

Well Operator's Report of Well Work



Where energy meets innovation.

Well Number: 512890

API: 47 - 095 - 02278

Submission: Initial Amended

Notes:

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

API 47-095-02278 County TYLER District CENTERVILLE
Quad WEST UNION 7.5' Pad Name WEU4 Field/Pool Name N/A
Farm name DONNA J. PETER Well Number 512890
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 N. 4,357,479.93 Easting E. 515,448.20
Landing Point of Curve Northing N. 4,357,619.86 Easting E. 515,524.21
Bottom Hole Northing N. 4,358,588.62 Easting E. 515,057.22

Elevation (ft) 1079' 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 12.3 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 08/28/2015 Date drilling commenced 12/16/2015 Date drilling ceased 03/11/2016
Date completion activities began 4/9/2016 Date completion activities ceased 4/19/2016
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

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Freshwater depth(s) ft 132',175',186',204' Open mine(s) (Y/N) depths N
Salt water depth(s) ft 1128',1219',1222' Void(s) encountered (Y/N) depths N
Coal depth(s) ft 230',281',696' Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

APPROVED

NAME: [Signature]
DATE: 5/18/16

Reviewed by:

10/28/2016

API 47-095 - 02278

Farm name DONNA J. PETER

Well number 512890

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	N/A	Y
Surface	17 1/2"	13 3/8"	753'	NEW	J-55	205'	Y
Coal							
Intermediate 1	12 3/8"	9 5/8"	2877'	NEW	A-500	1864'	Y
Intermediate 2							
Intermediate 3							
Production	8 1/2"	5 1/2"	10,893'	NEW	P-110		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	38	15.6	1.18	44.84	0	8
Surface	CLASS A	637	15.6	1.21	770.77	0	8
Coal							
Intermediate 1	CLASS A / CLASS H	582 / 510	15.6 / 16.4	1.18 / 1.08	1237.56	0	8
Intermediate 2							
Intermediate 3							
Production	Class H/ Class H	642/479	15.2/15.6	1.25/2.06	1,789	3,348'	72
Tubing							

Drillers TD (ft) 10,893'

Loggers TD (ft) N/A

Deepest formation penetrated MARCELLUS

Plug back to (ft) N/A

Plug back procedure N/A

Kick off depth (ft) 4980'

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 (LESS THAN EVERY 500')

INTERMEDIATE: 7 CENTRALIZERS (LESS THAN EVERY 500')

PRODUCTION: Composite body centralizers run every joint from bottom to 5000'

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 _____

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API 47- 095 - 02278 Farm name DONNA J. PETER Well number 512890

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

Logging Company HOSSCO
Address 614 Trotters Lane City Charleston State WV Zip 25312

Logging Company Phoenix Technology Services
Address 1805 Brittmoore Road City Houston State TX Zip 77043

Cementing Company Allied Oil & Gas Services, LLC
Address 333 Technology Drive, Suite 290 City CANNONSBURG State PA Zip 15317

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512890 Final Formations API# 47-095-02278				
Formation Name	Final Top MD (ftGL) (ft)	Final Top TVD (ft)	Final Btm MD (ftGL) (ft)	Final Btm TVD (ft)
SAND/SHALE	1	1	240	240
COAL	240	240	242	242
SAND/SHALE	242	242	291	291
COAL	291	291	295	295
SAND/SHALE	295	295	706	706
COAL	706	706	710	710
SAND/SHALE	710	710	1,545.00	1,545.00
MAXTON	1,545.00	1,545.00	1,839.00	1,839.00
BIG LIME	1,839.00	1,839.00	2,261.00	2,261.00
WEIR	2,261.00	2,261.00	2,379.00	2,379.00
GANTZ	2,379.00	2,379.00	2,472.00	2,472.00
SOF	2,472.00	2,472.00	2,697.00	2,697.00
GORDON	2,697.00	2,697.00	3,017.00	3,017.00
BAYARD	3,017.00	3,017.00	3,349.00	3,349.00
WARREN	3,349.00	3,349.00	3,444.00	3,444.00
SPEECHLEY	3,444.00	3,444.00	3,865.00	3,865.00
BALLTOWN A	3,865.00	3,865.00	4,003.00	4,003.00
BALLTOWN B	4,003.00	4,003.00	4,300.00	4,300.00
BRADFORD	4,300.00	4,300.00	4,564.00	4,564.00
RILEY	4,564.00	4,564.00	4,981.00	4,981.00
BENSON	4,981.00	4,981.00	5,232.00	5,232.00
ALEXANDER	5,232.00	5,232.00	5,826.00	5,717.10
RHINESTREET	5,826.00	5,717.10	6,124.00	5,977.60
RHINESTREET UPPER	6,124.00	5,977.60	6,483.00	6,309.40
SONYEA	6,483.00	6,309.40	6,620.00	6,420.00
MIDDLESEX	6,620.00	6,420.00	6,689.00	6,468.40
GENESSEE	6,689.00	6,468.40	6,816.00	6,542.70
GENESE0	6,816.00	6,542.70	6,876.00	6,570.40
TULLY	6,876.00	6,570.40	6,994.00	6,610.00
MARCELLUS	6,994.00	6,610.00	10,893.00	6,647.89

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512890 47-095-02278-0000 - Perforations

Stage Number	Perforation Date	Top Perf Depth (ftKB)	Bottom Perf Depth (ftKB)	Number of Shots	Formation
Initiation Sleeve	4/1/2016	10,892	10,893	10	MARCELLUS
1	4/10/2016	10,715	10,805	40	MARCELLUS
2	4/10/2016	10,535	10,687	48	MARCELLUS
3	4/10/2016	10,355	10,507	48	MARCELLUS
4	4/10/2016	10,175	10,325	48	MARCELLUS
5	4/11/2016	9,995	10,145	48	MARCELLUS
6	4/11/2016	9,815	9,967	48	MARCELLUS
7	4/12/2016	9,635	9,787	48	MARCELLUS
8	4/12/2016	9,455	9,605	48	MARCELLUS
9	4/12/2016	9,275	9,427	48	MARCELLUS
10	4/13/2016	9,095	9,247	48	MARCELLUS
11	4/14/2016	8,915	9,067	48	MARCELLUS
12	4/14/2016	8,735	8,885	48	MARCELLUS
13	4/15/2016	8,555	8,707	48	MARCELLUS
14	4/15/2016	8,375	8,527	48	MARCELLUS
15	4/15/2016	8,195	8,347	48	MARCELLUS
16	4/16/2016	8,015	8,167	48	MARCELLUS
17	4/17/2016	7,835	7,987	48	MARCELLUS
18	4/17/2016	7,655	7,807	48	MARCELLUS
19	4/17/2016	7,475	7,625	48	MARCELLUS
20	4/18/2016	7,295	7,447	48	MARCELLUS
21	4/18/2016	7,115	7,265	48	MARCELLUS

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512890 47-095-02278-0000 - 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 (bbbs)	Amount of Nitrogen/other (units)
Initiation Sleeve	4/9/2016	17.5	7,659	8,389	4,580	0	616	0
1	4/10/2016	100.6	8,219	8,516	3,598	300,060.00	7,693	0
2	4/10/2016	97.18	8,433	8,861	3,827	301,240.00	6,805	0
3	4/10/2016	101.5	7,795	8,112	3,518	303,900.00	6,807	0
4	4/11/2016	101.1	8,625	8,891	4,706	299,520.00	7,796	0
5	4/11/2016	100.71	7,829	8,477	4,092	301,060.00	6,823	0
6	4/11/2016	101.3	8,380	8,633	3,969	300,040.00	6,670	0
7	4/12/2016	100.78	7,576	7,785	4,601	300,020.00	6,787	0
8	4/12/2016	101.7	8,330	8,589	4,475	303,440.00	6,606	0
9	4/13/2016	100.39	7,329	7,475	4,134	298,500.00	6,734	0
10	4/13/2016	101.55	7,344	7,679	4,529	300,300.00	6,716	0
11	4/14/2016	100.88	7,585	7,986	4,128	300,440.00	6,798	0
12	4/14/2016	100.5	7,445	7,775	4,328	302,540.00	6,487	0
13	4/15/2016	101.07	8,179	8,557	4,479	304,100.00	6,442	0
14	4/15/2016	101.53	8,130	8,631	5,022	299,800.00	6,494	0
15	4/16/2016	101.5	8,235	8,536	4,800	302,260.00	6,547	0
16	4/16/2016	101.79	8,329	9,167	4,871	299,480.00	6,806	0
17	4/17/2016	100.9	8,212	8,419	4,038	300,420.00	6,665	0
18	4/17/2016	101.5	8,008	8,272	4,137	302,220.00	6,556	0
19	4/18/2016	101.49	7,762	8,205	4,120	300,860.00	6,603	0
20	4/18/2016	101.4	7,434	7,715	4,913	300,660.00	6,490	0
21	4/19/2016	101.5	7,308	7,518	4,558	300,720.00	6,444	0

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date	4/9/2016
Job End Date	4/19/2016
State	West Virginia
County	Tyler
API Number	47-095-02278-00-00
Operator Name	EQT Production
Well Name and Number	512890
Latitude	39.36656000
Longitude	-80.82084000
Datum	NAD83
Federal Well	NO
Indian Well	NO
True Vertical Depth	6,610
Total Base Water Volume (gal)	5,980,170
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 Frac Fluid (% by mass)**	Comments
Water	Keane Group	Carrier/Base Fluid	Water	7732-18-5	100.00000	88.42082	None
Sand (Proppant)	Keane Group	Proppant	Silica Substrate	14808-60-7	100.00000	11.20057	None
MC MX 5-3886	Multi-Chem	Specialty Brine	Calcium nitrate.4H2O	13477-34-4	100.00000	0.11467	None
Hydrochloric Acid (15%)	Keane Group	Acidizing	Hydrochloric Acid	7647-01-0	15.00000	0.02894	None
FFR760	Keane Group	Friction Reducer	Hydrotreated Light Distillate	64742-47-8	30.00000	0.00952	None
			Alkyl Alcohol	68002-96-0	10.00000	0.00317	None
			Oxyalkylated alcohol A	69227-21-0	5.00000	0.00159	None
MC MX 8-2544	Multi-Chem	Live Culture - Nitrate Reducing Bacteria	Sodium chloride	7647-14-5	100.00000	0.00984	None
			Sodium Nitrate	7631-99-4	5.00000	0.00049	None
EC6330A	Keane Group	Scale Inhibitor	Ethylene Glycol	107-21-1	5.00000	0.00145	None

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AI 600	Keane Group	Corrosion Inhibitor	Sodium Phosphate, Tribasic	7601-54-9	5.00000	0.00145	None
			Ethylene Glycol	107-21-1	40.00000	0.00019	None
			Dimethylformamide	68-12-2	20.00000	0.00009	None
			Nonyl Phenol Ethoxylate, Branched	127087-87-0	15.00000	0.00007	None
			Cinnamaldehyde	104-55-2	15.00000	0.00007	None
			Pyridine, alkyl derivatives, quaternized with benzyl chloride	68909-18-2	15.00000	0.00007	None
			1-Decanol	112-30-1	5.00000	0.00002	None
			2-Butoxyethanol	111-76-2	5.00000	0.00002	None
			1-Octanol	111-87-5	5.00000	0.00002	None
			Triethyl Phosphate	78-40-0	2.50000	0.00001	None
			Methanol	67-56-1	2.50000	0.00001	None
			Alkyl Pyridine	68391-11-7	1.00000	0.00000	None

Ingredients shown above are subject to 29 CFR 1910.1200(f) 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(f) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

AS DRILLED COORDINATES FOR WELL NO. WV 512890

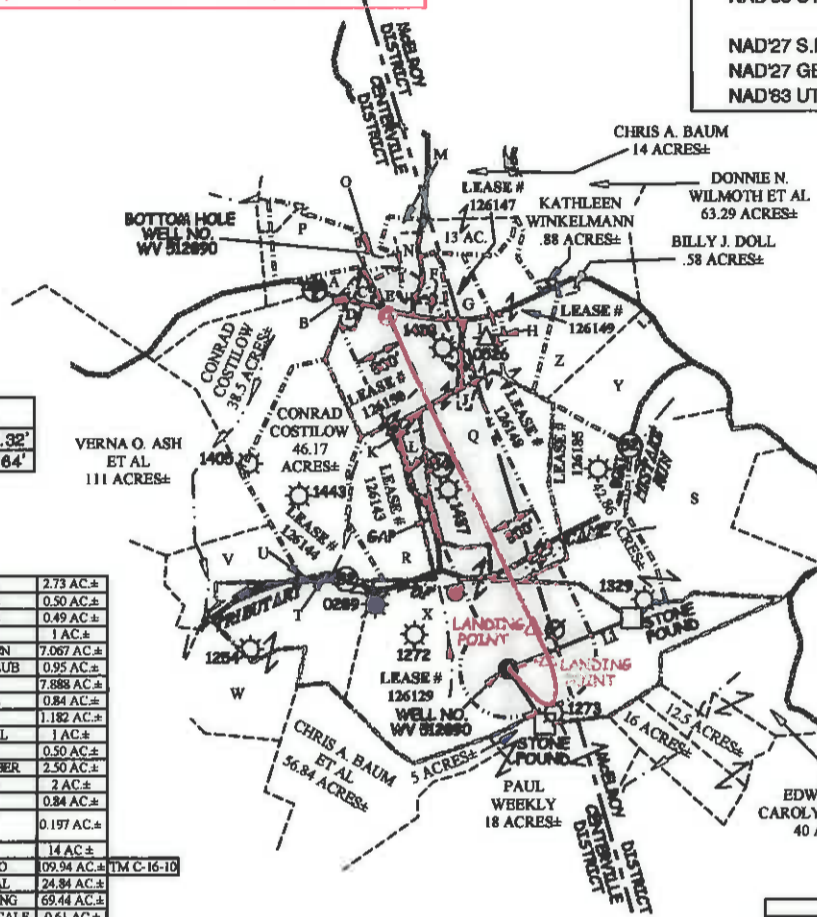
(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)
 NAD'27 S.P.C.(FT) N. 318,364.31 E. 1,626,574.86
 NAD'27 GEO. LAT-(N) 39.366581 LONG-(W) 80.820841
 NAD'83 UTM (M) N. 4,357,479.93 E. 515,448.20
LANDING POINT
 NAD'27 S.P.C.(FT) N. 318,819.34 E. 1,626,831.88
 NAD'27 GEO. LAT-(N) 39.367821 LONG-(W) 80.819855
 NAD'83 UTM (M) N. 4,357,619.86 E. 515,524.21
BOTTOM HOLE
 NAD'27 S.P.C.(FT) N. 322,023.82 E. 1,625,352.58
 NAD'27 GEO. LAT-(N) 39.376558 LONG-(W) 80.825354
 NAD'83 UTM (M) N. 4,358,588.52 E. 515,057.22

**EQT PRODUCTION COMPANY
 W.H. ASH ET AL LEASE
 152 ACRES±
 WELL NO. WV 512890
 (WEU4 H1)**

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)
 NAD'27 S.P.C.(FT) N. 318,364.31 E. 1,626,574.86
 NAD'27 GEO. LAT-(N) 39.366581 LONG-(W) 80.820841
 NAD'83 UTM (M) N. 4,357,479.93 E. 515,448.20
LANDING POINT
 NAD'27 S.P.C.(FT) N. 318,501.57 E. 1,626,981.83
 NAD'27 GEO. LAT-(N) 39.368055 LONG-(W) 80.819409
 NAD'83 UTM (M) N. 4,357,523.82 E. 515,571.42
BOTTOM HOLE
 NAD'27 S.P.C.(FT) N. 322,020.32 E. 1,625,340.82
 NAD'27 GEO. LAT-(N) 39.376548 LONG-(W) 80.825396
 NAD'83 UTM (M) N. 4,358,587.46 E. 515,053.86

LONGITUDE 80°47'30"
 3,074'

NAD'27 GRID NORTH



CORNER TIES BEARING & DISTANCE

L1	N 67°45' E	1377.32'
L2	S 33°45' E	875.64'

A	BRADLEY D. DAVIS	2.73 AC±
B	WILLIAM DOLL ET AL	0.50 AC±
C	WILLIAM DOLL ET AL	0.49 AC±
D	WILLIAM DOLL	1 AC±
E	FRIEDRIKE DOHRMANN	7.067 AC±
F	WILBUR COMMUNITY CLUB	0.95 AC±
G	JOHN STARKEY	7.888 AC±
H	CHRIS A. BAUM ET AL	0.84 AC±
I	TERRY G. WEEKLEY	1.182 AC±
J	RUTH O. & OLIN L. DOLL	1 AC±
K	GARY PROSSER	0.50 AC±
L	GARY & BARBARA PROSSER	2.50 AC±
M	WILBUR CEMETERY	2 AC±
N	WILBUR CHAPEL	0.84 AC±
O	WILBUR CEMETERY COMMUNITY INC.	0.197 AC±
P	BRADLEY D. DAVIS	14 AC±
Q	ELIZABETH ABRUZZINO	09.94 AC± TM C-16-10
R	HOWARD SHRIVER ET AL	24.84 AC±
S	L.B. & SANDRA STONEKING	69.44 AC±
T	RICHARD & YVONNE METCALF	0.61 AC±
U	JOHN & SANDRA ANDERS	0.09 AC±
V	JOHN & SANDRA ANDERS	19.75 AC±
W	RICHARD & YVONNE METCALF	61.57 AC±
X	DONNA J. PETER	113.4 AC± TM C-16-22
Y	BOBBY D. DOLL ET AL	49 AC±
Z	PERRY J. HAUGHT	16.21 AC±

LEGEND

LEASE LINE	— — — — —
SURFACE LINE	— — — — —
PROPOSED PATH	— — — — —
AS DRILLED PATH	— — — — —
OFFSET LINE	— — — — —
TIE LINE	— — — — —
CREEK	— — — — —
ROAD	— — — — —
FENCE LINE	— — — — —
COUNTY ROUTE	— — — — —
PROPOSED WELL	⊙
EXISTING WELL	⊙
PERMITTED WELL	⊙
ABANDONED WELL	⊙
PLUGGED WELL	⊙
STORAGE WELL	⊙
CENTERVILLE DISTRICT TAX MAP-PARCEL	C-00-00
McELROY DISTRICT TAX MAP-PARCEL	M-00-00

ROYALTY OWNERS

PATRICIA S. DOTSON LIVING TRUST ET AL	82 AC±	LEASE NO. 128146
KENNETH MASON ET AL	20 AC±	LEASE NO. 128180

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 SURVEYING, INC.

 SURVEYORS ENGINEERS ENVIRONMENTAL PROJECT MGMT.
 (304) 462-3884 WWW.SLSURVEYING.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. 2288 *Earl N. Thompson*



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.
 DATE JUNE 13, 20 14
 REVISED 06/04/15, 06/18/15, 03/21/16 & 06/15/16
 OPERATORS WELL NO. WV 512890
 API WELL NO. 47 - 095 - 02278H
 STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 7701AD512890R
 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 INJECTION WASTE DISPOSAL IF "GAS" PRODUCTION STORAGE DEEP SHALLOW

LOCATION: ELEVATION 1,086'(GROUND) 1,079'(PROPOSED) WATERSHED TRIBUTARY OF CAMP MISTAKE RUN
 DISTRICT CENTERVILLE COUNTY TYLER QUADRANGLE WEST UNION 7.5'
 SURFACE OWNER DONNA J. PETER ACREAGE 113.40±
 ROYALTY OWNER WACO OIL & GAS CO. INC. ET AL ACREAGE 1521
 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) 10/28/2016 TARGET FORMATION MARCELLUS
 ESTIMATED DEPTH TVD 6,696'

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