

**UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT**

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

APPLICATION FOR PERMIT TO DRILL OR DEEPEN

2006 MAY 4 AM 9:04
RECEIVED
070 FARMING FOR NM

| | | |
|---|--|---|
| 1a. Type of Work <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER | | 5. Lease Serial No. Contract 458 |
| 1b. Type of Well <input type="checkbox"/> Oil Well <input checked="" type="checkbox"/> Gas Well <input type="checkbox"/> Other <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone | | 6. If Indian, Allottee or Tribe Name Jicarilla Apache Nation |
| 2. Name of Operator Black Hills Gas Resources, Inc. E-mail: lbenally@bhgp.com Contact: Lynn Benally | | 7. If Unit or CA Agreement, Name and No |
| 3a. Address P.O. Box 249 Bloomfield NM 87413 | 3b. Phone No. (include area code) 505-634-1111 | 8. Lease Name and Well No Jicarilla 458-08 13 |
| 4. Location of Well (Report location clearly and in accordance with any State Requirements.) At surface 1,000' FNL 2,300' FEL NW 1/4 NE 1/4 (Lot 2 /) Lat. 36.83096 Long: 107.17307 | | 9. API Well No. 30-039-29894 |
| At proposed production zone | | 10. Field and Pool, or Exploratory East Blanco / Pictured Cliffs |
| 11. Sec. T., R., M., or Blk. and Survey or Area B) Sec. 8 T 30N R 3W | | 12. County or parish Rio Arriba |
| 14. Distance in miles and direction from nearest town or post office * Well is located approximately 52 miles east of Bloomfield, New Mexico. | | 13. State New Mexico |
| 15. Distance from proposed location to nearest property of lease line, ft. (Also nearest Drig, unit line, if any) Unit= n/a Lease= ±2,300' | 16. No. of acres in lease 2560.00 | 17. Spacing Unit dedicated to this well 20167.31 NE 1/4 RCVD AUG 31 '07 OIL CONSV. DIV. DIST. 3 |
| 18. Distance from proposed location to nearest well, drilling, completed or applied for, on this lease, ft. ± 1,300' Jicarilla 458-8 6 | 19. Proposed depth 4,000' TVD | 20. BLM/BIA Bond No. on file NMB000230 |
| 21. Elevations (Show whether DF, KDB, RT, GL, etc.) 7,151' GR | 22. Approximate date work will start * June 5, 2006 | 23. Estimated duration 45-60 days drlg + completion |

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, shall be attached to this form:

- | | |
|--|---|
| <ul style="list-style-type: none"> 1. Well plat certified by a registered surveyor. 2. A Drilling Plan. 3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO shall be filed with the appropriate Forest Service Office). | <ul style="list-style-type: none"> 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). 5. Operator certification. 6. Such other site specific information and/or plans as may be required by the authorized officer. |
|--|---|

| | | |
|---|---|---------------------|
| 25. Signature <i>Kathy L. Schneebeck</i> | Name (Printed/Typed) Kathy L. Schneebeck, 303-820-4480 | Date May 3, 2006 |
|---|---|---------------------|

Title Permit Agent for Black Hills Gas Resources, Inc.

| | | |
|---|----------------------|-----------------|
| Approved by (Signature) <i>[Signature]</i> | Name (Printed/Typed) | Date 8/30/07 |
|---|----------------------|-----------------|

Title AEM Office PFO

Application approval 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

Conditions of approval, if any, are attached

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 to any Department or agency of the United States any false, fictitious, or fraudulent statements or representations as to any matter within its jurisdiction

DRILLING OPERATIONS AUTHORIZED ARE SUBJECT TO COMPLIANCE WITH ATTACHED "GENERAL REQUIREMENTS".

This action is subject to technical and procedural review pursuant to 43 CFR 3165.3 and appeal pursuant to 43 CFR 3165.4

NOTIFY AZTEC OCD 24 HRS. PRIOR TO CASING & CEMENT

NMOCD 9-6-07
B aw

BEFORE THE OIL CONSERVATION DIVISION
Santa Fe, New Mexico
Case No. 14057..... Exhibit No. 2
Submitted by:
BLACK HILLS GAS RESOURCES, INC.
Hearing Date: January 24, 2008

Form 3160-3
(April 2004)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

RECEIVED
OCT 20 2007

1. Type of Well
 Oil Well Gas Well Other

2. Name of Operator
Black Hills Gas Resources

3a. Address
3200 N 1st Street PO Box 249 Bloomfield, NM 87413
Bureau of Land Management
Phone No: (505-634-1111 ext 27)

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
Surface: 1,000' FNL 2,300' FEL NW/NE Unit B Sec 08 T30N R3W
Bottom Hole: ±350' FNL ±700' FWL / Unit C Sec 07 T30N R3W

5. Lease Serial No.
Contract 458

6. If Indian, Allottee, or Tribe Name
Jicarilla Apache

7. If Unit or CA. Agreement Name and/or No.

8. Well Name and No.
Jicarilla 458-08 #13

9. API Well No.
30-039-29894

10. Field and Pool, or Exploratory Area
E. Blanco/Pictured Cliffs

11. County or Parish, State
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 |
| | <input type="checkbox"/> Change Plans | <input type="checkbox"/> Plug and abandon | <input type="checkbox"/> Temporarily Abandon | Convert Vertical |
| | <input type="checkbox"/> Convert to Injection | <input type="checkbox"/> Plug back | <input type="checkbox"/> Water Disposal | well to horizontal well |

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 recompletes 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 recompletion 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 initial APD to drill a Pictured Cliff (PC) well was approved on August 30, 2007. The well was given API number 30-039-29894. After evaluation of data from recently drilled wells in the immediate area, it has been determined that the PC formation is best developed in this area, using Horizontal Drilling Technology. Black Hills Gas Resources is submitting an updated drilling plan and a revised NM State Form C-102, to change the well from a vertical well to a horizontal well. Black Hills Gas Resources also request that if tests of the tertiary and PC formations are favorable that we will also complete these formations and submit comingle applications if needed.


The surface location of the well remains the same but the new bottom hole will be ±350' FNL ±700' FWL/Unit C

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.

14. I hereby certify that the foregoing is true and correct.

Name (Printed/ Typed) Lynn H. Benally Title Regulatory Specialist

Signature  Date 10/30/2007

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by Troy L. Salvors Title Petroleum Eng. Date 11/21/2007

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)

OPERATOR

DISTRICT I
1820 N. French Dr., Hobbs, N.M. 88240

DISTRICT II
1801 W. Grand Ave., Artesia, N.M. 88210

DISTRICT III
1600 Rio Grande Rd., Aztec, N.M. 87410

DISTRICT IV
1820 South St. Francis Dr., Santa Fe, NM 87508

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION
1820 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102
Revised October 12, 2006

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

AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

| | | | |
|----------------------------|--|--------------------|---|
| API Number 30-039-29894 | | Pool Code 72400 | Pool Name EAST BLANCO, PICTURED CLIFFS |
| Property Code 22182 | Property Name JICARILLA 458-08 | | Well Number 13 |
| OSHD No. 013925 | Operator Name BLACK HILLS GAS RESOURCES | | Elevation 7151 |

13 Surface Location

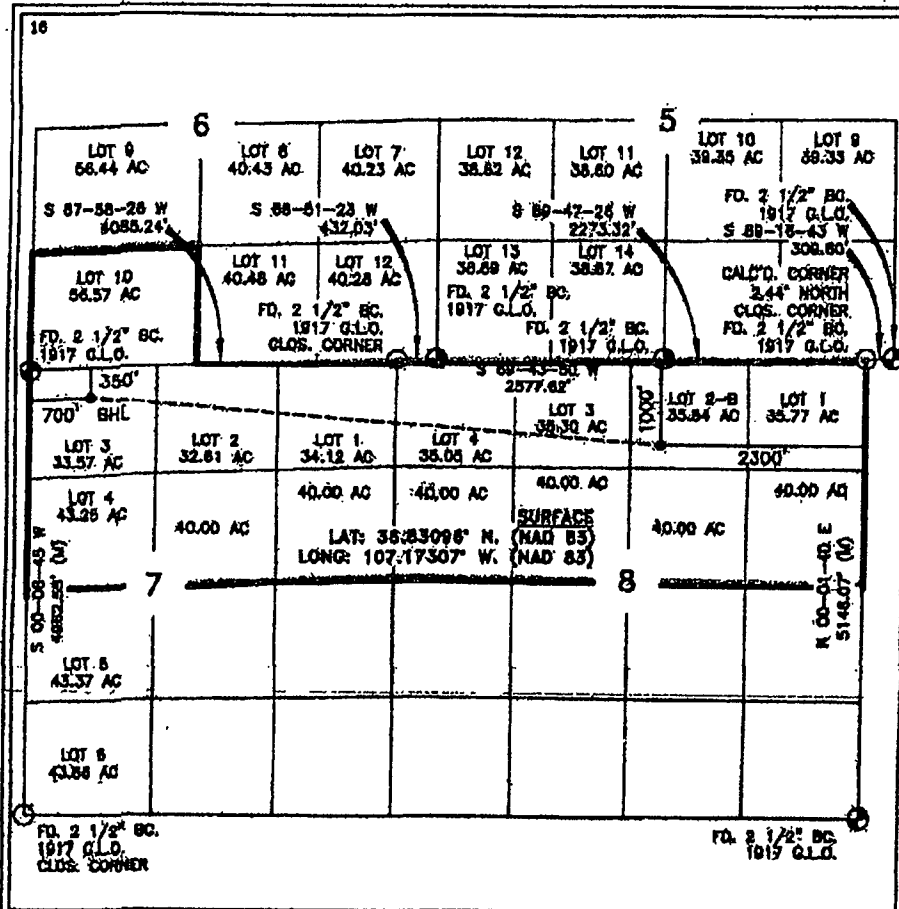
| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---------------|---------|----------|-------|---------|---------------|------------------|---------------|----------------|------------|
| 2-B | 8 | 30-N | 3-W | 2 | 1000 | NORTH | 2300 | EAST | RIO ARriba |

14 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 |
|---------------|---------|----------|-------|---------|---------------|------------------|---------------|----------------|------------|
| C | 7 | 30-N | 3-W | 3 | 350 | NORTH | 700 | WEST | RIO ARriba |

| | | | |
|---------------------------|-----------------|--------------------|----------------------------|
| Dedicated Acres 583.43 | Joint or Infill | Consolidation Code | Order No. R12707-INFILL |
|---------------------------|-----------------|--------------------|----------------------------|

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



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 10/30/07
Signature Date
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 belief.

Date of Survey
Signature and Title of Professional Surveyor
Certificate Number

RCVD DEC 26 '07

OIL CONS. DIV.

DIST. 3

Form C-102

Revised October 12, 2005

Submit to Appropriate District Office

State Lease - 4 Copies

Fee Lease - 3 Copies

DISTRICT I
1626 N. French Dr., Hobbs, N.M. 88240

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

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

DISTRICT IV
1220 South St. Francis Dr., Santa Fe, NM 87605

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION

1220 South St. Francis Dr.
Santa Fe, NM 87605

AMENDED REPORT
AS DRILLED

WELL LOCATION AND ACREAGE DEDICATION PLAT

| | | | | |
|-----------------------------|---|---------------------|---|--|
| *API Number 30-039-29894 | | *Pool Code 72400 | *Pool Name EAST BLANCO PICTURED CLIFFS | |
| *Property Code 22182 | *Property Name JICARILLA 45B-08 | | *Well Number 113 | |
| *OGRID No. 013925 | *Operator Name BLACK HILLS GAS RESOURCES | | *Elevation 7151 | |

¹⁰ Surface Location

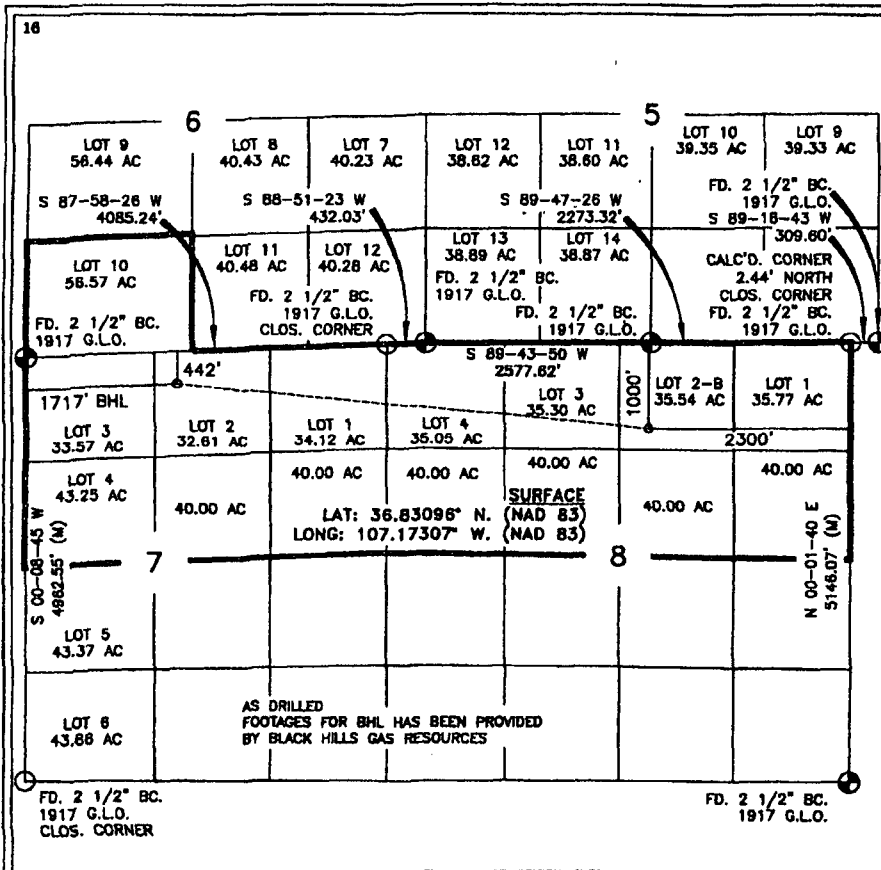
| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---------------|---------|----------|-------|---------|---------------|------------------|---------------|----------------|------------|
| 2-B | 8 | 30-N | 3-W | 2 | 1000 | NORTH | 2300 | EAST | RIO ARRIBA |

¹¹ 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 | 7 | 30-N | 3-W | 2 | 442 | NORTH | 1717 | WEST | RIO ARRIBA |

| | | | |
|----------------------------|------------------|---------------------|-----------------------------|
| *Dedicated Acres 583.43 | *Joint or Infill | *Consolidation Code | *Order No. R12707-INFILL |
|----------------------------|------------------|---------------------|-----------------------------|

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



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.

Mike Pippin 12-20-07
Signature Date

MIKE PIPPIN
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 belief.

7-19-05
Date of Survey

Signature and Seal of Professional Surveyor:

8894
Certificate Number



Job Number: 71428
 Company: Black Hills Gas Resources
 Lease/Well: Jicarilla 458-08 #113
 Location: Rio Arriba County, NM
 Rig Name: Patt. 744
 RKB: 13'
 G.L. or M.S.L.: 7151'

State/Country: TX/USA
 Declination: 10.51934
 Grid: -0.33
 File name: Z:\BLACKH-1\71428J-1\45808113.SVY
 Date/Time: 30-Nov-07 / 10:24
 Curve Name: Jic 458-08 #113 surveys

30-039-29894

surface 1000/N 2300/E Sec 8
 Bht 1 entry 929/N 2038/W Sec 8 md 4251 Tvd 3774
 Bht 2 end of lat. 442/N 1777/W Sec 9 md 8754 Tvd 3830

RCVD DEC 24 '07
 OIL CONS. DIV.
 DIST. 3

12-26-07

WINSERVE SURVEY CALCULATIONS
 Minimum Curvature Method
 Vertical Section Plane 275.83
 Vertical Section Referenced to Wellhead
 Rectangular Coordinates Referenced to Wellhead

| Measured Depth FT | Incl Angle Deg | Drift Direction Deg | True Vertical Depth | Vertical Section FT | N-S FT | E-W FT | CLOSURE Distance FT | Direction Deg | Dogleg Severity Deg/100 |
|-------------------------------|----------------|---------------------|---------------------|---------------------|--------|--------|---------------------|---------------|-------------------------|
| Surface | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| First Nevis MWD Survey | | | | | | | | | |
| 372.00 | .10 | 215.60 | 372.00 | .16 | -.26 | -.19 | .32 | 215.60 | .03 |
| 563.00 | .40 | 181.50 | 563.00 | .19 | -1.07 | -.30 | 1.11 | 195.89 | .17 |
| 753.00 | 1.10 | 182.00 | 752.98 | .02 | -3.55 | -.38 | 3.57 | 186.18 | .37 |
| 942.00 | 1.60 | 181.20 | 941.93 | -.31 | -8.00 | -.50 | 8.02 | 183.60 | .26 |
| 1132.00 | 1.90 | 180.30 | 1131.84 | -.83 | -13.80 | -.58 | 13.82 | 182.39 | .16 |
| 1321.00 | 2.10 | 178.10 | 1320.72 | -1.60 | -20.40 | -.48 | 20.40 | 181.34 | .11 |
| 1502.00 | 2.50 | 174.20 | 1501.58 | -2.84 | -27.64 | .03 | 27.64 | 179.93 | .24 |
| 1684.00 | 2.30 | 178.50 | 1683.42 | -4.11 | -35.24 | .53 | 35.24 | 179.14 | .15 |
| 1863.00 | 2.00 | 177.30 | 1862.29 | -5.03 | -41.95 | .77 | 41.96 | 178.95 | .17 |
| 2044.00 | 2.10 | 175.10 | 2043.18 | -6.11 | -48.41 | 1.20 | 48.42 | 178.58 | .07 |
| 2226.00 | 1.80 | 170.70 | 2225.07 | -7.48 | -54.55 | 1.95 | 54.59 | 177.95 | .18 |
| 2406.00 | 1.70 | 177.10 | 2404.99 | -8.62 | -60.01 | 2.54 | 60.06 | 177.58 | .12 |
| 2583.00 | 2.20 | 191.60 | 2581.88 | -8.68 | -65.96 | 1.99 | 65.99 | 178.27 | .39 |
| 2762.00 | 2.40 | 199.50 | 2760.74 | -7.45 | -72.86 | .05 | 72.86 | 179.96 | .21 |
| 2863.00 | 2.30 | 197.10 | 2861.66 | -6.55 | -76.79 | -1.25 | 76.80 | 180.94 | .14 |
| 2895.00 | 2.70 | 212.70 | 2893.63 | -6.09 | -78.04 | -1.85 | 78.06 | 181.36 | 2.46 |
| 2927.00 | 3.30 | 234.10 | 2925.58 | -5.06 | -79.21 | -3.00 | 79.27 | 182.17 | 3.94 |
| 2959.00 | 5.10 | 254.10 | 2957.50 | -3.05 | -80.14 | -5.12 | 80.30 | 183.65 | 7.17 |
| 2991.00 | 7.70 | 268.80 | 2989.30 | .40 | -80.58 | -8.63 | 81.04 | 186.11 | 9.54 |
| 3022.00 | 10.10 | 275.50 | 3019.92 | 5.18 | -80.36 | -13.41 | 81.47 | 189.48 | 8.42 |
| 3054.00 | 12.60 | 281.30 | 3051.29 | 11.46 | -79.41 | -19.63 | 81.80 | 193.88 | 8.58 |

HOLD CLOSURE FOR Outcome of Case Page 1
 #14024 To be heard 1-10-08

| Measured Depth FT | Incl Angle Deg | Drift Direction Deg | True Vertical Depth | Vertical Section FT | N-S FT | E-W FT | C L O S U R E | | Dogleg Severity Deg/100 |
|-------------------------|----------------------|---------------------------|---------------------------|---------------------------|-----------|-----------|----------------|------------------|-------------------------------|
| | | | | | | | Distance FT | Direction Deg | |
| 3085.00 | 14.70 | 282.30 | 3081.42 | 18.74 | -77.90 | -26.79 | 82.38 | 198.98 | 6.82 |
| 3117.00 | 16.80 | 281.90 | 3112.21 | 27.37 | -76.09 | -35.28 | 83.87 | 204.88 | 6.57 |
| 3149.00 | 19.00 | 281.40 | 3142.66 | 37.15 | -74.10 | -44.91 | 86.65 | 211.22 | 6.89 |
| 3178.00 | 21.30 | 288.40 | 3169.89 | 47.00 | -71.51 | -54.54 | 89.93 | 217.33 | 11.48 |
| 3208.00 | 24.30 | 279.70 | 3197.55 | 58.48 | -68.74 | -65.80 | 95.16 | 223.75 | 15.02 |
| 3240.00 | 27.10 | 278.80 | 3226.38 | 72.33 | -66.52 | -79.50 | 103.66 | 230.08 | 8.83 |
| 3271.00 | 29.40 | 278.10 | 3253.69 | 86.99 | -64.37 | -94.01 | 113.93 | 235.60 | 7.50 |
| 3303.00 | 31.60 | 277.50 | 3281.26 | 103.22 | -62.17 | -110.10 | 126.44 | 240.55 | 6.94 |
| 3335.00 | 34.00 | 276.80 | 3308.16 | 120.55 | -60.01 | -127.30 | 140.74 | 244.76 | 7.59 |
| 3367.00 | 36.80 | 276.90 | 3334.24 | 139.08 | -57.80 | -145.70 | 156.75 | 248.36 | 8.75 |
| 3399.00 | 39.40 | 278.20 | 3359.42 | 158.81 | -55.20 | -165.27 | 174.25 | 251.53 | 8.50 |
| 3431.00 | 41.50 | 279.30 | 3383.77 | 179.54 | -52.04 | -185.79 | 192.94 | 254.35 | 6.93 |
| 3463.00 | 43.40 | 279.70 | 3407.38 | 201.10 | -48.47 | -207.09 | 212.69 | 256.83 | 6.00 |
| 3495.00 | 45.20 | 279.50 | 3430.28 | 223.40 | -44.75 | -229.13 | 233.45 | 258.95 | 5.64 |
| 3526.00 | 47.70 | 279.70 | 3451.64 | 245.81 | -41.00 | -251.28 | 254.60 | 260.73 | 8.08 |
| 3558.00 | 49.80 | 280.10 | 3472.73 | 269.81 | -36.86 | -274.98 | 277.44 | 262.37 | 6.63 |
| 3590.00 | 51.00 | 280.00 | 3493.13 | 294.40 | -32.56 | -299.25 | 301.02 | 263.79 | 3.76 |
| 3622.00 | 51.80 | 280.00 | 3513.10 | 319.34 | -28.22 | -323.88 | 325.11 | 265.02 | 2.50 |
| 3653.00 | 51.80 | 279.70 | 3532.27 | 343.64 | -24.05 | -347.89 | 348.72 | 266.05 | .76 |
| 3685.00 | 51.80 | 279.30 | 3552.06 | 368.74 | -19.90 | -372.69 | 373.22 | 266.94 | .98 |
| 3717.00 | 53.10 | 279.60 | 3571.56 | 394.06 | -15.73 | -397.71 | 398.02 | 267.73 | 4.13 |
| 3747.00 | 54.70 | 280.00 | 3589.23 | 418.24 | -11.61 | -421.60 | 421.76 | 268.42 | 5.44 |
| 3779.00 | 56.90 | 280.20 | 3607.22 | 444.63 | -6.96 | -447.65 | 447.71 | 269.11 | 6.89 |
| 3810.00 | 59.30 | 280.40 | 3623.60 | 470.87 | -2.26 | -473.54 | 473.55 | 269.73 | 7.76 |
| 3841.00 | 61.50 | 280.20 | 3638.91 | 497.74 | 2.56 | -500.06 | 500.07 | 270.29 | 7.12 |
| 3872.00 | 63.60 | 280.00 | 3653.20 | 525.17 | 7.38 | -527.15 | 527.20 | 270.80 | 6.80 |
| 3904.00 | 65.90 | 280.10 | 3666.85 | 554.03 | 12.44 | -555.64 | 555.78 | 271.28 | 7.19 |
| 3935.00 | 68.20 | 279.40 | 3678.94 | 582.51 | 17.27 | -583.77 | 584.03 | 271.69 | 7.71 |
| 3961.00 | 69.90 | 280.20 | 3688.23 | 606.73 | 21.40 | -607.70 | 608.08 | 272.02 | 7.14 |
| 3998.00 | 70.60 | 280.10 | 3700.73 | 641.45 | 27.54 | -641.98 | 642.57 | 272.46 | 1.91 |
| 4029.00 | 70.60 | 280.10 | 3711.03 | 670.61 | 32.67 | -670.76 | 671.56 | 272.79 | .00 |
| 4061.00 | 70.60 | 280.10 | 3721.66 | 700.71 | 37.96 | -700.48 | 701.51 | 273.10 | .00 |
| 4092.00 | 70.70 | 279.80 | 3731.93 | 729.89 | 43.01 | -729.29 | 730.56 | 273.38 | .97 |
| 4125.00 | 71.10 | 279.50 | 3742.73 | 761.00 | 48.24 | -760.03 | 761.56 | 273.63 | 1.49 |
| 4156.00 | 73.10 | 280.00 | 3752.26 | 790.43 | 53.24 | -789.10 | 790.90 | 273.86 | 6.63 |
| 4188.00 | 75.60 | 281.20 | 3760.89 | 821.13 | 58.91 | -819.39 | 821.50 | 274.11 | 8.61 |
| 4219.00 | 78.10 | 281.40 | 3767.94 | 851.18 | 64.82 | -848.99 | 851.46 | 274.37 | 8.09 |
| 4251.00 | 80.20 | 281.80 | 3773.97 | 882.45 | 71.14 | -879.77 | 882.64 | 274.62 | 6.68 |
| 4283.00 | 82.70 | 282.20 | 3778.72 | 913.90 | 77.72 | -910.72 | 914.03 | 274.88 | 7.91 |
| 4314.00 | 84.10 | 282.80 | 3782.29 | 944.49 | 84.38 | -940.78 | 944.56 | 275.13 | 4.91 |
| 4346.00 | 85.10 | 281.80 | 3785.30 | 976.14 | 91.17 | -971.91 | 976.18 | 275.36 | 4.41 |
| 4378.00 | 85.40 | 281.60 | 3787.95 | 1007.87 | 97.64 | -1003.14 | 1007.88 | 275.56 | 1.13 |
| 4408.00 | 85.40 | 281.40 | 3790.35 | 1037.62 | 103.60 | -1032.44 | 1037.63 | 275.73 | .66 |
| 4440.00 | 85.60 | 281.50 | 3792.86 | 1069.37 | 109.93 | -1063.71 | 1069.37 | 275.90 | .70 |
| 4471.00 | 85.80 | 281.60 | 3795.19 | 1100.13 | 116.12 | -1093.99 | 1100.14 | 276.06 | .72 |

| Measured Depth FT | Incl Angle Deg | Drift Direction Deg | True Vertical Depth | Vertical Section FT | CLOSURE | | Distance FT | Direction Deg | Dogleg Severity Deg/100 |
|-------------------------|----------------------|---------------------------|---------------------------|---------------------------|-----------|-----------|----------------|------------------|-------------------------------|
| | | | | | N-S FT | E-W FT | | | |
| 4502.00 | 85.90 | 281.60 | 3797.43 | 1130.89 | 122.34 | -1124.28 | 1130.92 | 276.21 | .32 |
| 4593.00 | 85.90 | 279.50 | 3803.94 | 1221.35 | 138.96 | -1213.51 | 1221.44 | 276.53 | 2.30 |
| 4623.00 | 86.10 | 280.00 | 3806.03 | 1251.20 | 144.02 | -1243.00 | 1251.32 | 276.61 | 1.79 |
| 4652.00 | 86.50 | 280.40 | 3807.90 | 1280.06 | 149.15 | -1271.49 | 1280.20 | 276.69 | 1.95 |
| 4682.00 | 86.60 | 280.73 | 3809.71 | 1309.90 | 154.64 | -1300.92 | 1310.08 | 276.78 | 1.15 |
| 4712.00 | 86.60 | 280.80 | 3811.49 | 1339.74 | 160.23 | -1330.34 | 1339.96 | 276.87 | .23 |
| 4743.00 | 88.10 | 280.50 | 3812.92 | 1370.60 | 165.96 | -1360.78 | 1370.86 | 276.95 | 4.93 |
| 4772.00 | 90.40 | 279.30 | 3813.30 | 1399.52 | 170.94 | -1389.34 | 1399.82 | 277.01 | 8.95 |
| 4802.00 | 91.80 | 277.90 | 3812.72 | 1429.48 | 175.43 | -1419.00 | 1429.80 | 277.05 | 6.60 |
| 4833.00 | 92.00 | 277.60 | 3811.70 | 1460.44 | 179.60 | -1449.70 | 1460.78 | 277.06 | 1.16 |
| 4863.00 | 92.20 | 277.80 | 3810.60 | 1490.40 | 183.62 | -1479.40 | 1490.76 | 277.08 | .94 |
| 4923.00 | 92.30 | 278.10 | 3808.24 | 1550.32 | 191.91 | -1538.78 | 1550.70 | 277.11 | .53 |
| 4953.00 | 92.10 | 277.10 | 3807.09 | 1580.28 | 195.88 | -1568.50 | 1580.68 | 277.12 | 3.40 |
| 4983.00 | 92.10 | 277.00 | 3805.99 | 1610.25 | 199.56 | -1598.25 | 1610.66 | 277.12 | .33 |
| 5013.00 | 92.10 | 276.85 | 3804.89 | 1640.23 | 203.17 | -1628.01 | 1640.64 | 277.11 | .50 |
| 5043.00 | 92.50 | 277.40 | 3803.69 | 1670.20 | 206.89 | -1657.75 | 1670.61 | 277.11 | 2.27 |
| 5073.00 | 91.90 | 276.90 | 3802.54 | 1700.17 | 210.62 | -1687.50 | 1700.59 | 277.11 | 2.60 |
| 5103.00 | 92.20 | 276.90 | 3801.46 | 1730.14 | 214.22 | -1717.26 | 1730.57 | 277.11 | 1.00 |
| 5133.00 | 91.20 | 276.60 | 3800.57 | 1760.12 | 217.75 | -1747.04 | 1760.56 | 277.10 | 3.48 |
| 5162.00 | 89.40 | 275.20 | 3800.42 | 1789.12 | 220.73 | -1775.89 | 1789.55 | 277.09 | 7.86 |
| 5192.00 | 89.10 | 275.10 | 3800.81 | 1819.12 | 223.42 | -1805.76 | 1819.53 | 277.05 | 1.05 |
| 5253.00 | 89.50 | 275.30 | 3801.56 | 1880.11 | 228.95 | -1866.51 | 1880.50 | 276.99 | .73 |
| 5314.00 | 90.00 | 275.70 | 3801.82 | 1941.11 | 234.80 | -1927.22 | 1941.47 | 276.95 | 1.05 |
| 5344.00 | 90.70 | 276.20 | 3801.64 | 1971.11 | 237.91 | -1957.06 | 1971.47 | 276.93 | 2.87 |
| 5374.00 | 91.10 | 276.50 | 3801.17 | 2001.10 | 241.22 | -1986.87 | 2001.46 | 276.92 | 1.67 |
| 5404.00 | 89.50 | 275.30 | 3801.01 | 2031.10 | 244.31 | -2016.71 | 2031.46 | 276.91 | 6.67 |
| 5435.00 | 89.40 | 275.20 | 3801.31 | 2062.10 | 247.14 | -2047.58 | 2062.44 | 276.88 | .46 |
| 5465.00 | 89.50 | 275.20 | 3801.60 | 2092.09 | 249.86 | -2077.46 | 2092.43 | 276.86 | .33 |
| 5495.00 | 89.90 | 275.50 | 3801.76 | 2122.09 | 252.66 | -2107.33 | 2122.42 | 276.84 | 1.67 |
| 5525.00 | 90.30 | 275.50 | 3801.70 | 2152.09 | 255.53 | -2137.19 | 2152.41 | 276.82 | 1.33 |
| 5556.00 | 88.20 | 274.70 | 3802.11 | 2183.08 | 258.29 | -2168.06 | 2183.39 | 276.79 | 7.25 |
| 5586.00 | 87.70 | 274.40 | 3803.18 | 2213.06 | 260.67 | -2197.95 | 2213.35 | 276.76 | 1.94 |
| 5616.00 | 87.70 | 274.30 | 3804.39 | 2243.02 | 262.94 | -2227.84 | 2243.30 | 276.73 | .33 |
| 5647.00 | 87.90 | 274.70 | 3805.58 | 2273.99 | 265.37 | -2258.72 | 2274.25 | 276.70 | 1.44 |
| 5679.00 | 87.90 | 274.80 | 3806.75 | 2305.96 | 268.02 | -2290.59 | 2306.21 | 276.67 | .31 |
| 5710.00 | 87.80 | 274.80 | 3807.91 | 2336.94 | 270.61 | -2321.46 | 2337.18 | 276.65 | .32 |
| 5742.00 | 88.20 | 274.90 | 3809.03 | 2368.91 | 273.32 | -2353.32 | 2369.14 | 276.62 | 1.29 |
| 5774.00 | 88.50 | 275.00 | 3809.95 | 2400.89 | 276.08 | -2385.19 | 2401.11 | 276.60 | .99 |
| 5805.00 | 88.70 | 275.40 | 3810.71 | 2431.88 | 278.89 | -2416.05 | 2432.09 | 276.58 | 1.44 |
| 5868.00 | 88.80 | 275.30 | 3812.08 | 2494.87 | 284.76 | -2478.76 | 2495.07 | 276.55 | .22 |
| 5900.00 | 88.80 | 275.00 | 3812.75 | 2526.86 | 287.63 | -2510.63 | 2527.05 | 276.54 | .94 |
| 5931.00 | 89.20 | 275.40 | 3813.29 | 2557.85 | 290.44 | -2541.49 | 2558.04 | 276.52 | 1.82 |
| 5963.00 | 89.50 | 275.60 | 3813.66 | 2589.85 | 293.51 | -2573.34 | 2590.03 | 276.51 | 1.13 |
| 5994.00 | 89.60 | 275.40 | 3813.90 | 2620.85 | 296.48 | -2604.20 | 2621.02 | 276.49 | .72 |
| 6026.00 | 89.90 | 275.60 | 3814.04 | 2652.85 | 299.54 | -2636.05 | 2653.02 | 276.48 | 1.13 |

| Measured Depth FT | Incl Angle Deg | Drift Direction Deg | True Vertical Depth | Vertical Section FT | CLOSURE | | | | Dogleg Severity Deg/100 |
|-------------------------|----------------------|---------------------------|---------------------------|---------------------------|-----------|-----------|----------------|------------------|-------------------------------|
| | | | | | N-S FT | E-W FT | Distance FT | Direction Deg | |
| 6057.00 | 89.90 | 275.40 | 3814.09 | 2683.84 | 302.52 | -2666.91 | 2684.01 | 276.47 | .65 |
| 6089.00 | 90.10 | 275.70 | 3814.09 | 2715.84 | 305.61 | -2698.76 | 2716.01 | 276.46 | 1.13 |
| 6121.00 | 90.10 | 275.70 | 3814.04 | 2747.84 | 308.79 | -2730.60 | 2748.01 | 276.45 | .00 |
| 6184.00 | 90.10 | 275.70 | 3813.93 | 2810.84 | 315.05 | -2793.29 | 2811.00 | 276.43 | .00 |
| 6216.00 | 90.90 | 275.60 | 3813.65 | 2842.84 | 318.20 | -2825.13 | 2843.00 | 276.43 | 2.52 |
| 6247.00 | 91.20 | 275.80 | 3813.08 | 2873.84 | 321.27 | -2855.98 | 2873.99 | 276.42 | 1.16 |
| 6278.00 | 91.50 | 275.80 | 3812.35 | 2904.83 | 324.41 | -2886.81 | 2904.98 | 276.41 | .97 |
| 6309.00 | 91.70 | 275.70 | 3811.48 | 2935.82 | 327.51 | -2917.64 | 2935.96 | 276.40 | .72 |
| 6340.00 | 90.30 | 274.90 | 3810.94 | 2966.81 | 330.37 | -2948.50 | 2966.95 | 276.39 | 5.20 |
| 6371.00 | 90.30 | 274.90 | 3810.78 | 2997.80 | 333.02 | -2979.39 | 2997.94 | 276.38 | .00 |
| 6402.00 | 89.90 | 275.20 | 3810.73 | 3028.80 | 335.75 | -3010.27 | 3028.93 | 276.36 | 1.61 |
| 6435.00 | 89.90 | 274.90 | 3810.78 | 3061.80 | 338.66 | -3043.14 | 3061.92 | 276.35 | .91 |
| 6467.00 | 88.10 | 274.70 | 3811.34 | 3093.79 | 341.33 | -3075.02 | 3093.91 | 276.33 | 5.66 |
| 6499.00 | 87.70 | 274.20 | 3812.52 | 3125.76 | 343.81 | -3106.90 | 3125.87 | 276.31 | 2.00 |
| 6531.00 | 87.90 | 274.60 | 3813.74 | 3157.72 | 346.27 | -3138.78 | 3157.83 | 276.30 | 1.40 |
| 6562.00 | 88.30 | 274.30 | 3814.77 | 3188.70 | 348.67 | -3169.67 | 3188.79 | 276.28 | 1.61 |
| 6594.00 | 88.70 | 274.60 | 3815.61 | 3220.68 | 351.15 | -3201.57 | 3220.77 | 276.26 | 1.56 |
| 6625.00 | 89.00 | 274.70 | 3816.23 | 3251.66 | 353.67 | -3232.46 | 3251.75 | 276.24 | 1.02 |
| 6657.00 | 89.10 | 274.60 | 3816.76 | 3283.65 | 356.26 | -3264.35 | 3283.73 | 276.23 | .44 |
| 6688.00 | 89.30 | 274.50 | 3817.19 | 3314.64 | 358.72 | -3295.25 | 3314.72 | 276.21 | .72 |
| 6720.00 | 89.50 | 274.60 | 3817.53 | 3346.63 | 361.26 | -3327.15 | 3346.70 | 276.20 | .70 |
| 6751.00 | 89.90 | 274.70 | 3817.69 | 3377.62 | 363.77 | -3358.04 | 3377.69 | 276.18 | 1.33 |
| 6783.00 | 90.20 | 274.70 | 3817.66 | 3409.62 | 366.39 | -3389.94 | 3409.68 | 276.17 | .94 |
| 6814.00 | 90.30 | 274.60 | 3817.53 | 3440.61 | 368.90 | -3420.83 | 3440.67 | 276.16 | .46 |
| 6846.00 | 90.50 | 274.80 | 3817.31 | 3472.60 | 371.53 | -3452.72 | 3472.66 | 276.14 | .88 |
| 6878.00 | 90.50 | 274.70 | 3817.03 | 3504.60 | 374.18 | -3484.61 | 3504.65 | 276.13 | .31 |
| 6909.00 | 90.60 | 274.70 | 3816.73 | 3535.59 | 376.72 | -3515.51 | 3535.63 | 276.12 | .32 |
| 6941.00 | 90.70 | 274.70 | 3816.37 | 3567.58 | 379.34 | -3547.40 | 3567.62 | 276.10 | .31 |
| 6972.00 | 91.20 | 275.10 | 3815.85 | 3598.57 | 381.99 | -3578.28 | 3598.61 | 276.09 | 2.07 |
| 7003.00 | 91.10 | 274.80 | 3815.23 | 3629.56 | 384.66 | -3609.16 | 3629.60 | 276.08 | 1.02 |
| 7034.00 | 91.40 | 274.90 | 3814.55 | 3660.55 | 387.28 | -3640.04 | 3660.58 | 276.07 | 1.02 |
| 7065.00 | 91.70 | 275.00 | 3813.71 | 3691.54 | 389.95 | -3670.91 | 3691.57 | 276.06 | 1.02 |
| 7065.00 | 91.70 | 275.00 | 3813.71 | 3691.54 | 389.95 | -3670.91 | 3691.57 | 276.06 | 256.23 |
| 7098.00 | 91.80 | 274.60 | 3812.71 | 3724.52 | 392.71 | -3703.78 | 3724.54 | 276.05 | 1.25 |
| 7130.00 | 90.10 | 275.40 | 3812.18 | 3756.51 | 395.50 | -3735.65 | 3756.53 | 276.04 | 5.87 |
| 7162.00 | 90.20 | 276.00 | 3812.09 | 3788.51 | 398.68 | -3767.50 | 3788.53 | 276.04 | 1.90 |
| 7194.00 | 89.90 | 275.60 | 3812.06 | 3820.51 | 401.91 | -3799.33 | 3820.53 | 276.04 | 1.56 |
| 7225.00 | 90.30 | 275.80 | 3812.01 | 3851.51 | 404.99 | -3830.18 | 3851.53 | 276.04 | 1.44 |
| 7257.00 | 90.30 | 275.50 | 3811.84 | 3883.51 | 408.14 | -3862.02 | 3883.53 | 276.03 | .94 |
| 7288.00 | 90.60 | 275.50 | 3811.60 | 3914.50 | 411.12 | -3892.88 | 3914.53 | 276.03 | .97 |
| 7320.00 | 90.70 | 275.30 | 3811.24 | 3946.50 | 414.13 | -3924.73 | 3946.52 | 276.02 | .70 |
| 7351.00 | 91.10 | 275.50 | 3810.75 | 3977.50 | 417.04 | -3955.59 | 3977.52 | 276.02 | 1.44 |
| 7383.00 | 89.20 | 276.00 | 3810.67 | 4009.49 | 420.25 | -3987.43 | 4009.52 | 276.02 | 6.14 |
| 7414.00 | 88.80 | 276.00 | 3811.21 | 4040.49 | 423.49 | -4018.26 | 4040.51 | 276.02 | 1.29 |
| 7456.00 | 88.90 | 277.00 | 3812.05 | 4082.48 | 428.24 | -4059.98 | 4082.50 | 276.02 | 2.39 |

| Measured Depth FT | Incl Angle Deg | Drift Direction Deg | True Vertical Depth | Vertical Section FT | N-S FT | E-W FT | C L O S U R E | | Dogleg Severity Deg/100 |
|-------------------------------|----------------------|---------------------------|---------------------------|---------------------------|-----------|-----------|----------------|------------------|-------------------------------|
| | | | | | | | Distance FT | Direction Deg | |
| 7486.00 | 89.00 | 277.00 | 3812.60 | 4112.47 | 431.90 | -4089.75 | 4112.49 | 276.03 | .33 |
| 7577.00 | 88.90 | 276.60 | 3814.27 | 4203.44 | 442.67 | -4180.09 | 4203.47 | 276.05 | .45 |
| 7647.00 | 89.00 | 276.50 | 3815.55 | 4273.42 | 450.65 | -4249.62 | 4273.45 | 276.05 | .20 |
| 7678.00 | 89.00 | 276.30 | 3816.09 | 4304.41 | 454.11 | -4280.43 | 4304.45 | 276.06 | .65 |
| 7708.00 | 88.90 | 276.10 | 3816.64 | 4334.41 | 457.35 | -4310.25 | 4334.44 | 276.06 | .75 |
| 7768.00 | 88.70 | 275.80 | 3817.90 | 4394.39 | 463.57 | -4369.91 | 4394.43 | 276.06 | .60 |
| 7829.00 | 88.80 | 276.00 | 3819.23 | 4455.38 | 469.84 | -4430.57 | 4455.41 | 276.05 | .37 |
| 7890.00 | 88.70 | 276.00 | 3820.56 | 4516.37 | 476.21 | -4491.22 | 4516.40 | 276.05 | .16 |
| 7952.00 | 88.70 | 276.10 | 3821.97 | 4578.35 | 482.74 | -4552.86 | 4578.38 | 276.05 | .16 |
| 8015.00 | 88.30 | 275.50 | 3823.61 | 4641.33 | 489.11 | -4615.52 | 4641.36 | 276.05 | 1.14 |
| 8078.00 | 88.00 | 275.10 | 3825.65 | 4704.29 | 494.92 | -4678.22 | 4704.32 | 276.04 | .79 |
| 8142.00 | 89.90 | 275.80 | 3826.82 | 4768.28 | 501.00 | -4741.91 | 4768.31 | 276.03 | 3.16 |
| 8204.00 | 89.80 | 275.20 | 3826.98 | 4830.27 | 506.94 | -4803.63 | 4830.30 | 276.02 | .98 |
| 8267.00 | 90.20 | 275.50 | 3826.98 | 4893.27 | 512.82 | -4866.35 | 4893.30 | 276.02 | .79 |
| 8328.00 | 90.10 | 275.20 | 3826.82 | 4954.27 | 518.51 | -4927.09 | 4954.29 | 276.01 | .52 |
| 8391.00 | 90.20 | 275.70 | 3826.66 | 5017.27 | 524.49 | -4989.80 | 5017.29 | 276.00 | .81 |
| 8454.00 | 89.90 | 275.70 | 3826.60 | 5080.27 | 530.75 | -5052.49 | 5080.29 | 276.00 | .48 |
| 8515.00 | 89.70 | 275.50 | 3826.82 | 5141.27 | 536.70 | -5113.20 | 5141.29 | 275.99 | .46 |
| 8581.00 | 89.40 | 274.70 | 3827.33 | 5207.26 | 542.57 | -5178.93 | 5207.28 | 275.98 | 1.29 |
| Last MWD Survey | | | | | | | | | |
| 8644.00 | 89.20 | 275.00 | 3828.10 | 5270.24 | 547.89 | -5241.70 | 5270.26 | 275.97 | .57 |
| Survey Projected to TD | | | | | | | | | |
| 8754.00 | 88.90 | 275.50 | 3829.93 | 5380.22 | 557.96 | -5351.23 | 5380.24 | 275.95 | .53 |