

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 Road, Aztec, NM 87410  
Phone: (505) 334-6178 Fax: (505) 334-6170  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505  
Phone: (505) 476-3460 Fax: (505) 476-3462

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<br><b>30-015-44097</b> |                                                                            | <sup>2</sup> Pool Code<br><b>98199</b> | <sup>3</sup> Pool Name<br><b>PARKWAY; BONE SPRING, WEST</b> |
| <sup>4</sup> Property Code<br><b>317514</b>    | <sup>5</sup> Property Name<br><b>EMERALD PWU 20-21</b>                     |                                        | <sup>6</sup> Well Number<br><b>12H</b>                      |
| <sup>7</sup> OGRID No.<br><b>6137</b>          | <sup>8</sup> Operator Name<br><b>DEVON ENERGY PRODUCTION COMPANY, L.P.</b> |                                        | <sup>9</sup> Elevation<br><b>3313.8</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 |
| M                              | 20      | 19 S     | 29 E  |         | 15            | SOUTH            | 265           | WEST           | EDDY   |

| <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 |
| P                                                            | 21      | 19 S     | 29 E  |         | 440           | SOUTH            | 330           | EAST           | EDDY   |

| <sup>12</sup> Dedicated Acres | <sup>13</sup> Joint or Infill | <sup>14</sup> Consolidation Code | <sup>15</sup> Order No. |
|-------------------------------|-------------------------------|----------------------------------|-------------------------|
| 320                           |                               |                                  |                         |

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.

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <p><b>17 OPERATOR CERTIFICATION</b></p> <p>I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.</p> <p><i>Erin Workman</i> 03/02/2017<br/>Signature Date</p> <p><b>Erin Workman</b><br/>Printed Name</p> <p><b>Erin.workman@dmv.com</b><br/>E-mail Address</p> |  | <p><b>18 SURVEYOR CERTIFICATION</b></p> <p>I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.</p> <p>MARCH 1, 2011<br/>Date of Survey</p> <p><i>[Signature]</i><br/>Signature and Seal of Professional Surveyor</p> <p>Certificate Number: <b>PL 1277</b><br/>SURVEY NO. 5145B</p> |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|

NOTE: LATITUDE AND LONGITUDE COORDINATES ARE SHOWN USING THE NORTH AMERICAN DATUM OF 1983 (NAD83). LISTED NEW MEXICO STATE PLANE EAST COORDINATES ARE GRID (NAD83). BASIS OF BEARING AND DISTANCES USED ARE NEW MEXICO STATE PLANE EAST COORDINATES MODIFIED TO THE SURFACE. ELEVATION VALUES ARE NAVD83.

|                                                                                                                                                              |                                                                                                                                                               |                                                                                                                                                           |                                                                                                                                                               |                                                                                                                                                              |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>NW CORNER SEC. 20<br/>LAT. = 32.6536384°N<br/>LONG. = 104.1055990°W<br/>NMSP EAST (FT)<br/>N = 601590.76<br/>E = 611427.11<br/>S89°50'41"E 2648.66 FT</p> | <p>N/4 CORNER SEC. 20<br/>LAT. = 32.6536028°N<br/>LONG. = 104.0970017°W<br/>NMSP EAST (FT)<br/>N = 601592.59<br/>E = 614073.11<br/>N89°57'04"E 2658.57 FT</p> | <p>SECTION CORNER<br/>LAT. = 32.6535924°N<br/>LONG. = 104.0883657°W<br/>NMSP EAST (FT)<br/>N = 601594.86<br/>E = 616731.03<br/>S89°49'41"E 2644.83 FT</p> | <p>N/4 CORNER SEC. 21<br/>LAT. = 32.6535538°N<br/>LONG. = 104.0797751°W<br/>NMSP EAST (FT)<br/>N = 601586.93<br/>E = 618375.01<br/>N89°58'17"E 2644.00 FT</p> | <p>NE CORNER SEC. 21<br/>LAT. = 32.6535398°N<br/>LONG. = 104.0711864°W<br/>NMSP EAST (FT)<br/>N = 601588.25<br/>E = 622018.36<br/>S00°12'38"E 2630.03 FT</p> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|

W/4 CORNER SEC. 20  
LAT. = 32.6463832°N  
LONG. = 104.1055984°W  
NMSP EAST (FT)  
N = 598990.29  
E = 611432.96  
S00°07'31"W 2640.12 FT

QUARTER CORNER  
LAT. = 32.6483288°N  
LONG. = 104.0883964°W  
NMSP EAST (FT)  
N = 598952.19  
E = 616727.88  
S00°04'22"W 2643.32 FT

E/4 CORNER SEC. 21  
LAT. = 32.6462644°N  
LONG. = 104.0712566°W  
NMSP EAST (FT)  
N = 598941.42  
E = 622003.29  
S00°19'34"W 2647.51 FT

SW CORNER SEC. 20  
LAT. = 32.6391287°N  
LONG. = 104.1055895°W  
NMSP EAST (FT)  
N = 596321.06  
E = 611438.23  
N89°49'44"W 2654.08 FT

S/4 CORNER SEC. 20  
LAT. = 32.6390910°N  
LONG. = 104.0968797°W  
NMSP EAST (FT)  
N = 596313.14  
E = 614091.64  
N89°57'47"W 2643.91 FT

SECTION CORNER  
LAT. = 32.6390699°N  
LONG. = 104.0883927°W  
NMSP EAST (FT)  
N = 596311.43  
E = 616734.90  
N89°51'49"W 2639.88 FT

S/4 CORNER SEC. 21  
LAT. = 32.6390356°N  
LONG. = 104.0798189°W  
NMSP EAST (FT)  
N = 596305.14  
E = 619374.13  
S89°51'00"W 2639.46 FT

SE CORNER SEC. 21  
LAT. = 32.6390370°N  
LONG. = 104.0712483°W  
NMSP EAST (FT)  
N = 596312.05  
E = 622012.94  
S00°12'38"E 2630.03 FT

**EMERALD PWU 20-21 12H**  
LAT. = 32.6391852°N (NAD83)  
LONG. = 104.1047388°W  
NMSP EAST (FT)  
N = 596335.26  
E = 611703.17  
ELEV. = 3313.8'

**BOTTOM OF HOLE**  
LAT. = 32.6402460°N  
LONG. = 104.0723198°W OF HOLE  
NMSP EAST (FT)  
N = 596751.08  
E = 621681.41  
330'

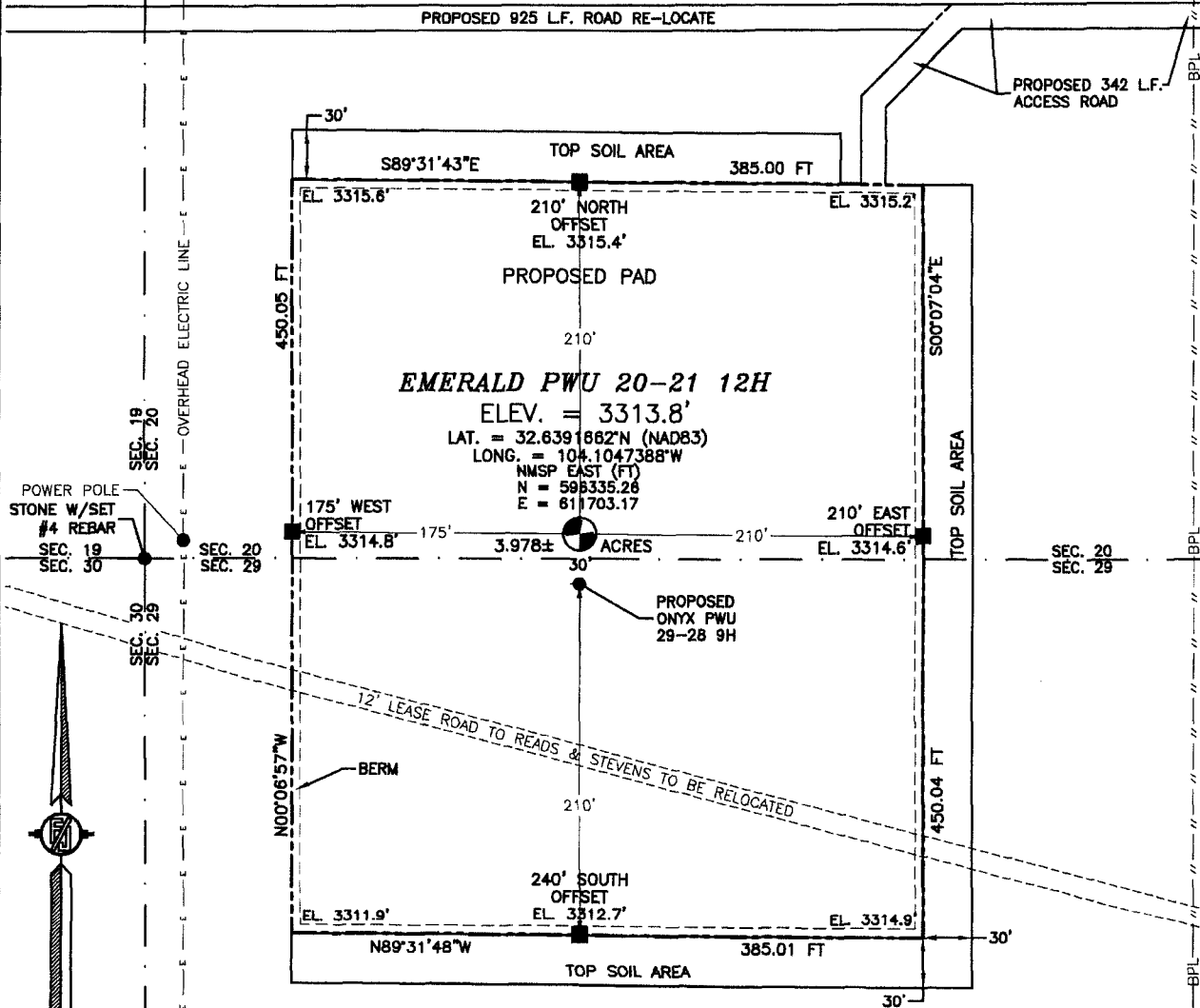
**15 SURFACE LOCATION**  
265'

Accepted for record - NMOCD

RWP 3-9-17

**SECTION 20, TOWNSHIP 19 SOUTH, RANGE 29 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO  
SITE MAP**

NOTE: LATITUDE AND LONGITUDE COORDINATES ARE SHOWN USING THE NORTH AMERICAN DATUM OF 1983 (NAD83). LISTED NEW MEXICO STATE PLANE EAST COORDINATES ARE GRID (NAD83). BASIS OF BEARING AND DISTANCES USED ARE NEW MEXICO STATE PLANE EAST COORDINATES MODIFIED TO THE SURFACE. ELEVATION VALUES ARE NAVD88.



010 50 100 200

SCALE 1" = 100'

**DIRECTIONS TO LOCATION**

FROM CR. 235 (CURRY COMB) AND CR. 258 (MILLMAN) GO EAST-SOUTHEAST ON CR. 235 4.4 MILES, TURN RIGHT ON CALICHE ROAD GO SOUTH 1.2 MILES TO STAKED ROAD ON RIGHT, FOLLOW FLAGS WEST ABOUT 342 FT. TO NORTHEAST CORNER OF PROPOSED PAD.

**DEVON ENERGY PRODUCTION COMPANY, L.P.  
EMERALD PWU 20-21 12H**

**LOCATED 15 FT. FROM THE SOUTH LINE  
AND 265 FT. FROM THE WEST LINE OF  
SECTION 20, TOWNSHIP 19 SOUTH,  
RANGE 29 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO**

MARCH 1, 2017

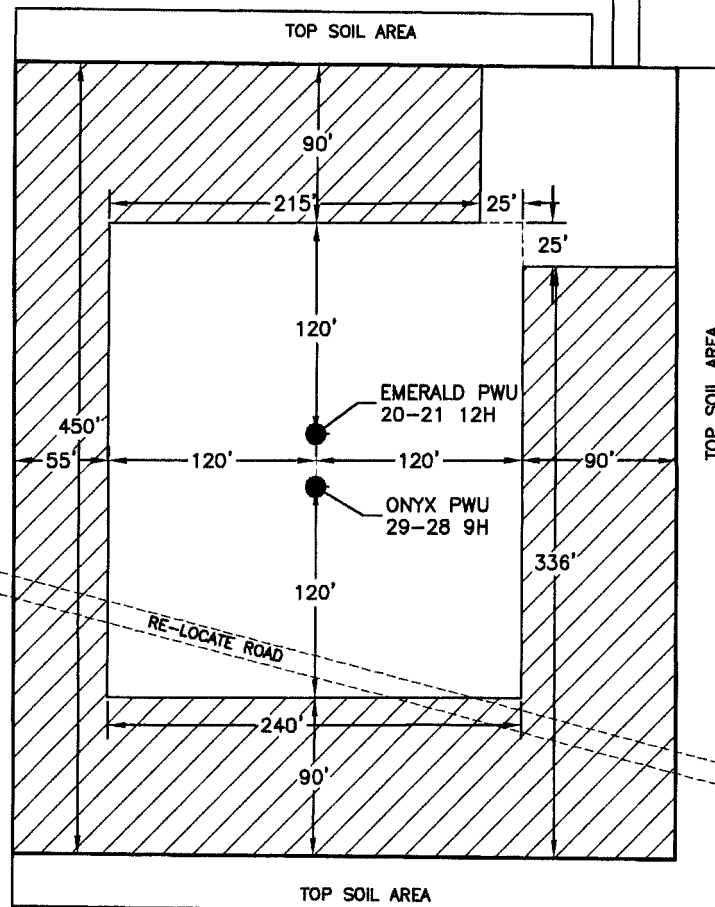
SURVEY NO. 5145B

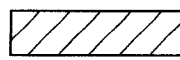
**MADRON SURVEYING, INC.** 301 SOUTH CANAL (575) 234-3341 **CARLSBAD, NEW MEXICO**

SECTION 20, TOWNSHIP 19 SOUTH, RANGE 29 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO  
INTERIM SITE RECLAMATION

PROPOSED 925 L.F. ROAD RE-LOCATE

PROPOSED 342 L.F.  
ACCESS ROAD



 DENOTES  
RECLAMATION AREA  
2.206± ACRES RECLAMATION AREA



0 10 50 100 200  
SCALE 1" = 100'

DEVON ENERGY PRODUCTION COMPANY, L.P.  
**EMERALD PWU 20-21 12H**  
LOCATED 15 FT. FROM THE SOUTH LINE  
AND 265 FT. FROM THE WEST LINE OF  
SECTION 20, TOWNSHIP 19 SOUTH,  
RANGE 29 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO

MARCH 1, 2017

SURVEY NO. 5145B

MADRON SURVEYING, INC. 301 SOUTH CANAL CARLSBAD, NEW MEXICO  
(575) 234-3341

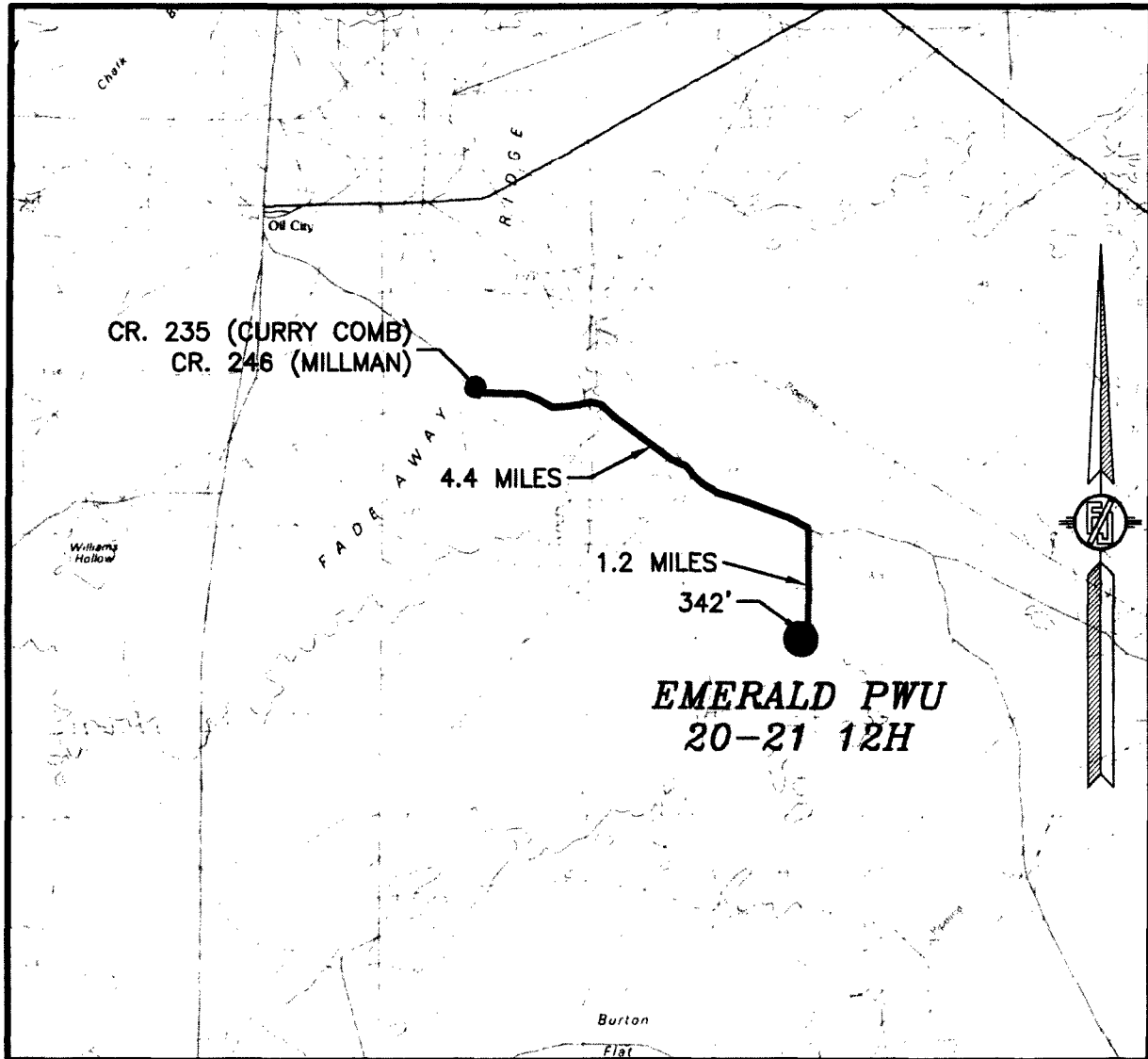
[illegible]

**NOT TO SCALE**

*MARCH 1, 2017*

**MADRON SURVEYING, INC.** 301 SOUTH CANAL (575) 234-3341 **CARLSBAD, NEW MEXICO**

SECTION 20, TOWNSHIP 19 SOUTH, RANGE 29 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO  
VICINITY MAP



DISTANCES IN MILES

NOT TO SCALE

**DIRECTIONS TO LOCATION**

FROM CR. 235 (CURRY COMB) AND CR. 256 (MILLMAN) GO EAST-SOUTHEAST ON CR. 235 4.4 MILES, TURN RIGHT ON CALICHE ROAD GO SOUTH 1.2 MILES TO STAKED ROAD ON RIGHT, FOLLOW FLAGS WEST ABOUT 342 FT. TO NORTHEAST CORNER OF PROPOSED PAD.

**DEVON ENERGY PRODUCTION COMPANY, L.P.  
EMERALD PWU 20-21 12H**

LOCATED 15 FT. FROM THE SOUTH LINE  
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SECTION 20, TOWNSHIP 19 SOUTH,  
RANGE 29 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO

MARCH 1, 2017

SURVEY NO. 5145B

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

SECTION 20, TOWNSHIP 19 SOUTH, RANGE 29 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO  
AERIAL ACCESS ROUTE MAP



NOT TO SCALE  
AERIAL PHOTO:  
GOOGLE EARTH  
MAR. 2016

DEVON ENERGY PRODUCTION COMPANY, L.P.  
**EMERALD PWU 20-21 12H**

LOCATED 15 FT. FROM THE SOUTH LINE  
AND 265 FT. FROM THE WEST LINE OF  
SECTION 20, TOWNSHIP 19 SOUTH,  
RANGE 29 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO

MARCH 1, 2017

SURVEY NO. 5145B

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

SECTION 20, TOWNSHIP 19 SOUTH, RANGE 29 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO  
*AERIAL PHOTO*



NOT TO SCALE  
AERIAL PHOTO:  
GOOGLE EARTH  
MAR. 2016

*DEVON ENERGY PRODUCTION COMPANY, L.P.  
EMERALD PWU 20-21 12H*

*LOCATED 15 FT. FROM THE SOUTH LINE  
AND 265 FT. FROM THE WEST LINE OF  
SECTION 20, TOWNSHIP 19 SOUTH,  
RANGE 29 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO*

*MARCH 1, 2017*

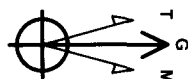
*SURVEY NO. 5145B*

*MADRON SURVEYING, INC.* 301 SOUTH CANAL (575) 234-3341 *CARLSBAD, NEW MEXICO*

# Devon Energy

Project: Eddy County, NM (NAD-83)  
 Site: Emerald PWU 20-21  
 Well: 12H  
 Wellbore: OH  
 Design: Plan #1

3313.8 GE + 23.5 KB @ 3337.30usft  
 Ground Level: 3313.80



Azinuths to Grid North  
 True North: -0.12°  
 Magnetic North: 7.34°  
 Magnetic Field  
 Strength: 48234.4sT  
 Dip Angle: 60.52°  
 Date: 2/28/2017  
 Model: HDGM

PROJECT DETAILS: Eddy County, NM (NAD-83)

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



NEW OIL CONSERVATION  
 ARTESIA DISTRICT

MAR 06 2017

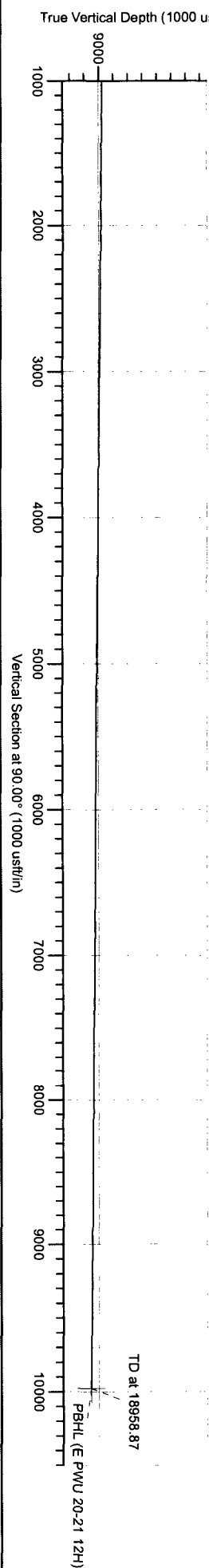
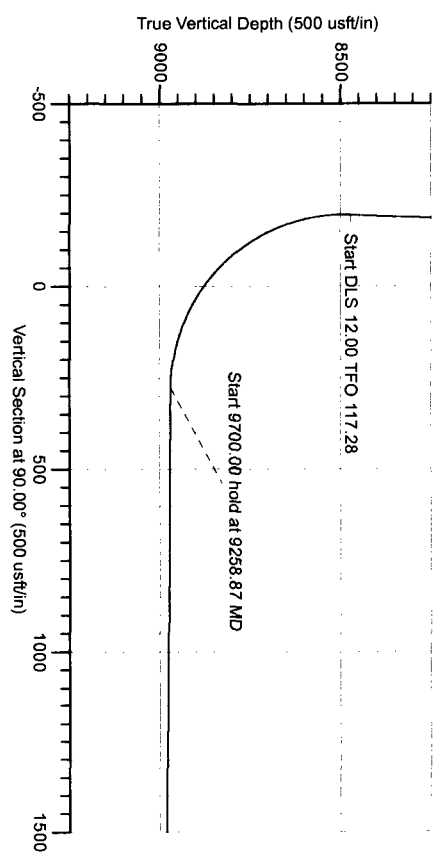
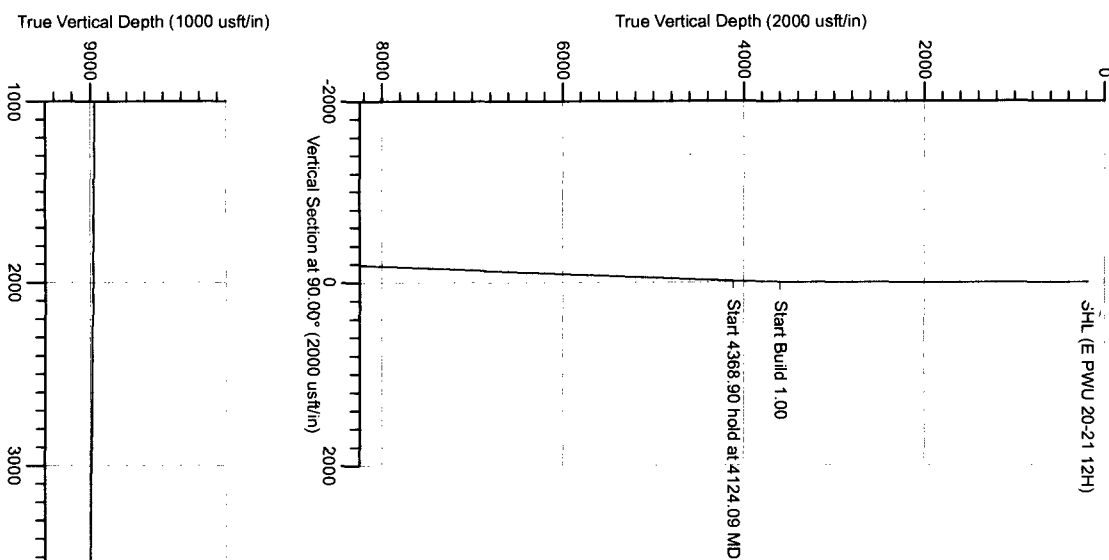
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## SECTION DETAILS

| Sec | MD       | Inc   | Azi    | TVD     | +N-S   | +E-W    | Dleg  | Tface  | Vsect   | Annotation |
|-----|----------|-------|--------|---------|--------|---------|-------|--------|---------|------------|
| 1   | 0.00     | 0.00  | 0.00   | 0.00    | 0.00   | 0.00    | 0.00  | 0.00   | 0.00    |            |
| 2   | 3600.00  | 0.00  | 0.00   | 3600.00 | 0.00   | 0.00    | 0.00  | 0.00   | 0.00    |            |
| 3   | 4124.09  | 5.24  | 332.66 | 4123.36 | 21.28  | -11.00  | 1.00  | 332.66 | -11.00  |            |
| 4   | 8492.99  | 5.24  | 332.66 | 8473.99 | 375.77 | -194.28 | 0.00  | 0.00   | -194.28 |            |
| 5   | 9258.87  | 89.50 | 90.00  | 8969.85 | 415.82 | 278.61  | 12.00 | 117.28 | 278.61  |            |
| 6   | 18958.87 | 89.50 | 90.00  | 9054.50 | 415.82 | 9978.24 | 0.00  | 0.00   | 9978.24 |            |

## DESIGN TARGET DETAILS

| Name                   | TVD     | +N-S   | +E-W    | Latitude         | Longitude        |
|------------------------|---------|--------|---------|------------------|------------------|
| PBHL (E PWU 20-21 12H) | 9054.50 | 415.82 | 9978.24 | 32° 38' 24.885 N | 104° 4' 20.351 W |
| SHL (E PWU 20-21 12H)  | 0.00    | 0.00   | 0.00    | 32° 38' 20.998 N | 104° 6' 17.060 W |

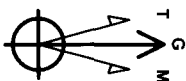


LEAM DRILLING SYSTEMS LLC  
 2010 East Davis, Conroe, Texas 77301  
 Phone: 936/756-7577, Fax: 936/756-7595

Plan: Plan #1 (12H)OH  
 Emerald PWU 20-21  
 Created By: Brady Deaver  
 Date: 10/04, March 02 2017  
 Approved: \_\_\_\_\_  
 Date: \_\_\_\_\_

# Devon Energy

Project: Eddy County, NM (NAD-83)  
Site: Emerald PWU 20-21  
Well: 12H  
Wellbore: OH  
Design: Plan #1



Azimuths to Grid North  
True North: -0.12°  
Magnetic North: 7.34°  
Magnetic Field  
Strength: 48234.45nT  
Dip Angle: 60.52°  
Date: 2/28/2017  
Model: HDGM

PROJECT DETAILS: Eddy County, NM (NAD-83)  
Geodetic System: US State Plane 1983  
Datum: North American Datum 1983  
Ellipsoid: GRS 1980  
Zone: New Mexico Eastern Zone

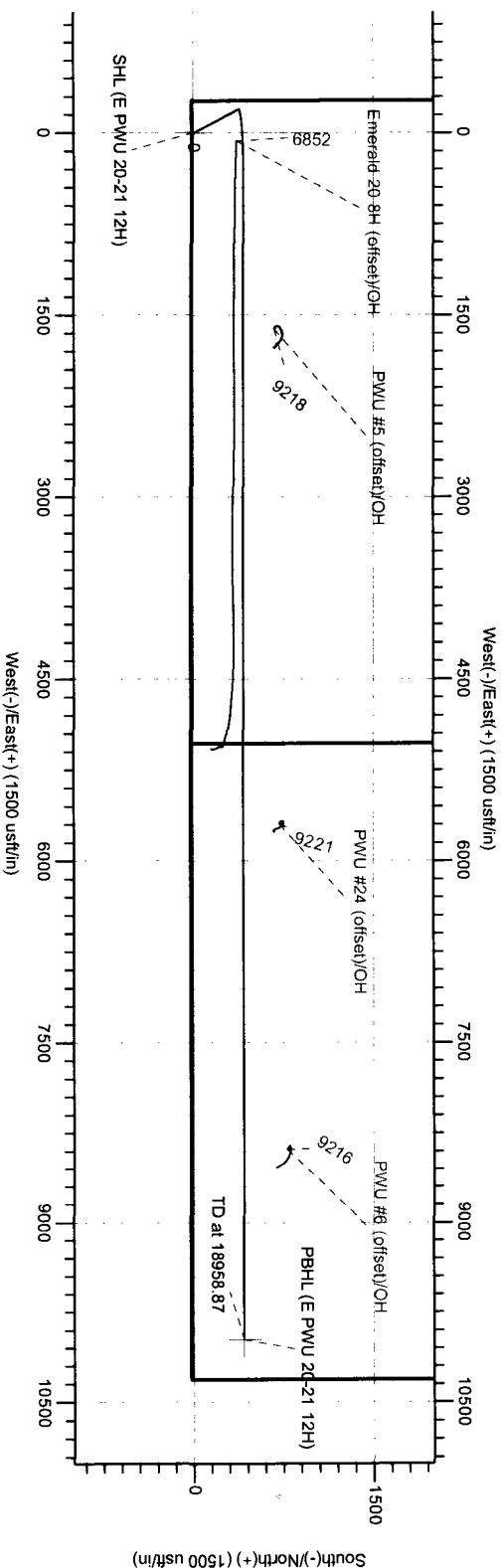


| Name                   | TVD     | +N/S   | +E/W    | North     | Easting   | Latitude         | Longitude        |
|------------------------|---------|--------|---------|-----------|-----------|------------------|------------------|
| PBHL (E PWU 20-21 12H) | 9054.50 | 415.82 | 9978.24 | 596751.08 | 621681.41 | 32° 38' 24.885 N | 104° 4' 20.351 W |
| SHL (E PWU 20-21 12H)  | 0.00    | 0.00   | 0.00    | 596335.26 | 611703.17 | 32° 38' 20.998 N | 104° 6' 17.060 W |

## DESIGN TARGET DETAILS

| Sec | MD       | Inc   | Azi    | TVD     | +N/S   | +E/W    | Dip   | TFace  | Vsect   | Annotation |
|-----|----------|-------|--------|---------|--------|---------|-------|--------|---------|------------|
| 1   | 0.00     | 0.00  | 0.00   | 0.00    | 0.00   | 0.00    | 0.00  | 0.00   | 0.00    |            |
| 2   | 3600.00  | 0.00  | 0.00   | 3600.00 | 0.00   | 0.00    | 0.00  | 0.00   | 0.00    |            |
| 3   | 4124.09  | 5.24  | 332.66 | 4123.36 | 21.28  | -11.00  | 1.00  | 332.66 | -11.00  |            |
| 4   | 8492.99  | 5.24  | 332.66 | 8473.99 | 375.77 | -194.28 | 0.00  | 0.00   | -194.28 |            |
| 5   | 9258.87  | 89.50 | 90.00  | 8969.85 | 415.82 | 278.61  | 12.00 | 117.28 | 278.61  |            |
| 6   | 18958.87 | 89.50 | 90.00  | 9054.50 | 415.82 | 9978.24 | 0.00  | 0.00   | 9978.24 |            |

## SECTION DETAILS



LEAM DRILLING SYSTEMS LLC  
2010 East Davis, Conroe, Texas 77301  
Phone: 936/756-7577, Fax: 936/756-7595

Plan: Plan #1 (12H)/OH  
Emerald PWU 20-21  
Created By: Brady Deaver  
Date: 10.04, March 02 2017  
Approved: \_\_\_\_\_  
Date: \_\_\_\_\_

NM OIL CONSERVATION  
ARTESIA DISTRICT  
MAR 06 2017

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**Devon Energy**  
Eddy County, NM (NAD-83)  
Emerald PWU 20-21  
12H

OH

Plan: Plan #1

## **Standard Planning Report**

02 March, 2017

# LEAM Drilling Systems LLC

## Planning Report

**Database:** EDM 5000.1 Multi User Db  
**Company:** Devon Energy  
**Project:** Eddy County, NM (NAD-83)  
**Site:** Emerald PWU 20-21  
**Well:** 12H  
**Wellbore:** OH  
**Design:** Plan #1

**Local Co-ordinate Reference:** Well 12H  
**TVD Reference:** 3313.8' GE + 23.5' KB @ 3337.30usft  
**MD Reference:** 3313.8' GE + 23.5' KB @ 3337.30usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature

|                    |                           |                      |                |
|--------------------|---------------------------|----------------------|----------------|
| <b>Project</b>     | Eddy County, NM (NAD-83)  |                      |                |
| <b>Map System:</b> | US State Plane 1983       | <b>System Datum:</b> | Mean Sea Level |
| <b>Geo Datum:</b>  | North American Datum 1983 |                      |                |
| <b>Map Zone:</b>   | New Mexico Eastern Zone   |                      |                |

|                              |                   |                          |                  |
|------------------------------|-------------------|--------------------------|------------------|
| <b>Site</b>                  | Emerald PWU 20-21 |                          |                  |
| <b>Site Position:</b>        |                   | <b>Northing:</b>         | 596,335.26 usft  |
| <b>From:</b>                 | Map               | <b>Easting:</b>          | 611,703.17 usft  |
| <b>Position Uncertainty:</b> | 0.00 usft         | <b>Slot Radius:</b>      | 13-3/16 "        |
|                              |                   | <b>Latitude:</b>         | 32° 38' 20.998 N |
|                              |                   | <b>Longitude:</b>        | 104° 6' 17.060 W |
|                              |                   | <b>Grid Convergence:</b> | 0.12 °           |

|                             |              |                            |                                  |
|-----------------------------|--------------|----------------------------|----------------------------------|
| <b>Well</b>                 | 12H          |                            |                                  |
| <b>Well Position</b>        | <b>+N/-S</b> | 0.00 usft                  | <b>Northing:</b> 596,335.26 usft |
|                             | <b>+E/-W</b> | 0.00 usft                  | <b>Easting:</b> 611,703.17 usft  |
| <b>Position Uncertainty</b> | 0.00 usft    | <b>Wellhead Elevation:</b> | 0.00 usft                        |
|                             |              | <b>Latitude:</b>           | 32° 38' 20.998 N                 |
|                             |              | <b>Longitude:</b>          | 104° 6' 17.060 W                 |
|                             |              | <b>Ground Level:</b>       | 3,313.80 usft                    |

|                  |                   |                            |                        |
|------------------|-------------------|----------------------------|------------------------|
| <b>Wellbore</b>  | OH                |                            |                        |
| <b>Magnetics</b> | <b>Model Name</b> | <b>Sample Date</b>         | <b>Declination (°)</b> |
|                  | HDGM              | 2/28/2017                  | 7.47                   |
|                  |                   | <b>Dip Angle (°)</b>       | 60.52                  |
|                  |                   | <b>Field Strength (nT)</b> | 48,234                 |

|                          |                         |                  |                           |
|--------------------------|-------------------------|------------------|---------------------------|
| <b>Design</b>            | Plan #1                 |                  |                           |
| <b>Audit Notes:</b>      |                         |                  |                           |
| <b>Version:</b>          | <b>Phase:</b>           | PLAN             | <b>Tie On Depth:</b> 0.00 |
| <b>Vertical Section:</b> | <b>Depth From (TVD)</b> | <b>+N/-S</b>     | <b>+E/-W</b>              |
|                          | (usft)                  | (usft)           | (usft)                    |
|                          | 0.00                    | 0.00             | 0.00                      |
|                          |                         | <b>Direction</b> | <b>90.00</b>              |
|                          |                         | (°)              |                           |

| 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             |
| 0.00                  | 0.00            | 0.00        | 0.00                  | 0.00         | 0.00         | 0.00                    | 0.00                   | 0.00                  | 0.00    |                    |
| 3,600.00              | 0.00            | 0.00        | 3,600.00              | 0.00         | 0.00         | 0.00                    | 0.00                   | 0.00                  | 0.00    |                    |
| 4,124.09              | 5.24            | 332.66      | 4,123.36              | 21.28        | -11.00       | 1.00                    | 1.00                   | 0.00                  | 332.66  |                    |
| 8,492.99              | 5.24            | 332.66      | 8,473.99              | 375.77       | -194.28      | 0.00                    | 0.00                   | 0.00                  | 0.00    |                    |
| 9,258.87              | 89.50           | 90.00       | 8,969.85              | 415.82       | 278.61       | 12.00                   | 11.00                  | 15.32                 | 117.28  |                    |
| 18,958.87             | 89.50           | 90.00       | 9,054.50              | 415.82       | 9,978.24     | 0.00                    | 0.00                   | 0.00                  | 0.00    | PBHL (E PWU 20-21) |

# LEAM Drilling Systems LLC

## Planning Report

Database: EDM 5000.1 Multi User Db  
 Company: Devon Energy  
 Project: Eddy County, NM (NAD-83)  
 Site: Emerald PWU 20-21  
 Well: 12H  
 Wellbore: OH  
 Design: Plan #1

Local Co-ordinate Reference: Well 12H  
 TVD Reference: 3313.8' GE + 23.5' KB @ 3337.30usft  
 MD Reference: 3313.8' GE + 23.5' KB @ 3337.30usft  
 North Reference: Grid  
 Survey Calculation Method: Minimum Curvature

### 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) |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| 0.00                  | 0.00            | 0.00        | 0.00                  | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| SHL (E PWU 20-21 12H) |                 |             |                       |              |              |                         |                         |                        |                       |
| 100.00                | 0.00            | 0.00        | 100.00                | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 200.00                | 0.00            | 0.00        | 200.00                | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 300.00                | 0.00            | 0.00        | 300.00                | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 400.00                | 0.00            | 0.00        | 400.00                | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 500.00                | 0.00            | 0.00        | 500.00                | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 600.00                | 0.00            | 0.00        | 600.00                | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 700.00                | 0.00            | 0.00        | 700.00                | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 800.00                | 0.00            | 0.00        | 800.00                | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 900.00                | 0.00            | 0.00        | 900.00                | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 1,000.00              | 0.00            | 0.00        | 1,000.00              | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 1,100.00              | 0.00            | 0.00        | 1,100.00              | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 1,200.00              | 0.00            | 0.00        | 1,200.00              | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 1,300.00              | 0.00            | 0.00        | 1,300.00              | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 1,400.00              | 0.00            | 0.00        | 1,400.00              | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 1,500.00              | 0.00            | 0.00        | 1,500.00              | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 1,600.00              | 0.00            | 0.00        | 1,600.00              | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 1,700.00              | 0.00            | 0.00        | 1,700.00              | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 1,800.00              | 0.00            | 0.00        | 1,800.00              | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 1,900.00              | 0.00            | 0.00        | 1,900.00              | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 2,000.00              | 0.00            | 0.00        | 2,000.00              | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 2,100.00              | 0.00            | 0.00        | 2,100.00              | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 2,200.00              | 0.00            | 0.00        | 2,200.00              | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 2,300.00              | 0.00            | 0.00        | 2,300.00              | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 2,400.00              | 0.00            | 0.00        | 2,400.00              | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 2,500.00              | 0.00            | 0.00        | 2,500.00              | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 2,600.00              | 0.00            | 0.00        | 2,600.00              | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 2,700.00              | 0.00            | 0.00        | 2,700.00              | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 2,800.00              | 0.00            | 0.00        | 2,800.00              | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 2,900.00              | 0.00            | 0.00        | 2,900.00              | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 3,000.00              | 0.00            | 0.00        | 3,000.00              | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 3,100.00              | 0.00            | 0.00        | 3,100.00              | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 3,200.00              | 0.00            | 0.00        | 3,200.00              | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 3,300.00              | 0.00            | 0.00        | 3,300.00              | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 3,400.00              | 0.00            | 0.00        | 3,400.00              | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 3,500.00              | 0.00            | 0.00        | 3,500.00              | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 3,600.00              | 0.00            | 0.00        | 3,600.00              | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 3,700.00              | 1.00            | 332.66      | 3,700.00              | 0.78         | -0.40        | -0.40                   | 1.00                    | 1.00                   | 0.00                  |
| 3,800.00              | 2.00            | 332.66      | 3,799.96              | 3.10         | -1.60        | -1.60                   | 1.00                    | 1.00                   | 0.00                  |
| 3,900.00              | 3.00            | 332.66      | 3,899.86              | 6.98         | -3.61        | -3.61                   | 1.00                    | 1.00                   | 0.00                  |
| 4,000.00              | 4.00            | 332.66      | 3,999.68              | 12.40        | -6.41        | -6.41                   | 1.00                    | 1.00                   | 0.00                  |
| 4,100.00              | 5.00            | 332.66      | 4,099.37              | 19.37        | -10.01       | -10.01                  | 1.00                    | 1.00                   | 0.00                  |
| 4,124.09              | 5.24            | 332.66      | 4,123.36              | 21.28        | -11.00       | -11.00                  | 1.00                    | 1.00                   | 0.00                  |
| 4,200.00              | 5.24            | 332.66      | 4,198.95              | 27.44        | -14.19       | -14.19                  | 0.00                    | 0.00                   | 0.00                  |
| 4,300.00              | 5.24            | 332.66      | 4,298.53              | 35.55        | -18.38       | -18.38                  | 0.00                    | 0.00                   | 0.00                  |
| 4,400.00              | 5.24            | 332.66      | 4,398.12              | 43.66        | -22.58       | -22.58                  | 0.00                    | 0.00                   | 0.00                  |
| 4,500.00              | 5.24            | 332.66      | 4,497.70              | 51.78        | -26.77       | -26.77                  | 0.00                    | 0.00                   | 0.00                  |
| 4,600.00              | 5.24            | 332.66      | 4,597.28              | 59.89        | -30.97       | -30.97                  | 0.00                    | 0.00                   | 0.00                  |
| 4,700.00              | 5.24            | 332.66      | 4,696.86              | 68.01        | -35.16       | -35.16                  | 0.00                    | 0.00                   | 0.00                  |
| 4,800.00              | 5.24            | 332.66      | 4,796.44              | 76.12        | -39.36       | -39.36                  | 0.00                    | 0.00                   | 0.00                  |
| 4,900.00              | 5.24            | 332.66      | 4,896.03              | 84.23        | -43.55       | -43.55                  | 0.00                    | 0.00                   | 0.00                  |
| 5,000.00              | 5.24            | 332.66      | 4,995.61              | 92.35        | -47.75       | -47.75                  | 0.00                    | 0.00                   | 0.00                  |
| 5,100.00              | 5.24            | 332.66      | 5,095.19              | 100.46       | -51.94       | -51.94                  | 0.00                    | 0.00                   | 0.00                  |

# LEAM Drilling Systems LLC

## Planning Report

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Site: Emerald PWU 20-21  
Well: 12H  
Wellbore: OH  
Design: Plan #1

Local Co-ordinate Reference: Well 12H  
TVD Reference: 3313.8' GE + 23.5' KB @ 3337.30usft  
MD Reference: 3313.8' GE + 23.5' KB @ 3337.30usft  
North Reference: Grid  
Survey Calculation Method: Minimum Curvature

### Planned Survey

| Measured<br>Depth<br>(usft) | Inclination<br>(°) | Azimuth<br>(°) | Vertical<br>Depth<br>(usft) | +N/-S<br>(usft) | +E/-W<br>(usft) | Vertical<br>Section<br>(usft) | Dogleg<br>Rate<br>(°/100usft) | Build<br>Rate<br>(°/100usft) | Turn<br>Rate<br>(°/100usft) |
|-----------------------------|--------------------|----------------|-----------------------------|-----------------|-----------------|-------------------------------|-------------------------------|------------------------------|-----------------------------|
| 5,200.00                    | 5.24               | 332.66         | 5,194.77                    | 108.58          | -56.14          | -56.14                        | 0.00                          | 0.00                         | 0.00                        |
| 5,300.00                    | 5.24               | 332.66         | 5,294.35                    | 116.69          | -60.33          | -60.33                        | 0.00                          | 0.00                         | 0.00                        |
| 5,400.00                    | 5.24               | 332.66         | 5,393.94                    | 124.80          | -64.53          | -64.53                        | 0.00                          | 0.00                         | 0.00                        |
| 5,500.00                    | 5.24               | 332.66         | 5,493.52                    | 132.92          | -68.72          | -68.72                        | 0.00                          | 0.00                         | 0.00                        |
| 5,600.00                    | 5.24               | 332.66         | 5,593.10                    | 141.03          | -72.92          | -72.92                        | 0.00                          | 0.00                         | 0.00                        |
| 5,700.00                    | 5.24               | 332.66         | 5,692.68                    | 149.15          | -77.11          | -77.11                        | 0.00                          | 0.00                         | 0.00                        |
| 5,800.00                    | 5.24               | 332.66         | 5,792.26                    | 157.26          | -81.31          | -81.31                        | 0.00                          | 0.00                         | 0.00                        |
| 5,900.00                    | 5.24               | 332.66         | 5,891.85                    | 165.37          | -85.50          | -85.50                        | 0.00                          | 0.00                         | 0.00                        |
| 6,000.00                    | 5.24               | 332.66         | 5,991.43                    | 173.49          | -89.70          | -89.70                        | 0.00                          | 0.00                         | 0.00                        |
| 6,100.00                    | 5.24               | 332.66         | 6,091.01                    | 181.60          | -93.89          | -93.89                        | 0.00                          | 0.00                         | 0.00                        |
| 6,200.00                    | 5.24               | 332.66         | 6,190.59                    | 189.72          | -98.09          | -98.09                        | 0.00                          | 0.00                         | 0.00                        |
| 6,300.00                    | 5.24               | 332.66         | 6,290.17                    | 197.83          | -102.28         | -102.28                       | 0.00                          | 0.00                         | 0.00                        |
| 6,400.00                    | 5.24               | 332.66         | 6,389.76                    | 205.94          | -106.48         | -106.48                       | 0.00                          | 0.00                         | 0.00                        |
| 6,500.00                    | 5.24               | 332.66         | 6,489.34                    | 214.06          | -110.67         | -110.67                       | 0.00                          | 0.00                         | 0.00                        |
| 6,600.00                    | 5.24               | 332.66         | 6,588.92                    | 222.17          | -114.87         | -114.87                       | 0.00                          | 0.00                         | 0.00                        |
| 6,700.00                    | 5.24               | 332.66         | 6,688.50                    | 230.29          | -119.06         | -119.06                       | 0.00                          | 0.00                         | 0.00                        |
| 6,800.00                    | 5.24               | 332.66         | 6,788.08                    | 238.40          | -123.26         | -123.26                       | 0.00                          | 0.00                         | 0.00                        |
| 6,900.00                    | 5.24               | 332.66         | 6,887.66                    | 246.51          | -127.45         | -127.45                       | 0.00                          | 0.00                         | 0.00                        |
| 7,000.00                    | 5.24               | 332.66         | 6,987.25                    | 254.63          | -131.65         | -131.65                       | 0.00                          | 0.00                         | 0.00                        |
| 7,100.00                    | 5.24               | 332.66         | 7,086.83                    | 262.74          | -135.84         | -135.84                       | 0.00                          | 0.00                         | 0.00                        |
| 7,200.00                    | 5.24               | 332.66         | 7,186.41                    | 270.86          | -140.04         | -140.04                       | 0.00                          | 0.00                         | 0.00                        |
| 7,300.00                    | 5.24               | 332.66         | 7,285.99                    | 278.97          | -144.23         | -144.23                       | 0.00                          | 0.00                         | 0.00                        |
| 7,400.00                    | 5.24               | 332.66         | 7,385.57                    | 287.08          | -148.43         | -148.43                       | 0.00                          | 0.00                         | 0.00                        |
| 7,500.00                    | 5.24               | 332.66         | 7,485.16                    | 295.20          | -152.63         | -152.63                       | 0.00                          | 0.00                         | 0.00                        |
| 7,600.00                    | 5.24               | 332.66         | 7,584.74                    | 303.31          | -156.82         | -156.82                       | 0.00                          | 0.00                         | 0.00                        |
| 7,700.00                    | 5.24               | 332.66         | 7,684.32                    | 311.43          | -161.02         | -161.02                       | 0.00                          | 0.00                         | 0.00                        |
| 7,800.00                    | 5.24               | 332.66         | 7,783.90                    | 319.54          | -165.21         | -165.21                       | 0.00                          | 0.00                         | 0.00                        |
| 7,900.00                    | 5.24               | 332.66         | 7,883.48                    | 327.65          | -169.41         | -169.41                       | 0.00                          | 0.00                         | 0.00                        |
| 8,000.00                    | 5.24               | 332.66         | 7,983.07                    | 335.77          | -173.60         | -173.60                       | 0.00                          | 0.00                         | 0.00                        |
| 8,100.00                    | 5.24               | 332.66         | 8,082.65                    | 343.88          | -177.80         | -177.80                       | 0.00                          | 0.00                         | 0.00                        |
| 8,200.00                    | 5.24               | 332.66         | 8,182.23                    | 352.00          | -181.99         | -181.99                       | 0.00                          | 0.00                         | 0.00                        |
| 8,300.00                    | 5.24               | 332.66         | 8,281.81                    | 360.11          | -186.19         | -186.19                       | 0.00                          | 0.00                         | 0.00                        |
| 8,400.00                    | 5.24               | 332.66         | 8,381.39                    | 368.22          | -190.38         | -190.38                       | 0.00                          | 0.00                         | 0.00                        |
| 8,492.99                    | 5.24               | 332.66         | 8,473.99                    | 375.77          | -194.28         | -194.28                       | 0.00                          | 0.00                         | 0.00                        |
| 8,500.00                    | 4.91               | 341.43         | 8,480.98                    | 376.34          | -194.52         | -194.52                       | 12.00                         | -4.69                        | 125.03                      |
| 8,525.00                    | 4.87               | 17.18          | 8,505.89                    | 378.37          | -194.55         | -194.55                       | 12.00                         | -0.16                        | 143.00                      |
| 8,550.00                    | 6.43               | 43.73          | 8,530.77                    | 380.39          | -193.27         | -193.27                       | 12.00                         | 6.22                         | 106.19                      |
| 8,575.00                    | 8.77               | 58.15          | 8,555.56                    | 382.41          | -190.69         | -190.69                       | 12.00                         | 9.35                         | 57.70                       |
| 8,600.00                    | 11.42              | 66.25          | 8,580.17                    | 384.41          | -186.80         | -186.80                       | 12.00                         | 10.60                        | 32.39                       |
| 8,625.00                    | 14.20              | 71.27          | 8,604.54                    | 386.39          | -181.63         | -181.63                       | 12.00                         | 11.15                        | 20.08                       |
| 8,650.00                    | 17.06              | 74.65          | 8,628.62                    | 388.35          | -175.19         | -175.19                       | 12.00                         | 11.44                        | 13.53                       |
| 8,675.00                    | 19.96              | 77.08          | 8,652.32                    | 390.27          | -167.49         | -167.49                       | 12.00                         | 11.60                        | 9.72                        |
| 8,700.00                    | 22.89              | 78.92          | 8,675.59                    | 392.16          | -158.56         | -158.56                       | 12.00                         | 11.70                        | 7.33                        |
| 8,725.00                    | 25.83              | 80.35          | 8,698.36                    | 394.01          | -148.41         | -148.41                       | 12.00                         | 11.76                        | 5.75                        |
| 8,750.00                    | 28.78              | 81.51          | 8,720.58                    | 395.81          | -137.09         | -137.09                       | 12.00                         | 11.81                        | 4.64                        |
| 8,775.00                    | 31.74              | 82.48          | 8,742.17                    | 397.56          | -124.62         | -124.62                       | 12.00                         | 11.84                        | 3.84                        |
| 8,800.00                    | 34.71              | 83.29          | 8,763.08                    | 399.26          | -111.02         | -111.02                       | 12.00                         | 11.87                        | 3.25                        |
| 8,825.00                    | 37.68              | 83.99          | 8,783.25                    | 400.89          | -96.35          | -96.35                        | 12.00                         | 11.89                        | 2.80                        |
| 8,850.00                    | 40.66              | 84.60          | 8,802.63                    | 402.46          | -80.64          | -80.64                        | 12.00                         | 11.90                        | 2.45                        |
| 8,875.00                    | 43.63              | 85.14          | 8,821.17                    | 403.95          | -63.94          | -63.94                        | 12.00                         | 11.91                        | 2.17                        |
| 8,900.00                    | 46.61              | 85.63          | 8,838.80                    | 405.38          | -46.28          | -46.28                        | 12.00                         | 11.92                        | 1.94                        |
| 8,925.00                    | 49.60              | 86.07          | 8,855.50                    | 406.72          | -27.72          | -27.72                        | 12.00                         | 11.93                        | 1.76                        |
| 8,950.00                    | 52.58              | 86.47          | 8,871.20                    | 407.99          | -8.31           | -8.31                         | 12.00                         | 11.93                        | 1.61                        |
| 8,975.00                    | 55.56              | 86.84          | 8,885.86                    | 409.17          | 11.89           | 11.89                         | 12.00                         | 11.94                        | 1.49                        |

# LEAM Drilling Systems LLC

## Planning Report

**Database:** EDM 5000.1 Multi User Db  
**Company:** Devon Energy  
**Project:** Eddy County, NM (NAD-83)  
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**Well:** 12H  
**Wellbore:** OH  
**Design:** Plan #1

**Local Co-ordinate Reference:** Well 12H  
**TVD Reference:** 3313.8' GE + 23.5' KB @ 3337.30usft  
**MD Reference:** 3313.8' GE + 23.5' KB @ 3337.30usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature

### Planned Survey

| Measured<br>Depth<br>(usft) | Inclination<br>(°) | Azimuth<br>(°) | Vertical<br>Depth<br>(usft) | +N/-S<br>(usft) | +E/-W<br>(usft) | Vertical<br>Section<br>(usft) | Dogleg<br>Rate<br>(°/100usft) | Build<br>Rate<br>(°/100usft) | Turn<br>Rate<br>(°/100usft) |
|-----------------------------|--------------------|----------------|-----------------------------|-----------------|-----------------|-------------------------------|-------------------------------|------------------------------|-----------------------------|
| 9,000.00                    | 58.55              | 87.19          | 8,899.46                    | 410.26          | 32.84           | 32.84                         | 12.00                         | 11.94                        | 1.38                        |
| 9,025.00                    | 61.54              | 87.51          | 8,911.94                    | 411.26          | 54.48           | 54.48                         | 12.00                         | 11.95                        | 1.30                        |
| 9,050.00                    | 64.52              | 87.82          | 8,923.28                    | 412.17          | 76.74           | 76.74                         | 12.00                         | 11.95                        | 1.23                        |
| 9,075.00                    | 67.51              | 88.11          | 8,933.44                    | 412.98          | 99.56           | 99.56                         | 12.00                         | 11.95                        | 1.17                        |
| 9,100.00                    | 70.50              | 88.39          | 8,942.39                    | 413.69          | 122.89          | 122.89                        | 12.00                         | 11.95                        | 1.12                        |
| 9,125.00                    | 73.49              | 88.66          | 8,950.12                    | 414.31          | 146.66          | 146.66                        | 12.00                         | 11.96                        | 1.08                        |
| 9,150.00                    | 76.48              | 88.92          | 8,956.59                    | 414.82          | 170.79          | 170.79                        | 12.00                         | 11.96                        | 1.04                        |
| 9,175.00                    | 79.47              | 89.17          | 8,961.80                    | 415.22          | 195.24          | 195.24                        | 12.00                         | 11.96                        | 1.02                        |
| 9,200.00                    | 82.46              | 89.42          | 8,965.73                    | 415.53          | 219.92          | 219.92                        | 12.00                         | 11.96                        | 1.00                        |
| 9,225.00                    | 85.45              | 89.67          | 8,968.36                    | 415.72          | 244.78          | 244.78                        | 12.00                         | 11.96                        | 0.99                        |
| 9,250.00                    | 88.44              | 89.91          | 8,969.69                    | 415.81          | 269.74          | 269.74                        | 12.00                         | 11.96                        | 0.98                        |
| 9,258.87                    | 89.50              | 90.00          | 8,969.85                    | 415.82          | 278.61          | 278.61                        | 12.00                         | 11.96                        | 0.97                        |
| 9,300.00                    | 89.50              | 90.00          | 8,970.21                    | 415.82          | 319.74          | 319.74                        | 0.00                          | 0.00                         | 0.00                        |
| 9,400.00                    | 89.50              | 90.00          | 8,971.08                    | 415.82          | 419.74          | 419.74                        | 0.00                          | 0.00                         | 0.00                        |
| 9,500.00                    | 89.50              | 90.00          | 8,971.96                    | 415.82          | 519.73          | 519.73                        | 0.00                          | 0.00                         | 0.00                        |
| 9,600.00                    | 89.50              | 90.00          | 8,972.83                    | 415.82          | 619.73          | 619.73                        | 0.00                          | 0.00                         | 0.00                        |
| 9,700.00                    | 89.50              | 90.00          | 8,973.70                    | 415.82          | 719.72          | 719.72                        | 0.00                          | 0.00                         | 0.00                        |
| 9,800.00                    | 89.50              | 90.00          | 8,974.58                    | 415.82          | 819.72          | 819.72                        | 0.00                          | 0.00                         | 0.00                        |
| 9,900.00                    | 89.50              | 90.00          | 8,975.45                    | 415.82          | 919.72          | 919.72                        | 0.00                          | 0.00                         | 0.00                        |
| 10,000.00                   | 89.50              | 90.00          | 8,976.32                    | 415.82          | 1,019.71        | 1,019.71                      | 0.00                          | 0.00                         | 0.00                        |
| 10,100.00                   | 89.50              | 90.00          | 8,977.19                    | 415.82          | 1,119.71        | 1,119.71                      | 0.00                          | 0.00                         | 0.00                        |
| 10,200.00                   | 89.50              | 90.00          | 8,978.07                    | 415.82          | 1,219.71        | 1,219.71                      | 0.00                          | 0.00                         | 0.00                        |
| 10,300.00                   | 89.50              | 90.00          | 8,978.94                    | 415.82          | 1,319.70        | 1,319.70                      | 0.00                          | 0.00                         | 0.00                        |
| 10,400.00                   | 89.50              | 90.00          | 8,979.81                    | 415.82          | 1,419.70        | 1,419.70                      | 0.00                          | 0.00                         | 0.00                        |
| 10,500.00                   | 89.50              | 90.00          | 8,980.68                    | 415.82          | 1,519.69        | 1,519.69                      | 0.00                          | 0.00                         | 0.00                        |
| 10,600.00                   | 89.50              | 90.00          | 8,981.56                    | 415.82          | 1,619.69        | 1,619.69                      | 0.00                          | 0.00                         | 0.00                        |
| 10,700.00                   | 89.50              | 90.00          | 8,982.43                    | 415.82          | 1,719.69        | 1,719.69                      | 0.00                          | 0.00                         | 0.00                        |
| 10,800.00                   | 89.50              | 90.00          | 8,983.30                    | 415.82          | 1,819.68        | 1,819.68                      | 0.00                          | 0.00                         | 0.00                        |
| 10,900.00                   | 89.50              | 90.00          | 8,984.17                    | 415.82          | 1,919.68        | 1,919.68                      | 0.00                          | 0.00                         | 0.00                        |
| 11,000.00                   | 89.50              | 90.00          | 8,985.05                    | 415.82          | 2,019.67        | 2,019.67                      | 0.00                          | 0.00                         | 0.00                        |
| 11,100.00                   | 89.50              | 90.00          | 8,985.92                    | 415.82          | 2,119.67        | 2,119.67                      | 0.00                          | 0.00                         | 0.00                        |
| 11,200.00                   | 89.50              | 90.00          | 8,986.79                    | 415.82          | 2,219.67        | 2,219.67                      | 0.00                          | 0.00                         | 0.00                        |
| 11,300.00                   | 89.50              | 90.00          | 8,987.66                    | 415.82          | 2,319.66        | 2,319.66                      | 0.00                          | 0.00                         | 0.00                        |
| 11,400.00                   | 89.50              | 90.00          | 8,988.54                    | 415.82          | 2,419.66        | 2,419.66                      | 0.00                          | 0.00                         | 0.00                        |
| 11,500.00                   | 89.50              | 90.00          | 8,989.41                    | 415.82          | 2,519.66        | 2,519.66                      | 0.00                          | 0.00                         | 0.00                        |
| 11,600.00                   | 89.50              | 90.00          | 8,990.28                    | 415.82          | 2,619.65        | 2,619.65                      | 0.00                          | 0.00                         | 0.00                        |
| 11,700.00                   | 89.50              | 90.00          | 8,991.16                    | 415.82          | 2,719.65        | 2,719.65                      | 0.00                          | 0.00                         | 0.00                        |
| 11,800.00                   | 89.50              | 90.00          | 8,992.03                    | 415.82          | 2,819.64        | 2,819.64                      | 0.00                          | 0.00                         | 0.00                        |
| 11,900.00                   | 89.50              | 90.00          | 8,992.90                    | 415.82          | 2,919.64        | 2,919.64                      | 0.00                          | 0.00                         | 0.00                        |
| 12,000.00                   | 89.50              | 90.00          | 8,993.77                    | 415.82          | 3,019.64        | 3,019.64                      | 0.00                          | 0.00                         | 0.00                        |
| 12,100.00                   | 89.50              | 90.00          | 8,994.65                    | 415.82          | 3,119.63        | 3,119.63                      | 0.00                          | 0.00                         | 0.00                        |
| 12,200.00                   | 89.50              | 90.00          | 8,995.52                    | 415.82          | 3,219.63        | 3,219.63                      | 0.00                          | 0.00                         | 0.00                        |
| 12,300.00                   | 89.50              | 90.00          | 8,996.39                    | 415.82          | 3,319.63        | 3,319.63                      | 0.00                          | 0.00                         | 0.00                        |
| 12,400.00                   | 89.50              | 90.00          | 8,997.26                    | 415.82          | 3,419.62        | 3,419.62                      | 0.00                          | 0.00                         | 0.00                        |
| 12,500.00                   | 89.50              | 90.00          | 8,998.14                    | 415.82          | 3,519.62        | 3,519.62                      | 0.00                          | 0.00                         | 0.00                        |
| 12,600.00                   | 89.50              | 90.00          | 8,999.01                    | 415.82          | 3,619.61        | 3,619.61                      | 0.00                          | 0.00                         | 0.00                        |
| 12,700.00                   | 89.50              | 90.00          | 8,999.88                    | 415.82          | 3,719.61        | 3,719.61                      | 0.00                          | 0.00                         | 0.00                        |
| 12,800.00                   | 89.50              | 90.00          | 9,000.75                    | 415.82          | 3,819.61        | 3,819.61                      | 0.00                          | 0.00                         | 0.00                        |
| 12,900.00                   | 89.50              | 90.00          | 9,001.63                    | 415.82          | 3,919.60        | 3,919.60                      | 0.00                          | 0.00                         | 0.00                        |
| 13,000.00                   | 89.50              | 90.00          | 9,002.50                    | 415.82          | 4,019.60        | 4,019.60                      | 0.00                          | 0.00                         | 0.00                        |
| 13,100.00                   | 89.50              | 90.00          | 9,003.37                    | 415.82          | 4,119.59        | 4,119.59                      | 0.00                          | 0.00                         | 0.00                        |
| 13,200.00                   | 89.50              | 90.00          | 9,004.25                    | 415.82          | 4,219.59        | 4,219.59                      | 0.00                          | 0.00                         | 0.00                        |
| 13,300.00                   | 89.50              | 90.00          | 9,005.12                    | 415.82          | 4,319.59        | 4,319.59                      | 0.00                          | 0.00                         | 0.00                        |
| 13,400.00                   | 89.50              | 90.00          | 9,005.99                    | 415.82          | 4,419.58        | 4,419.58                      | 0.00                          | 0.00                         | 0.00                        |

# LEAM Drilling Systems LLC

## Planning Report

Database: EDM 5000.1 Multi User Db  
 Company: Devon Energy  
 Project: Eddy County, NM (NAD-83)  
 Site: Emerald PWU 20-21  
 Well: 12H  
 Wellbore: OH  
 Design: Plan #1

Local Co-ordinate Reference: Well 12H  
 TVD Reference: 3313.8' GE + 23.5' KB @ 3337.30usft  
 MD Reference: 3313.8' GE + 23.5' KB @ 3337.30usft  
 North Reference: Grid  
 Survey Calculation Method: Minimum Curvature

### Planned Survey

| Measured<br>Depth<br>(usft) | Inclination<br>(°) | Azimuth<br>(°) | Vertical<br>Depth<br>(usft) | +N/-S<br>(usft) | +E/-W<br>(usft) | Vertical<br>Section<br>(usft) | Dogleg<br>Rate<br>(°/100usft) | Build<br>Rate<br>(°/100usft) | Turn<br>Rate<br>(°/100usft) |
|-----------------------------|--------------------|----------------|-----------------------------|-----------------|-----------------|-------------------------------|-------------------------------|------------------------------|-----------------------------|
| 13,500.00                   | 89.50              | 90.00          | 9,006.86                    | 415.82          | 4,519.58        | 4,519.58                      | 0.00                          | 0.00                         | 0.00                        |
| 13,600.00                   | 89.50              | 90.00          | 9,007.74                    | 415.82          | 4,619.58        | 4,619.58                      | 0.00                          | 0.00                         | 0.00                        |
| 13,700.00                   | 89.50              | 90.00          | 9,008.61                    | 415.82          | 4,719.57        | 4,719.57                      | 0.00                          | 0.00                         | 0.00                        |
| 13,800.00                   | 89.50              | 90.00          | 9,009.48                    | 415.82          | 4,819.57        | 4,819.57                      | 0.00                          | 0.00                         | 0.00                        |
| 13,900.00                   | 89.50              | 90.00          | 9,010.35                    | 415.82          | 4,919.56        | 4,919.56                      | 0.00                          | 0.00                         | 0.00                        |
| 14,000.00                   | 89.50              | 90.00          | 9,011.23                    | 415.82          | 5,019.56        | 5,019.56                      | 0.00                          | 0.00                         | 0.00                        |
| 14,100.00                   | 89.50              | 90.00          | 9,012.10                    | 415.82          | 5,119.56        | 5,119.56                      | 0.00                          | 0.00                         | 0.00                        |
| 14,200.00                   | 89.50              | 90.00          | 9,012.97                    | 415.82          | 5,219.55        | 5,219.55                      | 0.00                          | 0.00                         | 0.00                        |
| 14,300.00                   | 89.50              | 90.00          | 9,013.84                    | 415.82          | 5,319.55        | 5,319.55                      | 0.00                          | 0.00                         | 0.00                        |
| 14,400.00                   | 89.50              | 90.00          | 9,014.72                    | 415.82          | 5,419.55        | 5,419.55                      | 0.00                          | 0.00                         | 0.00                        |
| 14,500.00                   | 89.50              | 90.00          | 9,015.59                    | 415.82          | 5,519.54        | 5,519.54                      | 0.00                          | 0.00                         | 0.00                        |
| 14,600.00                   | 89.50              | 90.00          | 9,016.46                    | 415.82          | 5,619.54        | 5,619.54                      | 0.00                          | 0.00                         | 0.00                        |
| 14,700.00                   | 89.50              | 90.00          | 9,017.34                    | 415.82          | 5,719.53        | 5,719.53                      | 0.00                          | 0.00                         | 0.00                        |
| 14,800.00                   | 89.50              | 90.00          | 9,018.21                    | 415.82          | 5,819.53        | 5,819.53                      | 0.00                          | 0.00                         | 0.00                        |
| 14,900.00                   | 89.50              | 90.00          | 9,019.08                    | 415.82          | 5,919.53        | 5,919.53                      | 0.00                          | 0.00                         | 0.00                        |
| 15,000.00                   | 89.50              | 90.00          | 9,019.95                    | 415.82          | 6,019.52        | 6,019.52                      | 0.00                          | 0.00                         | 0.00                        |
| 15,100.00                   | 89.50              | 90.00          | 9,020.83                    | 415.82          | 6,119.52        | 6,119.52                      | 0.00                          | 0.00                         | 0.00                        |
| 15,200.00                   | 89.50              | 90.00          | 9,021.70                    | 415.82          | 6,219.51        | 6,219.51                      | 0.00                          | 0.00                         | 0.00                        |
| 15,300.00                   | 89.50              | 90.00          | 9,022.57                    | 415.82          | 6,319.51        | 6,319.51                      | 0.00                          | 0.00                         | 0.00                        |
| 15,400.00                   | 89.50              | 90.00          | 9,023.44                    | 415.82          | 6,419.51        | 6,419.51                      | 0.00                          | 0.00                         | 0.00                        |
| 15,500.00                   | 89.50              | 90.00          | 9,024.32                    | 415.82          | 6,519.50        | 6,519.50                      | 0.00                          | 0.00                         | 0.00                        |
| 15,600.00                   | 89.50              | 90.00          | 9,025.19                    | 415.82          | 6,619.50        | 6,619.50                      | 0.00                          | 0.00                         | 0.00                        |
| 15,700.00                   | 89.50              | 90.00          | 9,026.06                    | 415.82          | 6,719.50        | 6,719.50                      | 0.00                          | 0.00                         | 0.00                        |
| 15,800.00                   | 89.50              | 90.00          | 9,026.93                    | 415.82          | 6,819.49        | 6,819.49                      | 0.00                          | 0.00                         | 0.00                        |
| 15,900.00                   | 89.50              | 90.00          | 9,027.81                    | 415.82          | 6,919.49        | 6,919.49                      | 0.00                          | 0.00                         | 0.00                        |
| 16,000.00                   | 89.50              | 90.00          | 9,028.68                    | 415.82          | 7,019.48        | 7,019.48                      | 0.00                          | 0.00                         | 0.00                        |
| 16,100.00                   | 89.50              | 90.00          | 9,029.55                    | 415.82          | 7,119.48        | 7,119.48                      | 0.00                          | 0.00                         | 0.00                        |
| 16,200.00                   | 89.50              | 90.00          | 9,030.42                    | 415.82          | 7,219.48        | 7,219.48                      | 0.00                          | 0.00                         | 0.00                        |
| 16,300.00                   | 89.50              | 90.00          | 9,031.30                    | 415.82          | 7,319.47        | 7,319.47                      | 0.00                          | 0.00                         | 0.00                        |
| 16,400.00                   | 89.50              | 90.00          | 9,032.17                    | 415.82          | 7,419.47        | 7,419.47                      | 0.00                          | 0.00                         | 0.00                        |
| 16,500.00                   | 89.50              | 90.00          | 9,033.04                    | 415.82          | 7,519.47        | 7,519.47                      | 0.00                          | 0.00                         | 0.00                        |
| 16,600.00                   | 89.50              | 90.00          | 9,033.92                    | 415.82          | 7,619.46        | 7,619.46                      | 0.00                          | 0.00                         | 0.00                        |
| 16,700.00                   | 89.50              | 90.00          | 9,034.79                    | 415.82          | 7,719.46        | 7,719.46                      | 0.00                          | 0.00                         | 0.00                        |
| 16,800.00                   | 89.50              | 90.00          | 9,035.66                    | 415.82          | 7,819.45        | 7,819.45                      | 0.00                          | 0.00                         | 0.00                        |
| 16,900.00                   | 89.50              | 90.00          | 9,036.53                    | 415.82          | 7,919.45        | 7,919.45                      | 0.00                          | 0.00                         | 0.00                        |
| 17,000.00                   | 89.50              | 90.00          | 9,037.41                    | 415.82          | 8,019.45        | 8,019.45                      | 0.00                          | 0.00                         | 0.00                        |
| 17,100.00                   | 89.50              | 90.00          | 9,038.28                    | 415.82          | 8,119.44        | 8,119.44                      | 0.00                          | 0.00                         | 0.00                        |
| 17,200.00                   | 89.50              | 90.00          | 9,039.15                    | 415.82          | 8,219.44        | 8,219.44                      | 0.00                          | 0.00                         | 0.00                        |
| 17,300.00                   | 89.50              | 90.00          | 9,040.02                    | 415.82          | 8,319.43        | 8,319.43                      | 0.00                          | 0.00                         | 0.00                        |
| 17,400.00                   | 89.50              | 90.00          | 9,040.90                    | 415.82          | 8,419.43        | 8,419.43                      | 0.00                          | 0.00                         | 0.00                        |
| 17,500.00                   | 89.50              | 90.00          | 9,041.77                    | 415.82          | 8,519.43        | 8,519.43                      | 0.00                          | 0.00                         | 0.00                        |
| 17,600.00                   | 89.50              | 90.00          | 9,042.64                    | 415.82          | 8,619.42        | 8,619.42                      | 0.00                          | 0.00                         | 0.00                        |
| 17,700.00                   | 89.50              | 90.00          | 9,043.51                    | 415.82          | 8,719.42        | 8,719.42                      | 0.00                          | 0.00                         | 0.00                        |
| 17,800.00                   | 89.50              | 90.00          | 9,044.39                    | 415.82          | 8,819.42        | 8,819.42                      | 0.00                          | 0.00                         | 0.00                        |
| 17,900.00                   | 89.50              | 90.00          | 9,045.26                    | 415.82          | 8,919.41        | 8,919.41                      | 0.00                          | 0.00                         | 0.00                        |
| 18,000.00                   | 89.50              | 90.00          | 9,046.13                    | 415.82          | 9,019.41        | 9,019.41                      | 0.00                          | 0.00                         | 0.00                        |
| 18,100.00                   | 89.50              | 90.00          | 9,047.01                    | 415.82          | 9,119.40        | 9,119.40                      | 0.00                          | 0.00                         | 0.00                        |
| 18,200.00                   | 89.50              | 90.00          | 9,047.88                    | 415.82          | 9,219.40        | 9,219.40                      | 0.00                          | 0.00                         | 0.00                        |
| 18,300.00                   | 89.50              | 90.00          | 9,048.75                    | 415.82          | 9,319.40        | 9,319.40                      | 0.00                          | 0.00                         | 0.00                        |
| 18,400.00                   | 89.50              | 90.00          | 9,049.62                    | 415.82          | 9,419.39        | 9,419.39                      | 0.00                          | 0.00                         | 0.00                        |
| 18,500.00                   | 89.50              | 90.00          | 9,050.50                    | 415.82          | 9,519.39        | 9,519.39                      | 0.00                          | 0.00                         | 0.00                        |
| 18,600.00                   | 89.50              | 90.00          | 9,051.37                    | 415.82          | 9,619.39        | 9,619.39                      | 0.00                          | 0.00                         | 0.00                        |
| 18,700.00                   | 89.50              | 90.00          | 9,052.24                    | 415.82          | 9,719.38        | 9,719.38                      | 0.00                          | 0.00                         | 0.00                        |
| 18,800.00                   | 89.50              | 90.00          | 9,053.11                    | 415.82          | 9,819.38        | 9,819.38                      | 0.00                          | 0.00                         | 0.00                        |

# LEAM Drilling Systems LLC

## Planning Report

**Database:** EDM 5000.1 Multi User Db  
**Company:** Devon Energy  
**Project:** Eddy County, NM (NAD-83)  
**Site:** Emerald PWU 20-21  
**Well:** 12H  
**Wellbore:** OH  
**Design:** Plan #1

**Local Co-ordinate Reference:** Well 12H  
**TVD Reference:** 3313.8' GE + 23.5' KB @ 3337.30usft  
**MD Reference:** 3313.8' GE + 23.5' KB @ 3337.30usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature

### Planned Survey

| Measured<br>Depth<br>(usft) | Inclination<br>(°) | Azimuth<br>(°) | Vertical<br>Depth<br>(usft) | +N/-S<br>(usft) | +E/-W<br>(usft) | Vertical<br>Section<br>(usft) | Dogleg<br>Rate<br>(°/100usft) | Build<br>Rate<br>(°/100usft) | Turn<br>Rate<br>(°/100usft) |
|-----------------------------|--------------------|----------------|-----------------------------|-----------------|-----------------|-------------------------------|-------------------------------|------------------------------|-----------------------------|
| 18,900.00                   | 89.50              | 90.00          | 9,053.99                    | 415.82          | 9,919.37        | 9,919.37                      | 0.00                          | 0.00                         | 0.00                        |
| 18,958.87                   | 89.50              | 90.00          | 9,054.50                    | 415.82          | 9,978.24        | 9,978.24                      | 0.00                          | 0.00                         | 0.00                        |
| PBHL (E PWU 20-21 12H)      |                    |                |                             |                 |                 |                               |                               |                              |                             |

### Design Targets

| Target Name<br>- hit/miss target<br>- Shape                    | Dip Angle<br>(°) | Dip Dir.<br>(°) | TVD<br>(usft) | +N/-S<br>(usft) | +E/-W<br>(usft) | Northing<br>(usft) | Easting<br>(usft) | Latitude         | Longitude        |
|----------------------------------------------------------------|------------------|-----------------|---------------|-----------------|-----------------|--------------------|-------------------|------------------|------------------|
| SHL (E PWU 20-21 12H)<br>- plan hits target center<br>- Point  | 0.00             | 0.00            | 0.00          | 0.00            | 0.00            | 596,335.26         | 611,703.17        | 32° 38' 20.998 N | 104° 6' 17.060 W |
| PBHL (E PWU 20-21 12H)<br>- plan hits target center<br>- Point | 0.00             | 0.00            | 9,054.50      | 415.82          | 9,978.24        | 596,751.08         | 621,681.41        | 32° 38' 24.885 N | 104° 4' 20.351 W |

NEW OIL CONSERVATION  
ARTESIA DISTRICT  
MAR 06 2017

RECEIVED

## **Devon Energy**

**Eddy County, NM (NAD-83)  
Emerald PWU 20-21  
12H**

**OH  
Plan #1**

## **Anticollision Report**

**02 March, 2017**

# LEAM Drilling Systems LLC

## Anticollision Report

|                           |                          |                                     |                                     |
|---------------------------|--------------------------|-------------------------------------|-------------------------------------|
| <b>Company:</b>           | Devon Energy             | <b>Local Co-ordinate Reference:</b> | Well 12H                            |
| <b>Project:</b>           | Eddy County, NM (NAD-83) | <b>TVD Reference:</b>               | 3313.8' GE + 23.5' KB @ 3337.30usft |
| <b>Reference Site:</b>    | Emerald PWU 20-21        | <b>MD Reference:</b>                | 3313.8' GE + 23.5' KB @ 3337.30usft |
| <b>Site Error:</b>        | 0.00 usft                | <b>North Reference:</b>             | Grid                                |
| <b>Reference Well:</b>    | 12H                      | <b>Survey Calculation Method:</b>   | Minimum Curvature                   |
| <b>Well Error:</b>        | 0.00 usft                | <b>Output errors are at</b>         | 2.00 sigma                          |
| <b>Reference Wellbore</b> | OH                       | <b>Database:</b>                    | EDM 5000.1 Multi User Db            |
| <b>Reference Design:</b>  | Plan #1                  | <b>Offset TVD Reference:</b>        | Offset Datum                        |

|                                     |                                                                     |
|-------------------------------------|---------------------------------------------------------------------|
| <b>Reference</b>                    | Plan #1                                                             |
| <b>Filter type:</b>                 | NO GLOBAL FILTER: Using user defined selection & filtering criteria |
| <b>Interpolation Method:</b>        | Stations                                                            |
| <b>Depth Range:</b>                 | Unlimited                                                           |
| <b>Results Limited by:</b>          | Maximum center-center distance of 9,999.98 usft                     |
| <b>Warning Levels Evaluated at:</b> | 2.00 Sigma                                                          |
| <b>Error Model:</b>                 | ISCWSA                                                              |
| <b>Scan Method:</b>                 | Closest Approach 3D                                                 |
| <b>Error Surface:</b>               | Elliptical Conic                                                    |
| <b>Casing Method:</b>               | Not applied                                                         |

|                            |                    |                          |
|----------------------------|--------------------|--------------------------|
| <b>Survey Tool Program</b> | <b>Date</b>        | 3/2/2017                 |
| <b>From (usft)</b>         | <b>To (usft)</b>   | <b>Survey (Wellbore)</b> |
| 0.00                       | 18,958.87          | Plan #1 (OH)             |
| <b>Tool Name</b>           | <b>Description</b> |                          |
| LEAM MWD+HDGM              | MWD+HDGM           |                          |

| Summary                                |                                 |                              |                                 |                         |                   |            |
|----------------------------------------|---------------------------------|------------------------------|---------------------------------|-------------------------|-------------------|------------|
| Site Name                              | Reference Measured Depth (usft) | Offset Measured Depth (usft) | Distance Between Centres (usft) | Between Ellipses (usft) | Separation Factor | Warning    |
| <b>Offset Well - Wellbore - Design</b> |                                 |                              |                                 |                         |                   |            |
| Emerald PWU 20-21                      |                                 |                              |                                 |                         |                   |            |
| Emerald 20 8H (offset) - OH - OH       | 6,865.72                        | 11,684.00                    | 221.49                          | 121.61                  | 2.218             | CC, ES, SF |
| PWU #24 (offset) - OH - OH             | 14,671.68                       | 8,997.26                     | 302.34                          | 133.45                  | 1.790             | CC, ES, SF |
| PWU #5 (offset) - OH - OH              | 10,588.04                       | 8,969.68                     | 262.75                          | 198.52                  | 4.091             | CC         |
| PWU #5 (offset) - OH - OH              | 10,600.00                       | 8,970.12                     | 263.02                          | 198.42                  | 4.072             | ES, SF     |
| PWU #6 (offset) - OH - OH              | 17,359.74                       | 9,032.12                     | 363.68                          | 129.99                  | 1.556             | CC, ES, SF |

| <b>Offset Design</b>                                      |                       |                       |                       |                  |               |                       |                                     |              |                        |                         |                           |                   | Emerald PWU 20-21 - Emerald 20 8H (offset) - OH - OH |  | <b>Offset Site Error:</b> 0.00 usft |  |
|-----------------------------------------------------------|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|---------------------------|-------------------|------------------------------------------------------|--|-------------------------------------|--|
| <b>Survey Program:</b> 100-ISCWSA-GYRO-3, 6428-MWD-ISCWSA |                       |                       |                       |                  |               |                       |                                     |              |                        |                         |                           |                   |                                                      |  | <b>Offset Well Error:</b> 0.00 usft |  |
| Reference                                                 | Offset                | Semi Major Axis       |                       |                  | Distance      |                       | Minimum Separation                  |              | Warning                |                         |                           |                   |                                                      |  |                                     |  |
| Measured Depth (usft)                                     | Vertical Depth (usft) | Measured Depth (usft) | Vertical Depth (usft) | Reference (usft) | Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | +E/-W (usft) | Between Centres (usft) | Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning                                              |  |                                     |  |
| 0.00                                                      | 0.00                  | 0.00                  | 0.00                  | 0.00             | 0.00          | 88.24                 | 156.02                              | 5,081.22     | 5,083.67               |                         |                           |                   |                                                      |  |                                     |  |
| 100.00                                                    | 100.00                | 104.11                | 104.11                | 0.09             | 0.10          | 88.24                 | 156.02                              | 5,080.93     | 5,083.40               | 5,083.22                | 0.19                      | N/A               |                                                      |  |                                     |  |
| 200.00                                                    | 200.00                | 234.82                | 234.81                | 0.31             | 0.32          | 88.25                 | 155.49                              | 5,079.83     | 5,082.55               | 5,081.90                | 0.64                      | 7,891.001         |                                                      |  |                                     |  |
| 300.00                                                    | 300.00                | 344.54                | 344.52                | 0.54             | 0.52          | 88.26                 | 154.40                              | 5,078.42     | 5,081.22               | 5,080.16                | 1.06                      | 4,794.107         |                                                      |  |                                     |  |
| 400.00                                                    | 400.00                | 443.87                | 443.83                | 0.76             | 0.69          | 88.27                 | 153.16                              | 5,077.17     | 5,079.93               | 5,078.47                | 1.46                      | 3,487.480         |                                                      |  |                                     |  |
| 500.00                                                    | 500.00                | 553.00                | 552.95                | 0.99             | 0.88          | 88.28                 | 151.99                              | 5,075.66     | 5,078.51               | 5,076.64                | 1.87                      | 2,711.576         |                                                      |  |                                     |  |
| 600.00                                                    | 600.00                | 637.64                | 637.58                | 1.21             | 1.03          | 88.29                 | 151.10                              | 5,074.44     | 5,077.06               | 5,074.81                | 2.24                      | 2,262.964         |                                                      |  |                                     |  |
| 700.00                                                    | 700.00                | 700.00                | 699.93                | 1.43             | 1.14          | 88.30                 | 150.60                              | 5,073.90     | 5,076.19               | 5,073.61                | 2.58                      | 1,971.182         |                                                      |  |                                     |  |
| 800.00                                                    | 800.00                | 783.50                | 783.43                | 1.66             | 1.29          | 88.30                 | 150.18                              | 5,073.61     | 5,075.84               | 5,072.89                | 2.95                      | 1,723.258         |                                                      |  |                                     |  |
| 873.85                                                    | 873.85                | 850.42                | 850.35                | 1.83             | 1.40          | 88.31                 | 149.98                              | 5,073.59     | 5,075.81               | 5,072.58                | 3.23                      | 1,572.436         |                                                      |  |                                     |  |
| 900.00                                                    | 900.00                | 875.33                | 875.26                | 1.88             | 1.45          | 88.31                 | 149.91                              | 5,073.60     | 5,075.81               | 5,072.48                | 3.33                      | 1,524.223         |                                                      |  |                                     |  |
| 1,000.00                                                  | 1,000.00              | 955.66                | 955.59                | 2.11             | 1.59          | 88.31                 | 149.84                              | 5,073.74     | 5,075.99               | 5,072.30                | 3.69                      | 1,373.912         |                                                      |  |                                     |  |
| 1,100.00                                                  | 1,100.00              | 1,033.49              | 1,033.41              | 2.33             | 1.72          | 88.31                 | 150.13                              | 5,074.23     | 5,076.64               | 5,072.58                | 4.05                      | 1,252.021         |                                                      |  |                                     |  |
| 1,200.00                                                  | 1,200.00              | 1,115.91              | 1,115.83              | 2.56             | 1.86          | 88.30                 | 150.36                              | 5,075.08     | 5,077.66               | 5,073.24                | 4.42                      | 1,148.045         |                                                      |  |                                     |  |
| 1,300.00                                                  | 1,300.00              | 1,201.88              | 1,201.79              | 2.78             | 2.01          | 88.30                 | 150.81                              | 5,076.21     | 5,079.00               | 5,074.21                | 4.80                      | 1,058.734         |                                                      |  |                                     |  |
| 1,400.00                                                  | 1,400.00              | 1,321.06              | 1,320.96              | 3.01             | 2.22          | 88.29                 | 151.42                              | 5,077.76     | 5,080.32               | 5,075.09                | 5.23                      | 971.610           |                                                      |  |                                     |  |
| 1,500.00                                                  | 1,500.00              | 1,441.76              | 1,441.65              | 3.23             | 2.43          | 88.29                 | 152.05                              | 5,078.69     | 5,081.09               | 5,075.42                | 5.66                      | 897.160           |                                                      |  |                                     |  |
| 1,600.00                                                  | 1,600.00              | 1,537.82              | 1,537.71              | 3.46             | 2.60          | 88.28                 | 152.65                              | 5,079.39     | 5,081.83               | 5,075.77                | 6.06                      | 839.149           |                                                      |  |                                     |  |
| 1,700.00                                                  | 1,700.00              | 1,639.86              | 1,639.75              | 3.68             | 2.78          | 88.27                 | 153.41                              | 5,080.13     | 5,082.58               | 5,076.12                | 6.46                      | 786.916           |                                                      |  |                                     |  |
| 1,800.00                                                  | 1,800.00              | 1,684.00              | 6,828.90              | 3.91             | 123.69        | 10.30                 | 356.29                              | 64.74        | 5,065.36               | 5,025.85                | 39.51                     | 128.205           |                                                      |  |                                     |  |
| 1,900.00                                                  | 1,900.00              | 11,684.00             | 6,828.90              | 4.13             | 123.69        | 10.30                 | 356.29                              | 64.74        | 4,965.62               | 4,926.14                | 39.48                     | 125.764           |                                                      |  |                                     |  |
| 2,000.00                                                  | 2,000.00              | 11,684.00             | 6,828.90              | 4.36             | 123.69        | 10.30                 | 356.29                              | 64.74        | 4,865.89               | 4,826.43                | 39.46                     | 123.304           |                                                      |  |                                     |  |

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# LEAM Drilling Systems LLC

## Anticollision Report

Company: Devon Energy  
Project: Eddy County, NM (NAD-83)  
Reference Site: Emerald PWU 20-21  
Site Error: 0.00 usft  
Reference Well: 12H  
Well Error: 0.00 usft  
Reference Wellbore: OH  
Reference Design: Plan #1

Local Co-ordinate Reference: Well 12H  
TVD Reference: 3313.8' GE + 23.5' KB @ 3337.30usft  
MD Reference: 3313.8' GE + 23.5' KB @ 3337.30usft  
North Reference: Grid  
Survey Calculation Method: Minimum Curvature  
Output errors are at: 2.00 sigma  
Database: EDM 5000.1 Multi User Db  
Offset TVD Reference: Offset Datum

| Offset Design Emerald PWU 20-21 - Emerald 20 8H (offset) - OH - OH |                             |                             |                             |                     |                  |                             |                              |                               |                                 |                      |         | Offset Site Error: | 0.00 usft |
|--------------------------------------------------------------------|-----------------------------|-----------------------------|-----------------------------|---------------------|------------------|-----------------------------|------------------------------|-------------------------------|---------------------------------|----------------------|---------|--------------------|-----------|
| Survey Program: 100-ISCWSA-GYRO-3, 6428-MWD-ISCWSA                 |                             |                             |                             |                     |                  |                             |                              |                               |                                 |                      |         | Offset Well Error: | 0.00 usft |
| Reference                                                          |                             | Offset                      |                             | Semi Major Axis     |                  | Highside<br>Toolface<br>(°) | Distance                     |                               | Minimum<br>Separation<br>(usft) | Separation<br>Factor | Warning |                    |           |
| Measured<br>Depth<br>(usft)                                        | Vertical<br>Depth<br>(usft) | Measured<br>Depth<br>(usft) | Vertical<br>Depth<br>(usft) | Reference<br>(usft) | Offset<br>(usft) |                             | Between<br>Centres<br>(usft) | Between<br>Ellipses<br>(usft) |                                 |                      |         |                    |           |
| 2,100.00                                                           | 2,100.00                    | 11,684.00                   | 6,828.90                    | 4.58                | 123.69           | 10.30                       | 356.29                       | 64.74                         | 4,766.17                        | 4,726.73             | 39.45   | 120.824            |           |
| 2,200.00                                                           | 2,200.00                    | 11,684.00                   | 6,828.90                    | 4.81                | 123.69           | 10.30                       | 356.29                       | 64.74                         | 4,668.47                        | 4,627.03             | 39.44   | 118.324            |           |
| 2,300.00                                                           | 2,300.00                    | 11,684.00                   | 6,828.90                    | 5.03                | 123.69           | 10.30                       | 356.29                       | 64.74                         | 4,566.78                        | 4,527.34             | 39.44   | 115.803            |           |
| 2,400.00                                                           | 2,400.00                    | 11,684.00                   | 6,828.90                    | 5.26                | 123.69           | 10.30                       | 356.29                       | 64.74                         | 4,467.10                        | 4,427.66             | 39.44   | 113.262            |           |
| 2,500.00                                                           | 2,500.00                    | 11,684.00                   | 6,828.90                    | 5.48                | 123.69           | 10.30                       | 356.29                       | 64.74                         | 4,367.44                        | 4,327.98             | 39.45   | 110.700            |           |
| 2,600.00                                                           | 2,600.00                    | 11,684.00                   | 6,828.90                    | 5.71                | 123.69           | 10.30                       | 356.29                       | 64.74                         | 4,267.79                        | 4,228.31             | 39.47   | 108.116            |           |
| 2,700.00                                                           | 2,700.00                    | 11,684.00                   | 6,828.90                    | 5.93                | 123.69           | 10.30                       | 356.29                       | 64.74                         | 4,168.16                        | 4,128.65             | 39.50   | 105.511            |           |
| 2,800.00                                                           | 2,800.00                    | 11,684.00                   | 6,828.90                    | 6.15                | 123.69           | 10.30                       | 356.29                       | 64.74                         | 4,068.55                        | 4,029.00             | 39.54   | 102.884            |           |
| 2,900.00                                                           | 2,900.00                    | 11,684.00                   | 6,828.90                    | 6.38                | 123.69           | 10.30                       | 356.29                       | 64.74                         | 3,968.95                        | 3,929.36             | 39.60   | 100.238            |           |
| 3,000.00                                                           | 3,000.00                    | 11,684.00                   | 6,828.90                    | 6.60                | 123.69           | 10.30                       | 356.29                       | 64.74                         | 3,869.38                        | 3,829.72             | 39.66   | 97.566             |           |
| 3,100.00                                                           | 3,100.00                    | 11,684.00                   | 6,828.90                    | 6.83                | 123.69           | 10.30                       | 356.29                       | 64.74                         | 3,769.83                        | 3,730.10             | 39.74   | 94.874             |           |
| 3,200.00                                                           | 3,200.00                    | 11,684.00                   | 6,828.90                    | 7.05                | 123.69           | 10.30                       | 356.29                       | 64.74                         | 3,670.31                        | 3,630.48             | 39.82   | 92.162             |           |
| 3,300.00                                                           | 3,300.00                    | 11,684.00                   | 6,828.90                    | 7.28                | 123.69           | 10.30                       | 356.29                       | 64.74                         | 3,570.81                        | 3,530.88             | 39.93   | 89.430             |           |
| 3,400.00                                                           | 3,400.00                    | 11,684.00                   | 6,828.90                    | 7.50                | 123.69           | 10.30                       | 356.29                       | 64.74                         | 3,471.34                        | 3,431.29             | 40.05   | 86.678             |           |
| 3,500.00                                                           | 3,500.00                    | 11,684.00                   | 6,828.90                    | 7.73                | 123.69           | 10.30                       | 356.29                       | 64.74                         | 3,371.90                        | 3,331.71             | 40.19   | 83.908             |           |
| 3,600.00                                                           | 3,600.00                    | 11,684.00                   | 6,828.90                    | 7.95                | 123.69           | 10.30                       | 356.29                       | 64.74                         | 3,272.49                        | 3,232.15             | 40.34   | 81.120             |           |
| 3,700.00                                                           | 3,700.00                    | 11,684.00                   | 6,828.90                    | 8.18                | 123.69           | 43.77                       | 356.29                       | 64.74                         | 3,173.05                        | 3,132.54             | 40.51   | 78.318             |           |
| 3,800.00                                                           | 3,799.96                    | 11,684.00                   | 6,828.90                    | 8.40                | 123.69           | 51.40                       | 356.29                       | 64.74                         | 3,073.52                        | 3,032.75             | 40.76   | 75.396             |           |
| 3,900.00                                                           | 3,899.86                    | 11,684.00                   | 6,828.90                    | 8.62                | 123.69           | 60.72                       | 356.29                       | 64.74                         | 2,973.91                        | 2,932.91             | 41.00   | 72.531             |           |
| 4,000.00                                                           | 3,999.68                    | 11,684.00                   | 6,828.90                    | 8.84                | 123.69           | 71.70                       | 356.29                       | 64.74                         | 2,874.26                        | 2,833.03             | 41.22   | 69.727             |           |
| 4,100.00                                                           | 4,099.37                    | 11,684.00                   | 6,828.90                    | 9.07                | 123.69           | 83.81                       | 356.29                       | 64.74                         | 2,774.58                        | 2,733.16             | 41.42   | 66.984             |           |
| 4,124.09                                                           | 4,123.36                    | 11,684.00                   | 6,828.90                    | 9.12                | 123.69           | 86.78                       | 356.29                       | 64.74                         | 2,750.57                        | 2,709.10             | 41.47   | 66.333             |           |
| 4,200.00                                                           | 4,198.95                    | 11,684.00                   | 6,828.90                    | 9.29                | 123.69           | 86.78                       | 356.29                       | 64.74                         | 2,674.91                        | 2,633.30             | 41.61   | 64.286             |           |
| 4,300.00                                                           | 4,298.53                    | 11,684.00                   | 6,828.90                    | 9.52                | 123.69           | 86.78                       | 356.29                       | 64.74                         | 2,575.27                        | 2,533.45             | 41.81   | 61.590             |           |
| 4,400.00                                                           | 4,398.12                    | 11,684.00                   | 6,828.90                    | 9.75                | 123.69           | 86.78                       | 356.29                       | 64.74                         | 2,475.65                        | 2,433.62             | 42.04   | 58.895             |           |
| 4,500.00                                                           | 4,497.70                    | 11,684.00                   | 6,828.90                    | 9.98                | 123.69           | 86.78                       | 356.29                       | 64.74                         | 2,376.07                        | 2,333.79             | 42.28   | 56.201             |           |
| 4,600.00                                                           | 4,597.28                    | 11,684.00                   | 6,828.90                    | 10.22               | 123.69           | 86.78                       | 356.29                       | 64.74                         | 2,276.52                        | 2,233.98             | 42.54   | 53.512             |           |
| 4,700.00                                                           | 4,696.86                    | 11,684.00                   | 6,828.90                    | 10.45               | 123.69           | 86.78                       | 356.29                       | 64.74                         | 2,177.02                        | 2,134.19             | 42.83   | 50.828             |           |
| 4,800.00                                                           | 4,796.44                    | 11,684.00                   | 6,828.90                    | 10.69               | 123.69           | 86.78                       | 356.29                       | 64.74                         | 2,077.56                        | 2,034.42             | 43.15   | 48.150             |           |
| 4,900.00                                                           | 4,896.03                    | 11,684.00                   | 6,828.90                    | 10.92               | 123.69           | 86.78                       | 356.29                       | 64.74                         | 1,978.16                        | 1,934.67             | 43.49   | 45.482             |           |
| 5,000.00                                                           | 4,995.61                    | 11,684.00                   | 6,828.90                    | 11.16               | 123.69           | 86.78                       | 356.29                       | 64.74                         | 1,878.83                        | 1,834.95             | 43.87   | 42.823             |           |
| 5,100.00                                                           | 5,095.19                    | 11,684.00                   | 6,828.90                    | 11.40               | 123.69           | 86.78                       | 356.29                       | 64.74                         | 1,779.56                        | 1,735.27             | 44.29   | 40.176             |           |
| 5,200.00                                                           | 5,194.77                    | 11,684.00                   | 6,828.90                    | 11.64               | 123.69           | 86.78                       | 356.29                       | 64.74                         | 1,680.39                        | 1,635.63             | 44.76   | 37.542             |           |
| 5,300.00                                                           | 5,294.35                    | 11,684.00                   | 6,828.90                    | 11.89               | 123.69           | 86.78                       | 356.29                       | 64.74                         | 1,581.31                        | 1,536.03             | 45.28   | 34.923             |           |
| 5,400.00                                                           | 5,393.94                    | 11,684.00                   | 6,828.90                    | 12.13               | 123.69           | 86.78                       | 356.29                       | 64.74                         | 1,482.37                        | 1,436.50             | 45.86   | 32.320             |           |
| 5,500.00                                                           | 5,493.52                    | 11,684.00                   | 6,828.90                    | 12.37               | 123.69           | 86.78                       | 356.29                       | 64.74                         | 1,383.57                        | 1,337.04             | 46.53   | 29.736             |           |
| 5,600.00                                                           | 5,593.10                    | 11,684.00                   | 6,828.90                    | 12.62               | 123.69           | 86.78                       | 356.29                       | 64.74                         | 1,284.96                        | 1,237.67             | 47.29   | 27.173             |           |
| 5,700.00                                                           | 5,692.68                    | 11,684.00                   | 6,828.90                    | 12.86               | 123.69           | 86.78                       | 356.29                       | 64.74                         | 1,186.58                        | 1,138.41             | 48.17   | 24.634             |           |
| 5,800.00                                                           | 5,792.26                    | 11,684.00                   | 6,828.90                    | 13.11               | 123.69           | 86.78                       | 356.29                       | 64.74                         | 1,088.50                        | 1,039.29             | 49.21   | 22.121             |           |
| 5,900.00                                                           | 5,891.85                    | 11,684.00                   | 6,828.90                    | 13.36               | 123.69           | 86.78                       | 356.29                       | 64.74                         | 990.80                          | 940.35               | 50.44   | 19.641             |           |
| 6,000.00                                                           | 5,991.43                    | 11,684.00                   | 6,828.90                    | 13.61               | 123.69           | 86.78                       | 356.29                       | 64.74                         | 893.61                          | 841.66               | 51.95   | 17.200             |           |
| 6,100.00                                                           | 6,091.01                    | 11,684.00                   | 6,828.90                    | 13.85               | 123.69           | 86.78                       | 356.29                       | 64.74                         | 797.12                          | 743.28               | 53.83   | 14.807             |           |
| 6,200.00                                                           | 6,190.59                    | 11,684.00                   | 6,828.90                    | 14.10               | 123.69           | 86.78                       | 356.29                       | 64.74                         | 701.60                          | 645.37               | 56.24   | 12.476             |           |
| 6,300.00                                                           | 6,290.17                    | 11,684.00                   | 6,828.90                    | 14.35               | 123.69           | 86.78                       | 356.29                       | 64.74                         | 607.54                          | 548.14               | 59.39   | 10.229             |           |
| 6,400.00                                                           | 6,389.76                    | 11,684.00                   | 6,828.90                    | 14.60               | 123.69           | 86.78                       | 356.29                       | 64.74                         | 515.71                          | 452.03               | 63.68   | 8.099              |           |
| 6,500.00                                                           | 6,489.34                    | 11,684.00                   | 6,828.90                    | 14.86               | 123.69           | 86.78                       | 356.29                       | 64.74                         | 427.57                          | 357.91               | 69.65   | 6.139              |           |
| 6,600.00                                                           | 6,588.92                    | 11,684.00                   | 6,828.90                    | 15.11               | 123.69           | 86.78                       | 356.29                       | 64.74                         | 345.93                          | 267.88               | 78.05   | 4.432              |           |
| 6,700.00                                                           | 6,688.50                    | 11,684.00                   | 6,828.90                    | 15.36               | 123.69           | 86.78                       | 356.29                       | 64.74                         | 276.63                          | 187.60               | 89.03   | 3.107              |           |
| 6,800.00                                                           | 6,788.08                    | 11,684.00                   | 6,828.90                    | 15.61               | 123.69           | 86.78                       | 356.29                       | 64.74                         | 231.04                          | 132.12               | 98.92   | 2.336              |           |
| 6,865.72                                                           | 6,853.53                    | 11,684.00                   | 6,828.90                    | 15.78               | 123.69           | 86.78                       | 356.29                       | 64.74                         | 221.49                          | 121.61               | 99.88   | 2.218 CC, ES, SF   |           |
| 6,900.00                                                           | 6,887.66                    | 11,684.00                   | 6,828.90                    | 15.86               | 123.69           | 86.78                       | 356.29                       | 64.74                         | 224.13                          | 126.41               | 97.72   | 2.294              |           |
| 7,000.00                                                           | 6,987.25                    | 11,684.00                   | 6,828.90                    | 16.12               | 123.69           | 86.78                       | 356.29                       | 64.74                         | 259.01                          | 174.24               | 84.78   | 3.055              |           |

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# LEAM Drilling Systems LLC

## Anticollision Report

**Company:** Devon Energy  
**Project:** Eddy County, NM (NAD-83)  
**Reference Site:** Emerald PWU 20-21  
**Site Error:** 0.00 usft  
**Reference Well:** 12H  
**Well Error:** 0.00 usft  
**Reference Wellbore:** OH  
**Reference Design:** Plan #1

**Local Co-ordinate Reference:** Well 12H  
**TVD Reference:** 3313.8' GE + 23.5' KB @ 3337.30usft  
**MD Reference:** 3313.8' GE + 23.5' KB @ 3337.30usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Output errors are at** 2.00 sigma  
**Database:** EDM 5000.1 Multi User Db  
**Offset TVD Reference:** Offset Datum

| Offset Design Emerald PWU 20-21 - Emerald 20 8H (offset) - OH - OH |                             |                             |                             |                     |                  |                             |                                          |                |                              |                               |                                 |                      |         | Offset Site Error: | 0.00 usft |
|--------------------------------------------------------------------|-----------------------------|-----------------------------|-----------------------------|---------------------|------------------|-----------------------------|------------------------------------------|----------------|------------------------------|-------------------------------|---------------------------------|----------------------|---------|--------------------|-----------|
| Survey Program: 100-ISCWSA-GYRO-3, 6428-MWD-ISCWSA                 |                             |                             |                             |                     |                  |                             |                                          |                |                              |                               |                                 |                      |         | Offset Well Error: | 0.00 usft |
| Reference                                                          |                             | Offset                      |                             | Semi Major Axis     |                  | Highside<br>Toolface<br>(°) | Distance                                 |                | Between<br>Centres<br>(usft) | Between<br>Ellipses<br>(usft) | Minimum<br>Separation<br>(usft) | Separation<br>Factor | Warning |                    |           |
| Measured<br>Depth<br>(usft)                                        | Vertical<br>Depth<br>(usft) | Measured<br>Depth<br>(usft) | Vertical<br>Depth<br>(usft) | Reference<br>(usft) | Offset<br>(usft) |                             | Offset Wellbore Centre<br>+N-S<br>(usft) | +E-W<br>(usft) |                              |                               |                                 |                      |         |                    |           |
| 7,100.00                                                           | 7,086.83                    | 11,684.00                   | 6,828.90                    | 16.37               | 123.69           | 86.78                       | 356.29                                   | 64.74          | 322.40                       | 250.85                        | 71.55                           | 4.506                |         |                    |           |
| 7,200.00                                                           | 7,186.41                    | 11,684.00                   | 6,828.90                    | 16.63               | 123.69           | 86.78                       | 356.29                                   | 64.74          | 401.00                       | 338.40                        | 62.59                           | 6.406                |         |                    |           |
| 7,300.00                                                           | 7,285.99                    | 11,684.00                   | 6,828.90                    | 16.88               | 123.69           | 86.78                       | 356.29                                   | 64.74          | 487.50                       | 430.39                        | 57.11                           | 8.536                |         |                    |           |
| 7,400.00                                                           | 7,385.57                    | 11,684.00                   | 6,828.90                    | 17.14               | 123.69           | 86.78                       | 356.29                                   | 64.74          | 578.37                       | 524.60                        | 53.77                           | 10.757               |         |                    |           |
| 7,500.00                                                           | 7,485.16                    | 11,684.00                   | 6,828.90                    | 17.39               | 123.69           | 86.78                       | 356.29                                   | 64.74          | 671.84                       | 620.16                        | 51.68                           | 13.001               |         |                    |           |
| 7,600.00                                                           | 7,584.74                    | 11,684.00                   | 6,828.90                    | 17.65               | 123.69           | 86.78                       | 356.29                                   | 64.74          | 766.95                       | 716.61                        | 50.34                           | 15.236               |         |                    |           |
| 7,700.00                                                           | 7,684.32                    | 11,684.00                   | 6,828.90                    | 17.90               | 123.69           | 86.78                       | 356.29                                   | 64.74          | 863.18                       | 813.71                        | 49.47                           | 17.449               |         |                    |           |
| 7,800.00                                                           | 7,783.90                    | 11,684.00                   | 6,828.90                    | 18.16               | 123.69           | 86.78                       | 356.29                                   | 64.74          | 960.17                       | 911.27                        | 48.90                           | 19.635               |         |                    |           |
| 7,900.00                                                           | 7,883.48                    | 11,684.00                   | 6,828.90                    | 18.41               | 123.69           | 86.78                       | 356.29                                   | 64.74          | 1,057.73                     | 1,009.19                      | 48.53                           | 21.794               |         |                    |           |
| 8,000.00                                                           | 7,983.07                    | 11,684.00                   | 6,828.90                    | 18.67               | 123.69           | 86.78                       | 356.29                                   | 64.74          | 1,155.70                     | 1,107.39                      | 48.30                           | 23.925               |         |                    |           |
| 8,100.00                                                           | 8,082.65                    | 11,684.00                   | 6,828.90                    | 18.93               | 123.69           | 86.78                       | 356.29                                   | 64.74          | 1,253.99                     | 1,205.82                      | 48.18                           | 26.029               |         |                    |           |
| 8,200.00                                                           | 8,182.23                    | 11,684.00                   | 6,828.90                    | 19.19               | 123.69           | 86.78                       | 356.29                                   | 64.74          | 1,352.53                     | 1,304.41                      | 48.12                           | 28.107               |         |                    |           |
| 8,300.00                                                           | 8,281.81                    | 11,684.00                   | 6,828.90                    | 19.44               | 123.69           | 86.78                       | 356.29                                   | 64.74          | 1,451.28                     | 1,403.16                      | 48.12                           | 30.159               |         |                    |           |
| 8,400.00                                                           | 8,381.39                    | 11,684.00                   | 6,828.90                    | 19.70               | 123.69           | 86.78                       | 356.29                                   | 64.74          | 1,550.18                     | 1,502.02                      | 48.16                           | 32.186               |         |                    |           |
| 8,492.99                                                           | 8,473.99                    | 11,684.00                   | 6,828.90                    | 19.94               | 123.69           | 86.78                       | 356.29                                   | 64.74          | 1,642.27                     | 1,594.03                      | 48.23                           | 34.049               |         |                    |           |
| 8,500.00                                                           | 8,480.98                    | 11,684.00                   | 6,828.90                    | 19.96               | 123.69           | 80.92                       | 356.29                                   | 64.74          | 1,649.21                     | 1,600.97                      | 48.24                           | 34.189               |         |                    |           |
| 8,525.00                                                           | 8,505.89                    | 11,684.00                   | 6,828.90                    | 20.01               | 123.69           | 52.41                       | 356.29                                   | 64.74          | 1,673.85                     | 1,625.59                      | 48.26                           | 34.687               |         |                    |           |
| 8,550.00                                                           | 8,530.77                    | 11,684.00                   | 6,828.90                    | 20.06               | 123.69           | 30.29                       | 356.29                                   | 64.74          | 1,698.26                     | 1,649.99                      | 48.27                           | 35.181               |         |                    |           |
| 8,575.00                                                           | 8,555.56                    | 11,684.00                   | 6,828.90                    | 20.11               | 123.69           | 18.83                       | 356.29                                   | 64.74          | 1,722.40                     | 1,674.12                      | 48.29                           | 35.671               |         |                    |           |
| 8,600.00                                                           | 8,580.17                    | 11,684.00                   | 6,828.90                    | 20.15               | 123.69           | 12.86                       | 356.29                                   | 64.74          | 1,746.21                     | 1,697.91                      | 48.30                           | 36.154               |         |                    |           |
| 8,625.00                                                           | 8,604.54                    | 11,684.00                   | 6,828.90                    | 20.19               | 123.69           | 9.45                        | 356.29                                   | 64.74          | 1,769.64                     | 1,721.33                      | 48.31                           | 36.631               |         |                    |           |
| 8,650.00                                                           | 8,628.62                    | 11,684.00                   | 6,828.90                    | 20.23               | 123.69           | 7.33                        | 356.29                                   | 64.74          | 1,792.64                     | 1,744.32                      | 48.32                           | 37.101               |         |                    |           |
| 8,675.00                                                           | 8,652.32                    | 11,684.00                   | 6,828.90                    | 20.27               | 123.69           | 5.92                        | 356.29                                   | 64.74          | 1,815.16                     | 1,766.84                      | 48.33                           | 37.561               |         |                    |           |
| 8,700.00                                                           | 8,675.59                    | 11,684.00                   | 6,828.90                    | 20.30               | 123.69           | 4.94                        | 356.29                                   | 64.74          | 1,837.17                     | 1,788.84                      | 48.33                           | 38.013               |         |                    |           |
| 8,725.00                                                           | 8,698.36                    | 11,684.00                   | 6,828.90                    | 20.34               | 123.69           | 4.22                        | 356.29                                   | 64.74          | 1,858.61                     | 1,810.28                      | 48.33                           | 38.454               |         |                    |           |
| 8,750.00                                                           | 8,720.58                    | 11,684.00                   | 6,828.90                    | 20.36               | 123.69           | 3.69                        | 356.29                                   | 64.74          | 1,879.46                     | 1,831.13                      | 48.33                           | 38.884               |         |                    |           |
| 8,775.00                                                           | 8,742.17                    | 11,684.00                   | 6,828.90                    | 20.39               | 123.69           | 3.27                        | 356.29                                   | 64.74          | 1,899.68                     | 1,851.35                      | 48.33                           | 39.303               |         |                    |           |
| 8,800.00                                                           | 8,763.08                    | 11,684.00                   | 6,828.90                    | 20.41               | 123.69           | 2.95                        | 356.29                                   | 64.74          | 1,919.23                     | 1,870.90                      | 48.33                           | 39.709               |         |                    |           |
| 8,825.00                                                           | 8,783.25                    | 11,684.00                   | 6,828.90                    | 20.43               | 123.69           | 2.69                        | 356.29                                   | 64.74          | 1,938.07                     | 1,889.75                      | 48.33                           | 40.102               |         |                    |           |
| 8,850.00                                                           | 8,802.63                    | 11,684.00                   | 6,828.90                    | 20.45               | 123.69           | 2.48                        | 356.29                                   | 64.74          | 1,956.19                     | 1,907.87                      | 48.32                           | 40.482               |         |                    |           |
| 8,875.00                                                           | 8,821.17                    | 11,684.00                   | 6,828.90                    | 20.47               | 123.69           | 2.31                        | 356.29                                   | 64.74          | 1,973.54                     | 1,925.23                      | 48.32                           | 40.846               |         |                    |           |
| 8,900.00                                                           | 8,838.80                    | 11,684.00                   | 6,828.90                    | 20.49               | 123.69           | 2.17                        | 356.29                                   | 64.74          | 1,990.11                     | 1,941.80                      | 48.31                           | 41.196               |         |                    |           |
| 8,925.00                                                           | 8,855.50                    | 11,684.00                   | 6,828.90                    | 20.50               | 123.69           | 2.05                        | 356.29                                   | 64.74          | 2,005.86                     | 1,957.56                      | 48.30                           | 41.529               |         |                    |           |
| 8,950.00                                                           | 8,871.20                    | 11,684.00                   | 6,828.90                    | 20.52               | 123.69           | 1.95                        | 356.29                                   | 64.74          | 2,020.78                     | 1,972.49                      | 48.29                           | 41.846               |         |                    |           |
| 8,975.00                                                           | 8,885.86                    | 11,684.00                   | 6,828.90                    | 20.53               | 123.69           | 1.87                        | 356.29                                   | 64.74          | 2,034.84                     | 1,986.56                      | 48.28                           | 42.145               |         |                    |           |
| 9,000.00                                                           | 8,899.46                    | 11,684.00                   | 6,828.90                    | 20.55               | 123.69           | 1.80                        | 356.29                                   | 64.74          | 2,048.02                     | 1,999.75                      | 48.27                           | 42.426               |         |                    |           |
| 9,025.00                                                           | 8,911.94                    | 11,678.11                   | 6,828.95                    | 20.59               | 123.55           | 1.76                        | 356.13                                   | 70.62          | 2,060.29                     | 2,012.06                      | 48.23                           | 42.718               |         |                    |           |
| 9,050.00                                                           | 8,923.28                    | 11,655.79                   | 6,829.14                    | 20.68               | 122.99           | 1.75                        | 355.53                                   | 92.94          | 2,071.48                     | 2,023.38                      | 48.09                           | 43.074               |         |                    |           |
| 9,075.00                                                           | 8,933.44                    | 11,632.91                   | 6,829.33                    | 20.82               | 122.42           | 1.74                        | 354.92                                   | 115.81         | 2,081.48                     | 2,033.52                      | 47.95                           | 43.408               |         |                    |           |
| 9,100.00                                                           | 8,942.39                    | 11,609.50                   | 6,829.53                    | 20.99               | 121.83           | 1.74                        | 354.30                                   | 139.21         | 2,090.26                     | 2,042.45                      | 47.81                           | 43.720               |         |                    |           |
| 9,125.00                                                           | 8,950.12                    | 11,583.86                   | 6,829.76                    | 21.18               | 121.19           | 1.74                        | 353.65                                   | 164.84         | 2,097.81                     | 2,050.15                      | 47.66                           | 44.017               |         |                    |           |
| 9,150.00                                                           | 8,956.59                    | 11,554.17                   | 6,830.07                    | 21.38               | 120.45           | 1.74                        | 352.96                                   | 194.53         | 2,104.07                     | 2,056.58                      | 47.49                           | 44.308               |         |                    |           |
| 9,175.00                                                           | 8,961.80                    | 11,520.45                   | 6,830.55                    | 21.60               | 119.60           | 1.75                        | 352.23                                   | 228.24         | 2,108.96                     | 2,061.66                      | 47.29                           | 44.592               |         |                    |           |
| 9,200.00                                                           | 8,965.73                    | 11,486.37                   | 6,831.18                    | 21.84               | 118.75           | 1.76                        | 351.54                                   | 262.30         | 2,112.45                     | 2,065.34                      | 47.10                           | 44.848               |         |                    |           |
| 9,225.00                                                           | 8,968.36                    | 11,445.33                   | 6,832.17                    | 22.09               | 117.73           | 1.77                        | 350.75                                   | 303.32         | 2,114.50                     | 2,067.63                      | 46.87                           | 45.111               |         |                    |           |
| 9,250.00                                                           | 8,969.69                    | 11,401.24                   | 6,833.62                    | 22.36               | 116.63           | 1.79                        | 349.86                                   | 347.38         | 2,115.03                     | 2,068.41                      | 46.63                           | 45.360               |         |                    |           |
| 9,258.87                                                           | 8,969.85                    | 11,385.59                   | 6,834.23                    | 22.46               | 116.24           | 1.80                        | 349.53                                   | 363.01         | 2,114.85                     | 2,068.31                      | 46.54                           | 45.441               |         |                    |           |
| 9,300.00                                                           | 8,970.21                    | 11,330.15                   | 6,836.68                    | 22.93               | 114.85           | 1.83                        | 348.32                                   | 418.39         | 2,113.42                     | 2,067.18                      | 46.24                           | 45.703               |         |                    |           |
| 9,400.00                                                           | 8,971.08                    | 11,204.20                   | 6,843.47                    | 24.24               | 111.71           | 1.91                        | 345.46                                   | 544.12         | 2,108.96                     | 2,063.36                      | 45.60                           | 46.250               |         |                    |           |
| 9,500.00                                                           | 8,971.96                    | 11,113.68                   | 6,848.75                    | 25.75               | 109.46           | 1.96                        | 343.87                                   | 634.47         | 2,104.07                     | 2,058.86                      | 45.22                           | 46.533               |         |                    |           |
| 9,600.00                                                           | 8,972.83                    | 11,009.22                   | 6,854.52                    | 27.43               | 106.86           | 2.00                        | 342.70                                   | 738.76         | 2,099.47                     | 2,054.67                      | 44.80                           | 46.867               |         |                    |           |
| 9,700.00                                                           | 8,973.70                    | 10,924.61                   | 6,859.07                    | 29.25               | 104.75           | 2.02                        | 342.20                                   | 823.25         | 2,094.99                     | 2,050.45                      | 44.54                           | 47.036               |         |                    |           |

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# LEAM Drilling Systems LLC

## Anticollision Report

**Company:** Devon Energy  
**Project:** Eddy County, NM (NAD-83)  
**Reference Site:** Emerald PWU 20-21  
**Site Error:** 0.00 usft  
**Reference Well:** 12H  
**Well Error:** 0.00 usft  
**Reference Wellbore:** OH  
**Reference Design:** Plan #1

**Local Co-ordinate Reference:** Well 12H  
**TVD Reference:** 3313.8' GE + 23.5' KB @ 3337.30usft  
**MD Reference:** 3313.8' GE + 23.5' KB @ 3337.30usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Output errors are at** 2.00 sigma  
**Database:** EDM 5000.1 Multi User Db  
**Offset TVD Reference:** Offset Datum

| Offset Design Emerald PWU 20-21 - Emerald 20 8H (offset) - OH - OH |                             |                             |                             |                     |                  |                             |                                           |                 |                                 |                      |         |        |  | Offset Site Error: | 0.00 usft |
|--------------------------------------------------------------------|-----------------------------|-----------------------------|-----------------------------|---------------------|------------------|-----------------------------|-------------------------------------------|-----------------|---------------------------------|----------------------|---------|--------|--|--------------------|-----------|
| Survey Program: 100-ISCWSA-GYRO-3, 6428-MWD-ISCWSA                 |                             |                             |                             |                     |                  |                             |                                           |                 |                                 |                      |         |        |  | Offset Well Error: | 0.00 usft |
| Reference                                                          |                             | Offset                      |                             | Semi Major Axis     |                  | Highside<br>Toolface<br>(°) | Distance                                  |                 | Minimum<br>Separation<br>(usft) | Separation<br>Factor | Warning |        |  |                    |           |
| Measured<br>Depth<br>(usft)                                        | Vertical<br>Depth<br>(usft) | Measured<br>Depth<br>(usft) | Vertical<br>Depth<br>(usft) | Reference<br>(usft) | Offset<br>(usft) |                             | Offset Wellbore Centre<br>+N/-S<br>(usft) | +E/-W<br>(usft) |                                 |                      |         |        |  |                    |           |
| 9,800.00                                                           | 8,974.58                    | 10,823.89                   | 6,863.97                    | 31.19               | 102.25           | 2.01                        | 342.42                                    | 923.85          | 2,090.99                        | 2,046.77             | 44.22   | 47.282 |  |                    |           |
| 9,900.00                                                           | 8,975.45                    | 10,756.52                   | 6,866.90                    | 33.22               | 100.57           | 2.01                        | 342.51                                    | 991.15          | 2,087.56                        | 2,043.41             | 44.15   | 47.284 |  |                    |           |
| 10,000.00                                                          | 8,976.32                    | 10,670.87                   | 6,869.20                    | 35.33               | 98.44            | 2.02                        | 342.45                                    | 1,076.78        | 2,085.69                        | 2,041.71             | 43.99   | 47.415 |  |                    |           |
| 10,100.00                                                          | 8,977.19                    | 10,571.84                   | 6,872.12                    | 37.51               | 95.97            | 2.03                        | 342.03                                    | 1,175.76        | 2,083.63                        | 2,039.87             | 43.76   | 47.611 |  |                    |           |
| 10,200.00                                                          | 8,978.07                    | 10,466.85                   | 6,874.84                    | 39.74               | 93.36            | 2.05                        | 341.19                                    | 1,280.71        | 2,081.96                        | 2,038.44             | 43.52   | 47.838 |  |                    |           |
| 10,300.00                                                          | 8,978.94                    | 10,348.19                   | 6,878.93                    | 42.02               | 90.41            | 2.08                        | 340.51                                    | 1,399.30        | 2,079.39                        | 2,036.19             | 43.21   | 48.127 |  |                    |           |
| 10,400.00                                                          | 8,979.81                    | 10,270.62                   | 6,881.57                    | 44.34               | 88.48            | 2.09                        | 340.16                                    | 1,476.82        | 2,076.90                        | 2,033.71             | 43.19   | 48.090 |  |                    |           |
| 10,500.00                                                          | 8,980.68                    | 10,178.02                   | 6,883.81                    | 46.69               | 86.18            | 2.10                        | 339.87                                    | 1,569.39        | 2,075.36                        | 2,032.27             | 43.09   | 48.169 |  |                    |           |
| 10,600.00                                                          | 8,981.56                    | 10,087.40                   | 6,885.87                    | 49.07               | 83.93            | 2.11                        | 339.52                                    | 1,659.99        | 2,073.98                        | 2,030.97             | 43.01   | 48.220 |  |                    |           |
| 10,700.00                                                          | 8,982.43                    | 9,972.91                    | 6,888.25                    | 51.48               | 81.09            | 2.13                        | 338.84                                    | 1,774.45        | 2,072.83                        | 2,030.04             | 42.78   | 48.449 |  |                    |           |
| 10,800.00                                                          | 8,983.30                    | 9,831.51                    | 6,893.78                    | 53.90               | 77.58            | 2.14                        | 338.67                                    | 1,915.74        | 2,069.69                        | 2,027.32             | 42.38   | 48.839 |  |                    |           |
| 10,900.00                                                          | 8,984.17                    | 9,703.02                    | 6,900.04                    | 56.35               | 74.41            | 2.11                        | 339.72                                    | 2,044.07        | 2,065.79                        | 2,023.72             | 42.07   | 49.102 |  |                    |           |
| 11,000.00                                                          | 8,985.05                    | 9,600.75                    | 6,906.52                    | 58.81               | 71.89            | 2.09                        | 340.86                                    | 2,146.13        | 2,060.28                        | 2,018.32             | 41.96   | 49.098 |  |                    |           |
| 11,100.00                                                          | 8,985.92                    | 9,538.41                    | 6,909.89                    | 61.29               | 70.35            | 2.08                        | 341.36                                    | 2,208.37        | 2,055.79                        | 2,013.64             | 42.16   | 48.766 |  |                    |           |
| 11,200.00                                                          | 8,986.79                    | 9,487.00                    | 6,911.59                    | 63.78               | 69.08            | 2.08                        | 341.36                                    | 2,259.76        | 2,053.44                        | 2,011.01             | 42.43   | 48.390 |  |                    |           |
| 11,300.00                                                          | 8,987.66                    | 9,393.00                    | 6,913.20                    | 66.28               | 66.76            | 2.11                        | 340.39                                    | 2,353.74        | 2,052.63                        | 2,010.23             | 42.41   | 48.404 |  |                    |           |
| 11,400.00                                                          | 8,988.54                    | 9,272.02                    | 6,915.63                    | 68.79               | 63.77            | 2.16                        | 338.58                                    | 2,474.67        | 2,051.60                        | 2,009.41             | 42.19   | 48.632 |  |                    |           |
| 11,500.00                                                          | 8,989.41                    | 9,147.59                    | 6,919.64                    | 71.31               | 60.70            | 2.20                        | 337.14                                    | 2,599.03        | 2,049.32                        | 2,007.38             | 41.94   | 48.858 |  |                    |           |
| 11,600.00                                                          | 8,990.28                    | 9,042.44                    | 6,924.08                    | 73.84               | 58.12            | 2.21                        | 336.84                                    | 2,704.09        | 2,045.97                        | 2,004.12             | 41.85   | 48.883 |  |                    |           |
| 11,700.00                                                          | 8,991.16                    | 8,973.77                    | 6,926.58                    | 76.38               | 56.44            | 2.23                        | 336.46                                    | 2,772.71        | 2,043.31                        | 2,001.26             | 42.05   | 48.595 |  |                    |           |
| 11,789.00                                                          | 8,991.93                    | 8,920.00                    | 6,927.52                    | 78.64               | 55.12            | 2.26                        | 335.28                                    | 2,826.46        | 2,042.58                        | 2,000.30             | 42.28   | 48.314 |  |                    |           |
| 11,800.00                                                          | 8,992.03                    | 8,912.14                    | 6,927.59                    | 78.92               | 54.92            | 2.27                        | 335.04                                    | 2,834.31        | 2,042.59                        | 2,000.30             | 42.30   | 48.292 |  |                    |           |
| 11,900.00                                                          | 8,992.90                    | 8,826.00                    | 6,928.21                    | 81.47               | 52.81            | 2.33                        | 332.69                                    | 2,920.42        | 2,042.88                        | 2,000.52             | 42.37   | 48.220 |  |                    |           |
| 12,000.00                                                          | 8,993.77                    | 8,731.00                    | 6,928.32                    | 84.02               | 50.48            | 2.41                        | 330.01                                    | 3,015.38        | 2,043.76                        | 2,001.38             | 42.38   | 48.230 |  |                    |           |
| 12,100.00                                                          | 8,994.65                    | 8,626.45                    | 6,928.15                    | 86.58               | 47.93            | 2.47                        | 327.53                                    | 3,119.90        | 2,044.90                        | 2,002.58             | 42.32   | 48.321 |  |                    |           |
| 12,200.00                                                          | 8,995.52                    | 8,507.43                    | 6,928.87                    | 89.15               | 45.03            | 2.52                        | 325.91                                    | 3,238.91        | 2,045.22                        | 2,003.06             | 42.16   | 48.514 |  |                    |           |
| 12,300.00                                                          | 8,996.39                    | 8,395.44                    | 6,930.25                    | 91.72               | 42.32            | 2.54                        | 325.07                                    | 3,350.89        | 2,044.89                        | 2,002.84             | 42.05   | 48.629 |  |                    |           |
| 12,400.00                                                          | 8,997.26                    | 8,271.62                    | 6,932.80                    | 94.29               | 39.35            | 2.55                        | 325.00                                    | 3,474.67        | 2,043.73                        | 2,001.87             | 41.85   | 48.831 |  |                    |           |
| 12,500.00                                                          | 8,998.14                    | 8,176.65                    | 6,935.29                    | 96.86               | 37.08            | 2.52                        | 325.97                                    | 3,569.61        | 2,041.94                        | 2,000.06             | 41.88   | 48.754 |  |                    |           |
| 12,600.00                                                          | 8,999.01                    | 8,104.14                    | 6,936.60                    | 99.44               | 35.36            | 2.49                        | 327.04                                    | 3,642.10        | 2,040.97                        | 1,998.88             | 42.09   | 48.490 |  |                    |           |
| 12,615.24                                                          | 8,999.14                    | 8,093.59                    | 6,936.69                    | 99.83               | 35.11            | 2.49                        | 327.20                                    | 3,652.65        | 2,040.95                        | 1,998.83             | 42.13   | 48.448 |  |                    |           |
| 12,700.00                                                          | 8,999.88                    | 8,036.98                    | 6,936.77                    | 102.02              | 33.77            | 2.46                        | 328.21                                    | 3,709.25        | 2,041.52                        | 1,999.18             | 42.34   | 48.216 |  |                    |           |
| 12,800.00                                                          | 9,000.75                    | 7,970.03                    | 6,935.76                    | 104.61              | 32.20            | 2.41                        | 330.08                                    | 3,776.17        | 2,043.76                        | 2,001.17             | 42.59   | 47.986 |  |                    |           |
| 12,900.00                                                          | 9,001.63                    | 7,852.62                    | 6,933.96                    | 107.19              | 29.49            | 2.31                        | 333.40                                    | 3,893.51        | 2,045.98                        | 2,003.53             | 42.45   | 48.195 |  |                    |           |
| 13,000.00                                                          | 9,002.50                    | 7,761.99                    | 6,932.27                    | 109.78              | 27.42            | 2.29                        | 334.10                                    | 3,984.12        | 2,048.67                        | 2,006.14             | 42.53   | 48.167 |  |                    |           |
| 13,100.00                                                          | 9,003.37                    | 7,603.07                    | 6,932.24                    | 112.37              | 23.86            | 2.30                        | 333.52                                    | 4,143.03        | 2,049.42                        | 2,007.32             | 42.10   | 48.682 |  |                    |           |
| 13,200.00                                                          | 9,004.25                    | 7,508.00                    | 6,933.25                    | 114.97              | 21.80            | 2.29                        | 333.86                                    | 4,238.09        | 2,049.22                        | 2,007.05             | 42.17   | 48.596 |  |                    |           |
| 13,203.61                                                          | 9,004.28                    | 7,504.65                    | 6,933.28                    | 115.06              | 21.73            | 2.29                        | 333.87                                    | 4,241.45        | 2,049.22                        | 2,007.05             | 42.17   | 48.592 |  |                    |           |
| 13,300.00                                                          | 9,005.12                    | 7,444.55                    | 6,933.30                    | 117.56              | 20.48            | 2.29                        | 334.10                                    | 4,301.54        | 2,050.03                        | 2,007.54             | 42.49   | 48.245 |  |                    |           |
| 13,400.00                                                          | 9,005.99                    | 7,375.43                    | 6,932.05                    | 120.16              | 19.08            | 2.29                        | 333.97                                    | 4,370.66        | 2,052.66                        | 2,009.87             | 42.78   | 47.979 |  |                    |           |
| 13,500.00                                                          | 9,006.86                    | 7,312.00                    | 6,930.37                    | 122.76              | 17.83            | 2.31                        | 333.06                                    | 4,434.05        | 2,056.44                        | 2,013.31             | 43.13   | 47.681 |  |                    |           |
| 13,600.00                                                          | 9,007.74                    | 7,249.00                    | 6,927.84                    | 125.36              | 16.65            | 2.37                        | 330.85                                    | 4,496.95        | 2,062.00                        | 2,018.49             | 43.50   | 47.398 |  |                    |           |
| 13,700.00                                                          | 9,008.61                    | 7,217.00                    | 6,925.39                    | 127.96              | 16.08            | 2.42                        | 328.75                                    | 4,528.80        | 2,070.36                        | 2,026.25             | 44.11   | 46.931 |  |                    |           |
| 13,800.00                                                          | 9,009.48                    | 7,164.09                    | 6,920.41                    | 130.56              | 15.17            | 2.55                        | 323.85                                    | 4,581.25        | 2,081.31                        | 2,036.70             | 44.61   | 46.653 |  |                    |           |
| 13,900.00                                                          | 9,010.35                    | 7,135.74                    | 6,916.89                    | 133.17              | 14.71            | 2.62                        | 321.15                                    | 4,609.24        | 2,095.24                        | 2,049.97             | 45.27   | 46.282 |  |                    |           |
| 14,000.00                                                          | 9,011.23                    | 7,123.00                    | 6,914.95                    | 135.78              | 14.51            | 2.65                        | 319.89                                    | 4,621.77        | 2,112.78                        | 2,066.78             | 46.00   | 45.926 |  |                    |           |
| 14,100.00                                                          | 9,012.10                    | 7,091.00                    | 6,908.81                    | 138.38              | 14.03            | 2.73                        | 316.97                                    | 4,653.03        | 2,133.76                        | 2,087.14             | 46.63   | 45.762 |  |                    |           |
| 14,200.00                                                          | 9,012.97                    | 7,091.00                    | 6,908.81                    | 140.99              | 14.03            | 2.73                        | 316.97                                    | 4,653.03        | 2,158.68                        | 2,111.32             | 47.36   | 45.584 |  |                    |           |
| 14,300.00                                                          | 9,013.84                    | 7,060.00                    | 6,900.78                    | 143.60              | 13.60            | 2.78                        | 314.60                                    | 4,682.88        | 2,186.75                        | 2,138.82             | 47.93   | 45.619 |  |                    |           |
| 14,400.00                                                          | 9,014.72                    | 7,044.04                    | 6,895.85                    | 146.21              | 13.39            | 2.80                        | 313.52                                    | 4,698.01        | 2,218.48                        | 2,169.95             | 48.53   | 45.716 |  |                    |           |
| 14,500.00                                                          | 9,015.59                    | 7,028.00                    | 6,890.47                    | 148.82              | 13.19            | 2.82                        | 312.47                                    | 4,713.09        | 2,253.40                        | 2,204.33             | 49.07   | 45.918 |  |                    |           |
| 14,600.00                                                          | 9,016.46                    | 7,028.00                    | 6,890.47                    | 151.43              | 13.19            | 2.82                        | 312.47                                    | 4,713.09        | 2,291.90                        | 2,242.31             | 49.59   | 46.218 |  |                    |           |

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# LEAM Drilling Systems LLC

## Anticollision Report

**Company:** Devon Energy  
**Project:** Eddy County, NM (NAD-83)  
**Reference Site:** Emerald PWU 20-21  
**Site Error:** 0.00 usft  
**Reference Well:** 12H  
**Well Error:** 0.00 usft  
**Reference Wellbore:** OH  
**Reference Design:** Plan #1

**Local Co-ordinate Reference:** Well 12H  
**TVD Reference:** 3313.8' GE + 23.5' KB @ 3337.30usft  
**MD Reference:** 3313.8' GE + 23.5' KB @ 3337.30usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Output errors are at** 2.00 sigma  
**Database:** EDM 5000.1 Multi User Db  
**Offset TVD Reference:** Offset Datum

| Offset Design Emerald PWU 20-21 - Emerald 20 8H (offset) - OH - OH |                             |                             |                             |                     |                  |                             |          |          |                                           |                 |                              |                               |                                 | Offset Site Error:   | 0.00 usft |
|--------------------------------------------------------------------|-----------------------------|-----------------------------|-----------------------------|---------------------|------------------|-----------------------------|----------|----------|-------------------------------------------|-----------------|------------------------------|-------------------------------|---------------------------------|----------------------|-----------|
| Survey Program: 100-ISCWSA-GYRO-3, 6428-MWD-ISCWSA                 |                             |                             |                             |                     |                  |                             |          |          |                                           |                 |                              |                               |                                 | Offset Well Error:   | 0.00 usft |
| Reference                                                          |                             | Offset                      |                             | Semi Major Axis     |                  | Highside<br>Toolface<br>(°) | Distance |          | Offset Wellbore Centre<br>+N/-S<br>(usft) | +E/-W<br>(usft) | Between<br>Centres<br>(usft) | Between<br>Ellipses<br>(usft) | Minimum<br>Separation<br>(usft) | Separation<br>Factor | Warning   |
| Measured<br>Depth<br>(usft)                                        | Vertical<br>Depth<br>(usft) | Measured<br>Depth<br>(usft) | Vertical<br>Depth<br>(usft) | Reference<br>(usft) | Offset<br>(usft) |                             |          |          |                                           |                 |                              |                               |                                 |                      |           |
| 14,700.00                                                          | 9,017.34                    | 6,992.18                    | 6,876.83                    | 154.05              | 12.80            | 2.88                        | 309.93   | 4,746.10 | 2,332.49                                  | 2,282.44        | 50.04                        | 46.808                        |                                 |                      |           |
| 14,800.00                                                          | 9,018.21                    | 6,964.00                    | 6,864.48                    | 156.66              | 12.49            | 2.92                        | 307.58   | 4,771.32 | 2,376.62                                  | 2,326.14        | 50.48                        | 47.076                        |                                 |                      |           |
| 14,900.00                                                          | 9,019.08                    | 6,964.00                    | 6,864.48                    | 159.28              | 12.49            | 2.92                        | 307.58   | 4,771.32 | 2,423.16                                  | 2,372.31        | 50.85                        | 47.652                        |                                 |                      |           |
| 15,000.00                                                          | 9,019.95                    | 6,949.80                    | 6,857.69                    | 161.89              | 12.37            | 2.95                        | 306.25   | 4,783.71 | 2,472.56                                  | 2,421.37        | 51.19                        | 48.300                        |                                 |                      |           |
| 15,100.00                                                          | 9,020.83                    | 6,933.00                    | 6,849.08                    | 164.51              | 12.22            | 2.98                        | 304.51   | 4,798.04 | 2,524.61                                  | 2,473.10        | 51.51                        | 49.012                        |                                 |                      |           |
| 15,200.00                                                          | 9,021.70                    | 6,933.00                    | 6,849.08                    | 167.12              | 12.22            | 2.98                        | 304.51   | 4,798.04 | 2,579.09                                  | 2,527.36        | 51.73                        | 49.854                        |                                 |                      |           |
| 15,300.00                                                          | 9,022.57                    | 6,915.02                    | 6,839.24                    | 169.74              | 12.08            | 3.02                        | 302.49   | 4,812.94 | 2,635.80                                  | 2,583.81        | 52.00                        | 50.692                        |                                 |                      |           |
| 15,400.00                                                          | 9,023.44                    | 6,901.00                    | 6,831.15                    | 172.36              | 11.97            | 3.05                        | 300.84   | 4,824.28 | 2,694.75                                  | 2,642.55        | 52.20                        | 51.623                        |                                 |                      |           |
| 15,500.00                                                          | 9,024.32                    | 6,901.00                    | 6,831.15                    | 174.98              | 11.97            | 3.05                        | 300.84   | 4,824.28 | 2,755.81                                  | 2,703.49        | 52.32                        | 52.676                        |                                 |                      |           |
| 15,600.00                                                          | 9,025.19                    | 6,870.00                    | 6,811.99                    | 177.60              | 11.77            | 3.13                        | 296.78   | 4,848.30 | 2,818.88                                  | 2,766.30        | 52.58                        | 53.616                        |                                 |                      |           |
| 15,700.00                                                          | 9,026.06                    | 6,870.00                    | 6,811.99                    | 180.22              | 11.77            | 3.13                        | 296.78   | 4,848.30 | 2,883.42                                  | 2,830.78        | 52.64                        | 54.776                        |                                 |                      |           |
| 15,800.00                                                          | 9,026.93                    | 6,870.00                    | 6,811.99                    | 182.84              | 11.77            | 3.13                        | 296.78   | 4,848.30 | 2,949.94                                  | 2,897.26        | 52.68                        | 55.998                        |                                 |                      |           |
| 15,900.00                                                          | 9,027.81                    | 6,852.48                    | 6,800.45                    | 185.46              | 11.68            | 3.18                        | 294.34   | 4,861.26 | 3,017.95                                  | 2,965.14        | 52.82                        | 57.142                        |                                 |                      |           |
| 16,000.00                                                          | 9,028.68                    | 6,838.00                    | 6,790.56                    | 188.08              | 11.60            | 3.22                        | 292.38   | 4,871.65 | 3,087.55                                  | 3,034.63        | 52.92                        | 58.346                        |                                 |                      |           |
| 16,100.00                                                          | 9,029.55                    | 6,838.00                    | 6,790.56                    | 190.70              | 11.60            | 3.22                        | 292.38   | 4,871.65 | 3,158.54                                  | 3,105.63        | 52.91                        | 59.700                        |                                 |                      |           |
| 16,200.00                                                          | 9,030.42                    | 6,823.19                    | 6,780.14                    | 193.32              | 11.54            | 3.25                        | 290.42   | 4,881.98 | 3,230.82                                  | 3,177.83        | 52.99                        | 60.968                        |                                 |                      |           |
| 16,300.00                                                          | 9,031.30                    | 6,807.00                    | 6,768.39                    | 195.94              | 11.47            | 3.29                        | 288.36   | 4,892.93 | 3,304.43                                  | 3,251.35        | 53.08                        | 62.254                        |                                 |                      |           |
| 16,400.00                                                          | 9,032.17                    | 6,807.00                    | 6,768.39                    | 198.57              | 11.47            | 3.29                        | 288.36   | 4,892.93 | 3,379.12                                  | 3,326.09        | 53.04                        | 63.712                        |                                 |                      |           |
| 16,500.00                                                          | 9,033.04                    | 6,807.00                    | 6,768.39                    | 201.19              | 11.47            | 3.29                        | 288.36   | 4,892.93 | 3,455.10                                  | 3,402.11        | 52.99                        | 65.208                        |                                 |                      |           |
| 16,600.00                                                          | 9,033.92                    | 6,775.00                    | 6,744.19                    | 203.81              | 11.37            | 3.35                        | 284.49   | 4,913.50 | 3,532.03                                  | 3,478.85        | 53.18                        | 66.411                        |                                 |                      |           |
| 16,700.00                                                          | 9,034.79                    | 6,775.00                    | 6,744.19                    | 206.44              | 11.37            | 3.35                        | 284.49   | 4,913.50 | 3,609.76                                  | 3,556.64        | 53.12                        | 67.950                        |                                 |                      |           |
| 16,800.00                                                          | 9,035.66                    | 6,775.00                    | 6,744.19                    | 209.06              | 11.37            | 3.35                        | 284.49   | 4,913.50 | 3,688.57                                  | 3,635.51        | 53.06                        | 69.519                        |                                 |                      |           |
| 16,900.00                                                          | 9,036.53                    | 6,775.00                    | 6,744.19                    | 211.69              | 11.37            | 3.35                        | 284.49   | 4,913.50 | 3,768.37                                  | 3,715.38        | 52.99                        | 71.115                        |                                 |                      |           |
| 17,000.00                                                          | 9,037.41                    | 6,744.00                    | 6,719.59                    | 214.31              | 11.29            | 3.41                        | 280.68   | 4,931.96 | 3,848.99                                  | 3,795.81        | 53.18                        | 72.377                        |                                 |                      |           |
| 17,100.00                                                          | 9,038.28                    | 6,744.00                    | 6,719.59                    | 216.94              | 11.29            | 3.41                        | 280.68   | 4,931.96 | 3,930.16                                  | 3,877.05        | 53.11                        | 74.003                        |                                 |                      |           |
| 17,200.00                                                          | 9,039.15                    | 6,744.00                    | 6,719.59                    | 219.56              | 11.29            | 3.41                        | 280.68   | 4,931.96 | 4,012.19                                  | 3,958.15        | 53.04                        | 75.650                        |                                 |                      |           |
| 17,300.00                                                          | 9,040.02                    | 6,744.00                    | 6,719.59                    | 222.19              | 11.29            | 3.41                        | 280.68   | 4,931.96 | 4,095.01                                  | 4,042.05        | 52.96                        | 77.318                        |                                 |                      |           |
| 17,400.00                                                          | 9,040.90                    | 6,729.64                    | 6,707.85                    | 224.81              | 11.27            | 3.44                        | 278.83   | 4,940.03 | 4,178.40                                  | 4,125.39        | 53.02                        | 78.815                        |                                 |                      |           |
| 17,500.00                                                          | 9,041.77                    | 6,712.00                    | 6,693.18                    | 227.44              | 11.25            | 3.47                        | 276.54   | 4,949.55 | 4,262.56                                  | 4,209.46        | 53.10                        | 80.279                        |                                 |                      |           |
| 17,600.00                                                          | 9,042.64                    | 6,712.00                    | 6,693.18                    | 230.07              | 11.25            | 3.47                        | 276.54   | 4,949.55 | 4,347.12                                  | 4,294.09        | 53.03                        | 81.980                        |                                 |                      |           |
| 17,700.00                                                          | 9,043.51                    | 6,712.00                    | 6,693.18                    | 232.69              | 11.25            | 3.47                        | 276.54   | 4,949.55 | 4,432.32                                  | 4,379.36        | 52.96                        | 83.696                        |                                 |                      |           |
| 17,800.00                                                          | 9,044.39                    | 6,712.00                    | 6,693.18                    | 235.32              | 11.25            | 3.47                        | 276.54   | 4,949.55 | 4,518.12                                  | 4,465.23        | 52.89                        | 85.425                        |                                 |                      |           |
| 17,900.00                                                          | 9,045.26                    | 6,712.00                    | 6,693.18                    | 237.95              | 11.25            | 3.47                        | 276.54   | 4,949.55 | 4,604.50                                  | 4,551.68        | 52.82                        | 87.167                        |                                 |                      |           |
| 18,000.00                                                          | 9,046.13                    | 6,681.00                    | 6,666.70                    | 240.57              | 11.21            | 3.53                        | 272.59   | 4,965.18 | 4,691.24                                  | 4,638.21        | 53.03                        | 88.462                        |                                 |                      |           |
| 18,100.00                                                          | 9,047.01                    | 6,681.00                    | 6,666.70                    | 243.20              | 11.21            | 3.53                        | 272.59   | 4,965.18 | 4,778.35                                  | 4,725.38        | 52.97                        | 90.209                        |                                 |                      |           |
| 18,200.00                                                          | 9,047.88                    | 6,681.00                    | 6,666.70                    | 245.83              | 11.21            | 3.53                        | 272.59   | 4,965.18 | 4,865.96                                  | 4,813.05        | 52.91                        | 91.965                        |                                 |                      |           |
| 18,300.00                                                          | 9,048.75                    | 6,681.00                    | 6,666.70                    | 248.46              | 11.21            | 3.53                        | 272.59   | 4,965.18 | 4,954.04                                  | 4,901.18        | 52.85                        | 93.730                        |                                 |                      |           |
| 18,400.00                                                          | 9,049.62                    | 6,681.00                    | 6,666.70                    | 251.09              | 11.21            | 3.53                        | 272.59   | 4,965.18 | 5,042.56                                  | 4,989.76        | 52.80                        | 95.501                        |                                 |                      |           |
| 18,500.00                                                          | 9,050.50                    | 6,681.00                    | 6,666.70                    | 253.71              | 11.21            | 3.53                        | 272.59   | 4,965.18 | 5,131.51                                  | 5,078.76        | 52.75                        | 97.280                        |                                 |                      |           |
| 18,600.00                                                          | 9,051.37                    | 6,681.00                    | 6,666.70                    | 256.34              | 11.21            | 3.53                        | 272.59   | 4,965.18 | 5,220.85                                  | 5,168.15        | 52.70                        | 99.063                        |                                 |                      |           |
| 18,700.00                                                          | 9,052.24                    | 6,649.00                    | 6,638.42                    | 258.97              | 11.19            | 3.58                        | 268.74   | 4,979.63 | 5,310.42                                  | 5,257.49        | 52.93                        | 100.326                       |                                 |                      |           |
| 18,800.00                                                          | 9,053.11                    | 6,649.00                    | 6,638.42                    | 261.60              | 11.19            | 3.58                        | 268.74   | 4,979.63 | 5,400.24                                  | 5,347.35        | 52.89                        | 102.106                       |                                 |                      |           |
| 18,900.00                                                          | 9,053.99                    | 6,649.00                    | 6,638.42                    | 264.23              | 11.19            | 3.58                        | 268.74   | 4,979.63 | 5,490.42                                  | 5,437.57        | 52.85                        | 103.890                       |                                 |                      |           |
| 18,958.87                                                          | 9,054.50                    | 6,649.00                    | 6,638.42                    | 265.78              | 11.19            | 3.58                        | 268.74   | 4,979.63 | 5,543.66                                  | 5,490.84        | 52.83                        | 104.941                       |                                 |                      |           |

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# LEAM Drilling Systems LLC

## Anticollision Report

**Company:** Devon Energy  
**Project:** Eddy County, NM (NAD-83)  
**Reference Site:** Emerald PWU 20-21  
**Site Error:** 0.00 usft  
**Reference Well:** 12H  
**Well Error:** 0.00 usft  
**Reference Wellbore:** OH  
**Reference Design:** Plan #1

**Local Co-ordinate Reference:** Well 12H  
**TVD Reference:** 3313.8' GE + 23.5' KB @ 3337.30usft  
**MD Reference:** 3313.8' GE + 23.5' KB @ 3337.30usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Output errors are at** 2.00 sigma  
**Database:** EDM 5000.1 Multi User Db  
**Offset TVD Reference:** Offset Datum

| Offset Design Emerald PWU 20-21 - PWU #24 (offset) - OH - OH |                       |                       |                       |                  |               |                       |                                     |              |                        |                         |                           |                   | Offset Site Error: 0.00 usft |  |
|--------------------------------------------------------------|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|---------------------------|-------------------|------------------------------|--|
| Survey Program: 100-ISCWSA-GYRO-3                            |                       |                       |                       |                  |               |                       |                                     |              |                        |                         |                           |                   | Offset Well Error: 0.00 usft |  |
| Reference                                                    |                       | Offset                |                       | Semi Major Axis  |               | Highside Toolface (°) | Distance                            |              |                        |                         |                           |                   | Warning                      |  |
| Measured Depth (usft)                                        | Vertical Depth (usft) | Measured Depth (usft) | Vertical Depth (usft) | Reference (usft) | Offset (usft) |                       | Offset Wellbore Centre +N/-S (usft) | +E/-W (usft) | Between Centres (usft) | Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor |                              |  |
| 0.00                                                         | 0.00                  | 0.00                  | 0.00                  | 0.00             | 0.00          | 83.27                 | 680.07                              | 5,766.62     | 5,806.63               |                         |                           |                   |                              |  |
| 100.00                                                       | 100.00                | 178.55                | 178.54                | 0.09             | 0.24          | 83.29                 | 678.26                              | 5,765.13     | 5,805.79               | 5,805.43                | 0.36                      | N/A               |                              |  |
| 200.00                                                       | 200.00                | 284.97                | 284.92                | 0.31             | 0.42          | 83.30                 | 676.69                              | 5,763.29     | 5,803.90               | 5,803.15                | 0.74                      | 7,806.474         |                              |  |
| 300.00                                                       | 300.00                | 389.54                | 389.47                | 0.54             | 0.60          | 83.32                 | 675.15                              | 5,761.48     | 5,802.00               | 5,800.86                | 1.15                      | 5,062.790         |                              |  |
| 400.00                                                       | 400.00                | 484.35                | 484.26                | 0.76             | 0.77          | 83.33                 | 673.73                              | 5,759.82     | 5,800.09               | 5,798.56                | 1.53                      | 3,783.535         |                              |  |
| 500.00                                                       | 500.00                | 591.42                | 591.29                | 0.99             | 0.96          | 83.34                 | 672.06                              | 5,757.96     | 5,798.19               | 5,796.24                | 1.95                      | 2,980.977         |                              |  |
| 600.00                                                       | 600.00                | 685.56                | 685.41                | 1.21             | 1.12          | 83.35                 | 670.62                              | 5,756.29     | 5,796.25               | 5,793.92                | 2.33                      | 2,484.174         |                              |  |
| 700.00                                                       | 700.00                | 773.21                | 773.03                | 1.43             | 1.28          | 83.37                 | 669.42                              | 5,754.86     | 5,794.47               | 5,791.76                | 2.71                      | 2,138.113         |                              |  |
| 800.00                                                       | 800.00                | 848.18                | 848.00                | 1.66             | 1.41          | 83.37                 | 668.49                              | 5,753.85     | 5,792.99               | 5,789.92                | 3.06                      | 1,890.341         |                              |  |
| 900.00                                                       | 900.00                | 924.06                | 923.87                | 1.88             | 1.54          | 83.38                 | 667.68                              | 5,753.19     | 5,792.00               | 5,788.58                | 3.42                      | 1,692.912         |                              |  |
| 1,000.00                                                     | 1,000.00              | 1,020.13              | 1,019.93              | 2.11             | 1.71          | 83.39                 | 666.83                              | 5,752.55     | 5,791.24               | 5,787.42                | 3.81                      | 1,518.322         |                              |  |
| 1,100.00                                                     | 1,100.00              | 1,123.65              | 1,123.45              | 2.33             | 1.89          | 83.39                 | 666.15                              | 5,751.80     | 5,790.44               | 5,786.22                | 4.22                      | 1,372.068         |                              |  |
| 1,200.00                                                     | 1,200.00              | 1,217.99              | 1,217.78              | 2.56             | 2.05          | 83.40                 | 665.89                              | 5,751.10     | 5,789.67               | 5,785.06                | 4.61                      | 1,255.924         |                              |  |
| 1,300.00                                                     | 1,300.00              | 1,313.48              | 1,313.27              | 2.78             | 2.22          | 83.39                 | 666.01                              | 5,750.45     | 5,789.01               | 5,784.00                | 5.00                      | 1,157.440         |                              |  |
| 1,400.00                                                     | 1,400.00              | 1,414.51              | 1,414.30              | 3.01             | 2.40          | 83.39                 | 666.42                              | 5,749.74     | 5,788.36               | 5,782.96                | 5.40                      | 1,071.322         |                              |  |
| 1,500.00                                                     | 1,500.00              | 1,514.71              | 1,514.49              | 3.23             | 2.57          | 83.38                 | 667.11                              | 5,749.01     | 5,787.71               | 5,781.91                | 5.80                      | 997.359           |                              |  |
| 1,600.00                                                     | 1,600.00              | 1,618.60              | 1,618.37              | 3.46             | 2.75          | 83.37                 | 667.99                              | 5,748.18     | 5,787.02               | 5,780.81                | 6.21                      | 931.940           |                              |  |
| 1,700.00                                                     | 1,700.00              | 1,720.19              | 1,719.96              | 3.68             | 2.93          | 83.36                 | 668.94                              | 5,747.32     | 5,786.28               | 5,779.67                | 6.61                      | 875.079           |                              |  |
| 1,800.00                                                     | 1,800.00              | 1,819.95              | 1,819.70              | 3.91             | 3.11          | 83.35                 | 669.92                              | 5,746.45     | 5,785.53               | 5,778.52                | 7.01                      | 825.116           |                              |  |
| 1,900.00                                                     | 1,900.00              | 1,915.83              | 1,915.58              | 4.13             | 3.27          | 83.34                 | 671.01                              | 5,745.61     | 5,784.80               | 5,777.39                | 7.40                      | 781.252           |                              |  |
| 2,000.00                                                     | 2,000.00              | 2,000.00              | 1,999.74              | 4.36             | 3.42          | 83.33                 | 672.00                              | 5,745.05     | 5,784.26               | 5,776.48                | 7.78                      | 743.795           |                              |  |
| 2,100.00                                                     | 2,100.00              | 2,118.47              | 2,118.19              | 4.58             | 3.63          | 83.31                 | 673.46                              | 5,744.16     | 5,783.65               | 5,775.45                | 8.21                      | 704.535           |                              |  |
| 2,200.00                                                     | 2,200.00              | 2,209.40              | 2,209.11              | 4.81             | 3.79          | 83.30                 | 674.69                              | 5,743.43     | 5,783.02               | 5,774.43                | 8.59                      | 672.956           |                              |  |
| 2,300.00                                                     | 2,300.00              | 2,310.82              | 2,310.53              | 5.03             | 3.97          | 83.29                 | 676.05                              | 5,742.70     | 5,782.45               | 5,773.46                | 9.00                      | 642.767           |                              |  |
| 2,400.00                                                     | 2,400.00              | 2,418.37              | 2,418.06              | 5.26             | 4.16          | 83.27                 | 677.55                              | 5,741.77     | 5,781.76               | 5,772.35                | 9.41                      | 614.442           |                              |  |
| 2,500.00                                                     | 2,500.00              | 2,503.18              | 2,502.86              | 5.48             | 4.30          | 83.26                 | 678.79                              | 5,741.13     | 5,781.17               | 5,771.39                | 9.78                      | 590.912           |                              |  |
| 2,600.00                                                     | 2,600.00              | 2,612.36              | 2,612.03              | 5.71             | 4.50          | 83.24                 | 680.44                              | 5,740.35     | 5,780.64               | 5,770.44                | 10.20                     | 566.724           |                              |  |
| 2,700.00                                                     | 2,700.00              | 2,719.68              | 2,719.32              | 5.93             | 4.69          | 83.22                 | 682.17                              | 5,739.38     | 5,779.93               | 5,769.32                | 10.61                     | 544.578           |                              |  |
| 2,800.00                                                     | 2,800.00              | 2,810.15              | 2,809.78              | 6.15             | 4.84          | 83.21                 | 683.58                              | 5,738.61     | 5,779.27               | 5,768.28                | 11.00                     | 525.508           |                              |  |
| 2,900.00                                                     | 2,900.00              | 2,901.32              | 2,900.94              | 6.38             | 5.00          | 83.19                 | 684.87                              | 5,738.00     | 5,778.78               | 5,767.39                | 11.38                     | 507.692           |                              |  |
| 3,000.00                                                     | 3,000.00              | 3,000.60              | 3,000.21              | 6.60             | 5.18          | 83.18                 | 686.15                              | 5,737.43     | 5,778.36               | 5,766.58                | 11.78                     | 490.462           |                              |  |
| 3,100.00                                                     | 3,100.00              | 3,104.09              | 3,103.69              | 6.83             | 5.36          | 83.17                 | 687.42                              | 5,736.81     | 5,777.92               | 5,765.73                | 12.19                     | 474.072           |                              |  |
| 3,200.00                                                     | 3,200.00              | 3,200.00              | 3,199.59              | 7.05             | 5.53          | 83.16                 | 688.57                              | 5,736.29     | 5,777.52               | 5,764.93                | 12.58                     | 459.229           |                              |  |
| 3,300.00                                                     | 3,300.00              | 3,305.78              | 3,305.36              | 7.28             | 5.71          | 83.14                 | 689.90                              | 5,735.68     | 5,777.10               | 5,764.10                | 12.99                     | 444.689           |                              |  |
| 3,400.00                                                     | 3,400.00              | 3,400.00              | 3,399.57              | 7.50             | 5.88          | 83.13                 | 691.20                              | 5,735.11     | 5,776.66               | 5,763.28                | 13.38                     | 431.685           |                              |  |
| 3,500.00                                                     | 3,500.00              | 3,488.71              | 3,488.27              | 7.73             | 6.04          | 83.11                 | 692.56                              | 5,734.69     | 5,776.37               | 5,762.61                | 13.76                     | 419.721           |                              |  |
| 3,600.00                                                     | 3,600.00              | 3,600.86              | 3,600.40              | 7.95             | 6.23          | 83.09                 | 694.57                              | 5,734.12     | 5,776.08               | 5,761.90                | 14.18                     | 407.201           |                              |  |
| 3,673.14                                                     | 3,673.14              | 3,675.85              | 3,675.37              | 8.12             | 6.37          | 110.42                | 696.07                              | 5,733.61     | 5,775.93               | 5,761.45                | 14.48                     | 398.884           |                              |  |
| 3,700.00                                                     | 3,700.00              | 3,703.30              | 3,702.82              | 8.18             | 6.41          | 110.42                | 696.61                              | 5,733.42     | 5,775.95               | 5,761.36                | 14.59                     | 395.924           |                              |  |
| 3,800.00                                                     | 3,799.96              | 3,800.00              | 3,799.49              | 8.40             | 6.59          | 110.42                | 698.78                              | 5,732.72     | 5,776.41               | 5,761.43                | 14.98                     | 385.596           |                              |  |
| 3,900.00                                                     | 3,899.86              | 3,890.92              | 3,890.38              | 8.62             | 6.75          | 110.42                | 701.18                              | 5,732.11     | 5,777.59               | 5,762.22                | 15.36                     | 376.079           |                              |  |
| 4,000.00                                                     | 3,999.68              | 4,013.32              | 4,012.73              | 8.84             | 6.96          | 110.44                | 704.63                              | 5,731.16     | 5,779.30               | 5,763.50                | 15.80                     | 365.741           |                              |  |
| 4,100.00                                                     | 4,099.37              | 4,125.15              | 4,124.50              | 9.07             | 7.16          | 110.47                | 707.77                              | 5,729.98     | 5,781.33               | 5,765.11                | 16.22                     | 356.369           |                              |  |
| 4,124.09                                                     | 4,123.36              | 4,154.90              | 4,154.24              | 9.12             | 7.22          | 110.48                | 708.58                              | 5,729.61     | 5,781.87               | 5,765.54                | 16.33                     | 354.074           |                              |  |
| 4,200.00                                                     | 4,198.95              | 4,241.86              | 4,241.16              | 9.29             | 7.37          | 110.53                | 710.86                              | 5,728.41     | 5,783.49               | 5,766.84                | 16.65                     | 347.268           |                              |  |
| 4,300.00                                                     | 4,298.53              | 4,340.73              | 4,339.99              | 9.52             | 7.55          | 110.59                | 713.36                              | 5,726.96     | 5,785.55               | 5,768.49                | 17.06                     | 339.213           |                              |  |
| 4,400.00                                                     | 4,398.12              | 4,438.32              | 4,437.54              | 9.75             | 7.72          | 110.65                | 715.63                              | 5,725.65     | 5,787.71               | 5,770.25                | 17.46                     | 331.547           |                              |  |
| 4,500.00                                                     | 4,497.70              | 4,542.45              | 4,541.63              | 9.98             | 7.91          | 110.71                | 718.14                              | 5,724.14     | 5,789.78               | 5,771.91                | 17.87                     | 323.982           |                              |  |
| 4,600.00                                                     | 4,597.28              | 4,646.81              | 4,645.95              | 10.22            | 8.09          | 110.77                | 720.43                              | 5,722.66     | 5,791.87               | 5,773.58                | 18.29                     | 316.731           |                              |  |
| 4,700.00                                                     | 4,696.86              | 4,752.94              | 4,752.04              | 10.45            | 8.28          | 110.84                | 722.72                              | 5,720.95     | 5,793.76               | 5,775.06                | 18.71                     | 309.720           |                              |  |
| 4,800.00                                                     | 4,796.44              | 4,863.15              | 4,862.21              | 10.69            | 8.47          | 110.91                | 725.08                              | 5,719.15     | 5,795.64               | 5,776.51                | 19.13                     | 302.884           |                              |  |
| 4,900.00                                                     | 4,896.03              | 4,984.83              | 4,983.85              | 10.92            | 8.69          | 110.98                | 727.74                              | 5,716.72     | 5,797.17               | 5,777.59                | 19.58                     | 296.008           |                              |  |

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# LEAM Drilling Systems LLC

## Anticollision Report

**Company:** Devon Energy  
**Project:** Eddy County, NM (NAD-83)  
**Reference Site:** Emerald PWU 20-21  
**Site Error:** 0.00 usft  
**Reference Well:** 12H  
**Well Error:** 0.00 usft  
**Reference Wellbore:** OH  
**Reference Design:** Plan #1

**Local Co-ordinate Reference:** Well 12H  
**TVD Reference:** 3313.8' GE + 23.5' KB @ 3337.30usft  
**MD Reference:** 3313.8' GE + 23.5' KB @ 3337.30usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Output errors are at** 2.00 sigma  
**Database:** EDM 5000.1 Multi User Db  
**Offset TVD Reference:** Offset Datum

| Offset Design Emerald PWU 20-21 - PWU #24 (offset) - OH - OH |                       |                       |                       |                  |               |                       |                                    |             |                        |                         |                           | Offset Site Error: | 0.00 usft |
|--------------------------------------------------------------|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|------------------------------------|-------------|------------------------|-------------------------|---------------------------|--------------------|-----------|
| Survey Program: 100-ISCWSA-GYRO-3                            |                       |                       |                       |                  |               |                       |                                    |             |                        |                         |                           | Offset Well Error: | 0.00 usft |
| Reference                                                    |                       | Offset                |                       | Semi Major Axis  |               |                       | Distance                           |             |                        |                         |                           |                    |           |
| Measured Depth (usft)                                        | Vertical Depth (usft) | Measured Depth (usft) | Vertical Depth (usft) | Reference (usft) | Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N-S (usft) | +E-W (usft) | Between Centres (usft) | Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor  | Warning   |
| 5,000.00                                                     | 4,995.61              | 5,087.05              | 5,086.02              | 11.16            | 8.87          | 111.04                | 729.99                             | 5,714.45    | 5,798.49               | 5,778.49                | 20.00                     | 289.906            |           |
| 5,100.00                                                     | 5,095.19              | 5,199.12              | 5,198.03              | 11.40            | 9.07          | 111.11                | 732.18                             | 5,711.89    | 5,799.72               | 5,779.29                | 20.44                     | 283.804            |           |
| 5,200.00                                                     | 5,194.77              | 5,270.12              | 5,269.01              | 11.64            | 9.19          | 111.16                | 733.43                             | 5,710.37    | 5,801.09               | 5,780.29                | 20.80                     | 278.901            |           |
| 5,300.00                                                     | 5,294.35              | 5,338.09              | 5,336.96              | 11.89            | 9.31          | 111.20                | 734.45                             | 5,709.29    | 5,802.97               | 5,781.81                | 21.16                     | 274.257            |           |
| 5,400.00                                                     | 5,393.94              | 5,405.84              | 5,404.70              | 12.13            | 9.43          | 111.25                | 735.22                             | 5,708.63    | 5,805.44               | 5,783.92                | 21.52                     | 269.799            |           |
| 5,500.00                                                     | 5,493.52              | 5,501.07              | 5,499.93              | 12.37            | 9.60          | 111.32                | 736.04                             | 5,708.02    | 5,808.21               | 5,786.29                | 21.92                     | 264.915            |           |
| 5,600.00                                                     | 5,593.10              | 5,600.00              | 5,598.85              | 12.62            | 9.77          | 111.40                | 736.77                             | 5,707.41    | 5,811.02               | 5,788.68                | 22.34                     | 260.129            |           |
| 5,700.00                                                     | 5,692.68              | 5,694.48              | 5,693.33              | 12.86            | 9.94          | 111.47                | 737.33                             | 5,706.89    | 5,813.88               | 5,791.14                | 22.75                     | 255.602            |           |
| 5,800.00                                                     | 5,792.26              | 5,828.94              | 5,827.79              | 13.11            | 10.17         | 111.58                | 737.86                             | 5,705.85    | 5,816.51               | 5,793.28                | 23.22                     | 250.464            |           |
| 5,900.00                                                     | 5,891.85              | 5,942.79              | 5,941.63              | 13.36            | 10.37         | 111.67                | 738.30                             | 5,704.50    | 5,818.74               | 5,795.07                | 23.66                     | 245.883            |           |
| 6,000.00                                                     | 5,991.43              | 6,057.86              | 6,056.68              | 13.61            | 10.57         | 111.76                | 738.97                             | 5,702.83    | 5,820.74               | 5,796.63                | 24.11                     | 241.431            |           |
| 6,100.00                                                     | 6,091.01              | 6,162.55              | 6,161.35              | 13.85            | 10.75         | 111.83                | 740.14                             | 5,701.03    | 5,822.53               | 5,798.00                | 24.54                     | 237.291            |           |
| 6,200.00                                                     | 6,190.59              | 6,264.91              | 6,263.67              | 14.10            | 10.93         | 111.89                | 742.31                             | 5,699.16    | 5,824.32               | 5,799.36                | 24.96                     | 233.309            |           |
| 6,300.00                                                     | 6,290.17              | 6,383.82              | 6,382.51              | 14.35            | 11.15         | 111.96                | 745.65                             | 5,696.70    | 5,825.96               | 5,800.54                | 25.42                     | 229.181            |           |
| 6,400.00                                                     | 6,389.76              | 6,497.42              | 6,496.05              | 14.60            | 11.35         | 112.03                | 747.98                             | 5,694.07    | 5,827.26               | 5,801.39                | 25.87                     | 225.274            |           |
| 6,500.00                                                     | 6,489.34              | 6,593.87              | 6,592.47              | 14.86            | 11.52         | 112.09                | 749.14                             | 5,691.82    | 5,828.49               | 5,802.21                | 26.28                     | 221.757            |           |
| 6,600.00                                                     | 6,588.92              | 6,681.92              | 6,680.50              | 15.11            | 11.67         | 112.16                | 749.67                             | 5,689.94    | 5,829.86               | 5,803.18                | 26.68                     | 218.475            |           |
| 6,700.00                                                     | 6,688.50              | 6,775.45              | 6,774.01              | 15.36            | 11.83         | 112.23                | 749.99                             | 5,688.12    | 5,831.41               | 5,804.31                | 27.10                     | 215.220            |           |
| 6,800.00                                                     | 6,788.08              | 6,876.44              | 6,874.98              | 15.61            | 12.01         | 112.31                | 750.08                             | 5,686.21    | 5,833.01               | 5,805.49                | 27.52                     | 211.964            |           |
| 6,900.00                                                     | 6,887.66              | 6,975.88              | 6,974.41              | 15.86            | 12.18         | 112.40                | 750.10                             | 5,684.32    | 5,834.59               | 5,806.65                | 27.94                     | 208.824            |           |
| 7,000.00                                                     | 6,987.25              | 7,102.37              | 7,100.86              | 16.12            | 12.40         | 112.50                | 749.81                             | 5,681.71    | 5,836.02               | 5,807.61                | 28.41                     | 205.434            |           |
| 7,100.00                                                     | 7,086.83              | 7,207.45              | 7,205.91              | 16.37            | 12.59         | 112.59                | 749.06                             | 5,679.23    | 5,837.12               | 5,808.28                | 28.84                     | 202.395            |           |
| 7,200.00                                                     | 7,186.41              | 7,300.00              | 7,298.43              | 16.63            | 12.75         | 112.68                | 747.84                             | 5,677.11    | 5,838.24               | 5,808.99                | 29.25                     | 199.588            |           |
| 7,300.00                                                     | 7,285.99              | 7,377.40              | 7,375.80              | 16.88            | 12.89         | 112.76                | 746.39                             | 5,675.56    | 5,839.63               | 5,810.00                | 29.64                     | 197.035            |           |
| 7,400.00                                                     | 7,385.57              | 7,445.25              | 7,443.62              | 17.14            | 13.01         | 112.83                | 744.80                             | 5,674.53    | 5,841.49               | 5,811.48                | 30.01                     | 194.667            |           |
| 7,500.00                                                     | 7,485.16              | 7,500.00              | 7,498.35              | 17.39            | 13.10         | 112.89                | 743.35                             | 5,674.02    | 5,843.97               | 5,813.61                | 30.35                     | 192.525            |           |
| 7,600.00                                                     | 7,584.74              | 7,571.13              | 7,569.46              | 17.65            | 13.23         | 112.96                | 741.42                             | 5,673.80    | 5,847.06               | 5,816.33                | 30.73                     | 190.274            |           |
| 7,700.00                                                     | 7,684.32              | 7,650.61              | 7,648.91              | 17.90            | 13.37         | 113.05                | 739.43                             | 5,674.04    | 5,850.75               | 5,819.63                | 31.12                     | 188.007            |           |
| 7,800.00                                                     | 7,783.90              | 7,756.74              | 7,755.01              | 18.16            | 13.56         | 113.16                | 737.03                             | 5,674.42    | 5,854.54               | 5,822.98                | 31.56                     | 185.519            |           |
| 7,900.00                                                     | 7,883.48              | 7,859.29              | 7,857.53              | 18.41            | 13.74         | 113.27                | 734.69                             | 5,674.61    | 5,858.17               | 5,826.18                | 31.99                     | 183.130            |           |
| 8,000.00                                                     | 7,983.07              | 7,960.25              | 7,958.47              | 18.67            | 13.92         | 113.37                | 732.44                             | 5,674.82    | 5,861.86               | 5,829.44                | 32.42                     | 180.821            |           |
| 8,100.00                                                     | 8,082.65              | 8,069.18              | 8,067.37              | 18.93            | 14.11         | 113.48                | 729.98                             | 5,674.93    | 5,865.45               | 5,832.59                | 32.86                     | 178.490            |           |
| 8,200.00                                                     | 8,182.23              | 8,144.31              | 8,142.48              | 19.19            | 14.24         | 113.56                | 728.20                             | 5,675.01    | 5,869.09               | 5,835.85                | 33.24                     | 176.543            |           |
| 8,300.00                                                     | 8,281.81              | 8,200.00              | 8,198.15              | 19.44            | 14.34         | 113.62                | 726.90                             | 5,675.41    | 5,873.37               | 5,839.78                | 33.59                     | 174.843            |           |
| 8,400.00                                                     | 8,381.39              | 8,268.50              | 8,266.63              | 19.70            | 14.46         | 113.69                | 725.48                             | 5,676.33    | 5,878.29               | 5,844.32                | 33.96                     | 173.085            |           |
| 8,492.99                                                     | 8,473.99              | 8,330.87              | 8,328.98              | 19.94            | 14.57         | 113.75                | 724.43                             | 5,677.54    | 5,883.42               | 5,849.12                | 34.30                     | 171.517            |           |
| 8,500.00                                                     | 8,480.98              | 8,335.94              | 8,334.05              | 19.96            | 14.58         | 105.02                | 724.35                             | 5,677.65    | 5,883.77               | 5,849.45                | 34.33                     | 171.403            |           |
| 8,525.00                                                     | 8,505.89              | 8,354.06              | 8,352.16              | 20.01            | 14.61         | 69.42                 | 724.07                             | 5,678.06    | 5,884.22               | 5,849.81                | 34.41                     | 170.998            |           |
| 8,550.00                                                     | 8,530.77              | 8,372.17              | 8,370.27              | 20.06            | 14.64         | 43.00                 | 723.80                             | 5,678.49    | 5,883.39               | 5,848.89                | 34.49                     | 170.560            |           |
| 8,575.00                                                     | 8,555.56              | 8,400.00              | 8,398.09              | 20.11            | 14.69         | 28.71                 | 723.40                             | 5,679.18    | 5,881.29               | 5,846.70                | 34.59                     | 170.005            |           |
| 8,600.00                                                     | 8,580.17              | 8,414.18              | 8,412.26              | 20.15            | 14.71         | 20.72                 | 723.21                             | 5,679.55    | 5,877.90               | 5,843.23                | 34.67                     | 169.540            |           |
| 8,625.00                                                     | 8,604.54              | 8,444.97              | 8,443.04              | 20.19            | 14.77         | 15.82                 | 722.79                             | 5,680.31    | 5,873.21               | 5,838.44                | 34.77                     | 168.899            |           |
| 8,650.00                                                     | 8,628.62              | 8,475.42              | 8,473.47              | 20.23            | 14.82         | 12.54                 | 722.41                             | 5,681.03    | 5,867.22               | 5,832.34                | 34.88                     | 168.232            |           |
| 8,675.00                                                     | 8,652.32              | 8,504.82              | 8,502.87              | 20.27            | 14.87         | 10.20                 | 722.06                             | 5,681.70    | 5,859.95               | 5,824.97                | 34.97                     | 167.549            |           |
| 8,700.00                                                     | 8,675.59              | 8,531.05              | 8,529.09              | 20.30            | 14.92         | 8.44                  | 721.76                             | 5,682.27    | 5,851.42               | 5,816.35                | 35.07                     | 166.868            |           |
| 8,725.00                                                     | 8,698.36              | 8,556.74              | 8,554.77              | 20.34            | 14.96         | 7.07                  | 721.48                             | 5,682.83    | 5,841.66               | 5,806.51                | 35.16                     | 166.168            |           |
| 8,750.00                                                     | 8,720.58              | 8,581.83              | 8,579.85              | 20.36            | 15.01         | 5.96                  | 721.21                             | 5,683.35    | 5,830.71               | 5,795.47                | 35.24                     | 165.451            |           |
| 8,775.00                                                     | 8,742.17              | 8,606.47              | 8,604.48              | 20.39            | 15.05         | 5.04                  | 720.95                             | 5,683.86    | 5,818.59               | 5,783.26                | 35.32                     | 164.717            |           |
| 8,800.00                                                     | 8,763.08              | 8,631.00              | 8,629.01              | 20.41            | 15.09         | 4.24                  | 720.71                             | 5,684.34    | 5,805.33               | 5,769.92                | 35.41                     | 163.964            |           |
| 8,825.00                                                     | 8,783.25              | 8,654.69              | 8,652.69              | 20.43            | 15.13         | 3.55                  | 720.49                             | 5,684.80    | 5,790.97               | 5,755.49                | 35.48                     | 163.200            |           |
| 8,850.00                                                     | 8,802.83              | 8,677.46              | 8,675.46              | 20.45            | 15.17         | 2.91                  | 720.30                             | 5,685.23    | 5,775.56               | 5,740.00                | 35.56                     | 162.427            |           |
| 8,875.00                                                     | 8,821.17              | 8,699.26              | 8,697.26              | 20.47            | 15.21         | 2.33                  | 720.13                             | 5,685.62    | 5,759.12               | 5,723.50                | 35.63                     | 161.647            |           |

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# LEAM Drilling Systems LLC

## Anticollision Report

Company: Devon Energy  
Project: Eddy County, NM (NAD-83)  
Reference Site: Emerald PWU 20-21  
Site Error: 0.00 usft  
Reference Well: 12H  
Well Error: 0.00 usft  
Reference Wellbore: OH  
Reference Design: Plan #1

Local Co-ordinate Reference: Well 12H  
TVD Reference: 3313.8' GE + 23.5' KB @ 3337.30usft  
MD Reference: 3313.8' GE + 23.5' KB @ 3337.30usft  
North Reference: Grid  
Survey Calculation Method: Minimum Curvature  
Output errors are at: 2.00 sigma  
Database: EDM 5000.1 Multi User Db  
Offset TVD Reference: Offset Datum

| Offset Design Emerald PWU 20-21 - PWU #24 (offset) - OH - OH |                             |                             |                             |                     |                  |                             |                                           |                                           |                              |                               |                                 |                      | Offset Site Error: 0.00 usft |
|--------------------------------------------------------------|-----------------------------|-----------------------------|-----------------------------|---------------------|------------------|-----------------------------|-------------------------------------------|-------------------------------------------|------------------------------|-------------------------------|---------------------------------|----------------------|------------------------------|
| Survey Program: 100-ISCWSA-GYRO-3                            |                             |                             |                             |                     |                  |                             |                                           |                                           |                              |                               |                                 |                      | Offset Well Error: 0.00 usft |
| Reference                                                    |                             | Offset                      |                             | Semi Major Axis     |                  | Highside<br>Toolface<br>(°) | Distance                                  |                                           | Between<br>Centres<br>(usft) | Between<br>Ellipses<br>(usft) | Minimum<br>Separation<br>(usft) | Separation<br>Factor | Warning                      |
| Measured<br>Depth<br>(usft)                                  | Vertical<br>Depth<br>(usft) | Measured<br>Depth<br>(usft) | Vertical<br>Depth<br>(usft) | Reference<br>(usft) | Offset<br>(usft) |                             | Offset Wellbore Centre<br>+N/-S<br>(usft) | Offset Wellbore Centre<br>+E/-W<br>(usft) |                              |                               |                                 |                      |                              |
| 8,900.00                                                     | 8,838.80                    | 8,716.80                    | 8,714.80                    | 20.49               | 15.24            | 1.76                        | 720.00                                    | 5,685.93                                  | 5,741.73                     | 5,706.04                      | 35.69                           | 160.889              |                              |
| 8,925.00                                                     | 8,855.50                    | 8,732.93                    | 8,730.93                    | 20.50               | 15.27            | 1.21                        | 719.88                                    | 5,686.23                                  | 5,723.42                     | 5,687.68                      | 35.74                           | 160.127              |                              |
| 8,950.00                                                     | 8,871.20                    | 8,748.33                    | 8,746.32                    | 20.52               | 15.29            | 0.64                        | 719.77                                    | 5,686.51                                  | 5,704.25                     | 5,688.46                      | 35.79                           | 159.361              |                              |
| 8,975.00                                                     | 8,885.86                    | 8,762.76                    | 8,760.74                    | 20.53               | 15.32            | 0.05                        | 719.67                                    | 5,686.77                                  | 5,684.27                     | 5,648.43                      | 35.84                           | 158.593              |                              |
| 9,000.00                                                     | 8,899.46                    | 8,776.17                    | 8,774.15                    | 20.55               | 15.34            | -0.59                       | 719.58                                    | 5,687.02                                  | 5,663.54                     | 5,627.66                      | 35.89                           | 157.825              |                              |
| 9,025.00                                                     | 8,911.94                    | 8,788.53                    | 8,786.51                    | 20.59               | 15.36            | -1.30                       | 719.49                                    | 5,687.24                                  | 5,642.11                     | 5,606.19                      | 35.92                           | 157.058              |                              |
| 9,050.00                                                     | 8,923.28                    | 8,800.00                    | 8,797.98                    | 20.68               | 15.38            | -2.13                       | 719.41                                    | 5,687.46                                  | 5,620.05                     | 5,584.09                      | 35.96                           | 156.292              |                              |
| 9,075.00                                                     | 8,933.44                    | 8,809.86                    | 8,807.84                    | 20.82               | 15.40            | -3.12                       | 719.35                                    | 5,687.64                                  | 5,597.40                     | 5,561.41                      | 35.99                           | 155.535              |                              |
| 9,100.00                                                     | 8,942.39                    | 8,818.78                    | 8,816.75                    | 20.99               | 15.42            | -4.35                       | 719.29                                    | 5,687.81                                  | 5,574.24                     | 5,538.22                      | 36.01                           | 154.782              |                              |
| 9,125.00                                                     | 8,950.12                    | 8,826.54                    | 8,824.51                    | 21.18               | 15.43            | -5.97                       | 719.24                                    | 5,687.95                                  | 5,550.82                     | 5,514.59                      | 36.03                           | 154.036              |                              |
| 9,150.00                                                     | 8,956.59                    | 8,833.13                    | 8,831.10                    | 21.38               | 15.44            | -8.19                       | 719.19                                    | 5,688.08                                  | 5,526.61                     | 5,490.56                      | 36.05                           | 153.299              |                              |
| 9,175.00                                                     | 8,961.80                    | 8,838.51                    | 8,836.49                    | 21.60               | 15.45            | -11.49                      | 719.15                                    | 5,688.18                                  | 5,502.28                     | 5,466.22                      | 36.06                           | 152.572              |                              |
| 9,200.00                                                     | 8,965.73                    | 8,842.69                    | 8,840.66                    | 21.84               | 15.46            | -16.89                      | 719.13                                    | 5,688.26                                  | 5,477.70                     | 5,441.62                      | 36.07                           | 151.855              |                              |
| 9,225.00                                                     | 8,968.36                    | 8,845.64                    | 8,843.61                    | 22.09               | 15.46            | -27.03                      | 719.11                                    | 5,688.31                                  | 5,452.92                     | 5,416.84                      | 36.08                           | 151.151              |                              |
| 9,250.00                                                     | 8,969.69                    | 8,847.36                    | 8,845.33                    | 22.36               | 15.46            | -49.91                      | 719.10                                    | 5,688.35                                  | 5,428.02                     | 5,391.94                      | 36.08                           | 150.459              |                              |
| 9,258.87                                                     | 8,969.85                    | 8,847.67                    | 8,845.64                    | 22.46               | 15.47            | -64.00                      | 719.09                                    | 5,688.35                                  | 5,419.17                     | 5,383.10                      | 36.08                           | 150.215              |                              |
| 9,300.00                                                     | 8,970.21                    | 8,848.76                    | 8,846.73                    | 22.93               | 15.47            | -64.17                      | 719.09                                    | 5,688.37                                  | 5,378.12                     | 5,342.05                      | 36.07                           | 149.099              |                              |
| 9,400.00                                                     | 8,971.08                    | 8,851.40                    | 8,849.37                    | 24.24               | 15.47            | -64.57                      | 719.07                                    | 5,688.42                                  | 5,278.32                     | 5,242.26                      | 36.06                           | 146.379              |                              |
| 9,500.00                                                     | 8,971.96                    | 8,854.05                    | 8,852.01                    | 25.75               | 15.48            | -64.98                      | 719.05                                    | 5,688.47                                  | 5,178.53                     | 5,142.48                      | 36.05                           | 143.649              |                              |
| 9,600.00                                                     | 8,972.83                    | 8,856.70                    | 8,854.66                    | 27.43               | 15.48            | -65.39                      | 719.03                                    | 5,688.52                                  | 5,078.74                     | 5,042.70                      | 36.04                           | 140.909              |                              |
| 9,700.00                                                     | 8,973.70                    | 8,859.35                    | 8,857.32                    | 29.25               | 15.49            | -65.80                      | 719.02                                    | 5,688.57                                  | 4,978.96                     | 4,942.92                      | 36.04                           | 138.160              |                              |
| 9,800.00                                                     | 8,974.58                    | 8,862.02                    | 8,859.98                    | 31.19               | 15.49            | -66.22                      | 719.00                                    | 5,688.62                                  | 4,879.18                     | 4,843.15                      | 36.04                           | 135.401              |                              |
| 9,900.00                                                     | 8,975.45                    | 8,864.68                    | 8,862.65                    | 33.22               | 15.49            | -66.64                      | 718.98                                    | 5,688.68                                  | 4,779.42                     | 4,743.38                      | 36.04                           | 132.632              |                              |
| 10,000.00                                                    | 8,976.32                    | 8,867.35                    | 8,865.32                    | 35.33               | 15.50            | -67.07                      | 718.96                                    | 5,688.73                                  | 4,679.66                     | 4,643.62                      | 36.04                           | 129.853              |                              |
| 10,100.00                                                    | 8,977.19                    | 8,870.03                    | 8,867.99                    | 37.51               | 15.50            | -67.50                      | 718.94                                    | 5,688.78                                  | 4,579.92                     | 4,543.87                      | 36.04                           | 127.064              |                              |
| 10,200.00                                                    | 8,978.07                    | 8,872.71                    | 8,870.67                    | 39.74               | 15.51            | -67.93                      | 718.93                                    | 5,688.83                                  | 4,480.18                     | 4,444.12                      | 36.05                           | 124.265              |                              |
| 10,300.00                                                    | 8,978.94                    | 8,875.39                    | 8,873.35                    | 42.02               | 15.51            | -68.37                      | 718.91                                    | 5,688.88                                  | 4,380.45                     | 4,344.38                      | 36.07                           | 121.456              |                              |
| 10,400.00                                                    | 8,979.81                    | 8,878.08                    | 8,876.04                    | 44.34               | 15.52            | -68.81                      | 718.89                                    | 5,688.93                                  | 4,280.73                     | 4,244.65                      | 36.08                           | 118.637              |                              |
| 10,500.00                                                    | 8,980.68                    | 8,880.78                    | 8,878.74                    | 46.69               | 15.52            | -69.25                      | 718.87                                    | 5,688.99                                  | 4,181.03                     | 4,144.92                      | 36.10                           | 115.806              |                              |
| 10,600.00                                                    | 8,981.56                    | 8,883.47                    | 8,881.44                    | 49.07               | 15.53            | -69.69                      | 718.85                                    | 5,689.04                                  | 4,081.33                     | 4,045.20                      | 36.13                           | 112.965              |                              |
| 10,700.00                                                    | 8,982.43                    | 8,886.18                    | 8,884.14                    | 51.48               | 15.53            | -70.14                      | 718.84                                    | 5,689.09                                  | 3,981.65                     | 3,945.49                      | 36.16                           | 110.112              |                              |
| 10,800.00                                                    | 8,983.30                    | 8,888.89                    | 8,886.85                    | 53.90               | 15.54            | -70.60                      | 718.82                                    | 5,689.14                                  | 3,881.99                     | 3,845.79                      | 36.20                           | 107.248              |                              |
| 10,900.00                                                    | 8,984.17                    | 8,891.60                    | 8,889.56                    | 56.35               | 15.54            | -71.05                      | 718.80                                    | 5,689.19                                  | 3,782.34                     | 3,746.10                      | 36.24                           | 104.371              |                              |
| 11,000.00                                                    | 8,985.05                    | 8,894.32                    | 8,892.28                    | 58.81               | 15.55            | -71.51                      | 718.78                                    | 5,689.25                                  | 3,682.71                     | 3,646.42                      | 36.29                           | 101.482              |                              |
| 11,100.00                                                    | 8,985.92                    | 8,897.04                    | 8,895.00                    | 61.29               | 15.55            | -71.98                      | 718.76                                    | 5,689.30                                  | 3,583.10                     | 3,546.75                      | 36.35                           | 98.580               |                              |
| 11,200.00                                                    | 8,986.79                    | 8,900.00                    | 8,897.96                    | 63.78               | 15.56            | -72.48                      | 718.74                                    | 5,689.36                                  | 3,483.50                     | 3,447.09                      | 36.41                           | 95.662               |                              |
| 11,300.00                                                    | 8,987.66                    | 8,902.68                    | 8,900.64                    | 66.28               | 15.56            | -72.94                      | 718.73                                    | 5,689.41                                  | 3,383.93                     | 3,347.44                      | 36.49                           | 92.732               |                              |
| 11,400.00                                                    | 8,988.54                    | 8,905.60                    | 8,903.56                    | 68.79               | 15.57            | -73.45                      | 718.71                                    | 5,689.47                                  | 3,284.38                     | 3,247.80                      | 36.58                           | 89.785               |                              |
| 11,500.00                                                    | 8,989.41                    | 8,908.51                    | 8,906.47                    | 71.31               | 15.57            | -73.96                      | 718.69                                    | 5,689.52                                  | 3,184.86                     | 3,148.18                      | 36.68                           | 86.823               |                              |
| 11,600.00                                                    | 8,990.28                    | 8,911.42                    | 8,909.38                    | 73.84               | 15.58            | -74.46                      | 718.67                                    | 5,689.58                                  | 3,085.36                     | 3,048.56                      | 36.80                           | 83.844               |                              |
| 11,700.00                                                    | 8,991.16                    | 8,914.32                    | 8,912.27                    | 76.38               | 15.58            | -74.97                      | 718.65                                    | 5,689.64                                  | 2,985.90                     | 2,948.97                      | 36.93                           | 80.847               |                              |
| 11,800.00                                                    | 8,992.03                    | 8,917.21                    | 8,915.16                    | 78.92               | 15.59            | -75.48                      | 718.63                                    | 5,689.69                                  | 2,886.47                     | 2,849.38                      | 37.09                           | 77.832               |                              |
| 11,900.00                                                    | 8,992.90                    | 8,920.09                    | 8,918.04                    | 81.47               | 15.59            | -75.99                      | 718.61                                    | 5,689.75                                  | 2,787.08                     | 2,749.82                      | 37.26                           | 74.798               |                              |
| 12,000.00                                                    | 8,993.77                    | 8,922.97                    | 8,920.92                    | 84.02               | 15.60            | -76.51                      | 718.59                                    | 5,689.80                                  | 2,687.73                     | 2,650.27                      | 37.46                           | 71.743               |                              |
| 12,100.00                                                    | 8,994.65                    | 8,925.84                    | 8,923.79                    | 86.58               | 15.60            | -77.02                      | 718.58                                    | 5,689.86                                  | 2,588.43                     | 2,550.73                      | 37.70                           | 68.666               |                              |
| 12,200.00                                                    | 8,995.52                    | 8,928.70                    | 8,926.65                    | 89.15               | 15.61            | -77.53                      | 718.56                                    | 5,689.91                                  | 2,489.18                     | 2,451.21                      | 37.96                           | 65.568               |                              |
| 12,300.00                                                    | 8,996.39                    | 8,931.55                    | 8,929.50                    | 91.72               | 15.61            | -78.05                      | 718.54                                    | 5,689.97                                  | 2,389.99                     | 2,351.72                      | 38.27                           | 62.448               |                              |
| 12,400.00                                                    | 8,997.26                    | 8,934.40                    | 8,932.35                    | 94.29               | 15.62            | -78.57                      | 718.52                                    | 5,690.02                                  | 2,290.86                     | 2,252.23                      | 38.63                           | 59.304               |                              |
| 12,500.00                                                    | 8,998.14                    | 8,937.24                    | 8,935.19                    | 96.86               | 15.62            | -79.08                      | 718.50                                    | 5,690.07                                  | 2,191.82                     | 2,152.77                      | 39.04                           | 56.138               |                              |
| 12,600.00                                                    | 8,999.01                    | 8,940.08                    | 8,938.02                    | 99.44               | 15.63            | -79.60                      | 718.49                                    | 5,690.13                                  | 2,092.86                     | 2,053.33                      | 39.52                           | 52.950               |                              |
| 12,700.00                                                    | 8,999.88                    | 8,942.90                    | 8,940.85                    | 102.02              | 15.63            | -80.12                      | 718.47                                    | 5,690.18                                  | 1,993.99                     | 1,953.91                      | 40.09                           | 49.742               |                              |
| 12,800.00                                                    | 9,000.75                    | 8,945.72                    | 8,943.67                    | 104.61              | 15.63            | -80.64                      | 718.45                                    | 5,690.24                                  | 1,895.25                     | 1,854.51                      | 40.74                           | 46.516               |                              |

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# LEAM Drilling Systems LLC

## Anticollision Report

**Company:** Devon Energy  
**Project:** Eddy County, NM (NAD-83)  
**Reference Site:** Emerald PWU 20-21  
**Site Error:** 0.00 usft  
**Reference Well:** 12H  
**Well Error:** 0.00 usft  
**Reference Wellbore:** OH  
**Reference Design:** Plan #1

**Local Co-ordinate Reference:** Well 12H  
**TVD Reference:** 3313.8' GE + 23.5' KB @ 3337.30usft  
**MD Reference:** 3313.8' GE + 23.5' KB @ 3337.30usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Output errors are at** 2.00 sigma  
**Database:** EDM 5000.1 Multi User Db  
**Offset TVD Reference:** Offset Datum

| Offset Design Emerald PWU 20-21 - PWU #24 (offset) - OH - OH |                             |                             |                             |                     |                  |                             |                                           |                 |                              |                               |                                 |                      | Offset Site Error: | 0.00 usft |
|--------------------------------------------------------------|-----------------------------|-----------------------------|-----------------------------|---------------------|------------------|-----------------------------|-------------------------------------------|-----------------|------------------------------|-------------------------------|---------------------------------|----------------------|--------------------|-----------|
| Survey Program: 100-ISCWSA-GYRO-3                            |                             |                             |                             |                     |                  |                             |                                           |                 |                              |                               |                                 |                      | Offset Well Error: | 0.00 usft |
| Reference                                                    |                             | Offset                      |                             | Semi Major Axis     |                  | Highside<br>Toolface<br>(°) | Distance                                  |                 | Between<br>Centres<br>(usft) | Between<br>Ellipses<br>(usft) | Minimum<br>Separation<br>(usft) | Separation<br>Factor | Warning            |           |
| Measured<br>Depth<br>(usft)                                  | Vertical<br>Depth<br>(usft) | Measured<br>Depth<br>(usft) | Vertical<br>Depth<br>(usft) | Reference<br>(usft) | Offset<br>(usft) |                             | Offset Wellbore Centre<br>+N/-S<br>(usft) | +E/-W<br>(usft) |                              |                               |                                 |                      |                    |           |
| 12,900.00                                                    | 9,001.63                    | 8,948.54                    | 8,946.48                    | 107.19              | 15.64            | -81.15                      | 718.44                                    | 5,690.29        | 1,796.64                     | 1,755.12                      | 41.52                           | 43.276               |                    |           |
| 13,000.00                                                    | 9,002.50                    | 8,951.34                    | 8,949.29                    | 109.78              | 15.64            | -81.67                      | 718.42                                    | 5,690.34        | 1,698.19                     | 1,855.76                      | 42.43                           | 40.027               |                    |           |
| 13,100.00                                                    | 9,003.37                    | 8,954.14                    | 8,952.09                    | 112.37              | 15.65            | -82.19                      | 718.40                                    | 5,690.39        | 1,599.92                     | 1,556.42                      | 43.50                           | 36.778               |                    |           |
| 13,200.00                                                    | 9,004.25                    | 8,956.93                    | 8,954.88                    | 114.97              | 15.65            | -82.71                      | 718.39                                    | 5,690.45        | 1,501.88                     | 1,457.10                      | 44.78                           | 33.538               |                    |           |
| 13,300.00                                                    | 9,005.12                    | 8,959.72                    | 8,957.67                    | 117.56              | 15.66            | -83.23                      | 718.37                                    | 5,690.50        | 1,404.10                     | 1,357.80                      | 46.31                           | 30.320               |                    |           |
| 13,400.00                                                    | 9,005.99                    | 8,962.50                    | 8,960.44                    | 120.16              | 15.66            | -83.75                      | 718.35                                    | 5,690.55        | 1,306.66                     | 1,258.52                      | 48.14                           | 27.141               |                    |           |
| 13,500.00                                                    | 9,006.86                    | 8,965.27                    | 8,963.22                    | 122.76              | 15.67            | -84.27                      | 718.34                                    | 5,690.60        | 1,209.64                     | 1,159.27                      | 50.36                           | 24.019               |                    |           |
| 13,600.00                                                    | 9,007.74                    | 8,968.04                    | 8,965.98                    | 125.36              | 15.67            | -84.79                      | 718.32                                    | 5,690.66        | 1,113.13                     | 1,060.06                      | 53.06                           | 20.978               |                    |           |
| 13,700.00                                                    | 9,008.61                    | 8,970.80                    | 8,968.74                    | 127.96              | 15.68            | -85.30                      | 718.31                                    | 5,690.71        | 1,017.28                     | 960.91                        | 56.38                           | 18.045               |                    |           |
| 13,800.00                                                    | 9,009.48                    | 8,973.55                    | 8,971.49                    | 130.56              | 15.68            | -85.82                      | 718.29                                    | 5,690.76        | 922.32                       | 861.84                        | 60.48                           | 15.250               |                    |           |
| 13,900.00                                                    | 9,010.35                    | 8,976.29                    | 8,974.24                    | 133.17              | 15.69            | -86.34                      | 718.27                                    | 5,690.81        | 828.53                       | 762.90                        | 65.62                           | 12.625               |                    |           |
| 14,000.00                                                    | 9,011.23                    | 8,979.03                    | 8,976.97                    | 135.78              | 15.69            | -86.86                      | 718.26                                    | 5,690.86        | 736.36                       | 664.22                        | 72.14                           | 10.207               |                    |           |
| 14,100.00                                                    | 9,012.10                    | 8,981.76                    | 8,979.71                    | 138.38              | 15.70            | -87.37                      | 718.24                                    | 5,690.91        | 646.52                       | 566.02                        | 80.50                           | 8.031                |                    |           |
| 14,200.00                                                    | 9,012.97                    | 8,984.49                    | 8,982.43                    | 140.99              | 15.70            | -87.89                      | 718.23                                    | 5,690.96        | 560.11                       | 468.78                        | 91.34                           | 6.132                |                    |           |
| 14,300.00                                                    | 9,013.84                    | 8,987.21                    | 8,985.15                    | 143.60              | 15.71            | -88.40                      | 718.21                                    | 5,691.01        | 479.01                       | 373.61                        | 105.40                          | 4.545                |                    |           |
| 14,400.00                                                    | 9,014.72                    | 8,989.92                    | 8,987.86                    | 146.21              | 15.71            | -88.92                      | 718.20                                    | 5,691.06        | 406.40                       | 283.17                        | 123.23                          | 3.298                |                    |           |
| 14,500.00                                                    | 9,015.59                    | 8,992.63                    | 8,990.57                    | 148.82              | 15.72            | -89.43                      | 718.18                                    | 5,691.11        | 347.65                       | 203.77                        | 143.88                          | 2.416                |                    |           |
| 14,600.00                                                    | 9,016.46                    | 8,995.33                    | 8,993.27                    | 151.43              | 15.72            | -89.94                      | 718.17                                    | 5,691.16        | 310.72                       | 148.45                        | 162.27                          | 1.915                |                    |           |
| 14,671.68                                                    | 9,017.09                    | 8,997.26                    | 8,995.20                    | 153.31              | 15.72            | -90.30                      | 718.16                                    | 5,691.20        | 302.34                       | 133.45                        | 168.89                          | 1.790 CC, ES, SF     |                    |           |
| 14,700.00                                                    | 9,017.34                    | 8,998.02                    | 8,995.96                    | 154.05              | 15.73            | -90.45                      | 718.16                                    | 5,691.21        | 303.67                       | 134.38                        | 169.29                          | 1.794                |                    |           |
| 14,800.00                                                    | 9,018.21                    | 9,000.71                    | 8,998.65                    | 156.66              | 15.73            | -90.96                      | 718.14                                    | 5,691.26        | 328.43                       | 167.03                        | 161.40                          | 2.035                |                    |           |
| 14,900.00                                                    | 9,019.08                    | 9,003.41                    | 9,001.35                    | 159.28              | 15.73            | -91.47                      | 718.13                                    | 5,691.31        | 378.82                       | 233.32                        | 145.51                          | 2.603                |                    |           |
| 15,000.00                                                    | 9,019.95                    | 9,006.11                    | 9,004.05                    | 161.89              | 15.74            | -91.98                      | 718.11                                    | 5,691.36        | 446.24                       | 317.16                        | 129.08                          | 3.457                |                    |           |
| 15,100.00                                                    | 9,020.83                    | 9,008.81                    | 9,006.75                    | 164.51              | 15.74            | -92.49                      | 718.10                                    | 5,691.41        | 524.16                       | 409.04                        | 115.12                          | 4.553                |                    |           |
| 15,200.00                                                    | 9,021.70                    | 9,011.51                    | 9,009.45                    | 167.12              | 15.75            | -93.00                      | 718.08                                    | 5,691.46        | 608.55                       | 504.58                        | 103.97                          | 5.853                |                    |           |
| 15,300.00                                                    | 9,022.57                    | 9,014.21                    | 9,012.15                    | 169.74              | 15.75            | -93.51                      | 718.07                                    | 5,691.51        | 697.08                       | 601.89                        | 95.18                           | 7.324                |                    |           |
| 15,400.00                                                    | 9,023.44                    | 9,016.91                    | 9,014.85                    | 172.36              | 15.76            | -94.02                      | 718.06                                    | 5,691.55        | 788.34                       | 700.12                        | 86.22                           | 8.936                |                    |           |
| 15,500.00                                                    | 9,024.32                    | 9,019.61                    | 9,017.55                    | 174.98              | 15.76            | -94.53                      | 718.04                                    | 5,691.60        | 881.50                       | 798.85                        | 82.65                           | 10.666               |                    |           |
| 15,600.00                                                    | 9,025.19                    | 9,022.31                    | 9,020.24                    | 177.60              | 15.77            | -95.04                      | 718.03                                    | 5,691.65        | 976.00                       | 897.88                        | 78.12                           | 12.494               |                    |           |
| 15,700.00                                                    | 9,026.06                    | 9,025.01                    | 9,022.94                    | 180.22              | 15.77            | -95.55                      | 718.01                                    | 5,691.70        | 1,071.49                     | 997.09                        | 74.40                           | 14.402               |                    |           |
| 15,800.00                                                    | 9,026.93                    | 9,027.71                    | 9,025.64                    | 182.84              | 15.78            | -96.05                      | 718.00                                    | 5,691.75        | 1,167.73                     | 1,096.43                      | 71.31                           | 16.376               |                    |           |
| 15,900.00                                                    | 9,027.81                    | 9,030.41                    | 9,028.34                    | 185.46              | 15.78            | -96.56                      | 717.98                                    | 5,691.80        | 1,264.55                     | 1,195.85                      | 68.71                           | 18.405               |                    |           |
| 16,000.00                                                    | 9,028.68                    | 9,033.11                    | 9,031.04                    | 188.08              | 15.79            | -97.07                      | 717.97                                    | 5,691.85        | 1,361.83                     | 1,295.33                      | 66.50                           | 20.479               |                    |           |
| 16,100.00                                                    | 9,029.55                    | 9,035.81                    | 9,033.74                    | 190.70              | 15.79            | -97.57                      | 717.96                                    | 5,691.90        | 1,459.47                     | 1,394.85                      | 64.61                           | 22.588               |                    |           |
| 16,200.00                                                    | 9,030.42                    | 9,038.51                    | 9,036.44                    | 193.32              | 15.80            | -98.07                      | 717.94                                    | 5,691.95        | 1,557.40                     | 1,494.42                      | 62.98                           | 24.727               |                    |           |
| 16,300.00                                                    | 9,031.30                    | 9,041.21                    | 9,039.14                    | 195.94              | 15.80            | -98.57                      | 717.93                                    | 5,692.00        | 1,655.57                     | 1,594.00                      | 61.57                           | 26.889               |                    |           |
| 16,400.00                                                    | 9,032.17                    | 9,043.91                    | 9,041.84                    | 198.57              | 15.80            | -99.07                      | 717.91                                    | 5,692.05        | 1,753.95                     | 1,693.81                      | 60.34                           | 29.070               |                    |           |
| 16,500.00                                                    | 9,033.04                    | 9,046.61                    | 9,044.54                    | 201.19              | 15.81            | -99.57                      | 717.90                                    | 5,692.10        | 1,852.50                     | 1,793.24                      | 59.25                           | 31.264               |                    |           |
| 16,600.00                                                    | 9,033.92                    | 9,049.31                    | 9,047.24                    | 203.81              | 15.81            | -100.07                     | 717.88                                    | 5,692.15        | 1,951.19                     | 1,892.89                      | 58.30                           | 33.468               |                    |           |
| 16,700.00                                                    | 9,034.79                    | 9,052.01                    | 9,049.94                    | 206.44              | 15.82            | -100.57                     | 717.87                                    | 5,692.20        | 2,050.00                     | 1,992.55                      | 57.46                           | 35.680               |                    |           |
| 16,800.00                                                    | 9,035.66                    | 9,054.71                    | 9,052.64                    | 209.06              | 15.82            | -101.06                     | 717.86                                    | 5,692.25        | 2,148.93                     | 2,092.22                      | 56.70                           | 37.897               |                    |           |
| 16,900.00                                                    | 9,036.53                    | 9,057.41                    | 9,055.34                    | 211.69              | 15.83            | -101.55                     | 717.84                                    | 5,692.29        | 2,247.94                     | 2,191.90                      | 56.04                           | 40.116               |                    |           |
| 17,000.00                                                    | 9,037.41                    | 9,060.11                    | 9,058.04                    | 214.31              | 15.83            | -102.04                     | 717.83                                    | 5,692.34        | 2,347.03                     | 2,291.59                      | 55.44                           | 42.335               |                    |           |
| 17,100.00                                                    | 9,038.28                    | 9,062.81                    | 9,060.74                    | 216.94              | 15.84            | -102.53                     | 717.81                                    | 5,692.39        | 2,446.20                     | 2,391.29                      | 54.90                           | 44.554               |                    |           |
| 17,200.00                                                    | 9,039.15                    | 9,065.51                    | 9,063.44                    | 219.56              | 15.84            | -103.02                     | 717.80                                    | 5,692.44        | 2,545.42                     | 2,491.00                      | 54.42                           | 46.770               |                    |           |
| 17,300.00                                                    | 9,040.02                    | 9,068.21                    | 9,066.14                    | 222.19              | 15.85            | -103.51                     | 717.78                                    | 5,692.49        | 2,644.71                     | 2,590.71                      | 53.99                           | 48.982               |                    |           |
| 17,400.00                                                    | 9,040.90                    | 9,070.91                    | 9,068.83                    | 224.81              | 15.85            | -103.99                     | 717.77                                    | 5,692.54        | 2,744.04                     | 2,690.43                      | 53.61                           | 51.189               |                    |           |
| 17,500.00                                                    | 9,041.77                    | 9,073.61                    | 9,071.53                    | 227.44              | 15.86            | -104.47                     | 717.76                                    | 5,692.59        | 2,843.41                     | 2,790.16                      | 53.26                           | 53.391               |                    |           |
| 17,600.00                                                    | 9,042.64                    | 9,076.31                    | 9,074.23                    | 230.07              | 15.86            | -104.95                     | 717.74                                    | 5,692.64        | 2,942.83                     | 2,889.89                      | 52.94                           | 55.586               |                    |           |
| 17,700.00                                                    | 9,043.51                    | 9,079.01                    | 9,076.93                    | 232.69              | 15.87            | -105.43                     | 717.73                                    | 5,692.69        | 3,042.28                     | 2,989.62                      | 52.66                           | 57.775               |                    |           |
| 17,800.00                                                    | 9,044.39                    | 9,081.71                    | 9,079.63                    | 235.32              | 15.87            | -105.91                     | 717.71                                    | 5,692.74        | 3,141.77                     | 3,089.36                      | 52.40                           | 59.955               |                    |           |
| 17,900.00                                                    | 9,045.26                    | 9,084.41                    | 9,082.33                    | 237.95              | 15.87            | -106.38                     | 717.70                                    | 5,692.79        | 3,241.28                     | 3,189.11                      | 52.17                           | 62.127               |                    |           |

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

# LEAM Drilling Systems LLC

## Anticollision Report

**Company:** Devon Energy  
**Project:** Eddy County, NM (NAD-83)  
**Reference Site:** Emerald PWU 20-21  
**Site Error:** 0.00 usft  
**Reference Well:** 12H  
**Well Error:** 0.00 usft  
**Reference Wellbore:** OH  
**Reference Design:** Plan #1

**Local Co-ordinate Reference:** Well 12H  
**TVD Reference:** 3313.8' GE + 23.5' KB @ 3337.30usft  
**MD Reference:** 3313.8' GE + 23.5' KB @ 3337.30usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Output errors are at** 2.00 sigma  
**Database:** EDM 5000.1 Multi User Db  
**Offset TVD Reference:** Offset Datum

| Offset Design Emerald PWU 20-21 - PWU #24 (offset) - OH - OH |                             |                             |                             |                     |                  |                             |                        |                 |                              |                               |                                 |                      |         | Offset Site Error: | 0.00 usft |
|--------------------------------------------------------------|-----------------------------|-----------------------------|-----------------------------|---------------------|------------------|-----------------------------|------------------------|-----------------|------------------------------|-------------------------------|---------------------------------|----------------------|---------|--------------------|-----------|
| Survey Program: 100-ISCWSA-GYRO-3                            |                             |                             |                             |                     |                  |                             |                        |                 |                              |                               |                                 |                      |         | Offset Well Error: | 0.00 usft |
| Reference                                                    |                             | Offset                      |                             | Semi Major Axis     |                  | Highside<br>Toolface<br>(°) | Offset Wellbore Centre |                 | Distance                     |                               | Minimum<br>Separation<br>(usft) | Separation<br>Factor | Warning |                    |           |
| Measured<br>Depth<br>(usft)                                  | Vertical<br>Depth<br>(usft) | Measured<br>Depth<br>(usft) | Vertical<br>Depth<br>(usft) | Reference<br>(usft) | Offset<br>(usft) |                             | +N/-S<br>(usft)        | +E/-W<br>(usft) | Between<br>Centres<br>(usft) | Between<br>Ellipses<br>(usft) |                                 |                      |         |                    |           |
| 18,000.00                                                    | 9,046.13                    | 9,087.11                    | 9,085.03                    | 240.57              | 15.88            | -106.85                     | 717.68                 | 5,692.84        | 3,340.82                     | 3,288.86                      | 51.98                           | 64.290               |         |                    |           |
| 18,100.00                                                    | 9,047.01                    | 9,089.81                    | 9,087.73                    | 243.20              | 15.88            | -107.32                     | 717.87                 | 5,692.89        | 3,440.39                     | 3,388.61                      | 51.78                           | 66.444               |         |                    |           |
| 18,200.00                                                    | 9,047.88                    | 9,092.51                    | 9,090.43                    | 245.83              | 15.89            | -107.79                     | 717.66                 | 5,692.94        | 3,539.97                     | 3,488.36                      | 51.61                           | 68.589               |         |                    |           |
| 18,300.00                                                    | 9,048.75                    | 9,095.21                    | 9,093.13                    | 248.46              | 15.89            | -108.25                     | 717.64                 | 5,692.99        | 3,639.58                     | 3,586.12                      | 51.46                           | 70.723               |         |                    |           |
| 18,400.00                                                    | 9,049.62                    | 9,097.91                    | 9,095.83                    | 251.09              | 15.90            | -108.71                     | 717.63                 | 5,693.03        | 3,739.21                     | 3,687.88                      | 51.33                           | 72.848               |         |                    |           |
| 18,500.00                                                    | 9,050.50                    | 9,100.61                    | 9,098.53                    | 253.71              | 15.90            | -109.17                     | 717.61                 | 5,693.08        | 3,838.85                     | 3,787.64                      | 51.21                           | 74.962               |         |                    |           |
| 18,600.00                                                    | 9,051.37                    | 9,103.31                    | 9,101.23                    | 256.34              | 15.91            | -109.63                     | 717.60                 | 5,693.13        | 3,938.52                     | 3,887.41                      | 51.11                           | 77.066               |         |                    |           |
| 18,700.00                                                    | 9,052.24                    | 9,106.01                    | 9,103.93                    | 258.97              | 15.91            | -110.08                     | 717.58                 | 5,693.18        | 4,038.19                     | 3,987.18                      | 51.01                           | 79.159               |         |                    |           |
| 18,800.00                                                    | 9,053.11                    | 9,108.71                    | 9,106.63                    | 261.60              | 15.92            | -110.53                     | 717.57                 | 5,693.23        | 4,137.88                     | 4,086.95                      | 50.93                           | 81.241               |         |                    |           |
| 18,900.00                                                    | 9,053.99                    | 9,111.41                    | 9,109.33                    | 264.23              | 15.92            | -110.98                     | 717.56                 | 5,693.28        | 4,237.58                     | 4,186.72                      | 50.86                           | 83.312               |         |                    |           |
| 18,958.87                                                    | 9,054.50                    | 9,113.00                    | 9,110.92                    | 265.78              | 15.92            | -111.24                     | 717.55                 | 5,693.31        | 4,296.28                     | 4,245.46                      | 50.83                           | 84.526               |         |                    |           |

# LEAM Drilling Systems LLC

## Anticollision Report

**Company:** Devon Energy  
**Project:** Eddy County, NM (NAD-83)  
**Reference Site:** Emerald PWU 20-21  
**Site Error:** 0.00 usft  
**Reference Well:** 12H  
**Well Error:** 0.00 usft  
**Reference Wellbore:** OH  
**Reference Design:** Plan #1

**Local Co-ordinate Reference:** Well 12H  
**TVD Reference:** 3313.8' GE + 23.5' KB @ 3337.30usft  
**MD Reference:** 3313.8' GE + 23.5' KB @ 3337.30usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Output errors are at** 2.00 sigma  
**Database:** EDM 5000.1 Multi User Db  
**Offset TVD Reference:** Offset Datum

| Offset Design Emerald PWU 20-21 - PWU #5 (offset) - OH - OH |                             |                             |                             |                     |                  |                             |                                          |                |                                 |                      |         |           |  | Offset Site Error: | 0.00 usft |
|-------------------------------------------------------------|-----------------------------|-----------------------------|-----------------------------|---------------------|------------------|-----------------------------|------------------------------------------|----------------|---------------------------------|----------------------|---------|-----------|--|--------------------|-----------|
| Survey Program: 100-ISCWSA-GYRO-3                           |                             |                             |                             |                     |                  |                             |                                          |                |                                 |                      |         |           |  | Offset Well Error: | 0.00 usft |
| Reference                                                   |                             | Offset                      |                             | Semi Major Axis     |                  | Highside<br>Toolface<br>(°) | Distance                                 |                | Minimum<br>Separation<br>(usft) | Separation<br>Factor | Warning |           |  |                    |           |
| Measured<br>Depth<br>(usft)                                 | Vertical<br>Depth<br>(usft) | Measured<br>Depth<br>(usft) | Vertical<br>Depth<br>(usft) | Reference<br>(usft) | Offset<br>(usft) |                             | Offset Wellbore Centre<br>+N-S<br>(usft) | +E-W<br>(usft) |                                 |                      |         |           |  |                    |           |
| 0.00                                                        | 0.00                        | 0.00                        | 0.00                        | 0.00                | 0.00             | 69.19                       | 671.00                                   | 1,765.05       | 1,888.44                        |                      |         |           |  |                    |           |
| 100.00                                                      | 100.00                      | 77.97                       | 77.97                       | 0.09                | 0.07             | 69.18                       | 671.00                                   | 1,765.02       | 1,888.26                        | 1,888.11             | 0.15    | N/A       |  |                    |           |
| 200.00                                                      | 200.00                      | 177.34                      | 177.34                      | 0.31                | 0.22             | 69.18                       | 671.01                                   | 1,764.93       | 1,888.18                        | 1,887.65             | 0.53    | 3,537.806 |  |                    |           |
| 300.00                                                      | 300.00                      | 277.24                      | 277.24                      | 0.54                | 0.40             | 69.18                       | 671.08                                   | 1,764.87       | 1,888.15                        | 1,887.22             | 0.93    | 2,023.987 |  |                    |           |
| 349.57                                                      | 349.57                      | 326.08                      | 326.07                      | 0.65                | 0.48             | 69.18                       | 671.15                                   | 1,764.83       | 1,888.14                        | 1,887.01             | 1.13    | 1,671.731 |  |                    |           |
| 400.00                                                      | 400.00                      | 375.01                      | 375.01                      | 0.76                | 0.57             | 69.18                       | 671.21                                   | 1,764.82       | 1,888.15                        | 1,886.83             | 1.33    | 1,421.752 |  |                    |           |
| 500.00                                                      | 500.00                      | 475.01                      | 475.01                      | 0.99                | 0.74             | 69.17                       | 671.37                                   | 1,764.87       | 1,888.25                        | 1,886.53             | 1.73    | 1,093.346 |  |                    |           |
| 600.00                                                      | 600.00                      | 573.52                      | 573.52                      | 1.21                | 0.92             | 69.17                       | 671.62                                   | 1,764.88       | 1,888.36                        | 1,886.23             | 2.12    | 889.185   |  |                    |           |
| 700.00                                                      | 700.00                      | 666.80                      | 666.80                      | 1.43                | 1.08             | 69.16                       | 671.90                                   | 1,765.08       | 1,888.66                        | 1,886.15             | 2.51    | 751.905   |  |                    |           |
| 800.00                                                      | 800.00                      | 761.08                      | 761.08                      | 1.66                | 1.24             | 69.16                       | 672.21                                   | 1,765.66       | 1,889.35                        | 1,886.45             | 2.90    | 651.059   |  |                    |           |
| 900.00                                                      | 900.00                      | 857.33                      | 857.33                      | 1.88                | 1.41             | 69.16                       | 672.59                                   | 1,766.46       | 1,890.27                        | 1,886.98             | 3.30    | 573.634   |  |                    |           |
| 1,000.00                                                    | 1,000.00                    | 957.36                      | 957.35                      | 2.11                | 1.59             | 69.15                       | 673.14                                   | 1,767.38       | 1,891.32                        | 1,887.63             | 3.69    | 511.870   |  |                    |           |
| 1,100.00                                                    | 1,100.00                    | 1,058.53                    | 1,058.51                    | 2.33                | 1.76             | 69.15                       | 673.63                                   | 1,768.24       | 1,892.29                        | 1,888.19             | 4.10    | 461.924   |  |                    |           |
| 1,200.00                                                    | 1,200.00                    | 1,158.86                    | 1,158.84                    | 2.56                | 1.94             | 69.14                       | 674.21                                   | 1,769.03       | 1,893.23                        | 1,888.74             | 4.50    | 421.011   |  |                    |           |
| 1,300.00                                                    | 1,300.00                    | 1,267.25                    | 1,267.22                    | 2.78                | 2.13             | 69.12                       | 674.99                                   | 1,769.65       | 1,894.03                        | 1,889.12             | 4.91    | 385.686   |  |                    |           |
| 1,400.00                                                    | 1,400.00                    | 1,370.49                    | 1,370.46                    | 3.01                | 2.31             | 69.10                       | 675.65                                   | 1,769.76       | 1,894.35                        | 1,889.04             | 5.32    | 356.350   |  |                    |           |
| 1,500.00                                                    | 1,500.00                    | 1,471.92                    | 1,471.88                    | 3.23                | 2.49             | 69.09                       | 676.26                                   | 1,769.85       | 1,894.66                        | 1,888.94             | 5.72    | 331.347   |  |                    |           |
| 1,600.00                                                    | 1,600.00                    | 1,575.41                    | 1,575.38                    | 3.46                | 2.67             | 69.07                       | 676.82                                   | 1,769.81       | 1,894.81                        | 1,888.69             | 6.12    | 309.432   |  |                    |           |
| 1,700.00                                                    | 1,700.00                    | 1,681.54                    | 1,681.51                    | 3.68                | 2.86             | 69.05                       | 677.32                                   | 1,769.52       | 1,894.73                        | 1,888.19             | 6.53    | 290.014   |  |                    |           |
| 1,800.00                                                    | 1,800.00                    | 1,786.76                    | 1,786.72                    | 3.91                | 3.04             | 69.04                       | 677.70                                   | 1,768.91       | 1,894.32                        | 1,887.37             | 6.94    | 272.915   |  |                    |           |
| 1,900.00                                                    | 1,900.00                    | 1,885.21                    | 1,885.17                    | 4.13                | 3.21             | 69.02                       | 678.06                                   | 1,768.23       | 1,893.80                        | 1,886.46             | 7.34    | 258.108   |  |                    |           |
| 2,000.00                                                    | 2,000.00                    | 1,985.65                    | 1,985.61                    | 4.36                | 3.39             | 69.00                       | 678.58                                   | 1,767.53       | 1,893.34                        | 1,885.80             | 7.74    | 244.713   |  |                    |           |
| 2,100.00                                                    | 2,100.00                    | 2,086.51                    | 2,086.46                    | 4.58                | 3.56             | 68.98                       | 679.03                                   | 1,766.82       | 1,892.83                        | 1,884.70             | 8.14    | 232.604   |  |                    |           |
| 2,200.00                                                    | 2,200.00                    | 2,184.91                    | 2,184.86                    | 4.81                | 3.73             | 68.95                       | 679.64                                   | 1,766.06       | 1,892.34                        | 1,883.81             | 8.53    | 221.741   |  |                    |           |
| 2,300.00                                                    | 2,300.00                    | 2,285.51                    | 2,285.45                    | 5.03                | 3.91             | 68.92                       | 680.32                                   | 1,765.32       | 1,891.89                        | 1,882.96             | 8.93    | 211.755   |  |                    |           |
| 2,400.00                                                    | 2,400.00                    | 2,383.13                    | 2,383.06                    | 5.26                | 4.08             | 68.90                       | 680.94                                   | 1,764.64       | 1,891.47                        | 1,882.14             | 9.33    | 202.739   |  |                    |           |
| 2,500.00                                                    | 2,500.00                    | 2,486.08                    | 2,486.02                    | 5.48                | 4.26             | 68.87                       | 681.64                                   | 1,763.92       | 1,891.07                        | 1,881.34             | 9.73    | 194.273   |  |                    |           |
| 2,600.00                                                    | 2,600.00                    | 2,587.65                    | 2,587.57                    | 5.71                | 4.44             | 68.84                       | 682.30                                   | 1,763.07       | 1,890.52                        | 1,880.38             | 10.14   | 186.512   |  |                    |           |
| 2,700.00                                                    | 2,700.00                    | 2,684.51                    | 2,684.44                    | 5.93                | 4.61             | 68.81                       | 683.01                                   | 1,762.25       | 1,890.00                        | 1,879.47             | 10.53   | 179.483   |  |                    |           |
| 2,800.00                                                    | 2,800.00                    | 2,785.40                    | 2,785.32                    | 6.15                | 4.79             | 68.79                       | 683.67                                   | 1,761.54       | 1,889.58                        | 1,878.65             | 10.93   | 172.861   |  |                    |           |
| 2,900.00                                                    | 2,900.00                    | 2,888.80                    | 2,888.72                    | 6.38                | 4.97             | 68.76                       | 684.30                                   | 1,760.69       | 1,889.03                        | 1,877.69             | 11.34   | 166.632   |  |                    |           |
| 3,000.00                                                    | 3,000.00                    | 2,988.72                    | 2,988.63                    | 6.60                | 5.14             | 68.73                       | 684.97                                   | 1,759.72       | 1,888.37                        | 1,878.64             | 11.74   | 160.906   |  |                    |           |
| 3,100.00                                                    | 3,100.00                    | 3,086.70                    | 3,086.60                    | 6.83                | 5.31             | 68.70                       | 685.66                                   | 1,758.83       | 1,887.78                        | 1,875.65             | 12.13   | 155.604   |  |                    |           |
| 3,200.00                                                    | 3,200.00                    | 3,186.58                    | 3,186.47                    | 7.05                | 5.49             | 68.67                       | 686.50                                   | 1,757.94       | 1,887.26                        | 1,874.73             | 12.53   | 150.603   |  |                    |           |
| 3,300.00                                                    | 3,300.00                    | 3,289.21                    | 3,289.09                    | 7.28                | 5.67             | 68.63                       | 687.34                                   | 1,756.96       | 1,886.67                        | 1,873.73             | 12.94   | 145.852   |  |                    |           |
| 3,400.00                                                    | 3,400.00                    | 3,384.14                    | 3,384.02                    | 7.50                | 5.83             | 68.60                       | 688.13                                   | 1,756.09       | 1,886.11                        | 1,872.79             | 13.33   | 141.531   |  |                    |           |
| 3,500.00                                                    | 3,500.00                    | 3,483.33                    | 3,483.19                    | 7.73                | 6.01             | 68.56                       | 689.15                                   | 1,755.31       | 1,885.76                        | 1,872.03             | 13.72   | 137.397   |  |                    |           |
| 3,600.00                                                    | 3,600.00                    | 3,585.61                    | 3,585.46                    | 7.95                | 6.19             | 68.53                       | 690.12                                   | 1,754.48       | 1,885.35                        | 1,871.22             | 14.13   | 133.442   |  |                    |           |
| 3,700.00                                                    | 3,700.00                    | 3,687.84                    | 3,687.68                    | 8.18                | 6.38             | 68.50                       | 691.15                                   | 1,753.15       | 1,884.68                        | 1,870.13             | 14.55   | 129.556   |  |                    |           |
| 3,800.00                                                    | 3,799.96                    | 3,817.08                    | 3,816.90                    | 8.40                | 6.59             | 68.47                       | 692.12                                   | 1,750.63       | 1,883.27                        | 1,868.30             | 14.97   | 125.765   |  |                    |           |
| 3,900.00                                                    | 3,899.86                    | 3,927.25                    | 3,927.02                    | 8.62                | 6.79             | 68.43                       | 692.77                                   | 1,747.53       | 1,881.31                        | 1,865.93             | 15.39   | 122.272   |  |                    |           |
| 4,000.00                                                    | 3,999.68                    | 4,030.89                    | 4,030.60                    | 8.84                | 6.97             | 68.39                       | 693.31                                   | 1,744.06       | 1,879.03                        | 1,863.24             | 15.79   | 119.014   |  |                    |           |
| 4,100.00                                                    | 4,099.37                    | 4,117.98                    | 4,117.63                    | 9.07                | 7.12             | 68.35                       | 694.37                                   | 1,741.22       | 1,877.28                        | 1,861.12             | 16.17   | 116.124   |  |                    |           |
| 4,124.09                                                    | 4,123.36                    | 4,137.47                    | 4,137.12                    | 9.12                | 7.15             | 68.33                       | 694.73                                   | 1,740.64       | 1,877.01                        | 1,860.76             | 16.26   | 115.472   |  |                    |           |
| 4,200.00                                                    | 4,198.95                    | 4,200.00                    | 4,199.60                    | 9.29                | 7.26             | 68.30                       | 696.22                                   | 1,739.00       | 1,876.57                        | 1,860.03             | 16.54   | 113.472   |  |                    |           |
| 4,225.48                                                    | 4,224.33                    | 4,220.75                    | 4,220.34                    | 9.35                | 7.30             | 68.28                       | 696.83                                   | 1,738.52       | 1,876.54                        | 1,859.91             | 16.83   | 112.823   |  |                    |           |
| 4,300.00                                                    | 4,298.53                    | 4,284.74                    | 4,284.28                    | 9.52                | 7.41             | 68.25                       | 698.94                                   | 1,737.19       | 1,876.76                        | 1,859.84             | 16.92   | 110.948   |  |                    |           |
| 4,400.00                                                    | 4,398.12                    | 4,376.71                    | 4,376.17                    | 9.75                | 7.57             | 68.22                       | 702.56                                   | 1,735.58       | 1,877.57                        | 1,860.26             | 17.31   | 108.478   |  |                    |           |
| 4,500.00                                                    | 4,497.70                    | 4,502.24                    | 4,501.54                    | 9.98                | 7.79             | 68.19                       | 707.98                                   | 1,732.74       | 1,878.10                        | 1,860.33             | 17.76   | 105.739   |  |                    |           |
| 4,600.00                                                    | 4,597.28                    | 4,615.45                    | 4,614.61                    | 10.22               | 7.99             | 68.16                       | 712.20                                   | 1,728.85       | 1,877.27                        | 1,859.07             | 18.19   | 103.181   |  |                    |           |
| 4,700.00                                                    | 4,696.86                    | 4,702.51                    | 4,701.60                    | 10.45               | 8.15             | 68.13                       | 714.56                                   | 1,726.28       | 1,876.57                        | 1,857.99             | 18.58   | 100.978   |  |                    |           |
| 4,800.00                                                    | 4,796.44                    | 4,800.00                    | 4,799.04                    | 10.69               | 8.32             | 68.10                       | 716.78                                   | 1,724.02       | 1,876.33                        | 1,857.34             | 18.99   | 98.797    |  |                    |           |

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# LEAM Drilling Systems LLC

## Anticollision Report

**Company:** Devon Energy  
**Project:** Eddy County, NM (NAD-83)  
**Reference Site:** Emerald PWU 20-21  
**Site Error:** 0.00 usft  
**Reference Well:** 12H  
**Well Error:** 0.00 usft  
**Reference Wellbore:** OH  
**Reference Design:** Plan #1

**Local Co-ordinate Reference:** Well 12H  
**TVD Reference:** 3313.8' GE + 23.5' KB @ 3337.30usft  
**MD Reference:** 3313.8' GE + 23.5' KB @ 3337.30usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Output errors are at** 2.00 sigma  
**Database:** EDM 5000.1 Multi User Db  
**Offset TVD Reference:** Offset Datum

| Offset Design Emerald PWU 20-21 - PWU #5 (offset) - OH - OH |                             |                             |                             |                     |                  |                             |                        |                 |                              |                               |                                 |                      |         | Offset Site Error: | 0.00 usft |
|-------------------------------------------------------------|-----------------------------|-----------------------------|-----------------------------|---------------------|------------------|-----------------------------|------------------------|-----------------|------------------------------|-------------------------------|---------------------------------|----------------------|---------|--------------------|-----------|
| Survey Program: 100-ISCWSA-GYRO-3                           |                             |                             |                             |                     |                  |                             |                        |                 |                              |                               |                                 |                      |         | Offset Well Error: | 0.00 usft |
| Reference                                                   |                             | Offset                      |                             | Semi Major Axis     |                  | Highside<br>Toolface<br>(°) | Offset Wellbore Centre |                 | Distance                     |                               | Minimum<br>Separation<br>(usft) | Separation<br>Factor | Warning |                    |           |
| Measured<br>Depth<br>(usft)                                 | Vertical<br>Depth<br>(usft) | Measured<br>Depth<br>(usft) | Vertical<br>Depth<br>(usft) | Reference<br>(usft) | Offset<br>(usft) |                             | +N/-S<br>(usft)        | +E/-W<br>(usft) | Between<br>Centres<br>(usft) | Between<br>Ellipses<br>(usft) |                                 |                      |         |                    |           |
| 4,900.00                                                    | 4,896.03                    | 4,896.80                    | 4,897.79                    | 10.92               | 8.49             | 97.61                       | 718.82                 | 1,721.90        | 1,876.21                     | 1,856.80                      | 19.40                           | 96.696               |         |                    |           |
| 4,978.51                                                    | 4,974.20                    | 4,974.88                    | 4,973.84                    | 11.11               | 8.63             | 97.76                       | 720.32                 | 1,720.32        | 1,876.15                     | 1,856.43                      | 19.72                           | 95.119               |         |                    |           |
| 5,000.00                                                    | 4,995.61                    | 4,995.70                    | 4,994.65                    | 11.16               | 8.67             | 97.80                       | 720.77                 | 1,719.89        | 1,876.16                     | 1,856.34                      | 19.81                           | 94.696               |         |                    |           |
| 5,100.00                                                    | 5,095.19                    | 5,091.54                    | 5,090.46                    | 11.40               | 8.83             | 97.99                       | 722.57                 | 1,718.13        | 1,876.31                     | 1,856.09                      | 20.22                           | 92.791               |         |                    |           |
| 5,200.00                                                    | 5,194.77                    | 5,179.27                    | 5,178.17                    | 11.64               | 8.99             | 98.19                       | 723.83                 | 1,717.04        | 1,876.90                     | 1,856.28                      | 20.62                           | 91.043               |         |                    |           |
| 5,300.00                                                    | 5,294.35                    | 5,280.18                    | 5,279.07                    | 11.89               | 9.17             | 98.42                       | 725.14                 | 1,716.25        | 1,877.90                     | 1,856.87                      | 21.03                           | 89.280               |         |                    |           |
| 5,400.00                                                    | 5,393.94                    | 5,390.96                    | 5,389.84                    | 12.13               | 9.36             | 98.67                       | 726.64                 | 1,714.91        | 1,878.56                     | 1,857.09                      | 21.47                           | 87.497               |         |                    |           |
| 5,500.00                                                    | 5,493.52                    | 5,518.17                    | 5,516.99                    | 12.37               | 9.58             | 98.93                       | 728.75                 | 1,711.86        | 1,878.21                     | 1,856.28                      | 21.93                           | 85.634               |         |                    |           |
| 5,600.00                                                    | 5,593.10                    | 5,648.34                    | 5,647.02                    | 12.62               | 9.82             | 99.17                       | 731.29                 | 1,706.54        | 1,876.40                     | 1,854.00                      | 22.40                           | 83.776               |         |                    |           |
| 5,700.00                                                    | 5,692.68                    | 5,770.65                    | 5,769.07                    | 12.86               | 10.03            | 99.34                       | 734.43                 | 1,699.25        | 1,872.97                     | 1,850.12                      | 22.85                           | 81.970               |         |                    |           |
| 5,800.00                                                    | 5,792.26                    | 5,877.72                    | 5,875.85                    | 13.11               | 10.22            | 99.48                       | 737.59                 | 1,691.95        | 1,868.87                     | 1,845.59                      | 23.26                           | 80.276               |         |                    |           |
| 5,900.00                                                    | 5,891.85                    | 5,984.68                    | 5,982.51                    | 13.36               | 10.41            | 99.82                       | 740.24                 | 1,684.43        | 1,864.45                     | 1,840.74                      | 23.71                           | 78.630               |         |                    |           |
| 6,000.00                                                    | 5,991.43                    | 6,086.61                    | 6,084.15                    | 13.61               | 10.59            | 99.78                       | 742.21                 | 1,677.15        | 1,859.76                     | 1,835.63                      | 24.14                           | 77.052               |         |                    |           |
| 6,100.00                                                    | 6,091.01                    | 6,187.89                    | 6,185.19                    | 13.85               | 10.77            | 99.96                       | 743.40                 | 1,670.08        | 1,855.01                     | 1,830.45                      | 24.56                           | 75.529               |         |                    |           |
| 6,200.00                                                    | 6,190.59                    | 6,282.53                    | 6,279.62                    | 14.10               | 10.94            | 100.16                      | 743.70                 | 1,663.80        | 1,850.35                     | 1,825.37                      | 24.98                           | 74.085               |         |                    |           |
| 6,300.00                                                    | 6,290.17                    | 6,374.30                    | 6,371.21                    | 14.35               | 11.10            | 100.37                      | 743.41                 | 1,658.23        | 1,846.08                     | 1,820.69                      | 25.39                           | 72.713               |         |                    |           |
| 6,400.00                                                    | 6,389.76                    | 6,471.41                    | 6,468.17                    | 14.60               | 11.27            | 100.63                      | 742.24                 | 1,652.95        | 1,842.17                     | 1,816.36                      | 25.81                           | 71.381               |         |                    |           |
| 6,500.00                                                    | 6,489.34                    | 6,565.79                    | 6,562.41                    | 14.86               | 11.43            | 100.89                      | 740.80                 | 1,648.03        | 1,838.43                     | 1,812.20                      | 26.22                           | 70.106               |         |                    |           |
| 6,600.00                                                    | 6,588.92                    | 6,663.52                    | 6,660.02                    | 15.11               | 11.60            | 101.16                      | 739.46                 | 1,643.18        | 1,835.01                     | 1,808.36                      | 26.64                           | 68.871               |         |                    |           |
| 6,700.00                                                    | 6,688.50                    | 6,765.86                    | 6,762.21                    | 15.36               | 11.78            | 101.45                      | 737.96                 | 1,638.05        | 1,831.57                     | 1,804.50                      | 27.07                           | 67.658               |         |                    |           |
| 6,800.00                                                    | 6,788.08                    | 6,863.73                    | 6,859.95                    | 15.61               | 11.95            | 101.73                      | 736.51                 | 1,633.06        | 1,828.08                     | 1,800.58                      | 27.49                           | 66.493               |         |                    |           |
| 6,900.00                                                    | 6,887.66                    | 6,963.85                    | 6,959.93                    | 15.86               | 12.12            | 102.01                      | 734.93                 | 1,628.12        | 1,824.76                     | 1,796.84                      | 27.92                           | 65.362               |         |                    |           |
| 7,000.00                                                    | 6,987.25                    | 7,061.80                    | 7,057.75                    | 16.12               | 12.30            | 102.31                      | 733.04                 | 1,623.30        | 1,821.41                     | 1,793.07                      | 28.34                           | 64.269               |         |                    |           |
| 7,100.00                                                    | 7,086.83                    | 7,165.13                    | 7,160.93                    | 16.37               | 12.48            | 102.63                      | 730.73                 | 1,618.38        | 1,818.20                     | 1,789.43                      | 28.77                           | 63.197               |         |                    |           |
| 7,200.00                                                    | 7,186.41                    | 7,273.64                    | 7,269.27                    | 16.63               | 12.67            | 102.97                      | 727.99                 | 1,612.80        | 1,814.59                     | 1,785.38                      | 29.21                           | 62.129               |         |                    |           |
| 7,300.00                                                    | 7,285.99                    | 7,384.62                    | 7,380.03                    | 16.88               | 12.87            | 103.33                      | 724.79                 | 1,606.56        | 1,810.49                     | 1,780.84                      | 29.65                           | 61.071               |         |                    |           |
| 7,400.00                                                    | 7,385.57                    | 7,489.40                    | 7,484.63                    | 17.14               | 13.02            | 103.62                      | 722.11                 | 1,601.81        | 1,806.41                     | 1,776.36                      | 30.05                           | 60.105               |         |                    |           |
| 7,500.00                                                    | 7,485.16                    | 7,549.57                    | 7,544.67                    | 17.39               | 13.16            | 103.90                      | 719.48                 | 1,598.21        | 1,803.42                     | 1,772.97                      | 30.46                           | 59.214               |         |                    |           |
| 7,600.00                                                    | 7,584.74                    | 7,630.96                    | 7,625.97                    | 17.65               | 13.30            | 104.19                      | 716.78                 | 1,595.46        | 1,801.56                     | 1,770.70                      | 30.86                           | 58.381               |         |                    |           |
| 7,700.00                                                    | 7,684.32                    | 7,715.19                    | 7,710.12                    | 17.90               | 13.45            | 104.51                      | 713.72                 | 1,593.44        | 1,800.66                     | 1,769.40                      | 31.26                           | 57.595               |         |                    |           |
| 7,756.84                                                    | 7,740.92                    | 7,764.26                    | 7,759.14                    | 18.05               | 13.54            | 104.70                      | 711.86                 | 1,592.59        | 1,800.53                     | 1,769.04                      | 31.50                           | 57.166               |         |                    |           |
| 7,800.00                                                    | 7,783.90                    | 7,801.72                    | 7,796.57                    | 18.16               | 13.61            | 104.84                      | 710.41                 | 1,592.09        | 1,800.61                     | 1,768.94                      | 31.67                           | 56.850               |         |                    |           |
| 7,900.00                                                    | 7,883.48                    | 7,900.00                    | 7,894.77                    | 18.41               | 13.78            | 105.23                      | 706.41                 | 1,590.99        | 1,801.02                     | 1,768.92                      | 32.10                           | 56.107               |         |                    |           |
| 8,000.00                                                    | 7,983.07                    | 7,988.18                    | 7,982.87                    | 18.67               | 13.94            | 105.59                      | 702.83                 | 1,590.30        | 1,801.84                     | 1,769.33                      | 32.51                           | 55.424               |         |                    |           |
| 8,100.00                                                    | 8,082.65                    | 8,074.90                    | 8,069.54                    | 18.93               | 14.09            | 105.92                      | 699.84                 | 1,590.08        | 1,803.39                     | 1,770.47                      | 32.92                           | 54.785               |         |                    |           |
| 8,200.00                                                    | 8,182.23                    | 8,159.04                    | 8,153.65                    | 19.19               | 14.24            | 106.23                      | 697.60                 | 1,590.38        | 1,805.76                     | 1,772.44                      | 33.32                           | 54.195               |         |                    |           |
| 8,300.00                                                    | 8,281.81                    | 8,251.32                    | 8,245.90                    | 19.44               | 14.40            | 106.56                      | 695.45                 | 1,591.37        | 1,808.95                     | 1,775.22                      | 33.73                           | 53.625               |         |                    |           |
| 8,400.00                                                    | 8,381.39                    | 8,349.56                    | 8,344.11                    | 19.70               | 14.57            | 106.90                      | 693.29                 | 1,592.46        | 1,812.28                     | 1,778.12                      | 34.16                           | 53.057               |         |                    |           |
| 8,492.99                                                    | 8,473.99                    | 8,436.42                    | 8,430.93                    | 19.94               | 14.73            | 107.22                      | 690.99                 | 1,593.65        | 1,815.61                     | 1,781.07                      | 34.54                           | 52.559               |         |                    |           |
| 8,500.00                                                    | 8,480.98                    | 8,442.78                    | 8,437.29                    | 19.96               | 14.74            | 98.51                       | 690.82                 | 1,593.75        | 1,815.83                     | 1,781.26                      | 34.57                           | 52.524               |         |                    |           |
| 8,525.00                                                    | 8,505.89                    | 8,465.49                    | 8,459.99                    | 20.01               | 14.78            | 62.96                       | 690.20                 | 1,594.13        | 1,815.80                     | 1,781.13                      | 34.66                           | 52.383               |         |                    |           |
| 8,550.00                                                    | 8,530.77                    | 8,488.19                    | 8,482.68                    | 20.06               | 14.82            | 36.58                       | 689.59                 | 1,594.53        | 1,814.51                     | 1,779.76                      | 34.76                           | 52.208               |         |                    |           |
| 8,575.00                                                    | 8,555.56                    | 8,510.01                    | 8,504.48                    | 20.11               | 14.86            | 22.29                       | 689.00                 | 1,594.95        | 1,811.98                     | 1,777.13                      | 34.84                           | 52.002               |         |                    |           |
| 8,600.00                                                    | 8,580.17                    | 8,530.83                    | 8,525.29                    | 20.15               | 14.89            | 14.29                       | 688.46                 | 1,595.39        | 1,808.21                     | 1,773.28                      | 34.93                           | 51.766               |         |                    |           |
| 8,625.00                                                    | 8,604.54                    | 8,551.49                    | 8,545.94                    | 20.19               | 14.93            | 9.34                        | 687.94                 | 1,595.86        | 1,803.23                     | 1,768.22                      | 35.01                           | 51.500               |         |                    |           |
| 8,650.00                                                    | 8,628.62                    | 8,571.94                    | 8,566.37                    | 20.23               | 14.96            | 5.99                        | 687.45                 | 1,596.37        | 1,797.05                     | 1,761.95                      | 35.10                           | 51.203               |         |                    |           |
| 8,675.00                                                    | 8,652.32                    | 8,592.13                    | 8,586.55                    | 20.27               | 15.00            | 3.56                        | 686.98                 | 1,596.91        | 1,789.67                     | 1,754.50                      | 35.18                           | 50.877               |         |                    |           |
| 8,700.00                                                    | 8,675.59                    | 8,614.17                    | 8,608.58                    | 20.30               | 15.04            | 1.69                        | 686.48                 | 1,597.54        | 1,781.12                     | 1,745.86                      | 35.26                           | 50.518               |         |                    |           |
| 8,725.00                                                    | 8,698.36                    | 8,637.18                    | 8,631.57                    | 20.34               | 15.08            | 0.17                        | 685.97                 | 1,598.19        | 1,771.37                     | 1,736.03                      | 35.34                           | 50.126               |         |                    |           |
| 8,750.00                                                    | 8,720.58                    | 8,659.66                    | 8,654.04                    | 20.36               | 15.12            | -1.11                       | 685.46                 | 1,598.83        | 1,760.45                     | 1,725.03                      | 35.42                           | 49.708               |         |                    |           |
| 8,775.00                                                    | 8,742.17                    | 8,681.55                    | 8,675.91                    | 20.39               | 15.15            | -2.25                       | 684.97                 | 1,599.46        | 1,748.39                     | 1,712.90                      | 35.49                           | 49.284               |         |                    |           |
| 8,800.00                                                    | 8,763.08                    | 8,702.80                    | 8,697.15                    | 20.41               | 15.19            | -3.29                       | 684.49                 | 1,600.06        | 1,735.22                     | 1,699.66                      | 35.56                           | 48.795               |         |                    |           |

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# LEAM Drilling Systems LLC

## Anticollision Report

**Company:** Devon Energy  
**Project:** Eddy County, NM (NAD-83)  
**Reference Site:** Emerald PWU 20-21  
**Site Error:** 0.00 usft  
**Reference Well:** 12H  
**Well Error:** 0.00 usft  
**Reference Wellbore:** OH  
**Reference Design:** Plan #1

**Local Co-ordinate Reference:** Well 12H  
**TVD Reference:** 3313.8' GE + 23.5' KB @ 3337.30usft  
**MD Reference:** 3313.8' GE + 23.5' KB @ 3337.30usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Output errors are at** 2.00 sigma  
**Database:** EDM 5000.1 Multi User Db  
**Offset TVD Reference:** Offset Datum

| Offset Design Emerald PWU 20-21 - PWU #5 (offset) - OH - OH |                             |                             |                             |                     |                  |                            |                                           |                 |                                 |                      |         |              | Offset Site Error: | 0.00 usft |
|-------------------------------------------------------------|-----------------------------|-----------------------------|-----------------------------|---------------------|------------------|----------------------------|-------------------------------------------|-----------------|---------------------------------|----------------------|---------|--------------|--------------------|-----------|
| Survey Program: 100-ISCWSA-GYRO-3                           |                             |                             |                             |                     |                  |                            |                                           |                 |                                 |                      |         |              | Offset Well Error: | 0.00 usft |
| Reference                                                   |                             | Offset                      |                             | Semi Major Axis     |                  | Highside<br>Tooface<br>(") | Distance                                  |                 | Minimum<br>Separation<br>(usft) | Separation<br>Factor | Warning |              |                    |           |
| Measured<br>Depth<br>(usft)                                 | Vertical<br>Depth<br>(usft) | Measured<br>Depth<br>(usft) | Vertical<br>Depth<br>(usft) | Reference<br>(usft) | Offset<br>(usft) |                            | Offset Wellbore Centre<br>+N/-S<br>(usft) | +E/-W<br>(usft) |                                 |                      |         |              |                    |           |
| 8,825.00                                                    | 8,783.25                    | 8,723.34                    | 8,717.68                    | 20.43               | 15.23            | -4.29                      | 684.03                                    | 1,600.65        | 1,720.98                        | 1,685.35             | 35.63   | 48.304       |                    |           |
| 8,850.00                                                    | 8,802.63                    | 8,743.12                    | 8,737.44                    | 20.45               | 15.26            | -5.27                      | 683.59                                    | 1,601.21        | 1,705.70                        | 1,670.01             | 35.69   | 47.790       |                    |           |
| 8,875.00                                                    | 8,821.17                    | 8,762.08                    | 8,756.40                    | 20.47               | 15.30            | -6.27                      | 683.16                                    | 1,601.76        | 1,689.44                        | 1,653.68             | 35.75   | 47.255       |                    |           |
| 8,900.00                                                    | 8,838.80                    | 8,780.18                    | 8,774.48                    | 20.49               | 15.33            | -7.32                      | 682.76                                    | 1,602.27        | 1,672.22                        | 1,638.42             | 35.81   | 46.702       |                    |           |
| 8,925.00                                                    | 8,855.50                    | 8,797.36                    | 8,791.65                    | 20.50               | 15.36            | -8.45                      | 682.37                                    | 1,602.76        | 1,654.11                        | 1,618.26             | 35.86   | 46.131       |                    |           |
| 8,950.00                                                    | 8,871.20                    | 8,813.58                    | 8,807.86                    | 20.52               | 15.38            | -9.70                      | 682.01                                    | 1,603.22        | 1,635.15                        | 1,599.25             | 35.90   | 45.543       |                    |           |
| 8,975.00                                                    | 8,885.86                    | 8,828.79                    | 8,823.05                    | 20.53               | 15.41            | -11.10                     | 681.66                                    | 1,603.66        | 1,615.40                        | 1,579.45             | 35.95   | 44.940       |                    |           |
| 9,000.00                                                    | 8,899.46                    | 8,842.94                    | 8,837.20                    | 20.55               | 15.44            | -12.70                     | 681.35                                    | 1,604.06        | 1,594.90                        | 1,558.92             | 35.98   | 44.324       |                    |           |
| 9,025.00                                                    | 8,911.94                    | 8,856.01                    | 8,850.26                    | 20.59               | 15.46            | -14.58                     | 681.05                                    | 1,604.43        | 1,573.73                        | 1,537.71             | 36.02   | 43.696       |                    |           |
| 9,050.00                                                    | 8,923.28                    | 8,867.96                    | 8,862.20                    | 20.68               | 15.48            | -16.83                     | 680.79                                    | 1,604.78        | 1,551.92                        | 1,515.88             | 36.04   | 43.057       |                    |           |
| 9,075.00                                                    | 8,933.44                    | 8,878.74                    | 8,872.98                    | 20.82               | 15.50            | -19.55                     | 680.54                                    | 1,605.08        | 1,529.56                        | 1,493.49             | 36.07   | 42.409       |                    |           |
| 9,100.00                                                    | 8,942.39                    | 8,888.34                    | 8,882.57                    | 20.99               | 15.52            | -22.93                     | 680.33                                    | 1,605.36        | 1,506.69                        | 1,470.61             | 36.09   | 41.753       |                    |           |
| 9,125.00                                                    | 8,950.12                    | 8,896.73                    | 8,890.95                    | 21.18               | 15.53            | -27.21                     | 680.14                                    | 1,605.60        | 1,483.39                        | 1,447.29             | 36.10   | 41.091       |                    |           |
| 9,150.00                                                    | 8,956.59                    | 8,903.87                    | 8,898.09                    | 21.38               | 15.54            | -32.71                     | 679.98                                    | 1,605.80        | 1,459.72                        | 1,423.61             | 36.11   | 40.425       |                    |           |
| 9,175.00                                                    | 8,961.80                    | 8,909.77                    | 8,903.98                    | 21.60               | 15.55            | -39.89                     | 679.85                                    | 1,605.97        | 1,435.74                        | 1,399.63             | 36.12   | 39.754       |                    |           |
| 9,200.00                                                    | 8,965.73                    | 8,914.39                    | 8,908.60                    | 21.84               | 15.56            | -49.25                     | 679.74                                    | 1,606.10        | 1,411.53                        | 1,375.42             | 36.12   | 39.082       |                    |           |
| 9,225.00                                                    | 8,968.36                    | 8,917.72                    | 8,911.93                    | 22.09               | 15.57            | -61.17                     | 679.67                                    | 1,606.19        | 1,387.16                        | 1,351.04             | 36.11   | 38.410       |                    |           |
| 9,250.00                                                    | 8,969.69                    | 8,919.77                    | 8,913.97                    | 22.36               | 15.57            | -75.31                     | 679.62                                    | 1,606.25        | 1,362.88                        | 1,326.57             | 36.11   | 37.738       |                    |           |
| 9,258.87                                                    | 8,969.85                    | 8,920.18                    | 8,914.38                    | 22.46               | 15.57            | -80.62                     | 679.61                                    | 1,606.26        | 1,353.99                        | 1,317.88             | 36.11   | 37.500       |                    |           |
| 9,300.00                                                    | 8,970.21                    | 8,921.71                    | 8,915.92                    | 22.93               | 15.57            | -80.95                     | 679.58                                    | 1,606.31        | 1,313.69                        | 1,277.59             | 36.09   | 36.397       |                    |           |
| 9,400.00                                                    | 8,971.08                    | 8,925.43                    | 8,919.64                    | 24.24               | 15.58            | -81.73                     | 679.50                                    | 1,606.41        | 1,215.94                        | 1,179.86             | 36.08   | 33.704       |                    |           |
| 9,500.00                                                    | 8,971.96                    | 8,929.16                    | 8,923.36                    | 25.75               | 15.59            | -82.53                     | 679.41                                    | 1,606.52        | 1,118.58                        | 1,082.49             | 36.09   | 30.994       |                    |           |
| 9,600.00                                                    | 8,972.83                    | 8,932.88                    | 8,927.08                    | 27.43               | 15.59            | -83.32                     | 679.33                                    | 1,606.63        | 1,021.71                        | 985.56               | 36.15   | 28.260       |                    |           |
| 9,700.00                                                    | 8,973.70                    | 8,936.61                    | 8,930.80                    | 29.25               | 15.60            | -84.12                     | 679.24                                    | 1,606.73        | 925.50                          | 889.20               | 36.30   | 25.496       |                    |           |
| 9,800.00                                                    | 8,974.58                    | 8,940.33                    | 8,934.52                    | 31.19               | 15.61            | -84.92                     | 679.16                                    | 1,606.84        | 830.17                          | 793.59               | 36.58   | 22.696       |                    |           |
| 9,900.00                                                    | 8,975.45                    | 8,944.05                    | 8,938.25                    | 33.22               | 15.61            | -85.72                     | 679.08                                    | 1,606.95        | 736.05                          | 698.98               | 37.07   | 19.853       |                    |           |
| 10,000.00                                                   | 8,976.32                    | 8,947.78                    | 8,941.97                    | 35.33               | 15.62            | -86.53                     | 678.99                                    | 1,607.05        | 643.70                          | 605.76               | 37.94   | 16.968       |                    |           |
| 10,100.00                                                   | 8,977.19                    | 8,951.50                    | 8,945.69                    | 37.51               | 15.63            | -87.33                     | 678.91                                    | 1,607.16        | 553.97                          | 514.57               | 39.41   | 14.058       |                    |           |
| 10,200.00                                                   | 8,978.07                    | 8,955.23                    | 8,949.41                    | 39.74               | 15.63            | -88.14                     | 678.83                                    | 1,607.26        | 468.40                          | 426.53               | 41.88   | 11.185       |                    |           |
| 10,300.00                                                   | 8,978.94                    | 8,958.95                    | 8,953.13                    | 42.02               | 15.64            | -88.95                     | 678.74                                    | 1,607.37        | 389.73                          | 343.83               | 45.90   | 8.491        |                    |           |
| 10,400.00                                                   | 8,979.81                    | 8,962.68                    | 8,956.85                    | 44.34               | 15.64            | -89.76                     | 678.66                                    | 1,607.48        | 323.03                          | 271.08               | 51.94   | 6.219        |                    |           |
| 10,500.00                                                   | 8,980.68                    | 8,966.40                    | 8,960.58                    | 46.69               | 15.65            | -90.57                     | 678.58                                    | 1,607.58        | 277.09                          | 217.78               | 59.31   | 4.672        |                    |           |
| 10,588.04                                                   | 8,981.45                    | 8,969.68                    | 8,963.85                    | 48.79               | 15.66            | -91.29                     | 678.50                                    | 1,607.68        | 262.75                          | 198.52               | 64.22   | 4.091 CC     |                    |           |
| 10,600.00                                                   | 8,981.56                    | 8,970.12                    | 8,964.30                    | 49.07               | 15.66            | -91.38                     | 678.49                                    | 1,607.69        | 263.02                          | 198.42               | 64.60   | 4.072 ES, SF |                    |           |
| 10,700.00                                                   | 8,982.43                    | 8,973.85                    | 8,968.02                    | 51.48               | 15.66            | -92.20                     | 678.41                                    | 1,607.80        | 285.58                          | 220.92               | 64.66   | 4.417        |                    |           |
| 10,800.00                                                   | 8,983.30                    | 8,977.57                    | 8,971.74                    | 53.90               | 15.67            | -93.01                     | 678.32                                    | 1,607.90        | 337.49                          | 276.26               | 61.24   | 5.511        |                    |           |
| 10,900.00                                                   | 8,984.17                    | 8,981.30                    | 8,975.46                    | 56.35               | 15.68            | -93.82                     | 678.24                                    | 1,608.01        | 407.70                          | 350.40               | 57.30   | 7.115        |                    |           |
| 11,000.00                                                   | 8,985.05                    | 8,985.02                    | 8,979.19                    | 58.81               | 15.68            | -94.63                     | 678.16                                    | 1,608.11        | 488.38                          | 434.38               | 54.00   | 9.043        |                    |           |
| 11,100.00                                                   | 8,985.92                    | 8,988.75                    | 8,982.91                    | 61.29               | 15.69            | -95.43                     | 678.07                                    | 1,608.22        | 575.13                          | 523.67               | 51.47   | 11.175       |                    |           |
| 11,200.00                                                   | 8,986.79                    | 8,992.47                    | 8,986.63                    | 63.78               | 15.70            | -96.24                     | 677.99                                    | 1,608.33        | 665.59                          | 616.05               | 49.54   | 13.434       |                    |           |
| 11,300.00                                                   | 8,987.66                    | 8,996.19                    | 8,990.35                    | 66.28               | 15.70            | -97.05                     | 677.91                                    | 1,608.43        | 758.44                          | 710.36               | 48.07   | 15.777       |                    |           |
| 11,400.00                                                   | 8,988.54                    | 8,999.92                    | 8,994.07                    | 68.79               | 15.71            | -97.85                     | 677.82                                    | 1,608.54        | 852.88                          | 805.95               | 46.93   | 18.172       |                    |           |
| 11,500.00                                                   | 8,989.41                    | 9,003.64                    | 8,997.79                    | 71.31               | 15.72            | -98.65                     | 677.74                                    | 1,608.65        | 948.45                          | 902.42               | 46.03   | 20.603       |                    |           |
| 11,600.00                                                   | 8,990.28                    | 9,007.37                    | 9,001.52                    | 73.84               | 15.72            | -99.44                     | 677.66                                    | 1,608.75        | 1,044.84                        | 999.52               | 45.31   | 23.058       |                    |           |
| 11,700.00                                                   | 8,991.16                    | 9,011.09                    | 9,005.24                    | 76.38               | 15.73            | -100.24                    | 677.57                                    | 1,608.86        | 1,141.83                        | 1,097.10             | 44.73   | 25.527       |                    |           |
| 11,800.00                                                   | 8,992.03                    | 9,014.81                    | 9,008.96                    | 78.92               | 15.74            | -101.03                    | 677.49                                    | 1,608.96        | 1,239.29                        | 1,195.04             | 44.25   | 28.005       |                    |           |
| 11,900.00                                                   | 8,992.90                    | 9,018.54                    | 9,012.68                    | 81.47               | 15.74            | -101.81                    | 677.41                                    | 1,609.07        | 1,337.12                        | 1,293.26             | 43.86   | 30.488       |                    |           |
| 12,000.00                                                   | 8,993.77                    | 9,022.26                    | 9,016.40                    | 84.02               | 15.75            | -102.60                    | 677.32                                    | 1,609.18        | 1,435.24                        | 1,391.71             | 43.53   | 32.974       |                    |           |
| 12,100.00                                                   | 8,994.65                    | 9,025.99                    | 9,020.12                    | 86.58               | 15.76            | -103.37                    | 677.24                                    | 1,609.28        | 1,533.59                        | 1,490.34             | 43.25   | 35.459       |                    |           |
| 12,200.00                                                   | 8,995.52                    | 9,029.71                    | 9,023.85                    | 89.15               | 15.76            | -104.15                    | 677.15                                    | 1,609.39        | 1,632.13                        | 1,589.12             | 43.02   | 37.943       |                    |           |
| 12,300.00                                                   | 8,996.39                    | 9,033.44                    | 9,027.57                    | 91.72               | 15.77            | -104.92                    | 677.07                                    | 1,609.50        | 1,730.83                        | 1,688.02             | 42.82   | 40.424       |                    |           |
| 12,400.00                                                   | 8,997.26                    | 9,037.16                    | 9,031.29                    | 94.29               | 15.78            | -105.68                    | 676.99                                    | 1,609.60        | 1,829.67                        | 1,787.02             | 42.65   | 42.900       |                    |           |

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# LEAM Drilling Systems LLC

## Anticollision Report

**Company:** Devon Energy  
**Project:** Eddy County, NM (NAD-83)  
**Reference Site:** Emerald PWU 20-21  
**Site Error:** 0.00 usft  
**Reference Well:** 12H  
**Well Error:** 0.00 usft  
**Reference Wellbore:** OH  
**Reference Design:** Plan #1

**Local Co-ordinate Reference:** Well 12H  
**TVD Reference:** 3313.8' GE + 23.5' KB @ 3337.30usft  
**MD Reference:** 3313.8' GE + 23.5' KB @ 3337.30usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Output errors are at** 2.00 sigma  
**Database:** EDM 5000.1 Multi User Db  
**Offset TVD Reference:** Offset Datum

| Offset Design Emerald PWU 20-21 - PWU #5 (offset) - OH - OH |                             |                             |                             |                 |        |                             |                        |                |                              |                               |                                 | Offset Site Error:   | 0.00 usft |
|-------------------------------------------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------|--------|-----------------------------|------------------------|----------------|------------------------------|-------------------------------|---------------------------------|----------------------|-----------|
| Survey Program: 100-ISCWSA-GYRO-3                           |                             |                             |                             |                 |        |                             |                        |                |                              |                               |                                 | Offset Well Error:   | 0.00 usft |
| Measured<br>Depth<br>(usft)                                 | Vertical<br>Depth<br>(usft) | Measured<br>Depth<br>(usft) | Vertical<br>Depth<br>(usft) | Semi Major Axis |        | Highside<br>Toolface<br>(°) | Offset Wellbore Centre |                | Distance                     |                               | Minimum<br>Separation<br>(usft) | Separation<br>Factor | Warning   |
| Reference                                                   | Offset                      | Reference                   | Offset                      | Reference       | Offset |                             | +N-S<br>(usft)         | +E-W<br>(usft) | Between<br>Centres<br>(usft) | Between<br>Ellipses<br>(usft) |                                 |                      |           |
| 12,500.00                                                   | 8,998.14                    | 9,040.88                    | 9,035.01                    | 96.86           | 15.78  | -106.44                     | 676.90                 | 1,609.71       | 1,928.62                     | 1,886.11                      | 42.51                           | 45.372               |           |
| 12,600.00                                                   | 8,999.01                    | 9,044.61                    | 9,038.73                    | 99.44           | 15.79  | -107.19                     | 676.82                 | 1,609.81       | 2,027.66                     | 1,985.28                      | 42.39                           | 47.838               |           |
| 12,700.00                                                   | 8,999.88                    | 9,048.33                    | 9,042.46                    | 102.02          | 15.79  | -107.94                     | 676.74                 | 1,609.92       | 2,126.79                     | 2,084.51                      | 42.28                           | 50.298               |           |
| 12,800.00                                                   | 9,000.75                    | 9,052.06                    | 9,046.18                    | 104.61          | 15.80  | -108.68                     | 676.65                 | 1,610.03       | 2,225.99                     | 2,183.79                      | 42.20                           | 52.751               |           |
| 12,900.00                                                   | 9,001.63                    | 9,055.78                    | 9,049.90                    | 107.19          | 15.81  | -109.42                     | 676.57                 | 1,610.13       | 2,325.25                     | 2,283.12                      | 42.13                           | 55.197               |           |
| 13,000.00                                                   | 9,002.50                    | 9,059.51                    | 9,053.62                    | 109.78          | 15.81  | -110.15                     | 676.49                 | 1,610.24       | 2,424.57                     | 2,382.50                      | 42.07                           | 57.636               |           |
| 13,100.00                                                   | 9,003.37                    | 9,063.23                    | 9,057.34                    | 112.37          | 15.82  | -110.87                     | 676.40                 | 1,610.35       | 2,523.93                     | 2,481.91                      | 42.02                           | 60.066               |           |
| 13,200.00                                                   | 9,004.25                    | 9,066.95                    | 9,061.06                    | 114.97          | 15.83  | -111.59                     | 676.32                 | 1,610.45       | 2,623.34                     | 2,581.36                      | 41.98                           | 62.488               |           |
| 13,300.00                                                   | 9,005.12                    | 9,070.68                    | 9,064.79                    | 117.56          | 15.83  | -112.30                     | 676.24                 | 1,610.56       | 2,722.79                     | 2,680.84                      | 41.95                           | 64.902               |           |
| 13,400.00                                                   | 9,005.99                    | 9,074.40                    | 9,068.51                    | 120.16          | 15.84  | -113.00                     | 676.15                 | 1,610.66       | 2,822.27                     | 2,780.34                      | 41.93                           | 67.306               |           |
| 13,500.00                                                   | 9,006.86                    | 9,078.13                    | 9,072.23                    | 122.76          | 15.85  | -113.70                     | 676.07                 | 1,610.77       | 2,921.78                     | 2,879.86                      | 41.92                           | 69.702               |           |
| 13,600.00                                                   | 9,007.74                    | 9,081.85                    | 9,075.95                    | 125.36          | 15.85  | -114.39                     | 675.98                 | 1,610.88       | 3,021.32                     | 2,979.41                      | 41.91                           | 72.088               |           |
| 13,700.00                                                   | 9,008.61                    | 9,085.58                    | 9,079.67                    | 127.96          | 15.86  | -115.07                     | 675.90                 | 1,610.98       | 3,120.88                     | 3,078.97                      | 41.91                           | 74.465               |           |
| 13,800.00                                                   | 9,009.48                    | 9,089.30                    | 9,083.40                    | 130.56          | 15.87  | -115.75                     | 675.82                 | 1,611.09       | 3,220.47                     | 3,178.55                      | 41.92                           | 76.832               |           |
| 13,900.00                                                   | 9,010.35                    | 9,093.02                    | 9,087.12                    | 133.17          | 15.87  | -116.42                     | 675.73                 | 1,611.19       | 3,320.08                     | 3,278.15                      | 41.93                           | 79.190               |           |
| 14,000.00                                                   | 9,011.23                    | 9,096.75                    | 9,090.84                    | 135.78          | 15.88  | -117.08                     | 675.65                 | 1,611.30       | 3,419.70                     | 3,377.78                      | 41.94                           | 81.537               |           |
| 14,100.00                                                   | 9,012.10                    | 9,100.47                    | 9,094.56                    | 138.38          | 15.89  | -117.73                     | 675.57                 | 1,611.41       | 3,519.35                     | 3,477.39                      | 41.96                           | 83.874               |           |
| 14,200.00                                                   | 9,012.97                    | 9,104.20                    | 9,098.28                    | 140.99          | 15.89  | -118.38                     | 675.48                 | 1,611.51       | 3,619.01                     | 3,577.02                      | 41.98                           | 86.200               |           |
| 14,300.00                                                   | 9,013.84                    | 9,107.92                    | 9,102.00                    | 143.60          | 15.90  | -119.02                     | 675.40                 | 1,611.62       | 3,718.68                     | 3,676.67                      | 42.01                           | 88.516               |           |
| 14,400.00                                                   | 9,014.72                    | 9,111.64                    | 9,105.73                    | 146.21          | 15.91  | -119.65                     | 675.32                 | 1,611.73       | 3,818.37                     | 3,776.33                      | 42.04                           | 90.822               |           |
| 14,500.00                                                   | 9,015.59                    | 9,115.37                    | 9,109.45                    | 148.82          | 15.91  | -120.28                     | 675.23                 | 1,611.83       | 3,918.07                     | 3,875.99                      | 42.08                           | 93.116               |           |
| 14,600.00                                                   | 9,016.46                    | 9,119.09                    | 9,113.17                    | 151.43          | 15.92  | -120.90                     | 675.15                 | 1,611.94       | 4,017.78                     | 3,975.66                      | 42.12                           | 95.400               |           |
| 14,700.00                                                   | 9,017.34                    | 9,122.82                    | 9,116.89                    | 154.05          | 15.92  | -121.50                     | 675.06                 | 1,612.04       | 4,117.50                     | 4,075.35                      | 42.16                           | 97.672               |           |
| 14,800.00                                                   | 9,018.21                    | 9,126.54                    | 9,120.61                    | 156.66          | 15.93  | -122.11                     | 674.98                 | 1,612.15       | 4,217.23                     | 4,175.03                      | 42.20                           | 99.933               |           |
| 14,900.00                                                   | 9,019.08                    | 9,130.27                    | 9,124.33                    | 159.28          | 15.94  | -122.70                     | 674.90                 | 1,612.26       | 4,316.97                     | 4,274.73                      | 42.25                           | 102.183              |           |
| 15,000.00                                                   | 9,019.95                    | 9,133.99                    | 9,128.06                    | 161.89          | 15.94  | -123.29                     | 674.81                 | 1,612.36       | 4,416.72                     | 4,374.43                      | 42.30                           | 104.422              |           |
| 15,100.00                                                   | 9,020.83                    | 9,137.71                    | 9,131.78                    | 164.51          | 15.95  | -123.87                     | 674.73                 | 1,612.47       | 4,516.48                     | 4,474.13                      | 42.35                           | 106.649              |           |
| 15,200.00                                                   | 9,021.70                    | 9,141.44                    | 9,135.50                    | 167.12          | 15.96  | -124.44                     | 674.65                 | 1,612.58       | 4,616.25                     | 4,573.84                      | 42.40                           | 108.864              |           |
| 15,300.00                                                   | 9,022.57                    | 9,145.16                    | 9,139.22                    | 169.74          | 15.96  | -125.01                     | 674.56                 | 1,612.68       | 4,716.02                     | 4,673.56                      | 42.46                           | 111.068              |           |
| 15,400.00                                                   | 9,023.44                    | 9,148.89                    | 9,142.94                    | 172.36          | 15.97  | -125.56                     | 674.48                 | 1,612.79       | 4,815.80                     | 4,773.28                      | 42.52                           | 113.260              |           |
| 15,500.00                                                   | 9,024.32                    | 9,152.61                    | 9,146.67                    | 174.98          | 15.98  | -126.12                     | 674.40                 | 1,612.89       | 4,915.58                     | 4,873.00                      | 42.58                           | 115.441              |           |
| 15,600.00                                                   | 9,025.19                    | 9,156.34                    | 9,150.39                    | 177.60          | 15.98  | -126.66                     | 674.31                 | 1,613.00       | 5,015.37                     | 4,972.73                      | 42.64                           | 117.609              |           |
| 15,700.00                                                   | 9,026.06                    | 9,160.06                    | 9,154.11                    | 180.22          | 15.99  | -127.19                     | 674.23                 | 1,613.11       | 5,115.17                     | 5,072.46                      | 42.71                           | 119.765              |           |
| 15,800.00                                                   | 9,026.93                    | 9,163.78                    | 9,157.83                    | 182.84          | 16.00  | -127.72                     | 674.15                 | 1,613.21       | 5,214.97                     | 5,172.19                      | 42.78                           | 121.910              |           |
| 15,900.00                                                   | 9,027.81                    | 9,167.51                    | 9,161.55                    | 185.46          | 16.00  | -128.24                     | 674.06                 | 1,613.32       | 5,314.78                     | 5,271.93                      | 42.85                           | 124.042              |           |
| 16,000.00                                                   | 9,028.68                    | 9,171.23                    | 9,165.27                    | 188.08          | 16.01  | -128.76                     | 673.98                 | 1,613.43       | 5,414.59                     | 5,371.67                      | 42.92                           | 126.162              |           |
| 16,100.00                                                   | 9,029.55                    | 9,174.96                    | 9,169.00                    | 190.70          | 16.02  | -129.27                     | 673.89                 | 1,613.53       | 5,514.40                     | 5,471.41                      | 42.99                           | 128.270              |           |
| 16,200.00                                                   | 9,030.42                    | 9,178.68                    | 9,172.72                    | 193.32          | 16.02  | -129.77                     | 673.81                 | 1,613.64       | 5,614.22                     | 5,571.16                      | 43.07                           | 130.368              |           |
| 16,300.00                                                   | 9,031.30                    | 9,182.41                    | 9,176.44                    | 195.94          | 16.03  | -130.26                     | 673.73                 | 1,613.74       | 5,714.04                     | 5,670.90                      | 43.14                           | 132.449              |           |
| 16,400.00                                                   | 9,032.17                    | 9,186.13                    | 9,180.16                    | 198.57          | 16.04  | -130.75                     | 673.64                 | 1,613.85       | 5,813.87                     | 5,770.65                      | 43.22                           | 134.521              |           |
| 16,500.00                                                   | 9,033.04                    | 9,189.85                    | 9,183.88                    | 201.19          | 16.04  | -131.23                     | 673.56                 | 1,613.96       | 5,913.70                     | 5,870.40                      | 43.30                           | 136.579              |           |
| 16,600.00                                                   | 9,033.92                    | 9,193.58                    | 9,187.60                    | 203.81          | 16.05  | -131.70                     | 673.48                 | 1,614.06       | 6,013.53                     | 5,970.15                      | 43.38                           | 138.626              |           |
| 16,700.00                                                   | 9,034.79                    | 9,197.30                    | 9,191.33                    | 206.44          | 16.05  | -132.17                     | 673.39                 | 1,614.17       | 6,113.37                     | 6,069.91                      | 43.46                           | 140.660              |           |
| 16,800.00                                                   | 9,035.66                    | 9,200.00                    | 9,194.02                    | 209.06          | 16.06  | -132.50                     | 673.33                 | 1,614.25       | 6,213.21                     | 6,169.67                      | 43.54                           | 142.687              |           |
| 16,900.00                                                   | 9,036.53                    | 9,200.00                    | 9,194.02                    | 211.69          | 16.06  | -132.50                     | 673.33                 | 1,614.25       | 6,313.06                     | 6,269.43                      | 43.62                           | 144.713              |           |
| 17,000.00                                                   | 9,037.41                    | 9,200.00                    | 9,194.02                    | 214.31          | 16.06  | -132.50                     | 673.33                 | 1,614.25       | 6,412.90                     | 6,369.20                      | 43.71                           | 146.728              |           |
| 17,100.00                                                   | 9,038.28                    | 9,200.00                    | 9,194.02                    | 216.94          | 16.06  | -132.50                     | 673.33                 | 1,614.25       | 6,512.76                     | 6,468.97                      | 43.79                           | 148.731              |           |
| 17,200.00                                                   | 9,039.15                    | 9,200.00                    | 9,194.02                    | 219.56          | 16.06  | -132.50                     | 673.33                 | 1,614.25       | 6,612.62                     | 6,568.74                      | 43.87                           | 150.723              |           |
| 17,300.00                                                   | 9,040.02                    | 9,200.00                    | 9,194.02                    | 222.19          | 16.06  | -132.50                     | 673.33                 | 1,614.25       | 6,712.48                     | 6,668.52                      | 43.96                           | 152.702              |           |
| 17,400.00                                                   | 9,040.90                    | 9,200.00                    | 9,194.02                    | 224.81          | 16.06  | -132.50                     | 673.33                 | 1,614.25       | 6,812.35                     | 6,768.30                      | 44.04                           | 154.670              |           |
| 17,500.00                                                   | 9,041.77                    | 9,200.00                    | 9,194.02                    | 227.44          | 16.06  | -132.50                     | 673.33                 | 1,614.25       | 6,912.22                     | 6,868.08                      | 44.13                           | 156.626              |           |
| 17,600.00                                                   | 9,042.64                    | 9,200.00                    | 9,194.02                    | 230.07          | 16.06  | -132.50                     | 673.33                 | 1,614.25       | 7,012.09                     | 6,967.87                      | 44.22                           | 158.569              |           |

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# LEAM Drilling Systems LLC

## Anticollision Report

**Company:** Devon Energy  
**Project:** Eddy County, NM (NAD-83)  
**Reference Site:** Emerald PWU 20-21  
**Site Error:** 0.00 usft  
**Reference Well:** 12H  
**Well Error:** 0.00 usft  
**Reference Wellbore:** OH  
**Reference Design:** Plan #1

**Local Co-ordinate Reference:** Well 12H  
**TVD Reference:** 3313.8' GE + 23.5' KB @ 3337.30usft  
**MD Reference:** 3313.8' GE + 23.5' KB @ 3337.30usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Output errors are at** 2.00 sigma  
**Database:** EDM 5000.1 Multi User Db  
**Offset TVD Reference:** Offset Datum

| Offset Design Emerald PWU 20-21 - PWU #5 (offset) - OH - OH |                             |                             |                             |                     |                  |                             |                                           |                 |                                 |                      |         | Offset Site Error: | 0.00 usft |
|-------------------------------------------------------------|-----------------------------|-----------------------------|-----------------------------|---------------------|------------------|-----------------------------|-------------------------------------------|-----------------|---------------------------------|----------------------|---------|--------------------|-----------|
| Survey Program: 100-ISCWSA-GYRO-3                           |                             |                             |                             |                     |                  |                             |                                           |                 |                                 |                      |         | Offset Well Error: | 0.00 usft |
| Reference                                                   |                             | Offset                      |                             | Semi Major Axis     |                  | Highside<br>Toolface<br>(°) | Distance                                  |                 | Minimum<br>Separation<br>(usft) | Separation<br>Factor | Warning |                    |           |
| Measured<br>Depth<br>(usft)                                 | Vertical<br>Depth<br>(usft) | Measured<br>Depth<br>(usft) | Vertical<br>Depth<br>(usft) | Reference<br>(usft) | Offset<br>(usft) |                             | Offset Wellbore Centre<br>+N/-S<br>(usft) | +E/-W<br>(usft) |                                 |                      |         |                    |           |
| 17,700.00                                                   | 9,043.51                    | 9,200.00                    | 9,194.02                    | 232.69              | 16.06            | -132.50                     | 673.33                                    | 1,614.25        | 7,111.97                        | 7,067.66             | 44.31   | 160.502            |           |
| 17,800.00                                                   | 9,044.39                    | 9,200.00                    | 9,194.02                    | 235.32              | 16.06            | -132.50                     | 673.33                                    | 1,614.25        | 7,211.85                        | 7,167.45             | 44.40   | 162.422            |           |
| 17,900.00                                                   | 9,045.26                    | 9,200.00                    | 9,194.02                    | 237.95              | 16.06            | -132.50                     | 673.33                                    | 1,614.25        | 7,311.73                        | 7,267.24             | 44.49   | 164.330            |           |
| 18,000.00                                                   | 9,046.13                    | 9,200.00                    | 9,194.02                    | 240.57              | 16.06            | -132.50                     | 673.33                                    | 1,614.25        | 7,411.62                        | 7,367.03             | 44.59   | 166.226            |           |
| 18,100.00                                                   | 9,047.01                    | 9,200.00                    | 9,194.02                    | 243.20              | 16.06            | -132.50                     | 673.33                                    | 1,614.25        | 7,511.51                        | 7,466.83             | 44.68   | 168.111            |           |
| 18,200.00                                                   | 9,047.88                    | 9,200.00                    | 9,194.02                    | 245.83              | 16.06            | -132.50                     | 673.33                                    | 1,614.25        | 7,611.40                        | 7,566.63             | 44.78   | 169.984            |           |
| 18,300.00                                                   | 9,048.75                    | 9,200.00                    | 9,194.02                    | 248.46              | 16.06            | -132.50                     | 673.33                                    | 1,614.25        | 7,711.30                        | 7,666.43             | 44.87   | 171.845            |           |
| 18,400.00                                                   | 9,049.62                    | 9,200.00                    | 9,194.02                    | 251.09              | 16.06            | -132.50                     | 673.33                                    | 1,614.25        | 7,811.20                        | 7,766.23             | 44.97   | 173.694            |           |
| 18,500.00                                                   | 9,050.50                    | 9,200.00                    | 9,194.02                    | 253.71              | 16.06            | -132.50                     | 673.33                                    | 1,614.25        | 7,911.10                        | 7,866.03             | 45.07   | 175.532            |           |
| 18,600.00                                                   | 9,051.37                    | 9,200.00                    | 9,194.02                    | 256.34              | 16.06            | -132.50                     | 673.33                                    | 1,614.25        | 8,011.00                        | 7,965.83             | 45.17   | 177.357            |           |
| 18,700.00                                                   | 9,052.24                    | 9,200.00                    | 9,194.02                    | 258.97              | 16.06            | -132.50                     | 673.33                                    | 1,614.25        | 8,110.91                        | 8,065.64             | 45.27   | 179.171            |           |
| 18,800.00                                                   | 9,053.11                    | 9,200.00                    | 9,194.02                    | 261.60              | 16.06            | -132.50                     | 673.33                                    | 1,614.25        | 8,210.82                        | 8,165.45             | 45.37   | 180.973            |           |
| 18,900.00                                                   | 9,053.99                    | 9,200.00                    | 9,194.02                    | 264.23              | 16.06            | -132.50                     | 673.33                                    | 1,614.25        | 8,310.73                        | 8,265.26             | 45.47   | 182.764            |           |
| 18,958.87                                                   | 9,054.50                    | 9,200.00                    | 9,194.02                    | 265.78              | 16.06            | -132.50                     | 673.33                                    | 1,614.25        | 8,369.55                        | 8,324.01             | 45.53   | 183.813            |           |

# LEAM Drilling Systems LLC

## Anticollision Report

**Company:** Devon Energy  
**Project:** Eddy County, NM (NAD-83)  
**Reference Site:** Emerald PWU 20-21  
**Site Error:** 0.00 usft  
**Reference Well:** 12H  
**Well Error:** 0.00 usft  
**Reference Wellbore:** OH  
**Reference Design:** Plan #1

**Local Co-ordinate Reference:** Well 12H  
**TVD Reference:** 3313.8' GE + 23.5' KB @ 3337.30usft  
**MD Reference:** 3313.8' GE + 23.5' KB @ 3337.30usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Output errors are at** 2.00 sigma  
**Database:** EDM 5000.1 Multi User Db  
**Offset TVD Reference:** Offset Datum

| Offset Design Emerald PWU 20-21 - PWU #6 (offset) - OH - OH |                             |                             |                             |                     |                  |                             |                                           |                 |                                 |                      |           | Offset Site Error: | 0.00 usft |
|-------------------------------------------------------------|-----------------------------|-----------------------------|-----------------------------|---------------------|------------------|-----------------------------|-------------------------------------------|-----------------|---------------------------------|----------------------|-----------|--------------------|-----------|
| Survey Program: 3400-ISCWSA-GYRO-3                          |                             |                             |                             |                     |                  |                             |                                           |                 |                                 |                      |           | Offset Well Error: | 0.00 usft |
| Reference                                                   |                             | Offset                      |                             | Semi Major Axis     |                  | Highside<br>Toolface<br>(°) | Distance                                  |                 | Minimum<br>Separation<br>(usft) | Separation<br>Factor | Warning   |                    |           |
| Measured<br>Depth<br>(usft)                                 | Vertical<br>Depth<br>(usft) | Measured<br>Depth<br>(usft) | Vertical<br>Depth<br>(usft) | Reference<br>(usft) | Offset<br>(usft) |                             | Offset Wellbore Centre<br>+N/-S<br>(usft) | +E/-W<br>(usft) |                                 |                      |           |                    |           |
| 0.00                                                        | 0.00                        | 3,313.80                    | 3,313.80                    | 0.00                | 0.00             | 85.40                       | 886.64                                    | 8,536.94        | 9,191.76                        |                      |           |                    |           |
| 100.00                                                      | 100.00                      | 3,313.80                    | 3,313.80                    | 0.09                | 0.00             | 85.40                       | 886.64                                    | 8,536.94        | 9,155.92                        | 1.52                 | 6,024.083 |                    |           |
| 200.00                                                      | 200.00                      | 3,313.80                    | 3,313.80                    | 0.31                | 0.00             | 85.40                       | 886.64                                    | 8,536.94        | 9,121.05                        | 1.47                 | 6,189.962 |                    |           |
| 300.00                                                      | 300.00                      | 3,313.80                    | 3,313.80                    | 0.54                | 0.00             | 85.40                       | 886.64                                    | 8,536.94        | 9,087.14                        | 1.46                 | 6,213.077 |                    |           |
| 400.00                                                      | 400.00                      | 3,313.80                    | 3,313.80                    | 0.76                | 0.00             | 85.40                       | 886.64                                    | 8,536.94        | 9,054.20                        | 1.49                 | 6,083.866 |                    |           |
| 500.00                                                      | 500.00                      | 3,313.80                    | 3,313.80                    | 0.99                | 0.00             | 85.40                       | 886.64                                    | 8,536.94        | 9,022.26                        | 1.55                 | 5,824.551 |                    |           |
| 600.00                                                      | 600.00                      | 3,313.80                    | 3,313.80                    | 1.21                | 0.00             | 85.40                       | 886.64                                    | 8,536.94        | 8,991.31                        | 1.64                 | 5,478.111 |                    |           |
| 700.00                                                      | 700.00                      | 3,313.80                    | 3,313.80                    | 1.43                | 0.00             | 85.40                       | 886.64                                    | 8,536.94        | 8,961.37                        | 1.76                 | 5,090.301 |                    |           |
| 800.00                                                      | 800.00                      | 3,313.80                    | 3,313.80                    | 1.66                | 0.00             | 85.40                       | 886.64                                    | 8,536.94        | 8,932.45                        | 1.90                 | 4,697.128 |                    |           |
| 900.00                                                      | 900.00                      | 3,313.80                    | 3,313.80                    | 1.88                | 0.00             | 85.40                       | 886.64                                    | 8,536.94        | 8,904.56                        | 2.06                 | 4,321.362 |                    |           |
| 1,000.00                                                    | 1,000.00                    | 3,313.80                    | 3,313.80                    | 2.11                | 0.00             | 85.40                       | 886.64                                    | 8,536.94        | 8,877.71                        | 2.23                 | 3,974.653 |                    |           |
| 1,100.00                                                    | 1,100.00                    | 3,313.80                    | 3,313.80                    | 2.33                | 0.00             | 85.40                       | 886.64                                    | 8,536.94        | 8,851.91                        | 2.42                 | 3,661.213 |                    |           |
| 1,200.00                                                    | 1,200.00                    | 3,313.80                    | 3,313.80                    | 2.56                | 0.00             | 85.40                       | 886.64                                    | 8,536.94        | 8,827.17                        | 2.61                 | 3,380.978 |                    |           |
| 1,300.00                                                    | 1,300.00                    | 3,313.80                    | 3,313.80                    | 2.78                | 0.00             | 85.40                       | 886.64                                    | 8,536.94        | 8,803.49                        | 2.81                 | 3,131.749 |                    |           |
| 1,400.00                                                    | 1,400.00                    | 3,313.80                    | 3,313.80                    | 3.01                | 0.00             | 85.40                       | 886.64                                    | 8,536.94        | 8,780.89                        | 3.02                 | 2,910.458 |                    |           |
| 1,500.00                                                    | 1,500.00                    | 3,313.80                    | 3,313.80                    | 3.23                | 0.00             | 85.40                       | 886.64                                    | 8,536.94        | 8,759.37                        | 3.23                 | 2,713.857 |                    |           |
| 1,600.00                                                    | 1,600.00                    | 3,313.80                    | 3,313.80                    | 3.46                | 0.00             | 85.40                       | 886.64                                    | 8,536.94        | 8,738.94                        | 3.44                 | 2,538.853 |                    |           |
| 1,700.00                                                    | 1,700.00                    | 3,313.80                    | 3,313.80                    | 3.68                | 0.00             | 85.40                       | 886.64                                    | 8,536.94        | 8,719.61                        | 3.66                 | 2,382.648 |                    |           |
| 1,800.00                                                    | 1,800.00                    | 3,313.80                    | 3,313.80                    | 3.91                | 0.00             | 85.40                       | 886.64                                    | 8,536.94        | 8,701.39                        | 3.88                 | 2,242.786 |                    |           |
| 1,900.00                                                    | 1,900.00                    | 3,313.80                    | 3,313.80                    | 4.13                | 0.00             | 85.40                       | 886.64                                    | 8,536.94        | 8,684.28                        | 4.10                 | 2,117.138 |                    |           |
| 2,000.00                                                    | 2,000.00                    | 3,313.80                    | 3,313.80                    | 4.36                | 0.00             | 85.40                       | 886.64                                    | 8,536.94        | 8,668.29                        | 4.33                 | 2,003.881 |                    |           |
| 2,100.00                                                    | 2,100.00                    | 3,313.80                    | 3,313.80                    | 4.58                | 0.00             | 85.40                       | 886.64                                    | 8,536.94        | 8,653.42                        | 4.55                 | 1,901.453 |                    |           |
| 2,200.00                                                    | 2,200.00                    | 3,313.80                    | 3,313.80                    | 4.81                | 0.00             | 85.40                       | 886.64                                    | 8,536.94        | 8,639.69                        | 4.78                 | 1,808.519 |                    |           |
| 2,300.00                                                    | 2,300.00                    | 3,313.80                    | 3,313.80                    | 5.03                | 0.00             | 85.40                       | 886.64                                    | 8,536.94        | 8,627.10                        | 5.00                 | 1,723.940 |                    |           |
| 2,400.00                                                    | 2,400.00                    | 3,313.80                    | 3,313.80                    | 5.26                | 0.00             | 85.40                       | 886.64                                    | 8,536.94        | 8,615.65                        | 5.23                 | 1,646.739 |                    |           |
| 2,500.00                                                    | 2,500.00                    | 3,313.80                    | 3,313.80                    | 5.48                | 0.00             | 85.40                       | 886.64                                    | 8,536.94        | 8,605.34                        | 5.46                 | 1,576.076 |                    |           |
| 2,600.00                                                    | 2,600.00                    | 3,313.80                    | 3,313.80                    | 5.71                | 0.00             | 85.40                       | 886.64                                    | 8,536.94        | 8,596.19                        | 5.69                 | 1,511.230 |                    |           |
| 2,700.00                                                    | 2,700.00                    | 3,313.80                    | 3,313.80                    | 5.93                | 0.00             | 85.40                       | 886.64                                    | 8,536.94        | 8,588.19                        | 5.92                 | 1,451.575 |                    |           |
| 2,800.00                                                    | 2,800.00                    | 3,313.80                    | 3,313.80                    | 6.15                | 0.00             | 85.40                       | 886.64                                    | 8,536.94        | 8,581.35                        | 6.14                 | 1,396.569 |                    |           |
| 2,900.00                                                    | 2,900.00                    | 3,313.80                    | 3,313.80                    | 6.38                | 0.00             | 85.40                       | 886.64                                    | 8,536.94        | 8,575.67                        | 6.37                 | 1,345.740 |                    |           |
| 3,000.00                                                    | 3,000.00                    | 3,313.80                    | 3,313.80                    | 6.60                | 0.00             | 85.40                       | 886.64                                    | 8,536.94        | 8,571.15                        | 6.60                 | 1,298.677 |                    |           |
| 3,100.00                                                    | 3,100.00                    | 3,313.80                    | 3,313.80                    | 6.83                | 0.00             | 85.40                       | 886.64                                    | 8,536.94        | 8,567.80                        | 6.83                 | 1,255.017 |                    |           |
| 3,200.00                                                    | 3,200.00                    | 3,313.80                    | 3,313.80                    | 7.05                | 0.00             | 85.40                       | 886.64                                    | 8,536.94        | 8,565.61                        | 7.05                 | 1,214.444 |                    |           |
| 3,300.00                                                    | 3,300.00                    | 3,313.80                    | 3,313.80                    | 7.28                | 0.00             | 85.40                       | 886.64                                    | 8,536.94        | 8,564.59                        | 7.28                 | 1,176.677 |                    |           |
| 3,400.00                                                    | 3,400.00                    | 3,423.56                    | 3,423.55                    | 7.50                | 0.12             | 85.39                       | 687.83                                    | 8,538.48        | 8,564.28                        | 7.62                 | 1,123.681 |                    |           |
| 3,500.00                                                    | 3,500.00                    | 3,525.78                    | 3,525.75                    | 7.73                | 0.30             | 85.38                       | 689.56                                    | 8,535.77        | 8,563.72                        | 8.03                 | 1,066.865 |                    |           |
| 3,600.00                                                    | 3,600.00                    | 3,629.67                    | 3,629.63                    | 7.95                | 0.46             | 85.37                       | 691.33                                    | 8,535.00        | 8,563.12                        | 8.44                 | 1,015.166 |                    |           |
| 3,691.76                                                    | 3,691.76                    | 3,721.25                    | 3,721.19                    | 8.16                | 0.64             | 112.71                      | 692.95                                    | 8,534.28        | 8,562.81                        | 8.80                 | 972.874   |                    |           |
| 3,700.00                                                    | 3,700.00                    | 3,728.00                    | 3,727.94                    | 8.18                | 0.66             | 112.71                      | 693.07                                    | 8,534.23        | 8,562.82                        | 8.83                 | 969.535   |                    |           |
| 3,800.00                                                    | 3,799.96                    | 3,840.45                    | 3,840.36                    | 8.40                | 0.86             | 112.71                      | 695.27                                    | 8,533.45        | 8,563.31                        | 9.25                 | 925.571   |                    |           |
| 3,900.00                                                    | 3,899.86                    | 4,008.19                    | 4,008.04                    | 8.62                | 1.16             | 112.72                      | 698.92                                    | 8,531.05        | 8,563.67                        | 9.77                 | 876.529   |                    |           |
| 4,000.00                                                    | 3,999.68                    | 4,111.95                    | 4,111.77                    | 8.84                | 1.34             | 112.73                      | 701.32                                    | 8,529.23        | 8,564.47                        | 10.18                | 841.689   |                    |           |
| 4,100.00                                                    | 4,099.37                    | 4,219.36                    | 4,219.12                    | 9.07                | 1.53             | 112.75                      | 703.99                                    | 8,527.26        | 8,565.88                        | 10.59                | 808.963   |                    |           |
| 4,124.09                                                    | 4,123.36                    | 4,245.88                    | 4,245.62                    | 9.12                | 1.58             | 112.76                      | 704.68                                    | 8,526.76        | 8,566.31                        | 10.69                | 801.353   |                    |           |
| 4,200.00                                                    | 4,198.95                    | 4,327.12                    | 4,326.82                    | 9.29                | 1.73             | 112.79                      | 706.91                                    | 8,525.16        | 8,567.68                        | 11.01                | 778.522   |                    |           |
| 4,300.00                                                    | 4,298.53                    | 4,424.04                    | 4,423.68                    | 9.52                | 1.90             | 112.83                      | 709.71                                    | 8,523.22        | 8,569.45                        | 11.40                | 751.406   |                    |           |
| 4,400.00                                                    | 4,398.12                    | 4,500.00                    | 4,499.59                    | 9.75                | 2.04             | 112.85                      | 712.07                                    | 8,521.77        | 8,571.36                        | 11.77                | 728.309   |                    |           |
| 4,500.00                                                    | 4,497.70                    | 4,587.20                    | 4,586.73                    | 9.98                | 2.20             | 112.88                      | 714.83                                    | 8,520.29        | 8,573.48                        | 12.16                | 705.326   |                    |           |
| 4,600.00                                                    | 4,597.28                    | 4,692.66                    | 4,692.12                    | 10.22               | 2.39             | 112.92                      | 718.21                                    | 8,518.63        | 8,575.72                        | 12.58                | 681.885   |                    |           |
| 4,700.00                                                    | 4,696.86                    | 4,805.23                    | 4,804.61                    | 10.45               | 2.60             | 112.95                      | 722.00                                    | 8,516.69        | 8,577.83                        | 13.01                | 659.204   |                    |           |
| 4,800.00                                                    | 4,796.44                    | 4,900.00                    | 4,899.32                    | 10.69               | 2.77             | 112.99                      | 725.19                                    | 8,515.05        | 8,579.92                        | 13.42                | 639.454   |                    |           |
| 4,900.00                                                    | 4,896.03                    | 5,048.13                    | 5,047.31                    | 10.92               | 3.04             | 113.03                      | 730.60                                    | 8,511.94        | 8,581.66                        | 13.92                | 616.431   |                    |           |

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# LEAM Drilling Systems LLC

## Anticollision Report

**Company:** Devon Energy  
**Project:** Eddy County, NM (NAD-83)  
**Reference Site:** Emerald PWU 20-21  
**Site Error:** 0.00 usft  
**Reference Well:** 12H  
**Well Error:** 0.00 usft  
**Reference Wellbore:** OH  
**Reference Design:** Plan #1

**Local Co-ordinate Reference:** Well 12H  
**TVD Reference:** 3313.8' GE + 23.5' KB @ 3337.30usft  
**MD Reference:** 3313.8' GE + 23.5' KB @ 3337.30usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Output errors are at** 2.00 sigma  
**Database:** EDM 5000.1 Multi User Db  
**Offset TVD Reference:** Offset Datum

| Offset Design Emerald PWU 20-21 - PWU #6 (offset) - OH - OH |                             |                             |                             |                 |                  |                             |                                           |                 |                                 |                      |         | Offset Site Error: | 0.00 usft |
|-------------------------------------------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------|------------------|-----------------------------|-------------------------------------------|-----------------|---------------------------------|----------------------|---------|--------------------|-----------|
| Survey Program: 3400-ISCWSA-GYRO-3                          |                             |                             |                             |                 |                  |                             |                                           |                 |                                 |                      |         | Offset Well Error: | 0.00 usft |
| Reference                                                   |                             | Offset                      |                             | Semi Major Axis |                  | Highside<br>Toolface<br>(°) | Distance                                  |                 | Minimum<br>Separation<br>(usft) | Separation<br>Factor | Warning |                    |           |
| Measured<br>Depth<br>(usft)                                 | Vertical<br>Depth<br>(usft) | Measured<br>Depth<br>(usft) | Vertical<br>Depth<br>(usft) | Reference       | Offset<br>(usft) |                             | Offset Wellbore Centre<br>+N/-S<br>(usft) | +E/-W<br>(usft) |                                 |                      |         |                    |           |
| 5,000.00                                                    | 4,995.61                    | 5,158.01                    | 5,157.09                    | 11.16           | 3.24             | 113.07                      | 734.66                                    | 8,509.34        | 8,583.15                        | 8,568.80             | 14.36   | 597.821            |           |
| 5,100.00                                                    | 5,095.19                    | 5,296.83                    | 5,295.76                    | 11.40           | 3.50             | 113.11                      | 739.89                                    | 8,505.69        | 8,584.41                        | 8,569.56             | 14.85   | 578.200            |           |
| 5,200.00                                                    | 5,194.77                    | 5,407.85                    | 5,406.64                    | 11.64           | 3.71             | 113.14                      | 744.32                                    | 8,502.40        | 8,585.34                        | 8,570.05             | 15.29   | 561.591            |           |
| 5,300.00                                                    | 5,294.35                    | 5,575.62                    | 5,574.15                    | 11.89           | 4.02             | 113.18                      | 751.73                                    | 8,496.49        | 8,585.71                        | 8,569.87             | 15.83   | 542.228            |           |
| 5,400.00                                                    | 5,393.94                    | 5,732.00                    | 5,730.24                    | 12.13           | 4.31             | 113.22                      | 758.56                                    | 8,489.94        | 8,585.46                        | 8,569.10             | 16.36   | 524.802            |           |
| 5,500.00                                                    | 5,493.52                    | 5,965.99                    | 5,963.66                    | 12.37           | 4.75             | 113.28                      | 768.82                                    | 8,477.30        | 8,583.85                        | 8,566.83             | 17.02   | 504.259            |           |
| 5,600.00                                                    | 5,593.10                    | 6,091.94                    | 6,089.25                    | 12.62           | 4.99             | 113.31                      | 774.27                                    | 8,469.50        | 8,581.60                        | 8,564.11             | 17.49   | 490.615            |           |
| 5,700.00                                                    | 5,692.68                    | 6,187.58                    | 6,184.61                    | 12.86           | 5.17             | 113.33                      | 778.32                                    | 8,463.41        | 8,579.16                        | 8,561.26             | 17.91   | 479.105            |           |
| 5,800.00                                                    | 5,792.26                    | 6,301.42                    | 6,298.11                    | 13.11           | 5.38             | 113.36                      | 783.16                                    | 8,456.13        | 8,576.70                        | 8,558.34             | 18.35   | 467.272            |           |
| 5,900.00                                                    | 5,891.85                    | 6,412.11                    | 6,408.49                    | 13.36           | 5.59             | 113.39                      | 787.23                                    | 8,448.90        | 8,574.06                        | 8,555.27             | 18.80   | 456.172            |           |
| 6,000.00                                                    | 5,991.43                    | 6,511.94                    | 6,508.06                    | 13.61           | 5.77             | 113.42                      | 790.10                                    | 8,442.41        | 8,571.40                        | 8,552.18             | 19.22   | 446.067            |           |
| 6,100.00                                                    | 6,091.01                    | 6,640.92                    | 6,636.71                    | 13.85           | 6.00             | 113.47                      | 793.64                                    | 8,433.75        | 8,568.50                        | 8,548.82             | 19.69   | 435.271            |           |
| 6,200.00                                                    | 6,190.59                    | 6,723.83                    | 6,719.41                    | 14.10           | 6.15             | 113.50                      | 795.57                                    | 8,428.09        | 8,565.50                        | 8,545.42             | 20.08   | 426.654            |           |
| 6,300.00                                                    | 6,290.17                    | 6,800.00                    | 6,795.41                    | 14.35           | 6.28             | 113.53                      | 796.90                                    | 8,423.38        | 8,563.02                        | 8,542.57             | 20.45   | 418.634            |           |
| 6,400.00                                                    | 6,389.76                    | 6,842.38                    | 6,837.72                    | 14.60           | 6.35             | 113.55                      | 797.52                                    | 8,420.96        | 8,560.93                        | 8,540.15             | 20.78   | 412.056            |           |
| 6,500.00                                                    | 6,489.34                    | 6,950.40                    | 6,945.56                    | 14.86           | 6.54             | 113.60                      | 799.09                                    | 8,414.98        | 8,559.15                        | 8,537.94             | 21.21   | 403.555            |           |
| 6,600.00                                                    | 6,588.92                    | 7,106.73                    | 7,101.59                    | 15.11           | 6.82             | 113.67                      | 801.33                                    | 8,405.46        | 8,556.80                        | 8,535.08             | 21.73   | 393.866            |           |
| 6,700.00                                                    | 6,688.50                    | 7,229.13                    | 7,223.70                    | 15.36           | 7.03             | 113.72                      | 803.42                                    | 8,397.46        | 8,554.05                        | 8,531.87             | 22.18   | 385.584            |           |
| 6,800.00                                                    | 6,788.08                    | 7,300.00                    | 7,294.41                    | 15.61           | 7.16             | 113.75                      | 804.56                                    | 8,392.70        | 8,551.19                        | 8,528.63             | 22.56   | 379.095            |           |
| 6,900.00                                                    | 6,887.66                    | 7,374.95                    | 7,369.20                    | 15.86           | 7.29             | 113.78                      | 805.42                                    | 8,387.93        | 8,548.64                        | 8,525.70             | 22.94   | 372.722            |           |
| 7,000.00                                                    | 6,987.25                    | 7,470.92                    | 7,465.01                    | 16.12           | 7.45             | 113.83                      | 806.00                                    | 8,382.35        | 8,546.54                        | 8,523.19             | 23.35   | 366.017            |           |
| 7,100.00                                                    | 7,086.83                    | 7,598.08                    | 7,591.93                    | 16.37           | 7.67             | 113.89                      | 806.45                                    | 8,374.63        | 8,544.19                        | 8,520.38             | 23.82   | 358.738            |           |
| 7,200.00                                                    | 7,186.41                    | 7,700.00                    | 7,693.64                    | 16.63           | 7.84             | 113.95                      | 805.67                                    | 8,368.09        | 8,541.43                        | 8,517.19             | 24.24   | 352.335            |           |
| 7,300.00                                                    | 7,285.99                    | 7,776.01                    | 7,769.49                    | 16.88           | 7.97             | 114.00                      | 804.21                                    | 8,363.36        | 8,538.86                        | 8,514.23             | 24.62   | 346.763            |           |
| 7,400.00                                                    | 7,385.57                    | 7,800.00                    | 7,793.43                    | 17.14           | 8.01             | 114.02                      | 803.66                                    | 8,362.00        | 8,537.00                        | 8,512.06             | 24.92   | 342.591            |           |
| 7,500.00                                                    | 7,485.16                    | 7,852.24                    | 7,845.59                    | 17.39           | 8.10             | 114.06                      | 802.36                                    | 8,359.41        | 8,535.77                        | 8,510.51             | 25.26   | 337.886            |           |
| 7,600.00                                                    | 7,584.74                    | 7,900.00                    | 7,893.30                    | 17.65           | 8.18             | 114.09                      | 801.05                                    | 8,357.60        | 8,535.41                        | 8,509.82             | 25.60   | 333.436            |           |
| 7,613.86                                                    | 7,598.54                    | 7,900.00                    | 7,893.30                    | 17.68           | 8.18             | 114.09                      | 801.05                                    | 8,357.60        | 8,535.40                        | 8,509.77             | 25.63   | 332.975            |           |
| 7,700.00                                                    | 7,684.32                    | 7,927.62                    | 7,920.90                    | 17.90           | 8.23             | 114.11                      | 800.27                                    | 8,356.75        | 8,535.74                        | 8,509.84             | 25.90   | 329.553            |           |
| 7,800.00                                                    | 7,783.90                    | 8,000.00                    | 7,993.22                    | 18.16           | 8.35             | 114.16                      | 798.30                                    | 8,355.00        | 8,536.82                        | 8,510.54             | 26.28   | 324.839            |           |
| 7,900.00                                                    | 7,883.48                    | 8,000.00                    | 7,993.22                    | 18.41           | 8.35             | 114.16                      | 798.30                                    | 8,355.00        | 8,538.42                        | 8,511.89             | 26.54   | 321.762            |           |
| 8,000.00                                                    | 7,983.07                    | 8,068.04                    | 8,061.23                    | 18.67           | 8.47             | 114.21                      | 796.85                                    | 8,353.97        | 8,540.62                        | 8,513.71             | 26.91   | 317.394            |           |
| 8,100.00                                                    | 8,082.65                    | 8,100.00                    | 8,093.19                    | 18.93           | 8.52             | 114.24                      | 795.96                                    | 8,353.69        | 8,543.52                        | 8,516.30             | 27.22   | 313.871            |           |
| 8,200.00                                                    | 8,182.23                    | 8,162.79                    | 8,155.97                    | 19.19           | 8.63             | 114.28                      | 795.03                                    | 8,353.51        | 8,546.99                        | 8,519.41             | 27.58   | 309.882            |           |
| 8,300.00                                                    | 8,281.81                    | 8,200.00                    | 8,193.18                    | 19.44           | 8.70             | 114.30                      | 794.81                                    | 8,353.82        | 8,551.11                        | 8,523.21             | 27.90   | 306.481            |           |
| 8,400.00                                                    | 8,381.39                    | 8,241.37                    | 8,234.54                    | 19.70           | 8.77             | 114.32                      | 794.63                                    | 8,354.03        | 8,555.94                        | 8,527.71             | 28.23   | 303.120            |           |
| 8,492.99                                                    | 8,473.99                    | 8,300.00                    | 8,293.16                    | 19.94           | 8.87             | 114.36                      | 794.10                                    | 8,355.30        | 8,561.25                        | 8,532.69             | 28.56   | 299.748            |           |
| 8,500.00                                                    | 8,480.98                    | 8,300.00                    | 8,293.16                    | 19.96           | 8.87             | 105.63                      | 794.10                                    | 8,355.30        | 8,561.60                        | 8,533.02             | 28.58   | 299.584            |           |
| 8,525.00                                                    | 8,505.89                    | 8,300.00                    | 8,293.16                    | 20.01           | 8.87             | 70.00                       | 794.10                                    | 8,355.30        | 8,562.04                        | 8,533.41             | 28.63   | 299.024            |           |
| 8,550.00                                                    | 8,530.77                    | 8,300.00                    | 8,293.16                    | 20.06           | 8.87             | 43.57                       | 794.10                                    | 8,355.30        | 8,561.25                        | 8,532.56             | 28.69   | 298.428            |           |
| 8,575.00                                                    | 8,555.56                    | 8,300.00                    | 8,293.16                    | 20.11           | 8.87             | 29.26                       | 794.10                                    | 8,355.30        | 8,559.23                        | 8,530.48             | 28.74   | 297.798            |           |
| 8,600.00                                                    | 8,580.17                    | 8,300.00                    | 8,293.16                    | 20.15           | 8.87             | 21.26                       | 794.10                                    | 8,355.30        | 8,555.98                        | 8,527.18             | 28.79   | 297.135            |           |
| 8,625.00                                                    | 8,604.54                    | 8,325.71                    | 8,318.86                    | 20.19           | 8.91             | 16.35                       | 793.78                                    | 8,356.06        | 8,551.43                        | 8,522.54             | 28.89   | 296.017            |           |
| 8,650.00                                                    | 8,628.62                    | 8,338.04                    | 8,331.18                    | 20.23           | 8.93             | 13.06                       | 793.63                                    | 8,356.46        | 8,545.66                        | 8,516.70             | 28.96   | 295.094            |           |
| 8,675.00                                                    | 8,652.32                    | 8,350.21                    | 8,343.34                    | 20.27           | 8.95             | 10.72                       | 793.47                                    | 8,356.86        | 8,538.66                        | 8,509.63             | 29.03   | 294.150            |           |
| 8,700.00                                                    | 8,675.59                    | 8,362.19                    | 8,355.32                    | 20.30           | 8.97             | 8.96                        | 793.31                                    | 8,357.28        | 8,530.44                        | 8,501.35             | 29.10   | 293.188            |           |
| 8,725.00                                                    | 8,698.36                    | 8,373.96                    | 8,367.07                    | 20.34           | 8.99             | 7.59                        | 793.14                                    | 8,357.71        | 8,521.04                        | 8,491.88             | 29.16   | 292.208            |           |
| 8,750.00                                                    | 8,720.58                    | 8,438.24                    | 8,431.30                    | 20.36           | 9.10             | 6.52                        | 791.99                                    | 8,359.96        | 8,510.43                        | 8,481.12             | 29.31   | 290.363            |           |
| 8,775.00                                                    | 8,742.17                    | 8,460.18                    | 8,453.22                    | 20.39           | 9.14             | 5.61                        | 791.52                                    | 8,360.67        | 8,498.57                        | 8,469.18             | 29.39   | 289.183            |           |
| 8,800.00                                                    | 8,763.08                    | 8,481.47                    | 8,474.51                    | 20.41           | 9.18             | 4.84                        | 791.07                                    | 8,361.36        | 8,485.58                        | 8,456.11             | 29.46   | 288.000            |           |
| 8,825.00                                                    | 8,783.25                    | 8,502.07                    | 8,495.09                    | 20.43           | 9.22             | 4.16                        | 790.64                                    | 8,362.02        | 8,471.48                        | 8,441.95             | 29.54   | 286.818            |           |
| 8,850.00                                                    | 8,802.63                    | 8,521.91                    | 8,514.91                    | 20.45           | 9.25             | 3.56                        | 790.22                                    | 8,362.66        | 8,456.33                        | 8,426.73             | 29.60   | 285.639            |           |

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# LEAM Drilling Systems LLC

## Anticollision Report

**Company:** Devon Energy  
**Project:** Eddy County, NM (NAD-83)  
**Reference Site:** Emerald PWU 20-21  
**Site Error:** 0.00 usft  
**Reference Well:** 12H  
**Well Error:** 0.00 usft  
**Reference Wellbore:** OH  
**Reference Design:** Plan #1

**Local Co-ordinate Reference:** Well 12H  
**TVD Reference:** 3313.8' GE + 23.5' KB @ 3337.30usft  
**MD Reference:** 3313.8' GE + 23.5' KB @ 3337.30usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Output errors are at** 2.00 sigma  
**Database:** EDM 5000.1 Multi User Db  
**Offset TVD Reference:** Offset Datum

| Offset Design Emerald PWU 20-21 - PWU #6 (offset) - OH - OH |                       |                       |                       |                  |               |                       |                                    |             |                           |                   |         |                        | Offset Site Error: 0.00 usft |  |
|-------------------------------------------------------------|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|------------------------------------|-------------|---------------------------|-------------------|---------|------------------------|------------------------------|--|
| Survey Program: 3400-ISCWSA-GYRO-3                          |                       |                       |                       |                  |               |                       |                                    |             |                           |                   |         |                        | Offset Well Error: 0.00 usft |  |
| Reference                                                   |                       | Offset                |                       | Semi Major Axis  |               | Highside Toolface (°) | Distance                           |             | Minimum Separation (usft) | Separation Factor | Warning |                        |                              |  |
| Measured Depth (usft)                                       | Vertical Depth (usft) | Measured Depth (usft) | Vertical Depth (usft) | Reference (usft) | Offset (usft) |                       | Offset Wellbore Centre +N-S (usft) | +E-W (usft) |                           |                   |         | Between Centres (usft) | Between Ellipses (usft)      |  |
| 8,875.00                                                    | 8,821.17              | 8,540.94              | 8,533.92              | 20.47            | 9.28          | 3.00                  | 789.81                             | 8,363.27    | 8,440.16                  | 8,410.49          | 29.67   | 284.466                |                              |  |
| 8,900.00                                                    | 8,838.80              | 8,559.10              | 8,552.07              | 20.49            | 9.32          | 2.48                  | 789.43                             | 8,363.86    | 8,423.02                  | 8,393.29          | 29.73   | 283.301                |                              |  |
| 8,925.00                                                    | 8,855.50              | 8,576.35              | 8,569.31              | 20.50            | 9.35          | 1.97                  | 789.06                             | 8,364.41    | 8,404.95                  | 8,375.16          | 29.79   | 282.146                |                              |  |
| 8,950.00                                                    | 8,871.20              | 8,592.64              | 8,585.59              | 20.52            | 9.37          | 1.47                  | 788.72                             | 8,364.94    | 8,386.00                  | 8,356.16          | 29.84   | 281.004                |                              |  |
| 8,975.00                                                    | 8,885.86              | 8,607.92              | 8,600.86              | 20.53            | 9.40          | 0.95                  | 788.40                             | 8,365.43    | 8,366.23                  | 8,336.34          | 29.89   | 279.878                |                              |  |
| 9,000.00                                                    | 8,899.46              | 8,622.16              | 8,615.09              | 20.55            | 9.43          | 0.40                  | 788.09                             | 8,365.89    | 8,345.69                  | 8,315.75          | 29.94   | 278.769                |                              |  |
| 9,025.00                                                    | 8,911.94              | 8,635.31              | 8,628.22              | 20.59            | 9.45          | -0.21                 | 787.82                             | 8,366.32    | 8,324.43                  | 8,294.45          | 29.98   | 277.680                |                              |  |
| 9,050.00                                                    | 8,923.28              | 8,647.33              | 8,640.24              | 20.68            | 9.47          | -0.89                 | 787.56                             | 8,366.70    | 8,302.52                  | 8,272.50          | 30.01   | 276.613                |                              |  |
| 9,075.00                                                    | 8,933.44              | 8,658.21              | 8,651.11              | 20.82            | 9.49          | -1.70                 | 787.33                             | 8,367.05    | 8,280.01                  | 8,249.96          | 30.05   | 275.569                |                              |  |
| 9,100.00                                                    | 8,942.39              | 8,667.89              | 8,660.78              | 20.99            | 9.51          | -2.70                 | 787.13                             | 8,367.37    | 8,256.96                  | 8,226.89          | 30.07   | 274.550                |                              |  |
| 9,125.00                                                    | 8,950.12              | 8,676.36              | 8,669.25              | 21.18            | 9.52          | -3.98                 | 786.95                             | 8,367.64    | 8,233.45                  | 8,203.35          | 30.10   | 273.557                |                              |  |
| 9,150.00                                                    | 8,956.59              | 8,683.60              | 8,676.48              | 21.38            | 9.53          | -5.72                 | 786.80                             | 8,367.87    | 8,209.53                  | 8,179.41          | 30.12   | 272.593                |                              |  |
| 9,175.00                                                    | 8,961.80              | 8,689.59              | 8,682.46              | 21.60            | 9.54          | -8.26                 | 786.67                             | 8,368.07    | 8,185.26                  | 8,155.13          | 30.13   | 271.658                |                              |  |
| 9,200.00                                                    | 8,965.73              | 8,694.30              | 8,687.17              | 21.84            | 9.55          | -12.32                | 786.57                             | 8,368.22    | 8,160.72                  | 8,130.58          | 30.14   | 270.753                |                              |  |
| 9,225.00                                                    | 8,968.36              | 8,697.73              | 8,690.60              | 22.09            | 9.56          | -19.83                | 786.50                             | 8,368.33    | 8,135.98                  | 8,105.83          | 30.15   | 269.878                |                              |  |
| 9,250.00                                                    | 8,969.69              | 8,699.86              | 8,692.73              | 22.36            | 9.56          | -37.10                | 786.45                             | 8,368.40    | 8,111.09                  | 8,080.94          | 30.15   | 269.033                |                              |  |
| 9,258.87                                                    | 8,969.85              | 8,700.31              | 8,693.18              | 22.46            | 9.56          | -48.86                | 786.44                             | 8,368.41    | 8,102.24                  | 8,072.09          | 30.15   | 268.738                |                              |  |
| 9,300.00                                                    | 8,970.21              | 8,701.99              | 8,694.86              | 22.93            | 9.57          | -49.01                | 786.41                             | 8,368.47    | 8,061.19                  | 8,031.04          | 30.15   | 267.403                |                              |  |
| 9,400.00                                                    | 8,971.08              | 8,706.09              | 8,698.95              | 24.24            | 9.57          | -49.36                | 786.32                             | 8,368.60    | 7,961.38                  | 7,931.24          | 30.14   | 264.145                |                              |  |
| 9,500.00                                                    | 8,971.96              | 8,710.18              | 8,703.05              | 25.75            | 9.58          | -49.72                | 786.23                             | 8,368.73    | 7,861.56                  | 7,831.43          | 30.14   | 260.869                |                              |  |
| 9,600.00                                                    | 8,972.83              | 8,714.28              | 8,707.14              | 27.43            | 9.59          | -50.09                | 786.15                             | 8,368.86    | 7,761.76                  | 7,731.62          | 30.13   | 257.576                |                              |  |
| 9,700.00                                                    | 8,973.70              | 8,718.38              | 8,711.23              | 29.25            | 9.59          | -50.45                | 786.06                             | 8,368.99    | 7,661.95                  | 7,631.82          | 30.13   | 254.264                |                              |  |
| 9,800.00                                                    | 8,974.58              | 8,722.47              | 8,715.32              | 31.19            | 9.60          | -50.82                | 785.97                             | 8,369.13    | 7,562.15                  | 7,532.01          | 30.14   | 250.936                |                              |  |
| 9,900.00                                                    | 8,975.45              | 8,726.57              | 8,719.42              | 33.22            | 9.61          | -51.20                | 785.89                             | 8,369.26    | 7,462.35                  | 7,432.21          | 30.14   | 247.590                |                              |  |
| 10,000.00                                                   | 8,976.32              | 8,730.66              | 8,723.51              | 35.33            | 9.62          | -51.58                | 785.80                             | 8,369.39    | 7,362.56                  | 7,332.41          | 30.15   | 244.227                |                              |  |
| 10,100.00                                                   | 8,977.19              | 8,734.76              | 8,727.60              | 37.51            | 9.62          | -51.97                | 785.71                             | 8,369.52    | 7,262.76                  | 7,232.61          | 30.16   | 240.847                |                              |  |
| 10,200.00                                                   | 8,978.07              | 8,738.86              | 8,731.70              | 39.74            | 9.63          | -52.35                | 785.63                             | 8,369.65    | 7,162.97                  | 7,132.81          | 30.17   | 237.451                |                              |  |
| 10,300.00                                                   | 8,978.94              | 8,742.95              | 8,735.79              | 42.02            | 9.64          | -52.75                | 785.54                             | 8,369.79    | 7,063.19                  | 7,033.01          | 30.18   | 234.038                |                              |  |
| 10,400.00                                                   | 8,979.81              | 8,747.05              | 8,739.88              | 44.34            | 9.64          | -53.15                | 785.45                             | 8,369.92    | 6,963.41                  | 6,933.21          | 30.20   | 230.609                |                              |  |
| 10,500.00                                                   | 8,980.68              | 8,751.14              | 8,743.98              | 46.69            | 9.65          | -53.55                | 785.37                             | 8,370.05    | 6,863.63                  | 6,833.41          | 30.21   | 227.164                |                              |  |
| 10,600.00                                                   | 8,981.56              | 8,755.24              | 8,748.07              | 49.07            | 9.66          | -53.95                | 785.28                             | 8,370.18    | 6,763.86                  | 6,733.62          | 30.24   | 223.703                |                              |  |
| 10,700.00                                                   | 8,982.43              | 8,759.34              | 8,752.16              | 51.48            | 9.67          | -54.36                | 785.19                             | 8,370.31    | 6,664.09                  | 6,633.83          | 30.26   | 220.226                |                              |  |
| 10,800.00                                                   | 8,983.30              | 8,763.43              | 8,756.25              | 53.90            | 9.67          | -54.78                | 785.11                             | 8,370.45    | 6,564.32                  | 6,534.03          | 30.29   | 216.733                |                              |  |
| 10,900.00                                                   | 8,984.17              | 8,767.53              | 8,760.35              | 56.35            | 9.68          | -55.20                | 785.02                             | 8,370.58    | 6,464.56                  | 6,434.24          | 30.32   | 213.225                |                              |  |
| 11,000.00                                                   | 8,985.05              | 8,771.62              | 8,764.44              | 58.81            | 9.69          | -55.62                | 784.93                             | 8,370.71    | 6,364.81                  | 6,334.45          | 30.35   | 209.701                |                              |  |
| 11,100.00                                                   | 8,985.92              | 8,775.72              | 8,768.53              | 61.29            | 9.69          | -56.05                | 784.85                             | 8,370.84    | 6,265.06                  | 6,234.67          | 30.39   | 206.162                |                              |  |
| 11,200.00                                                   | 8,986.79              | 8,779.82              | 8,772.63              | 63.78            | 9.70          | -56.48                | 784.76                             | 8,370.97    | 6,165.31                  | 6,134.88          | 30.43   | 202.608                |                              |  |
| 11,300.00                                                   | 8,987.66              | 8,783.91              | 8,776.72              | 66.28            | 9.71          | -56.92                | 784.67                             | 8,371.11    | 6,065.57                  | 6,035.10          | 30.47   | 199.039                |                              |  |
| 11,400.00                                                   | 8,988.54              | 8,788.01              | 8,780.81              | 68.79            | 9.72          | -57.36                | 784.59                             | 8,371.24    | 5,965.84                  | 5,935.32          | 30.52   | 195.455                |                              |  |
| 11,500.00                                                   | 8,989.41              | 8,792.11              | 8,784.91              | 71.31            | 9.72          | -57.81                | 784.50                             | 8,371.37    | 5,866.11                  | 5,835.54          | 30.58   | 191.856                |                              |  |
| 11,600.00                                                   | 8,990.28              | 8,796.20              | 8,789.00              | 73.84            | 9.73          | -58.26                | 784.41                             | 8,371.50    | 5,766.39                  | 5,735.76          | 30.63   | 188.242                |                              |  |
| 11,700.00                                                   | 8,991.16              | 8,800.30              | 8,793.09              | 76.38            | 9.74          | -58.72                | 784.33                             | 8,371.64    | 5,666.68                  | 5,635.98          | 30.69   | 184.613                |                              |  |
| 11,800.00                                                   | 8,992.03              | 8,804.39              | 8,797.18              | 78.92            | 9.74          | -59.18                | 784.24                             | 8,371.77    | 5,566.97                  | 5,536.21          | 30.76   | 180.969                |                              |  |
| 11,900.00                                                   | 8,992.90              | 8,808.49              | 8,801.28              | 81.47            | 9.75          | -59.65                | 784.15                             | 8,371.90    | 5,467.27                  | 5,436.44          | 30.83   | 177.311                |                              |  |
| 12,000.00                                                   | 8,993.77              | 8,812.59              | 8,805.37              | 84.02            | 9.76          | -60.12                | 784.07                             | 8,372.03    | 5,367.58                  | 5,336.67          | 30.91   | 173.637                |                              |  |
| 12,100.00                                                   | 8,994.65              | 8,816.68              | 8,809.46              | 86.58            | 9.77          | -60.59                | 783.98                             | 8,372.16    | 5,267.90                  | 5,236.90          | 31.00   | 169.949                |                              |  |
| 12,200.00                                                   | 8,995.52              | 8,820.78              | 8,813.56              | 89.15            | 9.77          | -61.07                | 783.89                             | 8,372.30    | 5,168.23                  | 5,137.14          | 31.09   | 166.246                |                              |  |
| 12,300.00                                                   | 8,996.39              | 8,824.87              | 8,817.65              | 91.72            | 9.78          | -61.56                | 783.81                             | 8,372.43    | 5,068.56                  | 5,037.38          | 31.19   | 162.529                |                              |  |
| 12,400.00                                                   | 8,997.26              | 8,828.97              | 8,821.74              | 94.29            | 9.79          | -62.05                | 783.72                             | 8,372.56    | 4,968.91                  | 4,937.62          | 31.29   | 158.796                |                              |  |
| 12,500.00                                                   | 8,998.14              | 8,833.07              | 8,825.84              | 96.86            | 9.79          | -62.54                | 783.63                             | 8,372.69    | 4,869.27                  | 4,837.86          | 31.40   | 155.049                |                              |  |
| 12,600.00                                                   | 8,999.01              | 8,837.16              | 8,829.93              | 99.44            | 9.80          | -63.04                | 783.55                             | 8,372.82    | 4,769.64                  | 4,738.11          | 31.53   | 151.287                |                              |  |
| 12,700.00                                                   | 8,999.88              | 8,841.26              | 8,834.02              | 102.02           | 9.81          | -63.54                | 783.46                             | 8,372.96    | 4,670.02                  | 4,638.36          | 31.66   | 147.510                |                              |  |

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# LEAM Drilling Systems LLC

## Anticollision Report

Company: Devon Energy  
Project: Eddy County, NM (NAD-83)  
Reference Site: Emerald PWU 20-21  
Site Error: 0.00 usft  
Reference Well: 12H  
Well Error: 0.00 usft  
Reference Wellbore: OH  
Reference Design: Plan #1

Local Co-ordinate Reference: Well 12H  
TVD Reference: 3313.8' GE + 23.5' KB @ 3337.30usft  
MD Reference: 3313.8' GE + 23.5' KB @ 3337.30usft  
North Reference: Grid  
Survey Calculation Method: Minimum Curvature  
Output errors are at: 2.00 sigma  
Database: EDM 5000.1 Multi User Db  
Offset TVD Reference: Offset Datum

| Offset Design Emerald PWU 20-21 - PWU #6 (offset) - OH - OH |                             |                             |                             |                     |                  |                             |                                          |                |                                 |                      |         |                  |  | Offset Site Error: 0.00 usft |
|-------------------------------------------------------------|-----------------------------|-----------------------------|-----------------------------|---------------------|------------------|-----------------------------|------------------------------------------|----------------|---------------------------------|----------------------|---------|------------------|--|------------------------------|
| Survey Program: 3400-ISCWSA-GYRO-3                          |                             |                             |                             |                     |                  |                             |                                          |                |                                 |                      |         |                  |  | Offset Well Error: 0.00 usft |
| Reference                                                   |                             | Offset                      |                             | Semi Major Axis     |                  | Highside<br>Toolface<br>(°) | Distance                                 |                | Minimum<br>Separation<br>(usft) | Separation<br>Factor | Warning |                  |  |                              |
| Measured<br>Depth<br>(usft)                                 | Vertical<br>Depth<br>(usft) | Measured<br>Depth<br>(usft) | Vertical<br>Depth<br>(usft) | Reference<br>(usft) | Offset<br>(usft) |                             | Offset Wellbore Centre<br>+N-S<br>(usft) | +E-W<br>(usft) |                                 |                      |         |                  |  |                              |
| 12,800.00                                                   | 9,000.75                    | 8,845.35                    | 8,838.11                    | 104.61              | 9.82             | -84.05                      | 783.37                                   | 8,373.09       | 4,570.41                        | 4,538.61             | 31.80   | 143.718          |  |                              |
| 12,900.00                                                   | 9,001.63                    | 8,849.45                    | 8,842.21                    | 107.19              | 9.82             | -84.56                      | 783.29                                   | 8,373.22       | 4,470.82                        | 4,438.86             | 31.95   | 139.911          |  |                              |
| 13,000.00                                                   | 9,002.50                    | 8,853.55                    | 8,846.30                    | 109.78              | 9.83             | -85.08                      | 783.20                                   | 8,373.35       | 4,371.24                        | 4,339.12             | 32.12   | 136.090          |  |                              |
| 13,100.00                                                   | 9,003.37                    | 8,857.64                    | 8,850.39                    | 112.37              | 9.84             | -85.60                      | 783.11                                   | 8,373.48       | 4,271.68                        | 4,239.38             | 32.30   | 132.254          |  |                              |
| 13,200.00                                                   | 9,004.25                    | 8,861.74                    | 8,854.49                    | 114.97              | 9.84             | -86.13                      | 783.03                                   | 8,373.62       | 4,172.13                        | 4,139.64             | 32.49   | 128.404          |  |                              |
| 13,300.00                                                   | 9,005.12                    | 8,865.83                    | 8,858.58                    | 117.56              | 9.85             | -86.66                      | 782.94                                   | 8,373.75       | 4,072.61                        | 4,039.91             | 32.70   | 124.540          |  |                              |
| 13,400.00                                                   | 9,005.99                    | 8,869.93                    | 8,862.67                    | 120.16              | 9.86             | -87.20                      | 782.85                                   | 8,373.88       | 3,973.10                        | 3,940.17             | 32.93   | 120.662          |  |                              |
| 13,500.00                                                   | 9,006.86                    | 8,874.03                    | 8,866.77                    | 122.76              | 9.87             | -87.74                      | 782.77                                   | 8,374.01       | 3,873.62                        | 3,840.44             | 33.17   | 116.771          |  |                              |
| 13,600.00                                                   | 9,007.74                    | 8,878.12                    | 8,870.86                    | 125.36              | 9.87             | -88.28                      | 782.68                                   | 8,374.14       | 3,774.15                        | 3,740.71             | 33.44   | 112.868          |  |                              |
| 13,700.00                                                   | 9,008.61                    | 8,882.22                    | 8,874.95                    | 127.96              | 9.88             | -88.83                      | 782.59                                   | 8,374.28       | 3,674.71                        | 3,640.99             | 33.73   | 108.952          |  |                              |
| 13,800.00                                                   | 9,009.48                    | 8,886.31                    | 8,879.04                    | 130.56              | 9.89             | -89.38                      | 782.51                                   | 8,374.41       | 3,575.30                        | 3,541.26             | 34.04   | 105.026          |  |                              |
| 13,900.00                                                   | 9,010.35                    | 8,890.41                    | 8,883.14                    | 133.17              | 9.90             | -89.94                      | 782.42                                   | 8,374.54       | 3,475.92                        | 3,441.53             | 34.38   | 101.090          |  |                              |
| 14,000.00                                                   | 9,011.23                    | 8,894.51                    | 8,887.23                    | 135.78              | 9.90             | -90.50                      | 782.33                                   | 8,374.67       | 3,376.57                        | 3,341.81             | 34.76   | 97.146           |  |                              |
| 14,100.00                                                   | 9,012.10                    | 8,898.60                    | 8,891.32                    | 138.38              | 9.91             | -91.07                      | 782.25                                   | 8,374.80       | 3,277.25                        | 3,242.09             | 35.17   | 93.195           |  |                              |
| 14,200.00                                                   | 9,012.97                    | 8,902.70                    | 8,895.42                    | 140.99              | 9.92             | -91.64                      | 782.16                                   | 8,374.94       | 3,177.97                        | 3,142.36             | 35.61   | 89.240           |  |                              |
| 14,300.00                                                   | 9,013.84                    | 8,906.79                    | 8,899.51                    | 143.60              | 9.92             | -92.21                      | 782.07                                   | 8,375.07       | 3,078.73                        | 3,042.63             | 36.10   | 85.284           |  |                              |
| 14,400.00                                                   | 9,014.72                    | 8,910.89                    | 8,903.60                    | 146.21              | 9.93             | -92.79                      | 781.99                                   | 8,375.20       | 2,979.54                        | 2,942.90             | 36.64   | 81.328           |  |                              |
| 14,500.00                                                   | 9,015.59                    | 8,914.99                    | 8,907.70                    | 148.82              | 9.94             | -93.37                      | 781.90                                   | 8,375.33       | 2,880.40                        | 2,843.17             | 37.23   | 77.377           |  |                              |
| 14,600.00                                                   | 9,016.46                    | 8,919.08                    | 8,911.79                    | 151.43              | 9.95             | -93.96                      | 781.81                                   | 8,375.47       | 2,781.31                        | 2,743.43             | 37.87   | 73.435           |  |                              |
| 14,700.00                                                   | 9,017.34                    | 8,923.18                    | 8,915.88                    | 154.05              | 9.95             | -94.55                      | 781.73                                   | 8,375.60       | 2,682.28                        | 2,643.69             | 38.59   | 69.505           |  |                              |
| 14,800.00                                                   | 9,018.21                    | 8,927.27                    | 8,919.97                    | 156.66              | 9.96             | -95.14                      | 781.64                                   | 8,375.73       | 2,583.32                        | 2,543.94             | 39.38   | 65.595           |  |                              |
| 14,900.00                                                   | 9,019.08                    | 8,931.37                    | 8,924.07                    | 159.28              | 9.97             | -95.74                      | 781.55                                   | 8,375.86       | 2,484.44                        | 2,444.18             | 40.26   | 61.708           |  |                              |
| 15,000.00                                                   | 9,019.95                    | 8,935.47                    | 8,928.16                    | 161.89              | 9.97             | -96.34                      | 781.47                                   | 8,375.99       | 2,385.65                        | 2,344.41             | 41.24   | 57.853           |  |                              |
| 15,100.00                                                   | 9,020.83                    | 8,939.56                    | 8,932.25                    | 164.51              | 9.98             | -96.95                      | 781.38                                   | 8,376.13       | 2,286.95                        | 2,244.63             | 42.32   | 54.036           |  |                              |
| 15,200.00                                                   | 9,021.70                    | 8,943.66                    | 8,936.35                    | 167.12              | 9.99             | -97.55                      | 781.29                                   | 8,376.26       | 2,188.36                        | 2,144.83             | 43.54   | 50.266           |  |                              |
| 15,300.00                                                   | 9,022.57                    | 8,947.76                    | 8,940.44                    | 169.74              | 10.00            | -98.16                      | 781.21                                   | 8,376.39       | 2,089.90                        | 2,045.01             | 44.89   | 46.552           |  |                              |
| 15,400.00                                                   | 9,023.44                    | 8,951.85                    | 8,944.53                    | 172.36              | 10.00            | -98.78                      | 781.12                                   | 8,376.52       | 1,991.59                        | 1,945.17             | 46.42   | 42.904           |  |                              |
| 15,500.00                                                   | 9,024.32                    | 8,955.95                    | 8,948.63                    | 174.98              | 10.01            | -99.39                      | 781.03                                   | 8,376.65       | 1,893.44                        | 1,845.30             | 48.14   | 39.332           |  |                              |
| 15,600.00                                                   | 9,025.19                    | 8,960.04                    | 8,952.72                    | 177.60              | 10.02            | -80.01                      | 780.95                                   | 8,376.79       | 1,795.49                        | 1,745.40             | 50.09   | 35.848           |  |                              |
| 15,700.00                                                   | 9,026.06                    | 8,964.14                    | 8,956.81                    | 180.22              | 10.02            | -80.63                      | 780.86                                   | 8,376.92       | 1,697.76                        | 1,645.46             | 52.30   | 32.464           |  |                              |
| 15,800.00                                                   | 9,026.93                    | 8,968.24                    | 8,960.90                    | 182.84              | 10.03            | -81.26                      | 780.77                                   | 8,377.05       | 1,600.31                        | 1,545.49             | 54.82   | 29.192           |  |                              |
| 15,900.00                                                   | 9,027.81                    | 8,972.33                    | 8,965.00                    | 185.46              | 10.04            | -81.88                      | 780.69                                   | 8,377.18       | 1,503.18                        | 1,445.46             | 57.72   | 26.045           |  |                              |
| 16,000.00                                                   | 9,028.68                    | 8,976.43                    | 8,969.09                    | 188.08              | 10.05            | -82.51                      | 780.60                                   | 8,377.31       | 1,406.44                        | 1,345.38             | 61.06   | 23.035           |  |                              |
| 16,100.00                                                   | 9,029.55                    | 8,980.52                    | 8,973.18                    | 190.70              | 10.05            | -83.14                      | 780.51                                   | 8,377.45       | 1,310.18                        | 1,245.24             | 64.93   | 20.177           |  |                              |
| 16,200.00                                                   | 9,030.42                    | 8,984.62                    | 8,977.28                    | 193.32              | 10.06            | -83.78                      | 780.43                                   | 8,377.58       | 1,214.50                        | 1,145.03             | 69.47   | 17.483           |  |                              |
| 16,300.00                                                   | 9,031.30                    | 8,988.72                    | 8,981.37                    | 195.94              | 10.07            | -84.41                      | 780.34                                   | 8,377.71       | 1,119.57                        | 1,044.76             | 74.81   | 14.965           |  |                              |
| 16,400.00                                                   | 9,032.17                    | 8,992.81                    | 8,985.46                    | 198.57              | 10.07            | -85.05                      | 780.25                                   | 8,377.84       | 1,025.59                        | 944.42               | 81.17   | 12.636           |  |                              |
| 16,500.00                                                   | 9,033.04                    | 8,996.91                    | 8,989.56                    | 201.19              | 10.08            | -85.69                      | 780.17                                   | 8,377.97       | 932.84                          | 844.05               | 88.79   | 10.506           |  |                              |
| 16,600.00                                                   | 9,033.92                    | 9,001.00                    | 8,993.65                    | 203.81              | 10.09            | -86.33                      | 780.08                                   | 8,378.11       | 841.73                          | 743.70               | 98.03   | 8.587            |  |                              |
| 16,700.00                                                   | 9,034.79                    | 9,005.10                    | 8,997.74                    | 206.44              | 10.10            | -86.97                      | 779.99                                   | 8,378.24       | 752.86                          | 643.54               | 109.32  | 6.887            |  |                              |
| 16,800.00                                                   | 9,035.66                    | 9,009.20                    | 9,001.83                    | 209.06              | 10.10            | -87.61                      | 779.91                                   | 8,378.37       | 667.12                          | 543.89               | 123.24  | 5.413            |  |                              |
| 16,900.00                                                   | 9,036.53                    | 9,013.29                    | 9,005.93                    | 211.69              | 10.11            | -88.25                      | 779.82                                   | 8,378.50       | 585.90                          | 445.51               | 140.39  | 4.173            |  |                              |
| 17,000.00                                                   | 9,037.41                    | 9,017.39                    | 9,010.02                    | 214.31              | 10.12            | -88.89                      | 779.73                                   | 8,378.63       | 511.34                          | 350.11               | 161.23  | 3.171            |  |                              |
| 17,100.00                                                   | 9,038.28                    | 9,021.48                    | 9,014.11                    | 216.94              | 10.12            | -89.54                      | 779.65                                   | 8,378.77       | 446.79                          | 261.44               | 185.35  | 2.410            |  |                              |
| 17,200.00                                                   | 9,039.15                    | 9,025.58                    | 9,018.21                    | 219.56              | 10.13            | -90.18                      | 779.56                                   | 8,378.90       | 397.17                          | 187.15               | 210.02  | 1.891            |  |                              |
| 17,300.00                                                   | 9,040.02                    | 9,029.68                    | 9,022.30                    | 222.19              | 10.14            | -90.83                      | 779.47                                   | 8,379.03       | 368.55                          | 139.82               | 228.73  | 1.611            |  |                              |
| 17,359.74                                                   | 9,040.55                    | 9,032.12                    | 9,024.75                    | 223.76              | 10.14            | -91.21                      | 779.42                                   | 8,379.11       | 363.68                          | 129.99               | 233.70  | 1.556 CC, ES, SF |  |                              |
| 17,400.00                                                   | 9,040.90                    | 9,033.77                    | 9,026.39                    | 224.81              | 10.15            | -91.47                      | 779.39                                   | 8,379.16       | 365.90                          | 132.15               | 233.75  | 1.565            |  |                              |
| 17,500.00                                                   | 9,041.77                    | 9,037.87                    | 9,030.49                    | 227.44              | 10.15            | -92.12                      | 779.30                                   | 8,379.29       | 389.75                          | 166.26               | 223.49  | 1.744            |  |                              |
| 17,600.00                                                   | 9,042.64                    | 9,041.96                    | 9,034.58                    | 230.07              | 10.16            | -92.76                      | 779.21                                   | 8,379.43       | 435.77                          | 231.56               | 204.21  | 2.134            |  |                              |
| 17,700.00                                                   | 9,043.51                    | 9,046.06                    | 9,038.67                    | 232.69              | 10.17            | -93.41                      | 779.13                                   | 8,379.56       | 497.84                          | 314.83               | 183.01  | 2.720            |  |                              |
| 17,800.00                                                   | 9,044.39                    | 9,050.16                    | 9,042.76                    | 235.32              | 10.17            | -94.05                      | 779.04                                   | 8,379.69       | 570.76                          | 407.09               | 163.67  | 3.487            |  |                              |

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# LEAM Drilling Systems LLC

## Anticollision Report

**Company:** Devon Energy  
**Project:** Eddy County, NM (NAD-83)  
**Reference Site:** Emerald PWU 20-21  
**Site Error:** 0.00 usft  
**Reference Well:** 12H  
**Well Error:** 0.00 usft  
**Reference Wellbore:** OH  
**Reference Design:** Plan #1

**Local Co-ordinate Reference:** Well 12H  
**TVD Reference:** 3313.8' GE + 23.5' KB @ 3337.30usft  
**MD Reference:** 3313.8' GE + 23.5' KB @ 3337.30usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Output errors are at** 2.00 sigma  
**Database:** EDM 5000.1 Multi User Db  
**Offset TVD Reference:** Offset Datum

| Offset Design Emerald PWU 20-21 - PWU #6 (offset) - OH - OH |                             |                             |                             |                     |                  |                             |                                           |                                           |                              |                               |                                 |                      | Offset Site Error: | 0.00 usft |
|-------------------------------------------------------------|-----------------------------|-----------------------------|-----------------------------|---------------------|------------------|-----------------------------|-------------------------------------------|-------------------------------------------|------------------------------|-------------------------------|---------------------------------|----------------------|--------------------|-----------|
| Survey Program: 3400-ISCWSA-GYRO-3                          |                             |                             |                             |                     |                  |                             |                                           |                                           |                              |                               |                                 |                      | Offset Well Error: | 0.00 usft |
| Reference                                                   |                             | Offset                      |                             | Semi Major Axis     |                  | Highside<br>Toolface<br>(°) | Distance                                  |                                           | Between<br>Centres<br>(usft) | Between<br>Ellipses<br>(usft) | Minimum<br>Separation<br>(usft) | Separation<br>Factor | Warning            |           |
| Measured<br>Depth<br>(usft)                                 | Vertical<br>Depth<br>(usft) | Measured<br>Depth<br>(usft) | Vertical<br>Depth<br>(usft) | Reference<br>(usft) | Offset<br>(usft) |                             | Offset Wellbore Centre<br>+N/-S<br>(usft) | Offset Wellbore Centre<br>+E/-W<br>(usft) |                              |                               |                                 |                      |                    |           |
| 17,900.00                                                   | 9,045.26                    | 9,054.25                    | 9,046.86                    | 237.95              | 10.18            | -94.69                      | 778.95                                    | 8,379.82                                  | 650.89                       | 503.59                        | 147.29                          | 4.419                |                    |           |
| 18,000.00                                                   | 9,046.13                    | 9,058.35                    | 9,050.95                    | 240.57              | 10.19            | -95.33                      | 778.87                                    | 8,379.96                                  | 735.87                       | 602.09                        | 133.78                          | 5.501                |                    |           |
| 18,100.00                                                   | 9,047.01                    | 9,062.44                    | 9,055.04                    | 243.20              | 10.20            | -95.98                      | 778.78                                    | 8,380.09                                  | 824.21                       | 701.53                        | 122.68                          | 6.718                |                    |           |
| 18,200.00                                                   | 9,047.88                    | 9,066.54                    | 9,059.14                    | 245.83              | 10.20            | -96.61                      | 778.69                                    | 8,380.22                                  | 914.94                       | 801.40                        | 113.54                          | 8.058                |                    |           |
| 18,300.00                                                   | 9,048.75                    | 9,070.64                    | 9,063.23                    | 248.46              | 10.21            | -97.25                      | 778.61                                    | 8,380.35                                  | 1,007.40                     | 901.46                        | 105.95                          | 9.508                |                    |           |
| 18,400.00                                                   | 9,049.62                    | 9,074.73                    | 9,067.32                    | 251.09              | 10.22            | -97.89                      | 778.52                                    | 8,380.48                                  | 1,101.17                     | 1,001.59                      | 99.58                           | 11.058               |                    |           |
| 18,500.00                                                   | 9,050.50                    | 9,078.83                    | 9,071.42                    | 253.71              | 10.22            | -98.53                      | 778.43                                    | 8,380.62                                  | 1,195.94                     | 1,101.74                      | 94.20                           | 12.696               |                    |           |
| 18,600.00                                                   | 9,051.37                    | 9,082.92                    | 9,075.51                    | 256.34              | 10.23            | -99.16                      | 778.35                                    | 8,380.75                                  | 1,291.48                     | 1,201.88                      | 89.60                           | 14.414               |                    |           |
| 18,700.00                                                   | 9,052.24                    | 9,087.02                    | 9,079.60                    | 258.97              | 10.24            | -99.79                      | 778.26                                    | 8,380.88                                  | 1,387.64                     | 1,301.99                      | 85.65                           | 16.202               |                    |           |
| 18,800.00                                                   | 9,053.11                    | 9,091.12                    | 9,083.69                    | 261.60              | 10.25            | -100.42                     | 778.17                                    | 8,381.01                                  | 1,484.29                     | 1,402.07                      | 82.22                           | 18.053               |                    |           |
| 18,900.00                                                   | 9,053.99                    | 9,095.21                    | 9,087.79                    | 264.23              | 10.25            | -101.05                     | 778.09                                    | 8,381.14                                  | 1,581.35                     | 1,502.12                      | 79.23                           | 19.960               |                    |           |
| 18,958.87                                                   | 9,054.50                    | 9,097.62                    | 9,090.20                    | 265.78              | 10.26            | -101.41                     | 778.04                                    | 8,381.22                                  | 1,638.65                     | 1,561.01                      | 77.64                           | 21.105               |                    |           |

# LEAM Drilling Systems LLC

## Anticollision Report

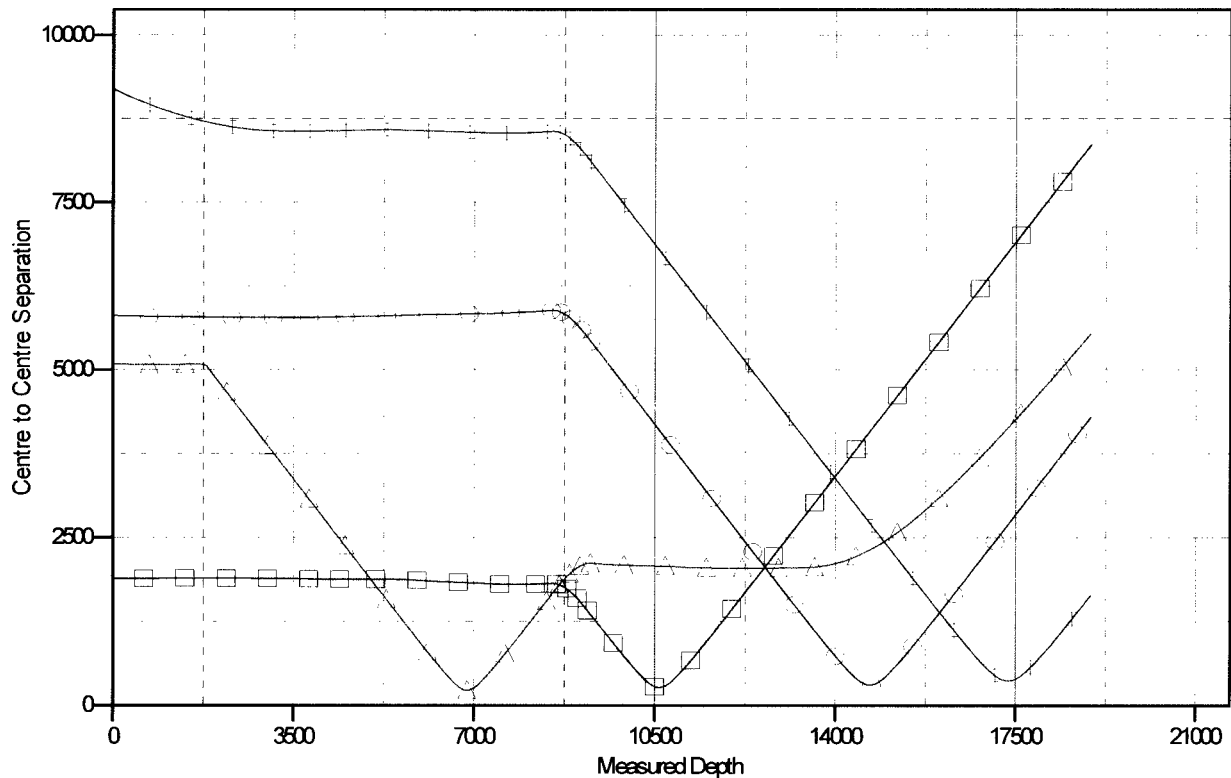
**Company:** Devon Energy  
**Project:** Eddy County, NM (NAD-83)  
**Reference Site:** Emerald PWU 20-21  
**Site Error:** 0.00 usft  
**Reference Well:** 12H  
**Well Error:** 0.00 usft  
**Reference Wellbore:** OH  
**Reference Design:** Plan #1

**Local Co-ordinate Reference:** Well 12H  
**TVD Reference:** 3313.8' GE + 23.5' KB @ 3337.30usft  
**MD Reference:** 3313.8' GE + 23.5' KB @ 3337.30usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Output errors are at** 2.00 sigma  
**Database:** EDM 5000.1 Multi User Db  
**Offset TVD Reference:** Offset Datum

Reference Depths are relative to 3313.8' GE + 23.5' KB @ 3337.30usft  
Offset Depths are relative to Offset Datum  
Central Meridian is 104° 20' 0.000 W

Coordinates are relative to: 12H  
Coordinate System is US State Plane 1983, New Mexico Eastern Zone  
Grid Convergence at Surface is: 0.12°

### Ladder Plot



### LEGEND

▲ Emerald 20 8H (offset), OH, OH V0    + PWU #6 (offset), OH, OH V0  
■ PWU #5 (offset), OH, OH V0    ○ PWU #24 (offset), OH, OH V0

# LEAM Drilling Systems LLC

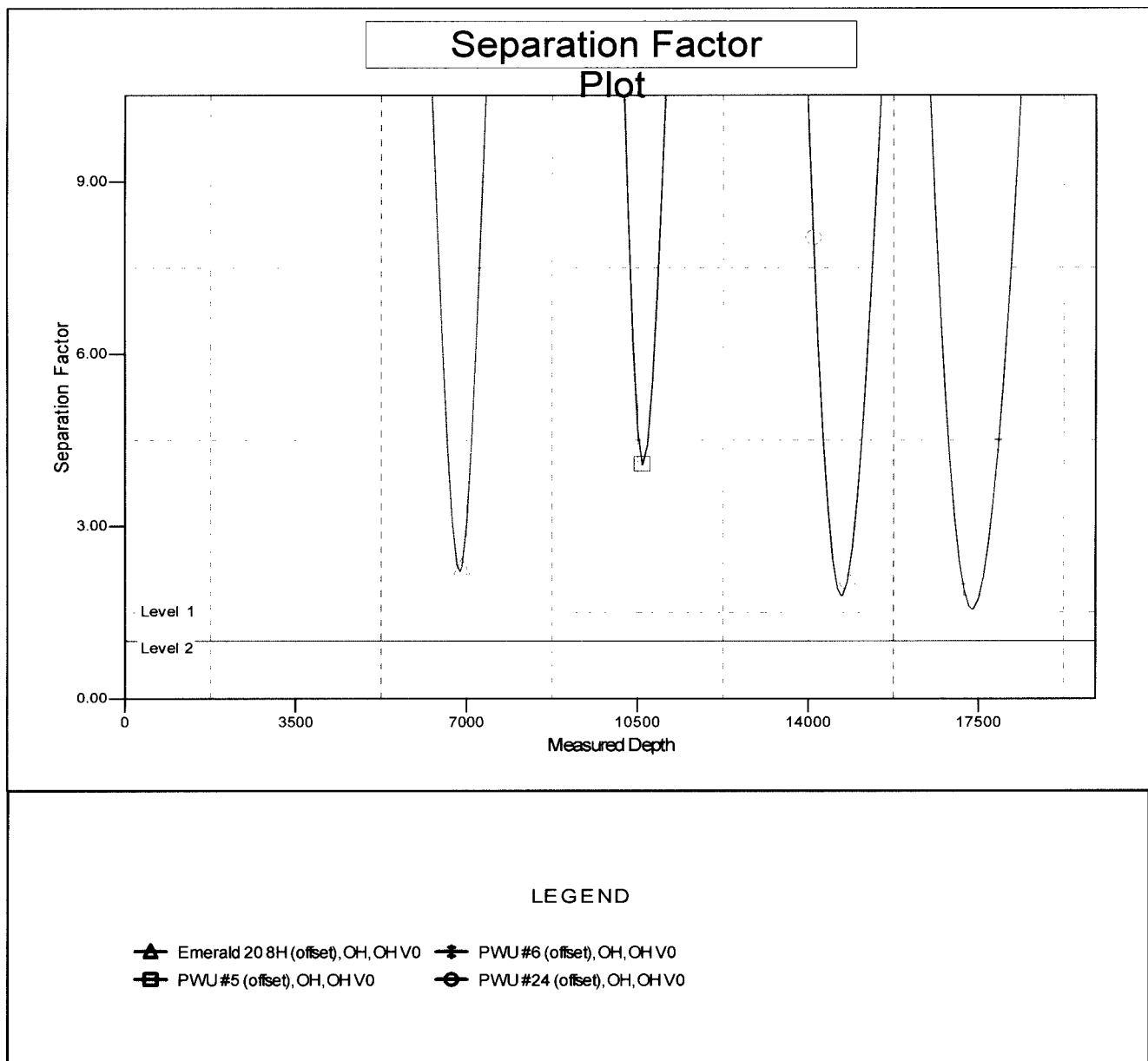
## Anticollision Report

**Company:** Devon Energy  
**Project:** Eddy County, NM (NAD-83)  
**Reference Site:** Emerald PWU 20-21  
**Site Error:** 0.00 usft  
**Reference Well:** 12H  
**Well Error:** 0.00 usft  
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**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Output errors are at:** 2.00 sigma  
**Database:** EDM 5000.1 Multi User Db  
**Offset TVD Reference:** Offset Datum

Reference Depths are relative to 3313.8' GE + 23.5' KB @ 3337.30usft  
 Offset Depths are relative to Offset Datum  
 Central Meridian is 104° 20' 0.000 W

Coordinates are relative to: 12H  
 Coordinate System is US State Plane 1983, New Mexico Eastern Zone  
 Grid Convergence at Surface is: 0.12°



Devon Energy, Emerald PWU 20-21 12H

1. Geologic Formations

RECEIVED

|               |        |                               |     |
|---------------|--------|-------------------------------|-----|
| TVD of target | 9,056' | Pilot hole depth              | N/A |
| MD at TD:     | 18,958 | Deepest expected fresh water: |     |

Basin

| Formation     | Depth (TVD) from KB | Water/Mineral Bearing/ Target Zone? | Hazards* |
|---------------|---------------------|-------------------------------------|----------|
| Top of Salt   | 439                 |                                     |          |
| Base of Salt  | 900                 |                                     |          |
| Delaware      | 2920                |                                     |          |
| Bone Spring   | 4520                |                                     |          |
| 1BSSS         | 6752                |                                     |          |
| 2BSLM         | 6891                |                                     |          |
| 2BSSS         | 7486                |                                     |          |
| 3BSLM         | 7842                |                                     |          |
| 3BSSS         | 8609                |                                     |          |
| G Sand Target | 8931                |                                     |          |
| WFMP          | 9006                |                                     |          |
|               |                     |                                     |          |
|               |                     |                                     |          |
|               |                     |                                     |          |
|               |                     |                                     |          |
|               |                     |                                     |          |
|               |                     |                                     |          |
|               |                     |                                     |          |

\*H2S, water flows, loss of circulation, abnormal pressures, etc.

## Devon Energy, Emerald PWU 20-21 12H

### 2. Casing Program

| Hole Size                 | Casing Interval |         | Csg. Size | Weight (lbs) | Grade | Conn.              |
|---------------------------|-----------------|---------|-----------|--------------|-------|--------------------|
|                           | From            | To      |           |              |       |                    |
| 17.5"                     | 0               | 350     | 13.375"   | 48           | H-40  | STC                |
| 12.25"                    | 0               | 3,450'  | 9.625"    | 40           | J-55  | BTC                |
| 8.75"                     | 0               | 18,958' | 5.5       | 17           | P-110 | BTC                |
| BLM Minimum Safety Factor |                 |         |           | 1.125        | 1.00  | 1.6 Dry<br>1.8 Wet |

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

Must have table for contingency casing

|                                                                                                                                                  | Y or N |
|--------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| Is casing new? If used, attach certification as required in Onshore Order #1                                                                     | Y      |
| Does casing meet API specifications? If no, attach casing specification sheet.                                                                   | Y      |
| Is premium or uncommon casing planned? If yes attach casing specification sheet.                                                                 | N      |
| Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria). | Y      |
| Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?                | Y      |
| Is well located within Capitan Reef?                                                                                                             | N      |
| If yes, does production casing cement tie back a minimum of 50' above the Reef?                                                                  |        |
| Is well within the designated 4 string boundary.                                                                                                 |        |
| Is well located in SOPA but not in R-111-P?                                                                                                      | N      |
| If yes, are the first 2 strings cemented to surface and 3 <sup>rd</sup> string cement tied back 500' into previous casing?                       |        |
| Is well located in R-111-P and SOPA?                                                                                                             | N      |
| If yes, are the first three strings cemented to surface?                                                                                         |        |
| Is 2 <sup>nd</sup> string set 100' to 600' below the base of salt?                                                                               |        |
| Is well located in high Cave/Karst?                                                                                                              | N      |
| If yes, are there two strings cemented to surface?                                                                                               |        |
| (For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?                                                           |        |
| Is well located in critical Cave/Karst?                                                                                                          | N      |
| If yes, are there three strings cemented to surface?                                                                                             |        |

## Devon Energy, Emerald PWU 20-21 12H

### 3. Cementing Program

| Casing  | # Sks | Wt.<br>lb/<br>gal | H <sub>2</sub> O<br>gal/sk | Yld<br>ft <sup>3</sup> /<br>sack | 500# Comp.<br>Strength<br>(hours) | Slurry Description |
|---------|-------|-------------------|----------------------------|----------------------------------|-----------------------------------|--------------------|
| 13-3/8" |       |                   |                            |                                  |                                   |                    |
| Surface | 395   | 14.8              | 395                        | 14.8                             | 6.368                             | C + Adds           |
| 9-5/8"  | 655   | 12.6              | 10.654                     | 1.95                             | 31 hr 40 mn                       | 35:65 Poz:C + Adds |
| Inter.  | 438   | 14.8              | 6.352                      | 1.33                             | 5 hr 29 mn                        | C + Adds           |
| 5-1/2"  | 851   | 11.2              | 15.442                     | 2.59                             | 19 hr 3 mn                        | TXI + Adds         |
| Prod    | 1967  | 14.5              | 5.175                      | 1.18                             | 9 hr 6 mn                         | 50:50 Poz:H + Adds |

If a DV tool is used, depth(s) will be adjusted based on hole conditions and cement volumes will be adjusted proportionally. DV tool will be set a minimum of 50 feet below previous casing and a minimum of 200 feet above current shoe. Lab reports with the 500 psi compressive strength time for the cement will be onsite for review.

| Casing String            | TOC   | % Excess |
|--------------------------|-------|----------|
| 13-3/8" Surface          | 0'    | 25%      |
| 9-5/8" Intermediate      | 0'    | 25%      |
| 5-1/2" Production Casing | 2450' | 10%      |

**Devon Energy, Emerald PWU 20-21 12H**

**4. Pressure Control Equipment**

|   |                                                                                                      |
|---|------------------------------------------------------------------------------------------------------|
| N | A variance is requested for the use of a diverter on the surface casing. See attached for schematic. |
|---|------------------------------------------------------------------------------------------------------|

| BOP installed and tested before drilling which hole? | Size?   | Min. Required WP | Type       | ✓ | Tested to:              |
|------------------------------------------------------|---------|------------------|------------|---|-------------------------|
| 12-1/4"                                              | 13-5/8" | 3M               | Annular    | x | 50% of working pressure |
|                                                      |         |                  | Blind Ram  |   | 3M                      |
|                                                      |         |                  | Pipe Ram   |   |                         |
|                                                      |         |                  | Double Ram | x |                         |
|                                                      |         |                  | Other*     |   |                         |
| 8-3/4"                                               | 13-5/8" | 3M               | Annular    | x | 50% testing pressure    |
|                                                      |         |                  | Blind Ram  |   | 3M                      |
|                                                      |         |                  | Pipe Ram   |   |                         |
|                                                      |         |                  | Double Ram | x |                         |
|                                                      |         |                  | Other *    |   |                         |
|                                                      |         |                  | Annular    |   |                         |
|                                                      |         |                  | Blind Ram  |   |                         |
|                                                      |         |                  | Pipe Ram   |   |                         |
|                                                      |         |                  | Double Ram |   |                         |
|                                                      |         |                  | Other *    |   |                         |

\*Specify if additional ram is utilized.

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.

|   |                                                                                                                                                                                                                                                                                                               |
|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Y | Formation integrity test will be performed per Onshore Order #2.<br>On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i. |
|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**Devon Energy, Emerald PWU 20-21 12H**

|   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Y | A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|   | Y Are anchors required by manufacturer?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Y | <p>A multibowl wellhead may be used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested.</p> <p>Devon proposes using a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be 3000 (3M) psi.</p> <ul style="list-style-type: none"> <li>Wellhead will be installed by wellhead representatives.</li> <li>If the welding is performed by a third party, the wellhead representative will monitor the temperature to verify that it does not exceed the maximum temperature of the seal.</li> <li>Wellhead representative will install the test plug for the initial BOP test.</li> <li>Wellhead company will install a solid steel body pack-off to completely isolate the lower head after cementing intermediate casing. After installation of the pack-off, the pack-off and the lower flange will be tested to 3M, as shown on the attached schematic. Everything above the pack-off will not have been altered whatsoever from the initial nipple up. Therefore the BOP components will not be retested at that time.</li> <li>If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head will be cut and top out operations will be conducted.</li> <li>Devon will pressure test all seals above and below the mandrel (but still above the casing) to full working pressure rating.</li> <li>Devon will test the casing to 0.22 psi/ft or 1500 psi, whichever is greater, as per Onshore Order #2.</li> </ul> <p>After running the 13-3/8" surface casing, a 13-5/8" BOP/BOPE system with a minimum rating of 3M will be installed on the wellhead system and will undergo a 250 psi low pressure test followed by a 3,000 psi high pressure test. The 3,000 psi high and 250 psi low test will cover testing requirements a maximum of 30 days, as per Onshore Order #2. If the well is not complete within 30 days of this BOP test, another full BOP test will be conducted, as per Onshore Order #2.</p> <p>After running the 9-5/8" intermediate casing with a mandrel hanger, the 13-5/8" BOP/BOPE system with a minimum rating of 3M will already be installed on the wellhead.</p> <p>The pipe rams will be operated and checked each 24 hour period and each time the drill pipe is out of the hole. These tests will be logged in the daily driller's log. A 2" kill line and 3" choke line will be incorporated into the drilling spool below the ram BOP. In addition to the rams and annular preventer, additional BOP accessories include a kelly cock, floor safety valve, choke lines, and choke manifold rated at 3,000 psi WP.</p> |

## Devon Energy, Emerald PWU 20-21 12H

|  |                                                                                                                                                                                                                                                                                                       |
|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p>Devon's proposed wellhead manufactures will be FMC Technologies, Cactus Wellhead, or Cameron.</p> <p>Devon requests a variance to use a flexible line with flanged ends between the BOP and the choke manifold (choke line). The line will be kept as straight as possible with minimal turns.</p> |
|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### 5. Mud Program

| Depth  |         | Type            | Weight (ppg) | Viscosity | Water Loss |
|--------|---------|-----------------|--------------|-----------|------------|
| From   | To      |                 |              |           |            |
| 0      | 350'    | FW Gel          | 8.6-8.8      | 28-34     | N/C        |
| 350'   | 3,450'  | Saturated Brine | 10.0-10.2    | 28-34     | N/C        |
| 3,450' | 18,958' | Cut Brine       | 8.5-9.0      | 28-34     | N/C        |

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.

|                                                         |                             |
|---------------------------------------------------------|-----------------------------|
| What will be used to monitor the loss or gain of fluid? | PVT/Pason/Visual Monitoring |
|---------------------------------------------------------|-----------------------------|

### 6. Logging and Testing Procedures

| Logging, Coring and Testing. |                                                                                                                                                             |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| x                            | Will run GR/CNL from TD to surface (horizontal well – vertical portion of hole). Stated logs run will be in the Completion Report and submitted to the BLM. |
|                              | No Logs are planned based on well control or offset log information.                                                                                        |
|                              | Drill stem test? If yes, explain                                                                                                                            |
|                              | Coring? If yes, explain                                                                                                                                     |

| Additional logs planned |             | Interval                |
|-------------------------|-------------|-------------------------|
|                         | Resistivity | Int. shoe to KOP        |
|                         | Density     | Int. shoe to KOP        |
| X                       | CBL         | Production casing       |
| X                       | Mud log     | Intermediate shoe to TD |
|                         | PEX         |                         |

**Devon Energy, Emerald PWU 20-21 12H**

**7. Drilling Conditions**

| Condition                  | Specify what type and where? |
|----------------------------|------------------------------|
| BH Pressure at deepest TVD | 4238 psi                     |
| Abnormal Temperature       | No                           |

Mitigation measure for abnormal conditions. Describe. Lost circulation material/sweeps/mud scavengers.

|                                                                                                                                                                                                                                                                                                                                    |                   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| Hydrogen Sulfide (H2S) monitors will be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM. |                   |
| N                                                                                                                                                                                                                                                                                                                                  | H2S is present    |
| Y                                                                                                                                                                                                                                                                                                                                  | H2S Plan attached |

**8. Other facets of operation**

Is this a walking operation? No.

Will be pre-setting casing? No.

Attachments

☒ Directional Plan

☐ Other, describe