

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

RECEIVED

FORM APPROVED  
OMB No. 1004-0137  
Expires: March 31, 2007

**SUNDRY NOTICES AND REPORTS ON WELLS**  
*Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.*

**SUBMIT IN TRIPLICATE - Other Instructions on reverse side.**

|                                                                                                                                                                                                               |                                                          |                                                                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|-----------------------------------------------------------------------|
| 1. Type of Well<br><input type="checkbox"/> Oil Well <input checked="" type="checkbox"/> Gas Well <input type="checkbox"/> Other                                                                              |                                                          | 5. Lease Serial No.<br>NM18323                                        |
| 2. Name of Operator<br>Black Hills Gas Resources                                                                                                                                                              |                                                          | 6. If Indian, Allottee, or Tribe Name<br>RCVD JUN 12 '09              |
| 3a. Address<br>3200 N 1st Street PO Box 249 Bloomfield, NM 87413                                                                                                                                              | 3b. Phone No. (include area code)<br>505-634-1111 ext 28 | 7. If Unit or CA. Agreement Name and/or No.<br>OIL CONS. DIV.         |
| 4. Location of Well (Footage, Sec., T., R., M., or Survey Description)<br>Surface: 675' FNL 1,120' FEL NE/NE Unit A Sec24 T29N R04W 23<br>Bottom Hole: ± 1,150' FNL ±2,530' FEL NW/NE Unit B Sec 24 T29N R04W |                                                          | 8. Well Name and No.<br>Many Canyons 29-04-24 #114                    |
|                                                                                                                                                                                                               |                                                          | 9. API Well No.<br>30-039-30166                                       |
|                                                                                                                                                                                                               |                                                          | 10. Field and Pool, or Exploratory Area<br>Choza Mesa Pictured Cliffs |
|                                                                                                                                                                                                               |                                                          | 11. County or Parish, State<br>Rio Arriba, New Mexico                 |

CHECK APPROPRIATE BOX(S) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

| TYPE OF SUBMISSION                                   | TYPE OF ACTION                                |                                           |                                                     |                                                         |
|------------------------------------------------------|-----------------------------------------------|-------------------------------------------|-----------------------------------------------------|---------------------------------------------------------|
| <input checked="" type="checkbox"/> Notice of Intent | <input type="checkbox"/> Acidize              | <input type="checkbox"/> Deepen           | <input type="checkbox"/> Production (Start/ Resume) | <input type="checkbox"/> Water Shut-off                 |
| <input type="checkbox"/> Subsequent Report           | <input type="checkbox"/> Altering Casing      | <input type="checkbox"/> Fracture Treat   | <input type="checkbox"/> Reclamation                | <input type="checkbox"/> Well Integrity                 |
| <input type="checkbox"/> Final Abandonment Notice    | <input type="checkbox"/> Casing Repair        | <input type="checkbox"/> New Construction | <input type="checkbox"/> Recomplete                 | <input checked="" type="checkbox"/> Other <u>Change</u> |
|                                                      | <input type="checkbox"/> Change Plans         | <input type="checkbox"/> Plug and abandon | <input type="checkbox"/> Temporarily Abandon        | <u>bottom hole location</u>                             |
|                                                      | <input type="checkbox"/> Convert to Injection | <input type="checkbox"/> Plug back        | <input type="checkbox"/> Water Disposal             | <u>and drilling plans</u>                               |

13. Describe Proposed or Completed Operation (clearly state all pertinent details including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomple horizontally, give subsurface locations and measured and true vertical depths or pertinent markers and sands. Attach the Bond under which the work will be performed or provide the Bond No. on file with the BLM/ BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recomple in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notice shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

The APD for the Many Canyons 29-04-24 #114 was approved on May 5, 2009, and give the API number of 30-039-30166. After evaluation of data in the surrounding area, BHGR is changing the bottom hole. Therefore BHGR will submit an updated drilling plan, NEVIS plan, and a new C102. BHGR request that if tests of the tertiary is favorable that we will complete these formation and submit comingle application.

Surface disturbance will not change from the initial APD, therefore the Surface Use Plan will not be updated or modified.

**CONDITIONS OF APPROVAL**

Adhere to previously issued stipulations.

**HOLD C104 FOR plat for Cabresto Cyn Tertiary pool**

\* Refer to NSL-60022

14. I hereby certify that the foregoing is true and correct.  
Name (Printed/ Typed)

Daniel Manus

Title

Regulatory Technician

Signature

Date

May 19, 2009

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by Troy L. Salvors

Title Petroleum Engineers

Date 6/9/2009

Conditions of approval, if any are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Office

FFO

Title 18 U.S.C. Section 1001 AND Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Instructions on page 2)

NMOC

Hold C104

for Directional Survey  
and "As Drilled" plat

DISTRICT I  
1625 N. French Dr., Hobbs, N.M. 88240

DISTRICT II  
1301 W. Grand Ave., Artesia, N.M. 88210

DISTRICT III  
1000 Rio Brazos Rd., Aztec, N.M. 87410

DISTRICT IV  
1220 South St. Francis Dr., Santa Fe, NM 87505

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 October 12, 2005

Submit to Appropriate District Office  
State Lease - 4 Copies  
Fee Lease - 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

|                                         |                                                         |                                                     |
|-----------------------------------------|---------------------------------------------------------|-----------------------------------------------------|
| <sup>1</sup> API Number<br>30-039-30166 | <sup>2</sup> Pool Code<br>74960                         | <sup>3</sup> Pool Name<br>CHOZA MESA PICTURED CLIFF |
| <sup>4</sup> Property Code<br>301950    | <sup>5</sup> Property Name<br>MANY CANYONS 29-04-24     | <sup>6</sup> Well Number<br>114                     |
| <sup>7</sup> GRID No.<br>013925         | <sup>8</sup> Operator Name<br>BLACK HILLS GAS RESOURCES | <sup>9</sup> Elevation<br>6896'                     |

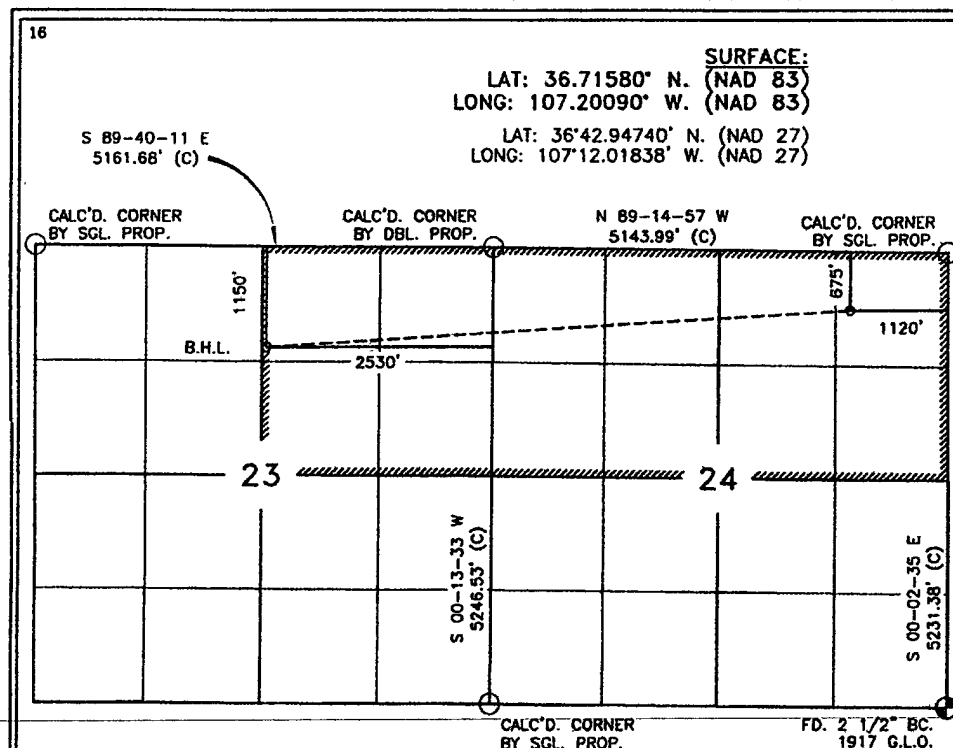
<sup>10</sup> Surface Location

| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County     |
|---------------|---------|----------|-------|---------|---------------|------------------|---------------|----------------|------------|
| A             | 24      | 29-N     | 4-W   |         | 675           | NORTH            | 1120          | EAST           | RIO ARRIBA |

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

| UL or lot no.                                                | Section | Township | Range                         | Lot Idn | Feet from the                    | North/South line | Feet from the                         | East/West line | County     |
|--------------------------------------------------------------|---------|----------|-------------------------------|---------|----------------------------------|------------------|---------------------------------------|----------------|------------|
| B                                                            | 23      | 29-N     | 4-W                           |         | 1150                             | NORTH            | 2530                                  | EAST           | RIO ARRIBA |
| <sup>12</sup> Dedicated Acres<br>N/2 SEC. 24<br>NE/4 SEC. 23 |         |          | <sup>13</sup> Joint or Infill |         | <sup>14</sup> Consolidation Code |                  | <sup>15</sup> Order No.<br>NSL - 6022 |                |            |

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



BOTTOM HOLE:

LAT: 36.71470° N. (NAD 83)  
LONG: 107.22344° W. (NAD 83)

LAT: 36°42.88145' N. (NAD 27)  
LONG: 107°13.37034' W. (NAD 27)

PRELIMINARY B.H.L.  
B.H.L. FOOTAGES ARE APPROXIMATE  
AND PROVIDED BY B.H.G.R.  
CLIENT

17 OPERATOR CERTIFICATION

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.

*Daniel Manus* 5/19/09  
Signature Date  
Daniel Manus  
Printed Name

18 SURVEYOR CERTIFICATION

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 knowledge and belief.

MAY 9, 2005  
Date of Survey  
Signature and Seal of Professional Surveyor:  
NEW MEXICO  
REGISTERED PROFESSIONAL LAND SURVEYOR  
8894  
Certificate Number



## Black Hills Gas Resources

Many Canyons 29-04-24 #114

Surface Location: 675' FNL 1,120' FEL (NE/NE) Unit A <sup>8</sup>

Sec. 23 → Bottom Hole: ± 1,150' FNL ± 2,530' FEL (SE/NE) Unit H

Sec. 24 T29N R4W <sup>NW/NE</sup>

Rio Arriba County, New Mexico

Lease: NM 18323

RECEIVED

JUN 08 2009

Bureau of Land Management  
Farmington Field Office

### DRILLING PROGRAM (Per Rule 320)

This Application for Permit to Drill (APD) was initiated under the NOS process as stated in Onshore Order No. 1 and supporting Bureau of Land Management (BLM) documents. This APD process may include an onsite meeting as determined by the Bureau of Land Management (BLM) at which time the specific concerns of Black Hills Gas Resources (BHGR) and BLM would be discussed.

This well is a new horizontal well to be drilled into the pictured cliffs formation. Attached is the horizontal drilling plan. ✓

SURFACE FORMATION – ~~Pictured Cliffs~~ San Jose

GROUND ELEVATION – 6,896'

ESTIMATED FORMATION TOPS - (Water, oil, gas and/or other mineral-bearing formations)

|                    |               |                                |
|--------------------|---------------|--------------------------------|
| San Jose           | Surface       | Sandstone, shales & siltstones |
| Nacimiento         | 1,800'        | Sandstone, shales & siltstones |
| Ojo Alamo          | 3,110'        | Sandstone, shales & siltstones |
| Kirtland           | 3,255'        | Sandstone, shales & siltstones |
| Fruitland Coal     | 3,435'        | Sandstone, shales & siltstones |
| Pictured Cliffs    | 3,544'        | Sandstone, shales & siltstones |
| <b>TOTAL DEPTH</b> | <b>3,569'</b> | <b>TVD ✓</b>                   |
|                    | <b>9,698'</b> | <b>TMD ✓</b>                   |

Estimated depths of anticipated fresh water, oil, or gas:

|                 |         |                  |
|-----------------|---------|------------------|
| San Jose        | Surface | Gas, water, sand |
| Nacimiento      | 1,800'  | Gas, water, sand |
| Ojo Alamo       | 3,110'  | Gas, water, sand |
| Kirtland        | 3,255'  | Gas, water, sand |
| Fruitland Coal  | 3,435'  | Gas, water, sand |
| Pictured Cliffs | 3,544'  | Gas, water, sand |

HORIZONTAL DRILLING PROGRAMKick Off Point is estimated to be  $\pm 2,581'$  TVDCASING PROGRAM

| Depth                        | Hole Diameter | Casing Diameter | Casing Weight and Grade | Cement                                                                                                                                                                                                     |
|------------------------------|---------------|-----------------|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 250'                         | 12-1/4"       | 9-5/8"          | J-55 36#                | To Surface (Lead $\pm 115$ sxs "Premium Cement" with 2% CaCl <sub>2</sub> & .125#/sx Poly-E-Flake)                                                                                                         |
| 250' - 4,196'<br>MVD         | 8-3/4"        | 7" csg +        | J-55 23#                | TD to surface (Lead $\pm 510$ sxs Haliburton Lite Premium with 2.5 #/sk Kol-Seal & 0.125 #/sk Poly-E-Flake Tail $\pm 100$ sxs 50/50 poz with 2.5 #/sk Kol-Seal, 0.125 #/sk Poly-E-Flake & 0.1 % Halad(R)-9 |
| 4,196'MVD<br>- 9,698'<br>MVD | 6-1/8"        | Open hole**     | Open hole               |                                                                                                                                                                                                            |

\* Actual cement volume to be determined by caliper log.

\*\* If hole instability is encountered, a 4 1/2", 10.5#, J-55 uncemented liner may be run in the 6 1/8" open hole section. ✓

Yields:

Surface: Class G cement yield: = 1.18 ft<sup>3</sup>/sx (mixed at 15.6 lb/gal)Production: Lite Premium Cement yield: =1.87 ft<sup>3</sup>/sx (mixed at 12.4 lb/gal)50:50 poz yield: = 1.303ft<sup>3</sup>/sx (mixed at 13.5 lb/gal)

All fresh water and prospectively valuable minerals encountered during drilling will be recorded by depth and protected.

PRESSURE CONTROL

BOPs and choke manifold will be installed and pressure tested before drilling out under surface casing (subsequent pressure test will be performed whenever pressure seals are broken), and then will be checked daily as to mechanical operating condition. BOP's will be pressure tested at least once every 30 days. Ram type preventors and related pressure control equipment will be pressure tested to 1,000 psi. Annular type preventor will be pressure tested to 50% of the rated working pressure, not to exceed 1,000 psi. All casing strings will be pressure tested to 0.22 psi/ft. or 1,500 psi, whichever is greater, not to exceed 70% of internal yield. ✓

BOP to be either double gate rams or an annular preventor as per Onshore Order No. 2.

Statement on Accumulator System and Location of Hydraulic Controls

The drilling rig has not yet been selected for this well. Selection will take place after approval of this application. Manual and/or hydraulic controls will be in compliance with Onshore Order No. 2 for 2M systems. ✓

A remote accumulator will be used. Pressures, capacities, location of remote hydraulic and manual controls will be identified at the time of the BLM supervised BOP test.

### MUD PROGRAM

|      |   |      |                                                                                                    |
|------|---|------|----------------------------------------------------------------------------------------------------|
| 0'   | - | 250' | Fresh water – M.W. 8.5 ppg, Vis 30-33                                                              |
| 250' | - | TD'  | Inhibitive low solids non-dispersed<br>M.W. 6.0 – 9.2 ppg<br>Vis – 45 – 60 sec<br>W.L. 8cc or less |

Sufficient mud materials to maintain mud properties, control lost circulation and to contain “kick” will be available at wellsite.

### AUXILIARY EQUIPMENT

- A) A Kelly cock will be kept in the drill string at all times
- B) Inside BOP or stab-in valve (available on rig floor)
- C) Mud monitoring will be visually observed

### LOGGING, CORING, TESTING PROGRAM

- A) Logging: GR/SP/CAL – Resistivity/Conductivity – Neutron/Density – Bulk Density/RWA  
From TD to SC
- B) Coring: None
- C) Testing: Possible DST – None anticipated. Drill stem tests may be run on shows of interest

### ABNORMAL CONDITIONS

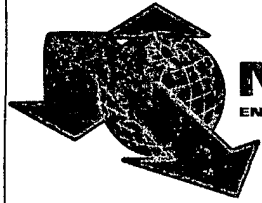
- A) Pressures: No abnormal conditions are anticipated  
Bottom hole pressure gradient – 0.31 psi/ft
- B) Temperatures: No abnormal conditions are anticipated
- C) H<sub>2</sub>S: See attached H<sub>2</sub>S plan in event H<sub>2</sub>S is encountered.
- D) Estimated bottomhole pressure: 1,110psi ✓

### ANTICIPATED START DATE:

July1, 2009

### COMPLETION

The location pad will be of sufficient size to accommodate all completion activities and equipment. A string of 2 3/8", 4.7#/ft. J-55 tubing will be run for a flowing string. A Sundry Notice will be submitted with a revised completion program if warranted.



**NEVIS**  
ENERGY SERVICES INC.  
1805 Brittmoore Rd  
Houston, Texas 77043  
1-800-809-9819  
www.nevisenergy.com

Job Number: 091xxxx  
Company: Black Hills Gas Resources  
Lease/Well: Many Canyons 29-04-24 #114  
Location: Rio Arriba County, NM  
Rig Name: ☐  
RKB: 6900  
G.L. or M.S.L.: 6896

State/Country: NM  
Declination: ☐  
Grid: ☐  
File name: N:\BLACKH~1\NEWWEL~1\290424~1\2424114.SVY  
Date/Time: 24-Feb-09 / 11:52  
Curve Name: Many Canyons 29-04-24 #114 plan 2-24-09

**Many Canyons 29-04-24 #114 plan 2-24-09**

WINSERVE PROPOSAL REPORT  
Minimum Curvature Method  
Vertical Section Plane 265.85  
Vertical Section Referenced to Wellhead  
Rectangular Coordinates Referenced to Wellhead

| Measured<br>Depth<br>FT                                  | Incl<br>Angle<br>Deg | Drift<br>Direction<br>Deg | True<br>Vertical<br>Depth | Vertical<br>Section<br>FT | N-S<br>FT | E-W<br>FT | CLOSURE<br>Distance<br>FT | Direction<br>Deg | Dogleg<br>Severity<br>Deg/100 |
|----------------------------------------------------------|----------------------|---------------------------|---------------------------|---------------------------|-----------|-----------|---------------------------|------------------|-------------------------------|
| Surface - 675 FNL, 1120 FEL - T29N, R4W Sec. 24          |                      |                           |                           |                           |           |           |                           |                  |                               |
| .00                                                      | .00                  | .00                       | .00                       | .00                       | .00       | .00       | .00                       | .00              | .00                           |
| KOP-> 2575 TVD Begin Build @ 6.00°/100', 265.85° Azimuth |                      |                           |                           |                           |           |           |                           |                  |                               |
| 2575.00                                                  | .00                  | 265.85                    | 2575.00                   | .00                       | .00       | .00       | .00                       | .00              | .00                           |
| 2605.00                                                  | 1.80                 | 265.85                    | 2605.00                   | .47                       | -.03      | -.47      | .47                       | 265.87           | 6.00                          |
| 2635.00                                                  | 3.60                 | 265.85                    | 2634.96                   | 1.89                      | -.14      | -1.88     | 1.89                      | 265.86           | 6.00                          |
| 2665.00                                                  | 5.40                 | 265.85                    | 2664.87                   | 4.24                      | -.31      | -4.23     | 4.24                      | 265.86           | 6.00                          |
| 2695.00                                                  | 7.20                 | 265.85                    | 2694.68                   | 7.53                      | -.54      | -7.51     | 7.53                      | 265.86           | 6.00                          |
| 2725.00                                                  | 9.00                 | 265.85                    | 2724.38                   | 11.76                     | -.85      | -11.73    | 11.76                     | 265.86           | 6.00                          |
| 2755.00                                                  | 10.80                | 265.85                    | 2753.94                   | 16.92                     | -1.22     | -16.88    | 16.92                     | 265.86           | 6.00                          |
| 2785.00                                                  | 12.60                | 265.85                    | 2783.31                   | 23.01                     | -1.66     | -22.94    | 23.01                     | 265.86           | 6.00                          |
| 2815.00                                                  | 14.40                | 265.85                    | 2812.48                   | 30.01                     | -2.17     | -29.93    | 30.01                     | 265.86           | 6.00                          |
| 2845.00                                                  | 16.21                | 265.85                    | 2841.41                   | 37.93                     | -2.74     | -37.83    | 37.93                     | 265.85           | 6.00                          |
| 2875.00                                                  | 18.01                | 265.85                    | 2870.09                   | 46.75                     | -3.38     | -46.63    | 46.75                     | 265.85           | 6.00                          |
| 2905.00                                                  | 19.81                | 265.85                    | 2898.47                   | 56.47                     | -4.08     | -56.32    | 56.47                     | 265.85           | 6.00                          |
| 2935.00                                                  | 21.61                | 265.85                    | 2926.53                   | 67.08                     | -4.85     | -66.90    | 67.08                     | 265.85           | 6.00                          |
| 2965.00                                                  | 23.41                | 265.85                    | 2954.24                   | 78.56                     | -5.68     | -78.36    | 78.56                     | 265.85           | 6.00                          |
| 2995.00                                                  | 25.21                | 265.85                    | 2981.58                   | 90.91                     | -6.57     | -90.67    | 90.91                     | 265.85           | 6.00                          |
| 3025.00                                                  | 27.01                | 265.85                    | 3008.52                   | 104.11                    | -7.53     | -103.84   | 104.11                    | 265.85           | 6.00                          |
| 3055.00                                                  | 28.81                | 265.85                    | 3035.03                   | 118.15                    | -8.54     | -117.84   | 118.15                    | 265.85           | 6.00                          |
| 3085.00                                                  | 30.61                | 265.85                    | 3061.08                   | 133.02                    | -9.62     | -132.67   | 133.02                    | 265.85           | 6.00                          |
| 3115.00                                                  | 32.41                | 265.85                    | 3086.66                   | 148.70                    | -10.75    | -148.31   | 148.70                    | 265.85           | 6.00                          |
| 3145.00                                                  | 34.21                | 265.85                    | 3111.73                   | 165.17                    | -11.94    | -164.74   | 165.17                    | 265.85           | 6.00                          |

| Measured<br>Depth<br>FT             | Incl<br>Angle<br>Deg | Drift<br>Direction<br>Deg | True<br>Vertical<br>Depth | Vertical<br>Section<br>FT | N-S<br>FT | E-W<br>FT | CLOSURE        |                  | Dogleg<br>Severity<br>Deg/100 |
|-------------------------------------|----------------------|---------------------------|---------------------------|---------------------------|-----------|-----------|----------------|------------------|-------------------------------|
|                                     |                      |                           |                           |                           |           |           | Distance<br>FT | Direction<br>Deg |                               |
| 3175.00                             | 36.01                | 265.85                    | 3136.27                   | 182.43                    | -13.19    | -181.95   | 182.43         | 265.85           | 6.00                          |
| 3205.00                             | 37.81                | 265.85                    | 3160.26                   | 200.45                    | -14.49    | -199.92   | 200.45         | 265.85           | 6.00                          |
| 3235.00                             | 39.61                | 265.85                    | 3183.66                   | 219.21                    | -15.85    | -218.63   | 219.21         | 265.85           | 6.00                          |
| 3265.00                             | 41.41                | 265.85                    | 3206.47                   | 238.69                    | -17.25    | -238.07   | 238.69         | 265.85           | 6.00                          |
| 3295.00                             | 43.21                | 265.85                    | 3228.65                   | 258.89                    | -18.71    | -258.21   | 258.89         | 265.85           | 6.00                          |
|                                     |                      |                           |                           |                           |           |           |                |                  |                               |
| 3325.00                             | 45.01                | 265.85                    | 3250.19                   | 279.77                    | -20.22    | -279.04   | 279.77         | 265.85           | 6.00                          |
| 3355.00                             | 46.81                | 265.85                    | 3271.06                   | 301.32                    | -21.78    | -300.53   | 301.32         | 265.85           | 6.00                          |
| 3385.00                             | 48.62                | 265.85                    | 3291.25                   | 323.51                    | -23.38    | -322.67   | 323.51         | 265.85           | 6.00                          |
| 3415.00                             | 50.42                | 265.85                    | 3310.72                   | 346.33                    | -25.03    | -345.42   | 346.33         | 265.85           | 6.00                          |
| 3445.00                             | 52.22                | 265.85                    | 3329.47                   | 369.75                    | -26.73    | -368.78   | 369.75         | 265.85           | 6.00                          |
|                                     |                      |                           |                           |                           |           |           |                |                  |                               |
| 3475.00                             | 54.02                | 265.85                    | 3347.48                   | 393.74                    | -28.46    | -392.71   | 393.74         | 265.85           | 6.00                          |
| 3505.00                             | 55.82                | 265.85                    | 3364.72                   | 418.29                    | -30.24    | -417.19   | 418.29         | 265.85           | 6.00                          |
| 3535.00                             | 57.62                | 265.85                    | 3381.18                   | 443.37                    | -32.05    | -442.21   | 443.37         | 265.85           | 6.00                          |
| 3565.00                             | 59.42                | 265.85                    | 3396.85                   | 468.95                    | -33.90    | -467.72   | 468.95         | 265.85           | 6.00                          |
| 3595.00                             | 61.22                | 265.85                    | 3411.70                   | 495.01                    | -35.78    | -493.72   | 495.01         | 265.85           | 6.00                          |
|                                     |                      |                           |                           |                           |           |           |                |                  |                               |
| 3625.00                             | 63.02                | 265.85                    | 3425.73                   | 521.53                    | -37.70    | -520.17   | 521.53         | 265.85           | 6.00                          |
| 3655.00                             | 64.82                | 265.85                    | 3438.92                   | 548.47                    | -39.65    | -547.04   | 548.47         | 265.85           | 6.00                          |
| 3685.00                             | 66.62                | 265.85                    | 3451.26                   | 575.82                    | -41.62    | -574.31   | 575.82         | 265.85           | 6.00                          |
| 3715.00                             | 68.42                | 265.85                    | 3462.73                   | 603.54                    | -43.63    | -601.96   | 603.54         | 265.85           | 6.00                          |
| 3745.00                             | 70.22                | 265.85                    | 3473.32                   | 631.60                    | -45.66    | -629.95   | 631.60         | 265.85           | 6.00                          |
|                                     |                      |                           |                           |                           |           |           |                |                  |                               |
| 3775.00                             | 72.02                | 265.85                    | 3483.02                   | 659.99                    | -47.71    | -658.26   | 659.99         | 265.85           | 6.00                          |
| 3805.00                             | 73.82                | 265.85                    | 3491.83                   | 688.67                    | -49.78    | -686.86   | 688.67         | 265.85           | 6.00                          |
| 3835.00                             | 75.62                | 265.85                    | 3499.74                   | 717.60                    | -51.87    | -715.73   | 717.60         | 265.85           | 6.00                          |
| 3865.00                             | 77.42                | 265.85                    | 3506.73                   | 746.78                    | -53.98    | -744.82   | 746.78         | 265.85           | 6.00                          |
| 3895.00                             | 79.22                | 265.85                    | 3512.80                   | 776.16                    | -56.10    | -774.13   | 776.16         | 265.85           | 6.00                          |
|                                     |                      |                           |                           |                           |           |           |                |                  |                               |
| 3925.00                             | 81.03                | 265.85                    | 3517.95                   | 805.71                    | -58.24    | -803.60   | 805.71         | 265.85           | 6.00                          |
| 3955.00                             | 82.83                | 265.85                    | 3522.16                   | 835.41                    | -60.39    | -833.23   | 835.41         | 265.85           | 6.00                          |
| 3985.00                             | 84.63                | 265.85                    | 3525.44                   | 865.23                    | -62.54    | -862.97   | 865.23         | 265.85           | 6.00                          |
| Begin Hold @ 85.00° for 200'        |                      |                           |                           |                           |           |           |                |                  |                               |
| 3991.23                             | 85.00                | 265.85                    | 3526.00                   | 871.43                    | -62.99    | -869.15   | 871.43         | 265.85           | 6.00                          |
| 4091.23                             | 85.00                | 265.85                    | 3534.72                   | 971.05                    | -70.19    | -968.51   | 971.05         | 265.85           | .00                           |
| 5' into PC - casing                 |                      |                           |                           |                           |           |           |                |                  |                               |
| 4191.23                             | 85.00                | 265.85                    | 3543.43                   | 1070.67                   | -77.39    | -1067.87  | 1070.67        | 265.85           | .00                           |
| Begin Build @ 3.01% 100'            |                      |                           |                           |                           |           |           |                |                  |                               |
| 4251.23                             | 85.00                | 265.85                    | 3548.66                   | 1130.45                   | -81.71    | -1127.49  | 1130.45        | 265.85           | .00                           |
| 4281.23                             | 85.90                | 265.85                    | 3551.04                   | 1160.35                   | -83.88    | -1157.32  | 1160.35        | 265.85           | 3.01                          |
| 4311.23                             | 86.81                | 265.85                    | 3552.95                   | 1190.29                   | -86.04    | -1187.18  | 1190.29        | 265.85           | 3.01                          |
| 4341.23                             | 87.71                | 265.85                    | 3554.38                   | 1220.26                   | -88.21    | -1217.06  | 1220.26        | 265.85           | 3.01                          |
| 4371.23                             | 88.62                | 265.85                    | 3555.34                   | 1250.24                   | -90.37    | -1246.97  | 1250.24        | 265.85           | 3.01                          |
|                                     |                      |                           |                           |                           |           |           |                |                  |                               |
| 4401.23                             | 89.52                | 265.85                    | 3555.83                   | 1280.24                   | -92.54    | -1276.89  | 1280.24        | 265.85           | 3.01                          |
| Target / Hold @ 89.74°, 265.85° Azm |                      |                           |                           |                           |           |           |                |                  |                               |
| 4408.51                             | 89.74                | 265.85                    | 3555.88                   | 1287.51                   | -93.07    | -1284.14  | 1287.51        | 265.85           | 3.01                          |
| 4508.51                             | 89.74                | 265.85                    | 3556.33                   | 1387.51                   | -100.30   | -1383.88  | 1387.51        | 265.85           | .00                           |

| Measured<br>Depth<br>FT | Incl<br>Angle<br>Deg | Drift<br>Direction<br>Deg | True<br>Vertical<br>Depth | Vertical<br>Section<br>FT | N-S<br>FT | E-W<br>FT | C L O S U R E  |                  | Dogleg<br>Severity<br>Deg/100 |
|-------------------------|----------------------|---------------------------|---------------------------|---------------------------|-----------|-----------|----------------|------------------|-------------------------------|
|                         |                      |                           |                           |                           |           |           | Distance<br>FT | Direction<br>Deg |                               |
| 4608.51                 | 89.74                | 265.85                    | 3556.79                   | 1487.51                   | -107.52   | -1483.62  | 1487.51        | 265.85           | .00                           |
| 4708.51                 | 89.74                | 265.85                    | 3557.25                   | 1587.51                   | -114.75   | -1583.35  | 1587.51        | 265.85           | .00                           |
| 4808.51                 | 89.74                | 265.85                    | 3557.70                   | 1687.51                   | -121.98   | -1683.09  | 1687.51        | 265.85           | .00                           |
| 4908.51                 | 89.74                | 265.85                    | 3558.16                   | 1787.51                   | -129.21   | -1782.83  | 1787.51        | 265.85           | .00                           |
| 5008.51                 | 89.74                | 265.85                    | 3558.62                   | 1887.50                   | -136.44   | -1882.57  | 1887.50        | 265.85           | .00                           |
| 5108.51                 | 89.74                | 265.85                    | 3559.07                   | 1987.50                   | -143.67   | -1982.30  | 1987.50        | 265.85           | .00                           |
| 5208.51                 | 89.74                | 265.85                    | 3559.53                   | 2087.50                   | -150.89   | -2082.04  | 2087.50        | 265.85           | .00                           |
| 5308.51                 | 89.74                | 265.85                    | 3559.99                   | 2187.50                   | -158.12   | -2181.78  | 2187.50        | 265.85           | .00                           |
| 5408.51                 | 89.74                | 265.85                    | 3560.44                   | 2287.50                   | -165.35   | -2281.52  | 2287.50        | 265.85           | .00                           |
| 5508.51                 | 89.74                | 265.85                    | 3560.90                   | 2387.50                   | -172.58   | -2381.25  | 2387.50        | 265.85           | .00                           |
| 5608.51                 | 89.74                | 265.85                    | 3561.36                   | 2487.50                   | -179.81   | -2480.99  | 2487.50        | 265.85           | .00                           |
| 5708.51                 | 89.74                | 265.85                    | 3561.81                   | 2587.50                   | -187.04   | -2580.73  | 2587.50        | 265.85           | .00                           |
| 5808.51                 | 89.74                | 265.85                    | 3562.27                   | 2687.50                   | -194.27   | -2680.47  | 2687.50        | 265.85           | .00                           |
| 5908.51                 | 89.74                | 265.85                    | 3562.73                   | 2787.49                   | -201.49   | -2780.20  | 2787.49        | 265.85           | .00                           |
| 6008.51                 | 89.74                | 265.85                    | 3563.18                   | 2887.49                   | -208.72   | -2879.94  | 2887.49        | 265.85           | .00                           |
| 6108.51                 | 89.74                | 265.85                    | 3563.64                   | 2987.49                   | -215.95   | -2979.68  | 2987.49        | 265.85           | .00                           |
| 6208.51                 | 89.74                | 265.85                    | 3564.10                   | 3087.49                   | -223.18   | -3079.41  | 3087.49        | 265.85           | .00                           |
| 6308.51                 | 89.74                | 265.85                    | 3564.55                   | 3187.49                   | -230.41   | -3179.15  | 3187.49        | 265.85           | .00                           |
| 6408.51                 | 89.74                | 265.85                    | 3565.01                   | 3287.49                   | -237.64   | -3278.89  | 3287.49        | 265.85           | .00                           |
| 6508.51                 | 89.74                | 265.85                    | 3565.47                   | 3387.49                   | -244.87   | -3378.63  | 3387.49        | 265.85           | .00                           |
| 6608.51                 | 89.74                | 265.85                    | 3565.92                   | 3487.49                   | -252.09   | -3478.36  | 3487.49        | 265.85           | .00                           |
| 6708.51                 | 89.74                | 265.85                    | 3566.38                   | 3587.49                   | -259.32   | -3578.10  | 3587.49        | 265.85           | .00                           |
| 6808.51                 | 89.74                | 265.85                    | 3566.84                   | 3687.49                   | -266.55   | -3677.84  | 3687.49        | 265.85           | .00                           |
| 6908.51                 | 89.74                | 265.85                    | 3567.29                   | 3787.48                   | -273.78   | -3777.58  | 3787.48        | 265.85           | .00                           |
| 7008.51                 | 89.74                | 265.85                    | 3567.75                   | 3887.48                   | -281.01   | -3877.31  | 3887.48        | 265.85           | .00                           |
| 7108.51                 | 89.74                | 265.85                    | 3568.20                   | 3987.48                   | -288.24   | -3977.05  | 3987.48        | 265.85           | .00                           |
| 7208.51                 | 89.74                | 265.85                    | 3568.66                   | 4087.48                   | -295.47   | -4076.79  | 4087.48        | 265.85           | .00                           |
| 7308.51                 | 89.74                | 265.85                    | 3569.12                   | 4187.48                   | -302.69   | -4176.53  | 4187.48        | 265.85           | .00                           |
| 7408.51                 | 89.74                | 265.85                    | 3569.57                   | 4287.48                   | -309.92   | -4276.26  | 4287.48        | 265.85           | .00                           |
| 7508.51                 | 89.74                | 265.85                    | 3570.03                   | 4387.48                   | -317.15   | -4376.00  | 4387.48        | 265.85           | .00                           |
| 7608.51                 | 89.74                | 265.85                    | 3570.49                   | 4487.48                   | -324.38   | -4475.74  | 4487.48        | 265.85           | .00                           |
| 7708.51                 | 89.74                | 265.85                    | 3570.94                   | 4587.48                   | -331.61   | -4575.48  | 4587.48        | 265.85           | .00                           |
| 7808.51                 | 89.74                | 265.85                    | 3571.40                   | 4687.48                   | -338.84   | -4675.21  | 4687.48        | 265.85           | .00                           |
| 7908.51                 | 89.74                | 265.85                    | 3571.86                   | 4787.47                   | -346.06   | -4774.95  | 4787.47        | 265.85           | .00                           |
| 8008.51                 | 89.74                | 265.85                    | 3572.31                   | 4887.47                   | -353.29   | -4874.69  | 4887.47        | 265.85           | .00                           |
| 8108.51                 | 89.74                | 265.85                    | 3572.77                   | 4987.47                   | -360.52   | -4974.42  | 4987.47        | 265.85           | .00                           |
| 8208.51                 | 89.74                | 265.85                    | 3573.23                   | 5087.47                   | -367.75   | -5074.16  | 5087.47        | 265.85           | .00                           |
| 8308.51                 | 89.74                | 265.85                    | 3573.68                   | 5187.47                   | -374.98   | -5173.90  | 5187.47        | 265.85           | .00                           |
| 8408.51                 | 89.74                | 265.85                    | 3574.14                   | 5287.47                   | -382.21   | -5273.64  | 5287.47        | 265.85           | .00                           |
| 8508.51                 | 89.74                | 265.85                    | 3574.60                   | 5387.47                   | -389.44   | -5373.37  | 5387.47        | 265.85           | .00                           |
| 8608.51                 | 89.74                | 265.85                    | 3575.05                   | 5487.47                   | -396.66   | -5473.11  | 5487.47        | 265.85           | .00                           |
| 8708.51                 | 89.74                | 265.85                    | 3575.51                   | 5587.47                   | -403.89   | -5572.85  | 5587.47        | 265.85           | .00                           |
| 8808.51                 | 89.74                | 265.85                    | 3575.97                   | 5687.46                   | -411.12   | -5672.59  | 5687.46        | 265.85           | .00                           |
| 8908.51                 | 89.74                | 265.85                    | 3576.42                   | 5787.46                   | -418.35   | -5772.32  | 5787.46        | 265.85           | .00                           |
| 9008.51                 | 89.74                | 265.85                    | 3576.88                   | 5887.46                   | -425.58   | -5872.06  | 5887.46        | 265.85           | .00                           |

| Measured<br>Depth<br>FT                                             | Incl<br>Angle<br>Deg | Drift<br>Direction<br>Deg | True<br>Vertical<br>Depth | Vertical<br>Section<br>FT | N-S<br>FT | E-W<br>FT  | CLOSURE        |                  | Dogleg<br>Severity<br>Deg/100 |
|---------------------------------------------------------------------|----------------------|---------------------------|---------------------------|---------------------------|-----------|------------|----------------|------------------|-------------------------------|
|                                                                     |                      |                           |                           |                           |           |            | Distance<br>FT | Direction<br>Deg |                               |
| 9108.51                                                             | 89.74                | 265.85                    | 3577.34                   | 5987.46                   | -432.81   | -5971.80   | 5987.46        | 265.85           | .00                           |
| 9208.51                                                             | 89.74                | 265.85                    | 3577.79                   | 6087.46                   | -440.04   | -6071.54   | 6087.46        | 265.85           | .00                           |
| 9308.51                                                             | 89.74                | 265.85                    | 3578.25                   | 6187.46                   | -447.26   | -6171.27   | 6187.46        | 265.85           | .00                           |
| 9408.51                                                             | 89.74                | 265.85                    | 3578.71                   | 6287.46                   | -454.49   | -6271.01   | 6287.46        | 265.85           | .00                           |
| 9508.51                                                             | 89.74                | 265.85                    | 3579.16                   | 6387.46                   | -461.72   | -6370.75   | 6387.46        | 265.85           | .00                           |
| 9608.51                                                             | 89.74                | 265.85                    | 3579.62                   | 6487.46                   | -468.95   | -6470.48   | 6487.46        | 265.85           | .00                           |
| Proposed End of Lateral - - 1150 FNL & 2530 FEL - T29N, R4W Sec. 23 |                      |                           |                           |                           |           |            |                |                  |                               |
| 9692.24 ✓                                                           | 89.74                | 265.85                    | 3580.00 ✓                 | 6571.19                   | -475.00 ✓ | -6554.00 ✓ | 6571.19        | 265.85           | .00                           |

Job Number: 091xxxx  
 Company: Black Hills Gas Resources  
 Lease/Well: Many Canyons 29-04-24 #114

