

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

API 47 - 103 - 02878 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 1HA
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 4381637 Easting 527883
Landing Point of Curve Northing 4382309.6 Easting 428642.3
Bottom Hole Northing 4381273 Easting 530172

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 6/28/2013 Date drilling ceased 10/16/2013
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 _____
Is coal being mined in area (Y/N) N

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Reviewed by: _____
50 JUL 05 2016

APPROVED

NAME: Opakei Ihanta
DATE: 7/5/16

07/08/2016

API 47-103 - 02878

Farm name Francis D & Freeda M Brown (Surface Hole) Well number 409 S 1HA

| 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" | 1302' | New | J-55/54.5 | n/a | Cement to surface |
| Coal | | | | | | | |
| Intermediate 1 | 12-1/4" | 9-5/8" | 3388' | New | J-55/40 | n/a | Cement to surface |
| Intermediate 2 | | | | | | | |
| Intermediate 3 | | | | | | | |
| Production | 8-1/2" | 5-1/2" | 14810' | 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 | 385 lead/785 tail | 15.6 | 1.18 | 1433 | Surface | 12 |
| Coal | | | | | | | |
| Intermediate 1 | Type 1 | 368 lead/693 tail | 15.0 | 1.29 | 1367 | Surface | 12 |
| Intermediate 2 | | | | | | | |
| Intermediate 3 | | | | | | | |
| Production | Type 1 | 1690 lead/1122 tail | 14.3/14.7 | 1.23/1.5 | 3752 | Surface | 12 |
| Tubing | | | | | | | |

Drillers TD (ft) 14858'

Loggers TD (ft) 14858'

Deepest formation penetrated Marcellus

Plug back to (ft) n/a

Plug back procedure n/a

Kick off depth (ft) 3500'

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 105 (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 _____

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PERFORATION RECORD

| Stage No. | Perforation date | Perforated from MD ft. | Perforated to MD ft. | Number of Perforations | Formation(s) |
|-----------|------------------|------------------------|----------------------|------------------------|--------------|
| 1 | 5/15/2014 | 14719 | | | Marcellus |
| 2 | 5/17/2014 | 14489 | 14650 | 50 | Marcellus |
| 3 | 5/19/2014 | 14284 | 14425 | 50 | Marcellus |
| 4 | 5/20/2014 | 14079 | 14220 | 50 | Marcellus |
| 5 | 5/21/2014 | 13874 | 14015 | 50 | Marcellus |
| 6 | 5/22/2014 | 13669 | 13810 | 50 | Marcellus |
| 7 | 5/23/2014 | 13464 | 13605 | 50 | Marcellus |
| 8 | 5/27/2014 | 13259 | 13400 | 50 | Marcellus |
| 9 | 5/28/2014 | 13054 | 13195 | 50 | Marcellus |
| 10 | 5/29/2014 | 12849 | 12990 | 50 | Marcellus |
| 11 | 5/30/2014 | 12644 | 12785 | 50 | Marcellus |
| 12 | 5/31/2014 | 12439 | 12980 | 50 | Marcellus |
| 13 | 6/4/2014 | 12234 | 12375 | 50 | Marcellus |
| 14 | 6/5/2014 | 12029 | 12170 | 50 | Marcellus |
| 15 | 6/6/2014 | 11824 | 11965 | 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 | 5/15/14 | 76.9 | 7735 | n/a | 4296 | 215700 | 6090 | n/a |
| 2 | 5/17/14 | 79.8 | 7880 | 5840 | 5079 | 355600 | 7584 | n/a |
| 3 | 5/19/14 | 78.9 | 7463 | 5602 | 4717 | 354400 | 7659 | n/a |
| 4 | 5/20/14 | 87.6 | 8259 | 5448 | 4453 | 355600 | 7133 | n/a |
| 5 | 5/21/14 | 83 | 8059 | 5480 | 4540 | 355600 | 6978 | n/a |
| 6 | 5/22/14 | 80.1 | 7771 | 5803 | 4438 | 347100 | 7438 | n/a |
| 7 | 5/23/14 | 80.2 | 7718 | 6086 | 4532 | 355600 | 7351 | n/a |
| 8 | 5/27/14 | 78 | 7874 | 6068 | 4567 | 355600 | 7449 | n/a |
| 9 | 5/28/14 | 76.5 | 7641 | 7641 | 4117 | 355600 | 7540 | n/a |
| 10 | 5/29/14 | 81.4 | 7793 | 5491 | 4082 | 355600 | 7564 | n/a |
| 11 | 5/30/14 | 78.7 | 7633 | 5479 | 4374 | 355600 | 7402 | n/a |
| 12 | 5/31/14 | 80.1 | 7681 | 5439 | 4264 | 355600 | 7842 | n/a |
| 13 | 6/4/14 | 78.4 | 7665 | 6250 | 4530 | 355600 | 8022 | n/a |
| 14 | 6/5/14 | 77.5 | 7757 | 5631 | 4537 | 355600 | 7445 | n/a |
| 15 | 6/6/14 | 79.2 | 7526 | 5475 | 4704 | 355600 | 7333 | n/a |
| | Con't | on | Page | 4 | | | | |

Please insert additional pages as applicable.

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API 47- 103 - 02878 Farm name Francis D & Freeda M Brown (Surface Hole) Well number 409S 1HA

PERFORATION RECORD

| Stage No. | Perforation date | Perforated from MD ft. | Perforated to MD ft. | Number of Perforations | Formation(s) |
|-----------|------------------|------------------------|----------------------|------------------------|--------------|
| 16 | 6/7/14 | 11619 | 11760 | 50 | Marcellus |
| 17 | 6/9/14 | 11389 | 11550 | 50 | Marcellus |
| 18 | 6/10/14 | 11159 | 11320 | 50 | Marcellus |
| 19 | 6/11/14 | 10929 | 11090 | 50 | Marcellus |
| 20 | 6/12/14 | 10699 | 10860 | 50 | Marcellus |
| 21 | 6/13/14 | 10469 | 10630 | 50 | Marcellus |
| 22 | 6/16/14 | 10239 | 10400 | 50 | Marcellus |
| 23 | 6/17/14 | 10009 | 10170 | 50 | Marcellus |
| 24 | 6/18/14 | 9779 | 9940 | 50 | Marcellus |
| 25 | 6/19/14 | 9549 | 9710 | 50 | Marcellus |
| 26 | 6/20/14 | 9319 | 9480 | 50 | Marcellus |
| 27 | 6/23/14 | 9089 | 9250 | 50 | Marcellus |
| 28 | 6/24/14 | 8859 | 9020 | 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 | 6/7/14 | 78.8 | 7603 | 5423 | 4529 | 355600 | 7231 | n/a |
| 17 | 6/9/14 | 74.2 | 7240 | n/a | 5259 | 358500 | 8405 | n/a |
| 18 | 6/10/14 | 76.4 | 7536 | 5453 | n/a | 78700 | 4959 | n/a |
| 19 | 6/11/14 | 78.1 | 6689 | n/a | 4494 | 358500 | 6889 | n/a |
| 20 | 6/12/14 | 81.4 | 7201 | 6285 | 4532 | 358500 | 7057 | n/a |
| 21 | 6/13/14 | 80.5 | 6803 | 5783 | 4878 | 358500 | 7200 | n/a |
| 22 | 6/16/14 | 81.2 | 6758 | 5586 | 4356 | 358500 | 7297 | n/a |
| 23 | 6/17/14 | 77.2 | 7339 | 5410 | 4468 | 358500 | 7506 | n/a |
| 24 | 6/18/14 | 74.5 | 6463 | 5242 | 4601 | 358500 | 7017 | n/a |
| 25 | 6/19/14 | 76.8 | 6665 | 5604 | 4960 | 358500 | 7057 | n/a |
| 26 | 6/20/14 | 73.5 | 6851 | 5518 | 4412 | 280700 | 7987 | n/a |
| 27 | 6/23/14 | 73.3 | 7251 | 5514 | 4407 | 322100 | 7456 | n/a |
| 28 | 6/24/14 | 73.5 | 6572 | 5223 | 4117 | 358500 | 6842 | n/a |
| | | | | | | | | |
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Farm name Francis D & Freeda M Brown (Surface Hole) Well number 409 S 1HA

| PRODUCING FORMATION(S) | DEPTHS |
|------------------------|---------------------|
| Marcellus | 7380' TVD 14858' 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 524 mcfpd Oil 35 bpd NGL _____ bpd Water 47 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 ₂ 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' | 7193' | 3204' | 8444' | |
| Tully Lime | 7193' | 7198' | 8444' | 8454' | |
| Hamilton Shale | 7198' | 7296' | 8454' | 8705' | |
| Marcellus Shale | 7296' | | 8705' | 14858' | |
| | | | | | |
| | | | | | |
| | | | | | |

Please insert additional pages as applicable.

Drilling Contractor Dallas-Morris Drilling
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.

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

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

Long 400 S #111A Trac Summary

| Step | # of Perfs | Test Acid (gal) | Total Volume (bbl) | Test Stand (bbl) | Temp. (F) | Prod. (bbl) | Sp. Meth. (bbl) | 4070 Water (bbl) | 4070 Recs (bbl) | 3070 White (bbl) | 1870 Recs (bbl) | 3070 White (bbl) | 3070 Recs (bbl) | 3070 White (bbl) | 3070 Recs (bbl) | BDP (ppm) | HPF (ppm) | 1 Min SIP (bbl) | 3 Min SIP (bbl) | 1 Min SIP (ppm) | 3 Min SIP (ppm) | ATP (ppm) | Avg Rate (bbl/min) | PUMP Down (bbl) | Forecasted Water (bbl) |
|-------------|------------|-----------------|--------------------|------------------|-----------|-------------|-----------------|------------------|-----------------|------------------|-----------------|------------------|-----------------|------------------|-----------------|-----------|-----------|-----------------|-----------------|-----------------|-----------------|-----------|--------------------|-----------------|------------------------|
| 1 | 50 | 1500 | 6000 | 2157 | 6276 | 773 | 503 | 1657 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | N/A | 4208 | 3849 | 3655 | 3422 | 7135 | 70.0 | 0 | 0 | |
| 2 | 50 | 1500 | 7594 | 3556 | 7606 | 676 | 622 | 2507 | 551 | 0 | 0 | 0 | 0 | 0 | 0 | 59.40 | 5079 | 4899 | 4282 | 3037 | 7800 | 70.0 | 441 | 0 | |
| 3 | 50 | 1500 | 7659 | 3544 | 7404 | 724 | 480 | 2503 | 551 | 0 | 0 | 0 | 0 | 0 | 0 | 56.02 | 4717 | 4276 | 4093 | 3749 | 7493 | 70.8 | 389 | 0 | |
| 4 | 50 | 1500 | 7133 | 3556 | 7458 | 702 | 502 | 2503 | 551 | 0 | 0 | 0 | 0 | 0 | 0 | 54.48 | 4433 | 4200 | 4033 | 3770 | 6259 | 87.6 | 370 | 710 | |
| 5 | 50 | 1500 | 6978 | 3556 | 7280 | 776 | 502 | 2503 | 551 | 0 | 0 | 0 | 0 | 0 | 0 | 54.00 | 4540 | 4194 | 4021 | 3769 | 6059 | 83 | 319 | 870 | |
| 6 | 50 | 1500 | 7439 | 3471 | 7776 | 607 | 217 | 2703 | 551 | 0 | 0 | 0 | 0 | 0 | 0 | 54.03 | 4438 | 4315 | 3945 | 3637 | 7771 | 80.1 | 338 | 1040 | |
| 7 | 50 | 1500 | 7351 | 3556 | 7712 | 602 | 502 | 2503 | 551 | 0 | 0 | 0 | 0 | 0 | 0 | 60.06 | 4532 | 4294 | 4127 | 3843 | 7716 | 80.2 | 287 | 1930 | |
| 8 | 50 | 1500 | 7449 | 3556 | 7832 | 602 | 502 | 2503 | 551 | 0 | 0 | 0 | 0 | 0 | 0 | 60.60 | 4527 | 4260 | 4061 | 3783 | 7874 | 70 | 273 | 1290 | |
| 9 | 60 | 1500 | 7540 | 3556 | 7655 | 846 | 622 | 2503 | 551 | 0 | 0 | 0 | 0 | 0 | 0 | 76.41 | 4117 | 3883 | 3709 | 3824 | 7841 | 70.5 | 390 | 2720 | |
| 10 | 50 | 1500 | 7564 | 3556 | 7640 | 607 | 502 | 2503 | 551 | 0 | 0 | 0 | 0 | 0 | 0 | 54.81 | 4082 | 4034 | 3897 | 3715 | 7703 | 81.4 | 262 | 2090 | |
| 11 | 50 | 1500 | 7402 | 3556 | 7647 | 821 | 522 | 2503 | 551 | 0 | 0 | 0 | 0 | 0 | 0 | 54.79 | 4374 | 3925 | 3027 | 3666 | 7633 | 70.7 | 243 | 0 | |
| 12 | 50 | 1500 | 7642 | 3556 | 8116 | 904 | 502 | 2503 | 551 | 0 | 0 | 0 | 0 | 0 | 0 | 54.39 | 4264 | 3945 | 3843 | 3891 | 7801 | 80.1 | 224 | 2500 | |
| 13 | 50 | 1500 | 8022 | 3556 | 8316 | 822 | 502 | 2503 | 551 | 0 | 0 | 0 | 0 | 0 | 0 | 82.90 | 4530 | 4147 | 4006 | 3816 | 7665 | 79.4 | 211 | 1500 | |
| 14 | 50 | 1500 | 7445 | 3556 | 7769 | 869 | 502 | 2503 | 551 | 0 | 0 | 0 | 0 | 0 | 0 | 66.31 | 4537 | 4093 | 3960 | 3759 | 7757 | 77.5 | 201 | 1800 | |
| 15 | 50 | 1500 | 7333 | 3556 | 7667 | 833 | 502 | 2503 | 551 | 0 | 0 | 0 | 0 | 0 | 0 | 54.75 | 4708 | 4355 | 4176 | 3937 | 7536 | 70.2 | 107 | 1540 | |
| 16 | 50 | 1500 | 7231 | 3556 | 7540 | 667 | 502 | 2503 | 551 | 0 | 0 | 0 | 0 | 0 | 0 | 54.23 | 4520 | 4286 | 4104 | 3845 | 7603 | 70.8 | 170 | 1070 | |
| 17 | 50 | 1500 | 8405 | 3585 | 8639 | 1235 | 106 | 2874 | 415 | 0 | 0 | 0 | 0 | 0 | 0 | N/A | 5259 | 4908 | 4665 | 4282 | 7240 | 74.2 | 166 | 0 | |
| 18 | 50 | 1500 | 4959 | 787 | 4922 | 640 | 502 | 265 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 54.53 | 0 | 0 | 0 | 0 | 7536 | 74.4 | 159 | 953 | |
| 19 | 50 | 1500 | 6889 | 3585 | 7744 | 862 | 502 | 2668 | 415 | 0 | 0 | 0 | 0 | 0 | 0 | N/A | 4464 | 4132 | 3960 | 3805 | 6609 | 70.1 | 170 | 0 | |
| 20 | 50 | 1500 | 7057 | 3585 | 7281 | 894 | 502 | 2888 | 415 | 0 | 0 | 0 | 0 | 0 | 0 | 62.85 | 4522 | 4232 | 4030 | 3710 | 7201 | 81.4 | 135 | 0 | |
| 21 | 50 | 1500 | 7200 | 3585 | 7431 | 898 | 502 | 2008 | 415 | 0 | 0 | 0 | 0 | 0 | 0 | 57.83 | 4078 | 4307 | 4097 | 3772 | 6803 | 89.5 | 171 | 0 | |
| 22 | 50 | 1500 | 7287 | 3585 | 7261 | 993 | 502 | 2800 | 415 | 0 | 0 | 0 | 0 | 0 | 0 | 56.88 | 4356 | 4070 | 3904 | 3631 | 6759 | 81.2 | 120 | 0 | |
| 23 | 50 | 1500 | 7866 | 3585 | 7946 | 098 | 502 | 2888 | 415 | 0 | 0 | 0 | 0 | 0 | 0 | 54.10 | 4468 | 4103 | 3937 | 3707 | 7339 | 77.2 | 106 | 0 | |
| 24 | 50 | 1500 | 7017 | 3585 | 7305 | 920 | 502 | 2668 | 415 | 0 | 0 | 0 | 0 | 0 | 0 | 52.42 | 4601 | 4215 | 4035 | 3860 | 6463 | 74.5 | 131 | 0 | |
| 25 | 50 | 1500 | 7057 | 3585 | 7354 | 915 | 502 | 2658 | 415 | 0 | 0 | 0 | 0 | 0 | 0 | 56.04 | 4890 | 4517 | 4247 | 3818 | 6685 | 76.8 | 83 | 0 | |
| 26 | 50 | 1500 | 7897 | 2907 | 8688 | 911 | 502 | 2305 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65.18 | 4412 | 4026 | 3848 | 3807 | 6891 | 73.5 | 76 | 1785 | |
| 27 | 50 | 1500 | 7456 | 3221 | 6953 | 888 | 418 | 2668 | 135 | 0 | 0 | 0 | 0 | 0 | 0 | 55.14 | 4407 | 3911 | 3700 | 3450 | 7251 | 73.3 | 69 | 0 | |
| 28 | 50 | 1500 | 6842 | 3565 | 7401 | 921 | 502 | 2668 | 415 | 0 | 0 | 0 | 0 | 0 | 0 | 52.23 | 4117 | 3669 | 3767 | 3373 | 6572 | 73.6 | 52 | 1730 | |
| TOTAL / AVG | 1460 | 42080 | 203733 | 94680 | 212424 | 23923 | 12187 | 60378 | 12135 | 0 | 0 | 0 | 0 | 0 | 0 | 8788.31 | 4385.8214 | 4019.921 | 3854.788 | 3808.5 | 7408.071 | 78.421 | 6570 | 23885 | |

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Long 409S 1HA Perforating Detail

Perforating Detail

| Stage | 1st Cluster | 2nd Cluster | 3rd Cluster | 4th Cluster | 5th Cluster | Perf Method |
|--------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Stage 1 | | | | | | |
| Plug Setting Depth | 1st Cluster | 2nd Cluster | 3rd Cluster | 4th Cluster | 5th Cluster | Perf Method |
| 14719 | N/A | N/A | N/A | N/A | N/A | PD |
| Stage 2 | | | | | | |
| Plug Setting Depth | 1st Cluster | 2nd Cluster | 3rd Cluster | 4th Cluster | 5th Cluster | Perf Method |
| 14689 | 14649-50 | 14609-10 | 14569-70 | 14529-30 | 14489-90 | PD |
| Stage 3 | | | | | | |
| Plug Setting Depth | 1st Cluster | 2nd Cluster | 3rd Cluster | 4th Cluster | 5th Cluster | Perf Method |
| 14459 | 14424-25 | 14389-90 | 14354-55 | 14319-20 | 14284-85 | PD |
| Stage 4 | | | | | | |
| Plug Setting Depth | 1st Cluster | 2nd Cluster | 3rd Cluster | 4th Cluster | 5th Cluster | Perf Method |
| 14254 | 14219-20 | 14184-85 | 14149-50 | 14114-15 | 14079-80 | PD |
| Stage 5 | | | | | | |
| Plug Setting Depth | 1st Cluster | 2nd Cluster | 3rd Cluster | 4th Cluster | 5th Cluster | Perf Method |
| 14049 | 14014-15 | 13979-80 | 13944-45 | 13909-10 | 13874-75 | PD |
| Stage 6 | | | | | | |
| Plug Setting Depth | 1st Cluster | 2nd Cluster | 3rd Cluster | 4th Cluster | 5th Cluster | Perf Method |
| 13844 | 13809-10 | 13774-75 | 13739-40 | 13704-05 | 13669-70 | PD |
| Stage 7 | | | | | | |
| Plug Setting Depth | 1st Cluster | 2nd Cluster | 3rd Cluster | 4th Cluster | 5th Cluster | Perf Method |
| 13639 | 13604-05 | 13569-70 | 13534-35 | 13499-500 | 13464-65 | PD |
| Stage 8 | | | | | | |
| Plug Setting Depth | 1st Cluster | 2nd Cluster | 3rd Cluster | 4th Cluster | 5th Cluster | Perf Method |
| 13434 | 13399-400 | 13364-65 | 13329-30 | 13294-95 | 13259-60 | PD |
| Stage 9 | | | | | | |
| Plug Setting Depth | 1st Cluster | 2nd Cluster | 3rd Cluster | 4th Cluster | 5th Cluster | Perf Method |
| 13229 | 13194-95 | 13159-60 | 13124-25 | 13089-90 | 13054-55 | PD |
| Stage 10 | | | | | | |
| Plug Setting Depth | 1st Cluster | 2nd Cluster | 3rd Cluster | 4th Cluster | 5th Cluster | Perf Method |
| 13024 | 12989-90 | 12954-55 | 12919-20 | 12884-85 | 12849-50 | PD |
| Stage 11 | | | | | | |
| Plug Setting Depth | 1st Cluster | 2nd Cluster | 3rd Cluster | 4th Cluster | 5th Cluster | Perf Method |
| 12819 | 12784-85 | 12749-50 | 12714-15 | 12679-80 | 12644-45 | PD |
| Stage 12 | | | | | | |
| Plug Setting Depth | 1st Cluster | 2nd Cluster | 3rd Cluster | 4th Cluster | 5th Cluster | Perf Method |
| 12614 | 12579-80 | 12544-45 | 12509-10 | 12474-75 | 12439-40 | PD |

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|--------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Stage 13 | | | | | | |
| Plug Setting Depth | 1st Cluster | 2nd Cluster | 3rd Cluster | 4th Cluster | 5th Cluster | Perf Method |
| 12409 | 12374-75 | 12339-40 | 12304-05 | 12269-70 | 12234-35 | PD |
| Stage 14 | | | | | | |
| Plug Setting Depth | 1st Cluster | 2nd Cluster | 3rd Cluster | 4th Cluster | 5th Cluster | Perf Method |
| 12200 | 12169-70 | 12134-35 | 12099-100 | 12064-65 | 12029-30 | PD |
| Stage 15 | | | | | | |
| Plug Setting Depth | 1st Cluster | 2nd Cluster | 3rd Cluster | 4th Cluster | 5th Cluster | Perf Method |
| 11999 | 11964-65 | 11929-30 | 11894-95 | 11859-60 | 11824-25 | PD |
| Stage 16 | | | | | | |
| Plug Setting Depth | 1st Cluster | 2nd Cluster | 3rd Cluster | 4th Cluster | 5th Cluster | Perf Method |
| 11794 | 11759-60 | 11724-25 | 11689-90 | 11654-55 | 11619-20 | PD |
| Stage 17 | | | | | | |
| Plug Setting Depth | 1st Cluster | 2nd Cluster | 3rd Cluster | 4th Cluster | 5th Cluster | Perf Method |
| 11589 | 11549-50 | 11509-10 | 11469-70 | 11429-30 | 11389-90 | PD |
| Stage 18 | | | | | | |
| Plug Setting Depth | 1st Cluster | 2nd Cluster | 3rd Cluster | 4th Cluster | 5th Cluster | Perf Method |
| 11359 | 11319-20 | 11279-80 | 11239-40 | 11199-200 | 11159-60 | PD |
| Stage 19 | | | | | | |
| Plug Setting Depth | 1st Cluster | 2nd Cluster | 3rd Cluster | 4th Cluster | 5th Cluster | Perf Method |
| 11129 | 11089-90 | 11049-50 | 11009-10 | 10969-70 | 10929-30 | PD |
| Stage 20 | | | | | | |
| Plug Setting Depth | 1st Cluster | 2nd Cluster | 3rd Cluster | 4th Cluster | 5th Cluster | Perf Method |
| 10899 | 10859-60 | 10819-20 | 10779-80 | 10739-40 | 10699-700 | PD |
| Stage 21 | | | | | | |
| 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 22 | | | | | | |
| 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 23 | | | | | | |
| 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 24 | | | | | | |
| Plug Setting Depth | 1st Cluster | 2nd Cluster | 3rd Cluster | 4th Cluster | 5th Cluster | Perf Method |
| 9979 | 9939-40 | 9899-900 | 9859-60 | 9819-20 | 9779-80 | PD |
| Stage 25 | | | | | | |
| 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 |

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Long 4035 1HA

| | | | | | | |
|--------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Stage 26 | | | | | | |
| 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 27 | | | | | | |
| 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 28 | | | | | | |
| 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 |

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(BOTTOM HOLE: 80°38'55.9")

LON: -80°40'31.8" 2487'

LAT: 39°37'30"

- 1 - Well logs and logs and logs were measured by GPS (Subsequent to Mapping Grid). Elevation is referenced to UTM Grid datum (Zone 17 North - NAD 1983).
- 2 - Surface markers and adjacent features are shown from the Wetzel County Assessor's records.
- 3 - No Title Opinion was provided to the Surveyor during the survey. This survey is subject to a complete title opinion.

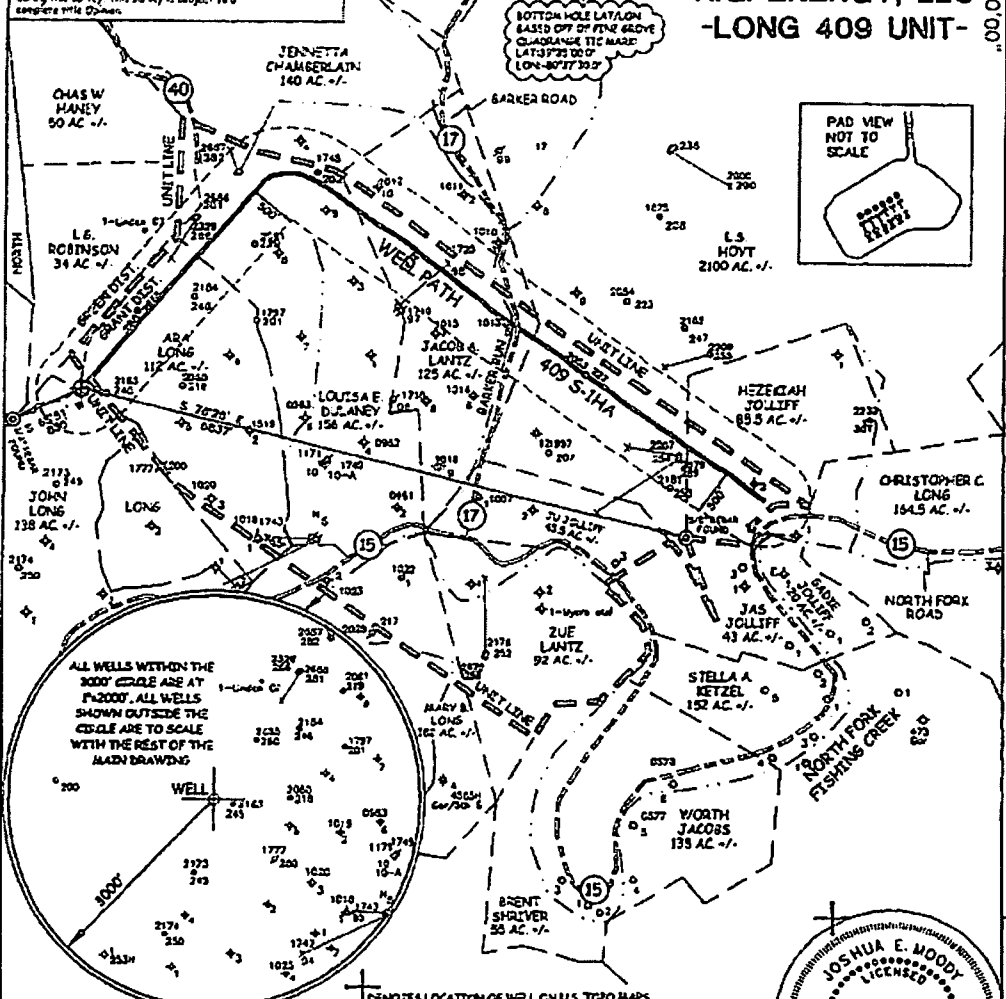
UTM Coordinates
(Zone 17N-NAD 1983)

Surface N=4,381,637m.
E=527,883m.

Bottom Hole N=4,381,271m.
E=530,171m.

LOCATION REFERENCES
ROAD 1983
N 77°16' WEST UTILITY POLE
1.4975' E 252' SPIKE

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

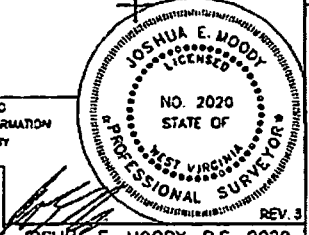


JOB # 12-025
DRAWING # 12H0409FOLDER
SCALE 1" = 1500'
MINIMUM DEGREE OF ACCURACY SUB-METER
PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAN 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

JOSHUA E. MOODY, P.S. 2020
DATE 12/08/14
OPERATOR'S WELL # 409 S-11A

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= 7,380.69' MD= 14,858'
 WELL OPERATOR H.G. ENERGY, LLC DESIGNATED AGENT DIANE WHITE
 ADDRESS 5260 DuPONT ROAD ADDRESS 5260 DuPONT ROAD
 PARKERSBURG, WV 26101 PARKERSBURG, WV 26101
 LEASE # 31950

FORM WV-6

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Office of Oil & Gas
JUL 05 2016

07/08/2016

(BOTTOM HOLE: 80°38'55.9")

LON: -80°40'31.8"

2487'

LAT: 39°37'30"

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 1983).

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)

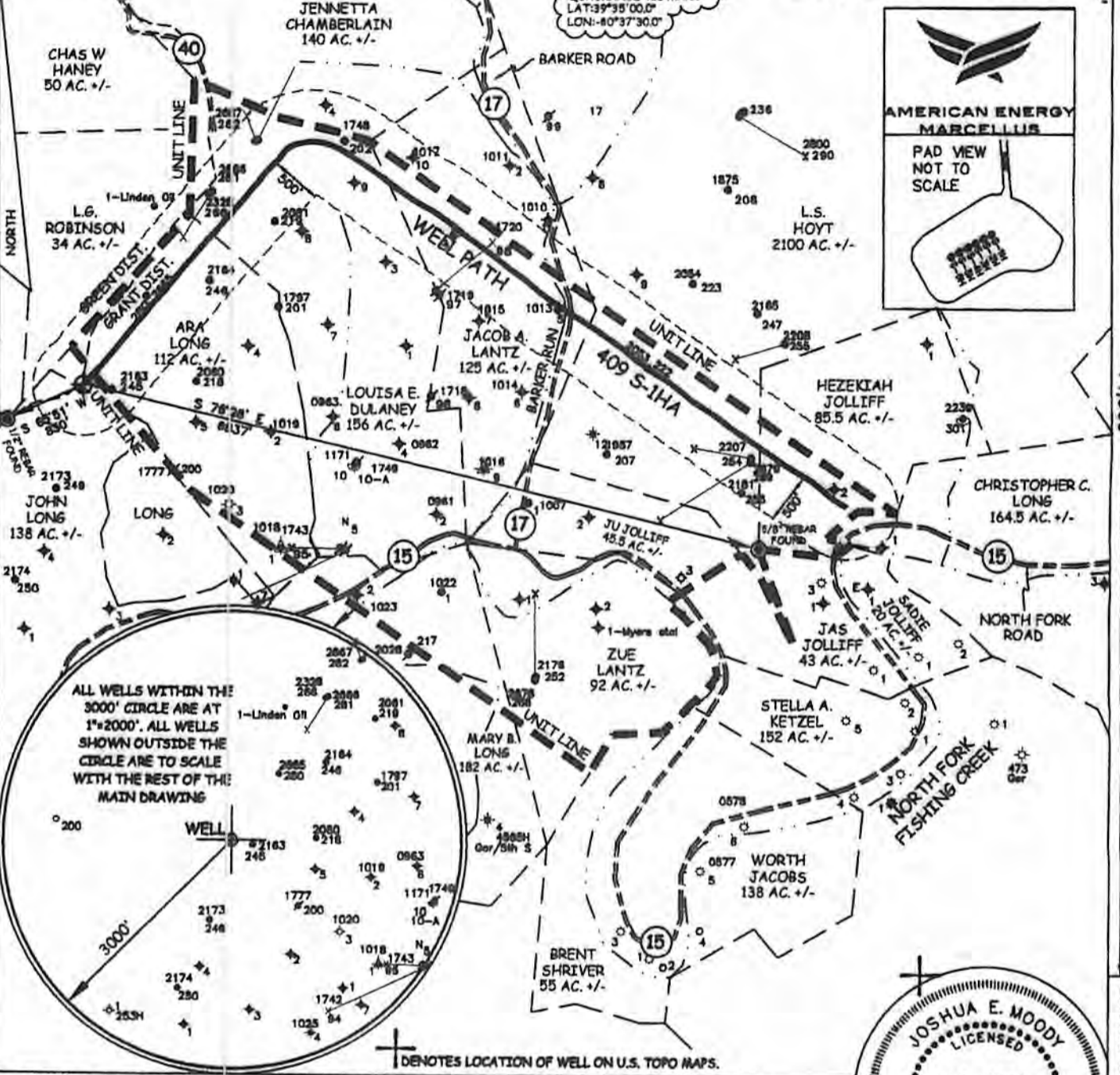
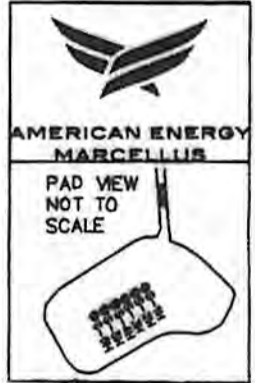
LOCATION REFERENCES

NAD 1983
N 73°18' W 227' UTILITY POLE
N 48°57' E 265' SPIKE

Surface N-4,381,637m.
E-527,883m.
Bottom Hole N-4,381,271m.
E-530,171m.

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

LON: 80°40'00"



ALL WELLS WITHIN THE 3000' CIRCLE ARE AT 1"=2000'. ALL WELLS SHOWN OUTSIDE THE CIRCLE ARE TO SCALE WITH THE REST OF THE MAIN DRAWING

+ 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



WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION OFFICE OF OIL AND GAS

JOSHUA E. MOODY, P.S. 2020
DATE 12/08/14
OPERATOR'S WELL # 409 S-1HA

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 # 47-103-02878H6A
DISTRICT GRANT COUNTY WETZEL STATE 47 COUNTY 103 PERMIT 02878H6A
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 ESTIMATED DEPTH TVD= 7,380.69' MD= 14,858'
ADDRESS 3501 NW 63rd STREET DESIGNATED AGENT BRANDON MCKINLEY
OKLAHOMA CITY, OK 73116 ADDRESS 3501 NW 63rd STREET
OKLAHOMA CITY, OK 73116

07/08/2016

LAT: 39°35'02.1" (BOTTOM HOLE: 39°34'50.0")