

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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.

FORM APPROVED
OMB No. 1004-0135
Expires: January 31, 2004

5. Lease Serial No.
Contract 464

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

7. If Unit or CA/Agreement, Name and/or No.
Jicarilla Apache Tribe

8. Well Name and No.
Jicarilla 464 #2D

9. API Well No.
30-039-29887

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

11. County or Parish, State
Rio Arriba, NM

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, Inc. Contact: Lynn H. Benally/Daniel Manus

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: 975' FNL 795' FWL NW/NW Sec.32 T30N R3W Unit D
Bottom Hole: 100' FNL 124' FEL NE/NE Sec. 32 T30N R3W Unit A

12. CHECK APPROPRIATE BOX(ES) 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"/> Alter 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>Convert Vertical</u>
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	<u>Drill to Horizontal Drill</u>
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	

3. 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 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 Notices 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 Dakota (DK) well was approved on August 16, 2006. The well was given API number 30-039-2987. After evaluation of drilling data in the immediate area, BHGR has determined that this well is best drilled using horizontal drilling technology into the Pictured Cliffs (PC) formation. BHGR is submitting an updated drilling plan, a copy of the Administrative Order allowing for unorthodox locations, and a revised C-102, to change the well from a vertical well to a horizontal well.

The surface location of the well remains the same but the new bottom hole will be 100' FNL 124' FEL.

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

RCVD MAR12'07

OIL CONS. DIV.

DIST. 3

HOLD C104 FOR directional survey

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

Lynn H. Benally

Title Regulatory Specialist

Signature

Date

3/7/2007

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by (Signature) <u>Jy L Salazar</u>	Name (Printed/Typed) TL Salazar	Title PE
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	Date 3/9/2007

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.

(Continued on next page)

NMCCD 8



Black Hills Gas Resources

Jicarilla 464 #2D

Surface: 975' FNL 795' FWL (NW/NW)
 Bottom Hole: 100' FNL 124' FEL (NE/NE)
 Sec.32 T30N R3W
 Rio Arriba County, New Mexico
 Lease: Contract 464

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 June 7, 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 Dakota well on August 16, 2006. This new drilling plan addresses changing the un-drilled well to a horizontal PC well.

SURFACE FORMATION – San Jose

GROUND ELEVATION – 7,126'

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

San Jose	Surface	Sandstone, shales & siltstones
Nacimiento	2,030'	Sandstone, shales & siltstones
Ojo Alamo	3,220'	Sandstone, shales & siltstones
Kirtland	3,450'	Sandstone, shales & siltstones
Fruitland	3,610'	Sandstone, shales & siltstones
Pictured Cliffs	3,740'	Sandstone, shales & siltstones
Lewis	3,840'	Sandstone, shales & siltstones

TOTAL DEPTH	3,906'	TVD
	4,494'	MD

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

Tertiary		
San Jose	surface	Gas
Nacimiento	2,030'	Gas
Ojo Alamo	3,220'	Gas
Kirtland	3,450'	Gas
Fruitland	3,610'	Gas
Pictured Cliffs	3,740'	Gas
Lewis	3,840'	Gas

HORIZONTAL DRILLING PROGRAMKick Off Point is estimated to be $\pm 2870'$ TVD**CASING PROGRAM**

Depth	Hole Diameter	Casing Diameter	Casing Weight and Grade	Cement
0- 280' 275' TVD	12-1/4"	8 5/8"	J-55 24# ST&C New	To surface (± 175 sxs Standard cement containing 2% CaCl_2 and 0.25lb/sx LCM) **
0-3906' TVD	7-7/8"	5 1/2"	J-55 15.5# LT&C New	TD to surface (Lead: ± 300 sxs lite standard cement. Tail: 400 sxs 50:50 poz containing 0.25 lb/sx LCM) * **
2870' TVD (KOP) End of Lateral Bore	4-3/4"	2-7/8"	PH-6 Liner	None

* Actual cement volume to be determined by caliper log.

** Cement will be circulated to surface

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 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 1,000 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'	-	300'	Fresh water – M.W. 8.5 ppg, Vis 30-33
300'	-	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) H₂S: See attached H₂S plan in event H₂S is encountered.
- D) Estimated bottomhole pressure: 1211 psi

ANTICIPATED START DATE

April 1, 2007

COMPLETION

The location pad will be of sufficient size to accommodate all completion activities and equipment. A string of 2-7/8” PH-6 tubing will be run for a flowing string. A Sundry Notice will be submitted with a revised completion program if warranted.

Jicarilla 464 #2D
 Surface: 975' FNL 795' FWL, (NW /4 NW /4)
 Sec. 32 T 30N R 3W
 Rio Arriba County, New Mexico
 Contract 464

SURFACE CASING AND CENTRALIZER DESIGN

Proposed Total Depth: 3,906 '
 Proposed Depth of Surface Casing: 275 '
 Estimated Pressure Gradient: 0.31 psi/ft
 Bottom Hole Pressure at
 0.31 psi/ft x 3,906 ' = 1,211 psi
 Hydrostatic Head of gas/oil mud:
 0.22 psi/ft x 3,906 ' = 859 psi

Maximum Design Surface Pressure

Bottom Hole Pressure - Hydrostatic Head =
 (0.31 psi/ft x 3,906 ') - (0.22 psi/ft x 3,906 ') =
 1,211 psi - 859 psi = 352 psi

Casing Strengths 9 5/8 J-55 24# ST&C

Wt.	Tension (lbs)	Burst (psi)	Collapse (psi)
36 #	394,000	3,520	2,020
40 #	452,000	2,950	2,570

Safety Factors

Tension (Dry): 1.8 Burst: 1.0 Collapse: 1.125

Tension (Dry): 36 # / ft x 275 ' = 9,900 #
 Safety Factor = $\frac{394,000}{9,900}$ = 39.80 ok

Burst: Safety Factor = $\frac{3,520 \text{ psi}}{352 \text{ psi}}$ = 10.01 ok

Collapse: Hydrostatic = 0.052 x 9.0 ppg x 275 ' = 129 psi
 Safety Factor = $\frac{2,020 \text{ psi}}{129 \text{ psi}}$ = 15.70 ok

Use 275 ' 9.625 J-55 24# ST&C

Use 2,000 psi minimum casinghead and BOP's but will test to 1,000 psi

Centralizers

5 Total
 1 near surface at 40'
 2 -1 each at middle of bottom joint, second joint
 2 -1 each at every other joint 40' spacing

Total centralized ± 200 ' (75 ' - 275 ')

Note that field experience indicates that additional centralizers greatly increase the chance of "sticking" the surface casing prior to reaching surface casing total depth.

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

¹ API Number 30-039-29887	² Pool Code 72400	³ Pool Name EAST BLANCO - PICTURED CLIFF
⁴ Property Code 20469	⁵ Property Name JICARILLA 464	⁶ Well Number 2D
⁷ OGRID No. 013925	⁸ Operator Name BLACK HILLS GAS RESOURCES	⁹ Elevation 7130'

¹⁰ Surface Location

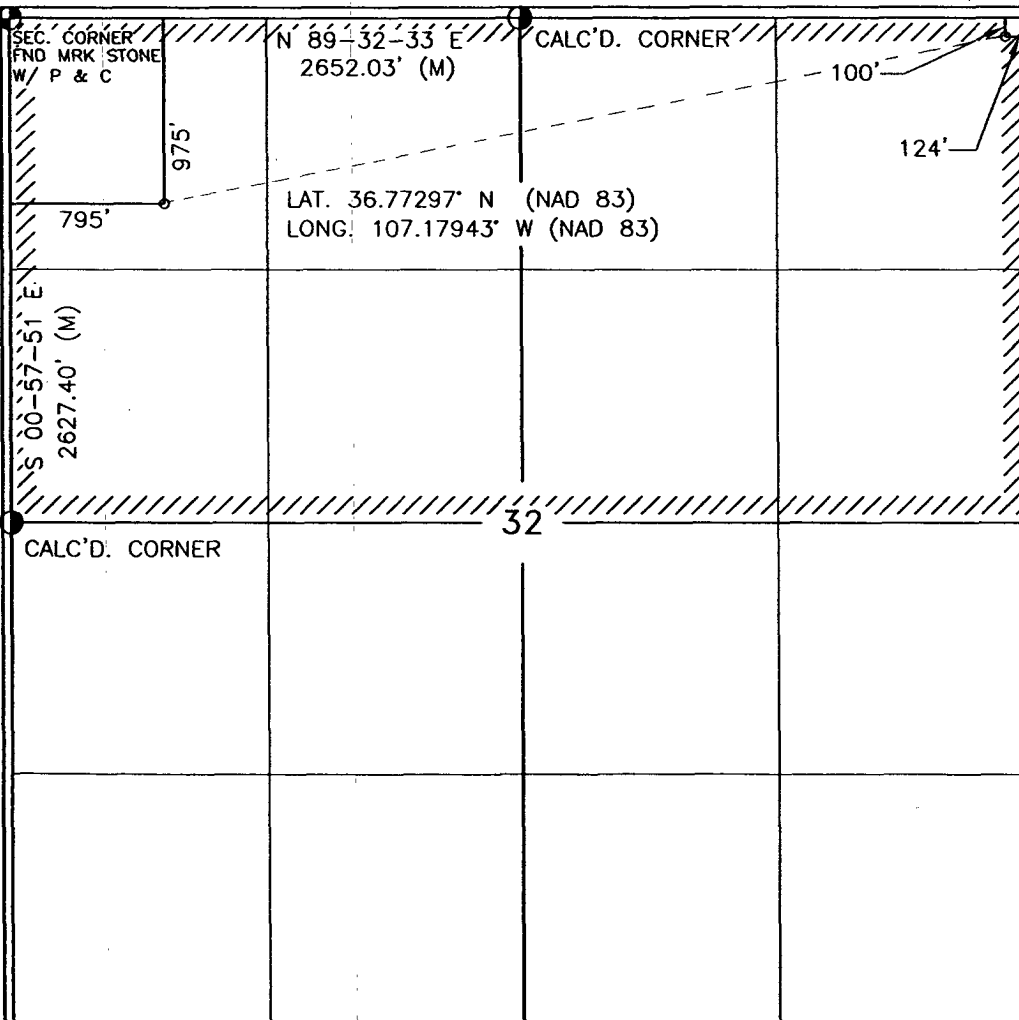
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	32	30-N	3-W		975	NORTH	795	WEST	RIO ARRIBA

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
A	32	30-N	3-W		100	NORTH	124	EAST	RIO ARRIBA
¹² Dedicated Acres 320 N/2			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

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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] 3/7/2007
Signature Date
Lynn H. Benally
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.

JUNE 30, 2006 RUSH
Date of Survey
Signature and Seal of Professional Surveyor:
[Signature]
8894
Certificate Number

Job Number: 71xxx
 Company: Black Hills Gas Resources
 Lease/Well: Jicarilla 464 #2D
 Location: Rio Arriba County, NM

