

*Reviewed*

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

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Office of Oil and Gas

JUN 9 2017

WV Department of  
Environmental Protection

API 47-017-06771 County Doddridge District Southwest  
Quad Oxford Pad Name OXF160 Field/Pool Name N/A  
Farm name Ronald Hart and Jeffery Hart Well Number 513702  
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 4,336,941.20 Easting 517,358.30  
Landing Point of Curve Northing 4,336,792.14 Easting 517,262.47  
Bottom Hole Northing 4,335,603.56 Easting 517,591.59

Elevation (ft) 1220 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 12.5 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 6/15/2016 Date drilling commenced 10/2/2016 Date drilling ceased 12/9/2016  
Date completion activities began 3/3/2017 Date completion activities ceased 3/11/2017  
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

Freshwater depth(s) ft 31',215',262',358',578' Open mine(s) (Y/N) depths N  
Salt water depth(s) ft N/A Void(s) encountered (Y/N) depths N  
Coal depth(s) ft N/A Cavern(s) encountered (Y/N) depths N  
Is coal being mined in area (Y/N) N

Reviewed by: \_\_\_\_\_

API 47-017 - 06771

Farm name Ronald Hart and Jeffery Hart

Well number 513702

| CASING STRINGS            | Hole Size    | Casing Size | Depth  | New or Used | Grade wt/ft     | Basket Depth(s) | Did cement circulate (Y/N)<br>* Provide details below* |
|---------------------------|--------------|-------------|--------|-------------|-----------------|-----------------|--|
| Conductor                 | 24"          | 20"         | 93'    | NEW         | A-500 78.5LB/FT | NONE            | Y  |
| Surface                   | 17.5"        | 13.375"     | 726'   | NEW         | J-55 54.5LB/FT  | 345',682'       | Y  |
| Coal                      |              |             |        |             |                 |                 |  |
| Intermediate 1            | 12.375"      | 9.625"      | 3073'  | NEW         | A-500 40LB/FT   | NONE            | Y  |
| Intermediate 2            |              |             |        |             |                 |                 |  |
| Intermediate 3            |              |             |        |             |                 |                 |  |
| Production                | 8.75" / 8.5" | 5.5"        | 11150' | NEW         | P-110 20LB/FT   | NONE            | N  |
| 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      | CLASS A              | 77              | 15.6            | 1.18                         | 90.86                     | 0               | 8+        |
| Surface        | CLASS A              | 625             | 15.6            | 1.20                         | 750                       | 0               | 8         |
| Coal           |                      |                 |                 |                              |                           |                 |           |
| Intermediate 1 | Class A / Class A    | 225 / 851       | 15.6 / 15.6     | 1.18 / 1.20                  | 1286.7                    | 0               | 8         |
| Intermediate 2 |                      |                 |                 |                              |                           |                 |           |
| Intermediate 3 |                      |                 |                 |                              |                           |                 |           |
| Production     | CLASS A / CLASS H    | 507 / 597       | 15.2 / 15.6     | 1.12 / 1.85                  | 1672.3                    | 4600            | 72+       |
| Tubing         |                      |                 |                 |                              |                           |                 |           |

Drillers TD (ft) 11158'

Loggers TD (ft) N/A

Deepest formation penetrated MARCELLUS

Plug back to (ft) N/A

Plug back procedure N/A

Kick off depth (ft) 5271'

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- RAN AT LEAST EVERY 500' FEET

INTERMEDIATE- RAN AT LEAST EVERY 500' FEET

PRODUCTION- COMPOSITE BODY CENTRALIZERS RAN EVERY JOINT FROM SHOE TO KOP

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 \_\_\_\_\_



API 47- 017 - 06771 Farm name Ronald Hart and Jeffery Hart Well number 513702

| PRODUCING FORMATION(S) | DEPTHS   |     |             |
|------------------------|----------|-----|-------------|
| MARCELLUS              | 6,604.90 | TVD | 6,913.00 MD |
|                        |          |     |             |
|                        |          |     |             |
|                        |          |     |             |

Please insert additional pages as applicable.

GAS TEST  Build up  Drawdown  Open Flow OIL TEST  Flow  Pump

SHUT-IN PRESSURE Surface 1,950 psi Bottom Hole N/A psi DURATION OF TEST 44 hrs

OPEN FLOW Gas 4,670 mcfpd Oil N/A bpd NGL 23 bpd Water 781 bpd  
GAS MEASURED BY  Estimated  Orifice  Pilot

| LITHOLOGY/<br>FORMATION | TOP                     | BOTTOM             | TOP               | BOTTOM            | DESCRIBE ROCK TYPE AND RECORD QUANTITY AND<br>TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H <sub>2</sub> S, ETC) |
|-------------------------|-------------------------|--------------------|-------------------|-------------------|--|
|                         | DEPTH IN FT<br>NAME TVD | DEPTH IN FT<br>TVD | DEPTH IN FT<br>MD | DEPTH IN FT<br>MD |  |
|                         | 0                       |                    | 0                 |                   |  |
|                         |                         |                    |                   |                   |  |
|                         |                         |                    |                   |                   |  |
|                         |                         |                    |                   |                   |  |
|                         |                         |                    |                   |                   |  |
|                         |                         |                    |                   |                   |  |
|                         |                         |                    |                   |                   |  |
|                         |                         |                    |                   |                   |  |
|                         |                         |                    |                   |                   |  |
|                         |                         |                    |                   |                   |  |
|                         |                         |                    |                   |                   |  |
|                         |                         |                    |                   |                   |  |
|                         |                         |                    |                   |                   |  |
|                         |                         |                    |                   |                   |  |

Please insert additional pages as applicable.

Drilling Contractor Decker Drilling  
Address 11565 State Route 676 City Vicent State OH Zip 45784

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

Cementing Company Allied Oil & Gas  
Address 1036 E Main St City Bridgeport State WV Zip 26330

Stimulating Company C&J Energy Services  
Address 3990 Rogerdale Road City Houston State TX Zip 77042

Please insert additional pages as applicable.

Completed by Michael Rehl Telephone (412) 553-5815  
Signature [Signature] Title Mgr Completions Date 6/7/2017

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

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API 47- 017 - 06771 Farm name Ronald Hart and Jeffery Hart Well number 513702

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

Logging Company Scientific Drilling  
Address 124 Vista Drive City Charleroi State PA Zip 15022

Logging Company PROFESSIONAL DIRECTIONAL  
Address 750 Conroe Park North Dr. City Conroe State TX Zip 77303

Cementing Company Halliburton Energy Services  
Address 121 Champion Way City Canonsburg State PA Zip 15317

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**Final Formations Well #513702 API # 47-017-06771**

| Formation Name | Final Top MD<br>(ftGL) (ft) | Final Top<br>(TVD) (ft) | Final Btm MD<br>(ftGL) (ft) | Final Btm<br>(TVD) (ft) |
|----------------|-----------------------------|-------------------------|-----------------------------|-------------------------|
| SAND/SHALE     | 1                           | 1                       | 1,740.00                    | 1,735.80                |
| MAXTON         | 1,740.00                    | 1,735.80                | 1,904.00                    | 1,898.00                |
| BIG LIME       | 1,904.00                    | 1,898.00                | 1,958.00                    | 1,951.40                |
| KEENER         | 1,958.00                    | 1,951.40                | 3,270.00                    | 3,257.70                |
| WARREN         | 3,270.00                    | 3,257.70                | 3,320.00                    | 3,307.70                |
| SPEECHLEY      | 3,320.00                    | 3,307.70                | 3,848.00                    | 3,835.70                |
| BALLTOWN A     | 3,848.00                    | 3,835.70                | 4,216.00                    | 4,203.70                |
| BRADFORD       | 4,216.00                    | 4,203.70                | 4,779.00                    | 4,766.50                |
| RILEY          | 4,779.00                    | 4,766.50                | 4,868.00                    | 4,855.40                |
| BENSON         | 4,868.00                    | 4,855.40                | 5,115.00                    | 5,102.30                |
| ALEXANDER      | 5,115.00                    | 5,102.30                | 5,828.00                    | 5,752.50                |
| RHINESTREET    | 5,828.00                    | 5,752.50                | 6,280.00                    | 6,176.60                |
| SONYEA         | 6,280.00                    | 6,176.60                | 6,546.00                    | 6,406.80                |
| MIDDLESEX      | 6,546.00                    | 6,406.80                | 6,627.00                    | 6,464.10                |
| GENESSEE       | 6,627.00                    | 6,464.10                | 6,732.00                    | 6,529.00                |
| GENESE0        | 6,732.00                    | 6,529.00                | 6,823.00                    | 6,572.80                |
| TULLY          | 6,823.00                    | 6,572.80                | 6,874.00                    | 6,592.70                |
| HAMILTON       | 6,874.00                    | 6,592.70                | 6,913.00                    | 6,604.90                |
| MARCELLUS      | 6,913.00                    | 6,604.90                | 11,156.00                   | 6,672.60                |

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**OXF160**  
**WV 513702**  
**EQT PRODUCTION COMPANY**

LATITUDE 39°12'30"  
 LONGITUDE 80°47'30"

**AS DRILLED COORDINATES**  
**(OXF160 H5)**  
**(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)**

|                      |                   |                    |
|----------------------|-------------------|--------------------|
| NAD27 S.P.C. (FT)    | N. 250,860.78     | E. 1,631,718.31    |
| NAD27 GEO.           | LAT-(N) 39.181449 | LONG-(W) 80.799198 |
| NAD83 UTM (M)        | N. 4,336,941.20   | E. 517,358.30      |
| <b>LANDING POINT</b> |                   |                    |
| NAD27 S.P.C. (FT)    | N. 250,378.86     | E. 1,631,395.70    |
| NAD27 GEO.           | LAT-(N) 39.160108 | LONG-(W) 80.800311 |
| NAD83 UTM (M)        | N. 4,336,792.14   | E. 517,282.47      |
| <b>BOTTOM HOLE</b>   |                   |                    |
| NAD27 S.P.C. (FT)    | N. 248,458.40     | E. 1,632,410.64    |
| NAD27 GEO.           | LAT-(N) 39.169391 | LONG-(W) 80.796531 |
| NAD83 UTM (M)        | N. 4,335,603.56   | E. 517,591.59      |

**NOTES ON SURVEY**

1. NO WATER WELLS WERE FOUND WITHIN 250' OF PROPOSED GAS WELL. NO AGRICULTURAL BUILDINGS.
2. 2500 SQ. FT. OR DWELLINGS WERE FOUND WITHIN 625' OF THE CENTER OF PROPOSED WELL PAD.
3. AS DRILLED INFORMATION PROVIDED BY EQT.

| ROYALTY OWNERS                     |         |                  |
|------------------------------------|---------|------------------|
| GLENN H. SHIVE ET AL               | 63 AC.± | LEASE NO. 114449 |
| C. BURKE MORRIS & S.A. SMITH ET AL | 28 AC.± | LEASE NO. 114447 |

|   |                            |                 |              |
|---|----------------------------|-----------------|--------------|
| A | ROBERT BRANNON ET AL       | 70 ACRES±       | SW TM-09-19  |
| B | RONALD HART & JEFFERY HART | 60 ACRES±       | SW TM-09-20  |
| C | L.L. MORRIS                | 6,600.75 ACRES± | SW TM-10-02  |
| D | ROBERT BRANNON ET AL       | 25.1 ACRES±     | SW TM-13-1R  |
| E | RONALD HART & JEFFERY HART | 45 ACRES±       | SW TM-13-12  |
| F | RONALD HART & JEFFERY HART | 45 ACRES±       | SW TM-09-21  |
| G | MARIA HRUSCOV              | 57.5 ACRES±     | SW TM-10-01  |
| H | WILLIAM ARMENTROUT ET AL   | 44.35 ACRES±    | SW TM-14-02  |
| I | MICHAEL & SUSAN ZORN       | 52.5 ACRES±     | SW TM-14-01  |
| J | MICHAEL & SUSAN ZORN       | 47.5 ACRES±     | SW TM-14-1.1 |
| K | WILLIAM ARMENTROUT ET AL   | 16.5 ACRES±     | SW TM-14-04  |
| L | EDWARD & GINA BASSETT      | 41 ACRES±       | SW TM-13-39  |
| M | MARIAN ZORN                | 34.75 ACRES±    | SW TM-13-40  |
| N | WILLIAM ARMENTROUT ET AL   | 76 ACRES±       | SW TM-13-41  |

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Environmental Protection



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.  
 DATE MARCH 24, 20 16  
 REVISED 04/06/16 & 12/15/16  
 OPERATORS WELL NO. WV 513702  
 API WELL NO. 47 - 017 - 06771H  
 STATE COUNTY PERMIT

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. C. Victor Moyers  
849

MINIMUM DEGREE OF ACCURACY 1/2500 FILE NO. 7310AD513702  
 HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK) SCALE SEE NOTE 2

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:  
 PAD ELEVATION 1,220' WATERSHED UPPER RUN OF MIDDLE FORK OF SOUTH FORK HUGHES RIVER  
 DISTRICT SOUTHWEST COUNTY DODDRIDGE QUADRANGLE OXFORD 7.5'  
 SURFACE OWNER RONALD HART & JEFFERY HART ACREAGE 60±  
 ROYALTY OWNER MONA R. CUMBERLEDGE ET AL ACREAGE 206±  
 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 6,603'

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

**OXF160**  
**WV 513702**  
**EQT PRODUCTION COMPANY**

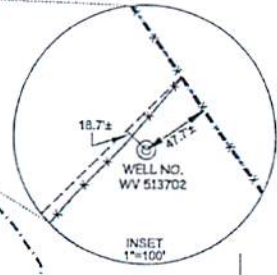
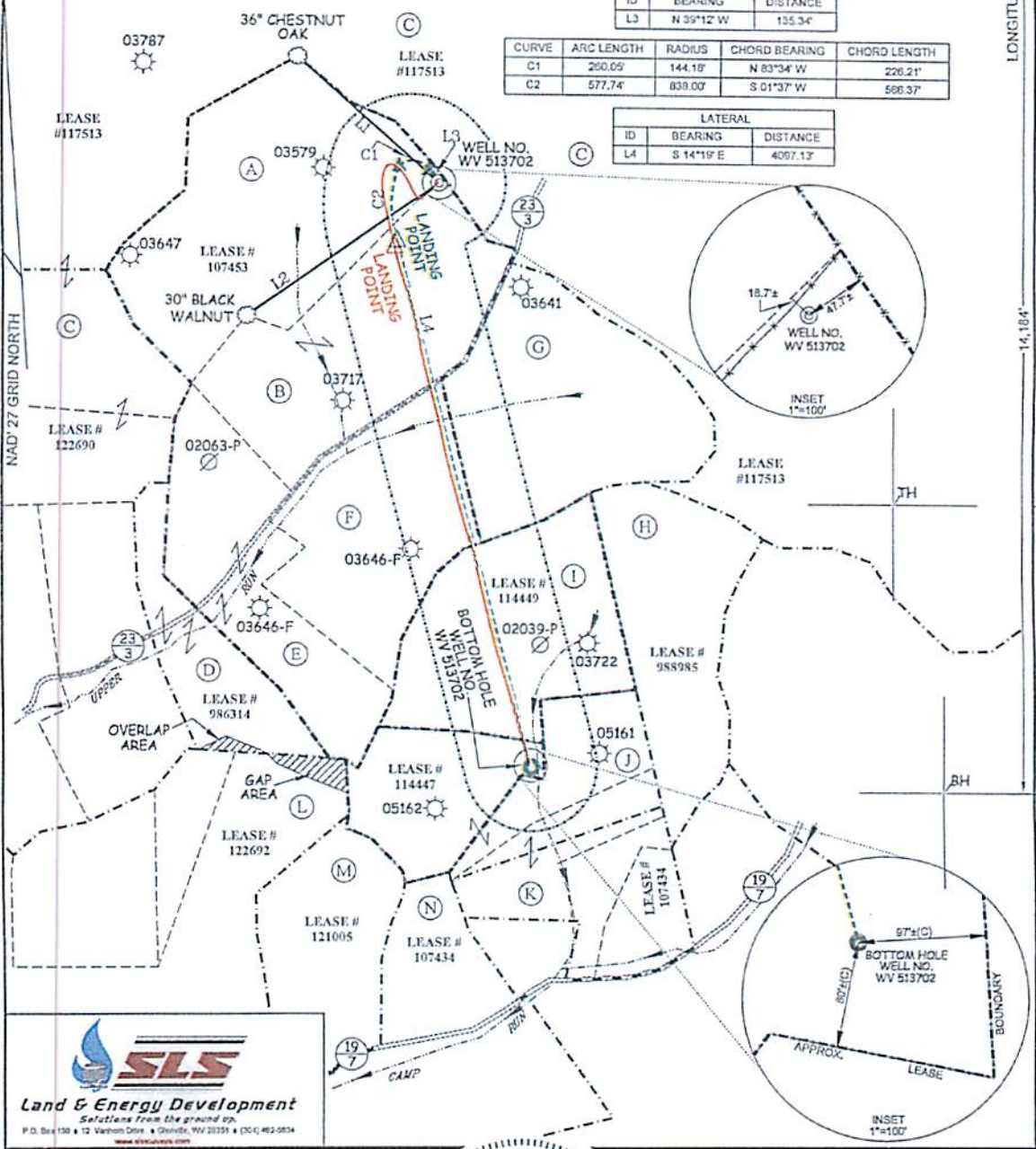
| WELL TIES |            |          |
|-----------|------------|----------|
| ID        | BEARING    | DISTANCE |
| L1        | N 49°15' W | 1430.69' |
| L2        | S 59°15' W | 1762.57' |

LATITUDE 39°12'30"

| BUILD OUT DATA |            |          |
|----------------|------------|----------|
| ID             | BEARING    | DISTANCE |
| L3             | N 39°12' W | 135.34'  |

| CURVE | ARC LENGTH | RADIUS  | CHORD BEARING | CHORD LENGTH |
|-------|------------|---------|---------------|--------------|
| C1    | 250.05'    | 144.15' | N 83°34' W    | 226.21'      |
| C2    | 577.74'    | 639.00' | S 01°37' W    | 566.37'      |

| LATERAL |            |          |
|---------|------------|----------|
| ID      | BEARING    | DISTANCE |
| L4      | S 14°19' E | 4067.13' |



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**AS DRILLED COORDINATES (OXF160 H5)**  
 (S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)

|                   |                   |                    |
|-------------------|-------------------|--------------------|
| NAD27 S.P.C. (FT) | N. 250,892.78     | E. 1,631,718.31    |
| NAD27 GEO.        | LAT-(N) 39.181449 | LONG-(W) 80.799108 |
| NAD83 UTM (M)     | N. 4,338,941.20   | E. 517,258.30      |

**LANDING POINT**

|                   |                   |                    |
|-------------------|-------------------|--------------------|
| NAD27 S.P.C. (FT) | N. 250,378.99     | E. 1,631,285.70    |
| NAD27 GEO.        | LAT-(N) 39.182108 | LONG-(W) 80.800311 |
| NAD83 UTM (M)     | N. 4,336,782.14   | E. 517,260.47      |

**BOTTOM HOLE**

|                   |                   |                    |
|-------------------|-------------------|--------------------|
| NAD27 S.P.C. (FT) | N. 246,458.40     | E. 1,632,410.64    |
| NAD27 GEO.        | LAT-(N) 39.169291 | LONG-(W) 80.756931 |
| NAD83 UTM (M)     | N. 4,335,603.56   | E. 517,551.60      |

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.

**LEGEND**

|                                    |           |
|------------------------------------|-----------|
| LEASE LINE                         | ---       |
| SURFACE LINE                       | ----      |
| PROPOSED PATH                      | - - - - - |
| AS DRILLED PATH                    | ====      |
| WELL LATERAL                       | ----      |
| OFFSET LINE                        | ----      |
| TIE LINE                           | ----      |
| CREEK                              | ~~~~~     |
| ROAD                               | ----      |
| COUNTY ROUTE                       | ⊕         |
| PROPOSED WELL                      | ⊙         |
| EXISTING WELL                      | ⊗         |
| PERMITTED WELL                     | ⊘         |
| PLUGGED WELL                       | ⊙         |
| SOUTH WEST DISTRICT TAX MAP-PARCEL | SW-00-00  |

SCALE 1" = 1000'

DATE MARCH 24, 2016

REVISED 04/06/16 & 12/15/16

OPERATORS WELL NO. WV 513702

API WELL NO. 47 - 017 - 06771H

STATE COUNTY PERMIT

STATE OF WEST VIRGINIA  
 DIVISION OF ENVIRONMENTAL PROTECTION  
 OFFICE OF OIL AND GAS

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**

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 WV Department of Environmental Protection

COUNTY NAME  
 PERMIT



**513702- 47-017-06771-0000- Perforations**

| Stage Number      | Perforation Date | Top Perf Depth (ft:KB) | Bottom Perf Depth (ft:KB) | Number of Shots | Formation |
|-------------------|------------------|------------------------|---------------------------|-----------------|-----------|
| Initiation Sleeve | 2/7/2017         | 11124                  | 11150                     | 10              | MARCELLUS |
| 1                 | 3/3/2017         | 10963                  | 11085                     | 32              | MARCELLUS |
| 2                 | 3/3/2017         | 10763                  | 10923                     | 40              | MARCELLUS |
| 3                 | 3/4/2017         | 10563                  | 10725                     | 40              | MARCELLUS |
| 4                 | 3/5/2017         | 10363                  | 10525                     | 40              | MARCELLUS |
| 5                 | 3/6/2017         | 10163                  | 10325                     | 40              | MARCELLUS |
| 6                 | 3/6/2017         | 9963                   | 10125                     | 40              | MARCELLUS |
| 7                 | 3/6/2017         | 9763                   | 9925                      | 40              | MARCELLUS |
| 8                 | 3/6/2017         | 9563                   | 9725                      | 40              | MARCELLUS |
| 9                 | 3/7/2017         | 9363                   | 9525                      | 40              | MARCELLUS |
| 10                | 3/7/2017         | 9163                   | 9325                      | 40              | MARCELLUS |
| 11                | 3/7/2017         | 8963                   | 9125                      | 40              | MARCELLUS |
| 12                | 3/8/2017         | 8763                   | 8925                      | 40              | MARCELLUS |
| 13                | 3/8/2017         | 8563                   | 8725                      | 40              | MARCELLUS |
| 14                | 3/8/2017         | 8363                   | 8525                      | 40              | MARCELLUS |
| 15                | 3/9/2017         | 8163                   | 8325                      | 40              | MARCELLUS |
| 16                | 3/9/2017         | 7963                   | 8125                      | 40              | MARCELLUS |
| 17                | 3/9/2017         | 7763                   | 7925                      | 40              | MARCELLUS |
| 18                | 3/10/2017        | 7563                   | 7725                      | 40              | MARCELLUS |
| 19                | 3/10/2017        | 7363                   | 7525                      | 40              | MARCELLUS |
| 20                | 3/11/2017        | 7163                   | 7325                      | 40              | MARCELLUS |
| 21                | 3/11/2017        | 6963                   | 7125                      | 40              | MARCELLUS |

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513702- 47-017-06771-0000 - 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 (bbbls) | Amount of Nitrogen/Other (units) |
|-------------------|------------------|---------------------|------------------------------|------------------------------|------------|--------------------------|-------------------------|----------------------------------|
| Initiation Sleeve | 3/3/2017         | 11                  | 6,542                        | 7,270                        | 4,419      | 0                        | 820                     | 0                                |
| 1                 | 3/3/2017         | 99                  | 7,980                        | 8,393                        | 3,859      | 410,000.00               | 9,144                   | 0                                |
| 2                 | 3/4/2017         | 100                 | 7,800                        | 8,281                        | 4,012      | 451,180.00               | 9,423                   | 0                                |
| 3                 | 3/4/2017         | 84                  | 7,733                        | 8,092                        | 4,978      | 445,220.00               | 3,874                   | 0                                |
| 3                 | 3/4/2017         | 12                  | 4,992                        | 8,501                        | 4,425      | 0.00                     | 4,771                   | 0                                |
| 3                 | 3/5/2017         | 98                  | 8,563                        | 8,699                        | 4,092      | 450,600.00               | 8,676                   | 0                                |
| 4                 | 3/6/2017         | 98                  | 8,437                        | 8,850                        | 4,129      | 450,320.00               | 9,966                   | 0                                |
| 5                 | 3/6/2017         | 99                  | 8,162                        | 8,559                        | 3,960      | 449,960.00               | 9,178                   | 0                                |
| 6                 | 3/6/2017         | 100                 | 7,957                        | 8,866                        | 4,084      | 449,720.00               | 9,367                   | 0                                |
| 7                 | 3/6/2017         | 101                 | 7,508                        | 7,801                        | 3,997      | 447,680.00               | 9,008                   | 0                                |
| 8                 | 3/6/2017         | 100                 | 7,643                        | 7,962                        | 4,029      | 449,580.00               | 9,063                   | 0                                |
| 9                 | 3/7/2017         | 99                  | 7,472                        | 7,981                        | 3,806      | 449,820.00               | 8,757                   | 0                                |
| 10                | 3/7/2017         | 100                 | 7,490                        | 7,876                        | 4,995      | 450,480.00               | 9,832                   | 0                                |
| 11                | 3/7/2017         | 99                  | 7,655                        | 9,135                        | 4,258      | 446,880.00               | 12,212                  | 0                                |
| 12                | 3/8/2017         | 100                 | 6,993                        | 7,802                        | 4,759      | 451,340.00               | 8,779                   | 0                                |
| 13                | 3/8/2017         | 98                  | 7,894                        | 8,707                        | 3,958      | 451,140.00               | 9,211                   | 0                                |
| 14                | 3/8/2017         | 101                 | 7,203                        | 7,635                        | 4,124      | 451,320.00               | 9,343                   | 0                                |
| 15                | 3/8/2017         | 0                   | 0                            | 0                            | 4,613      | 4,000.00                 | 3,389                   | 0                                |
| 15                | 3/9/2017         | 0                   | 0                            | 0                            | 4,607      | 2,000.00                 | 1,685                   | 0                                |
| 16                | 3/9/2017         | 94                  | 6,639                        | 7,393                        | 3,571      | 561,700.00               | 11,763                  | 0                                |
| 17                | 3/10/2017        | 98                  | 7,297                        | 8,491                        | 3,501      | 448,440.00               | 9,185                   | 0                                |
| 17                | 3/11/2017        | 0                   | 0                            | 0                            | 0          | 0.00                     | 123                     | 0                                |
| 18                | 3/10/2017        | 100                 | 7,027                        | 7,867                        | 3,625      | 450,680.00               | 9,007                   | 0                                |
| 19                | 3/11/2017        | 100                 | 7,096                        | 7,486                        | 3,703      | 450,440.00               | 9,350                   | 0                                |
| 20                | 3/11/2017        | 101                 | 7,171                        | 7,769                        | 3,817      | 449,660.00               | 9,041                   | 0                                |
| 21                | 3/11/2017        | 99                  | 7,693                        | 8,523                        | 4,003      | 450,700.00               | 9,568                   | 0                                |

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JUN 9 2017

WV Department of  
Environmental Protection

# Hydraulic Fracturing Fluid Product Component Information Disclosure

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JUN 9 2017

WV Department of  
Environmental Protection



**FracFocus**  
Chemical Disclosure Registry



|                                |                    |
|--------------------------------|--------------------|
| Job Start Date:                | 3/3/2017           |
| Job End Date:                  | 3/11/2017          |
| State:                         | West Virginia      |
| County:                        | Doddridge          |
| API Number:                    | 47-017-06771-00-00 |
| Operator Name:                 | EQT Production     |
| Well Name and Number:          | 513702             |
| Latitude:                      | 39.18144900        |
| Longitude:                     | -80.79919800       |
| Datum:                         | NAD83              |
| Federal Well:                  | NO                 |
| Indian Well:                   | NO                 |
| True Vertical Depth:           | 6,605              |
| Total Base Water Volume (gal): | 8,590,470          |
| 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              | C and J Energy Services | Carrier/Base Fluid      | Water       | 7732-18-5                                | 100.00000  | 87.94513   | None     |
| Other Chemical (s) | Listed Above            | See Trade Name (s) List |             | 7732-18-5                                | 50.00000   | 0.03301  |          |

| ECM SURF 200            | ECM Supply              | Enhancing Agent         | Water | 7732-18-5    | 50.00000 | 0.03301 | None |
|-------------------------|-------------------------|-------------------------|-------|--------------|----------|---------|------|
| Hydrochloric Acid (15%) | C and J Energy Services | Acidizing               |       |              |          |         |      |
| BR-11                   | C and J Energy Services | Gel Breaker             |       | Listed Below |          |         |      |
| SI-6                    | C and J Energy Services | Scale Inhibitor         |       | Listed Below |          |         |      |
| CI-3                    | C and J Energy Services | Corrosion Inhibitor     |       | Listed Below |          |         |      |
| Sand (Proppant)         | C and J Energy Services | Proppant                |       | Listed Below |          |         |      |
| NI-200                  | ECM Supply              | Friction Reducing Agent |       | Listed Below |          |         |      |
| MC MX 5-3886            | Multi-Chem Group        | Specialty Brine         |       | Listed Below |          |         |      |
| GA-7A                   | C and J Energy Services | Gelling Agent           |       | Listed Below |          |         |      |

|   |                  |  |                                |             |              |          |      |  |  |
|---|------------------|--|--------------------------------|-------------|--------------|----------|------|--|--|
| MC MX 8-2544  | Multi-Chem Group | Live Culture - Nitrate Reducing Bacteria |                                |             | Listed Below |          |      |  |  |
| Items above are Trade Names with the exception of Base Water. Items below are the individual ingredients. |                  |  |                                |             |              |          |      |  |  |
|   |                  |  | Silica Substrate               | 14808-60-7  | 100.00000    | 11.81381 | None |  |  |
|   |                  |  | Copolymer of Two Propenamide   | 69418-26-4  | 30.00000     | 0.01980  | None |  |  |
|   |                  |  | Copolymer of Two Propenamide   | 69418-26-4  | 30.00000     | 0.01980  | None |  |  |
|   |                  |  | Hydrochloric Acid              | 7647-01-0   | 15.00000     | 0.01978  | None |  |  |
|   |                  |  | Petroleum Distillate           | 64742-47-8  | 20.00000     | 0.01320  | None |  |  |
|   |                  |  | Petroleum Distillate           | 64742-47-8  | 20.00000     | 0.01320  | None |  |  |
|   |                  |  | Sodium chloride                | 7647-14-5   | 100.00000    | 0.00947  | None |  |  |
|   |                  |  | Sodium chloride                | 7647-14-5   | 100.00000    | 0.00947  | None |  |  |
|   |                  |  | Calcium nitrate.4H2O           | 13477-34-4  | 100.00000    | 0.00883  | None |  |  |
|   |                  |  | Calcium nitrate.4H2O           | 13477-34-4  | 100.00000    | 0.00883  | None |  |  |
|   |                  |  | Trade Secret                   | Proprietary | 7.00000      | 0.00170  | None |  |  |
|   |                  |  | Oleic Acid Diethanolamide      | 93-83-4     | 2.00000      | 0.00132  | None |  |  |
|   |                  |  | Oleic Acid Diethanolamide      | 93-83-4     | 2.00000      | 0.00132  | None |  |  |
|   |                  |  | Alcohols, C-12-16, Ethoxylated | 68551-12-2  | 2.00000      | 0.00132  | None |  |  |
|   |                  |  | Alcohols, C-12-16, Ethoxylated | 68551-12-2  | 2.00000      | 0.00132  | None |  |  |
|   |                  |  | Ammonium Chloride ((NH4)Cl)    | 12125-02-9  | 1.00000      | 0.00066  | None |  |  |
|   |                  |  | Ammonium Chloride ((NH4)Cl)    | 12125-02-9  | 1.00000      | 0.00066  | None |  |  |
|   |                  |  | Monoethanolamine hydrochloride | 2002-24-6   | 2.00000      | 0.00049  | None |  |  |
|   |                  |  | Ammonium Chloride              | 12125-02-9  | 2.00000      | 0.00049  | None |  |  |
|   |                  |  | Sodium nitrate                 | 7631-99-4   | 5.00000      | 0.00047  | None |  |  |

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Environmental Protection

|  |  |  |   |             |          |         |      |
|--|--|--|---|-------------|----------|---------|------|
|  |  |  | Sodium nitrate  | 7631-99-4   | 5.00000  | 0.00047 | None |
|  |  |  | Methanol  | 67-56-1     | 1.00000  | 0.00024 | None |
|  |  |  | Distillates (petroleum), Hydrotreated Light               | 64742-47-8  | 60.00000 | 0.00015 |      |
|  |  |  | Guar Gum  | 9000-30-0   | 60.00000 | 0.00015 | None |
|  |  |  | Guar Gum  | 9000-30-0   | 60.00000 | 0.00015 |      |
|  |  |  | Distillates (petroleum), Hydrotreated Light               | 64742-47-8  | 60.00000 | 0.00015 | None |
|  |  |  | Ethylene Glycol   | 107-21-1    | 40.00000 | 0.00011 | None |
|  |  |  | Diethylene glycol monobutyl ether                         | 112-34-5    | 30.00000 | 0.00007 | None |
|  |  |  | Diethylene glycol monobutyl ether                         | 112-34-5    | 30.00000 | 0.00007 |      |
|  |  |  | Ammonium Persulfate                                       | 7727-54-0   | 85.00000 | 0.00006 |      |
|  |  |  | Ammonium Persulfate                                       | 7727-54-0   | 85.00000 | 0.00006 | None |
|  |  |  | Dimethylformamide   | 68-12-2     | 20.00000 | 0.00005 | None |
|  |  |  | Tar Bases, Quinoline Derivs., Benzyl Chloride-quaternized | 72480-70-7  | 15.00000 | 0.00004 |      |
|  |  |  | Cinnamaldehyde  | 104-55-2    | 15.00000 | 0.00004 | None |
|  |  |  | 2-butoxyethanol   | 111-76-2    | 15.00000 | 0.00004 | None |
|  |  |  | Tar Bases, Quinoline Derivs., Benzyl Chloride-quaternized | 72480-70-7  | 15.00000 | 0.00004 | None |
|  |  |  | Surfactants   | Proprietary | 10.00000 | 0.00003 |      |
|  |  |  | Surfactants   | Proprietary | 10.00000 | 0.00003 | None |
|  |  |  | 1-decanol   | 112-30-1    | 5.00000  | 0.00001 |      |
|  |  |  | 4-nonylphenol, Branched, Ethoxylated                      | 127087-87-0 | 5.00000  | 0.00001 | None |
|  |  |  | 1-decanol   | 112-30-1    | 5.00000  | 0.00001 | None |
|  |  |  | 4-nonylphenol, Branched, Ethoxylated                      | 127087-87-0 | 5.00000  | 0.00001 |      |
|  |  |  | Cured Resin   | Proprietary | 13.00000 | 0.00001 |      |
|  |  |  | Cured Resin   | Proprietary | 13.00000 | 0.00001 | None |
|  |  |  | Isopropanol   | 67-63-0     | 2.50000  | 0.00001 |      |
|  |  |  | Isopropanol   | 67-63-0     | 2.50000  | 0.00001 | None |

|  |  |  |  |                                 |            |         |         |
|--|--|--|--|---------------------------------|------------|---------|---------|
|  |  |  |  | Triethyl Phosphate              | 78-40-0    | 2.50000 | 0.00001 |
|  |  |  |  | 1-octanol                       | 111-87-5   | 2.50000 | 0.00001 |
|  |  |  |  | Triethyl Phosphate              | 78-40-0    | 2.50000 | 0.00001 |
|  |  |  |  | 1-octanol                       | 111-87-5   | 2.50000 | 0.00001 |
|  |  |  |  | Silica - Crystalline,<br>Quartz | 14808-60-7 | 1.00000 | 0.00000 |
|  |  |  |  | Silica - Crystalline,<br>Quartz | 14808-60-7 | 1.00000 | 0.00000 |

\* Total Water Volume sources may include various types of water including fresh water, produced water, and recycled water  
 \*\* Information is based on the maximum potential for concentration and thus the total may be over 100%  
 \*\*\* If you are calculating a percentage of total ingredients do not add the water volume below the green line to the water volume above the green line

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)

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WV Department of  
 Environmental Protection

OXF160  
WV 513702  
EQT PRODUCTION COMPANY

LATITUDE 39°12'30"

LONGITUDE 80°47'30"

AS DRILLED COORDINATES  
(OXF160 H5)

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

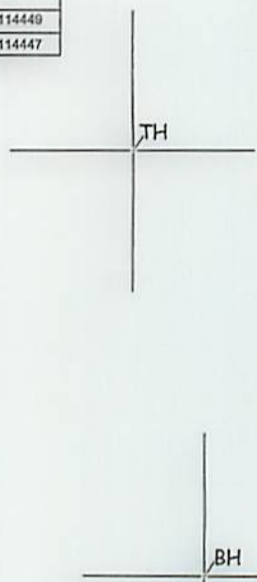
|                  |                   |                    |
|------------------|-------------------|--------------------|
| NAD27 S.P.C.(FT) | N. 250,860.78     | E. 1,631,718.31    |
| NAD27 GEO.       | LAT-(N) 39.181449 | LONG-(W) 80.799198 |
| NAD83 UTM (M)    | N. 4,336,941.20   | E. 517,358.30      |
| LANDING POINT    |                   |                    |
| NAD27 S.P.C.(FT) | N. 250,376.86     | E. 1,631,395.70    |
| NAD27 GEO.       | LAT-(N) 39.180108 | LONG-(W) 80.800311 |
| NAD83 UTM (M)    | N. 4,336,792.14   | E. 517,262.47      |
| BOTTOM HOLE      |                   |                    |
| NAD27 S.P.C.(FT) | N. 246,458.40     | E. 1,632,410.64    |
| NAD27 GEO.       | LAT-(N) 39.169391 | LONG-(W) 80.796531 |
| NAD83 UTM (M)    | N. 4,335,603.56   | E. 517,591.59      |

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. TOPO MARK SCALE IS 1"=2000'.
3. AS DRILLED INFORMATION PROVIDED BY EQT.

| ROYALTY OWNERS                     |         |                  |
|------------------------------------|---------|------------------|
| GLENN H. SHIVE ET AL               | 53 AC.± | LEASE NO. 114449 |
| C. BURKE MORRIS & S.A. SMITH ET AL | 28 AC.± | LEASE NO. 114447 |

|   |                            |                 |              |
|---|----------------------------|-----------------|--------------|
| A | ROBERT BRANNON ET AL       | 70 ACRES±       | SW TM-09-19  |
| B | RONALD HART & JEFFERY HART | 60 ACRES±       | SW TM-09-20  |
| C | ILL. MORRIS                | 6,600.75 ACRES± | SW TM-10-02  |
| D | ROBERT BRANNON ET AL       | 25.1 ACRES±     | SW TM-13-18  |
| E | RONALD HART & JEFFERY HART | 46 ACRES±       | SW TM-13-12  |
| F | RONALD HART & JEFFERY HART | 45 ACRES±       | SW TM-09-21  |
| G | MARIA HRUSCOV              | 57.5 ACRES±     | SW TM-10-01  |
| H | WILLIAM ARMENTROUT ET AL   | 44.35 ACRES±    | SW TM-14-02  |
| I | MICHAEL & SUSAN ZORN       | 52.5 ACRES±     | SW TM-14-01  |
| J | MICHAEL & SUSAN ZORN       | 47.5 ACRES±     | SW TM-14-1.1 |
| K | WILLIAM ARMENTROUT ET AL   | 16.8 ACRES±     | SW TM-14-04  |
| L | EDWARD & GINA BASSETT      | 41 ACRES±       | SW TM-13-39  |
| M | MARIAN ZORN                | 34.78 ACRES±    | SW TM-13-40  |
| N | WILLIAM ARMENTROUT ET AL   | 76 ACRES±       | SW TM-13-41  |



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.



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.  
 DATE MARCH 24, 20 16  
 REVISED 04/06/16 & 12/15/16  
 OPERATORS WELL NO. WV 513702  
 API WELL NO. 47 - 017 - 06771H  
 STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 7310AD513702  
 HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK)  
 SCALE SEE NOTE 2

STATE OF WEST VIRGINIA  
 DIVISION OF ENVIRONMENTAL PROTECTION  
 OFFICE OF OIL AND GAS

WELL TYPE: OIL \_\_\_ GAS X LIQUID INJECTION \_\_\_ WASTE DISPOSAL \_\_\_ IF "GAS" PRODUCTION X STORAGE \_\_\_ DEEP \_\_\_ SHALLOW X  
 LOCATION: PAD ELEVATION 1,220' WATERSHED UPPER RUN OF MIDDLE FORK OF SOUTH FORK HUGHES RIVER  
 DISTRICT SOUTHWEST COUNTY DODDRIDGE QUADRANGLE OXFORD 7.5'  
 SURFACE OWNER RONALD HART & JEFFERY HART ACREAGE 60±  
 ROYALTY OWNER MONA R. CUMBERLEDGE ET AL ACREAGE 206±  
 PROPOSED WORK: LEASE NO. 107453  
 DRILL X CONVERT \_\_\_ DRILL DEEPER \_\_\_ REDRILL \_\_\_ FRACTURE OR STIMULATE X 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 6,603'

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



OXF160  
WV 213705  
EQT PRODUCTION COMPANY

AS DRILLED COORDINATES  
(OXF160 H5)

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

NAD83 UTM (M) N. 4,325,603.56 E. 517,501.50  
 NAD27 GEO. LAT-(N) 39.189391 LONG-(W) 80.729231  
 NAD27 S.P.C.(FT) N. 248,458.40 E. 1,635,410.64

**BOTTOM HOLE**

NAD83 UTM (M) N. 4,326,705.14 E. 517,505.47  
 NAD27 GEO. LAT-(N) 39.180108 LONG-(W) 80.800311  
 NAD27 S.P.C.(FT) N. 250,378.88 E. 1,631,392.70

**LANDING POINT**

NAD83 UTM (M) N. 4,326,941.50 E. 517,528.30  
 NAD27 GEO. LAT-(N) 39.181448 LONG-(W) 80.729188  
 NAD27 S.P.C.(FT) N. 250,860.78 E. 1,631,718.31

**NOTES ON SURVEY**

3. AS DRILLED INFORMATION PROVIDED BY EQT.

2. TORO MARK SCALE IS 1"=2000'.  
 OF THE CENTER OF PROPOSED WELL PAD.

> 2500 SQ. FT. OR DWELLINGS WERE FOUND WITHIN 625'  
 PROPOSED GAS WELL. NO AGRICULTURAL BUILDINGS

1. NO WATER WELLS WERE FOUND WITHIN 250' OF

| ROYALTY OWNERS                     |         |
|------------------------------------|---------|
| C. BURKE MORRIS & S.A. SMITH ET AL | 28 AC ± |
| GLENN H. SHIVE ET AL               | 83 AC ± |
| LEASE NO. 114447                   |         |
| LEASE NO. 114449                   |         |

|   |                            |                |             |
|---|----------------------------|----------------|-------------|
| A | ROBERT BRANNON ET AL       | 70 ACRES ±     | SW 1M-09-19 |
| B | RONALD HART & JEFFERY HART | 60 ACRES ±     | SW 1M-09-20 |
| C | I.L. MORRIS                | 600.73 ACRES ± | SW 1M-10-02 |
| D | ROBERT BRANNON ET AL       | 25.1 ACRES ±   | SW 1M-13-18 |
| E | RONALD HART & JEFFERY HART | 46 ACRES ±     | SW 1M-13-12 |
| F | RONALD HART & JEFFERY HART | 42 ACRES ±     | SW 1M-09-21 |
| G | MARIA HRUSCOV              | 27.3 ACRES ±   | SW 1M-10-01 |
| H | WILLIAM ARMSTRONG ET AL    | 44.32 ACRES ±  | SW 1M-14-02 |
| I | MICHAEL & SUSAN ZORN       | 25.3 ACRES ±   | SW 1M-14-01 |
| J | MICHAEL & SUSAN ZORN       | 47.3 ACRES ±   | SW 1M-14-11 |
| K | WILLIAM ARMSTRONG ET AL    | 16.8 ACRES ±   | SW 1M-14-04 |
| L | EDWARD & GINA BASSETT      | 41 ACRES ±     | SW 1M-13-20 |
| M | MARIA ZORN                 | 34.78 ACRES ±  | SW 1M-13-40 |
| N | WILLIAM ARMSTRONG ET AL    | 76 ACRES ±     | SW 1M-13-41 |



BY THE DIVISION OF ENVIRONMENTAL PROTECTION  
 THE REGULATIONS ISSUED AND PRESCRIBED  
 THE INFORMATION REQUIRED BY LAW AND  
 KNOWLEDGE AND BELIEF AND SHOWS ALL  
 THIS PLAT IS CORRECT TO THE BEST OF MY  
 I THE UNDERSIGNED, HEREBY CERTIFY THAT



DATE MARCH 24, 2018  
 STATES TOPOGRAPHIC MAPS  
 (+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.

REVISED 04/08/16 & 12/15/16  
 OPERATORS WELL NO. WV 213705

WELL NO. 47 - 017 - 06771H  
 COUNTY STATE PERMIT

OFFICE OF OIL AND GAS  
 DIVISION OF ENVIRONMENTAL PROTECTION  
 STATE OF WEST VIRGINIA

WELL OPERATOR: EQT PRODUCTION COMPANY  
 ADDRESS: 115 PROFESSIONAL PLACE P.O. BOX 280 BRIDGEPORT, WV 26330

DESIGNATED AGENT: REX C. RAY

PROPOSED WORK:  
 PHYSICAL CHANGE IN WELL (SPECIFY) \_\_\_\_\_  
 PERFORATE NEW FORMATION \_\_\_\_\_  
 PLUG AND ABANDON \_\_\_\_\_  
 CLEAN OUT AND REPLUG \_\_\_\_\_  
 OTHER \_\_\_\_\_

DRILL \_\_\_\_\_  
 CONVERT \_\_\_\_\_  
 DRILL DEEPER \_\_\_\_\_  
 REDRILL \_\_\_\_\_  
 FRACTURE OR STIMULATE \_\_\_\_\_  
 PLUG OFF OLD \_\_\_\_\_

SURFACE OWNER: RONALD HART & JEFFERY HART  
 ROYALTY OWNER: MONA R. CUMBERLEDGE ET AL

DISTRICT: SOUTHWEST  
 COUNTY: DODDRIDGE  
 QUADRANGLE: OXFORD 7.5  
 ACRES ±: 60 ±  
 ACRES ±: 206 ±  
 LEASE NO.: 107453

LOCATION:  
 PAD ELEVATION: 1,220'  
 WATERSHED: UPPER RUN OF MIDDLE FORK OF SOUTH FORK HUGHES RIVER

WELL TYPE: OIL \_\_\_\_\_ GAS \_\_\_\_\_  
 INJECTION \_\_\_\_\_  
 DISPOSAL \_\_\_\_\_  
 WASTE \_\_\_\_\_  
 IF "GAS" PRODUCTION \_\_\_\_\_  
 STORAGE \_\_\_\_\_  
 DEEP \_\_\_\_\_  
 SHALLOW \_\_\_\_\_

CONTROL DETERMINED BY: \_\_\_\_\_  
 HORIZONTAL & VERTICAL SCALE: SEE NOTE 2  
 FILE NO.: 7310AD513705  
 MINIMUM DEGREE OF ACCURACY: 1:2500

COUNTY NAME: \_\_\_\_\_  
 PERMIT: \_\_\_\_\_

LONGITUDE 80.41330  
 LATITUDE 39.1230  
 1.370  
 2.133

14' 10"



**OXF160**  
**WV 513702**  
**EQT PRODUCTION COMPANY**

| WELL TIES |            |          |
|-----------|------------|----------|
| ID        | BEARING    | DISTANCE |
| L1        | N 48°16' W | 1430.69' |
| L2        | S 55°15' W | 1762.57' |

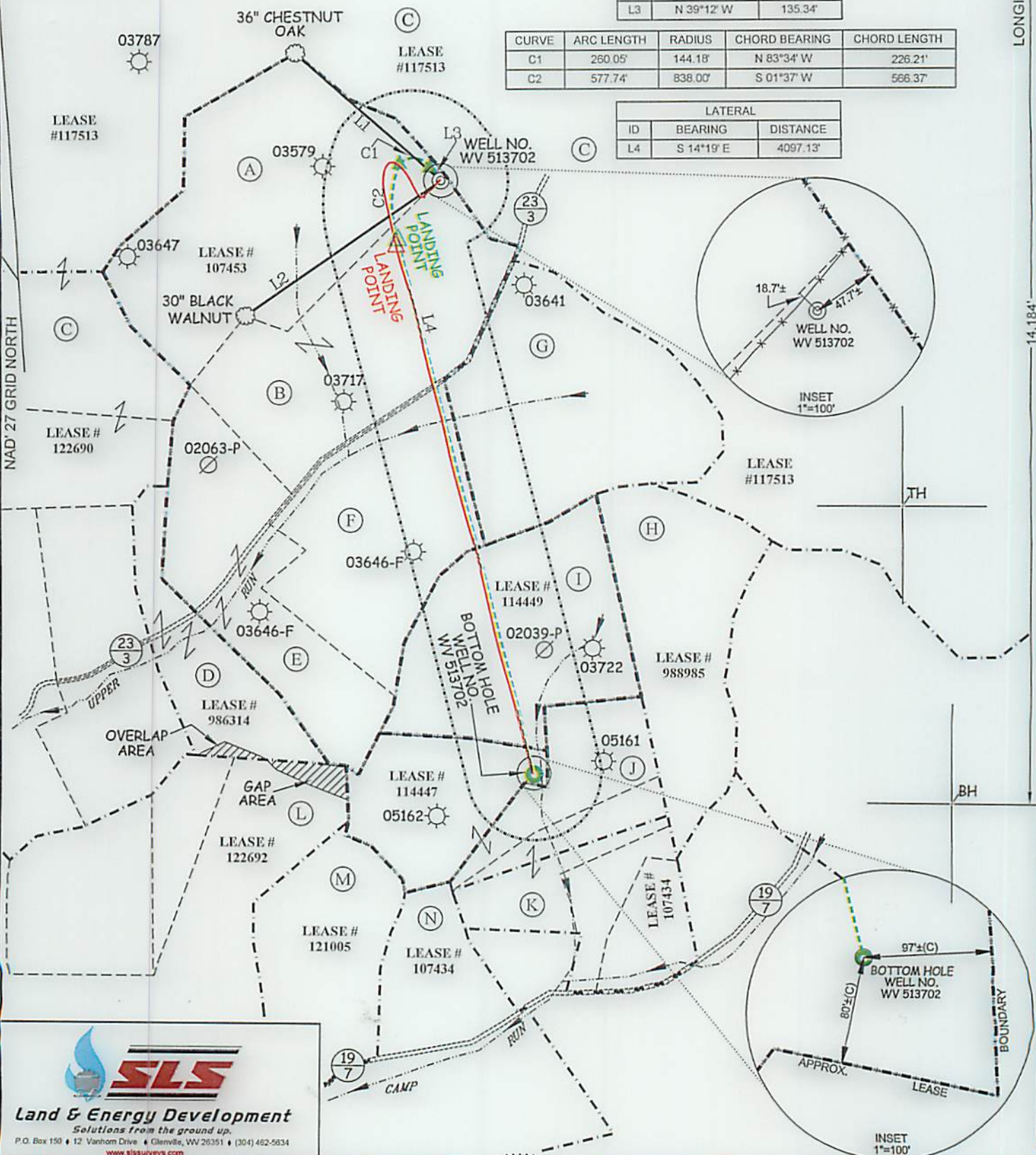
LATITUDE 39°12'30"

| BUILD OUT DATA |            |          |
|----------------|------------|----------|
| ID             | BEARING    | DISTANCE |
| L3             | N 39°12' W | 135.34'  |

LONGITUDE 80°47'30"

| CURVE | ARC LENGTH | RADIUS  | CHORD BEARING | CHORD LENGTH |
|-------|------------|---------|---------------|--------------|
| C1    | 260.05'    | 144.18' | N 83°34' W    | 226.21'      |
| C2    | 577.74'    | 838.00' | S 01°37' W    | 566.37'      |

| LATERAL |            |          |
|---------|------------|----------|
| ID      | BEARING    | DISTANCE |
| L4      | S 14°19' E | 4097.13' |



9,792'

14,184'

COUNTY NAME

PERMIT

**SLS**  
**Land & Energy Development**  
 Solutions from the ground up.  
 P.O. Box 150 • 12 Vanhorn Drive • Glenville, WV 26351 • (304) 462-5834  
 www.slsurveys.com

**AS DRILLED COORDINATES**  
 (OXF160 H5)

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

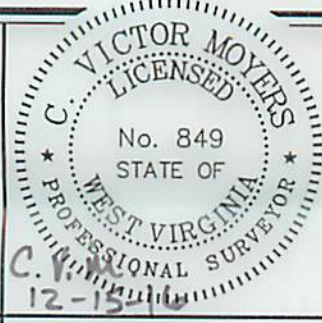
|                  |                   |                    |
|------------------|-------------------|--------------------|
| NAD27 S.P.C.(FT) | N. 250,860.78     | E. 1,631,718.31    |
| NAD27 GEO.       | LAT-(N) 39.181449 | LONG-(W) 80.709198 |
| NAD83 UTM (M)    | N. 4,336,941.20   | E. 517,358.30      |

**LANDING POINT**

|                  |                   |                    |
|------------------|-------------------|--------------------|
| NAD27 S.P.C.(FT) | N. 250,376.86     | E. 1,631,395.70    |
| NAD27 GEO.       | LAT-(N) 39.180108 | LONG-(W) 80.800311 |
| NAD83 UTM (M)    | N. 4,336,792.14   | E. 517,262.47      |

**BOTTOM HOLE**

|                  |                   |                    |
|------------------|-------------------|--------------------|
| NAD27 S.P.C.(FT) | N. 246,458.40     | E. 1,632,410.64    |
| NAD27 GEO.       | LAT-(N) 39.169391 | LONG-(W) 80.709531 |
| NAD83 UTM (M)    | N. 4,335,603.56   | E. 517,591.59      |



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.

**LEGEND**

- LEASE LINE
- SURFACE LINE
- PROPOSED PATH
- AS DRILLED PATH
- WELL LATERAL
- OFFSET LINE
- TIE LINE
- CREEK
- ROAD
- COUNTY ROUTE
- PROPOSED WELL
- EXISTING WELL
- PERMITTED WELL
- PLUGGED WELL
- SOUTH WEST DISTRICT TAX MAP-PARCEL SW-00-00

SCALE 1" = 1000'

DATE MARCH 24, 2016

REVISED 04/06/16 & 12/15/16

OPERATORS WELL NO. WV 513702

API WELL NO. 47-017-06771H

STATE COUNTY PERMIT

STATE OF WEST VIRGINIA  
 DIVISION OF ENVIRONMENTAL PROTECTION  
 OFFICE OF OIL AND GAS

DESIGNATED AGENT REX C. RAY

ADDRESS 115 PROFESSIONAL PLACE P.O. BOX 280 BRIDGEPORT, WV 26330

WELL OPERATOR EQT PRODUCTION COMPANY

ADDRESS 115 PROFESSIONAL PLACE P.O. BOX 280 BRIDGEPORT, WV 26330

OXF160  
 WV 513705  
 EQT PRODUCTION COMPANY

| WELL TIES |            |          |
|-----------|------------|----------|
| ID        | BEARING    | DISTANCE |
| L1        | N 48°15' W | 1430.89  |
| L2        | S 82°15' W | 1785.57  |

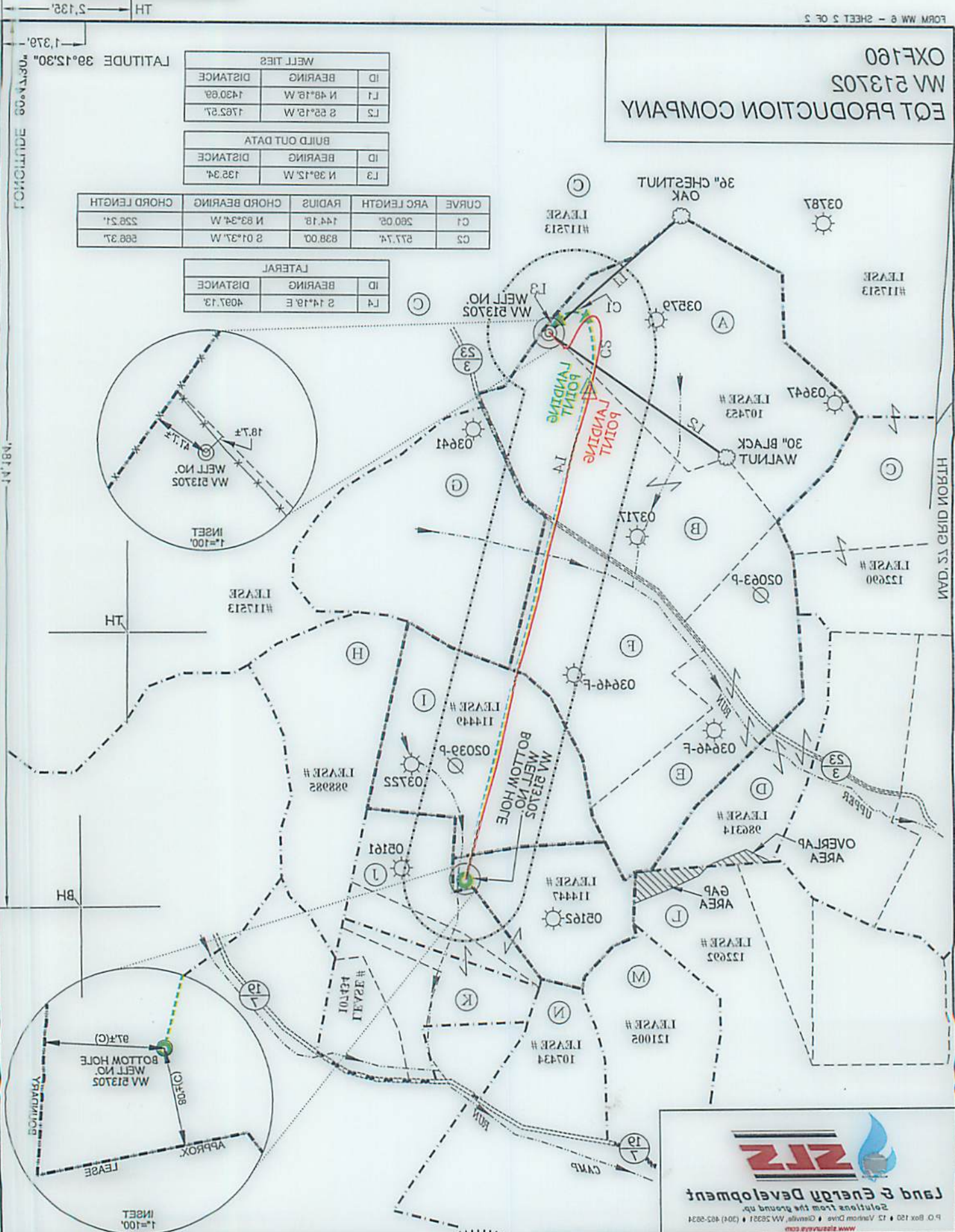
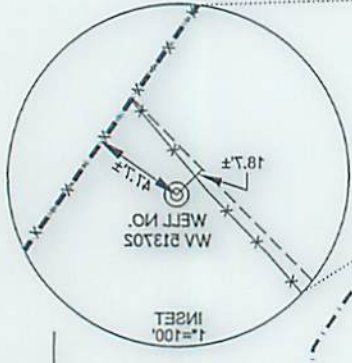
| BUILD OUT DATA |            |          |
|----------------|------------|----------|
| ID             | BEARING    | DISTANCE |
| L3             | N 39°15' W | 135.34   |

| CURVE |            |        |               |
|-------|------------|--------|---------------|
| CURVE | ARC LENGTH | RADIUS | CHORD BEARING |
| C1    | 280.05     | 144.18 | N 83°34' W    |
| C2    | 577.74     | 838.00 | S 01°37' W    |
| C3    | 588.37     | 294.18 | N 83°34' W    |

| LATERAL |            |          |
|---------|------------|----------|
| ID      | BEARING    | DISTANCE |
| L4      | S 14°19' E | 4037.13  |



**Land & Energy Development**  
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 www.landenergy.com

**AS DRILLED COORDINATES**  
 (OXF160 H3)  
 (S.P.C. NORTH ZONE) (UTM) ZONE 17 NORTH

| WELL             | UTM (M) | E          | N          |
|------------------|---------|------------|------------|
| ND27 S.P.C. (FT) | 1250788 | 1831718.31 | 1250860.78 |
| ND27 GEO.        | 1250788 | 1831718.31 | 1250860.78 |
| ND27 TUM (M)     | 1250788 | 1831718.31 | 1250860.78 |
| ND27 S.P.C. (FT) | 1250788 | 1831718.31 | 1250860.78 |
| ND27 GEO.        | 1250788 | 1831718.31 | 1250860.78 |
| ND27 TUM (M)     | 1250788 | 1831718.31 | 1250860.78 |

NO. STATE COUNTY PERMIT  
 WELL NO. 47-017-06771H  
 OPERATORS WELL NO. WV 513705  
 REVISIONS: 0410816 & 1215116  
 DATE: MARCH 24, 2016  
 SCALE: 1" = 1000'

STATE OF WEST VIRGINIA  
 DIVISION OF ENVIRONMENTAL PROTECTION  
 OFFICE OF OIL AND GAS

**LEGEND**

- LEASE LINE
- SURFACE LINE
- PROPOSED PATH
- AS DRILLED PATH
- WELL LATERAL
- OFFSET LINE
- THE LINE
- CREEK
- ROAD
- COUNTY ROUTE
- PROPOSED WELL
- EXISTING WELL
- PERMITTED WELL
- PLUGGED WELL

STATES TOPOGRAPHIC MAPS (+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.

WELL OPERATOR: EQT PRODUCTION COMPANY  
 ADDRESS: 115 PROFESSIONAL PLACE P.O. BOX 280 BRIDGEPORT, WV 26330  
 DESIGNATED AGENT: REX C. RAY  
 COUNTY NAME: PERMIT