

Well Operator's Report of Well Work



Where energy meets innovation.

Well Number: 514474

API: 47 - 085 - 10222

Submission: Initial Amended

Final

Notes:

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Environmental Protection

APPROVED

NAME: *Michael Hoff*

DATE: *7-13-17*

09/15/2017

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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

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API 47 - 085 - 10222 County RITCHIE District CLAY
Quad PENNSBORO 7.5' Pad Name PEN54 Field/Pool Name _____
Farm name Jerry Morton et al Well Number 514474
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 4,345,396.29 Easting 506,264.11
Landing Point of Curve Northing 4,345,424.60 Easting 506,199.05
Bottom Hole Northing 4,346,510.70 Easting 505,824.34

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 12.3 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 07/07/2016
Date completion activities began 3/16/2017 Date completion activities ceased 3/23/2017
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 - 10222 Farm name Jerry Morton et al Well number 514474

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	307'	Y
Coal							
Intermediate 1	12.375"	9.625"	5253'	NEW	A-500 & P-110 40lb/ft	NONE	Y
Intermediate 2							
Intermediate 3							
Production	8.75" & 8.5"	5.5"	10562'	NEW	P-110 20LB/FT	NONE	N
Tubing							
Packer type and depth set		Davis Lynch casing packer and diverter tool placed at 3410' 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	38	15.6	1.18	45	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	CLASSH / CLASS H	782 / 549	15.2 / 15.6	1.10 / 1.84	1870	2755'	72+
Tubing							

Drillers TD (ft) 10,563' Loggers TD (ft) N/A
 Deepest formation penetrated MARCELLUS Plug back to (ft) N/A
 Plug back procedure N/A

Kick off depth (ft) 4,216'

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

WAS WELL COMPLETED AS SHOT HOLE Yes No DETAILS _____

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WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS _____

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

API 47- 085 - 10222 Farm name Jerry Morton et al Well number 514474

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
<u>MARCELLUS</u>	<u>6288</u> TVD	<u>6616</u> MD
_____	_____	_____
_____	_____	_____
_____	_____	_____

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 1,681 psi Bottom Hole N/A psi DURATION OF TEST 76.00 hrs

OPEN FLOW Gas 6,609 mcfpd Oil N/A bpd NGL 272 bpd Water 1043 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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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 James Abbott Telephone (412) 553-5996
Signature [Signature] Title Dir Completions Date 6/14/2017

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

API 47- 085 - 10222 Farm name Jerry Morton et al Well number 514474

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

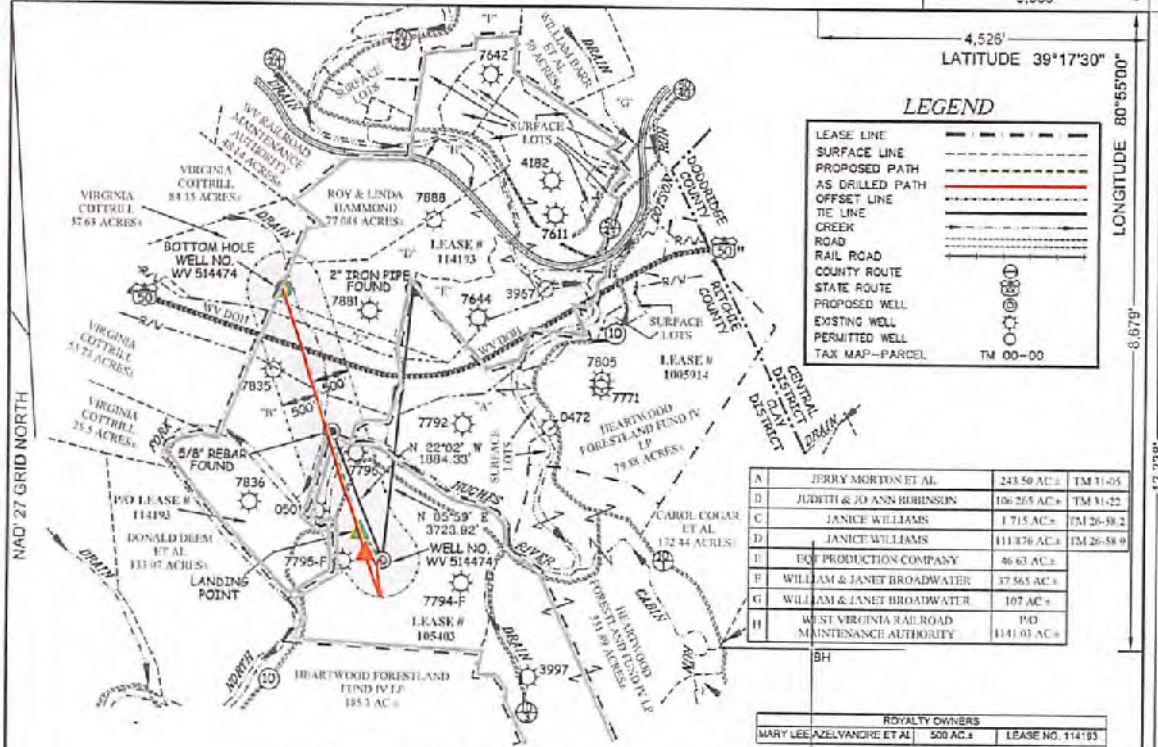
Cementing Company ALLIED SERVICES
Address 116 KIMMEL SCHOOL ROAD City SHELOCTA State PA Zip 15773

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API 47-085-10222	514474			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	4591
BENSON	4595	4591	4842	4824
ALEXANDER	4842	4824	5381	5302
RHINESTREET	5381	5302	5643	5542
RHINESTREET UPPER	5643	5542	6145	6029
SONYEA	6145	6029	6262	6126
MIDDLESEX	6262	6126	6299	6154
GENESSEE	6299	6154	6419	6226
GENESEO	6419	6226	6524	6266
TULLY	6524	6266	6580	6281
HAMILTON	6580	6281	6616	6288
MARCELLUS	6616	6288	10563	6325

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**EQT PRODUCTION COMPANY
FLANAGAN LEASE
268 ACRES ±
WELL NO. WV 514474
(PEN54 H1)
AS DRILLED COORDINATES**
(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)

NAD27 S.P.C.(FT) N. 279,216.27 E. 1596775.03
 NAD27 GEO. LAT.(N) 39.257793 LONG.(W) 80.927595
 NAD83 UTM (M) N. 4,345,399.29 E. 506,264.11

LANDING POINT

NAD27 S.P.C.(FT) N. 279,311.73 E. 1,595,593.08
 NAD27 GEO. LAT.(N) 39.258049 LONG.(W) 80.928310
 NAD83 UTM (M) N. 4,345,424.89 E. 506,199.05

BOTTOM HOLE

NAD27 S.P.C.(FT) N. 292,896.50 E. 1,594,292.95
 NAD27 GEO. LAT.(N) 39.267838 LONG.(W) 80.932662
 NAD83 UTM (M) N. 4,346,510.7 E. 505,824.34

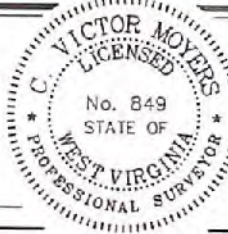
ROYALTY OWNERS

MARY LEE AZELVANDRE ET AL	509 AC ±	LEASE NO. 114193
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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.



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.
 DATE JUNE 1, 20 15
 REVISED AUGUST 03, 20 16
 OPERATORS WELL NO. WV 514474
 API WELL NO. 47 - 085 - 10222H
 STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 200 FILE NO. 8083ADS14474
 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 243.59±
 ROYALTY OWNER ELLEN S. FRANCAVIGLIA ET AL ACREAGE 268±

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 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

514474- 47-085-10222-0000 - Perforations

Stage Number	Perforation Date	Top Perf Depth (ftKB)	Bottom Perf Depth (ftKB)	Number of Shots	Formation
Initiation Sleeve	9/11/2016	10,536	10,562	10	MARCELLUS
1	3/17/2017	10,375	10,497	32	MARCELLUS
2	3/17/2017	10,176	10,337	40	MARCELLUS
3	3/17/2017	9,975	10,137	40	MARCELLUS
4	3/18/2017	9,775	9,941	40	MARCELLUS
5	3/18/2017	9,575	9,737	40	MARCELLUS
6	3/18/2017	9,375	9,537	40	MARCELLUS
7	3/18/2017	9,175	9,335	40	MARCELLUS
8	3/19/2017	8,975	9,137	40	MARCELLUS
9	3/19/2017	8,775	8,937	40	MARCELLUS
10	3/19/2017	8,575	8,737	40	MARCELLUS
11	3/19/2017	8,375	8,537	40	MARCELLUS
12	3/20/2017	8,178	8,337	40	MARCELLUS
13	3/20/2017	7,775	8,137	40	MARCELLUS
14	3/21/2017	7,575	7,737	40	MARCELLUS
15	3/21/2017	7,375	7,537	40	MARCELLUS
16	3/21/2017	7,175	7,337	40	MARCELLUS
17	3/21/2017	6,975	7,137	40	MARCELLUS
18	3/22/2017	6,995	7,037	40	MARCELLUS
19	3/22/2017	6,775	6,937	40	MARCELLUS
19	3/22/2017	6,575	6,737	40	MARCELLUS
19	3/23/2017	6,595	6,677	40	MARCELLUS

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514474- 47-085-10222-0000 - 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	3/16/2017	8	8,319	9,114	4,373		975	0
1	3/16/2017	98	7,819	8,969	2,769	450,158	9,903	0
2	3/17/2017	95	8,837	9,432	2,965	449,460	9,558	0
3	3/17/2017	101	7,733	8,155	3,369	449,320	9,772	0
4	3/17/2017	101	7,720	8,182	3,326	449,440	8,853	0
5	3/18/2017	99	8,353	8,876	3,334	451,298	8,798	0
6	3/18/2017	99	8,202	8,458	3,527	450,960	8,992	0
7	3/18/2017	98	8,507	9,288	3,765	451,520	9,274	0
8	3/18/2017	100	7,802	8,217	3,982	450,120	8,965	0
9	3/19/2017	101	7,597	8,061	3,671	450,400	9,338	0
10	3/19/2017	100	7,482	8,066	4,756	449,720	10,760	0
11	3/19/2017	98	8,181	9,014	3,789	451,680	8,720	0
12	3/20/2017	91	6,881	7,704	3,785	449,360	8,963	0
13	3/20/2017	101	7,294	7,566	3,813	451,420	9,148	0
14	3/21/2017	101	7,515	7,949	3,910	450,440	9,118	0
15	3/21/2017	100	7,557	9,171	4,151	451,100	9,161	0
16	3/21/2017	100	7,978	8,884	4,141	450,060	8,984	0
17	3/21/2017	n/a	n/a	n/a	n/a	n/a	2,572	0
17	3/22/2017	n/a	n/a	n/a	n/a	6,700	9,205	0
17	3/22/2017	97	8,336	9,183	4,195	443,740	2,954	0
18	3/22/2017	99	7,892	9,177	3,746	451,960	9,495	0
19	3/23/2017	49	8,903	9,477	5,150	6,000	4,225	0
19	3/23/2017	90	8,531	9,617	3,976	129,800	4,338	0
19	3/23/2017	11	4,698	6,690	4,533	226,020	1,804	0
19	3/23/2017	92	8,293	9,103	4,634	n/a	7,797	0

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Hydraulic Fracturing Fluid Product Component Information Disclosure

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Job Start Date:	3/16/2017
Job End Date:	3/23/2017
State:	West Virginia
County:	Ritchie
API Number:	47-085-10222-00-00
Operator Name:	EQT Production
Well Name and Number:	514474
Latitude:	39.25779300
Longitude:	-80.92756500
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,288
Total Base Water Volume (gal):	8,050,224
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	C and J Energy Services	Carrier/Base Fluid					
			Water	7732-18-5	100.00000	88.46012	None
MC MX 8-2544	Multi-Chem Group	Live Culture - Nitrate Reducing Bacteria					
				Listed Below			

CI-3	C and J Energy Services	Corrosion Inhibitor					
				Listed Below			
Sand (Proppant)	C and J Energy Services	Proppant					
				Listed Below			
Hydrochloric Acid (15%)	C and J Energy Services	Acidizing					
				Listed Below			
LD-2250	Multi-Chem Group	Friction Reducer					
				Listed Below			
Other Chemical (s)	Listed Above	See Trade Name (s) List					
				Listed Below			
BR-11	C and J Energy Services	Gel Breaker					
				Listed Below			
GA-7A	C and J Energy Services	Gelling Agent					
				Listed Below			
Silver FR 783C	Silverback Chemical	Stimulation / Cementing Additive					
				Listed Below			

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Silver FR 420	Silverback Chemical	Emulsion of petroleum distillate and aqueous solution					
				Listed Below			
MC MX 5-3886	Multi-Chem Group	Specialty Brine					
				Listed Below			
SI-6	C and J Energy Services	Scale Inhibitor					
				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	11.15402	None
			Calcium nitrate.4H2O	13477-34-4	100.00000	0.10883	
			Calcium nitrate.4H2O	13477-34-4	100.00000	0.10883	None
			Hydrochloric Acid	7647-01-0	15.00000	0.02425	None
			Hydrotreated light petroleum distillate	64742-47-8	30.00000	0.01899	
			Polyacrylate	Proprietary	30.00000	0.01899	
			Hydrotreated light petroleum distillate	64742-47-8	30.00000	0.01899	None
			Polyacrylate	Proprietary	30.00000	0.01899	None
			Sodium chloride	7647-14-5	100.00000	0.00921	
			Sodium chloride	7647-14-5	100.00000	0.00921	None
			Ethoxylated alcohol	Proprietary	5.00000	0.00316	None
			Ethoxylated alcohol	Proprietary	5.00000	0.00316	
			Sodium chloride	7647-14-5	5.00000	0.00316	None
			Sodium chloride	7647-14-5	5.00000	0.00316	
			Fatty nitrogen derived amides	Proprietary	5.00000	0.00316	None
			Fatty nitrogen derived amides	Proprietary	5.00000	0.00316	

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			Distillates (petroleum), Hydrotreated Light	64742-47-8	30.00000	0.00291	None
			Distillates (petroleum), Hydrotreated Light	64742-47-8	30.00000	0.00291	
			copolymer of 2-propenamide	69418-26-4	30.00000	0.00207	None
			copolymer of 2-propenamide	69418-26-4	30.00000	0.00207	
			Trade Secret	Proprietary	7.00000	0.00172	None
			Petroleum Distillate	64742-47-8	20.00000	0.00138	
			Petroleum Distillate	64742-47-8	20.00000	0.00138	None
			Guar Gum	9000-30-0	60.00000	0.00082	None
			Distillates (petroleum), Hydrotreated Light	64742-47-8	60.00000	0.00082	
			Guar Gum	9000-30-0	60.00000	0.00082	
			Distillates (petroleum), Hydrotreated Light	64742-47-8	60.00000	0.00082	None
			Monoethanolamine hydrochloride	2002-24-6	2.00000	0.00049	None
			Ammonium Chloride	12125-02-9	2.00000	0.00049	None
			Sodium nitrate	7631-99-4	5.00000	0.00046	
			Sodium nitrate	7631-99-4	5.00000	0.00046	None
			Citric acid	77-92-9	3.00000	0.00029	
			Citric acid	77-92-9	3.00000	0.00029	None
			Methanol	67-56-1	1.00000	0.00025	None
			Alcohols, C12-16, ethoxylated	68551-12-2	2.00000	0.00014	None
			Oleic Acid Diethanolamide	93-83-4	2.00000	0.00014	None
			Alcohols, C12-16, ethoxylated	68551-12-2	2.00000	0.00014	
			Oleic Acid Diethanolamide	93-83-4	2.00000	0.00014	
			Surfactants	Proprietary	10.00000	0.00014	
			Surfactants	Proprietary	10.00000	0.00014	None
			Ethylene Glycol	107-21-1	40.00000	0.00014	None

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			Alcohols, C10-16, ethoxylated	68002-97-1	1.00000	0.00010	
			Alcohols, C12-16, ethoxylated	68551-12-2	1.00000	0.00010	
			Alcohols, C12-14, ethoxylated	68439-50-9	1.00000	0.00010	None
			Alcohols, C10-16, ethoxylated	68002-97-1	1.00000	0.00010	None
			Alcohols, C12-16, ethoxylated	68551-12-2	1.00000	0.00010	None
			Alcohols, C12-14, ethoxylated	68439-50-9	1.00000	0.00010	
			Ammonium chloride ((NH4)Cl)	12125-02-9	1.00000	0.00007	None
			Ammonium chloride ((NH4)Cl)	12125-02-9	1.00000	0.00007	
			Dimethylformamide	68-12-2	20.00000	0.00007	None
			2-butoxyethanol	111-76-2	15.00000	0.00005	None
			Cinnamaldehyde	104-55-2	15.00000	0.00005	None
			Tar Bases, Quinoline Derivs., Benzyl Chloride-quaternized	72480-70-7	15.00000	0.00005	None
			4-nonylphenol, Branched, Ethoxylated	127087-87-0	5.00000	0.00002	None
			1-decanol	112-30-1	5.00000	0.00002	
			1-decanol	112-30-1	5.00000	0.00002	None
			4-nonylphenol, Branched, Ethoxylated	127087-87-0	5.00000	0.00002	
			Ammonium Persulfate	7727-54-0	85.00000	0.00001	
			Ammonium Persulfate	7727-54-0	85.00000	0.00001	None
			Triethyl Phosphate	78-40-0	2.50000	0.00001	None
			Isopropanol	67-63-0	2.50000	0.00001	
			Triethyl Phosphate	78-40-0	2.50000	0.00001	
			1-octanol	111-87-5	2.50000	0.00001	
			Isopropanol	67-63-0	2.50000	0.00001	None
			1-octanol	111-87-5	2.50000	0.00001	None
			Cured Resin	Proprietary	13.00000	0.00000	None

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			Cured Resin	Proprietary	13.00000	0.00000			
			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)

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 WV Department of
 Environmental Protection

3,086'
4,526'
LATITUDE 39°17'30"
LONGITUDE 80°55'00"

NAD 27 GRID NORTH

8,678'
12,338'

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 26-58.2
D	JANICE WILLIAMS	111.876 AC±	TM 26-58.9
E	EQT PRODUCTION COMPANY	46.63 AC±	
F	WILLIAM & JANET BROADWATER	37.565 AC±	
G	WILLIAM & JANET BROADWATER	107 AC±	
H	WEST VIRGINIA RAILROAD MAINTENANCE AUTHORITY	P/O	1141.03 AC±

ROYALTY OWNERS		
MARY LEE AZELVANDRE ET AL	500 AC±	LEASE NO. 114103

**EQT PRODUCTION COMPANY
FLANAGAN LEASE
268 ACRES±
WELL NO. WV 514474
(PEN54 H1)**

AS DRILLED COORDINATES
(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)

NAD'27 S.P.C.(FT)	N. 279,215.27	E. 1595775.03
NAD'27 GEO.	LAT-(N) 39.257793	LONG-(W) 80.927565
NAD'83 UTM (M)	N. 4,345,396.29	E. 506,284.11

LANDING POINT

NAD'27 S.P.C.(FT)	N. 279,311.73	E. 1,595,583.08
NAD'27 GEO.	LAT-(N) 39.258049	LONG-(W) 80.928319
NAD'83 UTM (M)	N. 4,345,424.60	E. 506,199.05

BOTTOM HOLE

NAD'27 S.P.C.(FT)	N. 282,896.50	E. 1,594,392.95
NAD'27 GEO.	LAT-(N) 39.267838	LONG-(W) 80.932652
NAD'83 UTM (M)	N. 4,346,510.7	E. 505,824.34

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.



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 1, 20 15
REVISED AUGUST 03, 20 16
OPERATORS WELL NO. WV 514474
API WELL NO. 47 - 085 - 10222H
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 200 FILE NO. 8083AD514474
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: 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

ADDRESS BRIDGEPORT, WV 26330
 172 PROFESSIONAL PLACE P.O. BOX 380
 WELL OPERATOR EOT PRODUCTION COMPANY

ADDRESS BRIDGEPORT, WV 26330
 172 PROFESSIONAL PLACE P.O. BOX 380
 DESIGNATED AGENT KEX C. RAY

ESTIMATED DEPTH 8'252'
 PHYSICAL CHANGE IN WELL (SPECIFY) _____ TARGET FORMATION MARCELLUS
 FORMATION _____ BEFORE/ATE NEW FORMATION _____ BENE AND AVOID _____ CLEAN OUT AND BEING _____ OTHER _____
 DRILL COMPLET _____ DRILL DEEPEK _____ REDRILL _____ FRACTURE OR STIMULATE BENE OFF OLD _____
 PROPOSED WORK : LEASE NO. 102403
 PROPERTY OWNER ETTEN S. FRANKLIN ET AL ACRES 388
 SURFACE OWNER TERRY MORTON ET AL ACRES 343.807
 DISTRICT CLAY COUNTY PUTCHIE QUADRANGLE PENNSBORO T.S.
 BAD ELEVATION 1408 WATERSHED NORTH FORK HUGHES RIVER
 LOCATION :
 TYPE: OIL _____ GAS INJECTION _____ DISPOSAL _____ "GAS" PRODUCTION STORAGE _____ DEEP _____ SHALLOW
 WELL LIQUID _____ WASTE _____ IF _____

CONTROL DETERMINED BY DEGS (SURVEY GRADE TIE TO CORS NETWORK)
 HORIZONTAL & VERTICAL SCALE 1" = 5000'
 OF ACCURACY 1/500
 MINIMUM DEGREE FILE NO. 808242808

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



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



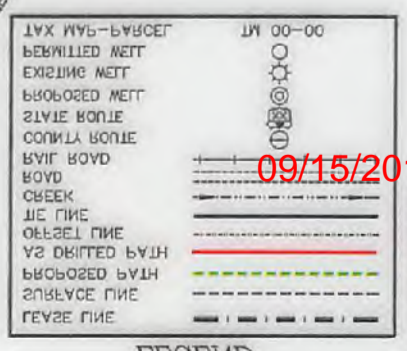
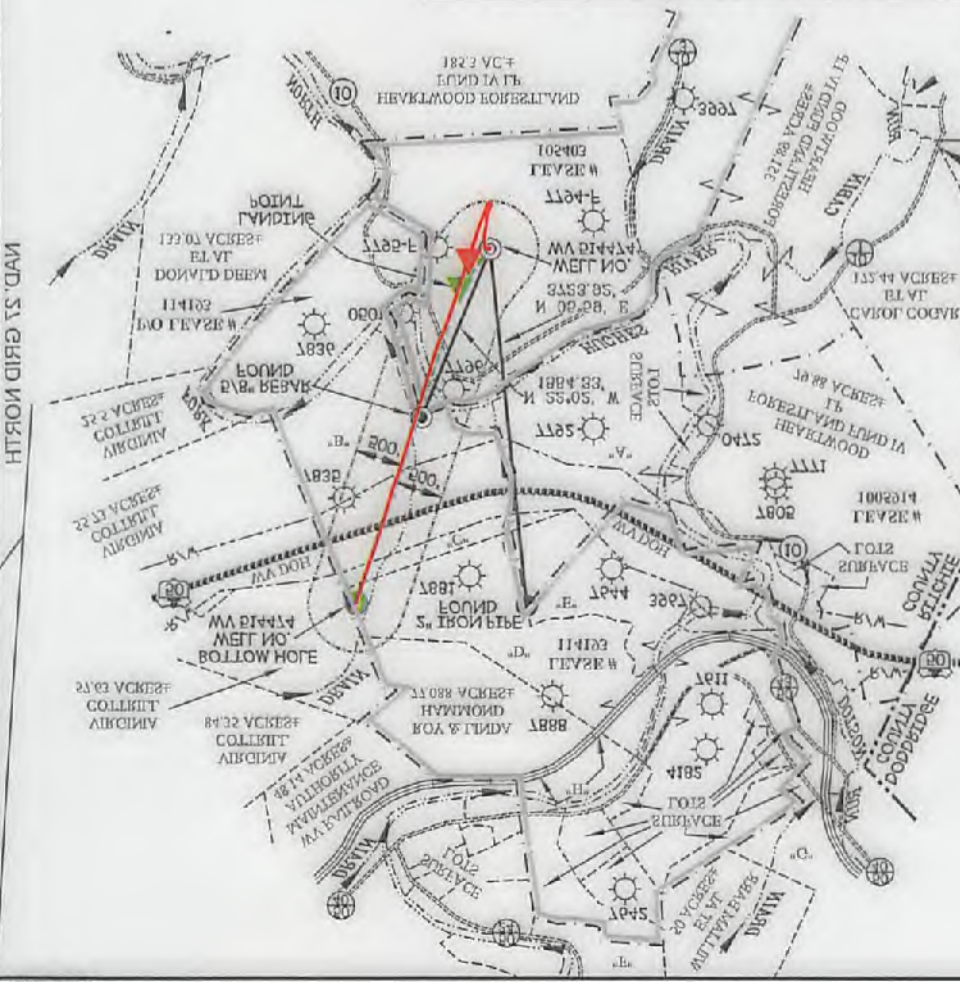
STATE COUNTY PERMIT
 NO. 47 - 082 - 10255H
 OPERATORS WELL NO. WV 24424
 REVISED AUGUST 03 '05
 DATE JUNE 1 '05
 STATES TOPOGRAPHIC MAPS
 (+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS



AS DRILLED COORDINATES
 (PER PLAN)
 47447 W.O. WELL
 ± 252 ACRES
 FRANKLIN LEASE
 EOT PRODUCTION COMPANY

NOTES ON SURVEY
 1. AS DRILLED INFORMATION PROVIDED BY EOT ± 252 ACRES OF THE CENTER OF PROPOSED WELL ± 2520 ± 20' ± 1' OF DIMENSIONS WERE FOUND WITHIN PROPOSED GAS WELL IN VARIOUS PLACES ± 1' NO WATER WELLS WERE FOUND WITHIN ± 252 ACRES

NO.	OWNER	ACRES
1	TERRY MORTON ET AL	343.807
2	EDITH & IO ANN ROBINSON	10.200
3	YANCE WILKINS	1.112
4	YANCE WILKINS	1.112
5	EOT PRODUCTION COMPANY	4.94
6	WILKINS & YANCE WILKINS	23.282
7	WILKINS & YANCE WILKINS	10.100
8	WILKINS & YANCE WILKINS	11.112
9	WILKINS & YANCE WILKINS	11.112
10	WILKINS & YANCE WILKINS	11.112



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 LONGITUDE 80.8200
 LATITUDE 38.1130