

Well Operator's Report of Well Work



Where energy meets innovation.

RECEIVED
Office of Oil and Gas

JUN 30 2017

WV Department of
Environmental Protection

Well Number: 514479

API: 47 - 085 - 10229

Submission: Initial Amended

It appears
FINAL

Notes:

APPROVED

NAME: Michael Laff

DATE: 7-13-17

09/15/2017

RECEIVED
Office of Oil and Gas

JUN 30 2017

Environmental Protection
Department of

APPROVED

NAME:

DATE:

09/15/2017

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

JUN 30 2017

API 47 - 085 - 10229 County RITCHIE District CLAY WV Department of Environmental Protection
Quad PENNSBORO 7.5' Pad Name PEN54 Field/Pool Name _____
Farm name Jerry Morton et al Well Number 514479
Operator (as registered with the OOG) EQT Production Company
Address 625 Liberty Ave. EQT Plaza, Suite 1700 City Pittsburgh State PA Zip 15222

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4,345,375.75 Easting 506,274.12
Landing Point of Curve Northing 4,344,973.53 Easting 505,836.30
Bottom Hole Northing 4,345,871.67 Easting 505,528.39

Elevation (ft) 1016 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 based mud 12.1 ppg, barium sulfate, sodium chloride, xanthan gum, polyanionic cellulose, sodium hydroxide, chrome lignosulfonate, calcium hydroxide, sodium acid pyrophosphate, bentonite, Methyl ester of sulfonated tannin, treated silica, partially hydrolyzed polyacrylamide/polyacrylate, potassium chloride, glutaraldehyde, ground walnut shells, calcium carbonate, fibrous cellulose.

Date permit issued 08/17/2015 Date drilling commenced 04/07/2016 Date drilling ceased 06/16/2016
Date completion activities began 3/31/2017 Date completion activities ceased 4/5/2017
Verbal plugging (Y/N) N Date permission granted N/A Granted by N/A

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft 109',115',312',637',739',755',780' Open mine(s) (Y/N) depths N
Salt water depth(s) ft 1360' Void(s) encountered (Y/N) depths N
Coal depth(s) ft 336',799',877',1088',1192' Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed by:

09/15/2017

API 47-085 - 10229

Farm name Jerry Morton et al

Well number 514479

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"	40'	NEW	A-500 40LB/FT	NONE	Y
Surface	17.5"	13.375"	919'	NEW	J-55 54.5LB/FT	330'	Y
Coal							
Intermediate 1	12.375"	9.625"	5261'	NEW	A-500 & P-110 40lb/r	4978',3422'	Y
Intermediate 2							
Intermediate 3							
Production	8.5"	5.5"	11080'	NEW	P-110 20LB/FT	NONE	N
Tubing							
Packer type and depth set		Davis Lynch casing packer and diverter tool placed at 3403'. Two stage cement job performed.					

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	59	15.6	1.18	70	0	8+
Surface	CLASS A	739	15.6	1.20	887	0	8
Coal							
Intermediate 1	CLASS A	259/310 & 1230	14.2/15.6 & 15.6	1.24/1.18 & 1.18	2138	0	8
Intermediate 2							
Intermediate 3							
Production	CLASS H	1039	15.6	2.06	2140	2160	72+
Tubing							

Drillers TD (ft) 11082'

Loggers TD (ft) N/A

Deepest formation penetrated MARCELLUS

Plug back to (ft) N/A

Plug back procedure N/A

RECEIVED
Office of Oil and Gas

JUN 30 2017

Kick off depth (ft) 3963'

WV Department of
Environmental Protection

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: 2,12,20

INTERMEDIATE- RAN AT LEAST EVERY 500' FEET

PRODUCTION- COMPOSITE BODY CENTRALIZERS RAN EVERY JOINT FROM SHOE TO KOP

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- 085 - 10229 Farm name Jerry Morton et al Well number 514479

Drilling Contractor _____
Address _____ City _____ State _____ Zip _____

Logging Company _____
Address _____ City _____ State _____ Zip _____

Logging Company PROFESSIONAL DIRECTIONAL
Address 103 SUDS RUN ROAD City MT. CLARE State WV Zip 26408

Cementing Company ALLIED SERVICES
Address 116 KIMMEL SCHOOL ROAD City SHELOCTA State PA Zip 15773

RECEIVED
Office of Oil and Gas

JUN 30 2017

WV Department of
Environmental Protection

RECEIVED
Office of Oil and Gas
JUN 8 2017
WV Department of
Environmental Protection

09/15/2017

API 47-085-10229		514479		PEN54
Final Formations				
Formation Name	Final Top MD (ftGL) (ft)	Final Top TVD (ft)	Final Btm MD (ftGL) (ft)	Final Btm TVD (ft)
SAND/SHALE	1	1	336	336
COAL	336	336	344	344
SAND/SHALE	344	344	799	799
COAL	799	799	802	802
SAND/SHALE	802	802	877	877
COAL	877	877	882	882
SAND/SHALE	882	882	1088	1088
COAL	1088	1088	1092	1092
SAND/SHALE	1092	1092	1192	1192
COAL	1192	1192	1197	1197
SAND/SHALE	1197	1197	1426	1426
MAXTON	1426	1426	1621	1621
BIG LIME	1621	1621	2003	2003
WEIR	2003	2003	2221	2221
GANTZ	2221	2221	2366	2366
50F	2366	2366	2461	2461
GORDON	2461	2461	2619	2619
5TH	2619	2619	2633	2633
BAYARD	2633	2633	3088	3088
WARREN	3088	3088	3166	3166
SPEECHLEY	3166	3166	3556	3556
BALLTOWN A	3556	3556	3911	3911
BALLTOWN B	3911	3911	3962	3962
BRADFORD	3962	3962	4212	4211
RILEY	4212	4211	4595	4586
BENSON	4595	4586	4842	4821
ALEXANDER	4842	4821	5381	5288
RHINESTREET	5381	5288	5643	5445
RHINESTREET UPPER	5643	5445	6966	5950
SONYEA	6966	5950	7311	6119
MIDDLESEX	7311	6119	7427	6169
GENESSEE	7427	6169	7558	6221
GENESE0	7558	6221	7686	6260
TULLY	7686	6260	7745	6273
HAMILTON	7745	6273	7766	6278
MARCELLUS	7766	6278	11082	6304

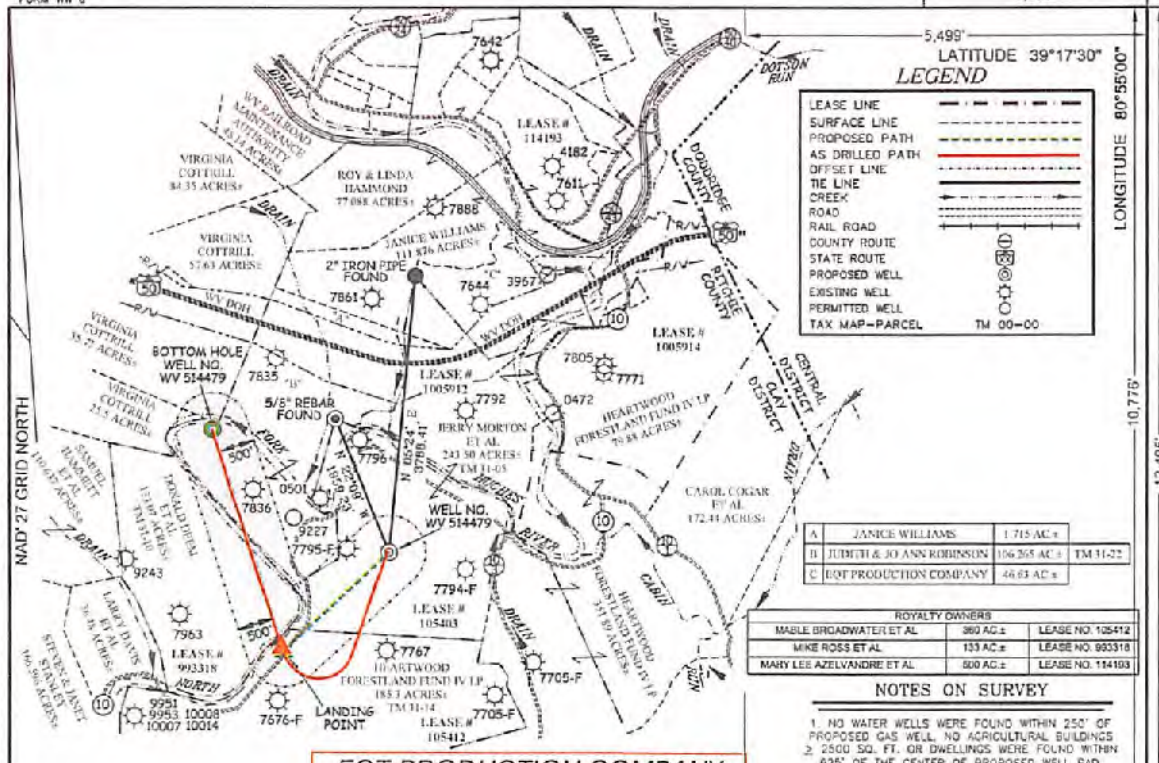
RECEIVED
Office of Oil and Gas

JUN 30 2017

WV Department of
Environmental Protection

09/15/2017

3,053'



LEGEND

- LEASE LINE
- SURFACE LINE
- PROPOSED PATH
- AS DRILLED PATH
- OFFSET LINE
- TIE LINE
- CREEK
- ROAD
- RAIL ROAD
- COUNTY ROUTE
- STATE ROUTE
- PROPOSED WELL
- EXISTING WELL
- PERMITTED WELL
- TAX MAP-PARCEL

A	JANICE WILLIAMS	1.715 AC ±
B	JUDITH A. JO ANN ROBINSON	196.565 AC ±
C	EQT PRODUCTION COMPANY	46.63 AC ±

ROYALTY OWNERS

MABLE BROADWATER ET AL	360 AC ±	LEASE NO. 105412
MIKE ROSS ET AL	133 AC ±	LEASE NO. 693318
MARY LEE AZELVANDRE ET AL	500 AC ±	LEASE NO. 114193

NOTES ON SURVEY

1. NO WATER WELLS WERE FOUND WITHIN 250' OF PROPOSED GAS WELL. NO AGRICULTURAL BUILDINGS
2. 2500 SQ. FT. OR DWELLINGS WERE FOUND WITHIN 625' OF THE CENTER OF PROPOSED WELL PAD
2. AS DRILLED INFORMATION PROVIDED BY EQT

**EQT PRODUCTION COMPANY
FLANAGAN LEASE
268 ACES ±
FOR WELL NO. WV 514479
(PEN54 H6)
AS DRILLED COORDINATES**

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)

NAD27 S.P.C.(FT) N. 276,147.30 E. 1,595,806.75
 NAD27 GEO. LAT-(N) 39.257808 LONG-(W) 80.927449
 NAD83 UTM (M) N. 4,345,375.75 E. 508,274.12

LANDING POINT

NAD27 S.P.C.(FT) N. 277,851.42 E. 1,594,347.97
 NAD27 GEO. LAT-(N) 39.259986 LONG-(W) 80.932527
 NAD83 UTM (M) N. 4,344,973.53 E. 508,836.39

BOTTOM HOLE

NAD27 S.P.C.(FT) N. 280,815.61 E. 1,593,398.76
 NAD27 GEO. LAT-(N) 39.262082 LONG-(W) 80.936008
 NAD83 UTM (M) N. 4,345,871.87 E. 505,529.39



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.



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.

DATE JUNE 25, 20 15

REVISED AUGUST 03, 20 16

OPERATORS WELL NO. WV 514479


API WELL NO. 47 - 085 - 10229H

STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1/200 FILE NO. 8083AD514479

HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK) SCALE 1" = 2000'

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: PAD ELEVATION 1,016' WATERSHED NORTH FORK HUGHES RIVER

DISTRICT CLAY COUNTY ITCHIE QUADRANGLE PENNSBORO 7.5'

SURFACE OWNER JERRY MORTON ET AL ACREAGE 243.50±

ROYALTY OWNER ELLEN S. FRANCAVIGLIA ET AL ACREAGE 268±

PROPOSED WORK: LEASE NO. 105403

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 MARCELLUS

ESTIMATED DEPTH 5,275'

WELL OPERATOR EQT PRODUCTION COMPANY DESIGNATED AGENT REX C. RAY

ADDRESS 115 PROFESSIONAL PLACE P.O. BOX 280 BRIDGEPORT, WV 26330 ADDRESS 115 PROFESSIONAL PLACE P.O. BOX 280 BRIDGEPORT, WV 26330

RECEIVED
Office of Oil and Gas
JUN 30 2017
WV Department of
Environmental Protection

09/15/2017

514479- 47-085-10229-0000 - Perforations

Stage Number	Perforation Date	Top Perf Depth (ftKB)	Bottom Perf Depth (ftKB)	Number of Shots	Formation
Initiation Sleeve	9/11/2016	11053	11080	10	MARCELLUS
1	3/31/2017	10893	11015	32	MARCELLUS
2	4/1/2017	10693	10855	40	MARCELLUS
3	4/1/2017	10493	10655	40	MARCELLUS
4	4/1/2017	10293	10455	40	MARCELLUS
5	4/1/2017	10093	10255	40	MARCELLUS
6	4/2/2017	9893	10055	40	MARCELLUS
7	4/3/2017	9408	9855	40	MARCELLUS
8	4/3/2017	9208	9370	40	MARCELLUS
9	4/3/2017	9008	9170	40	MARCELLUS
10	4/3/2017	8808	8970	40	MARCELLUS
11	4/3/2017	8608	8770	40	MARCELLUS
12	4/4/2017	8408	8570	40	MARCELLUS
13	4/4/2017	8208	8370	40	MARCELLUS
14	4/4/2017	7908	8170	40	MARCELLUS
15	4/5/2017	7708	7870	40	MARCELLUS

RECEIVED
Office of Oil and Gas

JUN 30 2017

WV Department of
Environmental Protection

09/15/2017

514479-47-085-10229-0000 - Stimulated Stages

Stage Number	Stimulation Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
Initiation Sleeve	3/31/2017	16	8,055	8,445	4,184	n/a	730	0
1	4/1/2017	98	8,620	8,976	3,733	445,940	8,453	0
2	4/1/2017	100	8,195	9,108	3,948	450,260	8,018	0
3	4/1/2017	99	8,300	8,954	3,967	450,860	7,271	0
4	4/1/2017	100	8,173	8,909	3,643	451,740	8,022	0
5	4/1/2017	98	8,342	8,991	4,205	445,800	9,562	0
6	4/2/2017	100	7,711	7,910	3,122	279,700	5,703	0
6	4/2/2017	97	7,404	7,955	4,166	171,040	5,268	0
7	4/3/2017	101	7,906	8,855	3,493	449,900	8,065	0
8	4/3/2017	101	8,252	8,781	3,494	452,540	7,503	0
9	4/3/2017	100	7,420	9,251	3,510	450,700	7,996	0
10	4/3/2017	100	7,899	8,403	3,366	450,580	7,757	0
11	4/3/2017	100	7,370	7,762	3,903	443,240	7,772	0
12	4/4/2017	96	7,806	9,117	4,006	451,440	7,684	0
13	4/4/2017	100	7,575	8,737	3,814	450,780	7,654	0
14	4/4/2017	90	7,976	9,103	3,382	450,380	9,293	0
15	4/5/2017	97	7,059	8,721	3,528	450,860	7,437	0

RECEIVED
Office of Oil and Gas
JUN 30 2017
 WV Department of
 Environmental Protection

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	3/31/2017
Job End Date:	4/5/2017
State:	West Virginia
County:	Ritchie
API Number:	47-085-10229-00-00
Operator Name:	EQT Production
Well Name and Number:	514479
Latitude:	39.25760800
Longitude:	-80.92744900
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,278
Total Base Water Volume (gal):	5,215,896
Total Base Non Water Volume:	0



RECEIVED:
Office of Oil and Gas
JUN 30 2017
WV Department of
Environmental Protection

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	C and J Energy Services	Carrier/Base Fluid					
			Water	7732-18-5	100.00000	86.27572	None
BR-11	C and J Energy Services	Gel Breaker					
				Listed Below			

MC MX 8-2544	Multi-Chem Group	Live Culture - Nitrate Reducing Bacteria							
				Listed Below					
SI-6	C and J Energy Services	Scale Inhibitor							
				Listed Below					
MC MX 5-3886	Multi-Chem Group	Specialty Brine							
				Listed Below					
CI-3	C and J Energy Services	Corrosion Inhibitor							
				Listed Below					
Hydrochloric Acid (15%)	C and J Energy Services	Acidizing							
				Listed Below					
GA-7F	C and J Energy Services	Gelling Agent							
				Listed Below					
Silver FR 420	Silverback Chemical	Emulsion of petroleum distillate and aqueous solution							
				Listed Below					
Other Chemical (s)	Listed Above	See Trade Name (s) List							
				Listed Below					

RECEIVED
Office of Oil and Gas
JUN 30 2017
WV Department of Environmental Protection

Sand (Proppant)	C and J Energy Services	Proppant					
				Listed Below			
Items above are Trade Names with the exception of Base Water . Items below are the Individual ingredients.							
			Silica Substrate	14808-60-7	100.00000	13.37101	None
			Calcium nitrate.4H2O	13477-34-4	100.00000	0.10595	
			Calcium nitrate.4H2O	13477-34-4	100.00000	0.10595	None
			Hydrochloric Acid	7647-01-0	15.00000	0.02389	None
			copolymer of 2-propenamide	69418-26-4	30.00000	0.01632	
			copolymer of 2-propenamide	69418-26-4	30.00000	0.01632	None
			Petroleum Distillate	64742-47-8	20.00000	0.01088	
			Petroleum Distillate	64742-47-8	20.00000	0.01088	None
			Sodium chloride	7647-14-5	100.00000	0.00927	
			Sodium chloride	7647-14-5	100.00000	0.00927	None
			Trade Secret	Proprietary	7.00000	0.00166	None
			Oleic Acid Diethanolamide	93-83-4	2.00000	0.00109	
			Oleic Acid Diethanolamide	93-83-4	2.00000	0.00109	None
			Alcohols, C12-16, ethoxylated	68551-12-2	2.00000	0.00109	
			Alcohols, C12-16, ethoxylated	68551-12-2	2.00000	0.00109	None
			Ammonium chloride ((NH4)Cl)	12125-02-9	1.00000	0.00054	
			Ammonium chloride ((NH4)Cl)	12125-02-9	1.00000	0.00054	None
			Monoethanolamine hydrochloride	2002-24-6	2.00000	0.00047	None
			Ammonium Chloride	12125-02-9	2.00000	0.00047	None
			Sodium nitrate	7631-99-4	5.00000	0.00046	None
			Sodium nitrate	7631-99-4	5.00000	0.00046	
			Methanol	67-56-1	1.00000	0.00024	None

RECEIVED
 Office of Oil and Gas
 JUN 30 2017
 WV Department of
 Environmental Protection

			Distillates (petroleum), Hydrotreated Light	64742-47-8	60.00000	0.00020	
			Distillates (petroleum), Hydrotreated Light	64742-47-8	60.00000	0.00020	None
			Guar Gum	9000-30-0	60.00000	0.00020	
			Guar Gum	9000-30-0	60.00000	0.00020	None
			Ethylene Glycol	107-21-1	40.00000	0.00013	None
			Dimethylformamide	68-12-2	20.00000	0.00006	None
			Tar Bases, Quinoline Derivs., Benzyl Chloride-quaternized	72480-70-7	15.00000	0.00005	None
			Tar Bases, Quinoline Derivs., Benzyl Chloride-quaternized	72480-70-7	15.00000	0.00005	
			2-butoxyethanol	111-76-2	15.00000	0.00005	None
			Cinnamaldehyde	104-55-2	15.00000	0.00005	
			Cinnamaldehyde	104-55-2	15.00000	0.00005	None
			Alcohols C10-16 Ethoxylated	Proprietary	5.00000	0.00002	
			Alcohols C10-16 Ethoxylated	Proprietary	5.00000	0.00002	None
			Organophylic Clay	Proprietary	5.00000	0.00002	
			Organophylic Clay	Proprietary	5.00000	0.00002	None
			1-decanol	112-30-1	5.00000	0.00002	None
			4-nonylphenol, Branched, Ethoxylated	127087-87-0	5.00000	0.00002	None
			4-nonylphenol, Branched, Ethoxylated	127087-87-0	5.00000	0.00002	
			1-decanol	112-30-1	5.00000	0.00002	
			1-octanol	111-87-5	2.50000	0.00001	None
			Isopropanol	67-63-0	2.50000	0.00001	
			Isopropanol	67-63-0	2.50000	0.00001	None
			Triethyl Phosphate	78-40-0	2.50000	0.00001	None
			1-octanol	111-87-5	2.50000	0.00001	
			Triethyl Phosphate	78-40-0	2.50000	0.00001	
			Ammonium Persulfate	7727-54-0	85.00000	0.00001	

RECEIVED
Office of Oil and Gas
JUN 30 2017
WV Department of Environmental Protection

			Ammonium Persulfate	7727-54-0	85.00000	0.00001	None
			Cured Resin	Proprietary	13.00000	0.00000	
			Cured Resin	Proprietary	13.00000	0.00000	None
			Silica - Crystalline, Quartz	14808-60-7	1.00000	0.00000	
			Silica - Crystalline, Quartz	14808-60-7	1.00000	0.00000	None

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

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

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

Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided.

Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

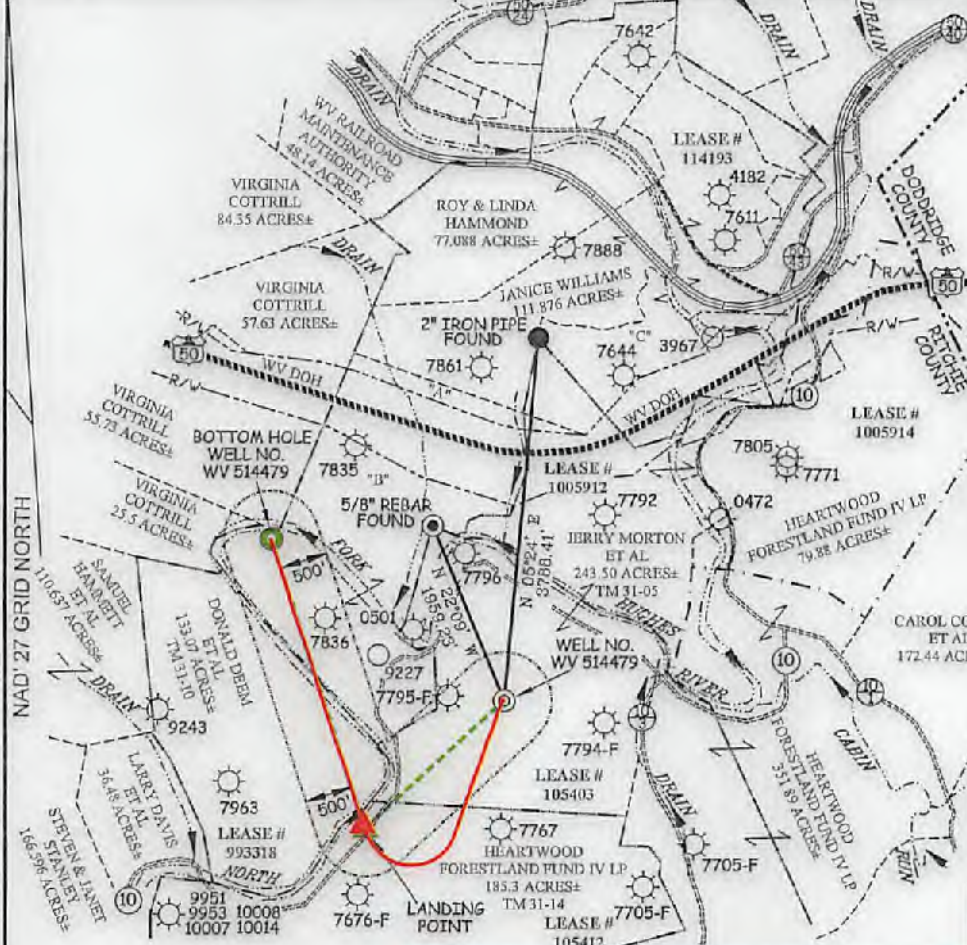
RECEIVED
Office of Oil and Gas
JUN 30 2017
WV Department of
Environmental Protection

LEGEND

LEASE LINE	
SURFACE LINE	
PROPOSED PATH	
AS DRILLED PATH	
OFFSET LINE	
TIE LINE	
CREEK	
ROAD	
RAIL ROAD	
COUNTY ROUTE	
STATE ROUTE	
PROPOSED WELL	
EXISTING WELL	
PERMITTED WELL	
TAX MAP-PARCEL	TM 00-00

LONGITUDE 80°55'00"

NAD 27 GRID NORTH



A	JANICE WILLIAMS	1,715 AC.±	
B	JUDITH & JO ANN ROBINSON	106,265 AC.±	TM 31-22
C	EQT PRODUCTION COMPANY	46.63 AC.±	

ROYALTY OWNERS		
MABLE BROADWATER ET AL	360 AC.±	LEASE NO. 105412
MIKE ROSS ET AL	133 AC.±	LEASE NO. 893318
MARY LEE AZELVANDRE ET AL	500 AC.±	LEASE NO. 114193

NOTES ON SURVEY

- NO WATER WELLS WERE FOUND WITHIN 250' OF PROPOSED GAS WELL. NO AGRICULTURAL BUILDINGS ≥ 2500 SQ. FT. OR DWELLINGS WERE FOUND WITHIN 625' OF THE CENTER OF PROPOSED WELL PAD.
- AS DRILLED INFORMATION PROVIDED BY EQT.

**EQT PRODUCTION COMPANY
FLANAGAN LEASE**

268 ACES±

FOR WELL NO. WV 514479

(PEN54 H6)

AS DRILLED COORDINATES

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)

NAD'27 S.P.C.(FT)	N. 279,147.30	E. 1,595,806.75
NAD'27 GEO.	LAT-(N) 39.257608	LONG-(W) 80.927449
NAD'83 UTM (M)	N. 4,345,375.75	E. 508,274.12

LANDING POINT

NAD'27 S.P.C.(FT)	N. 277,851.42	E. 1,594,347.97
NAD'27 GEO.	LAT-(N) 39.253986	LONG-(W) 80.932527
NAD'83 UTM (M)	N. 4,344,973.53	E. 505,836.30

BOTTOM HOLE

NAD'27 S.P.C.(FT)	N. 280,815.61	E. 1,593,386.76
NAD'27 GEO.	LAT-(N) 39.262082	LONG-(W) 80.936088
NAD'83 UTM (M)	N. 4,345,871.67	E. 505,528.39

Professional Energy Consultants
A DIVISION OF SMITH LAND SURVEYING, INC.

10811 452-8531
WWW.SLSURVEYS.COM

SURVEYORS
ENGINEERS
ENVIRONMENTAL
PROJECT MGMT.



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 JUNE 25 20 15

REVISED AUGUST 03 20 16

OPERATORS WELL NO. WV 514479

API WELL NO. 47 - 085 - 10229H

STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 200 FILE NO. 8083AD514479

HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK) SCALE 1" = 2000'

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: PAD ELEVATION 1,016' WATERSHED NORTH FORK HUGHES RIVER

DISTRICT CLAY COUNTY RITCHIE QUADRANGLE PENNSBORO 7.5'

SURFACE OWNER JERRY MORTON ET AL ACREAGE 243.50±

ROYALTY OWNER ELLEN S. FRANCAVIGLIA ET AL ACREAGE 268±

PROPOSED WORK: LEASE NO. 105403

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 MARCELLUS

ESTIMATED DEPTH 6,275'

WELL OPERATOR EQT PRODUCTION COMPANY DESIGNATED AGENT REX C. RAY

ADDRESS 115 PROFESSIONAL PLACE P.O. BOX 280 BRIDGEPORT, WV 26330 ADDRESS 115 PROFESSIONAL PLACE P.O. BOX 280 BRIDGEPORT, WV 26330

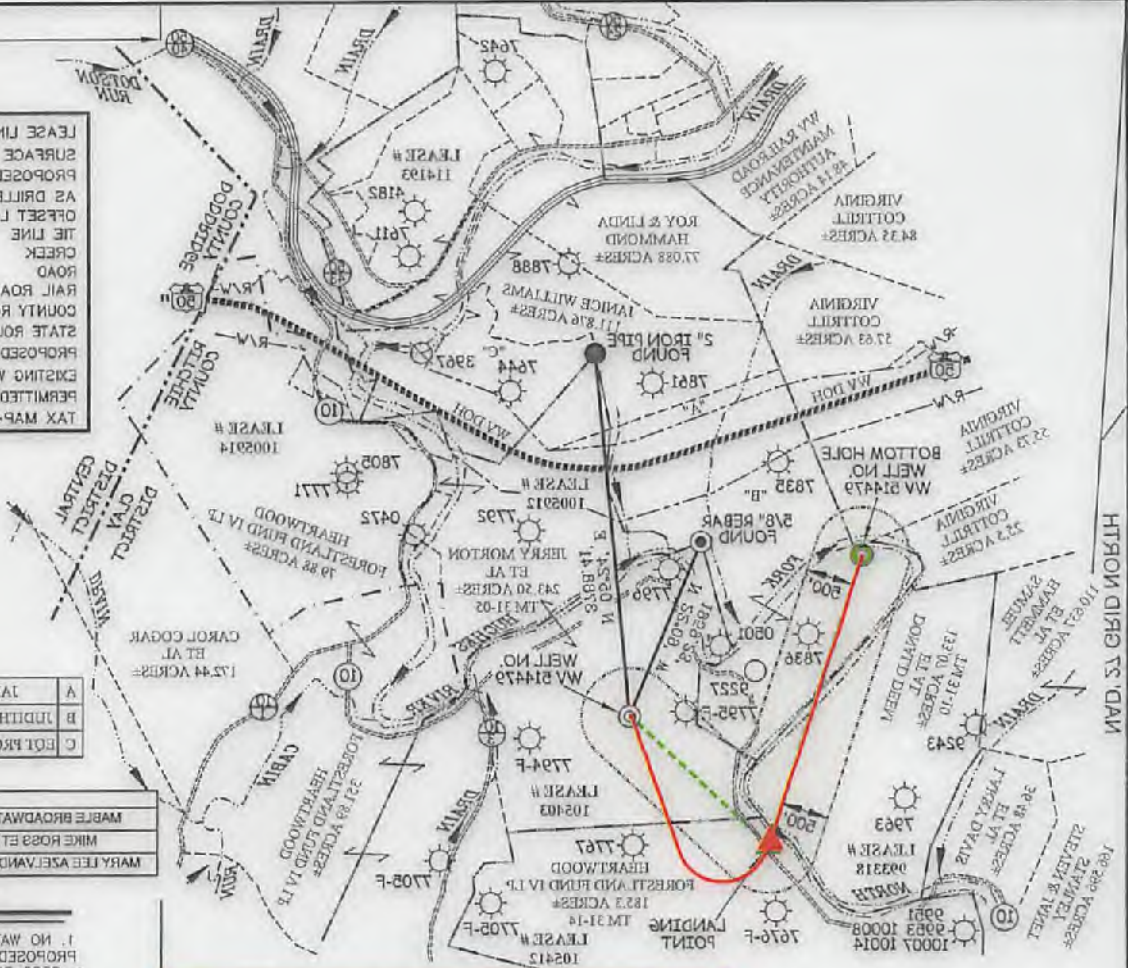
COUNTY NAME PERMIT

09/15/2017

LONGITUDE 80°22.00'
LATITUDE 38°17.30'
3'03.3"

LEGEND

- LEASE LINE
- SURFACE LINE
- PROPOSED PATH
- AS DRILLED PATH
- OFFSET LINE
- THE LINE
- CREEK
- ROAD
- RAIL ROAD
- COUNTY ROUTE
- STATE ROUTE
- PROPOSED WELL
- EXISTING WELL
- PERMITTED WELL
- TAX MAP-PARCEL
- TM 00-00



A	JANICE WILLIAMS	1.713 AC±
B	JUDITH & VAN ROBINSON	106.263 AC±
C	EQT PRODUCTION COMPANY	46.63 AC±

ROYALTY OWNERS

MABLE BROADWATER ET AL	360 AC±	LEASE NO. 108412
MIKE ROSE ET AL	139 AC±	LEASE NO. 862318
MARY LEE AZELVANDRE ET AL	800 AC±	LEASE NO. 114483

NOTES ON SURVEY

1. NO WATER WELLS WERE FOUND WITHIN 250' OF PROPOSED GAS WELL AND AGRICULTURAL BUILDINGS > 2500 SQ. FT. OR DWELLINGS WERE FOUND WITHIN 625' OF THE CENTER OF PROPOSED WELL PAD.
2. AS DRILLED INFORMATION PROVIDED BY EQT.

**EQT PRODUCTION COMPANY
FLANAGAN LEASE
268 ACES±
FOR WELL NO. WV 514479
(PEN54 H6)
AS DRILLED COORDINATES**

(S.P.C. NORTH ZONE) (UTM) (ZONE 17 NORTH)

NAD83 UTM (M)	N. 434237.25	E. 508274.15
NAD27 GEO	LAT-(N) 38.527808	LONG-(W) 80.922449
NAD27 S.P.C. (FT)	N. 278147.30	E. 1282808.75

LANDING POINT

NAD83 UTM (M)	N. 434473.23	E. 508236.30
NAD27 GEO	LAT-(N) 38.525888	LONG-(W) 80.922527
NAD27 S.P.C. (FT)	N. 277821.45	E. 1284347.97

BOTTOM HOLE

NAD83 UTM (M)	N. 434587.67	E. 508258.99
NAD27 GEO	LAT-(N) 38.525092	LONG-(W) 80.923088
NAD27 S.P.C. (FT)	N. 280812.61	E. 1283386.76

Professional Energy Consultants
A DIVISION OF BATH LABORATORY INC.

PROJECT MGMT.
ENGINEERS
SURVEYORS

WWW.BLSURVEY.COM
(204) 465-8384

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

APL
WELL NO. 47-085-10255H
COUNTY PERMIT

OPERATORS WELL NO. WV 514479
REVISED AUGUST 03, 2018
DATE JUNE 25, 2018
(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.



I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAN 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.

C. Victor Moyers
P. 849

MINIMUM DEGREE OF ACCURACY 1/200
SCALE 1" = 2000'
CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK)
HORIZONTAL & VERTICAL

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

LOCATION: PAD ELEVATION 1,016' WATERSHED NORTH FORK HUGHES RIVER

DISTRICT CLAY COUNTY RITCHIE QUADRANGLE PENNSBORO 7.5

SURFACE OWNER JERRY MORTON ET AL ACREAGE 243.50±

ROYALTY OWNER ELLEN S. FRANCAVIGLIA ET AL ACREAGE 268±

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

PHYSICAL CHANGE IN WELL (SPECIFY) TARGET FORMATION MARCELLUS ESTIMATED DEPTH 6,275'

WELL OPERATOR EQT PRODUCTION COMPANY DESIGNATED AGENT REX C. RAY

ADDRESS 115 PROFESSIONAL PLACE P.O. BOX 280 BRIDGEPORT, WV 26330

09/15/2017