



**PHOENIX**  
**TECHNOLOGY SERVICES**

March 23, 2017

BC Operating  
Attention: Regulatory Department  
303 Veterans Airpark Lane #6101  
PO Box 50820, Midland, TX. 70710  
Midland, TX 79705

**NEW OIL CONSERVATION**  
ARTESIA DISTRICT

**MAY 19 2017**

Re: BC Operating  
Black River 15 State SWD No.1  
Eddy County, NM  
API #30-015-43096  
Job No. 60964

**RECEIVED**

Dear Regulatory Department;

Phoenix Technology Services, Inc. has filed the Survey Data Certification, Surveys, and Lease Plat for the above referenced well with the State of New Mexico Oil Conservation Division – District 2 via certified mail. A copy of the filing is attached for your records.

| Name of Surveyor | Drain Hole Number | Surveyed Depths |       | Dates Performed |         | Type of Survey |
|------------------|-------------------|-----------------|-------|-----------------|---------|----------------|
|                  |                   | From            | To    | Start           | End     |                |
| Larry Seebeck    | 1                 | 697             | 4,181 | 03/4/17         | 03/7/17 | MWD            |

Thank you for the opportunity to be of service. Please contact me if you have any questions or require additional information.

Best Regards,

*Brittany Carley*

Brittany Carley  
Operations Administrator

**Phoenix Technology Services**  
**SURVEY DATA CERTIFICATION**



PHOENIX JOB NUMBER 60964

ENERGY COMPANY BC Operating

WELL NAME Black River 15 State SWD No. 1

COUNTY & STATE

Eddy, New Mexico

API WELL NUMBER 30-015-43096

PROPOSED DIRECTION 0.00

| TIE-IN DATA |           |        |         |          |         |        |
|-------------|-----------|--------|---------|----------|---------|--------|
| MEASURED    | VERTICAL  |        |         | N-S      | E-W     | DATA   |
| DEPTH       | DEPTH     | INCLIN | AZIMUTH | COORD    | COORD   | SOURCE |
| 611.00 ft   | 610.68 ft | 2.18   | 6.00    | 16.40 ft | 3.24 ft | Gyro   |

| FIRST    | FIRST     |        |         |
|----------|-----------|--------|---------|
| SURVEY   | SURVEY    |        |         |
| DATE     | DEPTH     | INCLIN | AZIMUTH |
| 4-Mar-17 | 697.00 ft | 2.62   | 14.84   |

| SURVEY INSTRUMENT |
|-------------------|
| TYPE              |
| Phoenix MWD       |

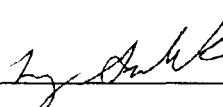
| LAST     | LAST        |        |         |
|----------|-------------|--------|---------|
| SURVEY   | SURVEY      |        |         |
| DATE     | DEPTH       | INCLIN | AZIMUTH |
| 7-Mar-17 | 4,181.00 ft | 0.54   | 212.62  |

TO THE BEST OF MY KNOWLEDGE I  
CERTIFY THIS SURVEY DATA TO BE  
TRUE AND CORRECT.

| PROJECTED | PROJECTED   |        |         |
|-----------|-------------|--------|---------|
| TD SURVEY | TD SURVEY   |        |         |
| DATE      | DEPTH       | INCLIN | AZIMUTH |
| 7-Mar-17  | 4,235.00 ft | 0.54   | 212.62  |

Larry Seebeck

PRINT YOUR NAME ABOVE

  
SIGN YOUR NAME ABOVE

**MAGNETIC DECLINATION OR TOTAL GRID**

| TOTAL CORRECTION USED | 7.37 |
|-----------------------|------|
| DECLINATION OR GRID   | GRID |

3/4/2017

TODAY'S DATE

MWD SUPERVISOR 1 Larry Seebeck

DIRECTIONAL DRILLER 1

Ruben Cano

MWD SUPERVISOR 2 PRISM

DIRECTIONAL DRILLER 2

12329 Cutten Rd., Houston, Texas 777066

(713)337-0600 (Voice), (713)337-0599 (Fax)



## **BC Operating, Inc.**

**Eddy County, New Mexico (NAD27)**

**Black River 15 State**

**SWD #001**

**OH / Job #60964**

**Survey: Phoenix MWD surveys**

## **Standard Survey Report**

**08 March, 2017**

**NEW OIL CONSERVATION**  
**ARTESIA DISTRICT**

**MAY 19 2017**

**RECEIVED**



**Company:** BC Operating, Inc.  
**Project:** Eddy County, New Mexico (NAD27)  
**Site:** Black River 15 State  
**Well:** SWD #001  
**Wellbore:** OH / Job #60964  
**Design:** OH / Job #60964

**Local Co-ordinate Reference:** Well SWD #001  
**TVD Reference:** GL + KB @ 3247.50usft (Patterson 244)  
**MD Reference:** GL + KB @ 3247.50usft (Patterson 244)  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** Compass 5000 GCR

|                    |                                      |                      |                |
|--------------------|--------------------------------------|----------------------|----------------|
| <b>Project</b>     | Eddy County, New Mexico (NAD27)      |                      |                |
| <b>Map System:</b> | US State Plane 1927 (Exact solution) | <b>System Datum:</b> | Mean Sea Level |
| <b>Geo Datum:</b>  | NAD 1927 (NADCON CONUS)              |                      |                |
| <b>Map Zone:</b>   | New Mexico East 3001                 |                      |                |

**Site** Black River 15 State  
**Site Position:**  
**From:** Lat/Long  
**Position Uncertainty:** 0.00 usft  
**Northing:** 442,504.65 usft  
**Easting:** 547,101.57 usft  
**Slot Radius:** 13-3/16 "  
**Latitude:** 32° 12' 59.29432 N  
**Longitude:** 104° 10' 51.71297 W  
**Grid Convergence:** 0.08 °

**Well** SWD #001  
**Well Position**  
**+N/-S** 0.00 usft  
**+E/-W** 0.00 usft  
**Position Uncertainty** 0.00 usft  
**Wellhead Elevation:** 0.00 usft  
**Latitude:** 32° 12' 59.29432 N  
**Longitude:** 104° 10' 51.71297 W  
**Ground Level:** 3,219.00 usft

**Wellbore** OH / Job #60964

| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
|-----------|------------|-------------|-----------------|---------------|---------------------|
|           | HDGM       | 3/3/2017    | 7.45            | 60.02         | 48,107              |

**Design** OH / Job #60964

**Audit Notes:**

**Version:** 1.0  
**Phase:** ACTUAL  
**Tie On Depth:** 0.00

**Vertical Section:**  
**Depth From (TVD) (usft)** 0.00  
**+N/-S (usft)** 0.00  
**+E/-W (usft)** 0.00  
**Direction (°)** 187.51

**Survey Program** Date 3/8/2017

| From (usft) | To (usft) | Survey (Wellbore)                     | Tool Name | Description           |
|-------------|-----------|---------------------------------------|-----------|-----------------------|
| 697.00      | 4,235.00  | Phoenix MWD surveys (OH / Job #60964) | MWD+HDGM  | OWSG Rev.2 MWD + HDGM |

**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) |
|---------------------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| 611.00                          | 2.18            | 6.00        | 610.68                | 16.40        | 3.24         | -16.68                  | 0.00                    | 0.00                   | 0.00                  |
| 697.00                          | 2.62            | 14.84       | 696.60                | 19.93        | 3.91         | -20.27                  | 0.67                    | 0.51                   | 10.28                 |
| <b>First Phoenix MWD Survey</b> |                 |             |                       |              |              |                         |                         |                        |                       |
| 790.00                          | 0.59            | 356.21      | 789.56                | 22.46        | 4.43         | -22.85                  | 2.23                    | -2.18                  | -20.03                |
| 881.00                          | 0.62            | 213.44      | 880.56                | 22.52        | 4.12         | -22.86                  | 1.26                    | 0.03                   | -156.89               |
| 973.00                          | 0.89            | 195.15      | 972.55                | 21.41        | 3.66         | -21.71                  | 0.39                    | 0.29                   | -19.88                |
| 1,066.00                        | 1.02            | 189.17      | 1,065.54              | 19.90        | 3.34         | -20.16                  | 0.18                    | 0.14                   | -6.43                 |
| 1,157.00                        | 1.13            | 189.34      | 1,156.52              | 18.21        | 3.07         | -18.46                  | 0.12                    | 0.12                   | 0.19                  |
| 1,248.00                        | 1.24            | 192.14      | 1,247.51              | 16.36        | 2.72         | -16.58                  | 0.14                    | 0.12                   | 3.08                  |
| 1,339.00                        | 1.43            | 192.29      | 1,338.48              | 14.29        | 2.27         | -14.47                  | 0.21                    | 0.21                   | 0.16                  |
| 1,430.00                        | 1.39            | 179.24      | 1,429.45              | 12.08        | 2.04         | -12.24                  | 0.35                    | -0.04                  | -14.34                |

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**Database:** Compass 5000 GCR

**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) |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| 1,521.00              | 1.58            | 145.12      | 1,520.42              | 9.95         | 2.77         | -10.22                  | 0.98                    | 0.21                   | -37.49                |
| 1,613.00              | 2.34            | 131.21      | 1,612.37              | 7.67         | 4.91         | -8.24                   | 0.97                    | 0.83                   | -15.12                |
| 1,707.00              | 1.52            | 158.63      | 1,706.32              | 5.24         | 6.81         | -6.09                   | 1.29                    | -0.87                  | 29.17                 |
| 1,801.00              | 1.48            | 147.50      | 1,800.29              | 3.06         | 7.91         | -4.07                   | 0.31                    | -0.04                  | -11.84                |
| 1,896.00              | 2.55            | 123.37      | 1,895.23              | 0.86         | 10.34        | -2.20                   | 1.41                    | 1.13                   | -25.40                |
| 1,990.00              | 2.32            | 143.34      | 1,989.14              | -1.82        | 13.22        | 0.07                    | 0.93                    | -0.24                  | 21.24                 |
| 2,084.00              | 2.25            | 164.12      | 2,083.07              | -5.12        | 14.86        | 3.13                    | 0.88                    | -0.07                  | 22.11                 |
| 2,179.00              | 0.65            | 193.00      | 2,178.04              | -7.44        | 15.25        | 5.38                    | 1.80                    | -1.68                  | 30.40                 |
| 2,273.00              | 0.45            | 269.17      | 2,272.04              | -7.96        | 14.76        | 5.96                    | 0.74                    | -0.21                  | 81.03                 |
| 2,368.00              | 0.46            | 289.67      | 2,367.03              | -7.84        | 14.03        | 5.94                    | 0.17                    | 0.01                   | 21.58                 |
| 2,462.00              | 0.50            | 281.31      | 2,461.03              | -7.63        | 13.27        | 5.83                    | 0.09                    | 0.04                   | -8.89                 |
| 2,557.00              | 0.52            | 274.65      | 2,556.03              | -7.51        | 12.44        | 5.82                    | 0.07                    | 0.02                   | -7.01                 |
| 2,651.00              | 0.45            | 287.45      | 2,650.02              | -7.37        | 11.66        | 5.78                    | 0.14                    | -0.07                  | 13.62                 |
| 2,745.00              | 0.55            | 289.19      | 2,744.02              | -7.11        | 10.88        | 5.63                    | 0.11                    | 0.11                   | 1.85                  |
| 2,838.00              | 0.58            | 284.99      | 2,837.01              | -6.84        | 10.00        | 5.48                    | 0.05                    | 0.03                   | -4.52                 |
| 2,931.00              | 0.60            | 279.48      | 2,930.01              | -6.64        | 9.07         | 5.40                    | 0.06                    | 0.02                   | -5.92                 |
| 3,025.00              | 0.62            | 278.66      | 3,024.00              | -6.48        | 8.08         | 5.37                    | 0.02                    | 0.02                   | -0.87                 |
| 3,120.00              | 0.63            | 269.97      | 3,119.00              | -6.40        | 7.05         | 5.43                    | 0.10                    | 0.01                   | -9.15                 |
| 3,214.00              | 0.55            | 271.35      | 3,212.99              | -6.39        | 6.08         | 5.54                    | 0.09                    | -0.09                  | 1.47                  |
| 3,308.00              | 0.63            | 270.45      | 3,306.99              | -6.38        | 5.12         | 5.66                    | 0.09                    | 0.09                   | -0.96                 |
| 3,402.00              | 0.61            | 265.40      | 3,400.98              | -6.42        | 4.10         | 5.82                    | 0.06                    | -0.02                  | -5.37                 |
| 3,496.00              | 0.56            | 265.06      | 3,494.98              | -6.50        | 3.14         | 6.03                    | 0.05                    | -0.05                  | -0.36                 |
| 3,591.00              | 0.52            | 259.91      | 3,589.97              | -6.61        | 2.26         | 6.26                    | 0.07                    | -0.04                  | -5.42                 |
| 3,685.00              | 0.48            | 264.41      | 3,683.97              | -6.72        | 1.44         | 6.48                    | 0.06                    | -0.04                  | 4.79                  |
| 3,779.00              | 0.42            | 239.84      | 3,777.97              | -6.94        | 0.76         | 6.78                    | 0.21                    | -0.06                  | -26.14                |
| 3,873.00              | 0.28            | 271.10      | 3,871.97              | -7.10        | 0.23         | 7.01                    | 0.25                    | -0.15                  | 33.26                 |
| 3,967.00              | 0.64            | 226.12      | 3,965.96              | -7.46        | -0.38        | 7.45                    | 0.52                    | 0.38                   | -47.85                |
| 4,061.00              | 0.54            | 222.43      | 4,059.96              | -8.15        | -1.06        | 8.22                    | 0.11                    | -0.11                  | -3.93                 |
| 4,155.00              | 0.54            | 214.00      | 4,153.95              | -8.85        | -1.60        | 8.98                    | 0.08                    | 0.00                   | -8.97                 |
| 4,181.00              | 0.54            | 212.62      | 4,179.95              | -9.05        | -1.74        | 9.20                    | 0.05                    | 0.00                   | -5.31                 |

**Final Phoenix MWD Survey**

|          |      |        |          |       |       |      |      |      |      |
|----------|------|--------|----------|-------|-------|------|------|------|------|
| 4,235.00 | 0.54 | 212.62 | 4,233.95 | -9.48 | -2.01 | 9.66 | 0.00 | 0.00 | 0.00 |
|----------|------|--------|----------|-------|-------|------|------|------|------|

**Projection to TD**
**Survey Annotations**

| Measured Depth (usft) | Vertical Depth (usft) | Local Coordinates |              | Comment                  |
|-----------------------|-----------------------|-------------------|--------------|--------------------------|
|                       |                       | +N/-S (usft)      | +E/-W (usft) |                          |
| 697.00                | 696.60                | 19.93             | 3.91         | First Phoenix MWD Survey |
| 4,181.00              | 4,179.95              | -9.05             | -1.74        | Final Phoenix MWD Survey |
| 4,235.00              | 4,233.95              | -9.48             | -2.01        | Projection to TD         |