

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

RECEIVED
Office of Oil and Gas

OCT 14 2014

WV Department of
Environmental Protection

API 47 - 103 - 02902 County Wetzel District Grant
Quad Big Run 7.5' Pad Name Big 57 Field/Pool Name _____
Farm name J.M. ALLEN ESTATE ET AL Well Number 513726
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 4378231 Easting 540611
Landing Point of Curve Northing 4378005 Easting 540713
Bottom Hole Northing 4376832 Easting 541362

Elevation (ft) 919 GL Type of Well New Existing Type of Report Interim Final
Permit Type Deviated Horizontal Horizontal 6A Vertical Depth Type Deep Shallow
Type of Operation Convert Deepen Drill Plug Back Redrilling Rework Stimulate
Well Type Brine Disposal CBM Gas Oil Secondary Recovery Solution Mining Storage Other _____
Type of Completion Single Multiple Fluids Produced Brine Gas NGL Oil Other _____
Drilled with Cable Rotary

Drilling Media Surface hole Air Mud Fresh Water Intermediate hole Air Mud Fresh Water Brine
Production hole Air Mud Fresh Water Brine

Mud Type(s) and Additive(s)

Water base Mud 14.5 ppg barium sulfate, sodium chloride, xanthan gum, polyanionic cellulose, modified starch, sodium hydroxide, phosphonates and alkyl phosphates, glutaraldehyde solution, calcium hydroxide, partially hydrolyzed polyacrylamide/polyacrylate, potassium chloride, sodium carbonate, ground walnut shells, alcohol and modified fatty acid, ferrochrome lignosulfonate, calcium carbonate, fibrous cellulose

Date permit issued 7/24/2013 Date drilling commenced 8/12/2013 Date drilling ceased 11/18/2013
Date completion activities began 4/15/2014 Date completion activities ceased 4/24/2014
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 641 Open mine(s) (Y/N) depths N
Salt water depth(s) ft 1487, 1549 Void(s) encountered (Y/N) depths N
Coal depth(s) ft 93, 359, 523, 605, 648 Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed by:

10/31/2014

API 47-103 - 02902 Farm name J.M. ALLEN ESTATE ET AL Well number 513726

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/fl	Basket Depth(s)	Did cement circulate (Y/N) * Provide details below*
Conductor	30"	26"	70'	New	82.6#		Y
Surface	17-1/2"	13-3/8"	907'	New	54.5#	237', 394'	Y
Coal							
Intermediate 1	12-3/8"	9-5/8"	2,942'	New	40#		Y
Intermediate 2							
Intermediate 3							
Production	8-1/2"	5-1/2"	12,503'	New	20#		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	86	15.6	1.18	101.48	0	8
Surface	Class A	825	15.6	1.21	998.25	0	8
Coal							
Intermediate 1	Class A	1400	15.6	1.18	1652	0	8
Intermediate 2							
Intermediate 3							
Production	Class A/Class H	760/730	15.2/15.6	1.17/1.83	2225.1	3,848	8
Tubing							

Drillers TD (ft) 12,507' _____ Loggers TD (ft) N/A _____
 Deepest formation penetrated Geneseo _____ Plug back to (ft) N/A _____
 Plug back procedure N/A _____

Kick off depth (ft) 5,155' _____

Check all wireline logs run caliper density deviated/directional induction
 neutron resistivity gamma ray temperature sonic

Well cored Yes No Conventional Sidewall Were cuttings collected Yes No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING Conductor - N/A _____

Surface - Bow spring centralizers to be placed at casing shoe and 476' _____

Intermediate - Bow spring centralizers to be placed at shoes, 2442, 1942, 1442, 942, 442 _____

Production - Run centralizers every joint from casing shoe up to 3,848 _____

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 _____

Formation Name	Final Top MD (ftGL) (ft)	Final Top TVD (ft)	Final Btm MD (ftGL) (ft)	Final Btm TVD (ft)
SAND / SHALE	0	0	93	93
FRESH WATER ZONE	1	1	641	641
COAL	93	93	96	96
SAND / SHALE	96	96	359	359
COAL	359	359	361	361
SAND / SHALE	361	361	523	523
COAL	523	523	526	526
SAND / SHALE	526	526	605	605
COAL	605	605	613	613
SAND / SHALE	613	613	648	648
COAL	648	648	657	657
SAND / SHALE	657	657	1,727.00	1,725.60
MAXTON	1,727.00	1,725.60	1,851.00	1,849.60
BIG LIME	1,851.00	1,849.60	2,218.00	2,216.60
WEIR	2,218.00	2,216.60	2,419.00	2,417.60
GANTZ	2,419.00	2,417.60	2,539.00	2,537.60
50F	2,539.00	2,537.60	2,618.00	2,616.60
30F	2,618.00	2,616.60	2,668.00	2,666.60
GORDON	2,668.00	2,666.60	2,727.00	2,725.60
4TH	2,727.00	2,725.60	2,843.00	2,841.60
BAYARD	2,843.00	2,841.60	2,947.00	2,945.60
5TH	2,947.00	2,945.60	3,320.00	3,318.60
WARREN	3,320.00	3,318.60	3,367.00	3,365.60
B-5	3,367.00	3,365.60	3,461.00	3,459.60
SPEECHLEY	3,461.00	3,459.60	3,854.00	3,852.60
BALLTOWN A	3,854.00	3,852.60	3,855.00	3,853.60
BALLTOWN B	3,855.00	3,853.60	4,349.00	4,347.60
BRADFORD	4,349.00	4,347.60	4,696.00	4,694.60
RILEY	4,696.00	4,694.60	4,934.00	4,932.50
BENSON	4,934.00	4,932.50	5,359.00	5,352.80
ALEXANDER	5,359.00	5,352.80	5,377.00	5,369.70
ELK	5,377.00	5,369.70	6,721.00	6,586.10
sonyea	6,721.00	6,586.10	6,907.00	6,745.30
MIDDLESEX	6,907.00	6,745.30	6,951.00	6,777.90
GENESSEE	6,951.00	6,777.90	7,233.00	6,917.40
GENESE0	7,233.00	6,917.40	7,152.89	12,507.00

Amended report with Mylar plat attached

Well#: 513726

API 47-103-02902

Re-perforated stages 3 (3.1), 4 (4.1), 9 (9.1), 11 (11.1), 17 (17.1), 19 (19.1), and 22 (22.1)

10/31/2014

513726 - Perforations

API 47-103-02902

Stage Number	Perforation Date	Top Perf Depth (ftKB)	Bottom Perf Depth (ftKB)	Number of Shots	Formation
Initiation Sleeve	11/27/2013	12,475.00	12,477.00	10	Geneseo
1	4/15/2014	12,354.00	12,444.00	32	Geneseo
2	4/15/2014	12,206.00	12,324.00	40	Geneseo
3	4/16/2014	12,054.00	12,174.00	40	Geneseo
3.1 (Re-Perf)	4/16/2014	12,090.00	12,137.00	32	Geneseo
4	4/16/2014	11,904.00	12,024.00	40	Geneseo
4.1 (Re-Perf)	4/16/2014	11,928.00	11,982.00	32	Geneseo
5	4/17/2014	11,754.00	11,869.00	40	Geneseo
6	4/17/2014	11,604.00	11,724.00	40	Geneseo
7	4/18/2014	11,454.00	11,572.00	40	Geneseo
8	4/18/2014	11,304.00	11,424.00	40	Geneseo
9	4/18/2014	11,154.00	11,274.00	40	Geneseo
9.1 (Re-Perf)	4/18/2014	11,111.00	11,156.00	32	Geneseo
10	4/18/2014	10,961.00	11,081.00	40	Geneseo
11	4/19/2014	10,797.00	10,947.00	40	Geneseo
11.1 (Re-Perf)	4/19/2014	10,823.00	10,915.00	32	Geneseo
12	4/19/2014	10,661.00	10,781.00	40	Geneseo
13	4/19/2014	10,511.00	10,631.00	40	Geneseo
14	4/19/2014	10,361.00	10,481.00	40	Geneseo
15	4/19/2014	10,211.00	10,333.00	40	Geneseo
16	4/19/2014	10,061.00	10,183.00	40	Geneseo
17	4/20/2014	9,911.00	10,024.00	40	Geneseo
17.1 (Re-Perf)	4/20/2014	9,914.00	9,974.00	32	Geneseo
18	4/20/2014	9,761.00	9,879.00	40	Geneseo
19	4/20/2014	9,611.00	9,733.00	40	Geneseo
19.1 (Re-Perf)	4/20/2014	9,622.00	9,669.00	32	Geneseo
20	4/21/2014	9,461.00	9,565.00	40	Geneseo
21	4/21/2014	9,311.00	9,431.00	40	Geneseo
22	4/21/2014	9,161.00	9,277.00	40	Geneseo
22.1 (Re-Perf)	4/21/2014	9,165.00	9,210.00	32	Geneseo
23	4/21/2014	9,011.00	9,131.00	40	Geneseo
24	4/21/2014	8,861.00	8,983.00	40	Geneseo
25	4/22/2014	8,561.00	8,681.00	40	Geneseo
26	4/22/2014	8,711.00	8,833.00	40	Geneseo
27	4/22/2014	8,411.00	8,413.00	40	Geneseo
28	4/22/2014	8,261.00	8,383.00	40	Geneseo
29	4/22/2014	8,111.00	8,233.00	40	Geneseo
30	4/23/2014	7,961.00	8,083.00	40	Geneseo
31	4/23/2014	7,811.00	7,933.00	40	Geneseo
32	4/23/2014	7,661.00	7,781.00	40	Geneseo
33	4/23/2014	7,511.00	7,633.00	40	Geneseo
34	4/23/2014	7,361.00	7,483.00	40	Geneseo
35	4/23/2014	7,211.00	7,331.00	40	Geneseo

513726 - Stimulated Stages

API 47-103-02902

Stage Number	Stimulation Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
Initiation/Sleeve	4/15/2014	14.20	8,372.00	NA	5,561	NA	608	0
1	4/15/2014	85.00	8,832.00	6,999.00	4,195	198,000	5,465	0
2	4/16/2014	84.00	8,788.00	7,521.00	4,302	194,520	5,445	0
3	4/16/2014	72.90	8,844.00	7,614.00	6,090	40,760	3,915	0
3.1 (Re-Perf)	4/16/2014	83.90	8,767.00	8,776.00	5,057	160,950	4,976	0
4	4/16/2014	68.00	8,881.00	7,024.00	5,822	28,500	2,214	0
4.1 (Re-Perf)	4/17/2014	98.20	8,803.00	7,024.00	5,450	169,600	4,611	0
5	4/17/2014	80.00	8,778.00	6,756.00	4,939	193,480	5,754	0
6	4/18/2014	92.00	8,641.00	6,491.00	5,482	199,830	5,438	0
7	4/18/2014	82.90	8,787.00	7,528.00	6,276	200,920	5,316	0
8	4/18/2014	91.80	8,819.00	6,455.00	5,901	152,160	4,940	0
9	4/18/2014	88.10	8,717.00	6,473.00	4,653	147,630	4,492	0
9.1 (Re-Perf)	4/18/2014	90.00	8,081.00	NA	4,864	53,100	2,305	0
10	4/19/2014	98.00	8,228.00	7,128.00	4,685	199,210	5,239	0
11	4/19/2014	64.00	8,891.00	7,482.00	5,597	1,600	1,456	0
11.1 (Re-Perf)	4/19/2014	96.80	8,521.00	NA	5,196	201,910	5,069	0
12	4/19/2014	92.30	8,582.00	7,260.00	5,457	201,420	5,606	0
13	4/19/2014	89.80	8,662.00	6,934.00	5,304	201,590	4,997	0
14	4/19/2014	96.00	8,792.00	6,866.00	5,515	201,340	5,088	0
15	4/19/2014	84.00	8,835.00	7,768.00	4,545	199,980	5,167	0
16	4/20/2014	94.40	8,670.00	6,580.00	4,656	203,390	5,080	0
17	4/20/2014	37.60	8,690.00	7,335.00	5,897	490	1,529	0
17.1 (Re-Perf)	4/20/2014	95.90	8,726.00	7,042.00	5,096	201,770	5,127	0
18	4/20/2014	95.00	8,657.00	6,459.00	5,078	200,630	5,133	0
19	4/20/2014	40.00	8,307.00	6,570.00	5,878	2,000	1,900	0
19.1 (Re-Perf)	4/21/2014	91.00	8,717.00	6,570.00	4,885	203,800	6,945	0
20	4/21/2014	87.00	8,992.00	6,938.00	5,003	200,900	5,305	0
21	4/21/2014	99.00	8,450.00	7,457.00	4,749	201,060	5,287	0
22	4/21/2014	49.00	8,002.00	7,620.00	6,269	4,033	2,941	0
22.1 (Re-Perf)	4/21/2014	90.00	8,569.00	7,070.00	4,885	200,530	5,366	0
23	4/21/2014	95.00	8,226.00	7,281.00	4,778	201,007	5,268	0
24	4/22/2014	95.00	8,027.00	7,710.00	4,867	199,520	5,402	0
25	4/22/2014	97.00	8,263.00	5,518.00	4,803	198,040	5,306	0
26	4/22/2014	100.00	8,311.00	6,713.00	5,250	200,140	5,217	0
27	4/22/2014	85.00	8,126.00	7,814.00	4,792	201,200	7,863	0
28	4/22/2014	95.00	8,311.00	7,278.00	4,721	197,020	5,191	0
29	4/23/2014	98.00	8,078.00	6,709.00	4,710	196,940	5,142	0
30	4/23/2014	99.00	8,241.00	7,621.00	4,642	201,280	5,121	0
31	4/23/2014	95.00	8,216.00	7,993.00	4,975	201,620	5,168	0
32	4/23/2014	91.00	8,434.00	6,913.00	4,499	200,610	5,303	0
33	4/23/2014	95.00	8,284.00	6,974.00	4,274	200,200	5,228	0
34	4/23/2014	97.00	8,198.00	6,759.00	4,449	206,410	4,983	0
35	4/24/2014	94.00	8,090.00	7,567.00	4,449	204,140	5,135	0

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	4/15/2014
Job End Date:	4/24/2014
State:	West Virginia
County:	Wetzel
API Number:	47-103-02902-00-00
Operator Name:	EQT Production
Well Name and Number:	BIG57 - 513726
Longitude:	-80.52749700
Latitude:	39.55271800
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	7,153
Total Base Water Volume (gal):	8,527,722
Total Base Non Water Volume:	364,721



103-02902

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	USWS	Carrier	H2O	7732-18-5	100.00000	90.42218	
Sand	USWS	Proppant	Crytalline Silica	14808-60-7	100.00000	8.87628	
MX-5	Halliburton	Biocide	Sodium Nitrate	7631-99-4	60.00000	0.05861	
Hydrochloric Acid 15%	USWS	Acidizing	Hydrochloric Acid	7647-01-0	15.00000	0.05211	
WFRA-40Se	USWS	Reduces Friction	Hydrotreated Petroleum	64742-47-8	20.00000	0.01883	
			Sodium Chloride	7647-14-5	20.00000	0.01883	
LGC-15	USWS	Adds Viscosity	Petroleum Distillates	64742-47-8	60.00000	0.01772	
SI-1100	USWS	Prevents Scale	Ethylene Glycol	107-21-1	40.00000	0.01006	
MX-8	Halliburton	Biocide	Bacteria Culture	000-00-0	100.00000	0.01005	
AP-One	USWS	Gel Breaker	Ammonium Persulfate	7727-54-0	100.00000	0.00055	

AI-301	USWS	Acid Inhibitor				
			Hydrogen Chloride	7647-01-0	30.00000	0.00019
			Diethylene Glycol	111-46-6	20.00000	0.00013
			Polyethylenepolyamine	68603-67-8	10.00000	0.00006
			Methenamine	100-97-0	10.00000	0.00006
			Coco Amine	61791-14-8	5.00000	0.00003

Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.

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

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

103-02905

J.M. ALLEN ET AL LEASE 858 ACRES ± WELL NO. 513726



WELL NO. WV 513726
STATE PLANE COORDINATES
(NORTH ZONE) NAD 27
N. 385,078.8
E. 1,710,279.8
LAT=(N) 39.552718
LONG=(W) 80.527497
UTM (NAD83)(METERS)
N. 4,378,231.2
E. 540,610.9

LANDING POINT
WELL NO. WV 513726
STATE PLANE COORDINATES
(NORTH ZONE) NAD 27
N. 384,332.5
E. 1,710,601.8
LAT=(N) 39.550679
LONG=(W) 80.526324
UTM (NAD83)(METERS)
N. 4,378,005.4
E. 540,712.8

BOTTOM HOLE
WELL NO. WV 513726
STATE PLANE COORDINATES
(NORTH ZONE) NAD 27
N. 380,447.5
E. 1,712,667.5
LAT=(N) 39.540078
LONG=(W) 80.518843
UTM (NAD83)(METERS)
N. 4,376,832.3
E. 541,361.8

NOTES ON SURVEY

1. TIES TO WELLS, CORNERS AND REFERENCES ARE BASED ON GRID NORTH FOR THE WV STATE PLANE COORDINATE SYSTEM NORTH ZONE NAD '27.
2. LEASE BOUNDARY SHOWN HEREON TAKEN FROM DEED BOOK 14 PAGE 302.
3. SURFACE OWNER AND ADJOINER INFORMATION TAKEN FROM THE ASSESSOR AND COUNTY CLERK RECORDS OF WETZEL COUNTY IN JULY, 2012.
4. WELL LAT./LONG. (NAD'27) ESTABLISHED BY DGPS(SURVEY GRADE TIE TO CORS NETWORK).
7. PLAT UPDATED ON 07/14/14 TO SHOW THE AS DRILLED PATH COORDINATES FROM INFORMATION PROVIDED BY EQT ON 12/03/13.

LEGEND

AS DRILLED ———
PROPOSED - - - - -

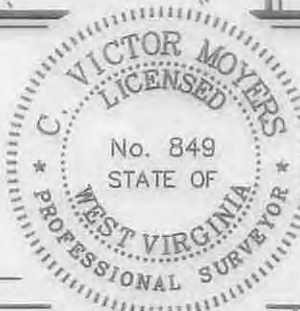
AS DRILLED INFORMATION

BOTTOM HOLE WELL NO. WV 513726 STATE PLANE COORDINATES (NORTH ZONE) NAD 27 N. 380,436.5 E. 1,712,644.9 LAT=(N) 39.540047 LONG=(W) 80.518923 UTM (NAD83)(METERS) N. 4,376,828.8 E. 541,355.0	WELL NO. WV 513726 STATE PLANE COORDINATES (NORTH ZONE) NAD 27 N. 385,078.8 E. 1,710,279.8 LAT=(N) 39.552718 LONG=(W) 80.527497 UTM (NAD83)(METERS) N. 4,378,231.2 E. 540,610.9
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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 DIVISION OF ENVIRONMENTAL PROTECTION.

P.S. 849 *C. Victor Moyers*



(*) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.
DATE APRIL 3, 20 13
REVISED DATE JULY 14, 20 14
OPERATORS WELL NO. WV 513726
API WELL NO. 47 - 103 - 02902
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1/200 FILE NO. 6242ASDRILLED513726
PROVEN SOURCE OF ELEVATION DGPS (SURVEY GRADE TIE TO CORS NETWORK) SCALE 1" = 1000'

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

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

LOCATION: ELEVATION 919' (PAD ELEVATION) WATERSHED NORTH FORK FISHING CREEK DISTRICT GRANT COUNTY WETZEL QUADRANGLE BIG RUN 7.5

SURFACE OWNER EQT PRODUCTION COMPANY ACREAGE 53± ROYALTY OWNER J.M. ALLEN ESTATE ET AL LEASE ACREAGE 858± LEASE NO. 300645

PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION PERFORATE NEW FORMATION PLUG AND ABANDON CLEAN OUT AND REPLUG OTHER

PHYSICAL CHANGE IN WELL (SPECIFY) TARGET FORMATION GENESEO ESTIMATED DEPTH

WELL OPERATOR EQT PRODUCTION COMPANY DESIGNATED AGENT REX C. RAY
ADDRESS 115 PROFESSIONAL PLACE BRIDGEPORT, WV 26330 P.O. BOX 280 ADDRESS 115 PROFESSIONAL BRIDGEPORT, WV 26330 P.O. BOX 280

10/31/2014

LONGITUDE 80°00'00"

11,152'

COUNTY TIME

PERMIT