

Well Operator's Report of Well Work



Where energy meets innovation.

Well Number: 514464 (SHR60H5)

API: 47 - 095 - 02256

Submission: Initial Amended

Notes: This report is for well 514464 (SHR60H5). The well was top set under the API # above - 47-095-02256. However, the horizontal portion of this well was drilled under permit # 47-095-02541. Per guidance from the WV DEP the well record is being submitted using the original API #.

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04/19/2024

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

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API 47 - 095 - 02256 County Tyler District McElroy
Quad Shirley Pad Name SHR60 Field/Pool Name N/A
Farm name Vivian J. Wells Well Number 514464 (SHR60H5)
Operator (as registered with the OOG) EQT Production Company
Address 625 LIBERTY AVENUE, SUITE 1700 City PITTSBURGH State PA Zip 15222

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4,360,589.15 Easting 516,269.14
Landing Point of Curve Northing 4,360,257.25 Easting 516,072.19
Bottom Hole Northing 4,357,685.594 Easting 517,225.03

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) 12.5 ppg Synthetic Base : Mud Barium Sulfate (Mil-Bar 410), Synthetic Base Oil (Next-Base), Calcium Chloride, Bentonite Clay (Carbo-Gel II), Polymerized Fatty Acid Emulsifier(Carbo-Tec and Next-Mul HT), Lime, Walnut Shells Cellulosic Material (Chek-Loss, LCM), Calcium Carbonate (Mil-Carb), Gilsonite (Ecco-Blok)

Date permit issued 10/30/2018 Date drilling commenced 3/9/2019 Date drilling ceased 3/18/19
Date completion activities began 11/16/2019 Date completion activities ceased 12/23/2019
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 95, 145, 582, 918 Open mine(s) (Y/N) depths N
Salt water depth(s) ft 1210, 1877 Void(s) encountered (Y/N) depths N
Coal depth(s) ft 35, 436, 702, 891, 1331 Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

APPROVED
Reviewed by: 
04/19/2024

API 47-095 - 02256

Farm name Vivian J. Wells

Well number 514464 (SHR60H5)

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"	85'	NEW	A-500 94#	N/A	Y
Surface	17-1/2"	13-3/8"	1,018'	NEW	J-55 54.5#	554'	Y
Coal							
Intermediate 1	12-3/8"	9-5/8"	2,800'	NEW	A-500 40#	1,749'	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4" & 8-1/2"	5 1/2"	16,635	NEW	P-110 20#	N/A	N
Tubing							
Packer type and depth set							

Comment Details _____

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft ³ /sks)	Volume (ft ³)	Cement Top (MD)	WOC (hrs)
Conductor	CLASS A	58	15.6	1.18	68	0	72+
Surface	CLASS A	873	15.6	1.20	1048	0	8
Coal							
Intermediate 1	CLASS A	795/202	15.2/15.6	1.25/1.19	994/240	0/2,277	8
Intermediate 2							
Intermediate 3							
Production	CLASS A	2,615	15.6	1.23	3,216	4,000	72+
Tubing							

Drillers TD (ft) 16,656' MD
 Deepest formation penetrated MARCELLUS
 Plug back procedure N/A

Loggers TD (ft) N/A
 Plug back to (ft) N/A

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Kick off depth (ft) 5,185' 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: 3 Centralizers ran at least every 500'
 INTERMEDIATE: 7 Centralizers ran at least every 500'
 PRODUCTION: 296 Composite centralizers on every joint from TD to 3,992' 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 _____

API 47- 095 - 02256

Farm name Vivian J. Wells

Well number 514464 (SHR60H5)

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
2	11/16/2019	16531	16359	40	MARCELLUS
3	11/16/2019	16331	16159	40	MARCELLUS
4	11/17/2019	16129	15959	40	MARCELLUS
5	11/18/2019	15928	15759	40	MARCELLUS
Please see attached below					

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Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
1	1/16/201	89.8	9004.7	6892.0	3538.0	176500	5636	0
2	1/17/201	96.5	8900.4	6169.0	3655.0	440890	10249	0
3	1/17/201	96.2	8954.2	5747.0	4161.0	441230	9603	0
4	1/18/201	100.0	8897.3	5940.0	4103.0	447206	9610	0

Please see attached below

Please insert additional pages as applicable.

API 47- 095 - 02256 Farm name Vivian J. Wells Well number 514464 (SHR60H5)

PRODUCING FORMATION(S)	DEPTHS	
Marcellus	6602-6616 TVD	7159-16653 MD

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 293 psi Bottom Hole _____ psi DURATION OF TEST 24 hrs

OPEN FLOW Gas 5657 mcfpd Oil _____ bpd NGL _____ bpd Water 62 bpd
GAS MEASURED BY Estimated Orifice Pilot

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

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Please insert additional pages as applicable.

Drilling Contractor Patterson Drilling Rig 578
Address 207 Carlton Drive City Eighty Four State PA Zip 15330

Logging Company Baker Hughes
Address 400 Technology Drive – Suite 120 City Canonsburg State PA Zip 15317

Cementing Company Halliburton
Address 121 Champion Way Ste 110 City Canonsburg State PA Zip 15317

Stimulating Company US Well Services LLC
Address 770 S Post Oak Ln Ste 405 City Houston State TX Zip 77056

Please insert additional pages as applicable.

Completed by Adam Hughey Telephone 724-579-5475
Signature [Signature] Title Director of Completions Date 2/5/2024

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

04/19/2024

API 47- 095 - 02256 Farm name Vivian J. Wells Well number 514464 (SHR60H5)

Drilling Contractor Alpha Hunter Drilling Rig 5
Address P.O. Box 430 City Reno State OH Zip 45773

Logging Company Gyrodta Inc.
Address 73 Noblestown Road City Carnegie State PA Zip 15106

Logging Company _____
Address _____ City _____ State _____ Zip _____

Cementing Company Universal
Address 13549 S. Mosiertown Rd City Meadville State PA Zip 16335

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Proppant								
Interval Number	Type	Pumping Result	Type	Subtype	Des	Sand Size	Amount (lb)	
1	Stage	Successful	Natural	Uncoated	Bulk Sand	100 mesh	176,500.00	
2	Stage	Successful	Natural	Uncoated	Bulk Sand	100 mesh	440,890.00	
3	Stage	Successful	Natural	Uncoated	Bulk Sand	100 mesh	441,230.00	
4	Stage	Successful	Natural	Uncoated	Bulk Sand	100 mesh	447,206.00	
5	Stage	Successful	Natural	Uncoated	Bulk Sand	100 mesh	435,040.00	
6	Stage	Successful	Natural	Uncoated	Bulk Sand	100 mesh	437,724.00	
7	Stage	Successful	Natural	Uncoated	Bulk Sand	100 mesh	440,890.00	
8	Stage	Successful	Natural	Uncoated	Bulk Sand	100 mesh	439,160.00	
9	Stage	Successful	Natural	Uncoated	Bulk Sand	100 mesh	441,700.00	
10	Stage	Successful	Natural	Uncoated	Bulk Sand	100 mesh	441,300.00	
11	Stage	Successful	Natural	Uncoated	Bulk Sand	100 mesh	442,150.00	
12	Stage	Successful	Natural	Uncoated	Bulk Sand	100 mesh	441,500.00	
13	Stage	Successful	Natural	Uncoated	Bulk Sand	100 mesh	441,200.00	
14	Stage	Successful	Natural	Uncoated	Bulk Sand	100 mesh	439,600.00	
15	Stage	Successful	Natural	Uncoated	Bulk Sand	100 mesh	440,900.00	
16	Stage	Successful	Natural	Uncoated	Bulk Sand	100 mesh	440,100.00	
17	Stage	Successful	Natural	Uncoated	Bulk Sand	100 mesh	439,700.00	
18	Stage	Successful	Natural	Uncoated	Bulk Sand	100 mesh	441,200.00	
19	Stage	Successful	Natural	Uncoated	Bulk Sand	100 mesh	438,050.00	
20	Stage	Successful	Natural	Uncoated	Bulk Sand	100 mesh	440,200.00	
21	Stage	Successful	Natural	Uncoated	Bulk Sand	100 mesh	440,200.00	
22	Stage	Successful	Natural	Uncoated	Bulk Sand	100 mesh	441,230.00	
23	Stage	Successful	Natural	Uncoated	Bulk Sand	100 mesh	439,100.00	
24	Stage	Successful	Natural	Uncoated	Bulk Sand	100 mesh	440,900.00	
25	Stage	Successful	Natural	Uncoated	Bulk Sand	100 mesh	437,500.00	
26	Stage	Successful	Natural	Uncoated	Bulk Sand	100 mesh	440,340.00	
27	Stage	Successful	Natural	Uncoated	Bulk Sand	100 mesh	440,500.00	
28	Stage	Successful	Natural	Uncoated	Bulk Sand	100 mesh	440,800.00	
29	Stage	Successful	Natural	Uncoated	Bulk Sand	100 mesh	440,200.00	
30	Stage	Successful	Natural	Uncoated	Bulk Sand	100 mesh	438,700.00	
31	Stage	Successful	Natural	Uncoated	Bulk Sand	100 mesh	440,340.00	
32	Stage	Successful	Natural	Uncoated	Bulk Sand	100 mesh	445,200.00	
33	Stage	Successful	Natural	Uncoated	Bulk Sand	100 mesh	440,400.00	
34	Stage	Successful	Natural	Uncoated	Bulk Sand	100 mesh	440,300.00	
35	Stage	Successful	Natural	Uncoated	Bulk Sand	100 mesh	441,300.00	
36	Stage	Successful	Natural	Uncoated	Bulk Sand	100 mesh	436,800.00	
37	Stage	Successful	Natural	Uncoated	Bulk Sand	100 mesh	440,250.00	
38	Stage	Successful	Natural	Uncoated	Bulk Sand	100 mesh	445,600.00	
39	Stage	Successful	Natural	Uncoated	Bulk Sand	100 mesh	442,100.00	
40	Stage	Successful	Natural	Uncoated	Bulk Sand	100 mesh	439,700.00	
41	Stage	Successful	Natural	Uncoated	Bulk Sand	100 mesh	439,700.00	
42	Stage	Successful	Natural	Uncoated	Bulk Sand	100 mesh	440,200.00	
43	Stage	Successful	Natural	Uncoated	Bulk Sand	100 mesh	439,850.00	
44	Stage	Successful	Natural	Uncoated	Bulk Sand	100 mesh	440,700.00	
45	Stage	Successful	Natural	Uncoated	Bulk Sand	100 mesh	442,100.00	
46	Stage	Successful	Natural	Uncoated	Bulk Sand	100 mesh	441,500.00	
47	Stage	Successful	Natural	Uncoated	Bulk Sand	100 mesh	440,700.00	
48	Stage	Successful	Natural	Uncoated	Bulk Sand	100 mesh	442,452.00	

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42	Stage	Successful	Wireline	Scale Inhibitor	Scale Inhibitor	StimSTREAM SC-398	ChemStream	0.3	gal
42	Stage	Successful	Stimulation	Scale Inhibitor	Scale Inhibitor	StimSTREAM SC-398	ChemStream	39	gal
43	Stage	Successful	Wireline	Scale Inhibitor	Scale Inhibitor	StimSTREAM SC-398	ChemStream	0.3	gal
43	Stage	Successful	Stimulation	Scale Inhibitor	Scale Inhibitor	StimSTREAM SC-398	ChemStream	39	gal
44	Stage	Successful	Wireline	Scale Inhibitor	Scale Inhibitor	StimSTREAM SC-398	ChemStream	0.2	gal
44	Stage	Successful	Stimulation	Scale Inhibitor	Scale Inhibitor	StimSTREAM SC-398	ChemStream	38	gal
44	Stage	Successful	Wireline	Scale Inhibitor	Scale Inhibitor	StimSTREAM SC-398	ChemStream	0.2	gal
45	Stage	Successful	Stimulation	Scale Inhibitor	Scale Inhibitor	StimSTREAM SC-398	ChemStream	38	gal
45	Stage	Successful	Wireline	Scale Inhibitor	Scale Inhibitor	StimSTREAM SC-398	ChemStream	0.2	gal
46	Stage	Successful	Stimulation	Scale Inhibitor	Scale Inhibitor	StimSTREAM SC-398	ChemStream	38	gal
46	Stage	Successful	Wireline	Scale Inhibitor	Scale Inhibitor	StimSTREAM SC-398	ChemStream	0.2	gal
47	Stage	Successful	Stimulation	Scale Inhibitor	Scale Inhibitor	StimSTREAM SC-398	ChemStream	37	gal
47	Stage	Successful	Wireline	Scale Inhibitor	Scale Inhibitor	StimSTREAM SC-398	ChemStream	0.1	gal
48	Stage	Successful	Stimulation	Scale Inhibitor	Scale Inhibitor	StimSTREAM SC-398	ChemStream	39	gal
48	Stage	Successful	Wireline	Scale Inhibitor	Scale Inhibitor	StimSTREAM SC-398	ChemStream	0.1	gal

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48.00	12/22/2019 20:45	leach WL	Perforated	7,279.00	7,280.00	4.00	40	0.46	90.00	None
48.00	12/22/2019 20:45	leach WL	Perforated	7,259.00	7,260.00	4.00	40	0.46	90.00	None
48.00	12/22/2019 20:45	leach WL	Perforated	7,239.00	7,240.00	4.00	40	0.46	90.00	None
48.00	12/22/2019 20:45	leach WL	Perforated	7,219.00	7,220.00	4.00	40	0.46	90.00	None
48.00	12/22/2019 20:45	leach WL	Perforated	7,199.00	7,200.00	4.00	40	0.46	90.00	None
48.00	12/22/2019 20:45	leach WL	Perforated	7,179.00	7,180.00	4.00	40	0.46	90.00	None
48.00	12/22/2019 20:45	leach WL	Perforated	7,159.00	7,160.00	4.00	40	0.46	90.00	None

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Wireline Pump In Volumes							
Interval Number	Start Date	End Date	Type	Pumping Result	Fluid Name	Total Stim Volume (bbl)	Evolution of Fracture
1	11/16/2019 8:02	11/16/2019 11:02	Stage	Successful	Wireline	0.00	
2	11/17/2019 2:32	11/17/2019 5:32	Stage	Successful	Wireline	761.00	
3	11/17/2019 22:48	11/18/2019 0:39	Stage	Successful	Wireline	539.00	
4	11/18/2019 12:47	11/18/2019 14:34	Stage	Successful	Wireline	578.00	
5	11/19/2019 9:42	11/19/2019 11:31	Stage	Successful	Wireline	502.00	
6	11/20/2019 18:57	11/20/2019 20:44	Stage	Successful	Wireline	469.00	
7	11/24/2019 13:41	11/24/2019 15:32	Stage	Successful	Wireline	470.00	
8	11/24/2019 20:08	11/24/2019 21:51	Stage	Successful	Wireline	466.00	
9	11/25/2019 13:49	11/25/2019 15:36	Stage	Successful	Wireline	445.00	
10	11/26/2019 17:38	11/26/2019 19:27	Stage	Successful	Wireline	496.00	
11	11/27/2019 17:18	11/27/2019 19:07	Stage	Successful	Wireline	409.00	
12	11/28/2019 10:11	11/28/2019 12:01	Stage	Successful	Wireline	409.00	
13	11/29/2019 15:28	11/29/2019 17:20	Stage	Successful	Wireline	416.00	
14	11/30/2019 11:49	11/30/2019 13:38	Stage	Successful	Wireline	407.00	
15	12/1/2019 8:15	12/1/2019 10:02	Stage	Successful	Wireline	415.00	
16	12/2/2019 11:42	12/2/2019 13:32	Stage	Successful	Wireline	397.00	
17	12/3/2019 9:03	12/3/2019 10:48	Stage	Successful	Wireline	377.00	
18	12/4/2019 7:00	12/4/2019 8:46	Stage	Successful	Wireline	370.00	
19	12/4/2019 20:26	12/4/2019 22:11	Stage	Successful	Wireline	366.00	
20	12/5/2019 8:04	12/5/2019 15:43	Stage	Successful	Wireline	355.00	
21	12/6/2019 11:10	12/6/2019 12:52	Stage	Successful	Wireline	333.00	
22	12/7/2019 1:28	12/7/2019 3:26	Stage	Successful	Wireline	334.00	
23	12/7/2019 15:25	12/7/2019 17:05	Stage	Successful	Wireline	286.00	
24	12/8/2019 2:22	12/8/2019 4:02	Stage	Successful	Wireline	268.00	
25	12/8/2019 13:13	12/8/2019 14:55	Stage	Successful	Wireline	244.00	
26	12/9/2019 3:11	12/9/2019 4:55	Stage	Successful	Wireline	241.00	
27	12/9/2019 16:28	12/9/2019 18:06	Stage	Successful	Wireline	241.00	
28	12/10/2019 4:43	12/10/2019 6:27	Stage	Successful	Wireline	214.00	
29	12/10/2019 15:01	12/10/2019 16:41	Stage	Successful	Wireline	237.00	
30	12/11/2019 1:00	12/11/2019 2:40	Stage	Successful	Wireline	222.00	
31	12/11/2019 18:42	12/11/2019 20:23	Stage	Successful	Wireline	217.00	
32	12/13/2019 1:50	12/13/2019 3:30	Stage	Successful	Wireline	194.00	
33	12/14/2019 1:51	12/14/2019 3:33	Stage	Successful	Wireline	180.00	
34	12/14/2019 18:42	12/14/2019 20:26	Stage	Successful	Wireline	164.00	
35	12/15/2019 5:32	12/15/2019 7:15	Stage	Successful	Wireline	153.00	
36	12/15/2019 16:18	12/15/2019 17:58	Stage	Successful	Wireline	173.00	
37	12/16/2019 11:53	12/16/2019 13:33	Stage	Successful	Wireline	143.00	
38	12/16/2019 23:00	12/17/2019 0:41	Stage	Successful	Wireline	158.00	
39	12/18/2019 7:25	12/18/2019 9:06	Stage	Successful	Wireline	128.00	
40	12/18/2019 18:48	12/18/2019 20:28	Stage	Successful	Wireline	131.00	
41	12/19/2019 4:31	12/19/2019 6:12	Stage	Successful	Wireline	102.00	
42	12/20/2019 3:15	12/20/2019 4:56	Stage	Successful	Wireline	89.00	
43	12/20/2019 13:28	12/20/2019 15:11	Stage	Successful	Wireline	79.00	
44	12/21/2019 0:35	12/21/2019 2:14	Stage	Successful	Wireline	70.00	
45	12/21/2019 12:52	12/21/2019 14:33	Stage	Successful	Wireline	69.00	
46	12/22/2019 1:43	12/22/2019 3:21	Stage	Successful	Wireline	48.00	
47	12/22/2019 12:06	12/22/2019 13:46	Stage	Successful	Wireline	52.00	
48	12/23/2019 0:10	12/23/2019 1:52	Stage	Successful	Wireline	26.00	

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Interval Number	Stimulation Stages										Total Stim Volume (bbl)		
	Start Date	End Date	P Breakdown (psi)	P Treat Avg (psi)	P Treat Max (psi)	ISIP (psi)	Frac Gradient (psi/ft)	Slurry Rate Max (bbl/min)	Slurry Rate Avg (bbl/min)	# Pumps Start		# Pumps End	Impaired Stim Volume (bbl)
1	11/16/2019 8:02	11/16/2019 11:32	6,892.00	9,004.74	9,459.34	3,538.00	0.98	99.97	89.75	16.00	15.00	5,636.00	5,636.00
2	11/17/2019 2:32	11/17/2019 5:02	6,169.00	8,900.41	9,304.84	3,655.00	1.02	100.37	96.74	15.00	15.00	10,249.00	10,249.00
3	11/17/2019 22:48	11/18/2019 0:38	5,747.00	8,954.18	9,293.47	4,161.00	1.10	100.24	96.20	15.00	15.00	9,603.00	9,603.00
4	11/18/2019 12:47	11/18/2019 14:34	5,940.00	8,897.20	9,181.09	4,103.00	1.07	100.32	100.00	14.00	14.00	9,610.00	9,610.00
5	11/19/2019 9:42	11/19/2019 11:31	5,824.00	8,653.89	9,168.04	3,821.00	1.03	100.24	97.07	14.00	14.00	9,498.00	9,498.00
6	11/20/2019 18:57	11/20/2019 20:44	5,688.00	8,659.59	9,080.04	3,662.00	1.05	100.40	99.74	15.00	15.00	9,629.00	9,629.00
7	11/20/2019 13:41	11/24/2019 15:32	6,049.00	8,730.11	9,091.91	4,029.00	1.06	100.40	97.55	14.00	13.00	9,652.00	9,266.00
8	11/24/2019 20:08	11/24/2019 21:51	6,332.00	8,700.11	9,025.40	4,399.00	1.11	99.56	98.63	14.00	13.00	0.00	0.00
9	11/25/2019 13:49	11/25/2019 15:36	6,854.00	8,507.18	8,950.88	4,204.00	1.09	100.50	96.03	15.00	12.00	9,575.00	9,278.00
10	11/26/2019 17:38	11/26/2019 19:27	6,106.00	8,716.45	9,125.09	4,116.00	1.08	100.66	100.34	14.00	12.00	9,562.00	9,562.00
11	11/27/2019 17:18	11/27/2019 19:07	4,950.00	8,485.15	8,913.71	3,933.00	1.04	100.62	99.76	15.00	14.00	9,596.00	9,596.00
12	11/28/2019 15:24	11/28/2019 17:13	5,686.00	8,602.86	9,154.61	4,106.00	1.07	100.90	96.53	16.00	17.00	9,653.00	9,653.00
13	11/29/2019 15:28	11/29/2019 17:20	5,798.00	8,610.69	8,681.03	3,947.00	1.06	101.19	96.56	15.00	15.00	9,564.00	9,564.00
14	11/30/2019 11:49	11/30/2019 13:38	5,655.00	8,331.89	8,692.19	4,141.00	1.08	100.28	99.97	16.00	15.00	9,610.00	9,610.00
15	12/1/2019 8:15	12/1/2019 10:02	5,606.00	8,460.00	8,517.24	4,244.00	1.10	100.11	99.90	16.00	15.00	9,833.00	9,833.00
16	12/2/2019 11:42	12/2/2019 13:32	5,823.00	8,243.84	8,725.77	3,958.00	1.04	100.53	100.24	16.00	15.00	9,550.00	9,550.00
17	12/3/2019 9:03	12/3/2019 10:48	5,892.00	8,407.41	9,185.80	3,736.00	1.01	101.90	98.75	16.00	15.00	9,402.00	9,402.00
18	12/4/2019 7:00	12/4/2019 8:46	5,762.00	8,507.41	8,507.79	3,898.00	1.04	100.44	98.95	15.00	15.00	9,020.00	9,020.00
19	12/5/2019 20:26	12/4/2019 22:11	5,622.00	8,511.97	9,222.25	4,133.00	1.07	101.10	97.06	15.00	14.00	9,376.00	9,376.00
20	12/5/2019 8:04	12/5/2019 15:43	5,877.00	8,632.21	9,296.44	3,964.00	1.06	101.34	98.54	15.00	15.00	10,353.00	10,353.00
21	12/6/2019 11:10	12/6/2019 12:52	5,430.00	8,403.13	9,351.38	4,294.00	1.07	100.62	99.47	15.00	12.00	9,179.00	9,179.00
22	12/7/2019 1:28	12/7/2019 3:26	5,604.00	8,051.72	8,226.53	3,760.00	1.11	100.49	95.20	14.00	13.00	10,585.00	10,585.00
23	12/7/2019 15:25	12/7/2019 17:05	5,771.00	8,200.87	8,694.79	3,898.00	1.04	100.66	100.04	15.00	15.00	9,100.00	9,100.00
24	12/8/2019 12:22	12/8/2019 14:02	5,871.00	8,091.72	9,052.78	3,898.00	1.01	100.49	98.26	15.00	15.00	8,230.00	8,230.00
25	12/8/2019 13:13	12/8/2019 14:55	6,075.00	8,324.67	9,511.41	3,655.00	1.01	100.49	99.45	15.00	15.00	8,985.00	8,985.00
26	12/9/2019 3:11	12/9/2019 4:55	5,678.00	8,409.08	9,174.83	3,787.00	1.02	100.53	99.20	14.00	14.00	9,496.00	9,496.00
27	12/9/2019 16:28	12/9/2019 18:06	5,763.00	8,247.71	8,883.59	4,117.00	1.09	100.93	99.73	14.00	14.00	8,999.00	8,999.00
28	12/10/2019 4:43	12/10/2019 6:27	5,722.00	8,231.66	8,793.26	3,980.00	1.06	100.93	100.28	15.00	15.00	9,526.00	9,526.00
29	12/10/2019 15:01	12/10/2019 16:41	5,691.00	7,972.17	8,305.05	3,966.00	1.05	100.53	100.08	15.00	15.00	9,083.00	9,083.00
30	12/11/2019 1:00	12/11/2019 2:40	5,695.00	8,369.41	9,255.81	3,730.00	1.02	100.79	98.15	15.00	15.00	9,239.00	9,239.00
31	12/11/2019 18:42	12/11/2019 20:23	5,439.00	8,085.23	9,210.56	4,058.00	1.07	100.62	98.07	15.00	15.00	9,194.00	9,194.00
32	12/13/2019 1:50	12/13/2019 3:30	5,116.00	8,124.52	9,236.40	4,329.00	1.13	100.75	98.45	15.00	15.00	9,239.00	9,239.00
33	12/14/2019 1:51	12/14/2019 3:33	5,681.00	8,000.41	9,291.74	4,198.00	1.10	100.10	96.59	14.00	14.00	9,074.00	9,074.00
34	12/14/2019 18:42	12/14/2019 20:26	5,573.00	8,800.41	9,371.74	3,773.00	1.02	100.26	95.80	14.00	14.00	9,145.00	9,145.00
35	12/15/2019 5:32	12/15/2019 7:15	5,811.00	8,274.37	9,371.74	3,937.00	1.05	100.53	98.80	15.00	15.00	9,236.00	9,236.00
36	12/15/2019 16:18	12/15/2019 17:58	5,892.00	7,956.54	8,964.35	4,013.00	1.05	100.44	98.12	15.00	15.00	9,111.00	9,111.00
37	12/16/2019 11:58	12/16/2019 13:33	5,957.00	7,872.90	8,959.75	4,005.00	1.05	100.75	99.52	14.00	14.00	9,076.00	9,076.00
38	12/16/2019 23:00	12/17/2019 0:41	6,169.00	7,982.99	9,262.66	3,921.00	1.06	100.49	98.00	14.00	14.00	9,008.00	9,008.00
39	12/18/2019 7:25	12/18/2019 9:06	5,614.00	7,982.99	8,791.77	4,124.00	1.08	100.57	99.81	15.00	15.00	9,218.00	9,218.00
40	12/18/2019 18:48	12/18/2019 20:28	5,901.00	8,506.98	9,166.46	4,123.00	1.06	100.62	98.48	15.00	15.00	9,003.00	9,003.00
41	12/19/2019 4:31	12/19/2019 6:12	5,626.00	8,351.21	9,111.80	3,837.00	1.03	100.88	99.12	15.00	15.00	9,046.00	9,046.00
42	12/20/2019 3:15	12/20/2019 4:56	5,703.00	8,003.41	9,180.71	3,956.00	1.04	100.40	97.99	15.00	14.00	9,210.00	9,210.00
43	12/20/2019 13:28	12/20/2019 15:11	5,783.00	8,316.53	9,206.46	3,990.00	1.05	100.93	98.25	15.00	14.00	9,162.00	9,162.00
44	12/21/2019 0:35	12/21/2019 2:14	5,962.00	8,047.55	9,111.07	4,017.00	1.05	100.40	99.39	15.00	15.00	9,054.00	9,054.00
45	12/21/2019 12:52	12/21/2019 14:33	5,992.00	7,535.06	8,094.68	4,865.00	1.18	100.93	99.84	15.00	13.00	9,229.00	9,229.00
46	12/22/2019 1:43	12/22/2019 3:21	6,188.00	7,498.59	8,551.92	4,059.00	1.06	100.79	100.11	14.00	14.00	9,025.00	9,025.00
47	12/22/2019 12:06	12/22/2019 13:46	6,436.00	7,437.35	8,895.73	4,054.00	1.12	100.66	99.02	14.00	12.00	8,977.00	8,977.00
48	12/23/2019 0:10	12/23/2019 1:52	6,266.00	7,588.24	8,767.73	3,913.00	1.04	100.53	99.20	14.00	14.00	9,210.00	9,210.00

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Well #514464 Final Formations API# 47-095-02256

Formation	Top (TVD)	Bottom (TVD)	Top (MD)	Bottom (MD)	Lithology	Rock Type and Type of Fluid
Fresh Water Zone	1	918	1	918		Freshwater
Coal	31	35	31	35	Coal	
Coal	432	436	432	436	Coal	
Coal	698	702	698	702	Coal	
Coal	887	891	887	891	Coal	
Coal	1327	1331	1327	1331	Coal	
Maxton	1546	1599	1546	1599	Sandstone	
Big Lime	1841	2123	1841	2123	Limestone	
Weir	2263	2329	2263	2329	Sandstone	
Gantz	2380	2427	2380	2427	Silty Sand	
Fifty foot	2473	2508	2473	2508	Silty Sand	
Thirty foot	2607	2648	2607	2648	Silty Sand	
Gordon	2698	2712	2698	2712	Silty Sand	
Fifth Sand	2903	2932	2903	2932	Silty Sand	
Bayard	3019	3079	3019	3079	Silty Sand	
Warren	3351	3425	3351	3425	Silty Sand	
Speechley	3445	3563	3445	3563	Silty Sand	
Balltown A	3867	3937	3867	3937	Silty Sand	
Riley	4560	4597	4560	4597	Silty Sand	
Benson	4977	5014	4977	5014	Silty Sand	
Alexander	5234	5306	5234	5306	Silty Sand	
Elks	5306	6224	5306	6224	Gray Shales and Silts	
Sonyea	6224	6393	6439	6629	Gray shale	
Middlesex	6393	6437	6629	6820	Shale	
					Gray shale interbedded with	
Genesee	6437	6513	6820	6915	black shale	
Genesee	6513	6542	6915	7010	Black Shale	
Tully	6542	6566	7010	7105	Limestone	
					Gray shale with some	
Hamilton	6566	6583	7105	7200	calcareous shales	
Marcellus	6583	6635	7200	16656	Black Shale	Gas

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	11/16/2019
Job End Date:	12/23/2019
State:	West Virginia
County:	Tyler
API Number:	47-095-02541-00-00
Operator Name:	EQT Production
Well Name and Number:	SHR60 5H
Latitude:	39.39444400
Longitude:	-80.81111100
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,608
Total Base Water Volume (gal):	19,324,158
Total Base Non Water Volume:	0



Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Water	EQT	Carrier/Base Fluid	Water	7732-18-5	100.00000	88.44607	None
Sand (Proppant)	EQT	Proppant	Silica Substrate	14808-60-7	100.00000	11.45471	None
FR-9800	ChemStream	Friction Reducer	Copolymer of 2-propenamide	Proprietary	30.00000	0.01526	None
			Petroleum Distillate	64742-47-8	20.00000	0.01017	None
			Dioic Acid Diethanolamide	98-83-4	2.00000	0.00102	None
			Alcohols, C12-16, ethoxylated	68551-12-2	2.00000	0.00102	None
			Ammonium chloride ((NH4)Cl)	12125-02-9	1.00000	0.00051	None
Clearyl 268	ChemStream	Biocide	Non-hazardous substances	Proprietary	90.00000	0.01294	None
			Glutaraldehyde	111-30-8	20.00000	0.00288	None
			Didecyl dimethyl ammonium chloride	7173-51-5	3.00000	0.00043	None
			Alkyl dimethyl benzyl ammonium chloride	68391-01-5	3.00000	0.00043	None
StimSTREAM SC-398	ChemStream	Scale Inhibitor	Non-hazardous substances	Proprietary	90.00000	0.00852	None

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Hydrochloric Acid (HCl)	JSWS	Acid	Bis(HexaMethylene Triamine Penta(Methylene Phosphonic Acid)(BHMT)	34690-00-1	10.00000	0.00095	None
AI-303	JSWS	Acid Corrosion Inhibitor	Hydrogen Chloride	7647-01-0	15.00000	0.00367	None
			Ethylene glycol	107-21-1	40.00000	0.00001	None
			Formic Acid	64-18-6	20.00000	0.00001	None
			Butyl Cellulosolve	111-76-2	20.00000	0.00001	None
			Cinnamaldehyde	104-55-2	20.00000	0.00001	None
			Polyether	Proprietary	10.00000	0.00000	None
			Acetophenone, thiourea, formaldehyde polymer	68527-49-1	5.00000	0.00000	None
Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.							
Other Chemical(s)	Listed Above	See Trade Name(s) List					
			Non-hazardous substances	Proprietary	90.00000	0.01294	
			Petroleum Distillate	64742-47-8	20.00000	0.01017	
			Non-hazardous substances	Proprietary	90.00000	0.00852	
			Alcohols, C12-16, ethoxylated	68551-12-2	2.00000	0.00102	
			Oleic Acid Diethanolamide	93-83-4	2.00000	0.00102	
			Ammonium chloride ((NH4)Cl)	12125-02-9	1.00000	0.00051	
			Alkyl dimethyl benzyl ammonium chloride	68391-01-5	3.00000	0.00043	
			Didecyl dimethyl ammonium chloride	7173-51-5	3.00000	0.00043	
			Butyl Cellulosolve	111-76-2	20.00000	0.00001	
			Formic Acid	64-18-6	20.00000	0.00001	
			Cinnamaldehyde	104-55-2	20.00000	0.00001	
			Polyether	Proprietary	10.00000	0.00000	
			Acetophenone, thiourea, formaldehyde polymer	68527-49-1	5.00000	0.00000	

* Total Water Volume sources may include fresh water, produced water, and/or recycled water
 ** Information is based on the maximum potential for concentration and thus the total may be over 100%

Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided.
 Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

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