Form 3160-5
(September 2001),

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

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

5. Lease Serial No.
Jicarilla Contract 452

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

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

1. Type of Well
☐ Oil Well ☑ Gas Well ☐ Other

8. Well Name and No.
Jicarilla 452 #4

2. Name of Operator
Black Hills Gas Resources, Inc. Contact: Lynn H. Benally/Daniel Manus

9. API Well No.
30-039-24257

3a. Address
3200 N 1st Street/PO Box 249 Bloomfield, NM 87413

3b. Phone No. *(include area code)*
505-634-1111 ext 27, ext 28

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

4. Location of Well *(Footage, Sec., T, R., M., or Survey Description)*
Surface Location: NW/NW 793' FNL 786' FWL Unit D
Bottom Hole Location: NE/NE ±793' FNL ± 63' FEL Unit A

11. County or Parish, State
Rio Arriba, NM

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☑ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☑ Other ~~Re-~~enter Well and Convert to a horizontal well
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ Convert to Injection	☐ Plug Back	☐ 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 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 Picture Cliffs (PC) well was approved on July 7, 1988. The well was given API number 30-039-24257. After evaluation of drilling data in the imediate area, BHGR has determined to re-enter the well and horizontally drill to maximize production of the well. BHGR is submitting an updated drilling plan, Nevis Report, and a revised C-102 to change the well from a vertical PC to a horizontal PC, including corrected surface footages. Since the well was drilled several years ago included will be BHGRs H2S and BOP.

BHGR is planning to plug back the existing well bore, cut and pull 500 ft of existing 4-1/2 production casing. A cement plug will be set from ±500 ft to the bottom of the surface casing at 133 ft. KOP for re-entry will be ±200 ft. See attached Plug Back Procedure, Casing and Directional Plans.

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

HOLD C104 FOR directional Survey

SEE ATTACHED FOR CONDITIONS OF APPROVAL

RCVD JUN11'07
OIL CONS. DIV.
DIST. 3

14. I hereby certify that the foregoing is true and correct
Name *(Printed/Typed)*
Lynn H. Benally — Title Regulatory Specialist

Signature — Date 6/6/2007

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by *(Signature)* — Name *(Printed/Typed)* Stephen M Mason — 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 JUN 11 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)

OPERATOR

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

RECEIVED
2007 JUN -7 P 1:10
210 FARMINGTON NM

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹API Number	²Pool Code	³Pool Name
30-039-24257	72400	EAST BLANCO \ PICTURED CLIFF

⁴Property Code	⁵Property Name	⁶Well Number
20463	JICARILLA 452	4

⁷OGRID No.	⁸Operator Name	⁹Elevation
013925	BLACK HILLS GAS RESOURCES	7079

¹⁰ Surface Location

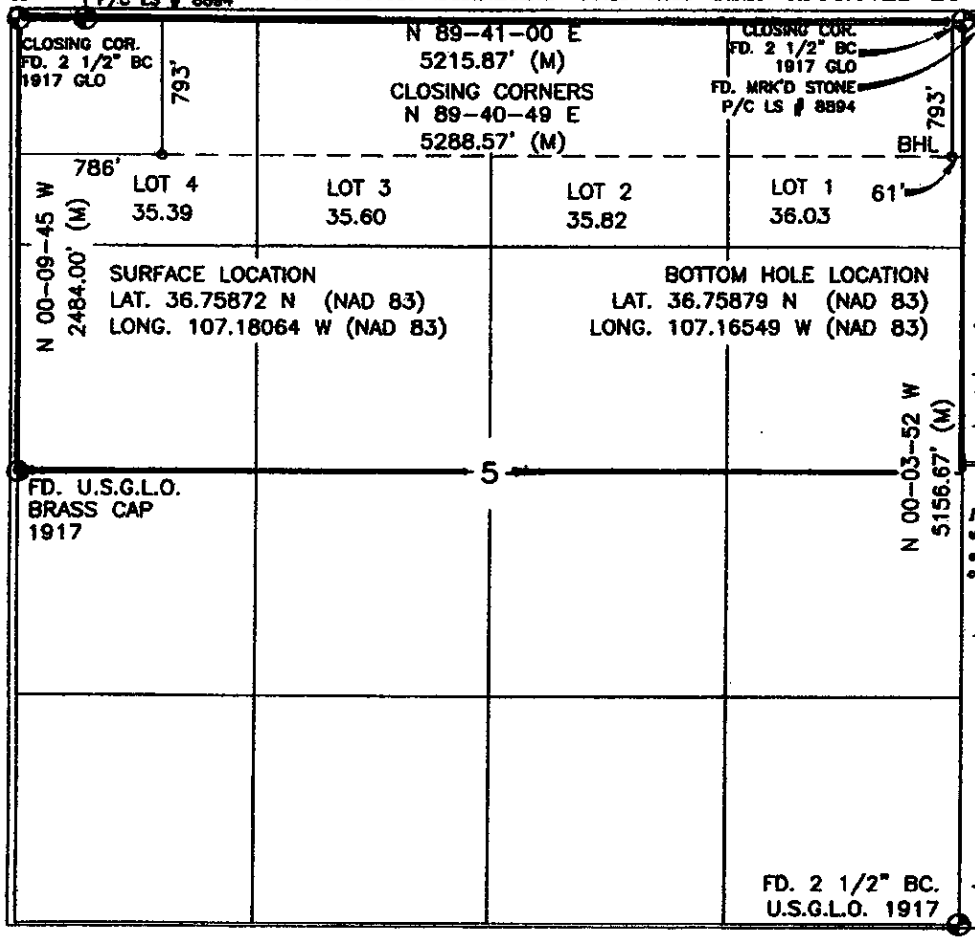
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	5	29-N	3-W		793	NORTH	786	WEST	RIO ARRIBA

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	5	29-N	3-W		793	NORTH	61	EAST	RIO ARRIBA

¹²Dedicated Acres	¹³Joint or Infill	¹⁴Consolidation Code	¹⁵Order No.
N/2 - 320			NSL 4355

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 6/7/07
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 belief.

July 8, 1999
Date of Survey

Signature and Seal of Professional Surveyor:

ROY A. RUSH
NEW MEXICO
8894
REGISTERED PROFESSIONAL LAND SURVEYOR
6-07

8894
Certificate Number

Black Hills Gas Resources

Black Hills Gas Resources (BHGR)
Jicarilla 452 #4
Surface Location: NW/NW 793' FNL 786' FWL Unit D
Bottom Hole Location: NE/NE ±793' FNL ± 63' FEL Unit A
Sec. 5 T29N R3W
Rio Arriba County, New Mexico
Jicarilla Contract 452

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 APD process includes an onsite meeting as determined by Bureau of Land Management (BLM) and the Jicarilla Nation.

The APD for this well was permitted and approved on July 7, 1988. This new drilling plan addresses the horizontal re-entry into the existing Jicarilla 452 #4 well.

SURFACE FORMATION – San Jose

GROUND ELEVATION – 7,070'

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

San Jose	Surface	Sandstone, shales & siltstones
Naciemento	2,168'	Sandstone, shales & siltstones
Ojo Alamo	3,268'	Sandstone, shales & siltstones
Kirtland	3,450'	Sandstone, shales & siltstones
Fruitland	3,607'	Sandstone, shales & siltstones
Pictured Cliffs	3,747'	Sandstone, shales & siltstones
TOTAL DEPTH	**3,800'**	**TVD**

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

Tertiary		
San Jose	surface	Gas
Nacimiento	2,168'	Gas
Ojo Alamo	3,268'	Gas
Kirtland	3,450'	Gas
Fruitland Coal	3,607'	Gas
Pictured Cliffs	3,747'	Gas

HORIZONTAL DRILLING PROGRAM
Kick Off Point (KOP) is estimated to be ± 200' TVD

CASING PROGRAM

Depth	Hole Diameter	Casing Diameter	Casing Weight and Grade	Cement
0-133' TVD	11"	8 5/8"	Existing Casing J-55 24#	Cemented to surface
133' - ±3744' TVD	7-7/8" Hole under reamed to 8-3/4"	7 "	J-55 23# LT&C New	TD to surface (Lead: ± 375 sxs lite standard cement. Tail: 500 sxs 50:50 poz containing 0.25 lb/sx LCM) * **
±3740' TVD-End of Lateral Bore	6-1/8"	4-1/2"	J-55 11.6# LT&C New	None

* Actual cement volume to be determined by caliper log.
** Cement will be circulated to surface

Yields:

Surface: Standard cement yield = 1.2 ft^3/sx (mixed at 15.6 lb/gal)

Production: Lite Standard Cement yield: = 1.59 ft^3/sx (mixed at 13.4 lb/gal)
50:50 poz yield = 1.27 ft^3/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'	-	125'	Fresh water – M.W. 8.5 ppg, Vis 30-33
125'	-	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_2S:	See attached H_2S plan in event H_2S is encountered.
D)	Estimated bottomhole pressure:	1,178 psi

ANTICIPATED START DATE

June 29, 2007

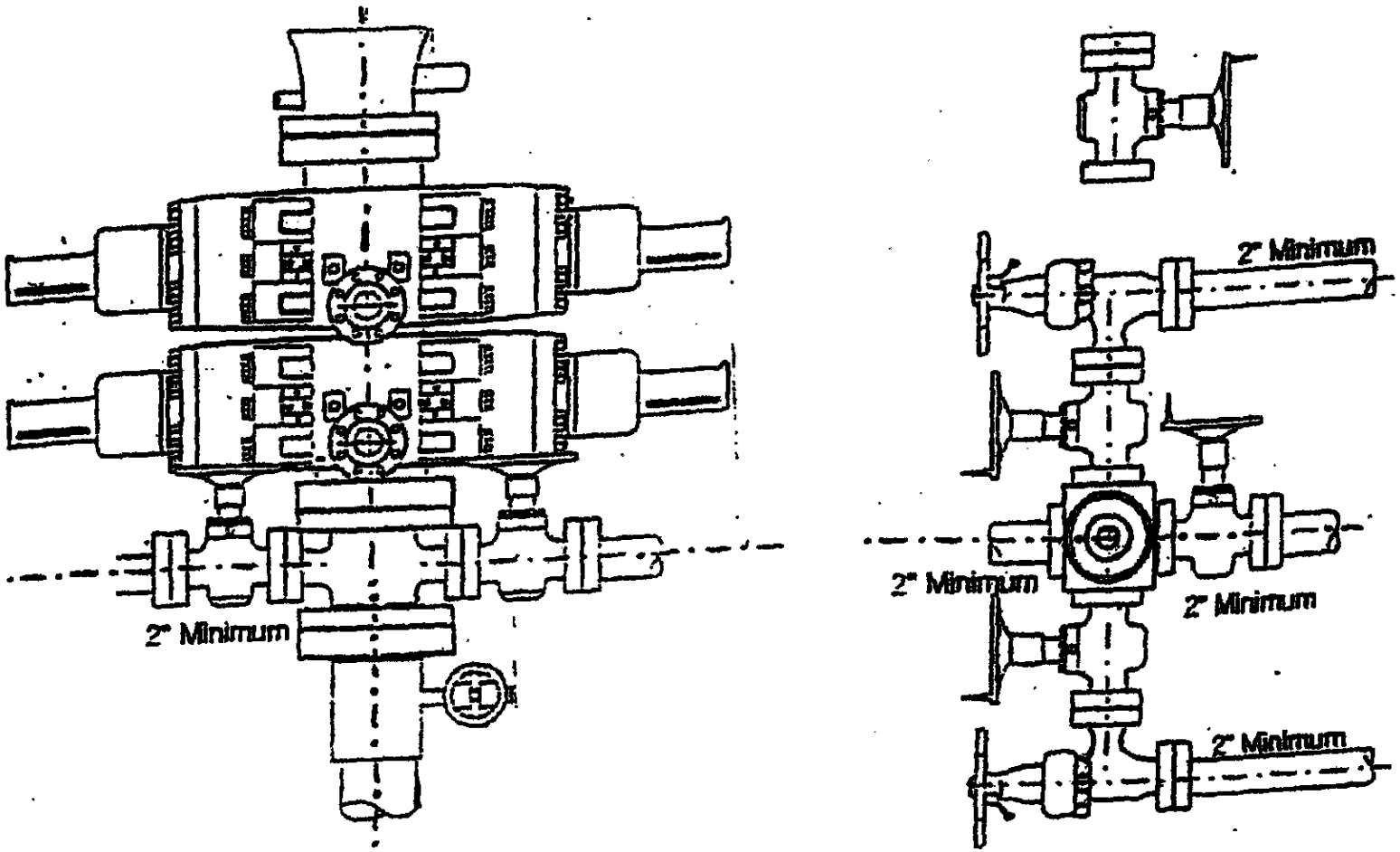
COMPLETION

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.

2–M SYSTEM

Black Hills Gas Resources, Inc.

ANNULAR PREVENTOR MAY BE SUBSTITUTED FOR DOUBLE GATE PREVENTORS
BOP PRESSURE TEST TO 1,000 PSI



Black Hills Gas Resources

Hydrogen Sulfide Drilling Operations Plan

I. Hydrogen Sulfide Training

All personnel, whether regularly assigned, contracted, or employed on an unscheduled basis, will receive training from a qualified instructor in the following areas prior to commencing drilling operations on this well:

1. The hazards and characteristics of hydrogen sulfide (H_2S).
2. The proper use and maintenance of personal protective equipment and life support systems.
3. The proper use of H_2S detectors, alarms, warning systems, briefing areas, evacuation procedures, and prevailing winds.
4. The proper techniques for first aid and rescue procedures.

In addition, supervisory personnel will be trained in the following areas:

1. The effects of H_2S on metal components. If high tensile tubular are to be used, personnel will be trained in their special maintenance requirements.
2. Corrective action and shut-in procedures when drilling or reworking a well and blowout prevention and well control procedures.
3. The contents and requirements of the H_2S Drilling Operations Plan and the Public Protection Plan.

There will be an initial training session just prior to encountering a known or probable H_2S zone (within 3 days or 500 feet) and weekly H_2S and well control drills for all personnel in each crew. The initial training sessions shell include a review of the site specific H_2S Drilling Operations Plan and the Public Protection Plan. This plan shall be available at the well site. All personnel will required to carry documentation that they have received the proper training.

II. H2S safety equipment and Systems

Note: All H_2S safety equipment and systems (if necessary) will be in stalled, tested, and operational when drilling reaches a depth of 500 feet above the three days prior to penetrating the first zone containing or reason ably expected to contain H_2S.

A. Well control equipment:

1. Choke manifold with a minimum of one remote choke.
2. Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit.

B. Protective equipment for essential personnel

1. Mark II Surniveair 30-minute units located in the doghouse and at briefing areas, as indicated on well site diagram.

C. H_2S detection and monitoring equipment:
   1. Two portable H_2S monitors positioned on location for best coverage and response. These units have warning lights and aqudilbesirens when H_2S levels of 10ppm.

D. Visual warning systems:

   1. Wind direction indicators as shown on well site diagram.

   2. Caution/Danger signs shall be posted on roads providing direct access to location. Signs will be painted a high visibility yellow with black lettering of sufficient size to be readable at a reasonable distance from the immediate location. Bilingual signs will be used when appropriate. See example attached.

E. Mud program:

   1. The mud programs has been designed to minimize the volume of H_2S circulated to the surface. Proper mud weight, safe drilling practices and the use of H_2S scavengers will minimize hazards when penetrating H_2S bearing zones.

F. Metallurgy:

   1. All drill strings, casings, tubing, wellhead, blowout preventers, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H_2S service.

   2. All elastomers used for packing and seals shall be H_2S trim.

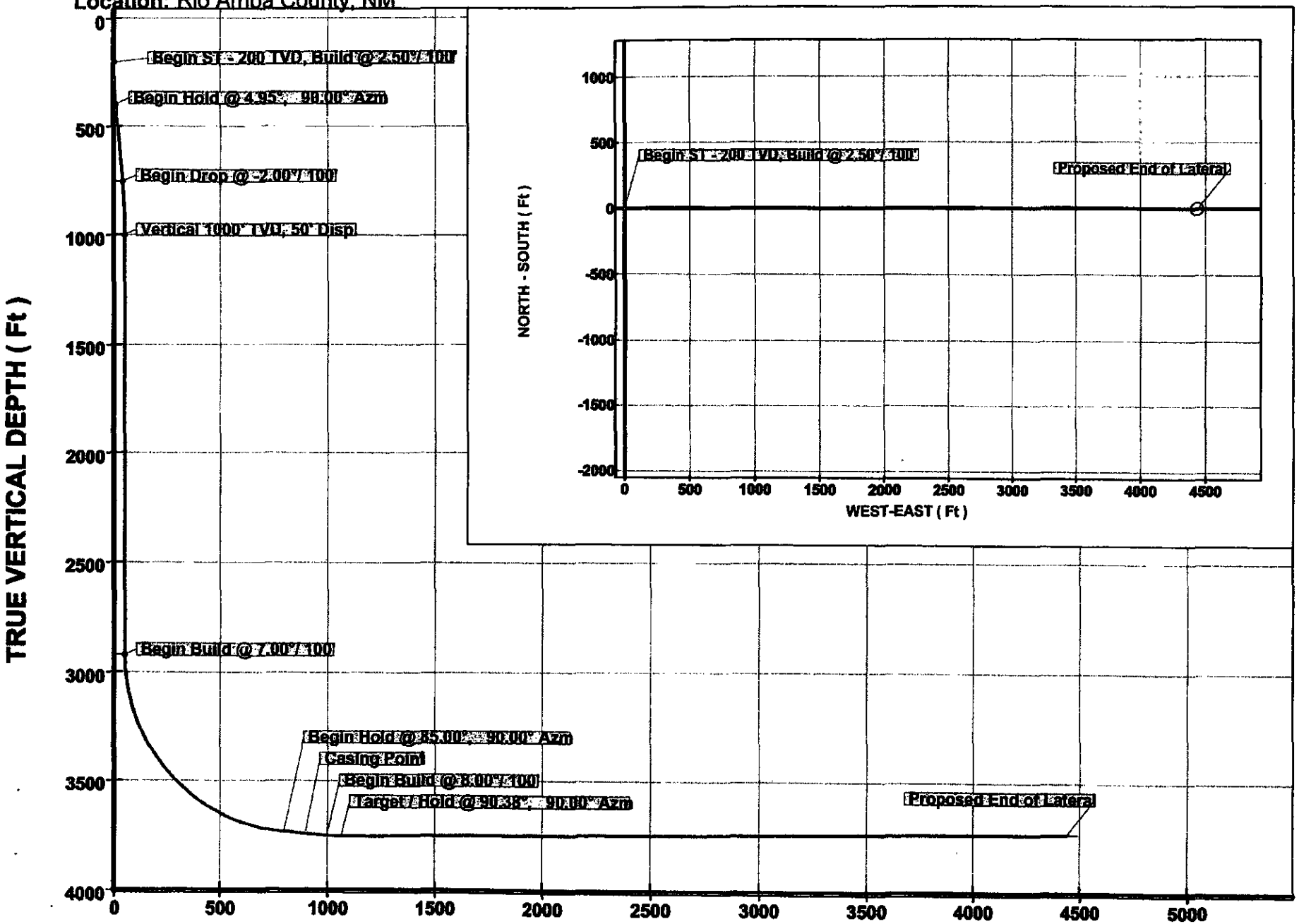
G. Communication:

   1. Cellular telephone communications in company vehicles.

H. Well testing:

   1. Drill stem testing will be performed with a minimum number of personnel in the immediate vicinity which are necessary to safely and adequately conduct the test. The drill stem lesting will be conducted during daylight hours and formation fluids will not be flowed to the surface. All drill stem testing operations conducted in an H_2S environment will use the closed chamber method of testing.

Job Number: 71xxx
Company: Black Hills Gas Resources
Lease/Well: 452 #4
Location: Rio Arriba County, NM



Black Hills Gas Resources

Jicarilla 452 #4

API # 30-039-24257
NW NW Sec 5, T29N, R3W
Rio Arriba County, New Mexico
GL: 7070', KB: 7082', PBTD: 4048'

Surface casing: 8-5/8", 24 lb/ft, Casing @ 133', TOC = surf
Production casing: 4 ½" 10.5 lb/ft, casing @ 4094'
Current prod tubing: **2 3/8" 4.7# tbg @ 3985'**
Current pump/ rods: N/A
Current Perforated Zones:

Upper Pictured Cliffs:	**3748-3820**
Lower Pictured Cliffs:	**3970-4010**

Proposed Work: Plug back the well for use as re-entry.

Formation Tops:

Nacimiento:	**2168**
Ojo Alamo:	**3268**
Kirtland:	**3450**
Fruitland:	**3607**
Pictured Cliffs:	**3747**

Plug Back

1. General Note: Check that all regulatory requirements have been met and notify BLM Inspector of the Plug back schedule.

2. MIRU completion rig. ND WH, NU BOP.

3. TOOH with 2.375" production tubing. TIH with bit and scraper to at least 3720'. TOOH. TIH with CIBP and set the CIBP @ 3720'.

4. MIRU logging/perforating company. Load the hole and run a CBL log from 3720' to 100' above TOC. Report results to engineering. POOH.

If the Ojo Alamo has adequate cement coverage, pump a balanced cement plug as follows:

5. **Plug #1:** TIH with tubing to 3720'. MIRU cement company. Mix and pump 15 sxs (19.8 cu ft) cement on top of the CIBP up to 3557' to isolate the PC perforations and to cover the Fruitland top. If the annulus top of cement found by the CBL is above this plug, then combine the plug(s) covering the Kirtland and Ojo Alamo if appropriate.

6. **Plug #2:** Pull up to ~~3500~~ 3453'. Mix and pump 26 sxs Type III cement (34.3 cu ft) from ~~3500~~ 3453' to ~~3218~~ 3184' to cover the Ojo Alamo formation. TOOH.

If the CBL shows the Kirtland and Ojo Alamo tops are not covered with adequate cement, then change plug #2 to be an inside / outside to cover the Kirtland and /or Ojo Alamo tops as follows:

7. RIH with perforating gun, shoot 3 circulating holes @ ~~3500~~ 3453'. POOH.

8. TIH with tubing and cement retainer. Set the retainer @ ~~3450~~'. MIRU cement company. Mix and pump 102 sxs Type III cement (134.6 cu ft) through the retainer to cement the casing/OH annulus from ~~3500~~' to ~~3218~~' and the inside of the 4 ½" casing from ~~3500~~' to ~~3450~~'.
3453' - 3184'

9. Sting out of the retainer and pump 20 sxs Type III cement (26.4 cu ft) on top of the retainer. (~~3450'~~ to ~~3218~~')

If the Nacimiento has adequate cement coverage, pump a balanced cement plug as follows:

10. **Plug #3:** TIH with tubing to ~~2218~~'. MIRU cement company. Mix and pump 12 sx Type III cement (14.2 cu ft) from ~~2218~~' to ~~2068~~' to cover the Nacimiento formation. TOOH.
1959 - 1859'

If the Nacimiento does not have adequate cement coverage, prepare to plug back the Nacimiento formation top as follows:

11. RIH with perforating gun, shoot 3 circulating holes @ ~~2218~~'. POOH.
1959

12. TIH with tubing and cement retainer. Set the retainer @ ~~2168~~'. MIRU cement company. Mix and pump 43 sxs Type III cement (56.7 cu ft) through the retainer to cement the casing/OH annulus from ~~2218' to 2068~~' and the inside of the 4 ½" casing from ~~2218' to 2168~~'.
1959 - 1859'

13. Sting out of the retainer and pump 10 sx Type III cement (13.2 cu ft) on top of the retainer. (~~2168'~~ to ~~2037~~'). TOH and LD the tubing.

Cut Casing

14. Prepare to pull casing. Perforate 3 holes at 500'. Attempt to circulate to surface out the bradenhead valve. If unable to circulate to surface then, continue with step 16.

15. If able to circulate out the bradenhead valve, then circulate the BH annulus clean. ND the BOP and the tubing head. Then weld a 4.5" slip on collar on the casing stub. PU a 4.5"x 10' casing pup joint and pull up on the 4.5" casing to unseat the wellhead slips; remove slips. Pull on the 4.5" casing and calculate the free point by stretch. Jet cut the 4.5" casing at 500'. If the casing is free, then NU the tubing head and BOP. Install 4.5" rams in the BOP and then pull and LD the 4.5" casing.

16. MIRU Wireline Specialties. Pull on casing if possible to remove slips. If slips can be removed, pull on casing while Wireline Specialties runs a free-point tool to determine if the casing is free at +/- 500'.

17. If casing is free, RIH with Wireline Specialties to jet cut the casing @ 500'. Pull the casing, cutting and laying down.

18. **Plug #4:** TIH with tubing to 550'. MIRU cement company. Mix and pump 125 sxs Type III cement (165 cu ft) @ 14.8 ppg from 550' to 133' (cmt volume includes 30% excess). PUH to 100'. Reverse out clean. TOOH. WOC overnight. TIH to confirm cement top.

19. RDMO workover rig. Well is now ready for drilling rig re-entry.

Initiated by:
Loren Diede
5-02-07
REV 5-07-07
Revised 5-31-07

Approved by:
Leslie Lam