS) PRODUCTION: STORAGE DEEP SHALLOW
 LOCATION: ELEVATION: As-Built 1,011' WATERSHED Morrison Run of McElroy Creek QUADRANGLE: Shirley
 DISTRICT: McElroy COUNTY: Tyler
 SURFACE OWNER: Vivian J. Wells, et al. ACREAGE: 35.38
 ROYALTY OWNER: George Bircklein, et al. LEASE NO: 126101 ACREAGE: 240
 PROPOSED WORK: DRILL CONVERT DRILL DEEPER FRACTURE OR STIMULATE PLUG OFF OLD FORMATION
 PROPAGATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY)
 PLUG AND ABANDON CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus ESTIMATED DEPTH: 6,500'

WELL OPERATOR: EQT Production Company DESIGNATED AGENT: Jason Ranson
 ADDRESS: 2400 Ansys Drive, Suite 200 ADDRESS: 115 Professional Place PO Box 280
 Canonsburg, PA 15317 Bridgeport, WV 26330



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Shirley 7.5' USGS QUADRANGLE		Proposed Disturbance Area		Note: SEE SITE PLAN OF SHR 60 FOR COMPLETE GRADING & DRAINAGE CONSTRUCTION INCLUDING EROSION & SEDIMENT CONTROL DETAILS, ETC.
Projected culvert inventory. (for bid purposes only)		Well Site Location	See Site Plan	
15" minimum diameter culverts	See Site Plan	Proposed Access Road	See Site Plan	
24" minimum diameter culverts	See Site Plan	Approximate Total Disturbance	See Site Plan	
DRAWN BY: Ben Singleton PS	DATE: July 3, 2018	FILE NO. 208-13	DRAWING FILE NO. ACAD-208-13-Rec Plan	
	SURVEYING AND MAPPING SERVICES PERFORMED BY:			
	ALLEGHENY SURVEYS, INC. 1-800-482-8606 Birch River Office Phone: (304) 649-8606 Fax: (304) 649-8608 237 Birch River Road P.O. Box 438 Birch River, WV 26610			

EQT Production Water Plan									
Offsite Disposals for Unconventional Wells									
Facility Name	Address	Address 2	City	State	Zip	Phone	County	State	Permit Number
CWS Trucking Inc.	P.O. Box 391		Williamstown	WV	26187	740-516-3586	Noble	OH	3390
Broad Street Energy LLC	37 West Broad Street	Suite 1100	Columbus	OH	43215	740-516-5381	Washington	OH	8462
LAD Liquid Assets Disposal Inc.	226 Rankin Road		Washington	PA	15301	724-350-2760	Ohio	WV	USEPA WV 0014
Triad Energy	PO Box 430		Reno	OH	45773	740-516-6021 740-374-2940	Noble	OH	4037
Tri County Waste Water Management, Inc.	1487 Toms Run Road		Holbrook	PA	15341	724-627-7178 724-499-5647	Greene	PA	TC-1009
King Excavating Co. Advance Waste Services	101 River Park Drive		New Castle	PA	16101		Lawrence	PA	PAR000029132
Waste Management - Meadowfill Landfill	Rt. 2, Box 68 Dawson Drive		Bridgeport	WV	16330	304-326-6027	Harrison	WV	SWF-1032-98 Approval #100785WV
Waste Management - Northwestern Landfill	512 E. Dry Road		Parkersburg	WV	26104	304-428-0602	Wood	WV	SWF-1025 WV-0109400
APEX Landfill	11 County Road 78	PO Box 57	Amsterdam	OH	43903	740-543-4389	Jefferson	OH	06-08438
Advanced Disposal - Chestnut Valley Landfill	1184 McClellandtown Road		McClellandtown	PA	15458	724-437-7336	Fayette	PA	100419
Westmoreland Sanitary Landfill	901 Tyrol Boulevard		Belle Vernon	PA	15012	724-929-7694	Westmoreland	PA	100277
Austin Master Services	801 North 1st Street		Martins Ferry	OH	43935	740-609-3800	Belmont	OH	2014-541
Belmont Solids Control	77505 Cadiz-New Athers Road		Cadiz	OH	43907	740-942-1739	Harrison	OH	2015-511
Diversified Resources	3111 Braun Rd.		Belpre	OH	45714	740-401-0413	Washington	OH	
Buckeye Brine	23986 Airport Road		Coshocton	OH	43812	740-610-1512 724-591-4393	Coshocton	OH	34-031-27177 34-031-27178 34-031-27241
Central Environmental Services	28333 West Belpre Pike		Coolville	OH	45723	304-488-0701	Athens	OH	
Nuverra - Nichols	10555 Veto Road		Belpre	OH	45714	330-232-5041	Washington	OH	34-119-2-8776
Nuverra - Goff	9350 East Pike Road		Norwich	OH	43767	330-232-5041	Muskingum	OH	34-167-2-3862
Nuverra - Wolf	5480 State Route 5		Newton Falls	OH	44444	330-232-5041	Trumbull	OH	34-155-2-1893
Nuverra - Pander	5310 State Route 5		Newton Falls	OH	44444	330-232-5041	Trumbull	OH	34-155-2-3795
Nuverra - AnnaRock D-1	3549 Warner Road		Fowler	OH	44418	330-232-5041	Trumbull	OH	34-155-2-2403

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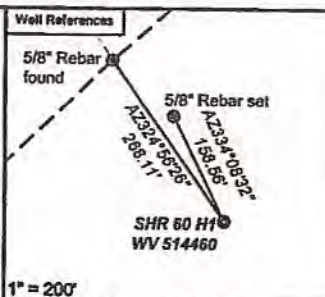
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Environmental Protection

FQ Helen	199 Bowersock Road		Reno	OH	45773	740-374-2940 412-443-4397 740-236-2135	Washington	OH	34-167-2-9577
FQ Dexter	38505 Marietta Rd.		Dexter City	OH	45727	740-374-2940 412-443-4397 740-236-2135	Noble	OH	34-121-24037 34-121-24086
FQ Ritchie	122 Lonesome Pine Rd		Ellenboro	WV	26346	740-374-2940 412-443-4397 740-236-2135	Ritchie	WV	47-085-09721
FQ Mills	53610 T5 Rd 706		Portland	OH	45770	740-374-2940 412-443-4397 740-236-2135	Meigs	OH	34-105-2-3619 34-105-2-3652 34-105-2-3637 34-105-2-3651
Petta Enterprises - OH	745 North 3rd Street		Cambridge	OH	43725	614-477-1368	Guernsey	OH	Ohio Chiefs Order 25-019
Petta Enterprises - WV	38 Technology Dr.		Tridelpia	WV	26059	740-255-5727	Ohio	WV	
Deep Rock Disposal	2341 OH-821		Marietta	OH	45750	304-629-0176	Washington	OH	34-167-2-9766

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Office of Oil and Gas
FEB 11 2019
WV Department of
Environmental Protection

WV 514460
EQT Production Company
SHR 60

Tract ID	Tract Area	Parcel No.	County	District	Surface Tract Owner	Acres
1	18	12	Tyler	McElroy	Naama A. Underwood Estate	33.00
2	18	12	Tyler	McElroy	Blaine Underwood Estate, et al.	104.73
3	18	9	Tyler	McElroy	Lawrence Rayburn, et al.	100.00
4	18	7.1	Tyler	McElroy	Patricia A. Keys, et al.	102.31
5	18	10	Tyler	McElroy	Susan Spencer	2.92
6	18	11	Tyler	McElroy	Susan Spencer	132.00
7	18	13	Tyler	McElroy	Susan Spencer	8.00
8	18	16	Tyler	McElroy	Donald E. Bible Sr.	35.50
9	18	21	Tyler	McElroy	Clyde Seelman Estate	111.75
10	18	17	Tyler	McElroy	Allen Dale Farnush, et al.	43.00
11	18	22	Tyler	McElroy	Donald E. Bible Sr.	29.25
12	18	14	Tyler	McElroy	Terry L. Comberford, et al.	54.81
13	18	18	Tyler	McElroy	Terry L. Comberford, et al.	49.87
14	18	19	Tyler	McElroy	John Paul Davis	35.00
15	18	20.2	Tyler	McElroy	Richard E. Hansen	19.96
16	18	20	Tyler	McElroy	Clarence G. Dillon, et al.	113.42
17	18	20.6	Tyler	McElroy	Clarence G. Dillon Jr.	6.71
18	18	20.5	Tyler	McElroy	Clarence G. Dillon Jr.	2.94
19	18	20	Tyler	McElroy	Clarence G. Dillon, et al.	113.42
20	18	20.4	Tyler	McElroy	John A. Dillon	7.04
21	18	20.3	Tyler	McElroy	Peter H. Moulter	4.69
22	18	20.1	Tyler	McElroy	William R. Doll Jr, et al.	1.08
23	21	44	Tyler	McElroy	William R. Doll Jr, et al.	2.43
24	21	45	Tyler	McElroy	Clarence G. Dillon, et al.	2.43
25	21	15	Tyler	McElroy	Paul Weekley	34.00
26	21	14	Tyler	McElroy	Dennis H. & Kim M. Wilmoth	73.29
27	21	14	Tyler	McElroy	Dennis H. & Kim M. Wilmoth	73.29
28	18	21	Tyler	McElroy	Barbara Wilcox	5.90
29	22	20	Tyler	McElroy	James R. Scott	30.00
30	21	18	Tyler	McElroy	Richard E. & Barbara A. Mullins	20.00
31	21	16	Tyler	McElroy	Paul Weekley	34.00
32	21	14	Tyler	McElroy	Dennis H. & Kim M. Wilmoth	73.29
33	21	15	Tyler	McElroy	Richard E. & Barbara A. Mullins	20.00
34	21	17	Tyler	McElroy	Paul Weekley	32.95
35	21	17	Tyler	McElroy	Dennis H. & Kim M. Wilmoth	7.30
36	21	21	Tyler	McElroy	James R. Scott	30.00
37	21	19	Tyler	McElroy	Berlinda Rose, et al.	55.00
38	21	21	Tyler	McElroy	James R. Scott	30.00
39	22	18	Tyler	McElroy	Bruce W. Boland	86.75
40	21	33	Tyler	McElroy	Bruce W. Boland	52.46
41	21	23	Tyler	McElroy	Foggy A. White	43.88
42	22	18.1	Tyler	McElroy	Bruce W. Boland	28.91
43	22	17	Tyler	McElroy	David R. & Elizabeth A. Beveridge	12.00
44	22	16	Tyler	McElroy	Leah Weekley	29.00
45	2	18	Doddridge	West Union	David R. & Elizabeth A. Beveridge	125.00
46	2	1	Doddridge	West Union	James M. Petrovick, et al.	70.00
47	22	15	Tyler	McElroy	Kath Weekley	25.00
48	2	5.4	Doddridge	West Union	David R. & Elizabeth A. Beveridge	11.90
49	2	5.1	Doddridge	West Union	David R. & Elizabeth A. Beveridge	20.88
50	2	4.1	Doddridge	West Union	Robert B. & Mary E. Simpson	20.00
51	2	4	Doddridge	West Union	Robert B. & Mary E. Simpson	34.50
52	21	20	Tyler	McElroy	Richard & Barbara Mullins	1.00
53	2	9	Doddridge	West Union	Charles C. Haul II	115.75

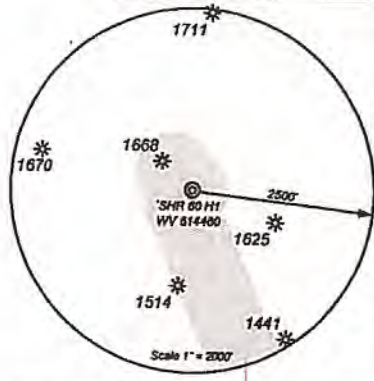


SHR 60

- H1, 514460
- H2, 514461
- H3, 514462
- H4, 514463
- H5, 514464
- H6, 514465
- H7, 514466
- H8, 515434
- H9, 515435
- H10, 515436
- H11, 515437
- H12, 515438

As-Ordered Well Info:
 WV 514460 coordinates are
 NAD 27 N: 328,202.21 E: 1,629,430.42
 NAD 83 UTM N: 4,360,607.42 E: 516,268.70
 WV 514460 Landing Point coordinates are
 NAD 27 N: 328,231.08 E: 1,629,440.01
 NAD 83 UTM N: 4,360,500.46 E: 516,270.91
 WV 514460 Bottom 1500 coordinates are
 NAD 27 N: 315,344.67 E: 1,634,500.53
 NAD 83 UTM N: 4,336,802.53 E: 518,009.11

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
126167	43	Berlinda Rose, et al.
126181	43	John A. Dillon, et al.
126211	145	John A. Dillon, et al.
180034	36	Paul Weekley
126186	36	Bruce L. Sloneking, et al.
126137	20	S.A. Smith & C. Burke Morris Trust, et al.
126152	20	Linda Sue Lamb, et al.
05-18-9	100	Billy Joe Rayburn, et ux.
126133	40	Dorothy H. Bode
05-18-9	100	Lawrence Rayburn, et ux.
105456	96	Kimberly Wilcox
05-18-7.1	102.31	Brenda J. Ashley, et vr.
126177	138	Regina M. Buck, et al.

- Proposed Gas Well
- Located Corner, as noted
- Surface Tract Lines
- Reference Line
- Lease Boundary
- Creek or Drain
- WV County Route
- WV State Route

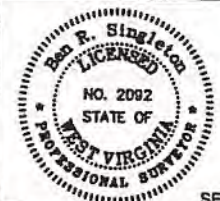
Sub Surface Easements

Parcel No.	Acres	Owner
05-18-9	100	Billy Joe Rayburn, et ux.
05-18-9	100	Lawrence Rayburn, et ux.
05-18-7.1	102.31	Brenda J. Ashley, et vr.
05-18-7.1	102.31	Patricia A. Keys



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



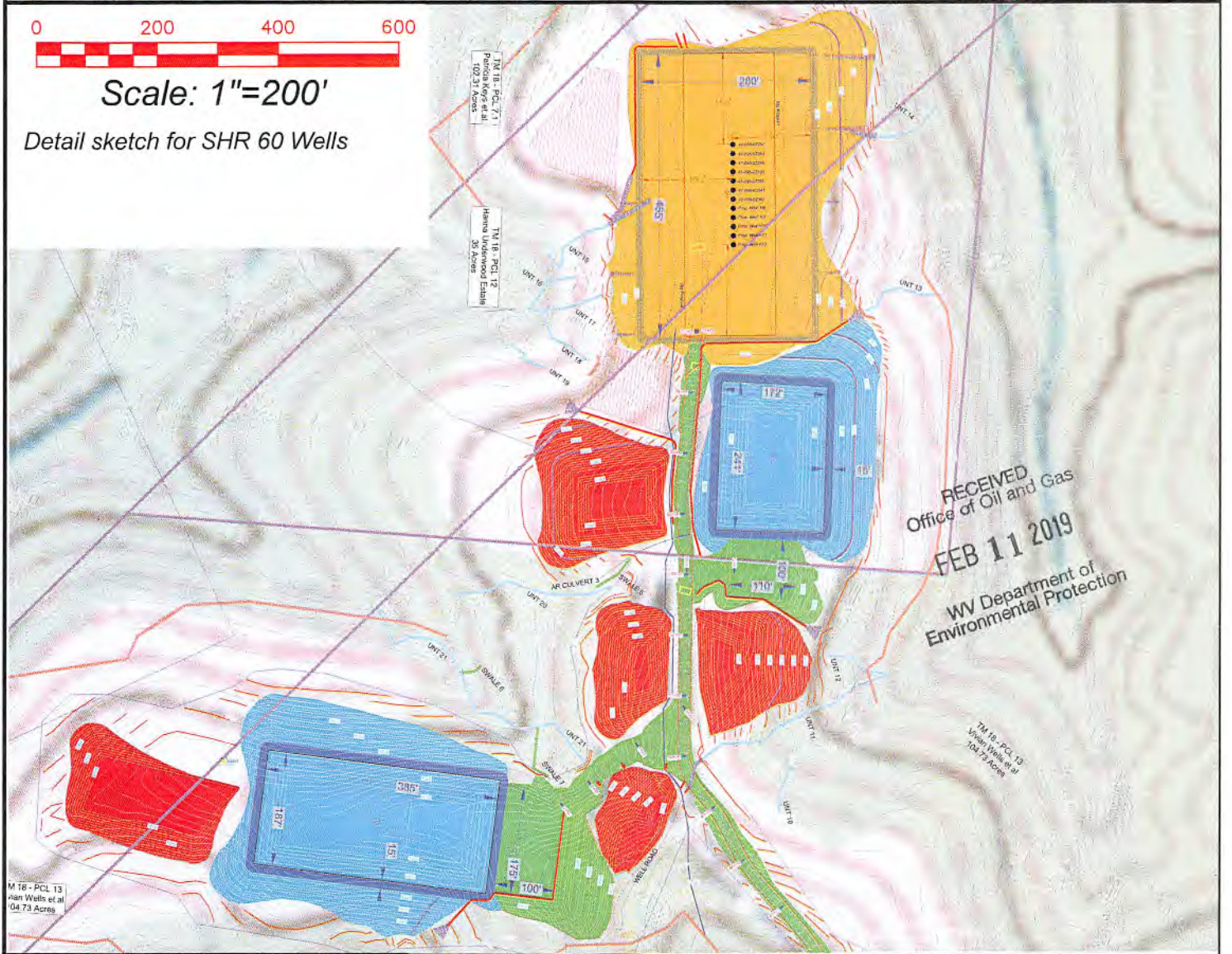
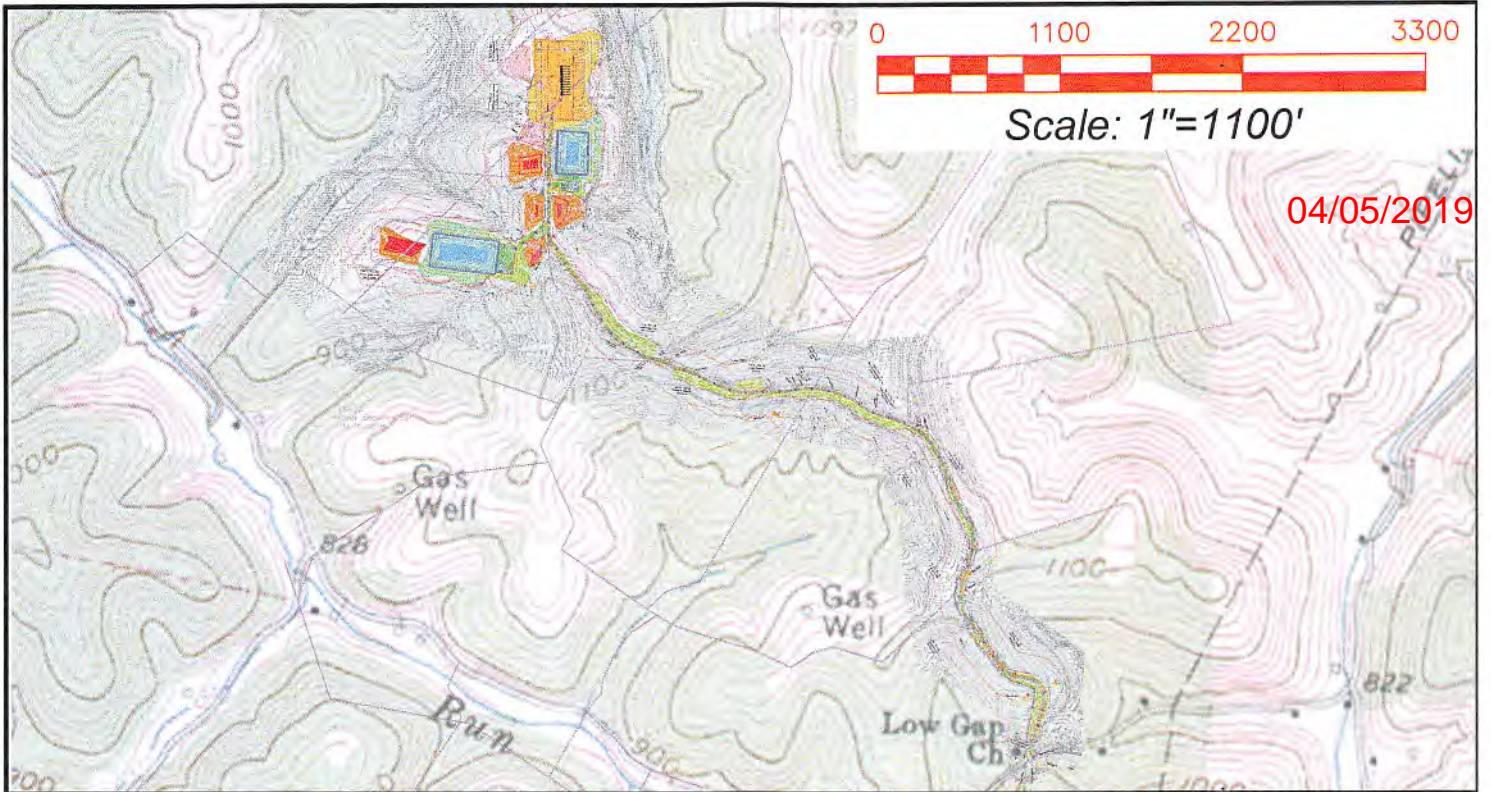
FILE NO: 208-13
 DRAWING NO: 208-13 SHR 60 H1
 SCALE: 1" = 2000'
 MINIMUM DEGREE OF ACCURACY: 1:2500
 PROVEN SOURCE OF ELEVATION: NGS CORS Station



DATE: September 29 20 17
 OPERATOR'S WELL NO.: WV 514460
 API WELL NO
 47 - 95 - 02257
 STATE COUNTY PERMIT

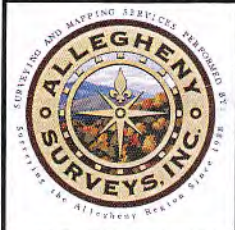
WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
 (IF GAS) PRODUCTION: STORAGE DEEP SHALLOW
 LOCATION: ELEVATION: As-Built 1,011' WATERSHED Morrison Run of McElroy Creek QUADRANGLE: Shirley
 DISTRICT: McElroy COUNTY: Tyler
 SURFACE OWNER: Vivian J. Wells, et al.
 ROYALTY OWNER: George Birklein, et al. ACREAGE: 35.38
 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: 6596
 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

RECEIVED
 Office of Oil and Gas
 FEB 11 2019
 WV Department of
 Environmental Protection



Shirley 7.5' USGS QUADRANGLE		Proposed Disturbance Area	
Projected culvert inventory. (for bid purposes only)		Well Site Location	See Site Plan
15" minimum diameter culverts	See Site Plan	Proposed Access Road	See Site Plan
24" minimum diameter culverts	See Site Plan	Approximate Total Disturbance	See Site Plan
DRAWN BY: Ben Singleton PS	DATE: July 3, 2018	FILE NO. 208-13	DRAWING FILE NO. ACAD-208-13-Rec Plan

Note: SEE SITE PLAN OF SHR 60 FOR COMPLETE GRADING & DRAINAGE CONSTRUCTION INCLUDING EROSION & SEDIMENT CONTROL DETAILS, ETC.



SURVEYING AND MAPPING SERVICES PERFORMED BY:
ALLEGHENY SURVEYS, INC.
 1-800-482-8606
 Birch River Office 237 Birch River Road
 Phone: (304) 649-8606 P.O. Box 438
 Fax: (304) 649-8608 Birch River, WV 26610

Topo Quad: Shirley 7.5'

Scale: 1"=1000'

04/05/2019

County: Tyler

Date: August 3, 2018

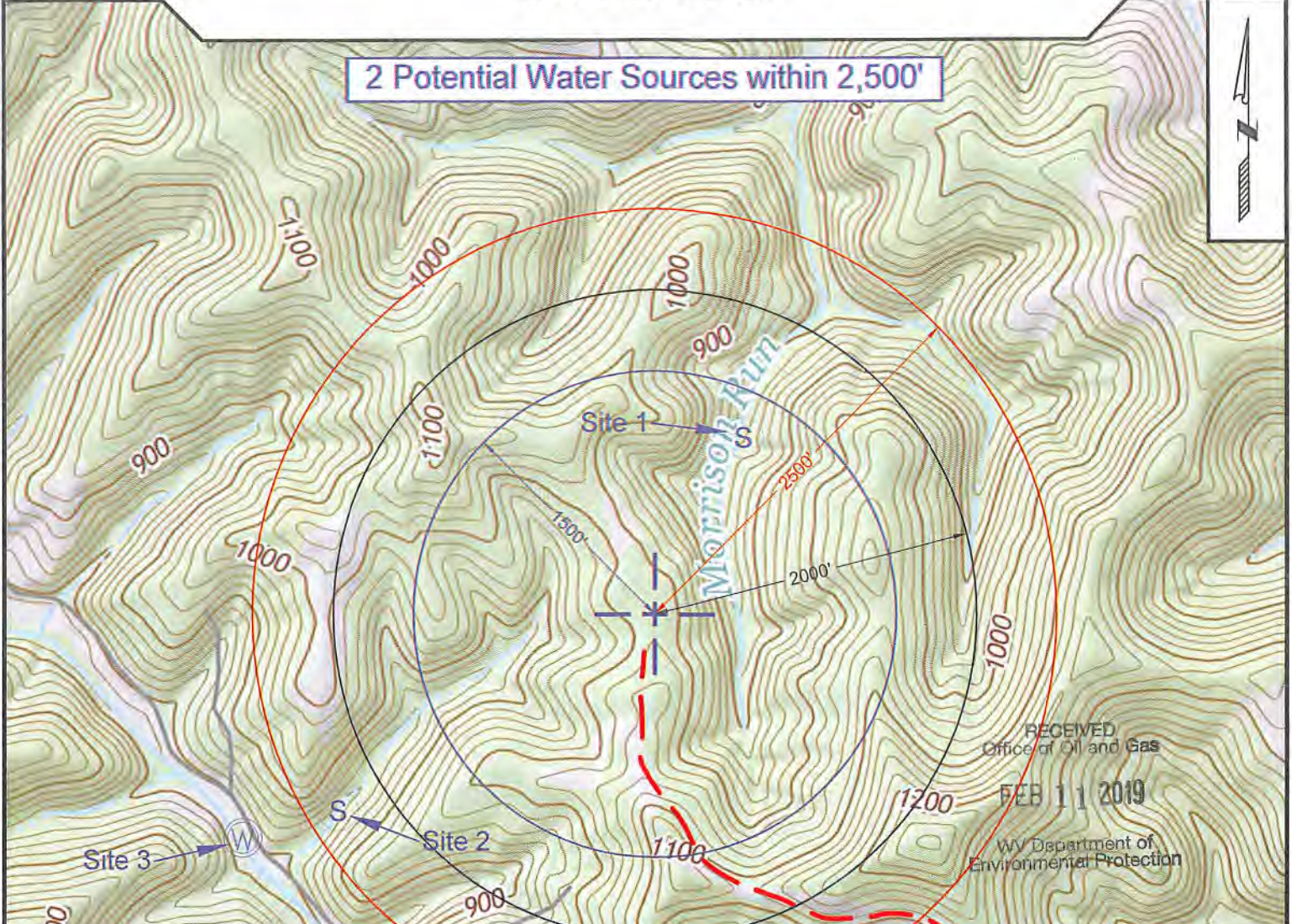
District: McElroy

Project No: 208-12-C-13

Water

SHR 60 PAD

2 Potential Water Sources within 2,500'



RECEIVED
Office of Oil and Gas
FEB 11 2019
WV Department of
Environmental Protection

LEGEND

Red Symbol - Declined Sampling
Blue Symbol - Requested Sampling
/ Unable to Contact

- Well
- Spring
- Pond
- Building

NAD 27, North Zone
N: 328,499.71
E: 1,629,439.22

WGS 84
LAT: 39.394582
LONG: -80.811061
ELEV: 1012.00'



SURVEYING AND MAPPING SERVICES PERFORMED BY:

ALLEGHENY SURVEYS, INC.

1-800-482-8606
237 Birch River Road
Birch River, WV 26610
PH: (304) 649-8606
FAX: (304) 649-8608

PREPARED FOR:

EQT Production Company

2400 Ansys Drive, Suite 200
Canonsburg, PA 15317



Table 1 – Water Source Identification

EQT Well Pad Name: SHR 60 PAD

Submittal Date: 7/30/2018

EQT Well Number: _____

Survey / Engineering Company: Allegheny Surveys, Inc.

Site Number: 1 Distance from Gas Well (feet): 1224.65

Surface Owner / Occupant: Todd & Kimberly James

Address: 2879 Jefferson Run Rd. Alma, WV 26320 Phone #: 304-758-2853

Field Located Date: 7/28/2018 Owner home during survey (yes/no): Yes

Coordinates: 39.235137, 80.483297 (decimal degrees – NAD 83)

Contact Attempts (Date): 1st: 7/9/2018 2nd: _____ Door Hanger Left: _____

Comments: Certified letter sent July 9. Did not receive return card back. **Visit 1 - July 10:** John spoke to Kim at their residence on Jefferson Run Rd. She said they use a spring at property on Morrison Run for cattle. Property is accessed through EQT access road through well pad. Left letter with her. She will talk to Todd and get back to me. **Visit 2 – July 20:** talked to Todd 11:30 a.m. after meeting with Steve Ashley (sites 2 & 3). Todd said he estimated spring to be 200 yards north of well pad. He didn't seem to think it was necessary to test the water because he had never known of it being tested before, but refused to sign the form to decline testing. He said he would go ahead and have it tested. He indicated his phone had been out for a few weeks. **Visit 3 – 7/25:** Unable to contact Mr. James to set up meeting to get site location, drove to residence again and arranged with Kim to meet Todd on 7/28. **Visit 4 - 7/28:** Met with Todd James to do field location on Morrison Run. **Beware of dogs.** Once they get to know you, they're fine. Todd and Kim are very friendly. Cell phone: 740-228-9542

- | | |
|-------------------------------------|--|
| <input checked="" type="checkbox"/> | Landowner Requested Sampling |
| <input type="checkbox"/> | Landowner Decline Sampling |
| <input type="checkbox"/> | Unable to Contact
(Further contact attempts to be made by EQT's third party pre-drill sampling lab) |

Site Number: 2 Distance from Gas Well (feet): 2311.54

Surface Owner / Occupant: Steve Ashley (formerly Keys)

Address: 3332 Jefferson Run Rd. Alma WV 26320 Phone #: 304-758-2907

Field Located Date: 7/20/2018 Owner home during survey (yes/no): Yes

Coordinates: 39.232821, 80.490465 (decimal degrees – NAD 83)

Contact Attempts (Date): 1st: 7/9/2018 2nd: _____ Door Hanger Left: Yes

Comments: **Visited residence on 7/10/18, doorhanger left. Barn and stream across road from house. Steve Ashley called me on 7/19/2018 after receiving certified to arrange field visit. Stream located behind barn.**

- | | |
|-------------------------------------|--|
| <input checked="" type="checkbox"/> | Landowner Requested Sampling |
| <input type="checkbox"/> | Landowner Decline Sampling |
| <input type="checkbox"/> | Unable to Contact
(Further contact attempts to be made by EQT's third party pre-drill sampling lab) |

(Insert additional pages as needed)

Site Number: 3 Distance from Gas Well (feet): 2910.51

Surface Owner / Occupant: Steve Ashley (formerly Keys)

Address: 3332 Jefferson Run Rd. Alma WV 26320 Phone #: 304-758-2907

Field Located Date: 7/20/2018 Owner home during survey (yes/no): Yes

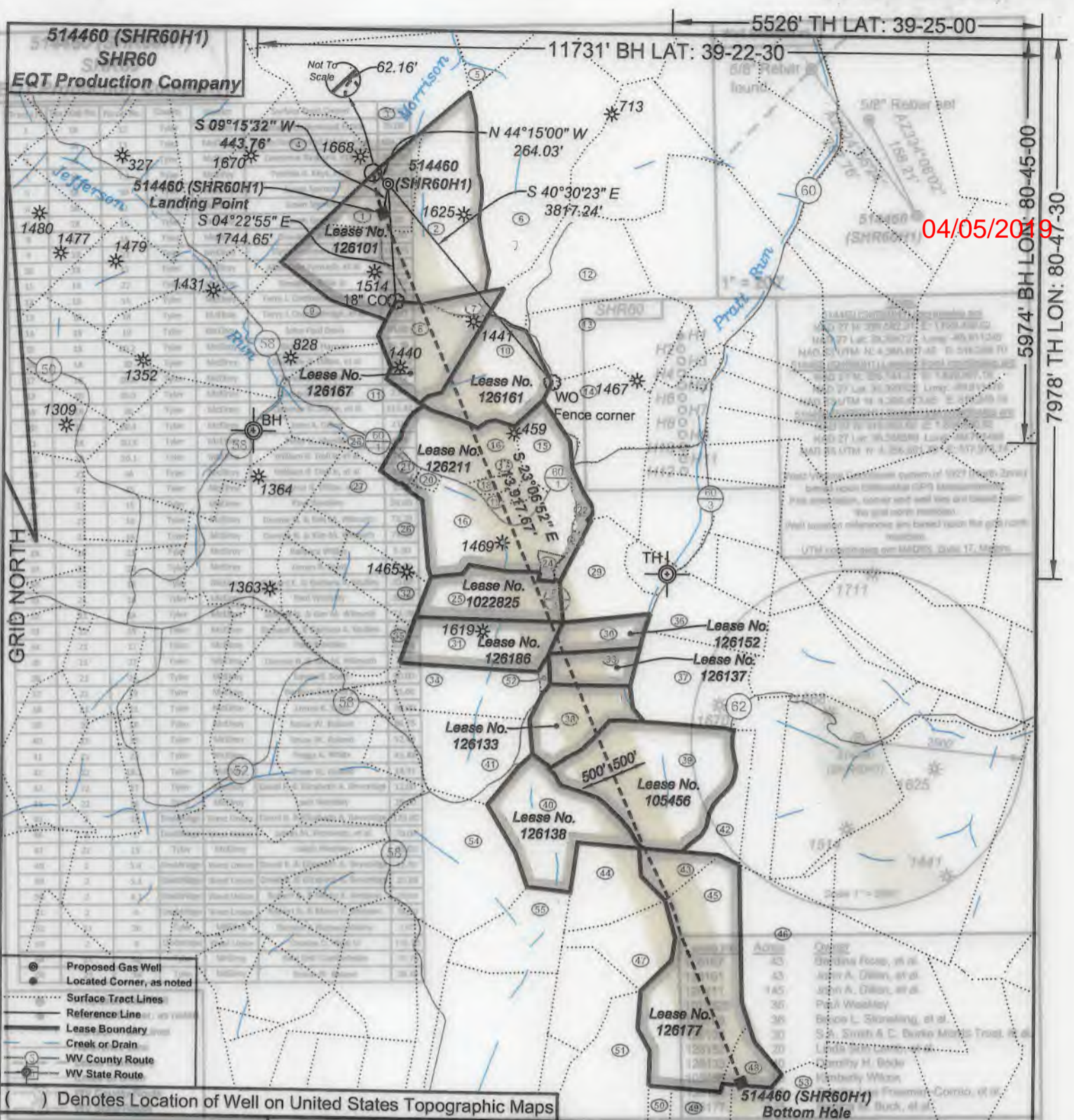
Coordinates: 39.232648, 80.491219 (decimal degrees – NAD 83)

Contact Attempts (Date): 1st: 7/9/2018 2nd: _____ Door Hanger Left: _____

Comments: **Water well located outside 2,500' radius.**

<input checked="" type="checkbox"/> Landowner Requested Sampling
<input type="checkbox"/> Landowner Decline Sampling
<input type="checkbox"/> Unable to Contact <small>(Further contact attempts to be made by EQT's third party pre-drill sampling lab)</small>

PAD_NAME	Sample_Number	Surface_Owner	Surface_Owner_Address	Surface_Address	Mailing_Address_Same	Mailing_Address
SHR 60	1	James, Todd & Kimberly	Morrison Run		No	2879 Jefferson Run Rd Alma WV 26320
SHR 60	2	Ashley, Steve - formerly Keys, Patricia & Ashley, Brenda	3332 Jefferson Run Road, Alma WV 26320		No	1408 Middle Island Rd. Middlebourne WV 26149
SHR 60	3	Ashley, Steve - formerly Keys, Patricia & Ashley, Brenda	3332 Jefferson Run Road, Alma WV 26320		No	1408 Middle Island Rd. Middlebourne WV 26149
SHR 60		Underwood, Blaine C/O George Berklein	Morrison Run		No	121 Oxford St. Sistersville WV 26175
SHR 60		Hanna Underwood C/O Kathleen Birklein	Jeffrys Run		No	121 Oxford St. Sistersville WV 26175-1635



04/05/2019

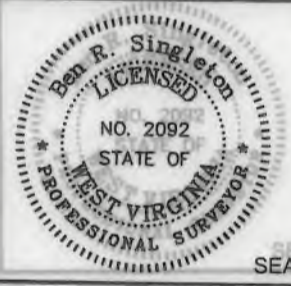
- ⊙ Proposed Gas Well
- Located Corner, as noted
- Surface Tract Lines
- Reference Line
- Lease Boundary
- Creek or Drain
- WV County Route
- WV State Route

() 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: 208-13
DRAWING NO: 208-13 514460 (SHR60H1)
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: January 31, 2019
OPERATOR'S WELL NO.: 514460 (SHR60H1)
API WELL NO
47 - 95 - 02257
STATE COUNTY PERMIT

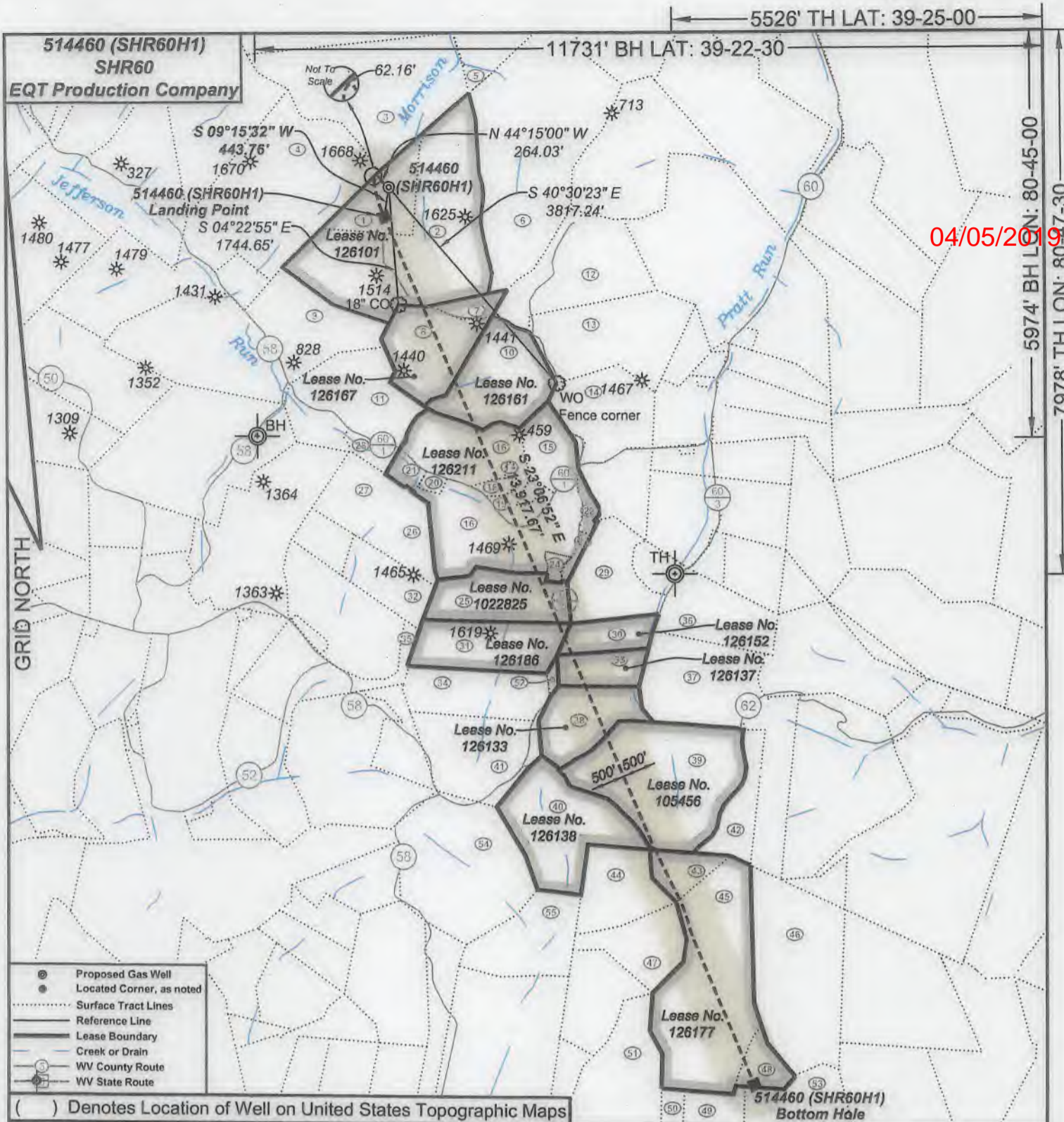
WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
(IF GAS) PRODUCTION: STORAGE DEEP SHALLOW

LOCATION: ELEVATION: As-Built 1,011' WATERSHED Morrison Run of McElroy Creek QUADRANGLE: Shirley
DISTRICT: McElroy COUNTY: Tyler

SURFACE OWNER: Vivian J. Wells, et al. ACREAGE: 35.38
ROYALTY OWNER: George Birklein, et al. LEASE NO: 126101 ACREAGE: 240

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: 6,600'

WELL OPERATOR: EQT Production Company DESIGNATED AGENT: Jason Ranson
ADDRESS: 2400 Ansys Drive, Suite 200 Canonsburg, PA 15317 ADDRESS: 115 Professional Place PO Box 280 Bridgeport, WV 26330



04/05/2019

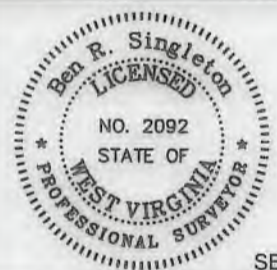
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- Located Corner, as noted
- Surface Tract Lines
- Reference Line
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Ben R. Singleton
P.S. 2092



SEAL

FILE NO: 208-13
DRAWING NO: 208-13 514460 (SHR60H1)
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

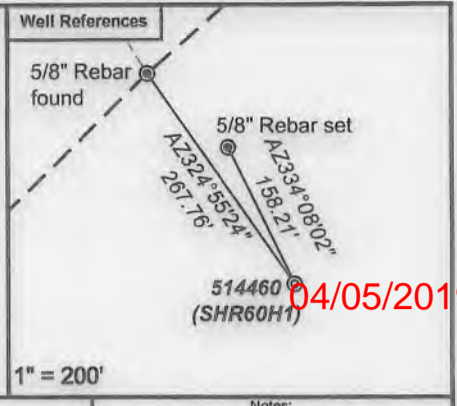
DATE: January 31 20 19
OPERATOR'S WELL NO.: 514460 (SHR60H1)
API WELL NO
47 - 95 - 02257
STATE COUNTY PERMIT

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
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WELL OPERATOR: EQT Production Company DESIGNATED AGENT: Jason Ranson
ADDRESS: 2400 Ansys Drive, Suite 200 ADDRESS: 115 Professional Place PO Box 280
Canonsburg, PA 15317 Bridgeport, WV 26330

514460 (SHR60H1)
SHR60
EQT Production Company

Tract I.D.	Tax Map No.	Parcel No.	County	District	Surface Tract Owner	Acres
1	18	12	Tyler	McElroy	Hanna A. Underwood Estate	35.00
2	18	13	Tyler	McElroy	Blaine Underwood Estate, et al.	104.73
3	18	9	Tyler	McElroy	Lawrence Rayburn, et al.	100.00
4	18	7.1	Tyler	McElroy	Patricia A. Keys, et al.	102.31
5	18	10	Tyler	McElroy	Susan Spencer	2.92
6	18	11	Tyler	McElroy	Susan Spencer	132.00
7	18	15	Tyler	McElroy	Susan Spencer	8.00
8	18	16	Tyler	McElroy	Donald E. Bible Sr.	35.50
9	18	23	Tyler	McElroy	Clyde Seckman Estate	111.75
10	18	17	Tyler	McElroy	Allen Dale Fornash, et al.	43.00
11	18	22	Tyler	McElroy	Donald E. Bible Sr.	39.26
12	18	14	Tyler	McElroy	Terry J. Cumberledge, et al.	54.81
13	18	18	Tyler	McElroy	Terry J. Cumberledge, et al.	49.87
14	18	19	Tyler	McElroy	John Paul Davis	35.00
15	18	20.2	Tyler	McElroy	Richard E. Hansen	19.96
16	18	20	Tyler	McElroy	Clarence G. Dillon, et al.	113.42
17	18	20.6	Tyler	McElroy	Clarence G. Dillon Jr.	0.71
18	18	20.5	Tyler	McElroy	Clarence G. Dillon Jr.	2.94
19	18	20	Tyler	McElroy	Clarence G. Dillon, et al.	113.42
20	18	20.4	Tyler	McElroy	John A. Dillon	2.04
21	18	20.3	Tyler	McElroy	Peter H. Mueller	4.69
22	18	20.1	Tyler	McElroy	William R. Doll Jr, et al.	3.06
23	21	44	Tyler	McElroy	William R. Doll Jr, et al.	2.43
24	21	45	Tyler	McElroy	Clarence G. Dillon, et al.	2.43
25	21	15	Tyler	McElroy	Paul Weekley	36.00
26	21	14	Tyler	McElroy	Donnie N. & Kim M. Wilmoth	73.39
27	21	14	Tyler	McElroy	Donnie N. & Kim M. Wilmoth	73.39
28	18	21	Tyler	McElroy	Barbara Willer	5.90
29	22	20	Tyler	McElroy	James B. Scott	30.00
30	21	18	Tyler	McElroy	Richard E. & Barbara A. Mullins	20.00
31	21	16	Tyler	McElroy	Paul Weekley	36.00
32	21	14	Tyler	McElroy	Donnie N. & Kim M. Wilmoth	73.39
33	21	19	Tyler	McElroy	Richard E. & Barbara A. Mullins	20.00
34	21	17	Tyler	McElroy	Paul Weekley	32.95
35	21	27	Tyler	McElroy	Donnie N. & Kim M. Wilmoth	7.50
36	21	21	Tyler	McElroy	James B. Scott	30.00
37	22	19	Tyler	McElroy	Berdina Rose, et al.	55.00
38	21	21	Tyler	McElroy	James B. Scott	30.00
39	22	18	Tyler	McElroy	Bruce W. Boland	86.75
40	21	33	Tyler	McElroy	Bruce W. Boland	52.46
41	21	23	Tyler	McElroy	Peggy A. White	45.88
42	22	18.1	Tyler	McElroy	Bruce W. Boland	18.91
43	22	17	Tyler	McElroy	David R. & Elizabeth A. Beveridge	12.00
44	22	16	Tyler	McElroy	Leah Weekley	29.00
45	2	18	Doddridge	West Union	David R. & Elizabeth A. Beveridge	125.00
46	2	1	Doddridge	West Union	James M. Petrovich, et al.	70.00
47	22	15	Tyler	McElroy	Isaiah Weekley	25.00
48	2	5.4	Doddridge	West Union	David R. & Elizabeth A. Beveridge	11.90
49	2	5.1	Doddridge	West Union	David R. & Elizabeth A. Beveridge	20.88
50	2	4.1	Doddridge	West Union	Robert B. & Marry E. Simpson	20.00
51	2	4	Doddridge	West Union	Robert B. & Marry E. Simpson	38.50
52	21	20	Tyler	McElroy	Richard & Barbara Mullins	1.00
53	2	9	Doddridge	West Union	Charles C. Hittal III	115.75
54	21	32	Tyler	McElroy	Asia Dell Cumberledge	75.75
55	21	34	Tyler	McElroy	Bruce W. Boland	85.43



SHR60

- H1
- H2
- H3
- H4
- H5
- H6
- H7
- H8
- H9
- H10
- H11
- H12

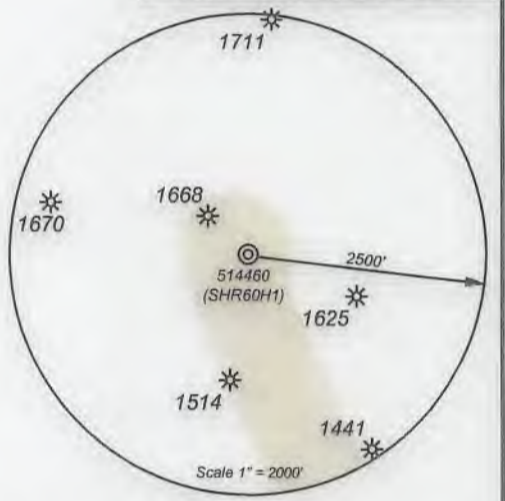
Notes:

514460 (SHR60H1) coordinates are
 NAD 27 N: 328,582.21 E: 1,629,438.62
 NAD 27 Lat: 39.394727 Long: -80.811240
 NAD 83 UTM N: 4,360,607.42 E: 516,268.70

514460 (SHR60H1) Landing Point coordinates are
 NAD 27 N: 328,144.31 E: 1,629,367.19
 NAD 27 Lat: 39.393522 Long: -80.811470
 NAD 83 UTM N: 4,360,473.65 E: 516,249.16

514460 (SHR60H1) Bottom Hole coordinates are
 NAD 27 N: 315,343.92 E: 1,634,830.82
 NAD 27 Lat: 39.358599 Long: -80.791489
 NAD 83 UTM N: 4,356,801.79 E: 517,978.74

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
126167	43	Berdina Rose, et al.
126161	43	John A. Dillon, et al.
126211	145	John A. Dillon, et al.
1022825	36	Paul Weekley
126186	36	Bruce L. Stoneking, et al.
126137	20	S.A. Smith & C. Burke Morris Trust, et al.
126152	20	Linda Sue Lamb, et al.
126133	40	Dorothy H. Bode
105456	96	Kimberly Wilcox
126138	82	Sandra Lee Freeman-Corrao, et al.
126177	138	Regina M. Buck, et al.

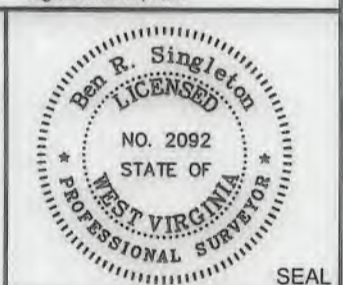
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- Reference Line
- Lease Boundary
- Creek or Drain
- WV County Route
- WV State Route



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Ben R. Singleton

P.S. 2092



FILE NO: 208-13
 DRAWING NO: 208-13 514460 (SHR60H1)
 SCALE: 1" = 2000'
 MINIMUM DEGREE OF ACCURACY: 1:2500
 PROVEN SOURCE OF ELEVATION: NGS CORS Station



DATE: January 31 20 19
 OPERATOR'S WELL NO.: 514460 (SHR60H1)
 API WELL NO
 47 - 95 - 02257
 STATE COUNTY PERMIT

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
 (IF GAS) PRODUCTION: STORAGE DEEP SHALLOW

LOCATION: ELEVATION: As-Built 1,011' WATERSHED Morrison Run of McElroy Creek QUADRANGLE: Shirley
 DISTRICT: McElroy COUNTY: Tyler

SURFACE OWNER: Vivian J. Wells, et al. ACREAGE: 35.38
 ROYALTY OWNER: George Birklein, et al. LEASE NO: 126101 ACREAGE: 240

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: 6,600'

WELL OPERATOR: EQT Production Company DESIGNATED AGENT: Jason Ranson
 ADDRESS: 2400 Ansys Drive, Suite 200 ADDRESS: 115 Professional Place PO Box 280
Canonsburg, PA 15317 Bridgeport, WV 26330

WW-6A1
(5/13)

Operator's Well No. 514460 (SHR60H1)

**INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE
Chapter 22, Article 6A, Section 5(a)(5)
IN LIEU OF FILING LEASE(S) AND OTHER CONTINUING CONTRACT(S)**

Under the oath required to make the verification on page 1 of this Notice and Application, I depose and say that I am the person who signed the Notice and Application for the Applicant, and that –

- (1) the tract of land is the same tract described in this Application, partly or wholly depicted in the accompanying plat, and described in the Construction and Reclamation Plan;
- (2) the parties and recordation data (if recorded) for lease(s) or other continuing contract(s) by which the Applicant claims the right to extract, produce or market the oil or gas are as follows:

Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
See Attached				

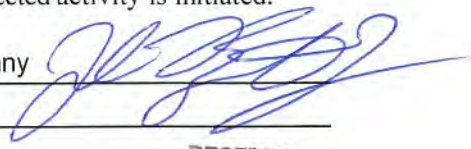
**Acknowledgement of Possible Permitting/Approval
In Addition to the Office of Oil and Gas**

The permit applicant for the proposed well work addressed in this application hereby acknowledges the possibility of the need for permits and/or approvals from local, state, or federal entities in addition to the DEP, Office of Oil and Gas, including but not limited to the following:

- WV Division of Water and Waste Management
- WV Division of Natural Resources WV Division of Highways
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- County Floodplain Coordinator

The applicant further acknowledges that any Office of Oil and Gas permit in no way overrides, replaces, or nullifies the need for other permits/approvals that may be necessary and further affirms that all needed permits/approvals should be acquired from the appropriate authority before the affected activity is initiated.

Well Operator: EQT Production Company
 By: John Zavatchan
 Its: Landman - Permitting



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Page 1 of 2
WV Department of
Environmental Protection

Lease No.	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
<u>126101</u>	<u>George Birklein, et al (current royalty owner)</u> WM. Blaine Underwood Et ux et al (original lessor) Equitable Gas Co. Equitrans, Inc./Equitable Gas Company/Equitable Resources, Inc. Equitrans, L.P. Equitrans, L.P.	Equitable Gas Co. Equitrans, Inc. Equitrans, L.P. EQT Production Company EQT Production Company	**	DB186/86 DB274/471 DB433/777 DB396/640 OG420/10
<u>126167</u>	<u>Berdina Rose, et al (current royalty owner)</u> Savannah Pratt, et al (original lessor) Equitable Gas Co. Equitrans, Inc./Equitable Gas Company/Equitable Resources, Inc. Equitrans, L.P.	Equitable Gas Co. Equitrans, Inc. Equitrans, L.P. EQT Production Company		DB192/425 DB274/471 DB433/777 DB396/640
<u>126161</u>	<u>John A. Dillon, et al (current royalty owner)</u> John M. Pierpoint, et al (original lessor) Equitable Gas Co. Equitrans, Inc./Equitable Gas Company/Equitable Resources, Inc. Equitrans, L.P.	Equitable Gas Co. Equitrans, Inc. Equitrans, L.P. EQT Production Company		DB192/368 DB274/471 DB433/777 DB396/640
<u>126211</u>	<u>Below the Fifth Sand</u> <u>John A. Dillon, et al (current royalty owner)</u> Mary E. Underwood, et vir (original lessor) Hope Natural Gas Co. Consolidated Gas Supply Corp. Consolidated Gas Transmission Corp. CNG Development Co. Dominion Appalachian Development, Inc. Consol Gas Appalachian Development, LLC CNX Gas Co., LLC CNX Gas Co., LLC/Noble Energy, Inc	Hope Natural Gas Co. Consolidated Gas Supply Corp. Consolidated Gas Transmission Corp. CNG Development Co. Dominion Appalachian Development, Inc. Consol Gas Appalachian Development, LLC CNX Gas Co., LLC EQT Production Co. EQT Production Co.		DB70/477 DB169/26 DB249/287 DB253/57 DB337/340 CB9/131 CB9/206 DB479/55 AB505/222
<u>1022825</u>	<u>Paul Weekley (current royalty owner)</u> Paul Weekley, et al (original lessor)	EQT Production Co.		DB548/119
<u>126186</u>	<u>Bruce L. Stoneking, et al (current royalty owner)</u> Addie Keys & Paul Weekley (original lessor) Equitable Gas Co. Equitrans, Inc./Equitable Gas Company/Equitable Resources, Inc. Equitrans, L.P.	Equitable Gas Company Equitrans, Inc. Equitrans, L.P. EQT Production Company		DB195/372 DB274/471 DB433/777 DB396/640
<u>126137</u>	<u>S.A. Smith and C. Burke Morris Trust, et al (current royalty owner)</u> Carl C. Weekley, et al (original lessor) Equitable Gas Co. Equitrans, Inc./Equitable Gas Company/Equitable Resources, Inc. Equitrans, L.P.	Equitable Gas Co. Equitrans, Inc. Equitrans, L.P. Equitable Production Company		DB191/536 DB274/471 DB433/777 DB396/640
<u>126152</u>	<u>Linda Sue Lamb, et al (current royalty owner)</u> Carl C. Weekley, et al (original lessor) Equitable Gas Co. Equitrans, Inc./Equitable Gas Company/Equitable Resources, Inc. Equitrans, L.P.	Equitable Gas Co. Equitrans, Inc. Equitrans, L.P. EQT Production Company		DB191/489 DB274/471 DB433/777 DB396/640
<u>126133</u>	<u>Dorothy H. Bode (current royalty owner)</u> Mollie Scott (original lessor) Equitable Gas Co. Equitrans, Inc./Equitable Gas Company/Equitable Resources, Inc. Equitrans, L.P.	Equitable Gas Company Equitrans, Inc. Equitrans, L.P. EQT Production Company		DB191/417 DB274/471 DB433/777 DB396/640
<u>105456</u>	<u>Kimberly Wilcox (current royalty owner)</u> Olive I. Stewart, et vir (original lessor) J. L. Newman The Philadelphia Company of West Virginia Pittsburgh and West Virginia Gas Company Equitable Gas Co. Equitrans, Inc./Equitable Gas Company/Equitable Resources, Inc. Equitrans, L.P.	J L Newman The Philadelphia Company of West Virginia Pittsburgh and West Virginia Gas Company Equitable Gas Co. Equitrans, Inc. Equitrans, L.P. EQT Production Company		LB69/42 QG455/390 DB101/36 132/414 DB274/471 DB433/777 DB396/640
<u>126138</u>	<u>Sendra Lee Freeman-Carrazo, et al (current royalty owner)</u> E.K. Freeman, Et ux (original lessor) Equitable Gas Co. Equitrans, Inc. Equitrans, L.P.	Equitable Gas Company Equitrans, Inc. Equitrans, L.P. EQT Production Company		224/463 DB274/471 DB433/777 DB396/640
<u>126177</u>	<u>Regina M. Buck, et al (current royalty owner)</u> J.S. Buck, et ux (original lessor) Equitable Gas Company Equitrans, Inc. Equitrans, L.P.	Equitable Gas Company Equitrans, Inc. Equitrans, L.P. EQT Production Company		DB97/533 154/475 329/645 DB396/640

** Per West Virginia Code Section 22-6-8.



04/05/2019
EQT Production Company
2400 Ansys Drive, Suite 200
Canonsburg, PA 15317
www.eqt.com

John Zavatchan
Landman - Permitting
O:724-746-9073
jzavatchan@eqt.com

January 30, 2019

Mr. Taylor Brewer
West Virginia Department of Environmental Protection
Office of Oil and Gas
601 57th Street SE
Charleston, WV 25304

Re: 514460 (SHR60H1) Gas Well
McElroy District, Tyler County

Dear Mr. Brewer,

EQT Production Company is applying for a new well work permit for the well referenced above. Upon information and belief, the Operator's lease and/ or other real property rights permit it to conduct drilling operations for the subject well in the location shown on the plat, including under any public roads that the well lateral crosses.

Sincerely,

A handwritten signature in blue ink, appearing to read 'John Zavatchan', is written over the word 'Sincerely,'.

John Zavatchan
Landman - Permitting

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE CERTIFICATION

Date of Notice Certification: 02/08/2019

API No. 47- 095 - 02257
Operator's Well No. 514460 (SHR60H1)
Well Pad Name: SHR60

Notice has been given:

Pursuant to the provisions in West Virginia Code § 22-6A, the Operator has provided the required parties with the Notice Forms listed below for the tract of land as follows:

State:	<u>West Virginia</u>	UTM NAD 83 Easting:	<u>516,268.70</u>
County:	<u>Tyler</u>	Northing:	<u>4,360,607.42</u>
District:	<u>McElroy</u>	Public Road Access:	<u>60/2</u>
Quadrangle:	<u>Shirley</u>	Generally used farm name:	<u>Vivian J. Wells, et. al.</u>
Watershed:	<u>Morrison Run of McElroy Creek</u>		

Pursuant to West Virginia Code § 22-6A-7(b), every permit application filed under this section shall be on a form as may be prescribed by the secretary, shall be verified and shall contain the following information: (14) A certification from the operator that (i) it has provided the owners of the surface described in subdivisions (1), (2) and (4), subsection (b), section ten of this article, the information required by subsections (b) and (c), section sixteen of this article; (ii) that the requirement was deemed satisfied as a result of giving the surface owner notice of entry to survey pursuant to subsection (a), section ten of this article six-a; or (iii) the notice requirements of subsection (b), section sixteen of this article were waived in writing by the surface owner; and Pursuant to West Virginia Code § 22-6A-11(b), the applicant shall tender proof of and certify to the secretary that the notice requirements of section ten of this article have been completed by the applicant.

Pursuant to West Virginia Code § 22-6A, the Operator has attached proof to this Notice Certification that the Operator has properly served the required parties with the following:

*PLEASE CHECK ALL THAT APPLY

- 1. NOTICE OF SEISMIC ACTIVITY or NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED
- 2. NOTICE OF ENTRY FOR PLAT SURVEY or NO PLAT SURVEY WAS CONDUCTED
- 3. NOTICE OF INTENT TO DRILL or NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)
- 4. NOTICE OF PLANNED OPERATION
- 5. PUBLIC NOTICE
- 6. NOTICE OF APPLICATION

OOG OFFICE USE ONLY

- RECEIVED/ NOT REQUIRED
- RECEIVED
- RECEIVED/ NOT REQUIRED
- RECEIVED
- RECEIVED
- RECEIVED

Required Attachments:

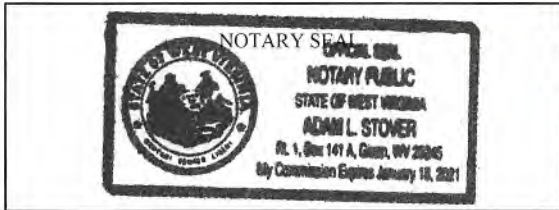
The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication date verification or the associated Affidavit of Publication. The attached Notice Forms and Certifications of Notice shall serve as proof that the required parties have been noticed as required under West Virginia Code § 22-6A. Pursuant to West Virginia Code § 22-6A-11(b), the Certification of Notice to the person may be made by affidavit of personal service, the return receipt card or other postal receipt for certified mailing.

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Certification of Notice is hereby given:

THEREFORE, I John Zavatchan, have read and understand the notice requirements within West Virginia Code § 22-6A. I certify that as required under West Virginia Code § 22-6A, I have served the attached copies of the Notice Forms, identified above, to the required parties through personal service, by registered mail or by any method of delivery that requires a receipt or signature confirmation. I certify under penalty of law that I have personally examined and am familiar with the information submitted in this Notice Certification and all attachments, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Well Operator:	<u>EQT Production Company</u>	Address:	<u>2400 Ansys Drive, Suite 200</u>
By:	<u>John Zavatchan</u>		<u>Canonsburg, PA 15317</u>
Its:	<u>Landman - Permitting</u>	Facsimile:	<u>724-745-2418</u>
Telephone:	<u>724-746-9073</u>	Email:	<u>jzavatchan@eqt.com</u>



Subscribed and sworn before me this 8th day of February 2019
[Signature] Notary Public
 My Commission Expires 1/18/2021

Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov.

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**STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE OF APPLICATION**

Notice Time Requirement: notice shall be provided no later than the **filing date of permit application.**

Date of Notice: 2/6/19, 2/8/19 **Date Permit Application Filed:** 2/8/19

Notice of:

- PERMIT FOR ANY WELL WORK
- CERTIFICATE OF APPROVAL FOR THE CONSTRUCTION OF AN IMPOUNDMENT OR PIT

Delivery method pursuant to West Virginia Code § 22-6A-10(b)

- PERSONAL SERVICE
- REGISTERED MAIL
- METHOD OF DELIVERY THAT REQUIRES A RECEIPT OR SIGNATURE CONFIRMATION

Pursuant to W. Va. Code § 22-6A-10(b) no later than the filing date of the application, the applicant for a permit for any well work or for a certificate of approval for the construction of an impoundment or pit as required by this article shall deliver, by personal service or by registered mail or by any method of delivery that requires a receipt or signature confirmation, copies of the application, the erosion and sediment control plan required by section seven of this article, and the well plat to each of the following persons: (1) The owners of record of the surface of the tract on which the well is or is proposed to be located; (2) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for roads or other land disturbance as described in the erosion and sediment control plan submitted pursuant to subsection (c), section seven of this article; (3) The coal owner, operator or lessee, in the event the tract of land on which the well proposed to be drilled is located [sic] is known to be underlain by one or more coal seams; (4) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for the placement, construction, enlargement, alteration, repair, removal or abandonment of any impoundment or pit as described in section nine of this article; (5) Any surface owner or water purveyor who is known to the applicant to have a water well, spring or water supply source located within one thousand five hundred feet of the center of the well pad which is used to provide water for consumption by humans or domestic animals; and (6) The operator of any natural gas storage field within which the proposed well work activity is to take place. (c)(1) If more than three tenants in common or other co-owners of interests described in subsection (b) of this section hold interests in the lands, the applicant may serve the documents required upon the person described in the records of the sheriff required to be maintained pursuant to section eight, article one, chapter eleven-a of this code. (2) Notwithstanding any provision of this article to the contrary, notice to a lien holder is not notice to a landowner, unless the lien holder is the landowner. W. Va. Code R. § 35-8-5.7.a requires, in part, that the operator shall also provide the Well Site Safety Plan ("WSSP") to the surface owner and any water purveyor or surface owner subject to notice and water testing as provided in section 15 of this rule.

Application Notice WSSP Notice E&S Plan Notice Well Plat Notice is hereby provided to:

SURFACE OWNER(s)
Name: See Attached List
Address: _____

COAL OWNER OR LESSEE
Name: See Attached List
Address: _____

Name: _____
Address: _____

COAL OPERATOR
Name: _____
Address: _____

SURFACE OWNER(s) (Road and/or Other Disturbance)
Name: See Attached List
Address: _____

SURFACE OWNER OF WATER WELL AND/OR WATER PURVEYOR(s)
Name: See Attached List
Address: _____

Name: _____
Address: _____

SURFACE OWNER(s) (Impoundments or Pits)
Name: See Attached List
Address: _____

OPERATOR OF ANY NATURAL GAS STORAGE FIELD
Name: _____
Address: _____

*Please attach additional forms if necessary

04/05/2019

Surface Owners:

Vivian Janice Wells
1814 Oil Ridge Rd.
Sistersville, WV 26175

George Birklein
121 Oxford Street
Sistersville, WV 26175

Andrea Shotts
432-2 East Main Street
Plymouth, PA 18651

Albina Pasko
18 Jensen St.
East Brunswick NJ 08816

Clifford Haug
3894 Cellar Creek Rd
Blackstone VA 23824

Timothy M. Haug
3890 Cellar Creek Rd
Blackstone VA 23824

Benjamin A. Haug
3890 Cellar Creek Rd
Blackstone VA 23824

Jean Jackubowski
158 Baumgardner Road
Willow Street PA 17584

Theodore Jackubowski
1212 Kelso Blvd
Windermere FL 34786

Louis Jackubowski, Jr.
1922 Robindale Ave
Lancaster, PA 17601

Mary Jean Ross
904 Truce Road
Holtwood PA 17532

Susan Buzzard
21 Cherokee Road
Willow Street PA 17584

Sharon Graeff
1059 Wyomissing Blvd.
Wyomissing PA 19601

Virginia Hornberger
3415 River Road
Reading PA 19605

Anthony Jackubowski, Jr.
535 Shawnee Street
Wilkes-barre PA 18702

Raymond A. Jackubowski
123 North Pioneer Avenue
Shavertown, PA 18708-1027

Beverly A. Chisdock
213 Lehigh Street
Avoca, Pa 18641-1011

Cynthia Kryzwicki
37 Lee Park Apt. 2
Wilkes-Barre, PA 18706

Lisa Wesolowski
254 Lampman Street
Avoca, PA 18641-1010

Gary A Midcap etal
55 Temple Circle
Sistersville WV 26175

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Surface Owners (road or other disturbance):

Vivian Janice Wells
1814 Oil Ridge Rd.
Sistersville, WV 26175

George Birklein
121 Oxford Street
Sistersville, WV 26175

Andrea Shotts
432-2 East Main Street
Plymouth, PA 18651

Albina Pasko
18 Jensen St.
East Brunswick NJ 08816

Clifford Haug
3894 Cellar Creek Rd
Blackstone VA 23824

Timothy M. Haug
3890 Cellar Creek Rd
Blackstone VA 23824

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Jean Jackubowski
158 Baumgardner Road
Willow Street PA 17584

Theodore Jackubowski
1212 Kelso Blvd
Windermere FL 34786

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1922 Robindale Ave
Lancaster, PA 17601

Mary Jean Ross
904 Truce Road
Holtwood PA 17532

Susan Buzzard
21 Cherokee Road
Willow Street PA 17584

Sharon Graeff
1059 Wyomissing Blvd.
Wyomissing PA 19601

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Avoca, Pa 18641-1011

Cynthia Kryzwicki
37 Lee Park Apt. 2
Wilkes-Barre, PA 18706

Lisa Wesolowski
254 Lampman Street
Avoca, PA 18641-1010

John Paul Davis
45 Crystal Lake Road,
West Union, WV 26456-8932

Richard E. Hansen
1043 Low Gap Road
Wilbur WV 26459

Joyce K. Hill
88 Arvilla Road
Bens Run, WV 26146

Terry J. Cumberledge
1384 Pratts Run Road
Alma, WV 26320

BC Farm Investments LLC
P. O. Box 1183
Cannonsburg, PA 15317

Gary A Midcap etal
55 Temple Circle
Sistersville WV

Susan L. Spencer
HC 74 Box 98
Alma WV 26320 -9710

04/05/2019

Surface Owners (Pits or impoundments):

Vivian Janice Wells
1814 Oil Ridge Rd.
Sistersville, WV 26175

Raymond A. Jackubowski
123 North Pioneer Avenue
Shavertown, PA 18708-1027

George Birklein
121 Oxford Street
Sistersville, WV 26175

Beverly A. Chisdock
213 Lehigh Street
Avoca, Pa 18641-1011

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Plymouth, PA 18651

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535 Shawnee Street
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Coal Owner

Vivian Janice Wells
1814 Oil Ridge Rd.
Sistersville, WV 26175

Louis Jackubowski, Jr.
1922 Robindale Ave
Lancaster, PA 17601

Jean Jackubowski
158 Baumgardner Road
Willow Street PA 17584

Theodore Jackubowski
1212 Kelso Blvd
Windermere FL 34786

Raymond A. Jackubowski
123 North Pioneer Avenue
Shavertown, PA 18708-1027

Albina Pasko
18 Jensen St.
East Brunswick NJ 08816

Beverly A. Chisdock
213 Lehigh Street
Avoca, Pa 18641-1011

George Birklein
121 Oxford Street
Sistersville, WV 26175

Cynthia Kryzwicki
213 Nicholson Street
Wilkes-Barre, PA 18702

Andrea Shotts
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Plymouth, PA 18651

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Avoca, PA 18641-1010

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Wyomissing PA 19601

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21 Cherokee Road
Willow Street PA 17584

Mary Jean Ross
904 Truce Road
Holtwood PA 17532

04/05/2019

Owners of Water Wells

No water owners within 2000 feet.

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Notice is hereby given:

Pursuant to West Virginia Code § 22-6A-10(b), notice is hereby given that the undersigned well operator has applied for a permit for well work or for a certificate of approval for the construction of an impoundment or pit.

This Notice Shall Include:

Pursuant to W. Va. Code § 22-6A-10(b), this notice shall include: (1) copies of the application; (2) the erosion and sediment control plan required by section seven of this article; and (3) the well plat.

Pursuant to W. Va. Code § 22-6A-10(f), this notice shall include: (1) a statement of the time limits for filing written comments; (2) who may file written comments; (3) the name and address of the secretary for the purpose of filing the comments and obtaining additional information; and (4) a statement that the persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.

Pursuant to W. Va. Code R. § 35-8-5.7.a, the operator shall provide the Well Site Safety Plan to the surface owner and any water purveyor or surface owner subject to notice and water testing as provided in section 15 of this rule.

Pursuant to W. Va. Code R. § 35-8-15.2.c, this notice shall: (1) contain a statement of the surface owner's and water purveyor's right to request sampling and analysis; (2) advise the surface owner and water purveyor of the rebuttable presumption for contamination or deprivation of a fresh water source or supply; advise the surface owner and water purveyor that refusal to allow the operator to conduct a pre-drilling water well test constitutes a method to rebut the presumption of liability; (3) advise the surface owner and water purveyor of his or her independent right to sample and analyze any water supply at his or her own expense; advise the surface owner and water purveyor whether or not the operator will utilize an independent laboratory to analyze any sample; and (4) advise the surface owner and water purveyor that he or she can obtain from the Chief a list of water testing laboratories in the subject area capable of and qualified to test water supplies in accordance with standard acceptable methods.

Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

Well Location Restrictions

Pursuant to W. Va. Code § 22-6A-12, Wells may not be drilled within two hundred fifty feet measured horizontally from any existing water well or developed spring used for human or domestic animal consumption. The center of well pads may not be located within six hundred twenty-five feet of an occupied dwelling structure, or a building two thousand five hundred square feet or larger used to house or shelter dairy cattle or poultry husbandry. This limitation is applicable to those wells, developed springs, dwellings or agricultural buildings that existed on the date a notice to the surface owner of planned entry for surveying or staking as provided in section ten of this article or a notice of intent to drill a horizontal well as provided in subsection (b), section sixteen of this article was provided, whichever occurs first, and to any dwelling under construction prior to that date. This limitation may be waived by written consent of the surface owner transmitted to the department and recorded in the real property records maintained by the clerk of the county commission for the county in which such property is located. Furthermore, the well operator may be granted a variance by the secretary from these distance restrictions upon submission of a plan which identifies the sufficient measures, facilities or practices to be employed during well site construction, drilling and operations. The variance, if granted, shall include terms and conditions the department requires to ensure the safety and protection of affected persons and property. The terms and conditions may include insurance, bonding and indemnification, as well as technical requirements. (b) No well pad may be prepared or well drilled within one hundred feet measured horizontally from any perennial stream, natural or artificial lake, pond or reservoir, or a wetland, or within three hundred feet of a naturally reproducing trout stream. No well pad may be located within one thousand feet of a surface or ground water intake of a public water supply. The distance from the public water supply as identified by the department shall be measured as follows: (1) For a surface water intake on a lake or reservoir, the distance shall be measured from the boundary of the lake or reservoir. (2) For a surface water intake on a flowing stream, the distance shall be measured from a semicircular radius extending upstream of the surface water intake. (3) For a groundwater source, the distance shall be measured from the wellhead or spring. The department may, in its discretion, waive these distance restrictions upon submission of a plan identifying sufficient measures, facilities or practices to be employed during well site construction, drilling and operations to protect the waters of the state. A waiver, if granted, shall impose any permit conditions as the secretary considers necessary. (c) Notwithstanding the foregoing provisions of this section, nothing contained in this section prevents an operator from conducting the activities permitted or authorized by a Clean Water Act Section 404 permit or other approval from the United States Army Corps of Engineers within any waters of the state or within the restricted areas referenced in this section. (d) The well location restrictions set forth in this section shall not apply to any well on a multiple well pad if at least one of the wells was permitted prior to the effective date of this article. (e) The secretary shall, by December 31, 2012, report to the Legislature on the noise, light, dust and volatile organic compounds generated by the drilling of horizontal wells as they relate to the well location restrictions regarding occupied dwelling structures pursuant to this section. Upon a finding, if any, by the secretary that the well location restrictions regarding occupied dwelling structures are inadequate or otherwise require alteration to address the items

examined in the study required by this subsection, the secretary shall have the authority to propose for promulgation legislative rules establishing guidelines and procedures regarding reasonable levels of noise, light, dust and volatile organic compounds relating to drilling horizontal wells, including reasonable means of mitigating such factors, if necessary.

Water Well Testing:

Pursuant to West Virginia Code § 22-6A-10(d), notification shall be made, with respect to surface landowners identified in subsection (b) or water purveyors identified in subdivision (5), subsection (b) of this section, of the opportunity for testing their water well. The operator shall provide an analysis to such surface landowner or water purveyor at their request.

Water Testing Laboratories:

Pursuant to West Virginia Code § 22-6A-10(i), persons entitled to notice pursuant to subsection (b) of this section may contact the department to ascertain the names and locations of water testing laboratories in the subject area capable and qualified to test water supplies in accordance with standard accepted methods. In compiling that list of names the department shall consult with the state Bureau for Public Health and local health departments. A surface owner and water purveyor has an independent right to sample and analyze any water supply at his or her own expense. The laboratory utilized by the operator shall be approved by the agency as being certified and capable of performing sample analyses in accordance with this section.

Rebuttable Presumption for Contamination or Deprivation of a Fresh Water Source or Supply:

W. Va. Code § 22-6A-18 requires that (b) unless rebutted by one of the defenses established in subsection (c) of this section, in any action for contamination or deprivation of a fresh water source or supply within one thousand five hundred feet of the center of the well pad for horizontal well, there is a rebuttable presumption that the drilling and the oil or gas well or either was the proximate cause of the contamination or deprivation of the fresh water source or supply. (c) In order to rebut the presumption of liability established in subsection (b) of this section, the operator must prove by a preponderance of the evidence one of the following defenses: (1) The pollution existed prior to the drilling or alteration activity as determined by a predrilling or prealteration water well test. (2) The landowner or water purveyor refused to allow the operator access to the property to conduct a predrilling or prealteration water well test. (3) The water supply is not within one thousand five hundred feet of the well. (4) The pollution occurred more than six months after completion of drilling or alteration activities. (5) The pollution occurred as the result of some cause other than the drilling or alteration activity. (d) Any operator electing to preserve its defenses under subdivision (1), subsection (c) of this section shall retain the services of an independent certified laboratory to conduct the predrilling or prealteration water well test. A copy of the results of the test shall be submitted to the department and the surface owner or water purveyor in a manner prescribed by the secretary. (e) Any operator shall replace the water supply of an owner of interest in real property who obtains all or part of that owner's supply of water for domestic, agricultural, industrial or other legitimate use from an underground or surface source with a comparable water supply where the secretary determines that the water supply has been affected by contamination, diminution or interruption proximately caused by the oil or gas operation, unless waived in writing by that owner. (f) The secretary may order the operator conducting the oil or gas operation to: (1) Provide an emergency drinking water supply within twenty-four hours; (2) Provide temporary water supply within seventy-two hours; (3) Within thirty days begin activities to establish a permanent water supply or submit a proposal to the secretary outlining the measures and timetables to be used in establishing a permanent supply. The total time in providing a permanent water supply may not exceed two years. If the operator demonstrates that providing a permanent replacement water supply cannot be completed within two years, the secretary may extend the time frame on case-by-case basis; and (4) Pay all reasonable costs incurred by the real property owner in securing a water supply. (g) A person as described in subsection (b) of this section aggrieved under the provisions of subsections (b), (e) or (f) of this section may seek relief in court... (i) Notwithstanding the denial of the operator of responsibility for the damage to the real property owner's water supply or the status of any appeal on determination of liability for the damage to the real property owner's water supply, the operator may not discontinue providing the required water service until authorized to do so by the secretary or a court of competent jurisdiction.

Written Comment:

Pursuant to West Virginia Code § 22-6A-11(a), all persons described in subsection (b), section ten of this article may file written comments with the secretary as to the location or construction of the applicant's proposed well work within thirty days after the application is filed with the secretary. All persons described in West Virginia Code § 22-6A-10(b) may file written comments as to the location or construction of the applicant's proposed well work to the Secretary at:

Chief, Office of Oil and Gas
Department of Environmental Protection
601 57th St. SE
Charleston, WV 25304
(304) 926-0450

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Such persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons entitled to test water. **NOTE: YOU ARE NOT REQUIRED TO FILE ANY COMMENT.**

WV Department of
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Time Limits and Methods for Filing Comments.

The law requires these materials to be served on or before the date the operator files its Application. You have **THIRTY (30) DAYS** after the filing date to file your comments. Comments must be filed in person or received in the mail by the Chief's office by the time stated above. You may call the Chief's office to be sure of the date. Check with your postmaster to ensure adequate delivery time or to arrange special expedited handling. If you have been contacted by the well operator and you have signed a "voluntary statement of no objection" to the planned work described in these materials, then the permit may be issued at any time.

Pursuant to West Virginia Code § 22-6A-11(c)(2), Any objections of the affected coal operators and coal seam owners and lessees shall be addressed through the processes and procedures that exist under sections fifteen, seventeen and forty, article six of this chapter, as applicable and as incorporated into this article by section five of this article. The written comments filed by the parties entitled to notice under subdivisions (1), (2), (4), (5) and (6), subsection (b), section ten of this article shall be considered by the secretary in the permit issuance process, but the parties are not entitled to participate in the processes and proceedings that exist under sections fifteen, seventeen or forty, article six of this chapter, as applicable and as incorporated into this article by section five of this article.

Comment Requirements

Your comments must be in writing and include your name, address and telephone number, the well operator's name and well number and the approximate location of the proposed well site including district and county from the application. You may add other documents, such as sketches, maps or photographs to support your comments.

Disclaimer: All comments received will be placed on our web site <http://www.dep.wv.gov/oil-and-gas/Horizontal-Permits/Pages/default.aspx> and the applicant will automatically be forwarded an email notice that such comments have been submitted. The applicant will be expected to provide a response to comments submitted by any surface owner, water purveyor or natural gas storage operator noticed within the application.

Permit Denial or Condition

The Chief has the power to deny or condition a well work permit. Pursuant to West Virginia Code § 22-6A-8(d), the permit may not be issued or be conditioned, including conditions with respect to the location of the well and access roads prior to issuance if the director determines that:

- (1) The proposed well work will constitute a hazard to the safety of persons;
- (2) The plan for soil erosion and sediment control is not adequate or effective;
- (3) Damage would occur to publicly owned lands or resources; or
- (4) The proposed well work fails to protect fresh water sources or supplies.

A permit may also be denied under West Virginia Code § 22-6A-7(k), the secretary shall deny the issuance of a permit if the secretary determines that the applicant has committed a substantial violation of a previously issued permit for a horizontal well, including the applicable erosion and sediment control plan associated with the previously issued permit, or a substantial violation of one or more of the rules promulgated under this article, and in each instance has failed to abate or seek review of the violation within the time prescribed by the secretary pursuant to the provisions of subdivisions (1) and (2), subsection (a), section five of this article and the rules promulgated hereunder, which time may not be unreasonable.

Pursuant to West Virginia Code § 22-6A-10(g), any person entitled to submit written comments to the secretary pursuant to subsection (a), section eleven of this article, shall also be entitled to receive from the secretary a copy of the permit as issued or a copy of the order modifying or denying the permit if the person requests receipt of them as a part of the written comments submitted concerning the permit application. Such persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.

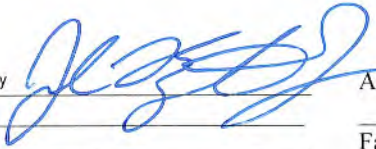
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WW-6A
(8-13)

API NO. 47-095 - 02257
OPERATOR WELL NO. 514460 (SHR60) **04/05/2019**
Well Pad Name: SHR60

Notice is hereby given by:

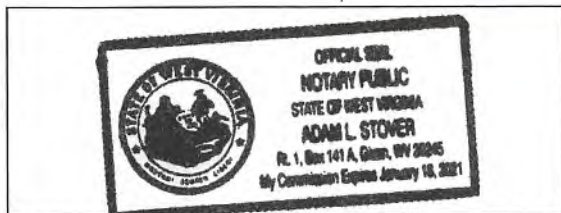
Well Operator: EQT Production Company
Telephone: 724-746-9073
Email: jzavatchan@eqt.com



Address: 2400 Ansys Drive, Suite 200
Canonsburg, PA 15317
Facsimile: 724-745-2418

Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at deprivacyofficer@wv.gov.



Subscribed and sworn before me this 9th day of February 2019.

 Notary Public

My Commission Expires 1/18/2021

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Topo Quad: Shirley 7.5'

Scale: 1"=1000'

04/05/2019

County: Tyler

Date: August 3, 2018

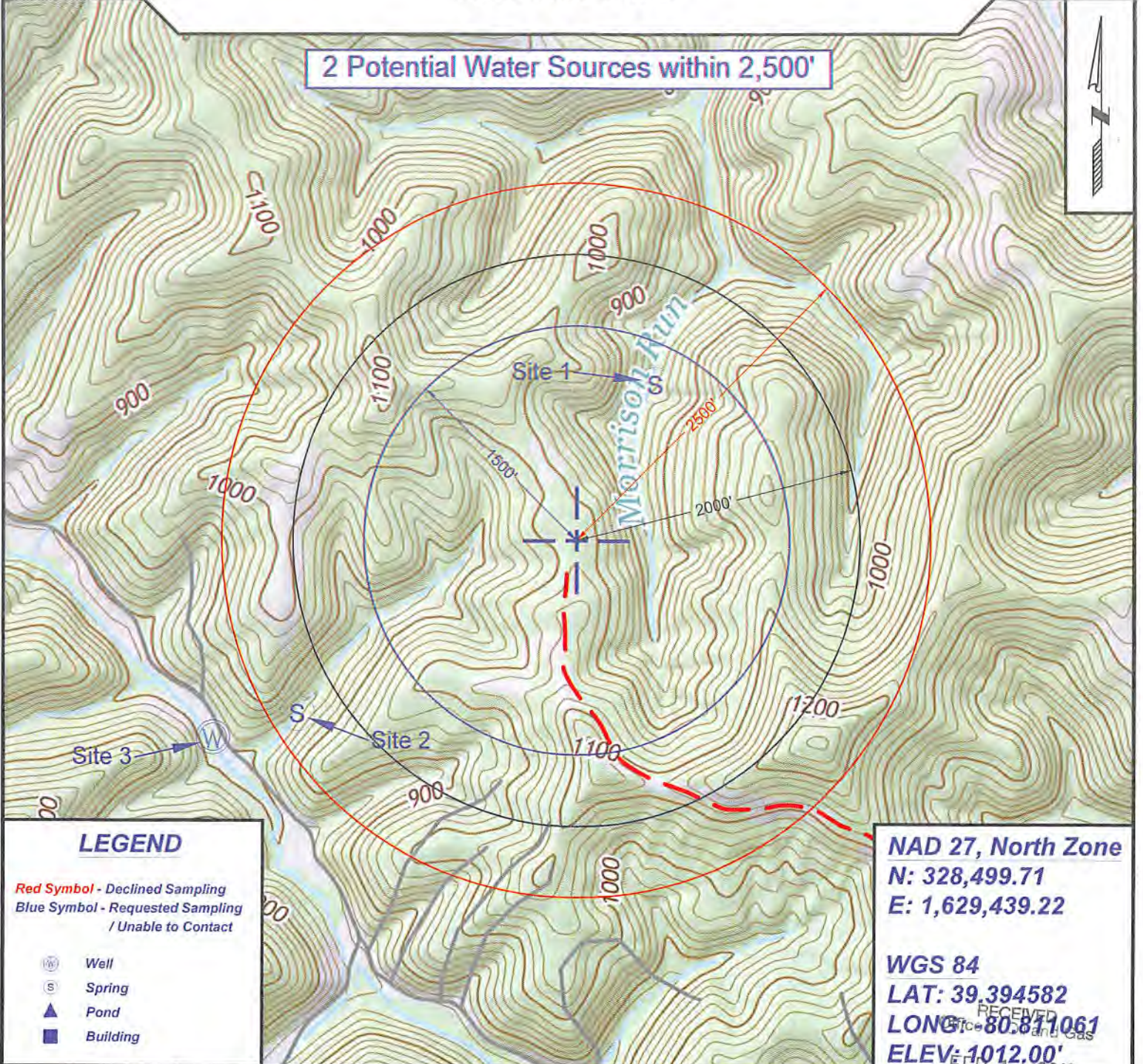
District: McElroy

Project No: 208-12-C-13

Water

SHR 60 PAD

2 Potential Water Sources within 2,500'



LEGEND

Red Symbol - Declined Sampling
 Blue Symbol - Requested Sampling
 / Unable to Contact

- Well
- Spring
- Pond
- Building

NAD 27, North Zone
 N: 328,499.71
 E: 1,629,439.22

WGS 84
 LAT: 39.394582
 LONG: 80.871061
 ELEV: 1012.00'

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SURVEYING AND MAPPING SERVICES PERFORMED BY:

ALLEGHENY SURVEYS, INC.

1-800-482-8606
 237 Birch River Road
 Birch River, WV 26610
 PH: (304) 649-8606
 FAX: (304) 649-8608

PREPARED FOR:

EQT Production Company

WV Department of Environment and Gas
 2400 Ansys Drive, Suite 200
 Canonsburg, PA 15317

**STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE OF INTENT TO DRILL**

Pursuant to W. Va. Code § 22-6A-16(b), the Notice of Intent to Drill is only required if the notice requirements of W. Va. Code § 22-6A-10(a) have NOT been met or if the Notice of Intent to Drill requirement has NOT been waived in writing by the surface owner.

Notice Time Requirement: Notice shall be provided at least **TEN (10)** days prior to filing a permit application.
Date of Notice: 10/25/2018 **Date Permit Application Filed:** 02/08/2019

Delivery method pursuant to West Virginia Code § 22-6A-16(b)

- HAND DELIVERY CERTIFIED MAIL RETURN RECEIPT REQUESTED

Pursuant to W. Va. Code § 22-6A-16(b), at least ten days prior to filing a permit application, an operator shall, by certified mail return receipt requested or hand delivery, give the surface owner notice of its intent to enter upon the surface owner's land for the purpose of drilling a horizontal well: *Provided*, That notice given pursuant to subsection (a), section ten of this article satisfies the requirements of this subsection as of the date the notice was provided to the surface owner: *Provided, however*, That the notice requirements of this subsection may be waived in writing by the surface owner. The notice, if required, shall include the name, address, telephone number, and if available, facsimile number and electronic mail address of the operator and the operator's authorized representative.

Notice is hereby provided to the SURFACE OWNER(s):

Name: See Attached Name: See Attached
Address: _____ Address: _____

Notice is hereby given:

Pursuant to West Virginia Code § 22-6A-16(b), notice is hereby given that the undersigned well operator has an intent to enter upon the surface owner's land for the purpose of drilling a horizontal well on the tract of land as follows:

State: WV UTM NAD 83 Easting: 516,268.70
County: Tyler Northing: 4,360,607.42
District: McElroy Public Road Access: 60/2
Quadrangle: Shirley Generally used farm name: Vivian J. Wells, et. al.
Watershed: Morrison Run of McElroy Creek

This Notice Shall Include:

Pursuant to West Virginia Code § 22-6A-16(b), this notice shall include the name, address, telephone number, and if available, facsimile number and electronic mail address of the operator and the operator's authorized representative. Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

Notice is hereby given by:

Well Operator: EQT Production Company Authorized Representative: Erin Spine
Address: 2400 Ansys Drive, Suite 200 Address: 2400 Ansys Drive, Suite 200
Canonsburg, PA 15317 Canonsburg, PA 15317
Telephone: 304-848-0035 Telephone: 304-848-0035
Email: espine@eqt.com Email: espine@eqt.com
Facsimile: 304-848-0041 Facsimile: 304-848-0041

Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use of your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov.

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Surface Owners:

Vivian Janice Wells
1814 Oil Ridge Rd.
Sistersville, WV 26175

George Birklein
121 Oxford Street
Sistersville, WV 26175

Andrea Shotts
432-2 East Main Street
Plymouth, PA 18651

Albina Pasko
18 Jensen St.
East Brunswick NJ 08816

Clifford Haug
3894 Cellar Creek Rd
Blackstone VA 23824

Timothy M. Haug
3890 Cellar Creek Rd
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Benjamin A. Haug
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Jean Jackubowski
158 Baumgardner Road
Willow Street PA 17584

Theodore Jackubowski
1212 Kelso Blvd
Windermere FL 34786

Louis Jackubowski, Jr.
1922 Robindale Ave
Lancaster, PA 17601

Mary Jean Ross
904 Truce Road
Holtwood PA 17532

Susan Buzzard
21 Cherokee Road
Willow Street PA 17584

Sharon Graeff
1059 Wyomissing Blvd.
Wyomissing PA 19601

Virginia Hornberger
3415 River Road
Reading PA 19605

Anthony Jackubowski, Jr.
535 Shawnee Street
Wilkes-barre PA 18702

Raymond A. Jackubowski
123 North Pioneer Avenue
Shavertown, PA 18708-1027

Beverly A. Chisdock
213 Lehigh Street
Avoca, Pa 18641-1011

Cynthia Kryzwicki
37 Lee Park Apt. 2
Wilkes-Barre, PA 18706

Lisa Wesolowski
254 Lampman Street
Avoca, PA 18641-1010

Gary A Midcap etal
55 Temple Circle
Sistersville WV 26175

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Surface Owners (road or other disturbance):

Vivian Janice Wells
1814 Oil Ridge Rd.
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John Paul Davis
45 Crystal Lake Road,
West Union, WV 26456-8932

Richard E. Hansen
1043 Low Gap Road
Wilbur WV 26459

Joyce K. Hill
88 Arvilla Road
Bens Run, WV 26146

Terry J. Cumberledge
1384 Pratts Run Road
Alma, WV 26320

BC Farm Investments LLC
P. O. Box 1183
Cannonsburg, PA 15317

Gary A Midcap etal
55 Temple Circle
Sistersville WV

Susan L. Spencer
HC 74 Box 98
Alma WV 26320 -9710

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Surface Owners (Pits or impoundments):

Vivian Janice Wells
1814 Oil Ridge Rd.
Sistersville, WV 26175

George Birklein
121 Oxford Street
Sistersville, WV 26175

Andrea Shotts
432-2 East Main Street
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WW-6A5
(1/12)

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE OF PLANNED OPERATION

Notice Time Requirement: notice shall be provided no later than the **filing date of permit application.**
Date of Notice: 02/06/2019 **Date Permit Application Filed:** 02/08/2019

Delivery method pursuant to West Virginia Code § 22-6A-16(c)

- CERTIFIED MAIL RETURN RECEIPT REQUESTED
- HAND DELIVERY

Pursuant to W. Va. Code § 22-6A-16(c), no later than the date for filing the permit application, an operator shall, by certified mail return receipt requested or hand delivery, give the surface owner whose land will be used for the drilling of a horizontal well notice of the planned operation. The notice required by this subsection shall include: (1) A copy of this code section; (2) The information required to be provided by subsection (b), section ten of this article to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. (d) The notices required by this section shall be given to the surface owner at the address listed in the records of the sheriff at the time of notice.

Notice is hereby provided to the SURFACE OWNER(s)
(at the address listed in the records of the sheriff at the time of notice):
Name: See Attached Name: _____
Address: _____ Address: _____

Notice is hereby given:
Pursuant to West Virginia Code § 22-6A-16(c), notice is hereby given that the undersigned well operator has developed a planned operation on the surface owner's land for the purpose of drilling a horizontal well on the tract of land as follows:

State: <u>West Virginia</u>	UTM NAD 83	Easting: <u>516,268.70</u>
County: <u>Tyler</u>		Northing: <u>4,360,607.42</u>
District: <u>McElroy</u>	Public Road Access: <u>60/2</u>	
Quadrangle: <u>Shirley</u>	Generally used farm name: <u>Vivian A. Wells, et. al.</u>	
Watershed: <u>Morrison Run of McElroy Creek</u>		

This Notice Shall Include:
Pursuant to West Virginia Code § 22-6A-16(c), this notice shall include: (1) A copy of this code section; (2) The information required to be provided by **W. Va. Code § 22-6A-10(b)** to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

Well Operator: EQT Production Company Address: 2400 Ansys Drive, Suite 200
Telephone: 724-746-9073 Canonsburg, PA 15317
Email: jzavatchan@eqt.com Facsimile: 724-745-2418

Oil and Gas Privacy Notice:
The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our Office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov.

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04/05/2019

Surface Owners:

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Environmental Protection

04/05/2019



WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

1900 Kanawha Boulevard East • Building Five • Room 110
Charleston, West Virginia 25305-0430 • (304) 558-3505

Thomas J. Smith, P. E.
Secretary of Transportation/
Commissioner of Highways

Revised July 3, 2018

Jill M. Newman
Deputy Commissioner

James A. Martin, Chief
Office of Oil and Gas
Department of Environmental Protection
601 57th Street, SE
Charleston, WV 25304

Subject: DOH Permit for the SHR 60 Well Pad, Tyler County

SHR 60 H1	SHR 60 H2	SHR 60 H3
SHR 60 H4	SHR 60 H5	SHR 60 H6
SHR 60 H7	SHR 60 H8	SHR 60 H9
SHR 60 H10	SHR 60 H11	SHR 60 H12
SHR 60 H13		

Dear Mr. Martin,

This well site will be accessed from DOH Permit #06-2014-0798 issued to EQT Production Company for access to the State Road for a well site located off of Tyler County Route 60/1 SLS.

The operator has signed a STATEWIDE OIL AND GAS ROAD MAINTENANCE BONDING AGREEMENT and provided the required Bond. This operator is currently in compliance with the DOH OIL AND GAS POLICY dated January 3, 2012.

Very Truly Yours,

Gary K. Clayton P.E.
Regional Maintenance Engineer
Central Office Oil & Gas Coordinator

Cc: Nick Bumgardner
EQT Production Company
CH, OM, D-6
File

RECEIVED
Office of Oil and Gas

FEB 11 2019

WV Department of
Environmental Protection

Anticipated Frac Additives
Chemical Names and CAS numbers

4709502257
04/05/2019

<u>Material</u>	<u>Ingredient</u>	<u>CAS Number</u>
Water		
Sand	Hydrotreated light petroleum distillate	14808-60-7
	Tributyl tetradecyl phosphonium chloride	64742-47-8
Friction Reducer	Ammonium chloride	81741-28-8
Biocide	Hydrochloric Acid	12125-02-9
Scale Inhibitor	Propargyl Alcohol	7647-01-0
15% Hydrochloric Acid	Methanol	107-19-7
Corrosion Inhibitor	Guar Gum	67-56-1
Corrosion Inhibitor	Sodium Persulfate	9000-30-0
Gelling Agent	Potassium Carbonate	7775-27-1
Oxidizing Breaker		584-08-7
Buffering Agent		

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Office of Oil and Gas

FEB 11 2019

WV Department of
Environmental Protection

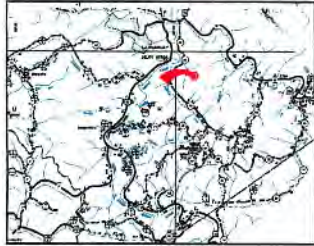
EQT SHR-60 AS-BUILT PLANS EQT PRODUCTION COMPANY

**WVDEP OOG
ACCEPTED AS-BUILT**

WJ 9/18/2018



Project Location

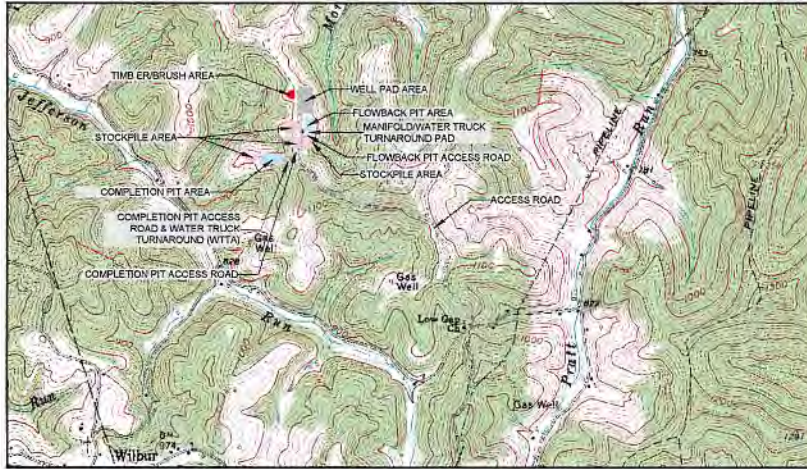


GRAPHIC SCALE

1 INCH = 1 MILE

DESCRIPTION	AS-BUILT EARTHWORK GRADING VOLUMES			DESIGN VOLUMES		
	CUT (CY)	FILL (CY)	NET (CY)	CUT (CY)	FILL (CY)	NET (CY)
MAIN ACCESS ROAD	10,041	14,136	4,095	4,419	22,070	-17,651
WELL PAD	36,752	14,260	22,492	30,808	17,295	13,513
COMPLETION PIT	55,923	22,746	33,177	31,080	22,696	8,384
FLOWBACK PIT	23,829	13,168	10,661	22,254	12,750	9,504
COMPLETION PIT ACCESS / WTTA	21,675	24	21,651	20,896	446	20,452
FLOWBACK PIT ACCESS / MAINFOLD	3,891	1,070	2,821	3,262	913	2,349
COMP / WTTA STOCKPILE	0	16,860	-16,860	0	10,459	-10,459
FLOWBACK STOCKPILE	0	3,422	-3,422	0	10,952	-10,952
SPOIL PADS #1 & #2	0	8,861	-8,861	0	15,140	-15,140
TOPSOIL STORAGE	0	22,108	-22,108	15,711	0	15,711
TOTAL	132,113	115,655	16,458	128,482	112,721	15,711

THESE VOLUMES ARE BASED ON THE AERIAL TOPOGRAPHY PROVIDED BY BLUE MOUNTAIN AERIAL MAPPING AND THE FIELD COLLECTED AS-BUILT SURFACE PROVIDED BY ALLEGHENY SURVEYS, INC.



SURVEY QUAD
MCELROY CREEK WATERSHED

0 1000 2000 3000

ELEV	FLOW BACK PIT AS-BUILT VOLUMES					Included	
	CF	CY	BSLS	GALLONS	AC-FT	AC-FT	
1022	0	0	0	0	0.000	0	
1023	14,221	488	2,533	106,380	0.126	0	
1024	30,892	1,137	5,466	229,591	0.705	0	
1025	48,380	1,792	8,616	361,906	1.111	0.000	
1026	67,663	2,506	12,050	506,138	1.553	0.443	
1027	89,293	3,307	15,903	667,956	2.050	0.839	
1028	112,105	4,152	19,965	838,605	2.578	1.453	
1029	136,791	5,065	24,362	1,023,264	3.180	2.060	
1030	164,779	6,084	29,757	1,228,898	3.771	2.631	
1031	193,015	7,149	34,475	1,441,848	4.431	3.320	
1032	223,838	8,290	39,864	1,674,419	5.139	4.028	
1033	257,825	9,549	45,917	1,928,659	5.919	4,808	
1034	293,019	10,853	52,185	2,195,977	6.727	5,616	
1035	330,589	12,244	58,876	2,473,260	7.589	6,479	
TOTAL	1,036	870,746	41,731	1,773,393	8.511	7,401	

INCREASED VOLUME

CAPACITY

TOP OF BERM

INCREASED VOLUME

CAPACITY

TOP OF BERM

ELEV	COMPLETION PIT AS-BUILT VOLUMES						Included	
	CF	CY	BSLS	GALLONS	AC-FT	AC-FT	AC-FT	
1008	0	0	0	0	0.000	0	0	
1009	13,253	491	2,360	99,139	0.304	0		
1010	38,445	1,424	6,847	287,588	0.883	0		
1011	70,889	2,626	12,625	530,285	1.627	0		
1012	105,941	3,924	18,867	792,491	2.432	0		
1013	144,744	5,361	25,778	1,082,757	3.323	0.000		
1014	184,967	6,851	32,842	1,383,645	4.246	0.913		
1015	227,788	8,417	40,168	1,703,967	5.229	1.906		
1016	274,704	10,174	48,923	2,054,927	6.306	2.983		
1017	323,074	11,966	57,538	2,416,713	7.417	4.094		
1018	374,356	13,865	66,707	2,800,368	8.594	5.271		
1019	430,320	15,937	76,636	3,218,932	9.879	6.556		
1020	487,715	18,064	86,859	3,648,849	11.156	7.874		
1021	546,107	20,504	97,631	4,100,765	12.585	9,262		
1022	613,756	23,732	109,307	4,591,108	14.093	10,767		
1023	680,900	27,219	121,764	5,094,849	15.631	12,308		

WELL LEGEND	API NUMBER
SHR 60 H1	47-095-02257
SHR 60 H2	47-095-02264
SHR 60 H3	47-095-02255
SHR 60 H4	47-095-02220
SHR 60 H5	47-095-02226
SHR 60 H6	47-095-02341
SHR 60 H7	47-095-02342
SHR 60 H8	
SHR 60 H9	
SHR 60 H10	
SHR 60 H11	
SHR 60 H12	

AFFECTED PROPERTIES
MCELROY DISTRICT - TYLER COUNTY, WV

TM 18 - PCL 12
MAINA LAMERWOOD ESTATE
35 ACRES
SITE DISTURBANCE

DRILL PAD = 9.38 ACRES
FLOWBACK PIT = 2.35 ACRES
FLOWBACK ACCESS ROAD = 0.92 ACRES
FLOWBACK PIT MAINFOLD WTTA PAD = 0.14 ACRES
MAIN ACCESS ROAD = 0.42 ACRES
TOPSOIL PAD = 32 ACRES
TIMBER STORAGE = 0.88 ACRES
TOTAL DISTURBANCE = 10.83 ACRES
TOTAL WOODED AREA DISTURBANCE = 10.19 ACRES

TM 18 - PCL 13
MAYN WELLS #4
54 ACRES
SITE DISTURBANCE

FLOWBACK #1 MAINFOLD / WTTA PAD = 0.43 ACRES
FLOWBACK PIT = 0.91 ACRES
FLOWBACK PIT ACCESS ROAD = 0.10 ACRES
MAIN ACCESS ROAD = 0.72 ACRES
COMPLETION PIT = 4.43 ACRES
COMPLETION PIT TRUCK TURNAROUND (WTTA) = 1.22 ACRES
COMPLETION PIT WTTA ACCESS = 0.23 ACRES
SPOIL PADS = 4.71 ACRES
TOTAL DISTURBANCE = 4.07 ACRES
TOTAL WOODED AREA DISTURBANCE = 12.71 ACRES

TM 18 - PCL 14
TERRY CUMBERLEDGE #4
54 ACRES
SITE DISTURBANCE

MAIN ACCESS ROAD = 0.33 ACRES
TOTAL DISTURBANCE = 0.33 ACRES
TOTAL WOODED AREA DISTURBANCE = 0.23 ACRES

TM 18 - PCL 15
SUSAN SPENCER
6 ACRES
SITE DISTURBANCE

MAIN ACCESS ROAD = 0.55 ACRES
TOTAL DISTURBANCE = 0.55 ACRES
TOTAL WOODED AREA DISTURBANCE = 0.51 ACRES

TM 18 - PCL 16
OSWALD #4
35.5 ACRES
SITE DISTURBANCE

MAIN ACCESS ROAD = 1.24 ACRES
TOTAL DISTURBANCE = 1.24 ACRES
TOTAL WOODED AREA DISTURBANCE = 0.91 ACRES

TM 18 - PCL 17
ALLEN FORNASH
43 ACRES
SITE DISTURBANCE

MAIN ACCESS ROAD = 1.19 ACRES
TOTAL DISTURBANCE = 1.19 ACRES
TOTAL WOODED AREA DISTURBANCE = 0.94 ACRES

TM 18 - PCL 18
TERRY CUMBERLEDGE #4
48 ACRES
SITE DISTURBANCE

MAIN ACCESS ROAD = 1.23 ACRES
TOTAL DISTURBANCE = 1.23 ACRES
TOTAL WOODED AREA DISTURBANCE = 0.89 ACRES

TM 18 - PCL 19
JOHN PAUL DAVIS
39 ACRES
SITE DISTURBANCE

MAIN ACCESS ROAD = 1.13 ACRES
TOTAL DISTURBANCE = 1.13 ACRES
TOTAL WOODED AREA DISTURBANCE = 0.90 ACRES

TM 18 - PCL 20
RICHARD HANSON
19.86 ACRES
SITE DISTURBANCE

MAIN ACCESS ROAD = 1.13 ACRES
TOTAL DISTURBANCE = 1.13 ACRES
TOTAL WOODED AREA DISTURBANCE = 0.90 ACRES

FLOODPLAIN CONDITIONS

DO SITE CONSTRUCTION ACTIVITIES TAKE PLACE IN FLOODPLAIN:	NO
PERMIT NEEDED FROM COUNTY FLOODPLAIN COORDINATOR:	NO
HEC-RAS STUDY COMPLETED:	N/A
FLOODPLAIN SHOWN ON DRAWINGS:	N/A
FIRM MAP NUMBER(S) FOR SITE:	54095C0175C
ACREAGES OF CONSTRUCTION IN FLOODPLAIN:	N/A

As-Built Certification

These drawings have been prepared from actual field surveys and reflect the locations and as-built conditions known to exist following construction of this site. to the best of my knowledge.

SHEET INDEX

COVER SHEET / LOCATION MAP	1
AS-BUILT SITE PLAN	2-8
AS-BUILT ROAD PROFILE	7

SITE LOCATIONS MAD #1		
CENTRICE	ELECTRICAL	WELL PAD
Center of Pipe	39.26491	-80.81081
Center of Flow Back Pit	39.26399	-80.81082
Center of Completion Pit	39.36172	-80.81268
Proposed of Access Road	39.36361	-80.80395

DATE	REVISIONS
01.08.2018	Add API Nos. to H1, H2, H3, H4, H5
04.25.2018	Add API Nos. to H6, H7
07.02.2018	Removed S-digital Well Numbers

MISS Utility of West Virginia
1-800-245-4848
West Virginia State Law
(Section XIV: Chapter 24-C)
Requires that you call two business days before you dig in the state of West Virginia.
IT'S THE LAW!!



Allegany Surveys Inc.
P.O. Box 438
237 Birch River Road
Birch River, WV 26610
304-649-8606



Hornor Bros. Engineers
Civil, Mining, Environmental, and Consulting Engineering
1000 1st Street
Martinsburg, West Virginia 26001



THIS DOCUMENT PREPARED FOR EQT PRODUCTION COMPANY

COVER SHEET(S) / LOCATION MAP
SHR 60
WELL PAD SITE
MCELROY DISTRICT
TYLER COUNTY, WV

Date:	9/18/2018
Scale:	As Shown
Drawn by:	TBC
File No.:	20180702
Page:	1 of 7

EQT SHR-60 AS-BUILT PLANS EQT PRODUCTION COMPANY

**WVDEP OOG
ACCEPTED AS-BUILT**

WJL 9/18/2018



All topographic information shown herein is based on scanned data as provided by Allegheny Surveys, Inc. dated June 8 July 2015



Allegheny Surveys Inc.
P. O. Box 438
237 Birch River Road
Birch River, WV 26610
304-649-8606

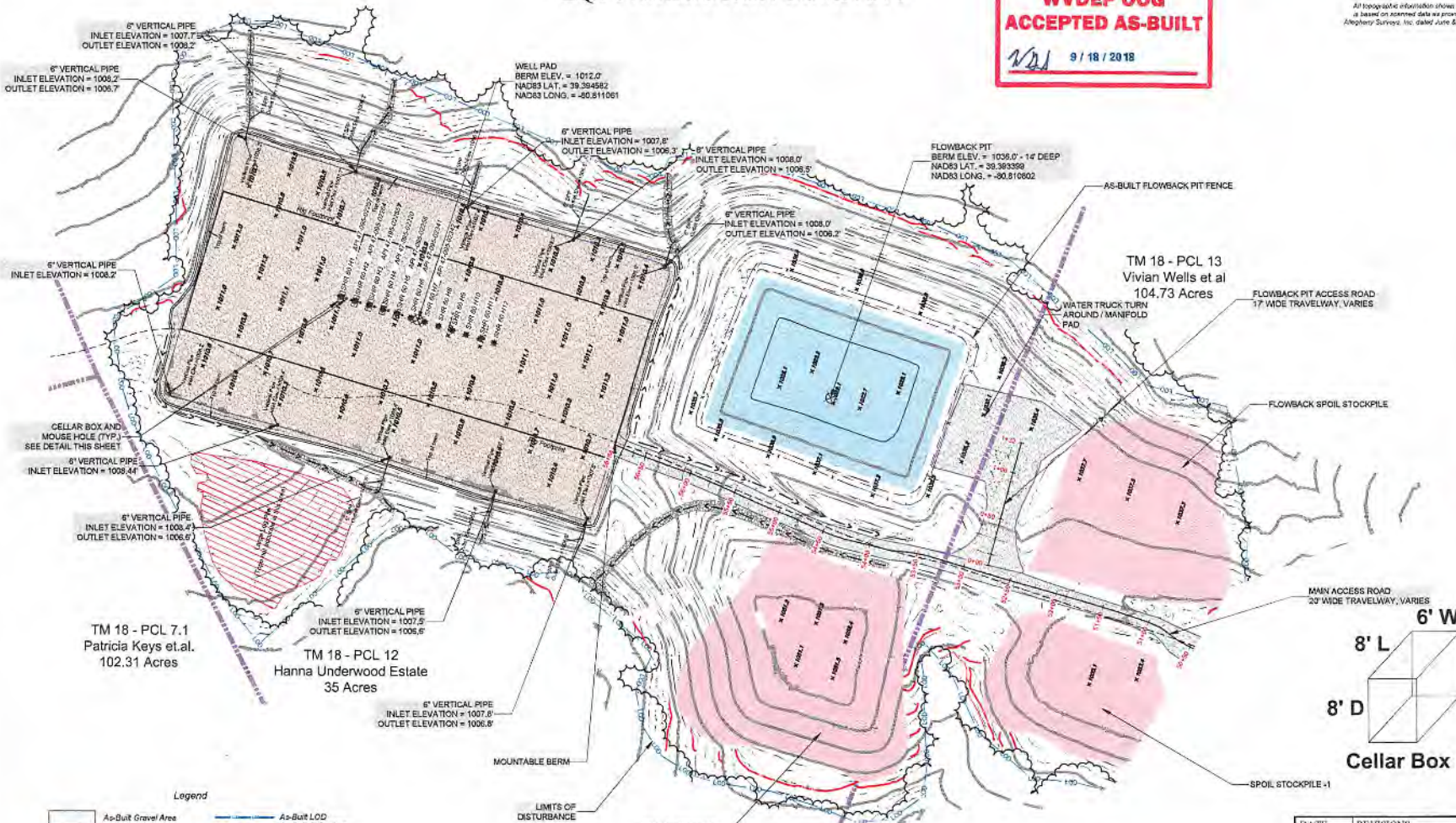


Horner
Engineering
Civil, Mining, Environmental and
Consulting Engineering
Charleston, West Virginia, 25301-1001-1001

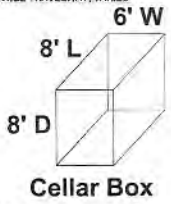
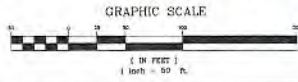


THIS DOCUMENT
PREPARED FOR
EQT PRODUCTION
COMPANY

AS-BUILT SITE PLAN
**SHR 60
DRILL PAD SITE**
MAGHERY DISTRICT
TYLER COUNTY, WV



- Legend**
- As-Built Gravel Area
 - As-Built Completion Pit
 - As-Built Well Pad
 - As-Built Excess Soil Stockpile
 - As-Built LOD
 - As-Built 2' Contour
 - As-Built 10' Contour
 - Existing Trestle
 - Silt Sock



DATE	REVISIONS	DATE
01/08/2016	Add API Nos. to H1, H2, H3, H4, H5	4.21.2015
01/08/2016	Label Proposed Completion Pit Fence	
01/08/2018	Add Truck Turns Around Stone Nose	Scale: 1"=50'
04/25/2018	Add API Nos. to 15B, 17 & Center Bases	Designed by: TDC
07/22/2018	Removed 8-50ft well numbers	
09/12/2018	Added As-built Flowback Pit Fence	File No. 2204018

As-Built Certification:
These drawings have been prepared from actual field surveys and reflect the locations and as-built conditions known to exist following construction of this site, to the best of my knowledge.