

**District I**1625 N. French Dr., Hobbs, NM 88240  
Phone:(575) 393-6161 Fax:(575) 393-0720**District II**811 S. First St., Artesia, NM 88210  
Phone:(575) 748-1283 Fax:(575) 748-9720**District III**1000 Rio Brazos Rd., Aztec, NM 87410  
Phone:(505) 334-6178 Fax:(505) 334-6170**District IV**1220 S. St Francis Dr., Santa Fe, NM 87505  
Phone:(505) 476-3470 Fax:(505) 476-3462

**State of New Mexico**  
**Energy, Minerals and Natural Resources**  
**Oil Conservation Division**  
**1220 S. St Francis Dr.**  
**Santa Fe, NM 87505**

Form C-101  
August 1, 2011

Permit 274141

**APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE**

|                                                                                         |  |                               |
|-----------------------------------------------------------------------------------------|--|-------------------------------|
| 1. Operator Name and Address<br>EOG RESOURCES INC<br>P.O. Box 2267<br>Midland, TX 79702 |  | 2. OGRID Number<br>7377       |
| 4. Property Code<br>326327                                                              |  | 3. API Number<br>30-015-46441 |
| 5. Property Name<br>HERRING 16 STATE COM                                                |  | 6. Well No.<br>602H           |

**7. Surface Location**

|               |               |                 |              |         |                  |               |                  |               |                |
|---------------|---------------|-----------------|--------------|---------|------------------|---------------|------------------|---------------|----------------|
| UL - Lot<br>A | Section<br>17 | Township<br>18S | Range<br>25E | Lot Idn | Feet From<br>827 | N/S Line<br>N | Feet From<br>517 | E/W Line<br>E | County<br>Eddy |
|---------------|---------------|-----------------|--------------|---------|------------------|---------------|------------------|---------------|----------------|

**8. Proposed Bottom Hole Location**

|               |               |                 |              |              |                   |               |                  |               |                |
|---------------|---------------|-----------------|--------------|--------------|-------------------|---------------|------------------|---------------|----------------|
| UL - Lot<br>H | Section<br>16 | Township<br>18S | Range<br>25E | Lot Idn<br>H | Feet From<br>1830 | N/S Line<br>N | Feet From<br>100 | E/W Line<br>E | County<br>Eddy |
|---------------|---------------|-----------------|--------------|--------------|-------------------|---------------|------------------|---------------|----------------|

**9. Pool Information**

|                        |       |
|------------------------|-------|
| Penasco Permo Penn Oil | 98330 |
|------------------------|-------|

**Additional Well Information**

|                           |                             |                                        |                           |                                    |
|---------------------------|-----------------------------|----------------------------------------|---------------------------|------------------------------------|
| 11. Work Type<br>New Well | 12. Well Type<br>OIL        | 13. Cable/Rotary                       | 14. Lease Type<br>Private | 15. Ground Level Elevation<br>3578 |
| 16. Multiple<br>N         | 17. Proposed Depth<br>13591 | 18. Formation<br>Permo Penn            | 19. Contractor            | 20. Spud Date<br>12/2/2019         |
| Depth to Ground water     |                             | Distance from nearest fresh water well |                           | Distance to nearest surface water  |

☒ We will be using a closed-loop system in lieu of lined pits**21. Proposed Casing and Cement Program**

| Type | Hole Size | Casing Size | Casing Weight/ft | Setting Depth | Sacks of Cement | Estimated TOC |
|------|-----------|-------------|------------------|---------------|-----------------|---------------|
| Surf | 12.25     | 9.625       | 36               | 1300          | 480             | 0             |
| Prod | 8.75      | 5.5         | 36               | 8314          | 1200            | 0             |
| Prod | 8.5       | 5.5         | 20               | 13591         | 1200            | 8314          |

**Casing/Cement Program: Additional Comments**

EOG Resources requests the approval of an intermediate casing string contingency to be determined if losses are encountered in the vertical portion of our wellbore. Surface and production casing will remain the same. Production cement will be tied back 200' into previous casing string if the intermediate string is run.

**22. Proposed Blowout Prevention Program**

| Type       | Working Pressure | Test Pressure | Manufacturer           |
|------------|------------------|---------------|------------------------|
| Double Ram | 3000             | 3000          | What ever is available |

23. I hereby certify that the information given above is true and complete to the best of my knowledge and belief.  
 I further certify I have complied with 19.15.14.9 (A) NMAC ☒ and/or 19.15.14.9 (B) NMAC ☒ if applicable.

Signature:

Printed Name: Electronically filed by Kay Maddox

Title: Regulatory Agent

Email Address: kay\_maddox@eogresources.com

Date: 11/6/2019

Phone: 432-686-3658

**OIL CONSERVATION DIVISION**

Approved By: Raymond Podany

Title: Geologist

Approved Date: 11/13/2019

Expiration Date: 11/13/2021

Conditions of Approval Attached

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State of New Mexico  
Energy, Minerals & Natural Resources  
Department  
**OIL CONSERVATION DIVISION**  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

FORM C-102

Revised August 1, 2011

Submit one copy to appropriate

District Office

☐ AMENDED REPORT**WELL LOCATION AND ACREAGE DEDICATION PLAT**

|                                |                                                           |                                              |
|--------------------------------|-----------------------------------------------------------|----------------------------------------------|
| <sup>1</sup> API Number        | <sup>2</sup> Pool Code                                    | <sup>3</sup> Pool Name<br>Wildcat Permo Penn |
| <sup>4</sup> Property Code     | <sup>5</sup> Property Name<br><b>HERRING 16 STATE COM</b> | <sup>6</sup> Well Number<br><b>602H</b>      |
| <sup>7</sup> OGRID No.<br>7737 | <sup>8</sup> Operator Name<br><b>EOG RESOURCES, INC.</b>  | <sup>9</sup> Elevation<br><b>3578'</b>       |

<sup>10</sup>Surface Location

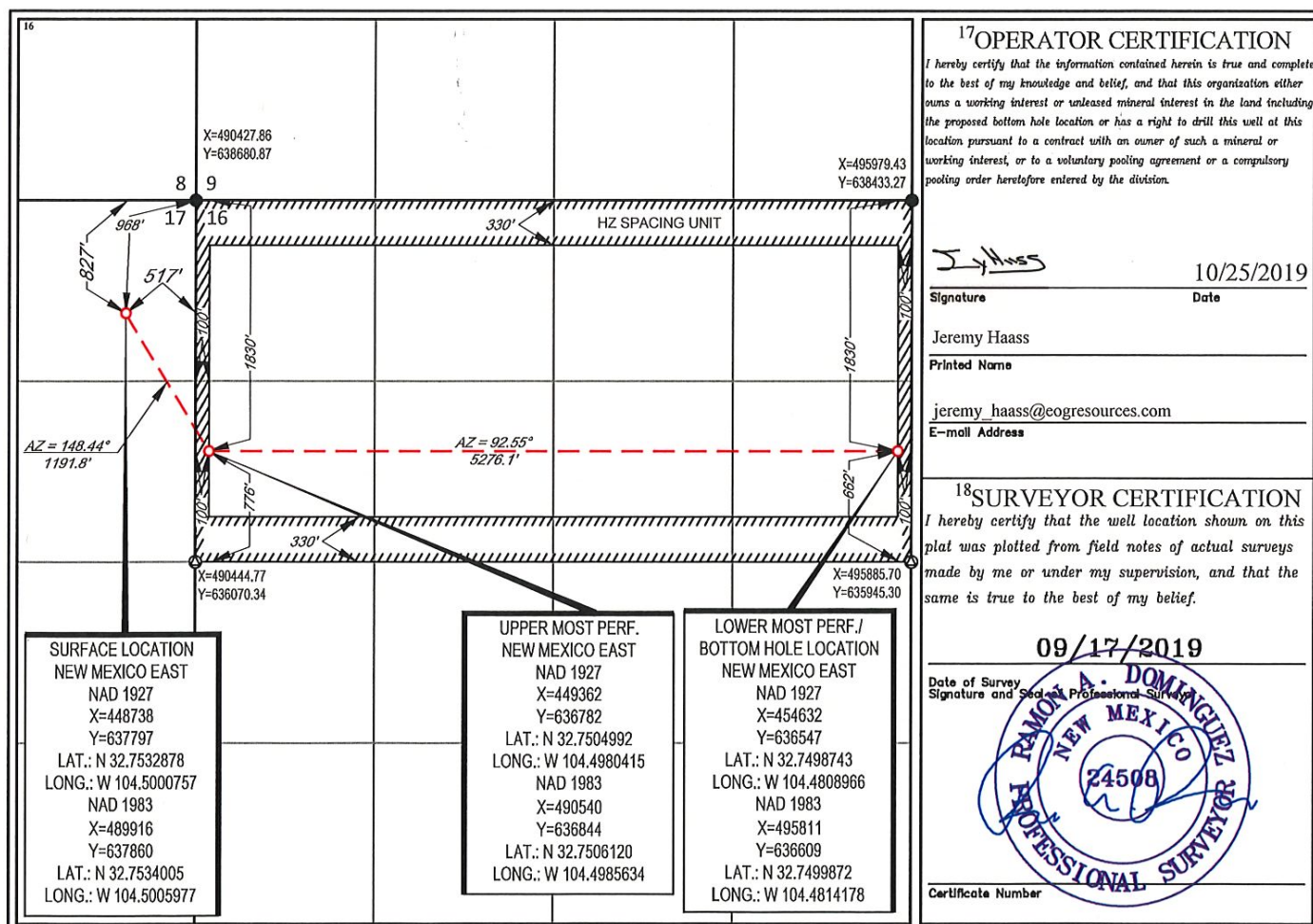
| UL or lot no. | Section   | Township    | Range       | Lot Idn  | Feet from the | North/South line | Feet from the | East/West line | County      |
|---------------|-----------|-------------|-------------|----------|---------------|------------------|---------------|----------------|-------------|
| <b>A</b>      | <b>17</b> | <b>18-S</b> | <b>25-E</b> | <b>-</b> | <b>827'</b>   | <b>NORTH</b>     | <b>517'</b>   | <b>EAST</b>    | <b>EDDY</b> |

<sup>11</sup>Bottom Hole Location If Different From Surface

| UL or lot no. | Section   | Township    | Range       | Lot Idn  | Feet from the | North/South line | Feet from the | East/West line | County      |
|---------------|-----------|-------------|-------------|----------|---------------|------------------|---------------|----------------|-------------|
| <b>H</b>      | <b>16</b> | <b>18-S</b> | <b>25-E</b> | <b>-</b> | <b>1830'</b>  | <b>NORTH</b>     | <b>100'</b>   | <b>EAST</b>    | <b>EDDY</b> |

|                                                |                               |                                  |                         |
|------------------------------------------------|-------------------------------|----------------------------------|-------------------------|
| <sup>12</sup> Dedicated Acres<br><b>320.00</b> | <sup>13</sup> Joint or Infill | <sup>14</sup> Consolidation Code | <sup>15</sup> Order No. |
|------------------------------------------------|-------------------------------|----------------------------------|-------------------------|

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



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**State of New Mexico**  
**Energy, Minerals and Natural Resources**  
**Oil Conservation Division**  
**1220 S. St Francis Dr.**  
**Santa Fe, NM 87505**

## GAS CAPTURE PLAN

Date: 11/13/2019

☒ Original

Operator & OGRID No.: [7377] EOG RESOURCES INC

☐ Amended - Reason for  
Amendment: \_\_\_\_\_

This Gas Capture Plan outlines actions to be taken by the Operator to reduce well/production facility flaring/venting for new completion (new drill, recomple to new zone, re-frac) activity.

*Note: Form C-129 must be submitted and approved prior to exceeding 60 days allowed by Rule (Subsection A of 19.15.18.12 NMAC).*

### **Well(s)/Production Facility – Name of facility**

The well(s) that will be located at the production facility are shown in the table below.

| Well Name                  | API          | Well Location<br>(ULSTR) | Footages    | Expected<br>MCF/D | Flared or<br>Vented | Comments |
|----------------------------|--------------|--------------------------|-------------|-------------------|---------------------|----------|
| HERRING 16 STATE COM #602H | 30-015-46441 | A-17-18S-25E             | 0827N 0517E | 500               | None                |          |

### **Gathering System and Pipeline Notification**

Well(s) will be connected to a production facility after flowback operations are complete, if gas transporter system is in place. The gas produced from production facility is dedicated to Lucid Artesia Company and will be connected to Lucid Artesia Company Low Pressure gathering system located in Eddy County, New Mexico. It will require 215' of pipeline to connect the facility to Low Pressure gathering system. EOG RESOURCES INC provides (periodically) to Lucid Artesia Company a drilling, completion and estimated first production date for wells that are scheduled to be drilled in the foreseeable future. In addition, EOG RESOURCES INC and Lucid Artesia Company have periodic conference calls to discuss changes to drilling and completion schedules. Gas from these wells will be processed at Lucid Artesia Company Processing Plant located in Sec. 26, Twn. 18S, Rng. 25E, Eddy County, New Mexico. The actual flow of the gas will be based on compression operating parameters and gathering system pressures.

### **Flowback Strategy**

After the fracture treatment/completion operations, well(s) will be produced to temporary production tanks and gas will be flared or vented. During flowback, the fluids and sand content will be monitored. When the produced fluids contain minimal sand, the wells will be turned to production facilities. Gas sales should start as soon as the wells start flowing through the production facilities, unless there are operational issues on Lucid Artesia Company system at that time. Based on current information, it is EOG RESOURCES INC's belief the system can take this gas upon completion of the well(s).

Safety requirements during cleanout operations from the use of underbalanced air cleanout systems may necessitate that sand and non-pipeline quality gas be vented and/or flared rather than sold on a temporary basis.

### **Alternatives to Reduce Flaring**

Below are alternatives considered from a conceptual standpoint to reduce the amount of gas flared.

- Power Generation – On lease
  - Only a portion of gas is consumed operating the generator, remainder of gas will be flared
- Compressed Natural Gas – On lease
  - Gas flared would be minimal, but might be uneconomical to operate when gas volume declines
- NGL Removal – On lease
  - Plants are expensive, residue gas is still flared, and uneconomical to operate when gas volume declines

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Form APD Comments

Permit 274141

**PERMIT COMMENTS**

|                                                                                              |                                     |
|----------------------------------------------------------------------------------------------|-------------------------------------|
| Operator Name and Address:<br>EOG RESOURCES INC [7377]<br>P.O. Box 2267<br>Midland, TX 79702 | API Number:<br>30-015-46441         |
|                                                                                              | Well:<br>HERRING 16 STATE COM #602H |

|            |         |              |
|------------|---------|--------------|
| Created By | Comment | Comment Date |
|------------|---------|--------------|

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Form APD Conditions

Permit 274141

**PERMIT CONDITIONS OF APPROVAL**

|                                                                                              |  |                                     |
|----------------------------------------------------------------------------------------------|--|-------------------------------------|
| Operator Name and Address:<br>EOG RESOURCES INC [7377]<br>P.O. Box 2267<br>Midland, TX 79702 |  | API Number:<br>30-015-46441         |
|                                                                                              |  | Well:<br>HERRING 16 STATE COM #602H |

|              |                                                                                     |
|--------------|-------------------------------------------------------------------------------------|
| OCD Reviewer | Condition                                                                           |
| rpodany      | Will require a directional survey with the C-104                                    |
| rpodany      | Cement is required to circulate on both surface and intermediate1 strings of casing |

## Herring 16 State Com #602H Contingency

### Location:

SL: 827' FNL 517' FEL, Unit A 17-18S-25E

BHL: 1830' FNL 100' FEL, Unit H 16-18S-25E

EOG Resources requests the approval of an intermediate casing string contingency to be determined if losses are encountered in the vertical portion of our wellbore. Surface and production casing will remain the same. Production cement will be tied back 200' into previous casing string if the intermediate string is run.

Casing and cement designs are shown below:

| Hole Size | Interval   | Csg OD | Weight | Grade | Conn         | DF <sub>min</sub> Collapse | DF <sub>min</sub> Burst | DF <sub>min</sub> Tension |
|-----------|------------|--------|--------|-------|--------------|----------------------------|-------------------------|---------------------------|
| 12.25"    | 0'-1,300'  | 9.625" | 36#    | J-55  | LTC          | 1.125                      | 1.25                    | 1.80                      |
| 8.75"     | 0'-6,550'  | 7.625" | 29.7#  | L-80  | FLUSHMAX-III | 1.125                      | 1.25                    | 1.60                      |
| 8.5"      | 0'-13,591' | 5.5"   | 20#    | P-110 | BTC          | 1.125                      | 1.25                    | 1.80                      |

| Depth   | No. Sacks | Wt. lb/gal | Yld Ft <sup>3</sup> /ft | Slurry Description                                                                                                                                                                                               |
|---------|-----------|------------|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1250'   | 255       | 12.9       | 1.97                    | Lead: Class 'C' + 4%PF20(Bentonite Gel) + 2%PF1(Calcium Chloride) + 0.125#/skPF29(Celloflake) + 0.4#/skPF45 (Defoamer) 100% Excess (TOC @ Surface)                                                               |
|         | 210       | 14.8       | 1.34                    | Tail: Class 'C' + 2%PF1(Calcium Chloride) (100% excess)                                                                                                                                                          |
| 6550'   | 580       | 12.8       | 1.79                    | Lead: 35:65 Poz C + .02 gal/sk Anti Foam + 1% Extender + .13 lb/sk Lost Circulation (TOC @ Surface) (100% Excess)                                                                                                |
|         | 220       | 14.8       | 1.34                    | Tail: Class C + 0.13% Anti Foam                                                                                                                                                                                  |
| 13,043' | 1450      | 13         | 1.48                    | Lead: Class PVL + 1.3% PF44(BWOW)(Salt) + 5% PF174 (Expanding Cement) + 0.5% PF606 (Fluid Loss) + 0.1% PF153 (Anti Settling Agent) + 0.4#/sk PF45 (Defoamer) (TOC @ 200' into previous casing string) 35% Excess |
|         |           |            |                         |                                                                                                                                                                                                                  |

### Mud Program:

| Depth          | Type        | Weight (ppg) | Viscosity | Water Loss |
|----------------|-------------|--------------|-----------|------------|
| 0-1,300'       | Fresh Water | 8.6-8.8      | 28-32     | N/c        |
| 1,300'-13,591' | Cut Brine   | 8.8-9.6      | 34-40     | Less than  |



## **EOG Resources - Artesia**

Eddy County (NAD83)

Herring

Herring 16 State Com #602H

Lateral

Plan: Plan #1

## **Standard Planning Report**

25 October, 2019





## Planning Report

|           |                            |                              |                                  |
|-----------|----------------------------|------------------------------|----------------------------------|
| Database: | EDM 5000.14                | Local Co-ordinate Reference: | Well Herring 16 State Com #602H  |
| Company:  | EOG Resources - Artesia    | TVD Reference:               | KB @ 3596.000usft (Planning Rig) |
| Project:  | Eddy County (NAD83)        | MD Reference:                | KB @ 3596.000usft (Planning Rig) |
| Site:     | Herring                    | North Reference:             | Grid                             |
| Well:     | Herring 16 State Com #602H | Survey Calculation Method:   | Minimum Curvature                |
| Wellbore: | Lateral                    |                              |                                  |
| Design:   | Plan #1                    |                              |                                  |

|             |                           |               |                |
|-------------|---------------------------|---------------|----------------|
| Project     | Eddy County (NAD83)       |               |                |
| Map System: | US State Plane 1983       | System Datum: | Mean Sea Level |
| Geo Datum:  | North American Datum 1983 |               |                |
| Map Zone:   | New Mexico Eastern Zone   |               |                |

|                       |            |              |                  |                             |
|-----------------------|------------|--------------|------------------|-----------------------------|
| Site                  | Herring    |              |                  |                             |
| Site Position:        |            | Northing:    | 637,893.000 usft | Latitude: 32° 45' 12.573 N  |
| From:                 | Map        | Easting:     | 489,916.000 usft | Longitude: 104° 30' 2.152 W |
| Position Uncertainty: | 0.000 usft | Slot Radius: | 13-3/16 "        | Grid Convergence: -0.09 °   |

|                      |                            |                     |               |                  |
|----------------------|----------------------------|---------------------|---------------|------------------|
| Well                 | Herring 16 State Com #602H |                     |               |                  |
| Well Position        | +N/-S                      | -33.000 usft        | Northing:     | 637,860.000 usft |
|                      | +E/-W                      | 0.000 usft          | Easting:      | 489,916.000 usft |
| Position Uncertainty | 0.000 usft                 | Wellhead Elevation: | Ground Level: | 3,578.000 usft   |

|           |            |             |                 |               |                     |
|-----------|------------|-------------|-----------------|---------------|---------------------|
| Wellbore  | Lateral    |             |                 |               |                     |
| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
|           | IGRF2015   | 10/24/2019  | 7.17            | 60.37         | 47,907.51997022     |

|                   |                         |              |               |               |
|-------------------|-------------------------|--------------|---------------|---------------|
| Design            | Plan #1                 |              |               |               |
| Audit Notes:      |                         |              |               |               |
| Version:          | Phase:                  | PROTOTYPE    | Tie On Depth: | 0.000         |
| Vertical Section: | Depth From (TVD) (usft) | +N/-S (usft) | +E/-W (usft)  | Direction (°) |
|                   | 0.000                   | 0.000        | 0.000         | 101.981       |

|                          |                 |                              |                     |         |
|--------------------------|-----------------|------------------------------|---------------------|---------|
| Plan Survey Tool Program | Date            | 10/25/2019                   |                     |         |
| Depth From (usft)        | Depth To (usft) | Survey (Wellbore)            | Tool Name           | Remarks |
| 1                        | 0.000           | 13,590.609 Plan #1 (Lateral) | MWD                 |         |
|                          |                 |                              | OWSG MWD - Standard |         |

|                       |                 |             |                       |              |              |                         |                        |                       |         |                |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|------------------------|-----------------------|---------|----------------|
| Plan Sections         |                 |             |                       |              |              |                         |                        |                       |         |                |
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) | TFO (°) | Target         |
| 0.000                 | 0.00            | 0.000       | 0.000                 | 0.000        | 0.000        | 0.00                    | 0.00                   | 0.00                  | 0.00    |                |
| 6,750.000             | 0.00            | 0.000       | 6,750.000             | 0.000        | 0.000        | 0.00                    | 0.00                   | 0.00                  | 0.00    |                |
| 7,481.685             | 87.80           | 164.481     | 7,227.113             | -442.414     | 122.853      | 12.00                   | 12.00                  | 0.00                  | 164.48  |                |
| 7,714.885             | 87.80           | 164.481     | 7,236.055             | -666.946     | 185.202      | 0.00                    | 0.00                   | 0.00                  | 0.00    |                |
| 8,314.363             | 89.89           | 92.553      | 7,250.000             | -1,016.000   | 624.000      | 12.00                   | 0.35                   | -12.00                | -89.40  |                |
| 13,590.609            | 89.89           | 92.553      | 7,260.000             | -1,251.000   | 5,895.000    | 0.00                    | 0.00                   | 0.00                  | 0.00    | H16SC#602HJBHL |





## Planning Report

|           |                            |                              |                                  |
|-----------|----------------------------|------------------------------|----------------------------------|
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| Company:  | EOG Resources - Artesia    | TVD Reference:               | KB @ 3596.000usft (Planning Rig) |
| Project:  | Eddy County (NAD83)        | MD Reference:                | KB @ 3596.000usft (Planning Rig) |
| Site:     | Herring                    | North Reference:             | Grid                             |
| Well:     | Herring 16 State Com #602H | Survey Calculation Method:   | Minimum Curvature                |
| Wellbore: | Lateral                    |                              |                                  |
| Design:   | Plan #1                    |                              |                                  |

## Planned Survey

| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| 0.000                 | 0.00            | 0.000       | 0.000                 | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 100.000               | 0.00            | 0.000       | 100.000               | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 200.000               | 0.00            | 0.000       | 200.000               | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 300.000               | 0.00            | 0.000       | 300.000               | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 400.000               | 0.00            | 0.000       | 400.000               | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 500.000               | 0.00            | 0.000       | 500.000               | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 600.000               | 0.00            | 0.000       | 600.000               | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 700.000               | 0.00            | 0.000       | 700.000               | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 800.000               | 0.00            | 0.000       | 800.000               | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 900.000               | 0.00            | 0.000       | 900.000               | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 1,000.000             | 0.00            | 0.000       | 1,000.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 1,100.000             | 0.00            | 0.000       | 1,100.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 1,200.000             | 0.00            | 0.000       | 1,200.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 1,300.000             | 0.00            | 0.000       | 1,300.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 1,400.000             | 0.00            | 0.000       | 1,400.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 1,500.000             | 0.00            | 0.000       | 1,500.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 1,600.000             | 0.00            | 0.000       | 1,600.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 1,700.000             | 0.00            | 0.000       | 1,700.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 1,800.000             | 0.00            | 0.000       | 1,800.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 1,900.000             | 0.00            | 0.000       | 1,900.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 2,000.000             | 0.00            | 0.000       | 2,000.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 2,100.000             | 0.00            | 0.000       | 2,100.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 2,200.000             | 0.00            | 0.000       | 2,200.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 2,300.000             | 0.00            | 0.000       | 2,300.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 2,400.000             | 0.00            | 0.000       | 2,400.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 2,500.000             | 0.00            | 0.000       | 2,500.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 2,600.000             | 0.00            | 0.000       | 2,600.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 2,700.000             | 0.00            | 0.000       | 2,700.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 2,800.000             | 0.00            | 0.000       | 2,800.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 2,900.000             | 0.00            | 0.000       | 2,900.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 3,000.000             | 0.00            | 0.000       | 3,000.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 3,100.000             | 0.00            | 0.000       | 3,100.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 3,200.000             | 0.00            | 0.000       | 3,200.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 3,300.000             | 0.00            | 0.000       | 3,300.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 3,400.000             | 0.00            | 0.000       | 3,400.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 3,500.000             | 0.00            | 0.000       | 3,500.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 3,600.000             | 0.00            | 0.000       | 3,600.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 3,700.000             | 0.00            | 0.000       | 3,700.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 3,800.000             | 0.00            | 0.000       | 3,800.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 3,900.000             | 0.00            | 0.000       | 3,900.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 4,000.000             | 0.00            | 0.000       | 4,000.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 4,100.000             | 0.00            | 0.000       | 4,100.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 4,200.000             | 0.00            | 0.000       | 4,200.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 4,300.000             | 0.00            | 0.000       | 4,300.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 4,400.000             | 0.00            | 0.000       | 4,400.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 4,500.000             | 0.00            | 0.000       | 4,500.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 4,600.000             | 0.00            | 0.000       | 4,600.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 4,700.000             | 0.00            | 0.000       | 4,700.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 4,800.000             | 0.00            | 0.000       | 4,800.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 4,900.000             | 0.00            | 0.000       | 4,900.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 5,000.000             | 0.00            | 0.000       | 5,000.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 5,100.000             | 0.00            | 0.000       | 5,100.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 5,200.000             | 0.00            | 0.000       | 5,200.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 5,300.000             | 0.00            | 0.000       | 5,300.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |





## Planning Report

|           |                            |                              |                                  |
|-----------|----------------------------|------------------------------|----------------------------------|
| Database: | EDM 5000.14                | Local Co-ordinate Reference: | Well Herring 16 State Com #602H  |
| Company:  | EOG Resources - Artesia    | TVD Reference:               | KB @ 3596.000usft (Planning Rig) |
| Project:  | Eddy County (NAD83)        | MD Reference:                | KB @ 3596.000usft (Planning Rig) |
| Site:     | Herring                    | North Reference:             | Grid                             |
| Well:     | Herring 16 State Com #602H | Survey Calculation Method:   | Minimum Curvature                |
| Wellbore: | Lateral                    |                              |                                  |
| Design:   | Plan #1                    |                              |                                  |

## Planned Survey

| Measured Depth (usft)  | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|------------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| 5,400.000              | 0.00            | 0.000       | 5,400.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 5,500.000              | 0.00            | 0.000       | 5,500.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 5,600.000              | 0.00            | 0.000       | 5,600.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 5,700.000              | 0.00            | 0.000       | 5,700.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 5,800.000              | 0.00            | 0.000       | 5,800.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 5,900.000              | 0.00            | 0.000       | 5,900.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 6,000.000              | 0.00            | 0.000       | 6,000.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 6,100.000              | 0.00            | 0.000       | 6,100.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 6,200.000              | 0.00            | 0.000       | 6,200.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 6,300.000              | 0.00            | 0.000       | 6,300.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 6,400.000              | 0.00            | 0.000       | 6,400.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 6,500.000              | 0.00            | 0.000       | 6,500.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 6,600.000              | 0.00            | 0.000       | 6,600.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 6,700.000              | 0.00            | 0.000       | 6,700.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| 6,750.000              | 0.00            | 0.000       | 6,750.000             | 0.000        | 0.000        | 0.000                   | 0.00                    | 0.00                   | 0.00                  |
| <b>KOP 12°/100' BR</b> |                 |             |                       |              |              |                         |                         |                        |                       |
| 6,775.000              | 3.00            | 164.481     | 6,774.988             | -0.630       | 0.175        | 0.302                   | 12.00                   | 12.00                  | 0.00                  |
| 6,800.000              | 6.00            | 164.481     | 6,799.908             | -2.520       | 0.700        | 1.208                   | 12.00                   | 12.00                  | 0.00                  |
| 6,825.000              | 9.00            | 164.481     | 6,824.692             | -5.664       | 1.573        | 2.714                   | 12.00                   | 12.00                  | 0.00                  |
| 6,850.000              | 12.00           | 164.481     | 6,849.270             | -10.053      | 2.792        | 4.818                   | 12.00                   | 12.00                  | 0.00                  |
| 6,875.000              | 15.00           | 164.481     | 6,873.577             | -15.676      | 4.353        | 7.512                   | 12.00                   | 12.00                  | 0.00                  |
| 6,900.000              | 18.00           | 164.481     | 6,897.544             | -22.517      | 6.253        | 10.791                  | 12.00                   | 12.00                  | 0.00                  |
| 6,925.000              | 21.00           | 164.481     | 6,921.108             | -30.557      | 8.485        | 14.644                  | 12.00                   | 12.00                  | 0.00                  |
| 6,950.000              | 24.00           | 164.481     | 6,944.202             | -39.774      | 11.045       | 19.061                  | 12.00                   | 12.00                  | 0.00                  |
| 6,975.000              | 27.00           | 164.481     | 6,966.764             | -50.143      | 13.924       | 24.030                  | 12.00                   | 12.00                  | 0.00                  |
| 7,000.000              | 30.00           | 164.481     | 6,988.732             | -61.636      | 17.115       | 29.538                  | 12.00                   | 12.00                  | 0.00                  |
| 7,025.000              | 33.00           | 164.481     | 7,010.046             | -74.221      | 20.610       | 35.569                  | 12.00                   | 12.00                  | 0.00                  |
| 7,050.000              | 36.00           | 164.481     | 7,030.646             | -87.863      | 24.398       | 42.106                  | 12.00                   | 12.00                  | 0.00                  |
| 7,075.000              | 39.00           | 164.481     | 7,050.478             | -102.525     | 28.470       | 49.133                  | 12.00                   | 12.00                  | 0.00                  |
| 7,100.000              | 42.00           | 164.481     | 7,069.486             | -118.168     | 32.814       | 56.629                  | 12.00                   | 12.00                  | 0.00                  |
| 7,125.000              | 45.00           | 164.481     | 7,087.618             | -134.747     | 37.418       | 64.575                  | 12.00                   | 12.00                  | 0.00                  |
| 7,150.000              | 48.00           | 164.481     | 7,104.825             | -152.219     | 42.269       | 72.948                  | 12.00                   | 12.00                  | 0.00                  |
| 7,175.000              | 51.00           | 164.481     | 7,121.060             | -170.534     | 47.355       | 81.725                  | 12.00                   | 12.00                  | 0.00                  |
| 7,200.000              | 54.00           | 164.481     | 7,136.277             | -189.642     | 52.661       | 90.882                  | 12.00                   | 12.00                  | 0.00                  |
| 7,225.000              | 57.00           | 164.481     | 7,150.435             | -209.492     | 58.173       | 100.395                 | 12.00                   | 12.00                  | 0.00                  |
| 7,250.000              | 60.00           | 164.481     | 7,163.496             | -230.028     | 63.876       | 110.236                 | 12.00                   | 12.00                  | 0.00                  |
| 7,275.000              | 63.00           | 164.481     | 7,175.424             | -251.195     | 69.754       | 120.380                 | 12.00                   | 12.00                  | 0.00                  |
| 7,300.000              | 66.00           | 164.481     | 7,186.185             | -272.935     | 75.790       | 130.798                 | 12.00                   | 12.00                  | 0.00                  |
| 7,325.000              | 69.00           | 164.481     | 7,195.751             | -295.187     | 81.970       | 141.462                 | 12.00                   | 12.00                  | 0.00                  |
| 7,350.000              | 72.00           | 164.481     | 7,204.096             | -317.891     | 88.274       | 152.343                 | 12.00                   | 12.00                  | 0.00                  |
| 7,375.000              | 75.00           | 164.481     | 7,211.195             | -340.985     | 94.687       | 163.410                 | 12.00                   | 12.00                  | 0.00                  |
| 7,400.000              | 78.00           | 164.481     | 7,217.031             | -364.405     | 101.191      | 174.634                 | 12.00                   | 12.00                  | 0.00                  |
| 7,425.000              | 81.00           | 164.481     | 7,221.586             | -388.088     | 107.767      | 185.983                 | 12.00                   | 12.00                  | 0.00                  |
| 7,450.000              | 84.00           | 164.481     | 7,224.849             | -411.968     | 114.398      | 197.427                 | 12.00                   | 12.00                  | 0.00                  |
| 7,475.000              | 87.00           | 164.481     | 7,226.810             | -435.979     | 121.066      | 208.934                 | 12.00                   | 12.00                  | 0.00                  |
| 7,481.685              | 87.80           | 164.481     | 7,227.113             | -442.414     | 122.853      | 212.017                 | 12.00                   | 12.00                  | 0.00                  |
| 7,500.000              | 87.80           | 164.481     | 7,227.815             | -460.048     | 127.749      | 220.468                 | 0.00                    | 0.00                   | 0.00                  |
| 7,600.000              | 87.80           | 164.481     | 7,231.650             | -556.331     | 154.486      | 266.610                 | 0.00                    | 0.00                   | 0.00                  |
| 7,700.000              | 87.80           | 164.481     | 7,235.485             | -652.614     | 181.223      | 312.752                 | 0.00                    | 0.00                   | 0.00                  |
| 7,714.885              | 87.80           | 164.481     | 7,236.055             | -666.946     | 185.202      | 319.620                 | 0.00                    | 0.00                   | 0.00                  |
| 7,725.000              | 87.82           | 163.266     | 7,236.442             | -676.656     | 188.010      | 324.382                 | 12.00                   | 0.13                   | -12.01                |
| 7,750.000              | 87.85           | 160.264     | 7,237.387             | -700.381     | 195.826      | 336.953                 | 12.00                   | 0.15                   | -12.01                |
| 7,775.000              | 87.90           | 157.262     | 7,238.315             | -723.664     | 204.874      | 350.637                 | 12.00                   | 0.17                   | -12.01                |





## Planning Report

|           |                            |                              |                                  |
|-----------|----------------------------|------------------------------|----------------------------------|
| Database: | EDM 5000.14                | Local Co-ordinate Reference: | Well Herring 16 State Com #602H  |
| Company:  | EOG Resources - Artesia    | TVD Reference:               | KB @ 3596.000usft (Planning Rig) |
| Project:  | Eddy County (NAD83)        | MD Reference:                | KB @ 3596.000usft (Planning Rig) |
| Site:     | Herring                    | North Reference:             | Grid                             |
| Well:     | Herring 16 State Com #602H | Survey Calculation Method:   | Minimum Curvature                |
| Wellbore: | Lateral                    |                              |                                  |
| Design:   | Plan #1                    |                              |                                  |

## Planned Survey

| Measured Depth (usft)                 | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|---------------------------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| 7,800.000                             | 87.94           | 154.261     | 7,239.223             | -746.443     | 215.130      | 365.398                 | 12.00                   | 0.19                   | -12.01                |
| 7,825.000                             | 88.00           | 151.259     | 7,240.108             | -768.654     | 226.564      | 381.194                 | 12.00                   | 0.22                   | -12.01                |
| 7,850.000                             | 88.06           | 148.258     | 7,240.968             | -790.236     | 239.146      | 397.983                 | 12.00                   | 0.24                   | -12.00                |
| 7,875.000                             | 88.12           | 145.257     | 7,241.801             | -811.131     | 252.842      | 415.717                 | 12.00                   | 0.26                   | -12.00                |
| 7,900.000                             | 88.19           | 142.257     | 7,242.605             | -831.281     | 267.613      | 434.349                 | 12.00                   | 0.28                   | -12.00                |
| 7,925.000                             | 88.27           | 139.256     | 7,243.377             | -850.631     | 283.419      | 453.828                 | 12.00                   | 0.30                   | -12.00                |
| 7,950.000                             | 88.35           | 136.256     | 7,244.115             | -869.128     | 300.217      | 474.100                 | 12.00                   | 0.32                   | -12.00                |
| 7,975.000                             | 88.43           | 133.256     | 7,244.817             | -886.722     | 317.961      | 495.109                 | 12.00                   | 0.34                   | -12.00                |
| 8,000.000                             | 88.52           | 130.256     | 7,245.482             | -903.363     | 336.602      | 516.799                 | 12.00                   | 0.35                   | -12.00                |
| 8,025.000                             | 88.61           | 127.257     | 7,246.107             | -919.006     | 356.089      | 539.109                 | 12.00                   | 0.37                   | -12.00                |
| 8,050.000                             | 88.71           | 124.257     | 7,246.691             | -933.609     | 376.368      | 561.978                 | 12.00                   | 0.39                   | -12.00                |
| 8,075.000                             | 88.81           | 121.258     | 7,247.231             | -947.132     | 397.385      | 585.344                 | 12.00                   | 0.40                   | -12.00                |
| 8,100.000                             | 88.91           | 118.259     | 7,247.728             | -959.537     | 419.082      | 609.143                 | 12.00                   | 0.41                   | -12.00                |
| 8,125.000                             | 89.02           | 115.261     | 7,248.178             | -970.790     | 441.398      | 633.309                 | 12.00                   | 0.43                   | -11.99                |
| 8,150.000                             | 89.13           | 112.262     | 7,248.582             | -980.861     | 464.273      | 657.777                 | 12.00                   | 0.44                   | -11.99                |
| 8,175.000                             | 89.24           | 109.264     | 7,248.937             | -989.722     | 487.644      | 682.478                 | 12.00                   | 0.45                   | -11.99                |
| 8,200.000                             | 89.35           | 106.266     | 7,249.244             | -997.348     | 511.448      | 707.346                 | 12.00                   | 0.45                   | -11.99                |
| 8,225.000                             | 89.47           | 103.268     | 7,249.500             | -1,003.720   | 535.618      | 732.313                 | 12.00                   | 0.46                   | -11.99                |
| 8,250.000                             | 89.59           | 100.270     | 7,249.706             | -1,008.818   | 560.089      | 757.309                 | 12.00                   | 0.47                   | -11.99                |
| 8,275.000                             | 89.70           | 97.273      | 7,249.861             | -1,012.630   | 584.793      | 782.266                 | 12.00                   | 0.47                   | -11.99                |
| 8,300.000                             | 89.82           | 94.275      | 7,249.964             | -1,015.145   | 609.663      | 807.117                 | 12.00                   | 0.47                   | -11.99                |
| 8,314.363                             | 89.89           | 92.553      | 7,250.000             | -1,016.000   | 624.000      | 821.319                 | 12.00                   | 0.48                   | -11.99                |
| [H16SC#602H]JUMP 8314' MD (7250' TVD) |                 |             |                       |              |              |                         |                         |                        |                       |
| 8,400.000                             | 89.89           | 92.553      | 7,250.162             | -1,019.814   | 709.552      | 905.799                 | 0.00                    | 0.00                   | 0.00                  |
| 8,500.000                             | 89.89           | 92.553      | 7,250.351             | -1,024.268   | 809.452      | 1,004.448               | 0.00                    | 0.00                   | 0.00                  |
| 8,600.000                             | 89.89           | 92.553      | 7,250.541             | -1,028.722   | 909.353      | 1,103.097               | 0.00                    | 0.00                   | 0.00                  |
| 8,700.000                             | 89.89           | 92.553      | 7,250.731             | -1,033.176   | 1,009.254    | 1,201.746               | 0.00                    | 0.00                   | 0.00                  |
| 8,800.000                             | 89.89           | 92.553      | 7,250.920             | -1,037.630   | 1,109.154    | 1,300.394               | 0.00                    | 0.00                   | 0.00                  |
| 8,900.000                             | 89.89           | 92.553      | 7,251.110             | -1,042.084   | 1,209.055    | 1,399.043               | 0.00                    | 0.00                   | 0.00                  |
| 9,000.000                             | 89.89           | 92.553      | 7,251.299             | -1,046.538   | 1,308.955    | 1,497.692               | 0.00                    | 0.00                   | 0.00                  |
| 9,100.000                             | 89.89           | 92.553      | 7,251.489             | -1,050.992   | 1,408.856    | 1,596.341               | 0.00                    | 0.00                   | 0.00                  |
| 9,200.000                             | 89.89           | 92.553      | 7,251.678             | -1,055.446   | 1,508.756    | 1,694.990               | 0.00                    | 0.00                   | 0.00                  |
| 9,300.000                             | 89.89           | 92.553      | 7,251.868             | -1,059.899   | 1,608.657    | 1,793.639               | 0.00                    | 0.00                   | 0.00                  |
| 9,400.000                             | 89.89           | 92.553      | 7,252.057             | -1,064.353   | 1,708.558    | 1,892.288               | 0.00                    | 0.00                   | 0.00                  |
| 9,500.000                             | 89.89           | 92.553      | 7,252.247             | -1,068.807   | 1,808.458    | 1,990.937               | 0.00                    | 0.00                   | 0.00                  |
| 9,600.000                             | 89.89           | 92.553      | 7,252.436             | -1,073.261   | 1,908.359    | 2,089.586               | 0.00                    | 0.00                   | 0.00                  |
| 9,700.000                             | 89.89           | 92.553      | 7,252.626             | -1,077.715   | 2,008.259    | 2,188.235               | 0.00                    | 0.00                   | 0.00                  |
| 9,800.000                             | 89.89           | 92.553      | 7,252.815             | -1,082.169   | 2,108.160    | 2,286.884               | 0.00                    | 0.00                   | 0.00                  |
| 9,900.000                             | 89.89           | 92.553      | 7,253.005             | -1,086.623   | 2,208.061    | 2,385.533               | 0.00                    | 0.00                   | 0.00                  |
| 10,000.000                            | 89.89           | 92.553      | 7,253.194             | -1,091.077   | 2,307.961    | 2,484.181               | 0.00                    | 0.00                   | 0.00                  |
| 10,100.000                            | 89.89           | 92.553      | 7,253.384             | -1,095.531   | 2,407.862    | 2,582.830               | 0.00                    | 0.00                   | 0.00                  |
| 10,200.000                            | 89.89           | 92.553      | 7,253.573             | -1,099.985   | 2,507.762    | 2,681.479               | 0.00                    | 0.00                   | 0.00                  |
| 10,300.000                            | 89.89           | 92.553      | 7,253.763             | -1,104.439   | 2,607.663    | 2,780.128               | 0.00                    | 0.00                   | 0.00                  |
| 10,400.000                            | 89.89           | 92.553      | 7,253.953             | -1,108.893   | 2,707.563    | 2,878.777               | 0.00                    | 0.00                   | 0.00                  |
| 10,500.000                            | 89.89           | 92.553      | 7,254.142             | -1,113.347   | 2,807.464    | 2,977.426               | 0.00                    | 0.00                   | 0.00                  |
| 10,600.000                            | 89.89           | 92.553      | 7,254.332             | -1,117.800   | 2,907.365    | 3,076.075               | 0.00                    | 0.00                   | 0.00                  |
| 10,700.000                            | 89.89           | 92.553      | 7,254.521             | -1,122.254   | 3,007.265    | 3,174.724               | 0.00                    | 0.00                   | 0.00                  |
| 10,800.000                            | 89.89           | 92.553      | 7,254.711             | -1,126.708   | 3,107.166    | 3,273.373               | 0.00                    | 0.00                   | 0.00                  |
| 10,900.000                            | 89.89           | 92.553      | 7,254.900             | -1,131.162   | 3,207.066    | 3,372.022               | 0.00                    | 0.00                   | 0.00                  |
| 11,000.000                            | 89.89           | 92.553      | 7,255.090             | -1,135.616   | 3,306.967    | 3,470.671               | 0.00                    | 0.00                   | 0.00                  |
| 11,100.000                            | 89.89           | 92.553      | 7,255.279             | -1,140.070   | 3,406.867    | 3,569.320               | 0.00                    | 0.00                   | 0.00                  |
| 11,200.000                            | 89.89           | 92.553      | 7,255.469             | -1,144.524   | 3,506.768    | 3,667.968               | 0.00                    | 0.00                   | 0.00                  |
| 11,300.000                            | 89.89           | 92.553      | 7,255.658             | -1,148.978   | 3,606.669    | 3,766.617               | 0.00                    | 0.00                   | 0.00                  |
| 11,400.000                            | 89.89           | 92.553      | 7,255.848             | -1,153.432   | 3,706.569    | 3,865.266               | 0.00                    | 0.00                   | 0.00                  |





## Planning Report

|           |                            |                              |                                  |
|-----------|----------------------------|------------------------------|----------------------------------|
| Database: | EDM 5000.14                | Local Co-ordinate Reference: | Well Herring 16 State Com #602H  |
| Company:  | EOG Resources - Artesia    | TVD Reference:               | KB @ 3596.000usft (Planning Rig) |
| Project:  | Eddy County (NAD83)        | MD Reference:                | KB @ 3596.000usft (Planning Rig) |
| Site:     | Herring                    | North Reference:             | Grid                             |
| Well:     | Herring 16 State Com #602H | Survey Calculation Method:   | Minimum Curvature                |
| Wellbore: | Lateral                    |                              |                                  |
| Design:   | Plan #1                    |                              |                                  |

## Planned Survey

| Measured Depth (usft)                 | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|---------------------------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| 11,500.000                            | 89.89           | 92.553      | 7,256.037             | -1,157.886   | 3,806.470    | 3,963.915               | 0.00                    | 0.00                   | 0.00                  |
| 11,600.000                            | 89.89           | 92.553      | 7,256.227             | -1,162.340   | 3,906.370    | 4,062.564               | 0.00                    | 0.00                   | 0.00                  |
| 11,700.000                            | 89.89           | 92.553      | 7,256.416             | -1,166.794   | 4,006.271    | 4,161.213               | 0.00                    | 0.00                   | 0.00                  |
| 11,800.000                            | 89.89           | 92.553      | 7,256.606             | -1,171.248   | 4,106.172    | 4,259.862               | 0.00                    | 0.00                   | 0.00                  |
| 11,900.000                            | 89.89           | 92.553      | 7,256.795             | -1,175.702   | 4,206.072    | 4,358.511               | 0.00                    | 0.00                   | 0.00                  |
| 12,000.000                            | 89.89           | 92.553      | 7,256.985             | -1,180.155   | 4,305.973    | 4,457.160               | 0.00                    | 0.00                   | 0.00                  |
| 12,100.000                            | 89.89           | 92.553      | 7,257.175             | -1,184.609   | 4,405.873    | 4,555.809               | 0.00                    | 0.00                   | 0.00                  |
| 12,200.000                            | 89.89           | 92.553      | 7,257.364             | -1,189.063   | 4,505.774    | 4,654.458               | 0.00                    | 0.00                   | 0.00                  |
| 12,300.000                            | 89.89           | 92.553      | 7,257.554             | -1,193.517   | 4,605.674    | 4,753.106               | 0.00                    | 0.00                   | 0.00                  |
| 12,400.000                            | 89.89           | 92.553      | 7,257.743             | -1,197.971   | 4,705.575    | 4,851.755               | 0.00                    | 0.00                   | 0.00                  |
| 12,500.000                            | 89.89           | 92.553      | 7,257.933             | -1,202.425   | 4,805.476    | 4,950.404               | 0.00                    | 0.00                   | 0.00                  |
| 12,600.000                            | 89.89           | 92.553      | 7,258.122             | -1,206.879   | 4,905.376    | 5,049.053               | 0.00                    | 0.00                   | 0.00                  |
| 12,700.000                            | 89.89           | 92.553      | 7,258.312             | -1,211.333   | 5,005.277    | 5,147.702               | 0.00                    | 0.00                   | 0.00                  |
| 12,800.000                            | 89.89           | 92.553      | 7,258.501             | -1,215.787   | 5,105.177    | 5,246.351               | 0.00                    | 0.00                   | 0.00                  |
| 12,900.000                            | 89.89           | 92.553      | 7,258.691             | -1,220.241   | 5,205.078    | 5,345.000               | 0.00                    | 0.00                   | 0.00                  |
| 13,000.000                            | 89.89           | 92.553      | 7,258.880             | -1,224.695   | 5,304.978    | 5,443.649               | 0.00                    | 0.00                   | 0.00                  |
| 13,100.000                            | 89.89           | 92.553      | 7,259.070             | -1,229.149   | 5,404.879    | 5,542.298               | 0.00                    | 0.00                   | 0.00                  |
| 13,200.000                            | 89.89           | 92.553      | 7,259.259             | -1,233.603   | 5,504.780    | 5,640.947               | 0.00                    | 0.00                   | 0.00                  |
| 13,300.000                            | 89.89           | 92.553      | 7,259.449             | -1,238.056   | 5,604.680    | 5,739.596               | 0.00                    | 0.00                   | 0.00                  |
| 13,400.000                            | 89.89           | 92.553      | 7,259.638             | -1,242.510   | 5,704.581    | 5,838.245               | 0.00                    | 0.00                   | 0.00                  |
| 13,500.000                            | 89.89           | 92.553      | 7,259.828             | -1,246.964   | 5,804.481    | 5,936.893               | 0.00                    | 0.00                   | 0.00                  |
| 13,590.608                            | 89.89           | 92.553      | 7,260.000             | -1,251.000   | 5,894.999    | 6,026.277               | 0.00                    | 0.00                   | 0.00                  |
| [H16SC#602H]EOL 13591' MD (7260' TVD) |                 |             |                       |              |              |                         |                         |                        |                       |

## Design Targets

| Target Name                                            | Dip Angle (°) | Dip Dir. (°) | TVD (usft) | +N/-S (usft) | +E/-W (usft) | Northing (usft) | Easting (usft) | Latitude         | Longitude         |
|--------------------------------------------------------|---------------|--------------|------------|--------------|--------------|-----------------|----------------|------------------|-------------------|
| - hit/miss target                                      |               |              |            |              |              |                 |                |                  |                   |
| - Shape                                                |               |              |            |              |              |                 |                |                  |                   |
| H16SC#602H]UMP<br>- plan hits target center<br>- Point | 0.00          | 0.000        | 7,250.000  | -1,016.000   | 624.000      | 636,844.000     | 490,540.000    | 32° 45' 2.202 N  | 104° 29' 54.826 W |
| H16SC#602H]BHL<br>- plan hits target center<br>- Point | 0.00          | 0.000        | 7,260.000  | -1,251.000   | 5,895.000    | 636,609.000     | 495,811.000    | 32° 44' 59.954 N | 104° 28' 53.100 W |

## Plan Annotations

| Measured Depth (usft) | Vertical Depth (usft) | Local Coordinates |              | Comment                               |
|-----------------------|-----------------------|-------------------|--------------|---------------------------------------|
|                       |                       | +N/-S (usft)      | +E/-W (usft) |                                       |
| 6,750.000             | 6,750.000             | 0.000             | 0.000        | KOP 12°/100' BR                       |
| 8,314.363             | 7,250.000             | -1,016.000        | 624.000      | [H16SC#602H]UMP 8314' MD (7250' TVD)  |
| 13,590.608            | 7,260.000             | -1,251.000        | 5,894.999    | [H16SC#602H]EOL 13591' MD (7260' TVD) |

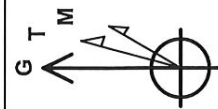


Project: Eddy County (NAD83)  
 Site: Herring  
 Well: Herring 16 State Com #602H  
 Wellbore: Lateral  
 Design: Plan #1  
 Ground Elevation 3578.000  
 Northing 637860.000  
 Easting 489916.000  
 KB @ 3596.000usft (Planning Rig)

PROJECT DETAILS: Eddy County (NAD83)

Geodetic System: US State Plane 1983  
 Datum: North American Datum 1983  
 Ellipsoid: GRS 1980  
 Zone: New Mexico Eastern Zone

System Datum: Mean Sea Level



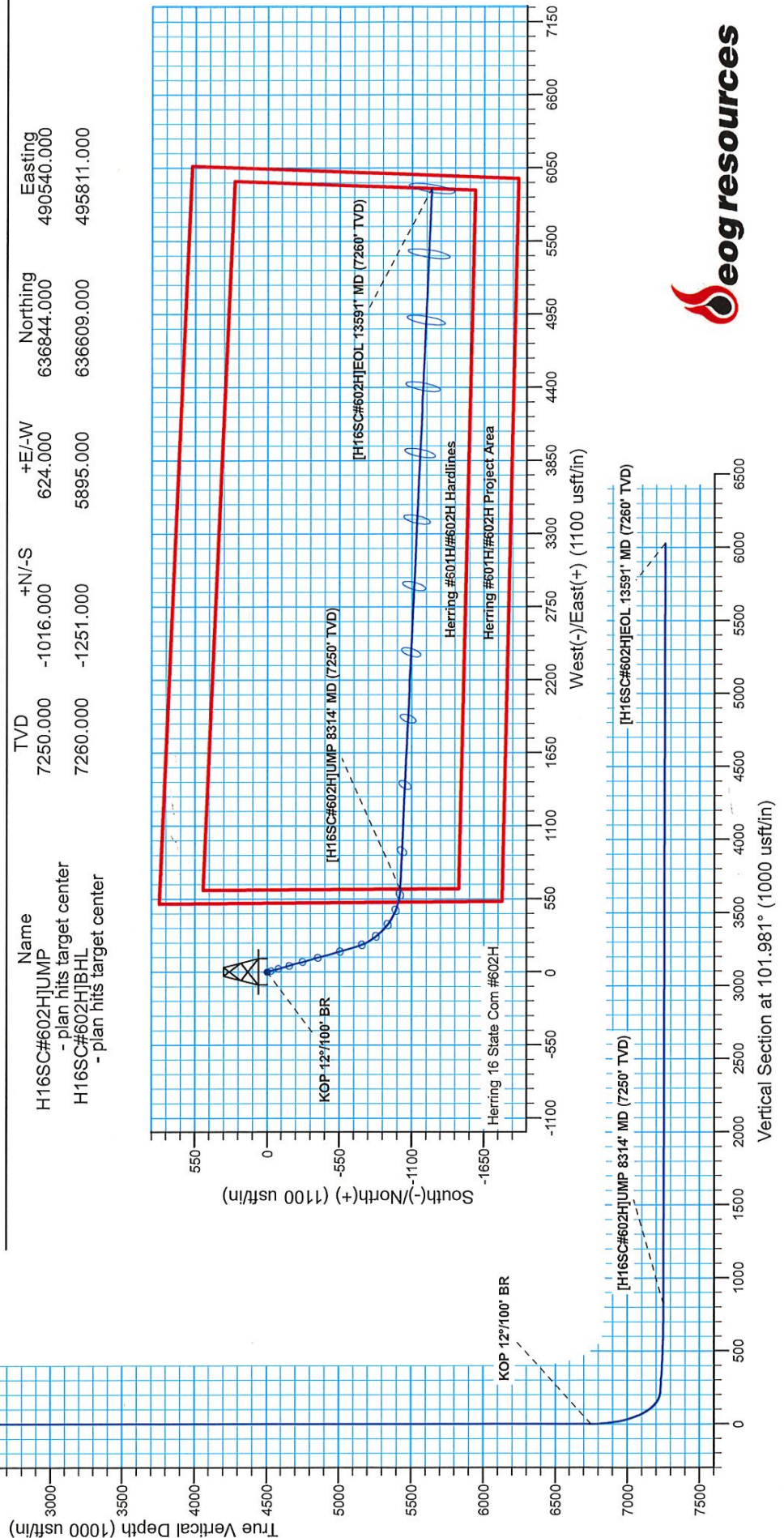
Azimuths to Grid North  
 True North: 0.09°  
 Magnetic North: 7.26°  
 Magnetic Field  
 Strength: 47907.5nT  
 Dip Angle: 60.37°  
 Date: 10/24/2019  
 Model: IGRF2015

### SECTION DETAILS

| Sec | MD        | Inc   | Azi     | TVD      | +N/-S     | +E/-W    | Dleg  | TFace  | VSec     |
|-----|-----------|-------|---------|----------|-----------|----------|-------|--------|----------|
| 1   | 0.000     | 0.00  | 0.000   | 0.000    | 0.000     | 0.000    | 0.00  | 0.00   | 0.000    |
| 2   | 6750.000  | 0.00  | 0.000   | 6750.000 | 0.000     | 0.000    | 0.00  | 0.00   | 0.000    |
| 3   | 7481.685  | 87.80 | 164.481 | 7227.113 | -442.414  | 122.853  | 12.00 | 164.48 | 212.017  |
| 4   | 7714.885  | 87.80 | 164.481 | 7236.056 | -666.946  | 185.202  | 0.00  | 0.00   | 319.620  |
| 5   | 8314.363  | 89.89 | 92.553  | 7250.000 | -1016.000 | 624.000  | 12.00 | -89.40 | 821.319  |
| 6   | 13590.608 | 89.89 | 92.553  | 7260.000 | -1251.000 | 5895.000 | 0.00  | 0.00   | 6026.278 |

### DESIGN TARGET DETAILS

| Name                      | TVD      | +N/-S     | +E/-W    | Northing   | Easting    |
|---------------------------|----------|-----------|----------|------------|------------|
| H16SC#602HJUMP            | 7250.000 | -1016.000 | 624.000  | 636844.000 | 490540.000 |
| - plan hits target center |          |           |          |            |            |
| H16SC#602HJBL             | 7260.000 | -1251.000 | 5895.000 | 636609.000 | 495811.000 |
| - plan hits target center |          |           |          |            |            |





**EOG RESOURCES, INC.  
Herring 16 State Com 602H**

**Hydrogen Sulfide Plan Summary**

- A. All personnel shall receive proper H<sub>2</sub>S training in accordance with Onshore Order III.C.3.a.
- B. Briefing Area: two perpendicular areas will be designated by signs and readily accessible.
- C. Required Emergency Equipment:

- Well control equipment
  - a. Flare line 150' from wellhead to be ignited by flare gun.
  - b. Choke manifold with a remotely operated choke.
  - c. Mud/gas separator

- Protective equipment for essential personnel.

Breathing apparatus:

- a. Rescue Packs (SCBA) — 1 unit shall be placed at each breathing area, 2 shall be stored in the safety trailer.
- b. Work/Escapes packs — 4 packs shall be stored on the rig floor with sufficient air hose not to restrict work activity.
- c. Emergency Escape Packs — 4 packs shall be stored in the doghouse for emergency evacuation.

Auxiliary Rescue Equipment:

- a. Stretcher
- b. Two OSHA full body harness
- c. 100 ft 5/8 inch OSHA approved rope
- d. 1-20# class ABC fire extinguisher

- H<sub>2</sub>S detection and monitoring equipment:

The stationary detector with three sensors will be placed in the upper dog house if equipped, set to visually alarm @ 10 ppm and audible @ 14 ppm. Calibrate a minimum of every 30 days or as needed. The sensors will be placed in the following places: Rig floor / Bell nipple / End of flow line or where well bore fluid is being discharged.

(Gas sample tubes will be stored in the safety trailer)

- Visual warning systems.
  - a. One color code condition sign will be placed at the entrance to the site reflecting the possible conditions at the site.
  - b. A colored condition flag will be on display, reflecting the current condition at the site at the time.
  - c. Two wind socks will be placed in strategic locations, visible from all angles.

**EOG RESOURCES, INC.**  
**Herring 16 State Com 602H**

- **Mud program:**  
The mud program has been designed to minimize the volume of H<sub>2</sub>S circulated to surface. The operator will have the necessary mud products to minimize hazards while drilling in H<sub>2</sub>S bearing zones.
- **Metallurgy:**  
All drill strings, casings, tubing, wellhead, blowout preventer, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H<sub>2</sub>S service.
- **Communication:**  
Communication will be via cell phones and land lines where available.

**EOG RESOURCES, INC.  
Herring 16 State Com 602H**

**Emergency Assistance Telephone List**

**PUBLIC SAFETY:** **911 or**

Eddy County Sheriff's Department (575) 887-7551

Fire Department:

Carlsbad (575) 885-3125

Artesia (575) 746-5050

Hospitals:

Carlsbad (575) 887-4121

Artesia (575) 748-3333

Hobbs (575) 392-1979

Dept. of Public Safety/Carlsbad (575) 748-9718

Highway Department (575) 885-3281

New Mexico Oil Conservation (575) 476-3440

U.S. Dept. of Labor (575) 887-1174

**EOG Resources, Inc.**

EOG / Artesia Office (575) 748-1471

**Company Drilling Consultants:**

Brent Patterson Cell (575) 365-7032

**Drilling Engineer**

Jeremiah Mullen Office (575) 748-4378

Cell (575) 703-5467

**Safety**

Brian Chandler (HSE Manager) Office (432) 686-3695

Cell (817) 239-0251



Intent ☐ As Drilled ☐

API #

|                |                |             |
|----------------|----------------|-------------|
| Operator Name: | Property Name: | Well Number |
|----------------|----------------|-------------|

## Kick Off Point (KOP)

|          |         |          |       |     |           |          |      |          |        |
|----------|---------|----------|-------|-----|-----------|----------|------|----------|--------|
| UL       | Section | Township | Range | Lot | Feet      | From N/S | Feet | From E/W | County |
| Latitude |         |          |       |     | Longitude |          |      |          | NAD    |

## First Take Point (FTP)

|          |         |          |       |     |           |          |      |          |        |
|----------|---------|----------|-------|-----|-----------|----------|------|----------|--------|
| UL       | Section | Township | Range | Lot | Feet      | From N/S | Feet | From E/W | County |
| Latitude |         |          |       |     | Longitude |          |      |          | NAD    |

## Last Take Point (LTP)

|          |         |          |       |     |           |          |      |          |        |
|----------|---------|----------|-------|-----|-----------|----------|------|----------|--------|
| UL       | Section | Township | Range | Lot | Feet      | From N/S | Feet | From E/W | County |
| Latitude |         |          |       |     | Longitude |          |      |          | NAD    |

Is this well the defining well for the Horizontal Spacing Unit? ☐Is this well an infill well? ☐

If infill is yes please provide API if available, Operator Name and well number for Defining well for Horizontal Spacing Unit.

API #

|                |                |             |
|----------------|----------------|-------------|
| Operator Name: | Property Name: | Well Number |
|----------------|----------------|-------------|

KZ 06/29/2018