

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.**

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**

3b. Phone No. (include area code)  
**505-634-1111 ext 27**

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)  
**Surface: 775' FSL 545' FEL SE/SE Unit P Sec 04 T30N R3W**  
**Bottom Hole: ±775' FSL ±50' FWL SW/SW Unit M Sec 04 T30N R3W**

5. Lease Serial No.  
**Contract 457**

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

7. If Unit or CA, Agreement Name and/or No.  
**AM 11-09**

8. Well Name and No.  
**Jicarilla 457-04 #44**

9. API Well No.  
**30-039-30100**

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	<b>Convert Vertical</b>
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug back	<input type="checkbox"/> Water Disposal	<b>well to horizontal well</b>

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 recompleate 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 recompleation 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 reclamantion, 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 17, 2007. The well was given API number 30-039-30100. 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.

RCVD SEP 18 '07

The surface location of the well remains the same but the new bottom hole will be ±775' FSL ±50' FWL / Unit M

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

HOLD 0104 FOR *directional Survey*  
*AS Drilled C-102*

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

**8/30/2007**

**THIS SPACE FOR FEDERAL OR STATE OFFICE USE**

Approved by

Title

Date

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**

## GENERAL INSTRUCTIONS

This form is designed for submitting proposals to perform certain well operations, and reports of such operations when completed, as indicated on Federal and Indian lands pursuant to applicable Federal law and regulations. Any necessary special instructions concerning the use of this

form and the number of copies to be submitted, particularly with regard to local area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from the local Federal office

## SPECIFIC INSTRUCTIONS

*Item 4* - Locations on Federal or Indian land should be described in accordance with Federal requirements. Consult the local Federal office for specific instructions.

*Item 13* - Proposals to abandon a well and subsequent reports of abandonment should include such special information as is required by the local Federal office. In addition, such proposals and reports should include reasons for the abandonment; data on any former or

present productive zones, or other zones with present significant fluid contents not sealed off by cement or otherwise, depths (top and bottom) and method of placement of cement plugs; mud or other material placed below, between and above plugs; amount, size, method of parting of any casing, liner or tubing pulled and the depth to top of any left in the hole, method of closing top of well and date well site conditioned for final inspection looking to approval of the abandonment.

## NOTICE

The Privacy Act of 1974 and the regulation in 43 CFR 2.48(d) provide that you be furnished the following information in connection with information required by this application.

AUTHORITY: 30 U.S.C. 181 et seq., 351 et seq., 25 U.S.C. 396; 43 CFR 3160.

**PRINCIPAL PURPOSE:** The information is used to: (1) Evaluate, when appropriate, approve applications, and report completion of subsequent well operations, on a Federal or Indian lease; and (2) document for administrative use, information for the management, disposal and use of National Resource lands and resources, such as: (a) evaluating the equipment and procedures to be used during a proposed subsequent well operation and reviewing the completed well operations for compliance with the approved plan; (b) requesting and granting approval to perform those actions covered by 43 CFR 3162.3-2, 3162.3-3, and 3162.3-4; (c) reporting the beginning or resumption of production, as required by 43 CFR 3162.4-1(c); and (d) analyzing future applications to drill or modify operations in light of data obtained and methods used.

**ROUTINE USES:** Information from the record and/or the record will be transferred to appropriate Federal, State, local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecutions in connection with congressional inquiries or to consumer reporting agencies to facilitate collection of debts owed the Government.

**EFFECT OF NOT PROVIDING THE INFORMATION:** Filing of this notice and report and disclosure of the information is mandatory for those subsequent well operations specified in 43 CFR 3162.3 - 2, 3162.3 - 3, 3162.3 - 4.

The Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.) requires us to inform you that:

This information is being collected to evaluate proposed and/or completed subsequent well operations on Federal or Indian oil and gas leases.

Response to this request is mandatory.

BLM would like you to know that you do not have to respond to this or any other Federal agency -sponsored information collection unless it displays a currently valid OMB control number.

INFORMATION TO COMPLETION  
of the form is required

## BURDEN HOURS STATEMENT

Public reporting burden for this form is estimated to average 25 minutes per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect of this form to U.S. Department of the Interior, Bureau of Land Management (1004-0137), Bureau information Collection Clearance Officer, (WO-630), Mail Stop 401 LS, 1849 C St., N.W., Washington D.C. 20240

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 30-039-30100	<sup>2</sup> Pool Code 72400	<sup>3</sup> Pool Name PICTURED CLIFFS
<sup>4</sup> Property Code 22865	<sup>5</sup> Property Name JICARILLA 457-04	<sup>6</sup> Well Number 44
<sup>7</sup> OGRID No. 013925	<sup>8</sup> Operator Name BLACK HILLS GAS RESOURCES	<sup>9</sup> Elevation 7122

<sup>10</sup> Surface Location

UL or lot no P	Section 4	Township 30-N	Range 3-W	Lot Idn	Feet from the 775	North/South line SOUTH	Feet from the 545	East/West line EAST	County RIO ARRIBA
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<sup>11</sup> Bottom Hole Location If Different From Surface

UL or lot no. M	Section 4	Township 30-N	Range 3-W	Lot Idn	Feet from the 775	North/South line SOUTH	Feet from the 50	East/West line WEST	County RIO ARRIBA
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<sup>12</sup> Dedicated Acres 320.00	<sup>13</sup> Joint or Infill	<sup>14</sup> Consolidation Code	<sup>15</sup> Order No.
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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

16	LOT 4	LOT 3	LOT 2	LOT 1	CALC'D. CORNER BY SINGLE PROP.
QTR. CORNER FD. 2 1/2" BC. 1917 G.L.O.	LAT. 36°50'10.6" N (NAD 83) LONG. 107°08'54.8" W (NAD 83)			S 01°05'00" E 5336.21' (C)	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>Lynn H. Benally</u> Date <u>Aug 30, 2007</u> Printed Name
S 00°11'59" E 2631.88' (M)	SEC. CORNER FD. 2 1/2" BC. 1917 G.L.O.			SEC. CORNER FD. REBAR IN STONE MOUND	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.  MARCH 7, 2006 Date of Survey Signature and Seal of <u>ROY A. RUSH</u> Professional Land Surveyor Certificate Number
50' B.H.L.	S 89°56'36" W 2575.38' (M)	QTR. CORNER FD. 2 1/2" B.C. G.L.O. 1917	N 89°42'32" W 2627.11' (M)	545'	



## Black Hills Gas Resources

Black Hills Gas Resources (BHGR)

**Jicarilla 457-04 #44**

Surface Location: 775' FSL 545' FEL Unit P (SE/SE)

Bottom Hole Location:  $\pm 775'$  FSL  $\pm 50'$  FWL Unit M (SW/SW)

Sec.04 T30N R3W

Rio Arriba County, New Mexico

Contract 457

### 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 includes an onsite meeting which was held on February 15, 2006 as determined by Bureau of Land Management (BLM), Bureau of Indian Affairs (BIA) and Jicarilla Oil & Gas Administration (JOGA), and at which time the specific concerns of Black Hills Gas Resources (BHGR) were discussed.

This well was originally permitted and approved as a vertical PC well. This new drilling plan addresses changing the un-drilled well to a horizontal PC well.

SURFACE FORMATION – San Jose

GROUND ELEVATION – 7,112'

ESTIMATED FORMATION TOPS - (mineral-bearing formations)

San Jose	Surface	Sandstone, shales & siltstones
Nacimiento	1,987'	Sandstone, shales & siltstones
Ojo Alamo	3,099'	Sandstone, shales & siltstones
Kirtland	3,362'	Sandstone, shales & siltstones
Fruitland	3,695'	Sandstone, shales & siltstones
Pictured Cliffs	4,164'	Sandstone, shales & siltstones

**TOTAL DEPTH      3,693'      TVD**

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

Tertiary

San Jose	surface	Gas
Nacimiento	1,987'	Gas
Ojo Alamo	3,099'	Gas
Fruitland	3,362'	Gas
Pictured Cliffs	4,164'	Gas

HORIZONTAL DRILLING PROGRAM

Kick Off Point is estimated to be  $\pm 2835'$  TVD

CASING PROGRAM

Depth	Hole Diameter	Casing Diameter	Casing Weight and Grade	Cement
0' to 250'	12 1/4"	9 5/8"	J-55 36# ST&C	To surface ( $\pm 175$ sxs classB)
0' to 4249'	8 3/4"	7"	J-55 23# ST & C	TD to surface ( $\pm 630$ sxs lite or 65:35 poz and $\pm 270$ sxs 50:50 poz)*
4249' to 7911'	6 1/4 "	Open hole***	none	none

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

\*\* Cement will be circulated to surface

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

## Yields:

Surface: Standard cement yield =  $1.2 \text{ ft}^3/\text{sx}$  (mixed at 15.6 lb/gal)

Production: Lite Standard Cement yield: =  $1.59 \text{ ft}^3/\text{sx}$  (mixed at 13.4 lb/gal)

50:50 poz yield =  $1.27 \text{ ft}^3/\text{sx}$  (mixed at 14.15 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 conditions. 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 1,000 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'	Clean Faze - Low solids non-dispersed
			M.W. 8.5 – 9.2 ppg
			Vis – 28 – 50 sec
			W.L. 15cc or less

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

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: DIL- CNL-FDC-GR - TD - BSC (GR to surface)  
Sonic (BSC to TD)
- B) Coring: None
- C) Testing: Possible DST – None anticipated. Drill stem tests may be run on shows of interest

ABNORMAL CONDITIONS

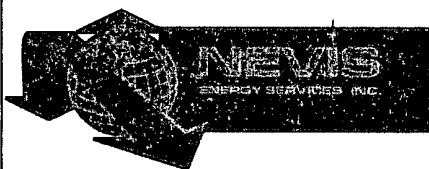
- A) Pressures: No abnormal conditions are anticipated  
Bottom hole pressure gradient – 0.31 psi/ft
- B) Temperatures: No abnormal conditions are anticipated
- C) H<sub>2</sub>S: See attached H<sub>2</sub>S plan in event H<sub>2</sub>S is encountered.
- D) Estimated bottomhole pressure: 1,147 psi

ANTICIPATED START DATE

September 17, 2007

COMPLETION

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



1724-B Townhurst Dr, Houston, Tx 77043  
(713) 827-8302  
www.nevisenergy.com

Job Number: 71xxx  
Company: Black Hills Gas Resources  
Lease/Well: Jicarilla 457-04 #44  
Location: Rio Arriba Co., NM  
Rig Name: Patterson 744  
RKB: 13'  
G.L. or M.S.L.: 7112'

State/Country: NM/USA  
Declination: □  
Grid: □  
File name: Z:\BLACKH-1\NEWWEL-1\457-04-1\45704#44.SVY  
Date/Time: 27-Aug-07 / 10:46  
Curve Name: Jic 457-04 #44 plan 8-09-07

### Jic 457-04 #44 plan 8-09-07

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	Vertical Section FT	N-S FT	E-W FT	CLOSURE		Dogleg Severity Deg/100
Distance FT	Direction Deg								
KOP-> 2835 TVD Begin Build @ 7.00% 100', 270° Azi									
2835.00	.00	270.00	2835.00	.00	.00	.00	.00	.00	.00
2865.00	2.10	270.00	2864.99	.55	.00	-.55	.55	270.00	7.00
2895.00	4.20	270.00	2894.95	2.20	.00	-2.20	2.20	270.00	7.00
2925.00	6.30	270.00	2924.82	4.95	.00	-4.95	4.95	270.00	7.00
2955.00	8.40	270.00	2954.57	8.78	.00	-8.78	8.78	270.00	7.00
2985.00	10.51	270.00	2984.16	13.71	.00	-13.71	13.71	270.00	7.00
3015.00	12.61	270.00	3013.55	19.72	.00	-19.72	19.72	270.00	7.00
3045.00	14.71	270.00	3042.70	26.80	.00	-26.80	26.80	270.00	7.00
3075.00	16.81	270.00	3071.57	34.95	.00	-34.95	34.95	270.00	7.00
3105.00	18.91	270.00	3100.13	44.15	.00	-44.15	44.15	270.00	7.00
3135.00	21.01	270.00	3128.32	54.39	.00	-54.39	54.39	270.00	7.00
3165.00	23.11	270.00	3156.12	65.66	.00	-65.66	65.66	270.00	7.00
3195.00	25.21	270.00	3183.49	77.94	.00	-77.94	77.94	270.00	7.00
3225.00	27.31	270.00	3210.40	91.21	.00	-91.21	91.21	270.00	7.00
3255.00	29.41	270.00	3236.79	105.46	.00	-105.46	105.46	270.00	7.00
3285.00	31.52	270.00	3262.65	120.67	.00	-120.67	120.67	270.00	7.00
3315.00	33.62	270.00	3287.93	136.82	.00	-136.82	136.82	270.00	7.00
3345.00	35.72	270.00	3312.60	153.88	.00	-153.88	153.88	270.00	7.00
3375.00	37.82	270.00	3336.63	171.84	.00	-171.84	171.84	270.00	7.00
3405.00	39.92	270.00	3359.99	190.66	.00	-190.66	190.66	270.00	7.00
3435.00	42.02	270.00	3382.64	210.33	.00	-210.33	210.33	270.00	7.00
3465.00	44.12	270.00	3404.56	230.82	.00	-230.82	230.82	270.00	7.00
3495.00	46.22	270.00	3425.70	252.09	.00	-252.09	252.09	270.00	7.00

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	Vertical Section FT	N-S FT	E-W FT	CLOSURE		Dogleg Severity Deg/100
Distance FT	Direction Deg								
3525.00	48.32	270.00	3446.06	274.13	.00	-274.13	274.13	270.00	7.00
3555.00	50.42	270.00	3465.59	296.90	.00	-296.90	296.90	270.00	7.00
3585.00	52.53	270.00	3484.27	320.37	.00	-320.37	320.37	270.00	7.00
3615.00	54.63	270.00	3502.09	344.50	.00	-344.50	344.50	270.00	7.00
3645.00	56.73	270.00	3519.00	369.28	.00	-369.28	369.28	270.00	7.00
3675.00	58.83	270.00	3535.00	394.66	.00	-394.66	394.66	270.00	7.00
3705.00	60.93	270.00	3550.05	420.61	.00	-420.61	420.61	270.00	7.00
3735.00	63.03	270.00	3564.14	447.09	.00	-447.09	447.09	270.00	7.00
3765.00	65.13	270.00	3577.26	474.07	.00	-474.07	474.07	270.00	7.00
3795.00	67.23	270.00	3589.37	501.51	.00	-501.51	501.51	270.00	7.00
3825.00	69.33	270.00	3600.47	529.38	.00	-529.38	529.38	270.00	7.00
3855.00	71.43	270.00	3610.54	557.64	.00	-557.64	557.64	270.00	7.00
3885.00	73.54	270.00	3619.57	586.25	.00	-586.25	586.25	270.00	7.00
3915.00	75.64	270.00	3627.54	615.17	.00	-615.17	615.17	270.00	7.00
3945.00	77.74	270.00	3634.45	644.36	.00	-644.36	644.36	270.00	7.00
3975.00	79.84	270.00	3640.28	673.78	.00	-673.78	673.78	270.00	7.00
4005.00	81.94	270.00	3645.03	703.40	.00	-703.40	703.40	270.00	7.00
4035.00	84.04	270.00	3648.69	733.18	.00	-733.18	733.18	270.00	7.00
<b>Hold @ 85.00° for 200'</b>									
4048.70	85.00	270.00	3650.00	746.81	.00	-746.81	746.81	270.00	7.00
4148.70	85.00	270.00	3658.72	846.43	.00	-846.43	846.43	270.00	.00
<b>5' into PC / Casing Point</b>									
4248.70	85.00	270.00	3667.43	946.05	.00	-946.05	946.05	270.00	.00
4348.70	85.00	270.00	3676.15	1045.67	.00	-1045.67	1045.67	270.00	.00
<b>Begin Build @ 2.88% 100'</b>									
4448.70	85.00	270.00	3684.86	1145.29	.00	-1145.29	1145.29	270.00	.00
4478.70	85.87	270.00	3687.25	1175.19	.00	-1175.19	1175.19	270.00	2.88
4508.70	86.73	270.00	3689.19	1205.13	.00	-1205.13	1205.13	270.00	2.88
4538.70	87.60	270.00	3690.67	1235.09	.00	-1235.09	1235.09	270.00	2.88
4568.70	88.46	270.00	3691.71	1265.07	.00	-1265.07	1265.07	270.00	2.88
4598.70	89.33	270.00	3692.28	1295.07	.00	-1295.07	1295.07	270.00	2.88
<b>Target / Hold @ 90.13°, 270.00° Azm</b>									
4626.53	90.13	270.00	3692.42	1322.90	.00	-1322.90	1322.90	270.00	2.88
4726.53	90.13	270.00	3692.19	1422.90	.00	-1422.90	1422.90	270.00	.00
4826.53	90.13	270.00	3691.97	1522.90	.00	-1522.90	1522.90	270.00	.00
4926.53	90.13	270.00	3691.74	1622.90	.00	-1622.90	1622.90	270.00	.00
5026.53	90.13	270.00	3691.51	1722.90	.00	-1722.90	1722.90	270.00	.00
5126.53	90.13	270.00	3691.29	1822.90	.00	-1822.90	1822.90	270.00	.00
5226.53	90.13	270.00	3691.06	1922.90	.00	-1922.90	1922.90	270.00	.00
5326.53	90.13	270.00	3690.84	2022.90	.00	-2022.90	2022.90	270.00	.00
5426.53	90.13	270.00	3690.61	2122.90	.00	-2122.90	2122.90	270.00	.00
5526.53	90.13	270.00	3690.39	2222.90	.00	-2222.90	2222.90	270.00	.00
5626.53	90.13	270.00	3690.16	2322.90	.00	-2322.90	2322.90	270.00	.00

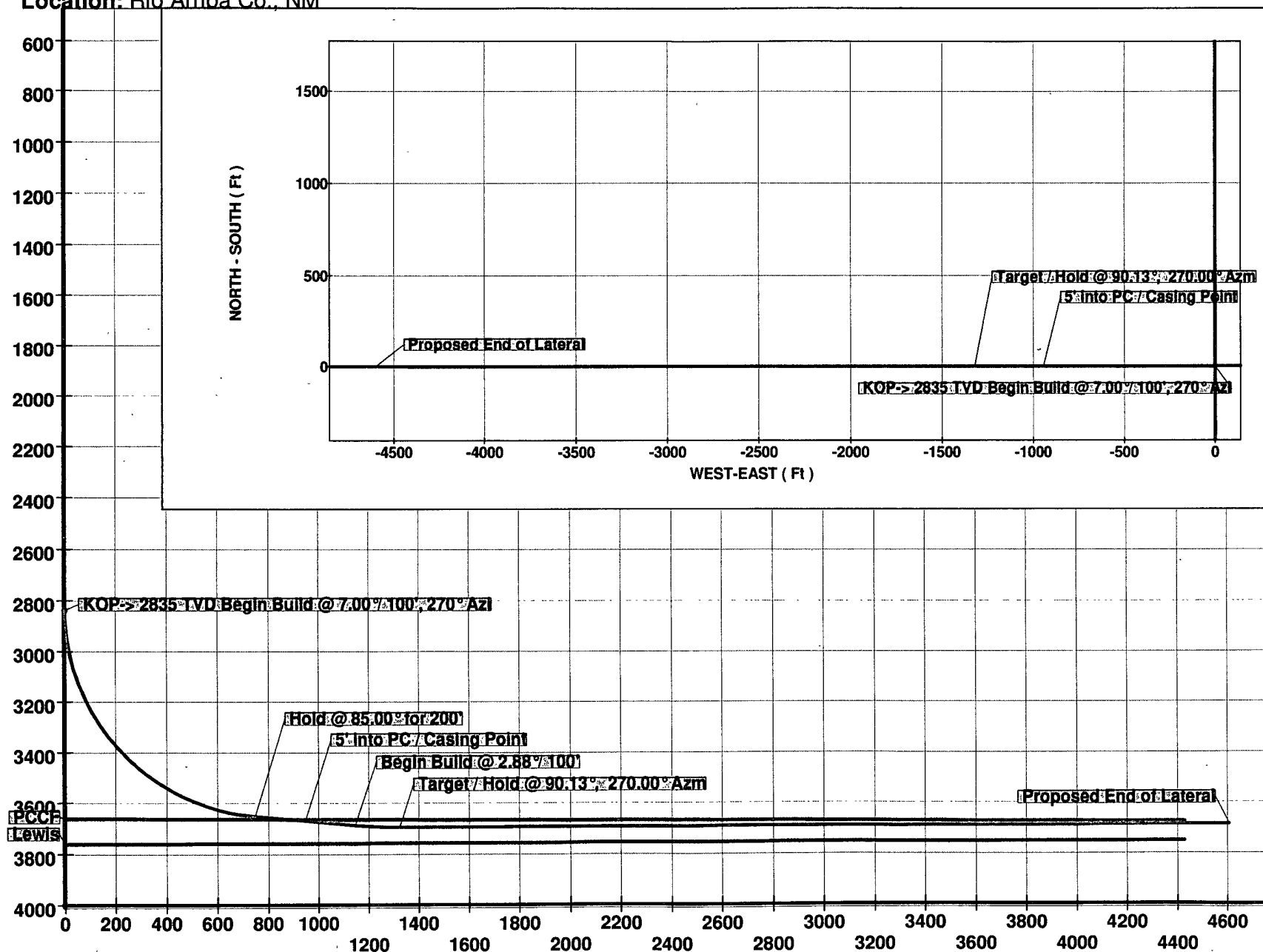
Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	Vertical Section FT	N-S FT	E-W FT	C L O S U R E		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
5726.53	90.13	270.00	3689.93	2422.90	.00	-2422.90	2422.90	270.00	.00
5826.53	90.13	270.00	3689.71	2522.90	.00	-2522.90	2522.90	270.00	.00
5926.53	90.13	270.00	3689.48	2622.90	.00	-2622.90	2622.90	270.00	.00
6026.53	90.13	270.00	3689.26	2722.90	.00	-2722.90	2722.90	270.00	.00
6126.53	90.13	270.00	3689.03	2822.90	.00	-2822.90	2822.90	270.00	.00
6226.53	90.13	270.00	3688.81	2922.90	.00	-2922.90	2922.90	270.00	.00
6326.53	90.13	270.00	3688.58	3022.90	.00	-3022.90	3022.90	270.00	.00
6426.53	90.13	270.00	3688.35	3122.90	.00	-3122.90	3122.90	270.00	.00
6526.53	90.13	270.00	3688.13	3222.90	.00	-3222.90	3222.90	270.00	.00
6626.53	90.13	270.00	3687.90	3322.90	.00	-3322.90	3322.90	270.00	.00
6726.53	90.13	270.00	3687.68	3422.90	.00	-3422.90	3422.90	270.00	.00
6826.53	90.13	270.00	3687.45	3522.89	.00	-3522.89	3522.89	270.00	.00
6926.53	90.13	270.00	3687.23	3622.89	.00	-3622.89	3622.89	270.00	.00
7026.53	90.13	270.00	3687.00	3722.89	.00	-3722.89	3722.89	270.00	.00
7126.53	90.13	270.00	3686.77	3822.89	.00	-3822.89	3822.89	270.00	.00
7226.53	90.13	270.00	3686.55	3922.89	.00	-3922.89	3922.89	270.00	.00
7326.53	90.13	270.00	3686.32	4022.89	.00	-4022.89	4022.89	270.00	.00
7426.53	90.13	270.00	3686.10	4122.89	.00	-4122.89	4122.89	270.00	.00
7526.53	90.13	270.00	3685.87	4222.89	.00	-4222.89	4222.89	270.00	.00
7626.53	90.13	270.00	3685.65	4322.89	.00	-4322.89	4322.89	270.00	.00
7726.53	90.13	270.00	3685.42	4422.89	.00	-4422.89	4422.89	270.00	.00
<b>Proposed End of Lateral</b>									
7910.64	90.13	270.00	3685.01	4607.00	.00	-4607.00	4607.00	270.00	.00

Job Number: 71xxx  
 Company: Black Hills Gas Resources  
 Lease/Well: Jicarilla 457-04 #44  
 Location: Rio Arriba Co., NM



1724-S Townsend Dr., Houston, TX 77043  
 (713) 627-6300  
 www.bhenergy.com

TRUE VERTICAL DEPTH ( Ft )



VERTICAL SECTION ( Ft ) @ 270.00°