

RECEIVED

Form 3160-5
(August 2007)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

DEC 14 2010

FORM APPROVED
OMB No. 1004-0137
Expires: July 31, 2010

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 page 2.

1. Type of Well <input type="checkbox"/> Oil Well <input checked="" type="checkbox"/> Gas Well <input type="checkbox"/> Other		5. Lease Serial No. Contract 464
2. Name of Operator Black Hills Gas Resources		6. If Indian, Allottee, or Tribe Name Jicarilla Apache Tribe
3a. Address 3200 N 1st Street Bloomfield, NM 87413	3b. Phone No. (include area code) (505) 634-1111	7. If Unit or CA. Agreement Name and/or No.
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Surface: 665' FNL & 2400 FWL NE/NW (Unit C) Section 29 T30N R3W Bottom Hole: 665' FNL & 2,100 FWL NE/NW (Unit C) Section 29 T30N R3W		8. Well Name and No. Jicarilla 464-29 #716
		9. API Well No. 30-039-29888
		10. Field and Pool, or Exploratory Area Basin Mancos
		11. County or Parish, State Rio Arriba County, New Mexico

12. 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 Change Bottom
	<input checked="" type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and abandon	<input type="checkbox"/> Temporarily Abandon	Hole
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug back	<input type="checkbox"/> Water Disposal	

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 recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. 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.)

Black Hills Gas Resources (BHGR) intent to use the Jicarilla 464-29 #716 use as a microseismic monitoring well for an up coming frac project well in the area. Due to the current uncemented perforated liner, BHGR plans to cut a window in the existing 7" casing at +/- 5500' drill a 6-1/8" directional hole to +/- 8400' TVD to create a +/- 300' departure from the original hole. The new BHL will be 665' FNL & 2100' FWL in Sec.29 T30N R3W.

BHGR is submitting a new drilling plan, C102, and directional plan.

Surface disturbance will not change from the initial APD, therefore the Surface Use Plan will not be updated nor modified.

RCVD DEC 16 '10
OIL CONS. DIV.
DIST. 3

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

Daniel Manus

Regulatory Technician

Title

Signature

Date

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by

Original Signed: Stephen Mason

Title

Date

DEC 15 2010

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

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)

NMOCD

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

DISTRICT II
1301 W. Grand Ave., Artesio, NM. 88210

DISTRICT III
1000 Rio Brozos Rd., Aztec, NM. 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 July, 16, 2010
Submit one copy to appropriate
District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-039-29888	² Pool Code 97232	³ Pool Name BASIN MANCOS
⁴ Property Code 22184	⁵ Property Name JICARILLA 464-29	⁶ Well Number 716
⁷ GRID No. 013925	⁸ Operator Name BLACK HILLS GAS RESOURCES	⁹ Elevation 7263'

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
C	29	30-N	3-W		665	NORTH	2400	WEST	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
C	29	30-N	3-W		665	NORTH	2100	WEST	RIO ARRIBA
¹² Dedicated Acres 160 NW/4			¹³ Joint or Infill		¹⁴ Consolidation Code		¹⁵ Order No.		

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

SEC. CORNER FD. 2 1/2" BC. 1917 G.L.O.	N 89°58'21" E 2636.51' (M)	QTR. CORNER FD. 2 1/2" BC. 1917 G.L.O.	LOT 1
2100'	B.H.L.	S.H.L.	
2400'			
BOTTOM HOLE: LAT: 36.78880° N. (NAD 83) LONG: 107.17610° W. (NAD 83) LAT: 36°47'19.64222" N. (NAD 27) LONG: 107°10'31.82214" W. (NAD 27)			LOT 2
29			
S 0°03'45" W 5572.76' (M)			LOT 3
LOT 4	LOT 5	LOT 6	LOT 7
PRELIMINARY B.H.L. B.H.L. FOOTAGES ARE APPROXIMATE AND PROVIDED BY BHGR CLIENT			
CLOSING CORNER SEC. CORNER FD. 2 1/2" BC. 1917 G.L.O.			

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. Signature: <u>Daniel Manos</u> Date: <u>12/14/10</u> Printed Name: <u>Daniel Manos</u> E-mail Address: <u>daniel.manos@blackhillscorp.com</u>
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: <u>JUNE 6, 2006</u> Signature and Seal of Professional Surveyor: <u>[Signature]</u> Certificate Number: <u>8894</u>



Black Hills Gas Resources

Jicarilla 464-29 #716

Surface Location: 665' FNL 2,400' FWL (NE/NW) Unit C

Bottom Hole Location: 665' FNL 2,100' FWL (NE/NW) Unit C

Section 29 T30N R3W

Rio Arriba County, New Mexico

Contract 464

DRILLING PROGRAM

(Per Rule 320)

The 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 NOS process includes an onsite meeting which was held on August 11, 2004 as determined by the Bureau of Land Management (BLM), Bureau of Indian Affairs (BIA and Jicarilla Oil & Gas Administration (JOGA), and at which time the specific concerns of Mallon Oil Company (Mallon), BLM, BIA and JOGA were discussed.

BHGR is proposing to sidetrack 300' west from the original bottom hole of 665' FNL & 2,400' FWL, and giving a new bottom hole of 665' FNL & 2,700' FWL

SURFACE FORMATION – San Jose

GROUND ELEVATION – 7,271'

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

San Jose	Surface	Sandstone, shales & siltstones
Ojo Alamo	3,281'	Sandstone, shales & siltstones
Pictured Cliffs	3,826'	Sandstone, shales & siltstones
Lewis	3,911'	Sandstone, shales & siltstones
Cliffhouse	5,797'	Sandstone, shales & siltstones
Point Lookout	6,192'	Sandstone, shales & siltstones
Mancos	6,632'	Sandstone, shales & siltstones

TOTAL DEPTH	8,400'	True Vertical Depth (TVD)
	8,443'	Measured Depth (MD)

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

San Jose	Surface	Gas, water, sand, shale
Ojo Alamo	3,281'	Gas, water, sand, shale
Pictured Cliffs	3,826'	Gas, water, sand, shale
Lewis	3,911'	Gas, water, sand, shale
Cliffhouse	5,797'	Gas, water, sand, shale
Point Lookout	6,192'	Gas, water, sand, shale
Mancos	6,632'	Gas, water, sand, shale

DIRECTIONAL DRILLING PROGRAM

Kick-Off Point is estimated to be $\pm 5,500'$ TVD

CASING PROGRAM

Depth	Hole Diameter	Casing Diameter	Casing Weight and Grade	Cement
0'- 330'	12-1/4"	9-5/8"	J-55 36# ST&C	Existing cement
0'- 5,500'	8-3/4"	7"	N-80 23# LT&C	Existing cement
0' - TD	6-1/8"	4-1/2"	N-80 11.6# LT&C	515 sks of 50/50 Poz * Premium, 5#/sk gilsonit, .25#/sk Poly-E-Flake and .8% Halad®- 9

* Actual cement volume to be determined by caliper log.

Yields: Production: 50:50 poz Premium yield = 1.44 ft³/sx (mixed at 13.0 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

5,500' - TD' Fresh water- Low solids non-dispersed
 M.W. 8.5 – 9.2 ppg
 Vis – 28 – 50 sec
 W.L. 6 - 10cc 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: Triple Combo/Sonic/FMI/Mechanical side wall coring with wire line
B) Coring: Two 60ft conventional core
1st core at $\pm 7,500 - \pm 7,560$
2nd core at $\pm 7,750 - \pm 7,810$
Depth will be determine by geology of the well
C) Testing: None

Log, core and prepare the well for microseismic monitoring of the frac in the 464-30 #724.

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) H₂S: None anticipated.
D) Estimated
bottom hole pressure: 1,837 psi

ANTICIPATED START DATE

January 1, 2011

COMPLETION

BHGR plans to use the well as a microseismic monitoring well. The 4 1/2" casing string will be pressure tested to 1500 psi for 30 minutes. The pressure test will be recorded on a chart. There will be no open perforations in the well. No tubing will be run in the well



PHOENIX

TECHNOLOGY SERVICES

Job Number: 1010xxx
 Company: Black Hills
 Lease/Well: Jicarilla 464-29 #716
 Location: ☐
 Rig Name: ☐
 RKB: ☐
 G.L. or M.S.L.: ☐

State/Country: ☐
 Declination: ☐
 Grid: ☐
 File name: Y:\JOB\DAT-1\BLACKH-1\2010\JICARI-4\29716.SVY
 Date/Time: 05-Nov-10 / 09:15
 Curve Name: Jicarilla 464-29 #716 plan 300' disp 5500 KOP-B

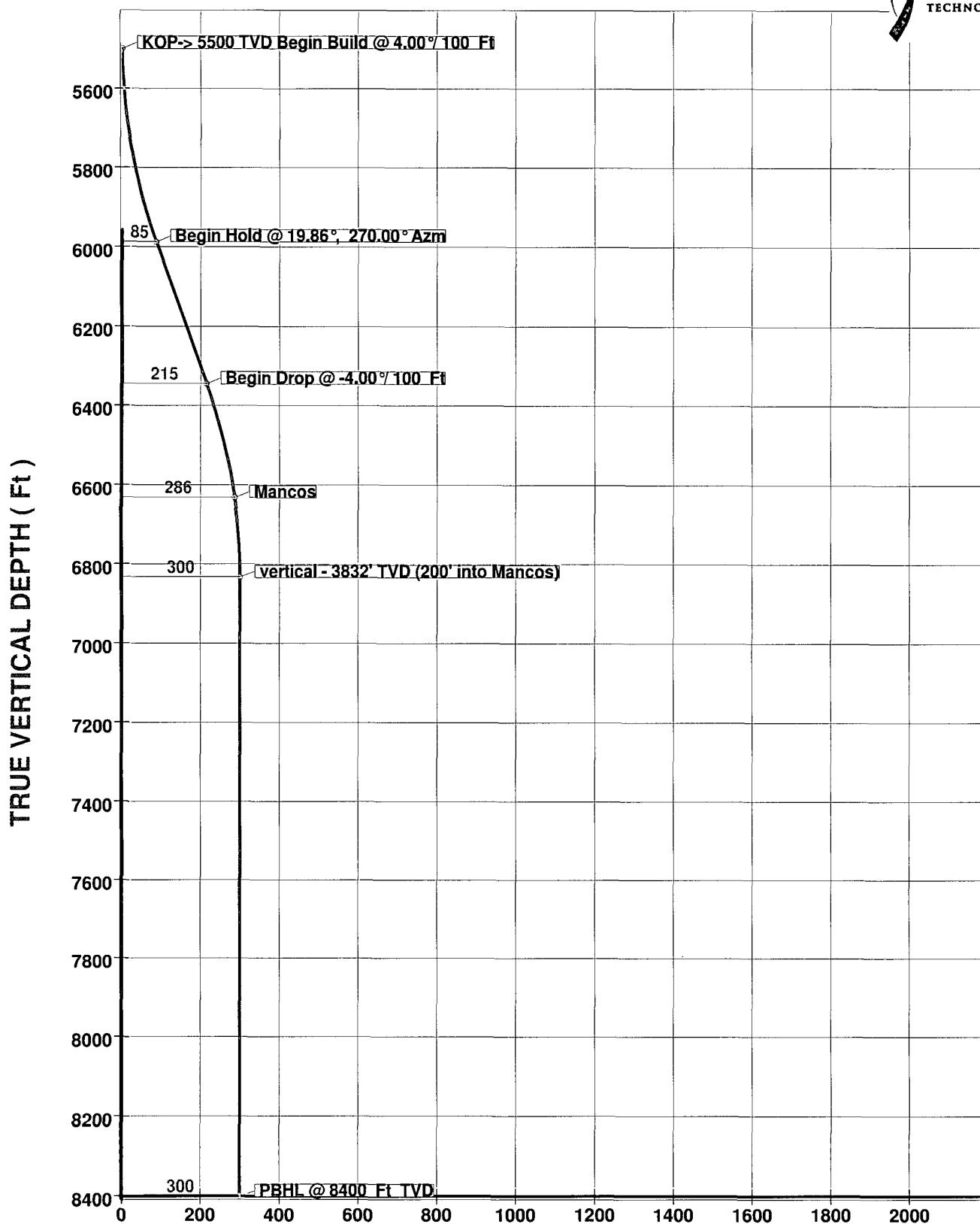
Jicarilla 464-29 #716 plan 300' disp 5500 KOP-B

WINSERVE PROPOSAL REPORT
 Minimum Curvature Method
 Vertical Section Plane 270.00
 Vertical Section Referenced to Wellhead
 Rectangular Coordinates Referenced to Wellhead

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE Distance FT	Direction Deg	Dogleg Severity Deg/100
KOP-> 5500 TVD Begin Build @ 4.00% 100 Ft									
5500.00	.00	.00	5500.00	.00	.00	.00	.00	.00	.00
5530.00	1.20	270.00	5530.00	.00	-.31	.31	.31	270.00	4.00
5560.00	2.40	270.00	5559.98	.00	-1.26	1.26	1.26	270.00	4.00
5590.00	3.60	270.00	5589.94	.00	-2.83	2.83	2.83	270.00	4.00
5620.00	4.80	270.00	5619.86	.00	-5.02	5.02	5.02	270.00	4.00
5650.00	6.00	270.00	5649.73	.00	-7.85	7.85	7.85	270.00	4.00
5680.00	7.20	270.00	5679.53	.00	-11.29	11.29	11.29	270.00	4.00
5710.00	8.40	270.00	5709.25	.00	-15.37	15.37	15.37	270.00	4.00
5740.00	9.60	270.00	5738.88	.00	-20.06	20.06	20.06	270.00	4.00
5770.00	10.80	270.00	5768.40	.00	-25.37	25.37	25.37	270.00	4.00
5800.00	12.00	270.00	5797.81	.00	-31.30	31.30	31.30	270.00	4.00
5830.00	13.20	270.00	5827.09	.00	-37.85	37.85	37.85	270.00	4.00
5860.00	14.40	270.00	5856.22	.00	-45.00	45.00	45.00	270.00	4.00
5890.00	15.60	270.00	5885.20	.00	-52.77	52.77	52.77	270.00	4.00
5920.00	16.80	270.00	5914.01	.00	-61.14	61.14	61.14	270.00	4.00
5950.00	18.00	270.00	5942.63	.00	-70.11	70.11	70.11	270.00	4.00
5980.00	19.20	270.00	5971.07	.00	-79.67	79.67	79.67	270.00	4.00
Begin Hold @ 19.86°, 270.00° Azm									
5996.61	19.86	270.00	5986.72	.00	-85.23	85.23	85.23	270.00	4.00
6096.61	19.86	270.00	6080.77	.00	-119.21	119.21	119.21	270.00	.00
6196.61	19.86	270.00	6174.82	.00	-153.19	153.19	153.19	270.00	.00
6296.61	19.86	270.00	6268.87	.00	-187.17	187.17	187.17	270.00	.00
Begin Drop @ -4.00% 100 Ft									
6377.86	19.86	270.00	6345.28	.00	-214.77	214.77	214.77	270.00	.00

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	C L O S U R E		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
6407.86	18.66	270.00	6373.60	.00	-224.67	224.67	224.67	270.00	4.00
6437.86	17.46	270.00	6402.12	.00	-233.97	233.97	233.97	270.00	4.00
6467.86	16.26	270.00	6430.83	.00	-242.68	242.68	242.68	270.00	4.00
6497.86	15.06	270.00	6459.72	.00	-250.78	250.78	250.78	270.00	4.00
6527.86	13.86	270.00	6488.77	.00	-258.27	258.27	258.27	270.00	4.00
6557.86	12.66	270.00	6517.97	.00	-265.15	265.15	265.15	270.00	4.00
6587.86	11.46	270.00	6547.30	.00	-271.42	271.42	271.42	270.00	4.00
6617.86	10.26	270.00	6576.76	.00	-277.08	277.08	277.08	270.00	4.00
6647.86	9.06	270.00	6606.34	.00	-282.11	282.11	282.11	270.00	4.00
Mancos									
6673.81	8.03	270.00	6632.00	.00	-285.97	285.97	285.97	270.00	4.00
6677.86	7.86	270.00	6636.01	.00	-286.53	286.53	286.53	270.00	4.00
6707.86	6.66	270.00	6665.77	.00	-290.32	290.32	290.32	270.00	4.00
6737.86	5.46	270.00	6695.60	.00	-293.49	293.49	293.49	270.00	4.00
6767.86	4.26	270.00	6725.49	.00	-296.03	296.03	296.03	270.00	4.00
6797.86	3.06	270.00	6755.43	.00	-297.95	297.95	297.95	270.00	4.00
6827.86	1.86	270.00	6785.40	.00	-299.24	299.24	299.24	270.00	4.00
6857.86	.66	270.00	6815.39	.00	-299.90	299.90	299.90	270.00	4.00
vertical - 3832' TVD (200' into Mancos)									
6874.46	.00	270.00	6832.00	.00	-300.00	300.00	300.00	270.00	4.00
6974.46	.00	270.00	6932.00	.00	-300.00	300.00	300.00	270.00	.00
7074.46	.00	270.00	7032.00	.00	-300.00	300.00	300.00	270.00	.00
7174.46	.00	270.00	7132.00	.00	-300.00	300.00	300.00	270.00	.00
7274.46	.00	270.00	7232.00	.00	-300.00	300.00	300.00	270.00	.00
7374.46	.00	270.00	7332.00	.00	-300.00	300.00	300.00	270.00	.00
7474.46	.00	270.00	7432.00	.00	-300.00	300.00	300.00	270.00	.00
7574.46	.00	270.00	7532.00	.00	-300.00	300.00	300.00	270.00	.00
7674.46	.00	270.00	7632.00	.00	-300.00	300.00	300.00	270.00	.00
7774.46	.00	270.00	7732.00	.00	-300.00	300.00	300.00	270.00	.00
7874.46	.00	270.00	7832.00	.00	-300.00	300.00	300.00	270.00	.00
7974.46	.00	270.00	7932.00	.00	-300.00	300.00	300.00	270.00	.00
8074.46	.00	270.00	8032.00	.00	-300.00	300.00	300.00	270.00	.00
8174.46	.00	270.00	8132.00	.00	-300.00	300.00	300.00	270.00	.00
8274.46	.00	270.00	8232.00	.00	-300.00	300.00	300.00	270.00	.00
8374.46	.00	270.00	8332.00	.00	-300.00	300.00	300.00	270.00	.00
PBHL @ 8400 Ft TVD									
8442.46	.00	270.00	8400.00	.00	-300.00	300.00	300.00	270.00	.00

Job Number: 1010xxx
Company: Black Hills
Lease/Well: Jicarilla 464-29 #716



VERTICAL SECTION (Ft) @ 270.00°