

API 47-017 - 6730

Farm name I.L. MORRIS

Well number 516251

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 94LB/FT	NONE	Y
Surface	17.5"	13.375"	625'	NEW	J-55 54.5LB/FT	330'	Y
Coal							
Intermediate 1	12.375"	9.625"	2974'	NEW	A-500 40LB/FT	824'	Y
Intermediate 2							
Intermediate 3							
Production	8.5"	5.5"	11,470	NEW	P-110 20LB/FT	NONE	N
Tubing							
Packer type and depth set							

Comment Details N/A

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	543	15.6	1.19	646.17	0	8
Coal							
Intermediate 1	CLASS A	1123	15.6	1.18	1325.14	0	8
Intermediate 2							
Intermediate 3							
Production	CLASS A / CLASS H	885 / 555	15.2 / 15.6	1.07 / 1.84	1968.15	3078	24
Tubing							

Drillers TD (ft) 11,472' MD

Loggers TD (ft) N/A

Deepest formation penetrated Marcellus

Plug back to (ft) N/A

Plug back procedure N/A

Kick off depth (ft) 3,715' MD

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: 1,10
 INTERMEDIATE- 7 CENTRALIZERS RAN AT LEAST EVERY 500' FEET
 PRODUCTION- Composite body centralizers run every joint from bottom to 4,234' RMD.

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 _____

RECEIVED
 OFFICE OF Oil and Gas
 APR 01 2016
 WV Department of
 Environmental Protection

API 47- 017 - 6730 Farm name I.L. MORRIS Well number 516251

Drilling Contractor Savanna Drilling (Rig 655)
Address 125 Industry Road City Waynesburg State PA Zip 15370

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

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

Cementing Company C&J Energy Services (Nabors)
Address 2504 Smith Creek Road City Waynesburg State PA Zip 15370

RECEIVED
Office of Oil and Gas
APR 01 2016
WV Department of
Environmental Protection

516251 Final Formations (API #47-17006730)

Formation Name	Final Top MD (ftGL) (ft)	Final Top TVD (ft)	Final Btm MD (ftGL) (ft)	Final Btm TVD (ft)
FRESH WATER ZONE	1		445	
SAND/SHALE	1		71	
WASHINGTON COAL	71		72	
SAND/SHALE	72		1,689.00	
MAXTON	1,689.00		1,868.00	
BIG LIME	1,868.00		1,929.00	
KEENER	1,929.00		2,098.00	
WEIR	2,098.00		2,343.00	
GANTZ	2,343.00		2,439.00	
50F	2,439.00		2,627.00	
GORDON	2,627.00		2,864.00	
5TH	2,864.00		2,906.00	
BAYARD	2,906.00		3,219.00	
WARREN	3,219.00		3,294.00	
SPEECHLEY	3,294.00		3,834.00	3,831.30
BALLTOWN A	3,834.00	3,831.30	4,502.00	4,415.60
RILEY	4,502.00	4,415.60	5,065.00	4,836.60
BENSON	5,065.00	4,836.60	5,398.00	5,084.70
ALEXANDER	5,398.00	5,084.70	5,520.00	5,175.80
ELKS	5,520.00	5,175.80	6,912.00	6,213.40
SONYEA	6,912.00	6,213.40	7,091.00	6,341.70
MIDDLESEX	7,091.00	6,341.70	7,266.00	6,451.70
GENESE0	7,266.00	6,451.70	7,360.00	6,500.10
TULLY	7,360.00	6,500.10	7,514.00	6,551.30
HAMILTON	7,514.00	6,551.30	7,543.00	6,558.00
MARCELLUS	7,543.00	6,558.00		

516251- 47-017-06730-0000 - 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	11/7/2015	0.00	0.00	0.00	0.00	0	734	0
1	11/7/2015	99.00	7,429.00	7,862.00	2,363.00	249,684	7942	0
2	11/7/2015	100.70	7,176.00	7,748.00	2,470.00	251,844	6290	0
3	11/7/2015	100.60	7,428.00	8,084.00	2,382.00	250,629	6175	0
4	11/7/2015	100.90	7,832.00	9,479.00	7,717.00	249,896	6118	0
4:01	11/8/2015	0.00	0.00	0.00	0.00	0	0	0
4:02	11/8/2015	0.00	0.00	0.00	0.00	0	5441	0
5	11/9/2015	100.00	7,616.00	7,943.00	2,414.00	249,377	6743	0
6	11/9/2015	102.10	7,393.00	7,710.00	2,437.00	249,970	6041	0
7	11/9/2015	100.40	7,248.00	7,575.00	2,380.00	249,158	6173	0
8	11/9/2015	100.70	7,202.00	7,789.00	2,444.00	250,027	6091	0
9	11/9/2015	100.90	7,128.00	8,234.00	2,602.00	250,477	6742	0
10	11/9/2015	100.40	7,199.00	7,532.00	2,476.00	250,344	6555	0
11	11/10/2015	100.60	7,508.00	7,987.00	2,697.00	250,229	6550	0
12	11/10/2015	100.50	7,496.00	7,854.00	2,584.00	249,850	6061	0
13	11/10/2015	100.50	7,581.00	7,870.00	2,565.00	250,749	6061	0
14	11/10/2015	100.40	7,642.00	7,976.00	2,601.00	250,248	6036	0
15	11/10/2015	99.00	8,034.00	8,536.00	2,677.00	250,101	5856	0
16	11/10/2015	101.30	8,150.00	8,425.00	2,669.00	250,743	5,964	0
17	11/11/2015	101.30	7,994.00	8,286.00	2,638.00	250,376	5,885	0
18	11/11/2015	100.90	7,771.00	8,144.00	2,883.00	250,340	5,918	0
19	11/11/2015	99.50	7,818.00	8,574.00	2,764.00	249,113	5,572	0
20	11/11/2015	100.10	7,680.00	8,132.00	3,091.00	250,795	5,516	0
21	11/11/2015	101.00	7,559.00	8,302.00	3,551.00	250,101	5,573	0
22	11/11/2015	99.80	7,877.00	8,781.00	3,632.00	250,395	5777	0
23	11/12/2015	99.80	7,764.00	8,364.00	4,053.00	249,367	5809	0
24	11/12/2015	100.00	8,018.00	8,391.00	3,533.00	249,152	5911	0
25	11/12/2015	100.70	7,707.00	8,391.00	3,630.00	249,116	5624	0
26	11/12/2015	101.20	7,737.00	8,584.00	3,085.00	249,629	5762	0

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	11/7/2015
Job End Date:	11/12/2015
State:	West Virginia
County:	Doddridge
API Number:	47-017-06730-00-00
Operator Name:	EQT Production
Well Name and Number:	516251
Longitude:	-80.81788400
Latitude:	39.19000600
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	6,558
Total Base Water Volume (gal):	6,929,832
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	FTS International	Carrier/Base Fluid	Water	7732-18-5	100.00000	89.53782	None
Sand (Proppant)	FTS International	Proppant	Silica Substrate	14808-60-7	100.00000	10.06665	None
MC MX 437-5	Multi-Chem Group LLC	Calcium nitrate solution	Calcium nitrate	10124-37-5	60.00000	0.05614	None
Hydrochloric Acid (15%)	FTS International	Acidizing	Hydrochloric Acid	7647-01-0	15.00000	0.03214	None
FRW-900	FTS International	Friction reducer	Hydrotreated light distillate	64742-47-8	30.00000	0.01813	None
			Alkyl alcohol	Proprietary	10.00000	0.00604	None
			Oxyalkylated alcohol A	Proprietary	5.00000	0.00302	None
CS-500-SI	FTS International	Scale inhibitor	Ethylene glycol	107-21-1	10.00000	0.00246	None
FE-100L	FTS International	Iron control	Citric acid	77-92-9	55.00000	0.00074	None
HVG-1 4.0	FTS International	Water gelling agent	Raffinates, sorption process	64741-85-1	55.00000	0.00028	None

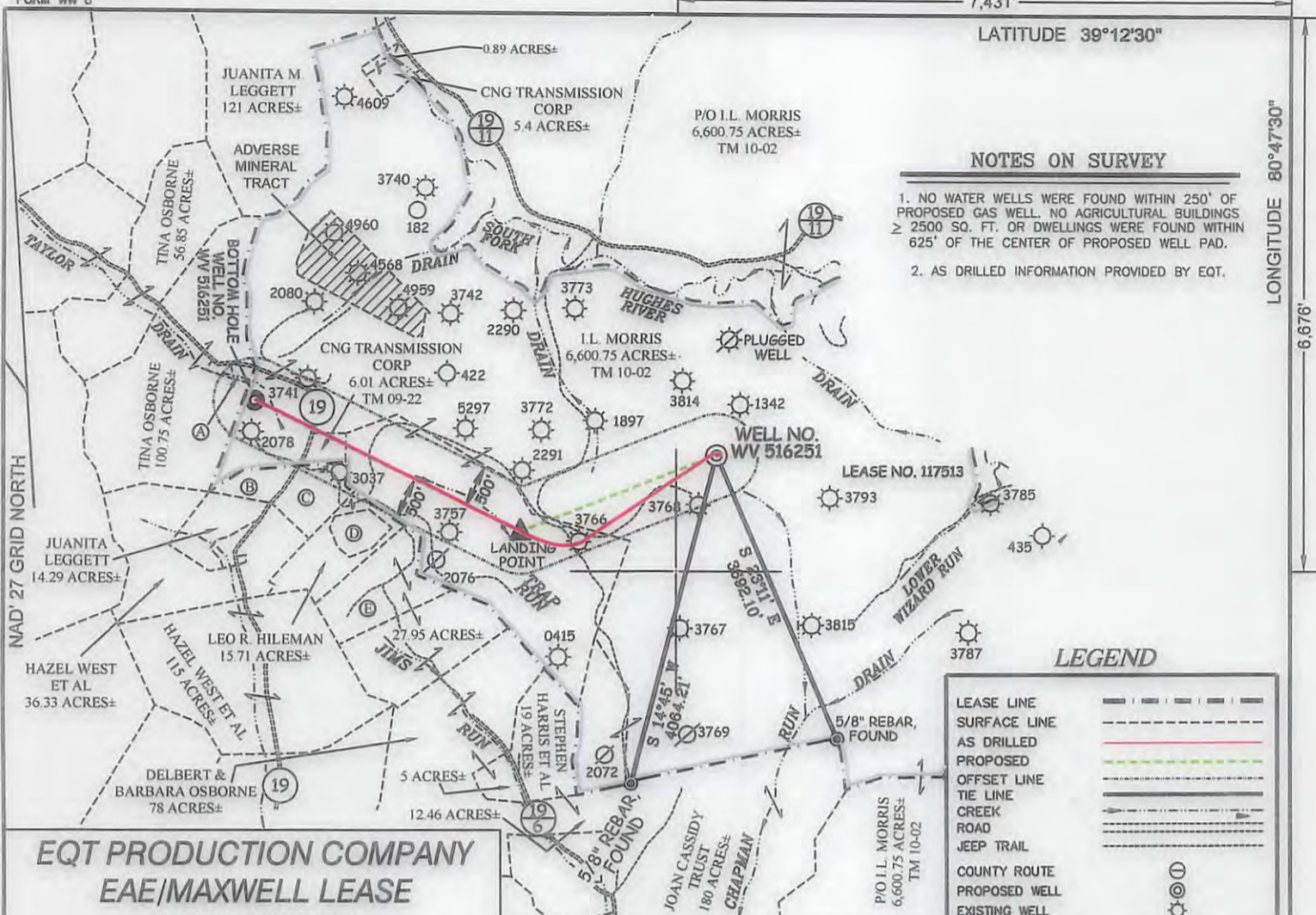
			Guar gum	9000-30-0	50.00000	0.00026	None
			Quartz	14808-60-7	4.00000	0.00002	None
			Isotridecanol, ethoxylated	9043-30-5	2.00000	0.00001	None
CI-150	FTS International	Acid corrosion inhibitor					
			Isopropanol	67-63-0	30.00000	0.00012	None
			Ethylene glycol	107-21-1	30.00000	0.00012	None
			Organic amine resin salt	Proprietary	30.00000	0.00012	None
			Quaternary ammonium compound	Proprietary	10.00000	0.00004	None
			Dimethylformamide	68-12-2	10.00000	0.00004	None
			Aromatic aldehyde	Proprietary	10.00000	0.00004	None
NE-100	FTS International	Non-emulsifier					
			Methanol	67-56-1	15.00000	0.00005	None
			2-Propanol	67-63-0	10.00000	0.00004	None
			2-Butoxyethanol	111-76-2	10.00000	0.00004	None
			Dodecylbenzenesulfonic acid	27176-87-0	5.00000	0.00002	None
APB-1	FTS International	Gel breaker					
			Ammonium persulfate	7727-54-0	95.00000	0.00001	None
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)



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.

LEGEND

LEASE LINE	---
SURFACE LINE	----
AS DRILLED	—
PROPOSED	---
OFFSET LINE	----
TIE LINE	----
CREEK	~~~~~
ROAD	====
JEEP TRAIL	----
COUNTY ROUTE	⊙
PROPOSED WELL	⊙
EXISTING WELL	⊙
PERMITTED WELL	⊙
TAX MAP-PARCEL	⊙

**EQT PRODUCTION COMPANY
EAE/MAXWELL LEASE
1,891 ACRES±
WELL NO. WV 516251
(OXF153 H9)**

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

NAD'27 S.P.C.(FT) N. 254,054.2 E. 1,626,467.5
NAD'27 GEO. LAT-(N) 39.190006 LONG-(W) 80.817884
NAD'83 UTM (M) N. 4,337,887.3 E. 515,742.4

LANDING POINT

NAD'27 S.P.C.(FT) N. 253,129.3 E. 1,624,106.1
NAD'27 GEO. LAT-(N) 39.187372 LONG-(W) 80.826166
NAD'83 UTM (M) N. 4,337,593.6 E. 515,027.7

BOTTOM HOLE

NAD'27 S.P.C.(FT) N. 254,694.3 E. 1,620,897.4
NAD'27 GEO. LAT-(N) 39.191537 LONG-(W) 80.837567
NAD'83 UTM (M) N. 4,338,054.0 E. 514,042.2

A	ANDA K. HILEMAN	0.81 ACRES±
B	MARK ALLEN HILEMAN ET AL	6 ACRES±
C	ICY JONES ESTATE	12.42 ACRES±
D	JERRY HILEMAN	6.29 ACRES±
E	RICHARDS ASSET MANAGEMENT TRUST	25.21 ACRES±

**AS DRILLED COORDINATES
FOR WELL NO. WV 516251**

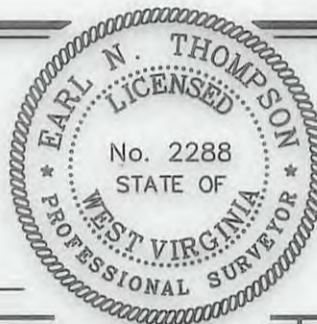
(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)

NAD'27 S.P.C.(FT) N. 254,054.2 E. 1,626,467.5
NAD'27 GEO. LAT-(N) 39.190006 LONG-(W) 80.817884
NAD'83 UTM (M) N. 4,337,887.3 E. 515,742.4

BOTTOM HOLE

NAD'27 S.P.C.(FT) N. 254,699.7 E. 1,620,901.0
NAD'27 GEO. LAT-(N) 39.191552 LONG-(W) 80.837554
NAD'83 UTM (M) N. 4,338,055.6 E. 514,043.3

Professional Energy Consultants
A DIVISION OF SMITH LAND SURVEYING INC.
SLS
SURVEYORS
ENGINEERS
ENVIRONMENTAL
PROJECT MGMT.
(304) 462-5634 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. 2288 *Earl N. Thompson*

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.
DATE JANUARY 28, 20 15
REVISED 04/28/15 & 10/14/15
OPERATORS WELL NO. WV 516251
API WELL NO. 47 - 017 - 06730
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 200 FILE NO. 7310ASDRILLED516251
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:
ELEVATION 1,141'(PAD ELEVATION) WATERSHED CHAPMAN RUN OF SOUTH FORK HUGHES RIVER
DISTRICT SOUTHWEST COUNTY DODDRIDGE QUADRANGLE OXFORD 7.5'
SURFACE OWNER I.L. MORRIS ACREAGE 6,600.75±
ROYALTY OWNER W.B.M. HEIRS PROPERTIES, LLC ACREAGE 1,891±
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 TVD 6,532'

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

07/01/2016