

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

API 47 - 103 - 02880 County Wetzel District Grant  
Quad Pine Grove 7.5' Pad Name Long Field/Pool Name Willeyville  
Farm name Francis D & Freeda M Brown (Surface Hole) Well Number 409 S 3H  
Operator (as registered with the OOG) Ascent Resources - Marcellus, LLC  
Address 3501 NW 63rd Street City Oklahoma City State OK Zip 73116

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey  
Top hole Northing 4381632 Easting 527875  
Landing Point of Curve Northing 4381997.6 Easting 528417.1  
Bottom Hole Northing 4381094 Easting 529736

Elevation (ft) 1340' 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 salt polymer mud

Date permit issued 5/28/2013 Date drilling commenced 6/29/2013 Date drilling ceased 11/30/2013  
Date completion activities began 4/30/2014 Date completion activities ceased 6/25/2014  
Verbal plugging (Y/N) n/a Date permission granted \_\_\_\_\_ Granted by \_\_\_\_\_

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

Freshwater depth(s) ft 470' Open mine(s) (Y/N) depths N  
Salt water depth(s) ft 2000' Void(s) encountered (Y/N) depths N  
Coal depth(s) ft 1180' Cavern(s) encountered (Y/N) depths N  
Is coal being mined in area (Y/N) N

Reviewed by:

**APPROVED**

NAME: Jackie Thurston

DATE: 7/5/14

AX 07/21/14

API 47-103 . 02880 Farm name Francis D & Freeda M Brown (Surface Hole) Well number 409 S 3H

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	20"	20"	60'	New	H40/94	n/a	No cement - drilled in
Surface	17-1/2"	13-3/8"	1325'	New	J-55/54.5	n/a	Cement to surface
Coal							
Intermediate 1	12-1/4"	9-5/8"	3423'	New	J-55/40	n/a	Cement to surface
Intermediate 2							
Intermediate 3							
Production	8-1/2"	5-1/2"	13374'	New	P110-20	n/a	Cement to surface
Tubing							
Packer type and depth set							

Comment Details \_\_\_\_\_

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft <sup>3</sup> /sks)	Volume (ft <sup>3</sup> )	Cement Top (MD)	WOC (hrs)
Conductor	Drilled in						
Surface	Class A	238 lead/832 tail	14.6/15.6	1.37/1.18	99.5	Surface	12
Coal							
Intermediate 1	Type 1	374 lead/679 tail	15.0	1.29	1360	Surface	12
Intermediate 2							
Intermediate 3							
Production	50/50 PNE/ASC 1	1805 lead/1239 tail	14.3/14.7	1.23/1.5	3350	Surface	12
Tubing							

Drillers TD (ft) 13438' Loggers TD (ft) 13438'  
 Deepest formation penetrated Marcellus Plug back to (ft) n/a  
 Plug back procedure n/a

Kick off depth (ft) 3800'

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 \_\_\_\_\_  
Surface casing - Ran 20 (1 every 2 joints)  
Intermediate casing - Ran 16 (1 every 5 joints)  
Production casing - Ran 107 (1 every 3 joints)

WAS WELL COMPLETED AS SHOT HOLE  Yes  No DETAILS \_\_\_\_\_

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- 103 - 02880 Farm name Francis D & Freeda M Brown (Surface Hole) Well number 409 S-3H

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
1	5/19/2014	13278		50	Marcellus
2	5/19/2014	13048	13209	50	Marcellus
3	5/21/2014	12843	12984	50	Marcellus
4	5/22/2014	12638	12779	50	Marcellus
5	5/27/2014	12433	12574	50	Marcellus
6	5/28/2014	12228	12369	50	Marcellus
7	5/29/2014	12023	12164	50	Marcellus
8	5/30/2014	11818	11959	50	Marcellus
9	6/4/2014	11613	11754	50	Marcellus
10	6/5/2014	11408	11549	50	Marcellus
11	6/6/2014	11203	11344	50	Marcellus
12	6/9/2014	10973	11134	50	Marcellus
13	6/10/2014	10743	10904	50	Marcellus
14	6/11/2014	10513	10674	50	Marcellus
15	6/12/2014	10283	10444	50	Marcellus
	Con't	on	Page	4	

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations 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)
1	5/19/14	83.8	7180	n/a	4504	355600	7380	n/a
2	5/19/14	84.4	7855	5655	4495	315700	3157	n/a
3	5/21/14	83.4	7753	n/a	4604	355600	7444	n/a
4	5/22/14	77.8	7485	5472	4206	355600	7226	n/a
5	5/27/14	69.3	7551	5553	4801	355600	7837	n/a
6	5/28/14	83.2	7709	5737	4345	355600	7074	n/a
7	5/29/14	78.4	7245	5428	4401	355600	7587	n/a
8	5/30/14	77.6	7655	5484	5136	355600	7497	n/a
9	6/4/14	78.7	7454	5759	4243	355600	7562	n/a
10	6/5/14	n/a	6931	5786	4597	355600	8689	n/a
11	6/6/14	76.4	7247	5920	4209	355600	7074	n/a
12	6/9/14	75.7	7515	5713	4165	358500	7170	n/a
13	6/10/14	77.7	6879	5820	4810	358500	7009	n/a
14	6/11/14	79.2	6750	5733	4488	358500	7206	n/a
15	6/12/14	81.5	6377	6149	4053	358500	7239	n/a
	Con't	on	Page	4				

Please insert additional pages as applicable.

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API 47- 103 - 02880

Farm name Francis D & Freeda M Brown (Surface Hole)

Well number 409S-3H

PERFORATION RECORD

Stage No	Perforation date	Perforated from MD ft	Perforated to MD ft	Number of Perforations	Formation(s)
16	6/13/2014	10053	10214	50	Marcellus
17	6/17/2014	9823	9984	50	Marcellus
18	6/18/2014	9594	9754	50	Marcellus
19	6/18/2014	9363	9524	50	Marcellus
20	6/19/2014	9133	9294	50	Marcellus
21	6/20/2014	8903	9064	50	Marcellus
22	6/23/2014	8673	8834	50	Marcellus
23	6/24/2014	8443	8604	50	Marcellus

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbbls)	Amount of Nitrogen/other (units)
16	6/13/14	78.7	6708	5578	4747	358500	7535	n/a
17	6/17/14	73.2	6451	5453	5310	358500	7487	n/a
18	6/18/14	74.9	6445	5890	5542	358500	7000	n/a
19	6/18/14	74.1	6403	5982	4845	358500	7061	n/a
20	6/19/14	76	6502	5608	5256	358500	7063	n/a
21	6/20/14	74	6879	5614	5221	358500	7013	n/a
22	6/23/14	72.2	6870	6175	3959	148500	5360	n/a
23	6/24/14	72	6420	5746	4035	305400	7065	n/a

Please insert additional pages as applicable.

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<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
Marcellus	7379'	TVD 13438' MD

Please insert additional pages as applicable.

GAS TEST  Build up  Drawdown  Open Flow OIL TEST  Flow  Pump

SHUT-IN PRESSURE Surface \_\_\_\_\_ psi Bottom Hole \_\_\_\_\_ psi DURATION OF TEST 24 hrs

OPEN FLOW Gas 688 mcfpd Oil 6 bpd NGL \_\_\_\_\_ bpd Water 1 bpd GAS MEASURED BY  Estimated  Orifice  Pilot

LITHOLOGY/ FORMATION	TOP DEPTH IN FT NAME TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H <sub>2</sub> S, ETC)
	0		0		
Sand/Shale	0	2305'	0	2305'	
Big Lime	2305'	2392'	2305'	2392'	
Big Injun	2392'	2590'	2392'	2590'	
Shale	2590'	3160'	2590'	3160'	
Gordon Sand	3160'	3204'	3160'	3204'	
Dev Shale	3204'	7186'	3204'	7780'	
Tully Lime	7186'	7191'	7780'	7790'	
Hamilton Shale	7190'	7289'	7790'	7987'	
Marcellus Shale	7289'		7987'	13438'	

Please insert additional pages as applicable.

Drilling Contractor Dallas-Morris Drilling Inc  
Address 103 South Kendall City Bradford State PA Zip 16701

Logging Company ALS Empirca Surface Logging  
Address 6360 W. Sam Houston Pkwy N Suite 100 City Houston State TX Zip 77401

Cementing Company Baker Hughes  
Address PO Box 301057 City Dallas State TX Zip 75303

Stimulating Company Producers Service Corporation  
Address PO Box 2277 City Zanesville State OH Zip 43702

Please insert additional pages as applicable.

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Completed by Aniel Bravo Telephone 405-252-7642  
Signature [Signature] Title Regulatory Analyst Date 2/22/2016

Long 409 #311 Frac Summary

Stage	0 of Perfs	Total Acid (gal)	Total Water (bbl)	Total Sand (sls)	Total Slurry (bbl)	Prod Vol (bbl)	100 Mesh (sls)	40/70 White (sls)	40/70 CRCS (sls)	30/50 White (sls)	30/50 CRCS (sls)	20/40 White (sls)	20/40 CRCS (sls)	BDP (psl)	ISIP (psl)	1 Min SIP (psl)	2 Min SIP (psl)	5 Min SIP (psl)	ATP (psl)	Avg Rate (bbl/min)	PUMP DOWN (bbl)	Produced Water (bbl)
1	50	1500	7369	3556	7639	707	502	2503	551	0	0	0	0	N/A	4504	3914	3737	3410	7100	83.0	0	0
2	50	1500	7082	3157	7384	637	502	2503	152	0	0	0	0	5055	4405	3800	3658	3370	7655	64.4	385	800
3	50	1500	7444	3556	7600	602	502	2503	651	0	0	0	0	N/A	4604	3849	3599	3327	7753	63.4	312	500
4	50	1500	7228	3556	7645	636	502	2503	551	0	0	0	0	5472	4306	3819	3674	3489	7485	77.8	286	1340
5	50	1500	7037	3550	8321	855	320	2685	551	0	0	0	0	5553	4001	4115	3910	3603	7551	60.3	287	1850
6	50	1500	7074	3550	7475	685	502	2503	551	0	0	0	0	5737	4345	3990	3831	3563	7709	63.2	274	1570
7	50	1500	7587	3556	8005	657	502	2503	551	0	0	0	0	5428	4401	3957	3775	3530	7245	78.4	245	1800
8	50	1500	7497	3556	7079	650	502	2503	651	0	0	0	0	5484	6139	4706	4466	4046	7655	77.0	236	2600
9	50	1500	7562	3556	7920	683	406	2598	551	0	0	0	0	5759	4243	3883	3752	3581	7454	78.7	223	1502
10	50	1500	6689	3596	6686	889	603	2503	551	0	0	0	0	5788	4597	3928	3755	3540	6931	0	216	2020
11	50	1500	7074	3556	7419	683	502	2503	551	0	0	0	0	5920	4709	4076	3898	3844	7247	76.4	205	1070
12	50	1500	7170	3585	7616	660	478	2691	415	0	0	0	0	5713	4165	3798	3670	3494	7516	75.7	176	1596
13	50	1500	7069	3585	7374	695	502	2666	415	0	0	0	0	5820	4819	4340	4141	3838	6870	77.7	175	1318
14	50	1500	7266	3585	7473	911	502	2666	415	0	0	0	0	5733	4488	4099	3863	3518	6760	79.2	163	0
15	50	1500	7239	3585	7445	908	502	2666	415	0	0	0	0	6149	4033	3438	3283	3137	6377	81.5	148	0
16	50	1500	7535	3605	7636	911	502	2666	415	0	0	0	0	5578	4747	4325	4177	3923	6708	78.7	134	0
17	60	1500	7487	3585	7838	916	502	2666	415	0	0	0	0	6453	5310	4959	4773	4392	8451	73.2	129	0
18	50	1500	7090	3585	7305	918	502	2685	415	0	0	0	0	5090	5542	5350	5008	4345	6445	74.9	122	0
19	50	1500	7061	3585	7394	930	502	2666	415	0	0	0	0	5992	4645	4313	4148	3854	6403	74.1	109	0
20	50	1500	7083	3585	7626	934	502	2686	415	0	0	0	0	5608	5356	4878	4652	4273	6502	76	102	0
21	50	1500	7013	3505	7630	935	502	2666	415	0	0	0	0	5614	5221	4741	4414	3801	6070	74	102	0
22	50	1500	5300	1485	5689	934	502	983	0	0	0	0	0	6172	3959	3873	3548	3345	6970	72.2	95	1760
23	50	1500	7085	3054	7587	843	502	2552	0	0	0	0	0	5746	4005	3703	3559	3381	6420	72	73	0
TOTAL/AVG	1160	34500	166866	78106	173234	70337	11245	86049	9812	0	0	0	0	5726.479	4612.217	4163.696	3970.865	3673.3	7054.957	74.0087	4181	20526

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Long 409S 3H Perforating Detail

Perforating Detail

Stage 1						
Plug Setting Depth	1st Cluster	2nd Cluster	3rd Cluster	4th Cluster	5th Cluster	Perf Method
13278	N/A	N/A	N/A	N/A	N/A	RDV
Stage 2						
Plug Setting Depth	1st Cluster	2nd Cluster	3rd Cluster	4th Cluster	5th Cluster	Perf Method
13248	13208-09	13168-69	13128-29	13088-89	13048-49	PD
Stage 3						
Plug Setting Depth	1st Cluster	2nd Cluster	3rd Cluster	4th Cluster	5th Cluster	Perf Method
13018	12983-84	12948-49	12913-14	12878-79	12843-44	PD
Stage 4						
Plug Setting Depth	1st Cluster	2nd Cluster	3rd Cluster	4th Cluster	5th Cluster	Perf Method
12813	12778-79	12743-44	12708-09	12673-74	12638-39	PD
Stage 5						
Plug Setting Depth	1st Cluster	2nd Cluster	3rd Cluster	4th Cluster	5th Cluster	Perf Method
12608	12573-74	12538-39	12503-04	12468-69	12433-34	PD
Stage 6						
Plug Setting Depth	1st Cluster	2nd Cluster	3rd Cluster	4th Cluster	5th Cluster	Perf Method
12403	12368-69	12333-34	12298-99	12263-64	12228-29	PD
Stage 7						
Plug Setting Depth	1st Cluster	2nd Cluster	3rd Cluster	4th Cluster	5th Cluster	Perf Method
12198	12163-64	12128-29	12093-94	12058-59	12023-24	PD
Stage 8						
Plug Setting Depth	1st Cluster	2nd Cluster	3rd Cluster	4th Cluster	5th Cluster	Perf Method
11993	11958-59	11923-24	11888-89	11853-54	11818-19	PD
Stage 9						
Plug Setting Depth	1st Cluster	2nd Cluster	3rd Cluster	4th Cluster	5th Cluster	Perf Method
11788	11753-54	11718-19	11683-84	11648-49	11613-14	PD
Stage 10						
Plug Setting Depth	1st Cluster	2nd Cluster	3rd Cluster	4th Cluster	5th Cluster	Perf Method
11583	11548-49	11513-14	11478-79	11443-44	11408-09	PD
Stage 11						
Plug Setting Depth	1st Cluster	2nd Cluster	3rd Cluster	4th Cluster	5th Cluster	Perf Method
11378	11343-44	11308-09	11273-74	11238-39	11203-04	PD
Stage 12						
Plug Setting Depth	1st Cluster	2nd Cluster	3rd Cluster	4th Cluster	5th Cluster	Perf Method
11173	11133-34	11093-94	11053-54	11013-14	10973-74	PD

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Stage 13						
Plug Setting Depth	1st Cluster	2nd Cluster	3rd Cluster	4th Cluster	5th Cluster	Perf Method
10943	10903-04	10863-64	10823-24	10783-84	10743-44	PD
Stage 14						
Plug Setting Depth	1st Cluster	2nd Cluster	3rd Cluster	4th Cluster	5th Cluster	Perf Method
10713	10673-74	10673-74	10593-94	10553-54	10513-14	PD
Stage 15						
Plug Setting Depth	1st Cluster	2nd Cluster	3rd Cluster	4th Cluster	5th Cluster	Perf Method
10483	10443-44	10403-04	10363-64	10323-24	10283-84	PD
Stage 16						
Plug Setting Depth	1st Cluster	2nd Cluster	3rd Cluster	4th Cluster	5th Cluster	Perf Method
10253	10213-14	10173-74	10133-34	10093-94	10053-54	PD
Stage 17						
Plug Setting Depth	1st Cluster	2nd Cluster	3rd Cluster	4th Cluster	5th Cluster	Perf Method
10023	9983-84	9943-44	9903-04	9863-64	9823-24	PD
Stage 18						
Plug Setting Depth	1st Cluster	2nd Cluster	3rd Cluster	4th Cluster	5th Cluster	Perf Method
9793	9753-54	9713-14	9673-74	9633-34	9593-94	PD
Stage 19						
Plug Setting Depth	1st Cluster	2nd Cluster	3rd Cluster	4th Cluster	5th Cluster	Perf Method
9563	9523-24	9483-84	9443-44	9403-04	9363-64	PD
Stage 20						
Plug Setting Depth	1st Cluster	2nd Cluster	3rd Cluster	4th Cluster	5th Cluster	Perf Method
9333	9293-94	9253-54	9213-14	9173-74	9133-34	PD
Stage 21						
Plug Setting Depth	1st Cluster	2nd Cluster	3rd Cluster	4th Cluster	5th Cluster	Perf Method
9103	9063-64	9023-24	8983-84	8943-44	8903-04	PD
Stage 22						
Plug Setting Depth	1st Cluster	2nd Cluster	3rd Cluster	4th Cluster	5th Cluster	Perf Method
8873	8833-34	8793-94	8753-54	8713-14	8673-74	PD
Stage 23						
Plug Setting Depth	1st Cluster	2nd Cluster	3rd Cluster	4th Cluster	5th Cluster	Perf Method
8643	8603-04	8563-64	8523-24	8483-84	8443-44	PD

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(BOTTOM HOLE: 80°39'14.2")

LON: -80°40'32.1"

2513'

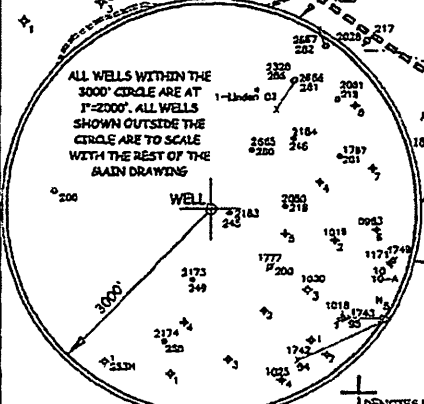
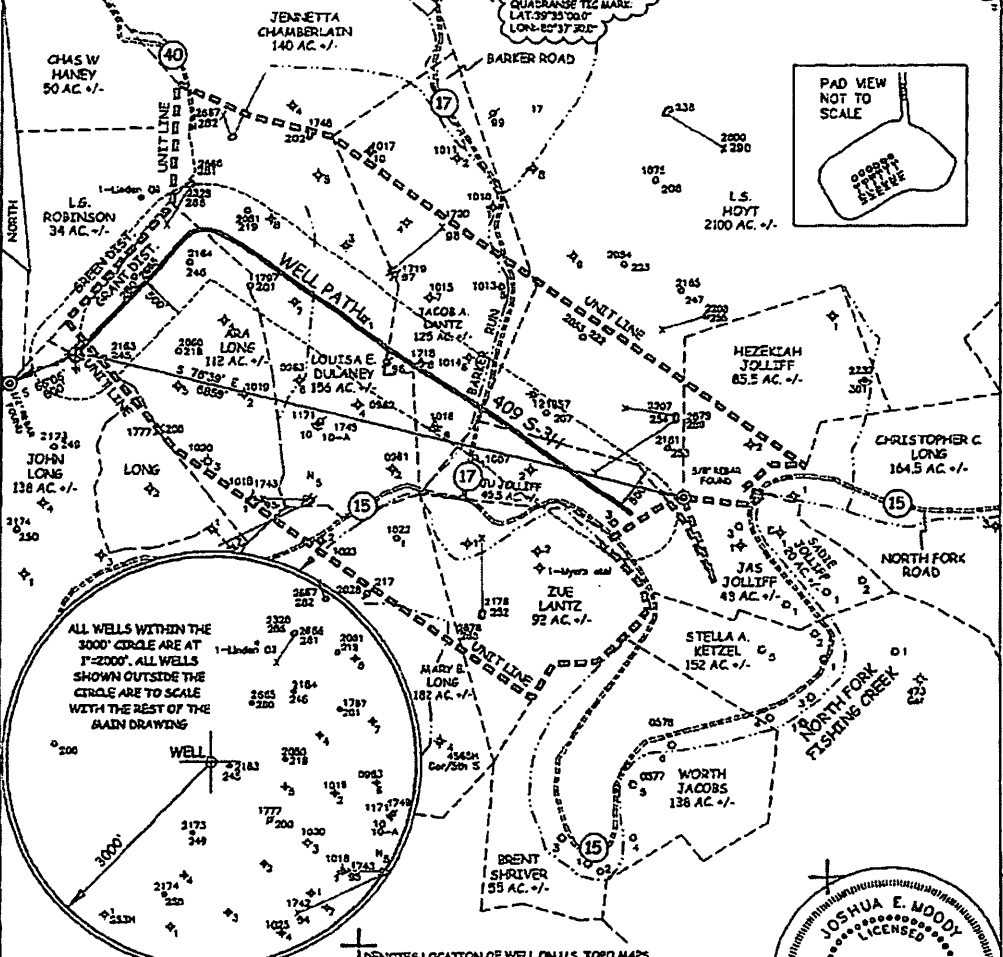
LAT: 39°37'30"

- 1 - Well Plot and Latitude and Longitude were calculated by DGPS (Sub-meter Mapping Grade) Bearings are referenced to the Grid North (Zone 17 North - NAD 1983).
- 2 - Surface owners and adjacent information obtained from the Wetzel County Assessor's Tax records.
- 3 - No Title Opinion was provided to the Surveyor during this survey. This survey is subject to a complete title opinion.

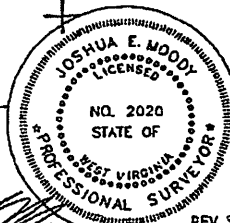
UTM Coordinates (Zone 17N-NAD 1983)	
Surface	N-4,381,632m. E-527,875m.
Bottom Hole	N-4,381,095m. E-529,737m.

LOCATION REFERENCES	
NAD 1983	
N 78°19' W 249' UTILITY POLE	N 47°31' E 234' SPICE

# MAP OF H.G. ENERGY, LLC -LONG 409 UNIT-



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 PERSCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.



JOB # 12-025  
DRAWING # 12HG409FOLDER  
SCALE 1" = 1500'  
MINIMUM DEGREE OF ACCURACY SUB-METER  
PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS



WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION  
OFFICE OF OIL AND GAS  
MOODY LAND SURVEYING, LLC  
ST. MARYS, WV 26170

JOSHUA E. MOODY, P.S. 2020  
DATE 12/08/14  
OPERATOR'S WELL # 409 S-3H

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION  
OFFICE OF OIL AND GAS

WELL TYPE: OIL  GAS  LIQUID INJECTION \_\_\_\_\_ WASTE DISPOSAL \_\_\_\_\_ HORIZONTAL   
 (IF "GAS") PRODUCTION  STORAGE  DEEP \_\_\_\_\_ SHALLOW  API WELL # \_\_\_\_\_  
 LOCATION: ELEVATION 1340' WATERSHED NORTH FOR, FISHING CREEK 47 - 103 -  
 DISTRICT GRANT COUNTY WETZEL STATE COUNTY PERMIT  
 QUADRANGLE PINE GROVE 7.5'  
 SURFACE OWNER FRANCIS D. & FREEDA M. BROWN (surface hole) ACREAGE 103 ACRES +/-  
 OIL & GAS ROYALTY OWNER ROBERT B. MYERS ET AL LEASE ACREAGE 580 ACRES +/-  
 PROPOSED WORK: DRILL  CONVERT \_\_\_\_\_ DRILL DEEPER \_\_\_\_\_ REDRILL \_\_\_\_\_ FRACTURE OR  
 STIMULATE  PLUG OFF OLD FORMATION \_\_\_\_\_ PERFORATE NEW FORMATION \_\_\_\_\_  
 OTHER PHYSICAL CHANGE IN WELL (SPECIFY) AS DRILLED LOCATION  
 PLUG & ABANDON \_\_\_\_\_ CLEAN OUT & REPLUG \_\_\_\_\_  
 TARGET FORMATION MARCELLUS ESTIMATED DEPTH TVD= 7,378.63' MD= 13,312'  
 WELL OPERATOR H.G. ENERGY, LLC DESIGNATED AGENT DIANE WHITE  
 ADDRESS 5260 DuPONT ROAD ADDRESS 5260 DuPONT ROAD  
 PARKERSBURG, WV 26101 PARKERSBURG, WV 26101

FORM WW-6

Received  
Office of Oil & Gas

JUL 05 2016

(BOTTOM HOLE: 80°39'14.2")

LON: -80°40'32.1"

2513'

LAT: 39°37'30"

LON: 80°40'00"

14,985'

LAT: 39°35'02.0"

(BOTTOM HOLE: 39°34'44.3")

1 - Well ties and Latitude and Longitude were measured by DGPS (Sub-meter Mapping Grade). Bearings are referenced to UTM Grid North (Zone 17 North - NAD 1927).

2 - Surface owners and adjoining information obtained from the Wetzel County Assessor's tax records.

3 - No Title Opinion was provided to the Surveyor during this survey. This survey is subject to a complete title Opinion.

**SURVEY NOTES**

UTM Coordinates  
(Zone 17N-NAD 1983)

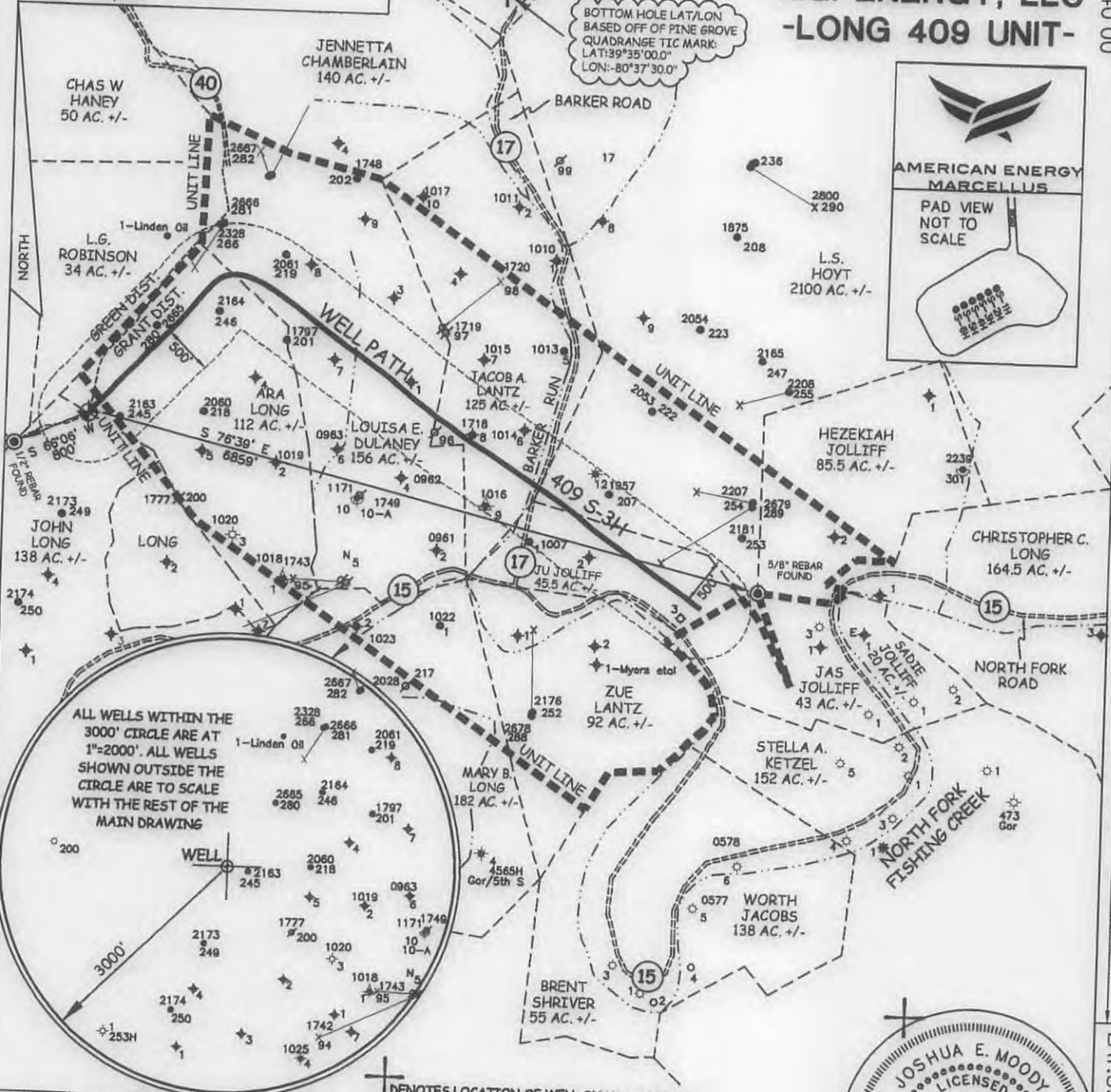
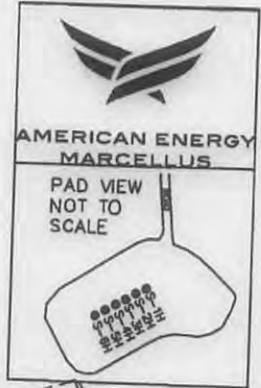
Surface N-4,381,632m.  
E-527,875m.

Bottom Hole N-4,381,095m.  
E-529,737m.

**LOCATION REFERENCES**

NAD 1983  
N 78°19' W 249' UTILITY POLE  
N 47°31' E 236' SPIKE

**MAP OF  
H.G. ENERGY, LLC  
-LONG 409 UNIT-**



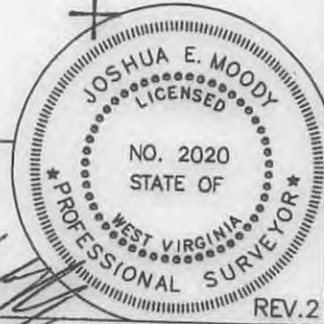
JOB # 12-025  
DRAWING # 12HG409FOLDER  
SCALE 1" = 1500'  
MINIMUM DEGREE OF ACCURACY SUB-METER  
PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

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 PERSCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.



**WEST VIRGINIA DEPARTMENT  
OF ENVIRONMENTAL PROTECTION,  
OFFICE OF OIL AND GAS**

**MOODY LAND SURVEYING, LLC**  
ST. MARYS, WV 26170



REV.2  
JOSHUA E. MOODY, P.S. 2020  
DATE 12/08/14  
OPERATOR'S WELL # 409 S-3H

WEST VIRGINIA DEPARTMENT  
OF ENVIRONMENTAL PROTECTION  
OFFICE OF OIL AND GAS

WELL TYPE: OIL  GAS  LIQUID INJECTION  WASTE DISPOSAL  HORIZONTAL   
(IF "GAS") PRODUCTION  STORAGE  DEEP  SHALLOW   
LOCATION: ELEVATION 1340' WATERSHED NORTH FOR, FISHING CREEK API WELL # 47 - 103  
DISTRICT GRANT COUNTY WETZEL STATE 47 COUNTY 103 PERMIT           
QUADRANGLE PINE GROVE 7.5'

SURFACE OWNER FRANCIS D. & FREEDA M. BROWN (surface hole) ACREAGE 103 ACRES +/-  
OIL & GAS ROYALTY OWNER ROBERT B. MYERS ET AL LEASE ACREAGE 580 ACRES +/-  
PROPOSED WORK: DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR  
STIMULATE  PLUG OFF OLD FORMATION  PERFORATE NEW FORMATION   
OTHER PHYSICAL CHANGE IN WELL (SPECIFY) AS DRILLED LOCATION  
PLUG & ABANDON  CLEAN OUT & REPLUG   
TARGET FORMATION MARCELLUS  
WELL OPERATOR AMERICAN ENERGY-MARCELLUS  
ADDRESS 3501 NW 63rd STREET  
OKLAHOMA CITY, OK 73116

ESTIMATED DEPTH TVD= 7,378.63' MD= 13,312'  
DESIGNATED AGENT BRANDON MCKINLEY  
ADDRESS 3501 NW 63rd STREET  
OKLAHOMA CITY, OK 73116



