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WV Department of
Environmental Protection

Well Operator's Report of Well Work



Where energy meets innovation.

Well Number: 514477

API: 47 - 085 - 10225

Submission: Initial Amended

APPEARS
FINAL

Notes:

APPROVED

NAME: Michael Jeff

DATE: 7-13-17

09/15/2017

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 - 085 - 10225 County RITCHIE District CLAY
Quad PENNSBORO 7.5' Pad Name PEN54 Field/Pool Name _____
Farm name Jerry Morton et al Well Number 514477
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 4,345,383.96 Easting 506,270.12
Landing Point of Curve Northing 4,345,585.69 Easting 506,422.14
Bottom Hole Northing 4,346,939.20 Easting 505,970.46

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 12.2 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 07/02/2016
Date completion activities began 4/5/2017 Date completion activities ceased 4/11/2017
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 - 10225 Farm name Jerry Morton et al Well number 514477

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"	912'	NEW	J-55 54.5LB/FT	281'	Y
Coal							
Intermediate 1	12.375"	9.625"	5192'	NEW	A-500 & P-110 40lb/ft	4980',3439'	Y
Intermediate 2							
Intermediate 3							
Production	8.75" & 8.5"	5.5"	11599'	NEW	P-110 20LB/FT	NONE	N
Tubing							
Packer type and depth set		Davis Lynch casing packer and diverter tool placed at 3420' 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 / CLASS H	535 / 693	15.2 / 15.6	1.10 / 1.84	1864	3663	72+
Tubing							

Drillers TD (ft) 11,601' Loggers TD (ft) N/A
 Deepest formation penetrated MARCELLUS Plug back to (ft) N/A
 Plug back procedure N/A

Kick off depth (ft) 5,250'

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- RAN AT LEAST EVERY 500' FEET
INTERMEDIATE- RAN AT LEAST EVERY 500' FEET
PRODUCTION- COMPOSITE BODY CENTRALIZERS RAN EVERY JOINT FROM SHOE TO KOP

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WAS WELL COMPLETED AS SHOT HOLE Yes No DETAILS _____
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WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS _____

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

API 47- 085 - 10225 Farm name Jerry Morton et al Well number 514477

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
<u>MARCELLUS</u>	<u>6297</u> TVD	<u>6717</u> MD
_____	_____	_____
_____	_____	_____
_____	_____	_____

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 1,668 psi Bottom Hole N/A psi DURATION OF TEST 75.50 hrs

OPEN FLOW Gas 5,260 mcfpd Oil N/A bpd NGL 236 bpd Water 1047 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	
	<u>0</u>		<u>0</u>		
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					JUL 7 2017
					WV Department of Environmental Protection

Please insert additional pages as applicable.

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

Logging Company GYRODATA INC.
Address 601 MAYER ST. City BRIDGEVILLE State PA Zip 15017

Cementing Company C&J (aka Nabors)
Address 2504 SMITH CREEK ROAD City WAYNESBURG State PA Zip 15370

Stimulating Company C&J Energy Services
Address 3990 Rogerdale Road City Houston State TX Zip 77042

Please insert additional pages as applicable.

Completed by Michael Rehl Telephone (412) 553-5815
Signature  Title Mgr Completions Date 7/3/2017

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

API 47- 085 - 10225 Farm name Jerry Morton et al Well number 514477

Drilling Contractor _____
Address _____ City _____ State _____ Zip _____

Logging Company _____
Address _____ City _____ State _____ Zip _____

Logging Company PRO-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

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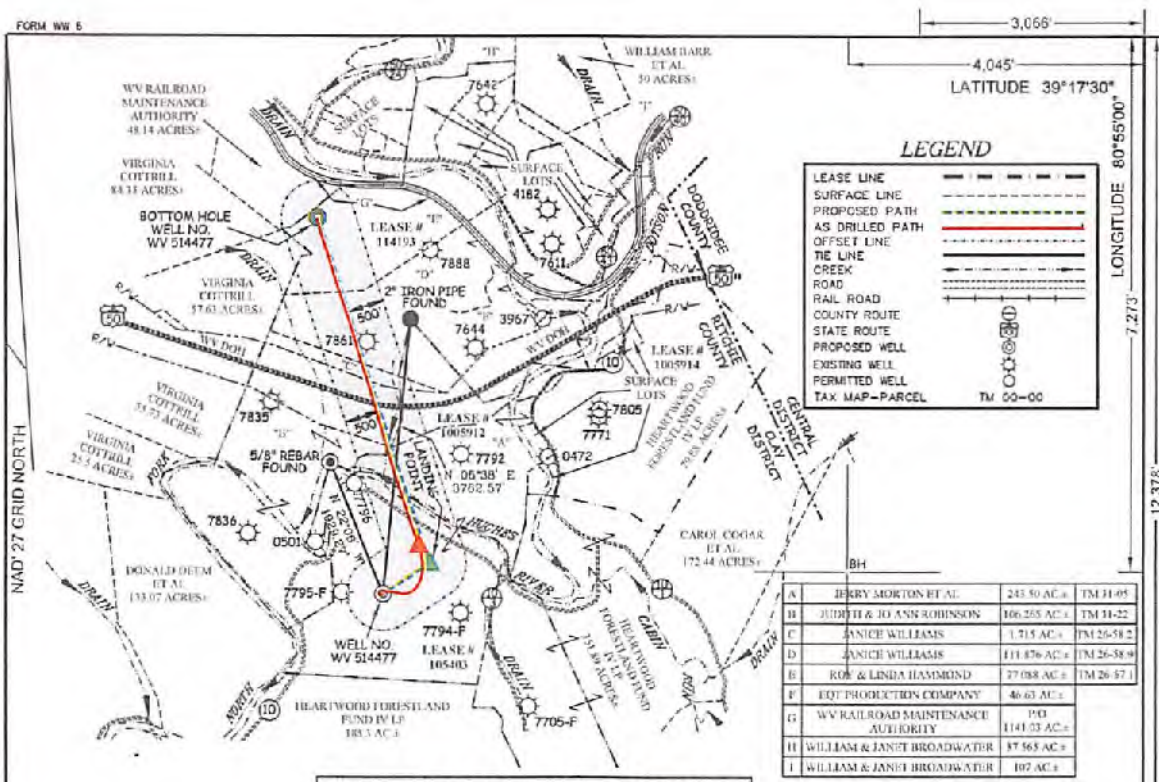
API 47-085-10225		514477		PEN54
Final Formations				
Formation Name	Final Top MD (ftGL) (ft)	Final Top TVD (ft)	Final Btm MD (ftGL) (ft)	Final Btm TVD (ft)
SAND/SHALE	1	1	336	336
COAL	336	336	344	344
SAND/SHALE	344	344	799	799
COAL	799	799	802	802
SAND/SHALE	802	802	877	877
COAL	877	877	882	882
SAND/SHALE	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	4212
RILEY	4212	4212	4595	4595
BENSON	4595	4595	4842	4842
ALEXANDER	4842	4842	5381	5379
RHINESTREET	5381	5379	5643	5618
RHINESTREET UPPER	5643	5618	5780	5723
SONYEA	5780	5723	6322	6120
MIDDLESEX	6322	6120	6416	6180
GENESSEE	6416	6180	6546	6244
GENESEO	6546	6244	6653	6278
TULLY	6653	6278	6689	6289
HAMILTON	6689	6289	6717	6297
MARCELLUS	6717	6297	11601	6336

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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

A	BERRY MORTON ET AL.	243.50 AC ±	TM 11-09
B	JUDITH & JO ANN ROBINSON	166.25 AC ±	TM 11-22
C	JANICE WILLIAMS	1.715 AC ±	TM 26-51-2
D	JANICE WILLIAMS	111.476 AC ±	TM 26-58-9
E	ROB & LINDA HAMMOND	77.088 AC ±	TM 26-57-1
F	EQT PRODUCTION COMPANY	46.63 AC ±	
G	WV RAILROAD MAINTENANCE AUTHORITY	P/O	1141.03 AC ±
H	WILLIAM & JANET BROADWATER	87.563 AC ±	
I	WILLIAM & JANET BROADWATER	107 AC ±	

**EQT PRODUCTION COMPANY
FLANAGAN LEASE
268 ACRES ±
WELL NO. WV 514477
(PEN54 H4)
AS DRILLED COORDINATES**

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

NAD27 S.P.C.(FT) N. 275,174.49 E. 1,595,794.06
 NAD27 GEO. LAT-(N) 39.257682 LONG-(W) 80.927498
 NAD83 UTM (M) N. 4,345,393.99 E. 506,270.12

LANDING POINT

NAD27 S.P.C.(FT) N. 279,828.15 E. 1,599,303.97
 NAD27 GEO. LAT-(N) 39.259498 LONG-(W) 80.925731
 NAD83 UTM (M) N. 4,345,585.60 E. 506,422.14

BOTTOM HOLE

NAD27 S.P.C.(FT) N. 284,294.52 E. 1,594,805.90
 NAD27 GEO. LAT-(N) 39.271608 LONG-(W) 80.930555
 NAD83 UTM (M) N. 4,346,939.20 E. 505,970.48

ROYALTY OWNERS		
MARY LEE AZELVANDRE ET AL.	800 AC ±	LEASE NO. 114190
GUY FLANAGAN ET AL.	125 AC ±	LEASE NO. 1005912

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.

Professional Energy Consultants
 A DIVISION OF SLS PROFESSIONAL SERVICES, INC.

 SURVEYORS
 ENGINEERS
 ENVIRONMENTAL
 PROJECT MGMT.
 WWW.PECONSULTANTS.COM



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

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.
 DATE JUNE 25, 20 15
 REVISED AUGUST 03, 20 16
 OPERATORS WELL NO. WV 514477
 API WELL NO. 47-085-10225H
 STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1/200 FILE NO. 8093AD514477
 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 WASTE 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 28330 ADDRESS 115 PROFESSIONAL PLACE P.O. BOX 280 BRIDGEPORT, WV 28330

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514477- 47-085-10225-0000 - 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	4/5/2017	15	7,788	9,017	4,235	0	684	0
1	4/5/2017	63	7,459	9,814	3,182	450,260	12,946	0
2	4/6/2017	97	8,258	8,818	3,126	450,160	8,532	0
3	4/6/2017	100	8,043	8,525	3,141	449,760	7,868	0
4	4/6/2017	100	8,252	9,323	3,293	451,060	7,942	0
5	4/6/2017	101	8,076	8,427	3,502	450,660	7,902	0
6	4/6/2017	100	8,197	8,490	3,635	450,560	7,972	0
7	4/7/2017	101	8,115	8,445	3,277	450,080	8,412	0
8	4/7/2017	100	8,039	8,249	3,416	450,020	7,407	0
9	4/7/2017	99	8,453	9,003	3,462	450,180	7,859	0
10	4/7/2017	99	8,185	9,085	3,662	450,340	7,842	0
11	4/8/2017	99	8,257	8,534	3,826	456,540	8,582	0
12	4/8/2017	100	8,200	8,825	4,356	450,780	9,834	0
13	4/8/2017	99	8,195	8,764	3,401	450,580	7,433	0
14	4/9/2017	99	8,146	8,751	3,709	450,920	7,826	0
15	4/9/2017	99	8,409	9,122	3,443	450,980	8,020	0
16	4/9/2017	100	7,963	8,431	3,235	450,180	7,448	0
17	4/9/2017	100	8,047	9,032	3,815	450,700	7,329	0
18	4/9/2017	96	8,388	9,249	3,528	453,500	7,225	0
19	4/10/2017	90	8,144	9,358	3,260	450,780	8,896	0
20	4/10/2017	100	7,676	9,231	3,322	451,140	7,189	0
21	4/10/2017	99	8,105	9,331	3,348	450,280	7,658	0
22	4/10/2017	100	7,500	8,229	3,999	450,942	7,586	0
23	4/11/2017	100	7,239	8,620	4,585	451,500	7,661	0

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514477-47-085-10225-0000 - Perforations

Stage Number	Perforation Date	Top Perf Depth (ftKB)	Bottom Perf Depth (ftKB)	Number of Shots	Formation
Initiation Sleeve	9/11/2017	11572	11599	10	MARCELLUS
1	4/5/2017	11411	11533	32	MARCELLUS
2	4/6/2017	11211	11373	40	MARCELLUS
3	4/6/2017	11011	11173	40	MARCELLUS
4	4/6/2017	10811	10973	40	MARCELLUS
5	4/6/2017	10611	10773	40	MARCELLUS
6	4/6/2017	10411	10573	40	MARCELLUS
7	4/7/2017	10211	10373	40	MARCELLUS
8	4/7/2017	10011	10173	40	MARCELLUS
9	4/7/2017	9811	9973	40	MARCELLUS
10	4/7/2017	9611	9773	40	MARCELLUS
11	4/8/2017	9411	9573	40	MARCELLUS
12	4/8/2017	9211	9373	40	MARCELLUS
13	4/8/2017	9011	9173	40	MARCELLUS
14	4/8/2017	8811	8973	40	MARCELLUS
15	4/9/2017	8611	8773	40	MARCELLUS
16	4/9/2017	8411	8573	40	MARCELLUS
17	4/9/2017	8211	8373	40	MARCELLUS
18	4/9/2017	8011	8173	40	MARCELLUS
19	4/9/2017	7811	7973	40	MARCELLUS
20	4/10/2017	7428	7773	40	MARCELLUS
21	4/10/2017	7228	7390	40	MARCELLUS
22	4/10/2017	7028	7190	40	MARCELLUS
23	4/10/2017	6828	6990	40	MARCELLUS

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	4/5/2017
Job End Date:	4/11/2017
State:	West Virginia
County:	Ritchie
API Number:	47-085-10225-00-00
Operator Name:	EQT Production
Well Name and Number:	514477
Latitude:	39.25768200
Longitude:	-80.92749500
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,297
Total Base Water Volume (gal):	7,898,226
Total Base Non Water Volume:	0

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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	86.10176	None
Hydrochloric Acid (15%)	C and J Energy Services	Acidizing					
				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			
MC MX 8-2544	Multi-Chem Group	Live Culture - Nitrate Reducing Bacteria					
				Listed Below			
Other Chemical (s)	Listed Above	See Trade Name (s) List					
				Listed Below			
Sand (Proppant)	C and J Energy Services	Proppant					
				Listed Below			
Silver FR 420	Silverback Chemical	Emulsion of petroleum distillate and aqueous solution					
				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	13.54923	None
			Calcium nitrate.4H2O	13477-34-4	100.00000	0.10594	None
			Calcium nitrate.4H2O	13477-34-4	100.00000	0.10594	
			Hydrochloric Acid	7647-01-0	15.00000	0.02275	None

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			copolymer of 2-propenamide	69418-26-4	30.00000	0.01731	
			copolymer of 2-propenamide	69418-26-4	30.00000	0.01731	None
			Petroleum Distillate	64742-47-8	20.00000	0.01154	
			Petroleum Distillate	64742-47-8	20.00000	0.01154	None
			Sodium chloride	7647-14-5	100.00000	0.00930	
			Sodium chloride	7647-14-5	100.00000	0.00930	None
			Trade Secret	Proprietary	7.00000	0.00169	None
			Alcohols, C12-16, ethoxylated	68551-12-2	2.00000	0.00115	
			Alcohols, C12-16, ethoxylated	68551-12-2	2.00000	0.00115	None
			Oleic Acid Diethanolamide	93-83-4	2.00000	0.00115	None
			Oleic Acid Diethanolamide	93-83-4	2.00000	0.00115	
			Ammonium chloride ((NH4)Cl)	12125-02-9	1.00000	0.00058	None
			Ammonium chloride ((NH4)Cl)	12125-02-9	1.00000	0.00058	
			Monoethanolamine hydrochloride	2002-24-6	2.00000	0.00048	None
			Ammonium Chloride	12125-02-9	2.00000	0.00048	None
			Sodium nitrate	7631-99-4	5.00000	0.00046	
			Sodium nitrate	7631-99-4	5.00000	0.00046	None
			Methanol	67-56-1	1.00000	0.00024	None
			Ethylene Glycol	107-21-1	40.00000	0.00012	None
			Dimethylformamide	68-12-2	20.00000	0.00006	None
			Dimethylformamide	68-12-2	20.00000	0.00006	
			Cinnamaldehyde	104-55-2	15.00000	0.00005	
			2-butoxyethanol	111-76-2	15.00000	0.00005	
			2-butoxyethanol	111-76-2	15.00000	0.00005	None
			Tar Bases, Quinoline Derivs., Benzyl Chloride-quaternized	72480-70-7	15.00000	0.00005	

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			Cinnamaldehyde	104-55-2	15.00000	0.00005	None	RECEIVED Office of Oil and Gas JUL 7 2017
			Tar Bases, Quinoline Derivs., Benzyl Chloride-quaternized	72480-70-7	15.00000	0.00005	None	
			1-decanol	112-30-1	5.00000	0.00002	None	
			1-decanol	112-30-1	5.00000	0.00002		
			4-nonylphenol, Branched, Ethoxylated	127087-87-0	5.00000	0.00002		
			4-nonylphenol, Branched, Ethoxylated	127087-87-0	5.00000	0.00002	None	
			Isopropanol	67-63-0	2.50000	0.00001	None	
			1-octanol	111-87-5	2.50000	0.00001	None	
			Isopropanol	67-63-0	2.50000	0.00001		
			Triethyl Phosphate	78-40-0	2.50000	0.00001		
			Triethyl Phosphate	78-40-0	2.50000	0.00001	None	
			1-octanol	111-87-5	2.50000	0.00001		

* 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.

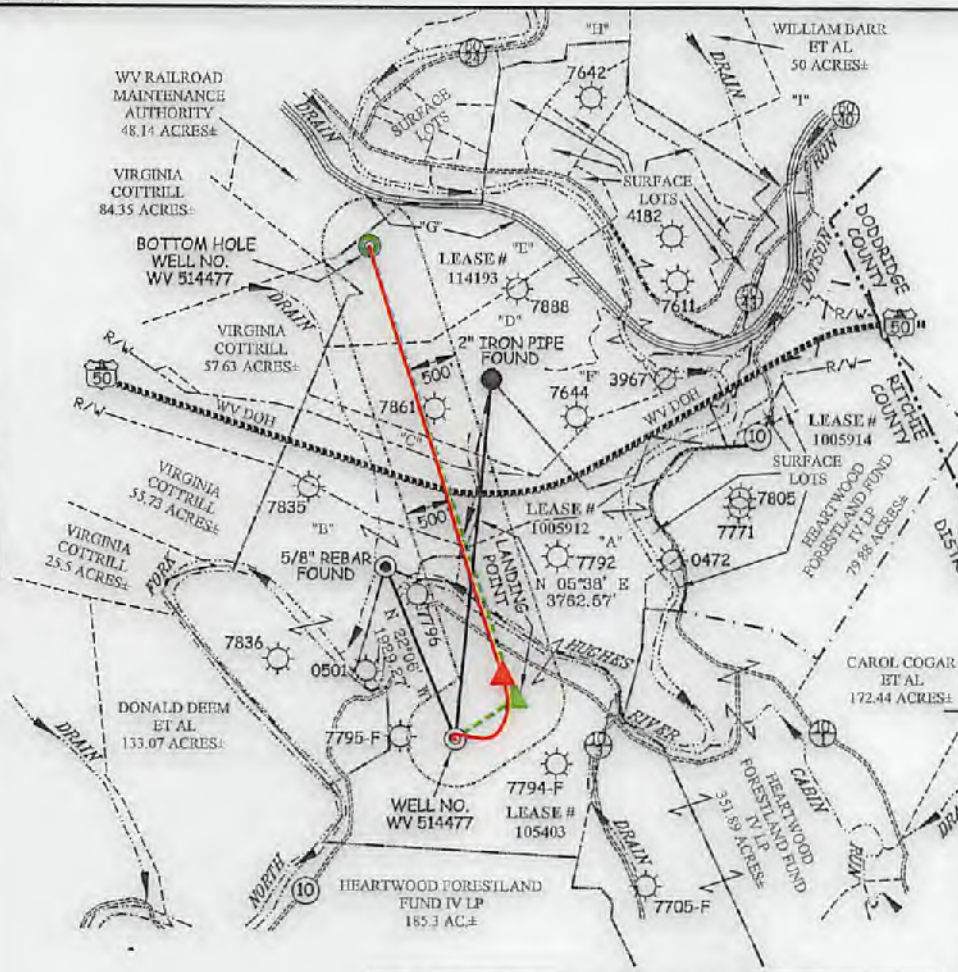
Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

3,066'
4,045'
LATITUDE 39°17'30"
LONGITUDE 80°55'00"

NAD 27 GRID NORTH

7,273'

12,378'



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

A	JERRY MORTON ET AL	243.50 AC±	TM 31-05
B	JUDITH & JO ANN ROBINSON	106.265 AC±	TM 31-22
C	JANICE WILLIAMS	1.715 AC±	TM 26-38.2
D	JANICE WILLIAMS	111.876 AC±	TM 26-58.9
E	ROY & LINDA HAMMOND	77.088 AC±	TM 26-57.1
F	EQT PRODUCTION COMPANY	46.63 AC±	
G	WV RAILROAD MAINTENANCE AUTHORITY	P/O 1141.03 AC±	
H	WILLIAM & JANET BROADWATER	37.565 AC±	
I	WILLIAM & JANET BROADWATER	107 AC±	

**EQT PRODUCTION COMPANY
FLANAGAN LEASE
268 ACRES±
WELL NO. WV 514477
(PEN54 H4)
AS DRILLED COORDINATES**
(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)
NAD'27 S.P.C.(FT) N. 279,174.49 E. 1,595,794.06
NAD'27 GEO. LAT-(N) 39.257692 LONG-(W) 80.927495
NAD'83 UTM (M) N. 4,345,363.98 E. 506,270.12
LANDING POINT
NAD'27 S.P.C.(FT) N. 279,828.12 E. 1,596,303.97
NAD'27 GEO. LAT-(N) 39.259498 LONG-(W) 80.925731
NAD'83 UTM (M) N. 4,345,585.69 E. 506,422.14
BOTTOM HOLE
NAD'27 S.P.C.(FT) N. 284,294.52 E. 1,594,895.90
NAD'27 GEO. LAT-(N) 39.271898 LONG-(W) 80.930955
NAD'83 UTM (M) N. 4,346,939.20 E. 505,970.46

ROYALTY OWNERS

MARY LEE AZELVANDRE ET AL	500 AC±	LEASE NO. 114193
GUY FLANNAGAN ET AL	126 AC±	LEASE NO. 1005912

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.

Professional Energy Consultants
A DIVISION OF SMITH LAND SURVEYING, INC.
SLS
SURVEYORS ENGINEERS ENVIRONMENTAL PROJECT MGMT.
801-452-9521 WWW.SLSURVEYS.COM



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 514477
API WELL NO. 47-085-10225H
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1/200 FILE NO. 8083AD514477
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

09/15/2017

COUNTY NAME PERMIT

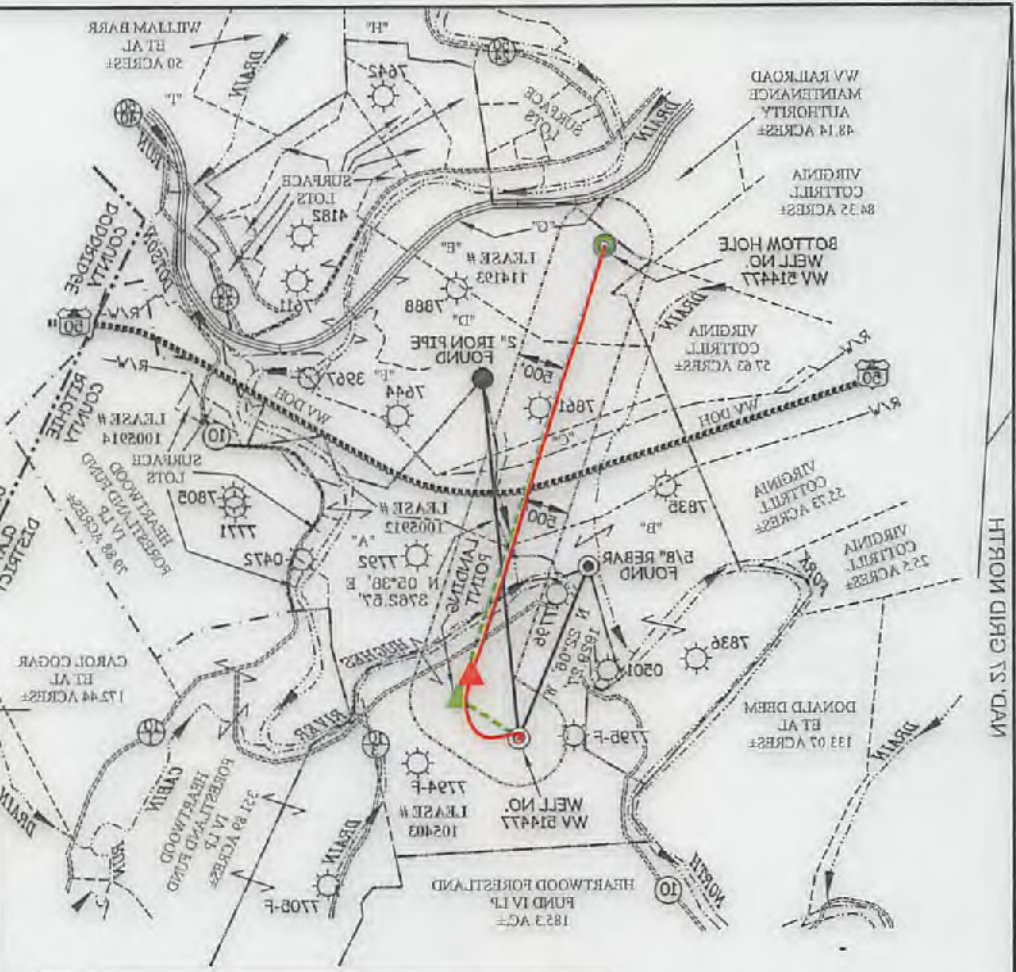
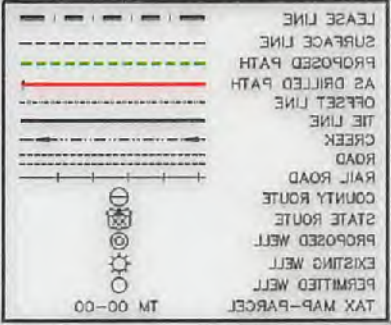
3.000'

4.045'

LATITUDE 38°17'30"

LONGITUDE 80°55'00"

LEGEND



1	WILLIAM & JANET BROADWATER	107 AC±
H	WILLIAM & JANET BROADWATER	37.562 AC±
G	WV RAILROAD MAINTENANCE AUTHORITY	1141.03 AC±
F	EQT PRODUCTION COMPANY	46.63 AC±
E	ROY & LINDA HAMMOND	77.088 AC±
D	JANICE WILLIAMS	111.878 AC±
C	JANICE WILLIAMS	1.715 AC±
B	JUDITH & JIM ROBINSON	106.263 AC±
A	JERRY MORTON ET AL	243.20 AC±

**EQT PRODUCTION COMPANY
FLANAGAN LEASE
288 ACRES ±
WELL NO. W21447
(PEN24 H4)
AS DRILLED COORDINATES**

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

NAD83 UTM (M)	N. 4,342,883.98	E. 506,270.15
NAD83 GEO.	LAT (N) 38.257882	LONG (W) 80.927485
NAD83 S.P.C.(FT)	N. 278,858.15	E. 1,589,303.97
NAD83 UTM (M)	N. 4,342,882.99	E. 506,452.14
NAD83 GEO.	LAT (N) 38.257488	LONG (W) 80.925231
NAD83 S.P.C.(FT)	N. 284,294.25	E. 1,584,882.80
NAD83 UTM (M)	N. 4,342,882.50	E. 506,270.46
NAD83 GEO.	LAT (N) 38.257188	LONG (W) 80.926825

LANDING POINT

NAD83 UTM (M)	N. 4,342,883.98	E. 506,270.15
NAD83 GEO.	LAT (N) 38.257882	LONG (W) 80.927485
NAD83 S.P.C.(FT)	N. 278,858.15	E. 1,589,303.97

BOTTOM HOLE

NAD83 UTM (M)	N. 4,342,882.99	E. 506,452.14
NAD83 GEO.	LAT (N) 38.257488	LONG (W) 80.925231
NAD83 S.P.C.(FT)	N. 284,294.25	E. 1,584,882.80



MARY LEE AZELVANDRE ET AL	800 AC±	LEASE NO. 114183
GUY FLANAGAN ET AL	128 AC±	LEASE NO. 100845

NOTES ON SURVEY

1. 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. 2. AS DRILLED INFORMATION PROVIDED BY EQT.

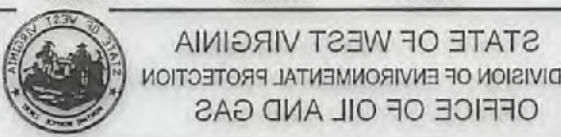
BY THE DIVISION OF ENVIRONMENTAL PROTECTION. THE REGULATIONS ISSUED AND PRESCRIBED THE INFORMATION REQUIRED BY LAW AND THIS PLAN IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE UNDERGIRD, HEREBY CERTIFY THAT



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

DATE: JUNE 25, 2018
REVISED: AUGUST 03, 2018
OPERATORS WELL NO.: W214477

APL WELL NO.: 47-085-10255H



CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK)
HORIZONTAL & VERTICAL SCALE: 1" = 2000'
FILE NO.: 80838AD214477

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'S SURFACE OWNER: JERRY MORTON ET AL ACREAGE: 243.50± ROYALTY OWNER: ELLEN S. FRANCAVIGLIA ET AL ACREAGE: 288± LEASE NO.: 102403 PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION PERFORMATE NEW FORMATION PLUG AND ABANDON CLEAN OUT AND REPLUG OTHER PHYSICAL CHANGE IN WELL (SPECIFY) _____ TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: 6,275' DESIGNATED AGENT: REX C. RAY

WELL OPERATOR: EQT PRODUCTION COMPANY ADDRESS: 115 PROFESSIONAL PLACE P.O. BOX 280 BRIDGEPORT, WV 26330

WELL OPERATOR: REX C. RAY ADDRESS: 115 PROFESSIONAL PLACE P.O. BOX 280 BRIDGEPORT, WV 26330

09/15/2017