

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

API 47 - 103 - 02882 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 5H
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 4381628 Easting 527867
Landing Point of Curve Northing 4381178.60 Easting 528181.8
Bottom Hole Northing 4380669 Easting 519653

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 7/1/2013 Date drilling ceased 1/20/2014
Date completion activities began 6/26/2014 Date completion activities ceased 7/31/2014
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

APPROVED

NAME: Jackie Thantee
DATE: 7/5/16

Received
Office of Oil & Gas
Reviewed by:
JUL 05 2016

ax 07/21/16

APPROVED
NAME:
DATE:

11/01/11

API 47- 103 - 02882

Farm name Francis D & Freeda M Brown (Surface Hole) Well number 409 S 5H

| 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" | 1303' | New | J-55/54.5 | n/a | Cement to surface |
| Coal | | | | | | | |
| Intermediate 1 | 12-1/4" | 9-5/8" | 3418' | New | J-55/40 | n/a | Cement to surface |
| Intermediate 2 | | | | | | | |
| Intermediate 3 | | | | | | | |
| Production | 8-1/2" | 5-1/2" | 13559' | 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 ³ /sks) | Volume (ft ³) | 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 | 368 lead/705 tail | 15.0 | 1.29 | 1382 | Surface | 12 |
| Intermediate 2 | | | | | | | |
| Intermediate 3 | | | | | | | |
| Production | 50/50 PNE/ASC 1 | 1394 lead/1108 tail | 14.3/14.7 | 1.23/1.5 | 3424 | Surface | 12 |
| Tubing | | | | | | | |

Drillers TD (ft) 13575' Loggers TD (ft) 13575'

Deepest formation penetrated Marcellus Plug back to (ft) n/a

Plug back procedure n/a

Kick off depth (ft) 3450'

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 15 (1 every 5 joints)

Production casing - Ran 132 (1 every 3 joints)

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 & Gas

JUL 05 2016

API 47- 103 - 02882 Farm name Francis D & Freeda M Brown (Surface Hole) Well number 409 S-5H

PERFORATION RECORD

| Stage No. | Perforation date | Perforated from MD ft | Perforated to MD ft | Number of Perforations | Formation(s) |
|-----------|------------------|-----------------------|---------------------|------------------------|--------------|
| 1 | 6/27/2014 | 13459 | | 50 | Marcellus |
| 2 | 6/27/2014 | 13229 | 13390 | 50 | Marcellus |
| 3 | 6/28/2014 | 13024 | 13165 | 50 | Marcellus |
| 4 | 6/30/2014 | 12819 | 12960 | 50 | Marcellus |
| 5 | 7/1/2014 | 12614 | 12755 | 50 | Marcellus |
| 6 | 7/3/2014 | 12409 | 12550 | 50 | Marcellus |
| 7 | 7/3/2014 | 12204 | 12345 | 50 | Marcellus |
| 8 | 7/7/2014 | 11999 | 12140 | 50 | Marcellus |
| 9 | 7/8/2014 | 11794 | 11935 | 50 | Marcellus |
| 10 | 7/9/2014 | 11589 | 11730 | 50 | Marcellus |
| 11 | 7/10/2014 | 11384 | 11525 | 50 | Marcellus |
| 12 | 7/14/2014 | 11179 | 11320 | 50 | Marcellus |
| 13 | 7/15/2014 | 10974 | 11115 | 50 | Marcellus |
| 14 | 7/16/2014 | 10469 | 10630 | 50 | Marcellus |
| 15 | 7/17/2014 | 10239 | 10400 | 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 | 6/27/14 | 80.6 | 6772 | n/a | 4320 | 1586 | 5069 | n/a |
| 2 | 6/27/14 | 80.2 | 7116 | 5951 | 4269 | 1634 | 4800 | n/a |
| 3 | 6/28/14 | 73.2 | 7233 | 5653 | 4491 | 3585 | 7522 | n/a |
| 4 | 6/30/14 | 74.8 | 7262 | 5472 | 4108 | 3585 | 7684 | n/a |
| 5 | 7/1/14 | 76.9 | 7263 | 5774 | 4503 | 3585 | 8069 | n/a |
| 6 | 7/2/14 | 75.7 | 7304 | 5592 | 5384 | 3585 | 6565 | n/a |
| 7 | 7/3/14 | 77.8 | 6918 | 5527 | 4889 | 3585 | 6823 | n/a |
| 8 | 7/7/14 | 78 | 6868 | 5601 | 5006 | 3585 | 6583 | n/a |
| 9 | 7/8/14 | 76 | 7153 | 5510 | 5543 | 3585 | 6712 | n/a |
| 10 | 7/9/14 | 76.1 | 7215 | 5216 | 4396 | 2807 | 7061 | n/a |
| 11 | 7/10/14 | 77.1 | 6998 | 5391 | 4300 | 2840 | 5908 | n/a |
| 12 | 7/14/14 | 76.8 | 7136 | 5366 | 4755 | 3120 | 6231 | n/a |
| 13 | 7/15/14 | 74 | 7046 | 5284 | 4670 | 3585 | 6502 | n/a |
| 14 | 7/16/14 | 76.1 | 6827 | 5315 | 4403 | 3585 | 7115 | n/a |
| 15 | 7/17/14 | 73.5 | 6985 | 5428 | 4741 | 3585 | 6880 | n/a |
| | Con't | on | Page | 4 | | | | |

Please insert additional pages as applicable.

Received
Office of Oil & Gas
JUL 05 2016

API 47- 103 - 02882 Farm name Francis D & Freeda M Brown (Surface Hole) Well number 409 S-5H

PERFORATION RECORD

| Stage No. | Perforation date | Perforated from MD ft. | Perforated to MD ft. | Number of Perforations | Formation(s) |
|-----------|------------------|------------------------|----------------------|------------------------|--------------|
| 16 | 7/18/2014 | 10009 | 10170 | 50 | Marcellus |
| 17 | 7/21/2014 | 9779 | 9940 | 50 | Marcellus |
| 18 | 7/22/2014 | 9549 | 9710 | 50 | Marcellus |
| 19 | 7/23/2014 | 9319 | 9480 | 50 | Marcellus |
| 20 | 7/24/2014 | 9089 | 9250 | 50 | Marcellus |
| 21 | 7/25/2014 | 8859 | 9020 | 50 | Marcellus |
| 22 | 7/26/2014 | 8629 | 8790 | 50 | Marcellus |
| 23 | 7/28/2014 | 8399 | 8560 | 50 | Marcellus |
| 24 | 7/29/2014 | 8169 | 8330 | 50 | Marcellus |
| 25 | 7/30/2014 | 7939 | 8100 | 50 | Marcellus |
| 26 | 7/31/2014 | 7709 | 7870 | 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 | 7/18/14 | 74 | 6828 | 5228 | 4705 | 3585 | 7116 | n/a |
| 17 | 7/21/14 | 71.8 | 6739 | 5620 | 4409 | 3585 | 7103 | n/a |
| 18 | 7/22/14 | 69.3 | 6487 | 5190 | 4464 | 3585 | 7017 | n/a |
| 19 | 7/23/14 | 68.9 | 6444 | 5177 | 4689 | 3585 | 7499 | n/a |
| 20 | 7/24/14 | 72.6 | 6416 | 5454 | 5129 | 3585 | 8349 | n/a |
| 21 | 7/25/14 | 68.4 | 6425 | 5468 | 4892 | 3585 | 6753 | n/a |
| 22 | 7/26/14 | 73.7 | 6180 | 5171 | 4502 | 3585 | 6796 | n/a |
| 23 | 7/28/14 | 72.8 | 6545 | 5442 | 4409 | 3585 | 6939 | n/a |
| 24 | 7/29/14 | 74.6 | 6578 | 5279 | 5006 | 3585 | 6787 | n/a |
| 25 | 7/30/14 | 76 | 6264 | 5391 | 4184 | 3560 | 6980 | n/a |
| 26 | 7/31/14 | 74 | 6512 | 5939 | 4139 | 3560 | 6428 | n/a |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

Please insert additional pages as applicable.

Received
Office of Oil & Gas
JUL 05 2016

API 47- 103 - 02882

Farm name Francis D & Freeda M Brown (Surface Hole) Well number 409 S 5H

PRODUCING FORMATION(S)

DEPTHS

Marcellus 7354' TVD 13575' 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 925 mcfpd Oil 0 bpd NGL _____ bpd Water 0 bpd GAS MEASURED BY Estimated Orifice Pilot

LITHOLOGY/ FORMATION TOP DEPTH IN FT BOTTOM DEPTH IN FT TOP DEPTH IN FT BOTTOM DEPTH IN FT DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H₂S, ETC)

| LITHOLOGY/ FORMATION | TOP DEPTH IN FT | BOTTOM DEPTH IN FT | TOP DEPTH IN FT | BOTTOM DEPTH IN FT | DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H ₂ S, ETC) |
|----------------------|-----------------|--------------------|-----------------|--------------------|---|
| | NAME TVD | TVD | MD | MD | |
| | 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' | 7173' | 3204' | 7320' | |
| Tully Lime | 7173' | 7178' | 7320' | 7330' | |
| Hamilton Shale | 7178' | 7275' | 7330' | 7532' | |
| Marcellus Shale | 7275' | | 7532' | 13575' | |
| | | | | | |
| | | | | | |
| | | | | | |

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 8360 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.

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

Received
Office of Oil & Gas
JUL 05 2016

Long S 409 85H Frac Summary

| Stage | # of Perfs | Total Acid (gal) | Total Water (bbl) | Total Sand (sks) | Total Slurry (bbl) | Pad Vol (bbl) | 100 Mesh (sks) | 40/70 White (sks) | 40/70 CRCS (sks) | 30/50 White (sks) | 30/50 CRCS (sks) | 20/40 White (sks) | 20/40 CRCS (sks) | BDP (psi) | ISIP (psi) | 1 Min SIP (psi) | 2 Min SIP (psi) | 5 Min SIP (psi) | ATP (psi) | Avg Rate (bbl/min) | PUMP DOWN (bbl) | Produced Water (bbl) |
|-------------|------------|------------------|-------------------|------------------|--------------------|---------------|----------------|-------------------|------------------|-------------------|------------------|-------------------|------------------|-----------|------------|-----------------|-----------------|-----------------|-----------|--------------------|-----------------|----------------------|
| 1 | 50 | 1500 | 6069 | 1566 | 6440 | 608 | 602 | 1064 | 0 | 0 | 0 | 0 | 0 | N/A | 4320 | 3039 | 3806 | 3588 | 6772 | 60.6 | 0 | 0 |
| 2 | 50 | 1500 | 4800 | 1634 | 5069 | 853 | 502 | 1132 | 0 | 0 | 0 | 0 | 0 | 5953 | 4369 | 4084 | 3022 | 3670 | 7116 | 60.2 | 362 | 0 |
| 3 | 50 | 1500 | 7522 | 3585 | 7975 | 624 | 602 | 2660 | 415 | 0 | 0 | 0 | 0 | 5653 | 4491 | 4126 | 3026 | 3631 | 7233 | 73.2 | 353 | 1015 |
| 4 | 50 | 1500 | 7664 | 3585 | 8148 | 641 | 502 | 2668 | 415 | 0 | 0 | 0 | 0 | 5472 | 4106 | 3686 | 3732 | 3542 | 7262 | 74.6 | 359 | 1460 |
| 5 | 50 | 1500 | 7566 | 3585 | 8069 | 851 | 502 | 2668 | 415 | 0 | 0 | 0 | 0 | 5774 | 4503 | 4262 | 4122 | 3667 | 7263 | 76.9 | 294 | 0 |
| 6 | 50 | 1500 | 6565 | 3585 | 7033 | 852 | 502 | 2668 | 415 | 0 | 0 | 0 | 0 | 5592 | 5384 | 4733 | 4507 | 4396 | 7304 | 75.7 | 592 | 0 |
| 7 | 50 | 1500 | 6823 | 3585 | 7299 | 850 | 502 | 2668 | 415 | 0 | 0 | 0 | 0 | 5627 | 4889 | 4361 | 4220 | 3980 | 6916 | 77.6 | 263 | 0 |
| 8 | 50 | 1500 | 6583 | 3585 | 6960 | 850 | 502 | 2668 | 415 | 0 | 0 | 0 | 0 | 5601 | 5008 | 4710 | 4537 | 4253 | 6860 | 78 | 278 | 0 |
| 9 | 50 | 1500 | 6712 | 3505 | 7168 | 844 | 502 | 2668 | 415 | 0 | 0 | 0 | 0 | 5510 | 5543 | 5516 | 5260 | 4050 | 7153 | 78 | 243 | 1536 |
| 10 | 50 | 1500 | 7061 | 2807 | 7497 | 890 | 502 | 2305 | 0 | 0 | 0 | 0 | 0 | 5216 | 4366 | 4021 | 3874 | 3659 | 7215 | 76.1 | 254 | 645 |
| 11 | 50 | 1500 | 5908 | 2640 | 6264 | 880 | 502 | 2338 | 0 | 0 | 0 | 0 | 0 | 5391 | 4300 | 3931 | 3729 | 3577 | 6696 | 77.1 | 254 | 1110 |
| 12 | 50 | 1500 | 6231 | 3120 | 6644 | 886 | 502 | 2618 | 0 | 0 | 0 | 0 | 0 | 5366 | 4755 | 4374 | 4217 | 3998 | 7138 | 76.8 | 227 | 1003 |
| 13 | 50 | 1500 | 6502 | 3685 | 6961 | 886 | 502 | 2668 | 415 | 0 | 0 | 0 | 0 | 5284 | 4670 | 4430 | 4227 | 3951 | 7046 | 74 | 218 | 1236 |
| 14 | 60 | 1500 | 7115 | 3505 | 7688 | 1021 | 502 | 2668 | 415 | 0 | 0 | 0 | 0 | 5315 | 4403 | 3966 | 3911 | 3580 | 6827 | 76.1 | 209 | 1023 |
| 15 | 60 | 1500 | 6800 | 3585 | 7371 | 905 | 502 | 2668 | 415 | 0 | 0 | 0 | 0 | 5426 | 4741 | 4276 | 4129 | 3876 | 6985 | 73.5 | 189 | 1080 |
| 16 | 50 | 1500 | 7116 | 3585 | 7632 | 919 | 502 | 2668 | 415 | 0 | 0 | 0 | 0 | 5226 | 4705 | 4154 | 3953 | 3647 | 6820 | 74 | 148 | 956 |
| 17 | 50 | 1500 | 7103 | 3585 | 7563 | 905 | 240 | 2030 | 415 | 0 | 0 | 0 | 0 | 5620 | 4409 | 4114 | 3973 | 3730 | 6739 | 71.6 | 157 | 0 |
| 18 | 50 | 1500 | 7017 | 3585 | 7426 | 913 | 602 | 2668 | 415 | 0 | 0 | 0 | 0 | 5190 | 4464 | 4096 | 3918 | 3724 | 6407 | 69.3 | 129 | 0 |
| 19 | 50 | 1500 | 7499 | 3585 | 7884 | 952 | 502 | 2668 | 415 | 0 | 0 | 0 | 0 | 5177 | 4689 | 4321 | 4168 | 3954 | 6444 | 68.9 | 116 | 0 |
| 20 | 50 | 1500 | 6349 | 3585 | 6724 | 852 | 602 | 2668 | 415 | 0 | 0 | 0 | 0 | 5454 | 5129 | 4631 | 4399 | 3984 | 6416 | 72.6 | 102 | 0 |
| 21 | 50 | 1500 | 6753 | 3585 | 7098 | 941 | 502 | 2668 | 415 | 0 | 0 | 0 | 0 | 5486 | 4892 | 4309 | 4086 | 3751 | 6425 | 68.4 | 92 | 0 |
| 22 | 50 | 1500 | 6766 | 3505 | 7190 | 919 | 502 | 2660 | 415 | 0 | 0 | 0 | 0 | 5171 | 4502 | 4115 | 3961 | 3723 | 6180 | 73.7 | 76 | 0 |
| 23 | 50 | 1500 | 6939 | 3585 | 7449 | 925 | 502 | 2668 | 415 | 0 | 0 | 0 | 0 | 5442 | 4409 | 4059 | 3909 | 3683 | 6545 | 72.8 | 71 | 690 |
| 24 | 60 | 1500 | 6787 | 3585 | 7289 | 949 | 602 | 2668 | 415 | 0 | 0 | 0 | 0 | 5279 | 5006 | 4793 | 4633 | 4332 | 6570 | 74.6 | 63 | 674 |
| 25 | 60 | 1500 | 6980 | 3500 | 7480 | 961 | 477 | 2660 | 415 | 0 | 0 | 0 | 0 | 5391 | 4184 | 3826 | 3805 | 3508 | 6764 | 76 | 53 | 595 |
| 26 | 60 | 1500 | 6426 | 3560 | 6877 | 952 | 473 | 2672 | 415 | 0 | 0 | 0 | 0 | 6939 | 4139 | 3806 | 3673 | 3519 | 6512 | 74 | 39 | 695 |
| TOTAL / AVG | 1300 | 39000 | 176788 | 67222 | 188166 | 23951 | 12738 | 69771 | 8715 | 0 | 0 | 0 | 0 | 5457.64 | 4631 | 4262 | 4095.577 | 3844.73 | 6027.462 | 74.7269 | 5123 | 14318 |

Received
 Office of Oil & Gas
 JUL 05 2016

Long 409S 5H Perforating Detail

| | | | | | | |
|--------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Stage 1 | | | | | | |
| Plug Setting Depth | 1st Cluster | 2nd Cluster | 3rd Cluster | 4th Cluster | 5th Cluster | Perf Method |
| N/A | 13459 | 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 |
| 13429 | 13389-90 | 13349-50 | 13309-10 | 13269-70 | 13229-30 | PD |
| Stage 3 | | | | | | |
| Plug Setting Depth | 1st Cluster | 2nd Cluster | 3rd Cluster | 4th Cluster | 5th Cluster | Perf Method |
| 13199 | 13164-65 | 13129-30 | 13094-95 | 13059-60 | 13024-25 | PD |
| Stage 4 | | | | | | |
| Plug Setting Depth | 1st Cluster | 2nd Cluster | 3rd Cluster | 4th Cluster | 5th Cluster | Perf Method |
| 12994 | 12959-60 | 12924-25 | 12889-90 | 12854-55 | 12819-20 | PD |
| Stage 5 | | | | | | |
| Plug Setting Depth | 1st Cluster | 2nd Cluster | 3rd Cluster | 4th Cluster | 5th Cluster | Perf Method |
| 12789 | 12754-55 | 12719-20 | 12684-85 | 12649-50 | 12614-15 | PD |
| Stage 6 | | | | | | |
| Plug Setting Depth | 1st Cluster | 2nd Cluster | 3rd Cluster | 4th Cluster | 5th Cluster | Perf Method |
| 12584 | 12549-50 | 12514-15 | 12479-80 | 12444-45 | 12409-10 | PD |
| Stage 7 | | | | | | |
| Plug Setting Depth | 1st Cluster | 2nd Cluster | 3rd Cluster | 4th Cluster | 5th Cluster | Perf Method |
| 12379 | 12344-45 | 12309-10 | 12274-75 | 12239-40 | 12204-05 | PD |
| Stage 8 | | | | | | |
| Plug Setting Depth | 1st Cluster | 2nd Cluster | 3rd Cluster | 4th Cluster | 5th Cluster | Perf Method |
| 12174 | 12139-40 | 12104-05 | 12069-70 | 12034-35 | 11999-12000 | PD |
| Stage 9 | | | | | | |
| Plug Setting Depth | 1st Cluster | 2nd Cluster | 3rd Cluster | 4th Cluster | 5th Cluster | Perf Method |
| 11969 | 11934-35 | 11899-900 | 11864-65 | 11829-30 | 11794-95 | PD |
| Stage 10 | | | | | | |
| Plug Setting Depth | 1st Cluster | 2nd Cluster | 3rd Cluster | 4th Cluster | 5th Cluster | Perf Method |
| 11764 | 11729-30 | 11694-95 | 11659-60 | 11624-25 | 11589-90 | PD |
| Stage 11 | | | | | | |
| Plug Setting Depth | 1st Cluster | 2nd Cluster | 3rd Cluster | 4th Cluster | 5th Cluster | Perf Method |
| 11559 | 11524-25 | 11489-90 | 11454-55 | 11419-20 | 11384-85 | PD |
| Stage 12 | | | | | | |
| Plug Setting Depth | 1st Cluster | 2nd Cluster | 3rd Cluster | 4th Cluster | 5th Cluster | Perf Method |
| 11354 | 11319-20 | 11284-85 | 11249-50 | 11214-15 | 11179-80 | PD |

Received
Office of Oil & Gas
JUL 05 2016

Long 409S 5H

| Stage 13 | | | | | | |
|--------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Plug Setting Depth | 1st Cluster | 2nd Cluster | 3rd Cluster | 4th Cluster | 5th Cluster | Perf Method |
| 11149 | 11114-15 | 11079-80 | 11044-45 | 11009-10 | 10974-75 | PD |
| Stage 14 | | | | | | |
| Plug Setting Depth | 1st Cluster | 2nd Cluster | 3rd Cluster | 4th Cluster | 5th Cluster | Perf Method |
| 10669 | 10629-30 | 10589-90 | 10549-50 | 10509-10 | 10469-70 | PD |
| Stage 15 | | | | | | |
| Plug Setting Depth | 1st Cluster | 2nd Cluster | 3rd Cluster | 4th Cluster | 5th Cluster | Perf Method |
| 10439 | 10399-400 | 10359-60 | 10319-20 | 10279-80 | 10239-40 | PD |
| Stage 16 | | | | | | |
| Plug Setting Depth | 1st Cluster | 2nd Cluster | 3rd Cluster | 4th Cluster | 5th Cluster | Perf Method |
| 10209 | 10169-70 | 10129-30 | 10089-90 | 10049-50 | 10009-10 | PD |
| Stage 17 | | | | | | |
| Plug Setting Depth | 1st Cluster | 2nd Cluster | 3rd Cluster | 4th Cluster | 5th Cluster | Perf Method |
| 9979 | 9939-40 | 9899-900 | mis-fire | 9819-20 | 9779-80 | PD |
| Stage 18 | | | | | | |
| Plug Setting Depth | 1st Cluster | 2nd Cluster | 3rd Cluster | 4th Cluster | 5th Cluster | Perf Method |
| 9749 | 9709-10 | 9669-70 | 9629-30 | 9589-90 | 9549-50 | PD |
| Stage 19 | | | | | | |
| Plug Setting Depth | 1st Cluster | 2nd Cluster | 3rd Cluster | 4th Cluster | 5th Cluster | Perf Method |
| 9519 | 9479-80 | 9439-40 | 9399-400 | 9359-60 | 9319-20 | PD |
| Stage 20 | | | | | | |
| Plug Setting Depth | 1st Cluster | 2nd Cluster | 3rd Cluster | 4th Cluster | 5th Cluster | Perf Method |
| 9289 | 9249-50 | 9209-10 | 9169-70 | 9129-30 | 9089-90 | PD |
| Stage 21 | | | | | | |
| Plug Setting Depth | 1st Cluster | 2nd Cluster | 3rd Cluster | 4th Cluster | 5th Cluster | Perf Method |
| 9059 | 9019-20 | 8979-80 | 8939-40 | 8899-900 | 8859-60 | PD |
| Stage 22 | | | | | | |
| Plug Setting Depth | 1st Cluster | 2nd Cluster | 3rd Cluster | 4th Cluster | 5th Cluster | Perf Method |
| 8829 | 8789-90 | 8749-50 | 8709-10 | 8669-70 | 8629-30 | PD |
| Stage 23 | | | | | | |
| Plug Setting Depth | 1st Cluster | 2nd Cluster | 3rd Cluster | 4th Cluster | 5th Cluster | Perf Method |
| 8599 | 8559-60 | 8519-20 | 8479-80 | 8439-40 | 8399-8400 | PD |
| Stage 24 | | | | | | |
| Plug Setting Depth | 1st Cluster | 2nd Cluster | 3rd Cluster | 4th Cluster | 5th Cluster | Perf Method |
| 8369 | 8329-30 | 8289-90 | 8249-50 | 8209-10 | 8169-70 | PD |
| Stage 25 | | | | | | |
| Plug Setting Depth | 1st Cluster | 2nd Cluster | 3rd Cluster | 4th Cluster | 5th Cluster | Perf Method |
| 8139 | 8099-100 | 8059-60 | 8019-20 | 7979-80 | 7939-40 | PD |
| Stage 26 | | | | | | |
| Plug Setting Depth | 1st Cluster | 2nd Cluster | 3rd Cluster | 4th Cluster | 5th Cluster | Perf Method |
| 7909 | 7869-70 | 7829-30 | 7789-90 | 7749-50 | 7709-10 | PD |

Received
Office of Oil & Gas
JUL 05 2016

(BOTTOM HOLE: 80°39'17.7")

LON: -80°40'32.4"

2538'

LAT: 39°37'30"

1 - Well ties and Latitude and Longitude were measured by GPS (Real-time Mapping mode). Bearings are referenced to UTM Grid North (Zone 17 North - NAD 1983).

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

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

SURVEY NOTES

UTM Coordinates (Zone 17N-NAD 1983)

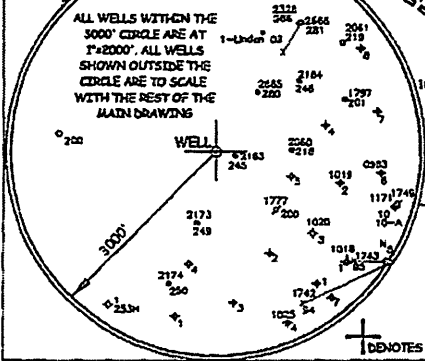
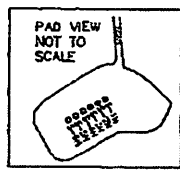
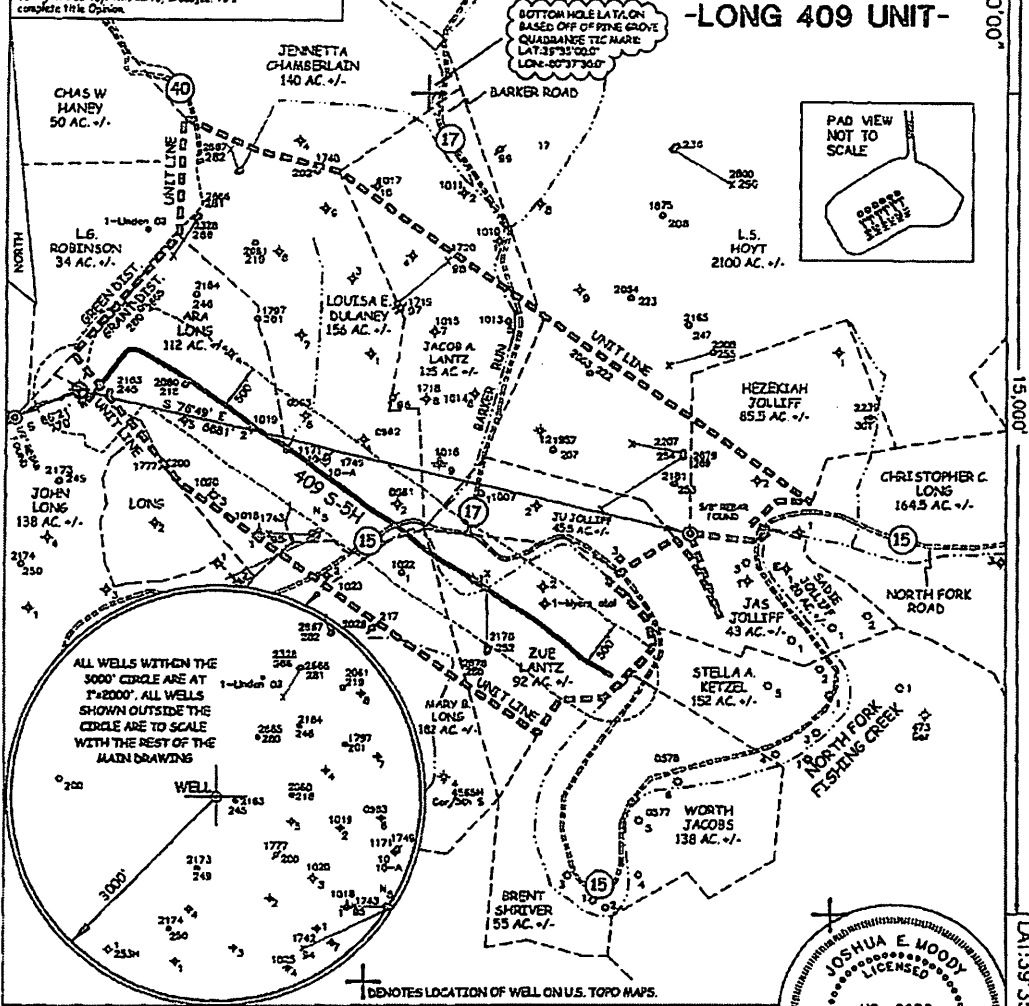
Surface N=4,381,628m.
E=527,867m.

Bottom Hole N=4,380,672m.
E=529,655m.

LOCATION REFERENCES

NAD 1983
N 82°23' W 272' UTILITY POLE
N 43°40' E 207' SPICE

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



⊕ DENOTES LOCATION OF WELL ON U.S. TOPO MAPS.

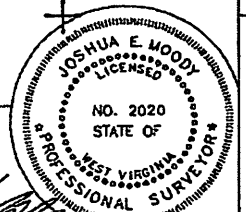
JOB # 12-025
DRAWING # 12HG409FOLDER
SCALE 1" = 1500'
MINIMUM DEGREE OF ACCURACY SUB-METER
PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

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



JOSHUA E. MOODY, P.S. 2020
DATE 12/08/14
OPERATOR'S WELL # 409 S-5H

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 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= 7,354.88' MD= 13,575'
 WELL OPERATOR H.G. ENERGY, LLC DESIGNATED AGENT DIANE WHITE
 ADDRESS 5280 DuPONT ROAD ADDRESS 5260 DuPONT ROAD
 PARKERSBURG, WV 26101 PARKERSBURG, WV 26101

FORM WW-6

LEASE # 31950-50

Received
Office of Oil & Gas

JUL 05 2016

LON: 80°40'00" LAT: 39°35'01.8" (BOTTOM HOLE: 39°34'30.6")

(BOTTOM HOLE: 80°39'17.7")

LON: -80°40'32.4"

2538'

LAT: 39°37'30"

LON: 80°40'00"

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 adjoiners 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)

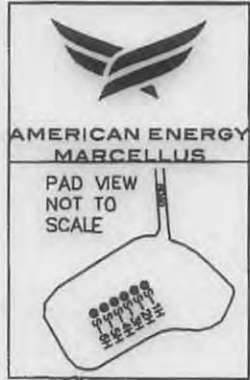
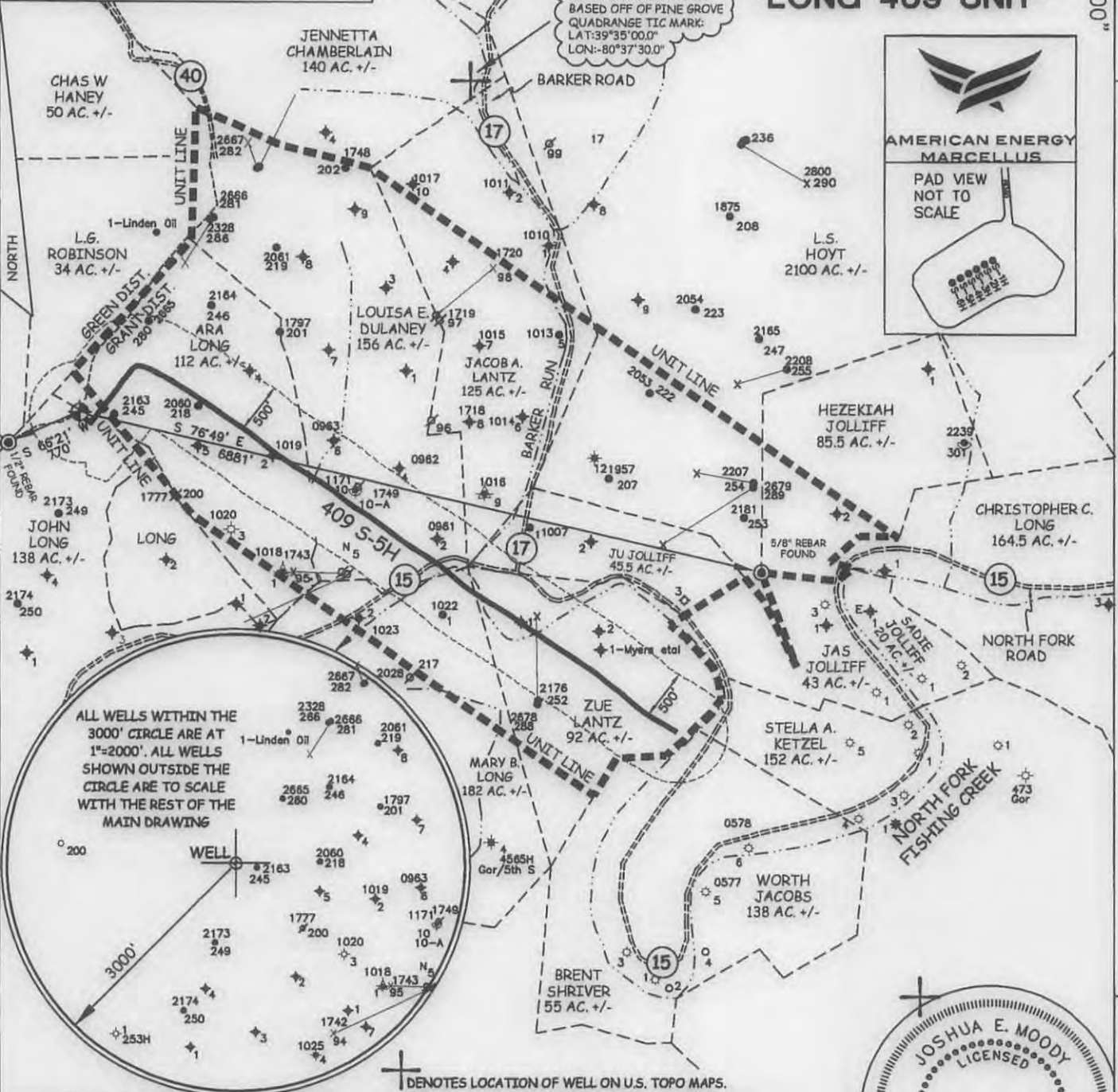
Surface N-4,381,628m.
E-527,867m.

Bottom Hole N-4,380,672m.
E-529,655m.

LOCATION REFERENCES

NAD 1983
N 82°29' W 272' UTILITY POLE
N 45°40' E 207' SPIKE

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



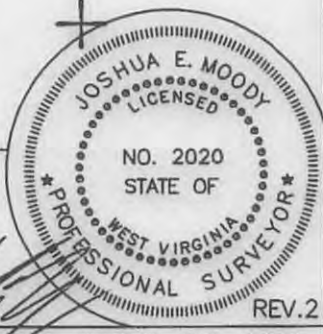
JOB # 12-025
DRAWING # 12HG409FOLDER
SCALE 1" = 1500'
MINIMUM DEGREE OF ACCURACY SUB-METER
PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

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



WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION OFFICE OF OIL AND GAS

REV.2
JOSHUA E. MOODY, P.S. 2020
DATE 12/08/14
OPERATOR'S WELL # 409 S-5H

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 ESTIMATED DEPTH TVD= 7,354.88' MD= 13,575'
WELL OPERATOR AMERICAN ENERGY-MARCELLUS DESIGNATED AGENT BRANDON MCKINLEY
ADDRESS 3501 NW 63rd STREET ADDRESS 3501 NW 63rd STREET
OKLAHOMA CITY, OK 73116 OKLAHOMA CITY, OK 73116

LAT: 39°35'01.8" (BOTTOM HOLE: 39°34'30.6")

