District I 1e25 N. French Dr., Hobbs, NM 88240 District II 1301 W. Grand Avenue, Artesia, NM 88210 District III 1000 Rio Brazos Road, Aztec, NM 87410 District IV 1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico Energy Minerals and Natural Resources

Form C-101 May 27, 2004

Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, NM 87505 Submit to appropriate District Office

☐ AMENDED REPORT

APPL	ICATI	ON	FOF	R PERM	⁄IIT T	'O D	RILL.	, RE-I	ENTE	ER, DI	EEPE	EN, F	LUGE	BACE	ζ, OR A	DD A	A ZONE
				Operator I	Name an Gas Resc	d Addre	SS			<u> </u>					OGRID Nun 01392	nber	
				P.C Bloomfi). Box 24 eld, NM	19 87413							30 - 🔘	39	API Numb	er 9 '7	7/
Property Code Property Many Canyons						Property I Canyons	y Name ns 30-04-12 Well No. 44H					<i>.</i>					
9 Proposed Pool 1 Pictured Cliffs						¹⁰ Proposed Pool 2											
			I	rictured Cit	1115		7 S1	ırface	Locat	ion					.		
UL or lot no.	Section			Feet fro			outh line	T F	eet from the	et from the East/West line		:	County				
P 12 30-N 4-W 75:				55' South			885'		East		Rio Arriba						
⁸ Proposed Bottom Hole Loca																	
UL or lot no.	Section Township Range 12 30-N 4-W		•	Lot Idn Feet from ±775'					Feet from the East		East/West line West	;	County Rio Arriba				
					l	Ad	ldition	al We	ll Info	ormati							
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Depth to Grou	indwater: 1	ou or	more	_		more	e irom ne	arest ires	n water	well: 1,00	or or		more	irom ne	earest surfac	e water:	1,000 or
<u>Pit:</u> Liner:	Synthetic		15	mils thick	Clay	Pit	Volume	<u> 17,811</u>	bb			_	Method:		_		
Close	d-Loop Sys	stem			21 5				1.0				Brine	Diesel	/Oil-based	Gas/.	Air 🔲
		ı			P	ropos	sed Ca	sing a	nd Ce	ement	Progr	am			_	T	
Hole S		-	Casing		Casing weight/foot		Setting Depth		th	Sacks of Cement		Es	stimated TOC				
12-1/4	4"		8-5/	/8"		J-55 24	# ST&C		0'-250'			To surface (±175 sxs Standard			Surface		
												Cement containing 2% CaCl2			•		
		<u> </u>										and 0.	25 lb/sx L	.CM)	<u> </u>		
7-7/8	"		5-1/	/2"	J-55 15.5# LT&C New			New	0' - 4,000'		,	1000000			Surface		
															Tail: 400	1000	Manage ?
):50 POZ	contain	ing 0.25	130°	(j) (i)
												lb/sx	LCM)	_	Į.	,	JUN 2000
4-3/4	."	ļ	2-7/	/8"	PH6			3,73	5' (KOP) –	None				on On	COMB. DW	
					(Liner)			End of Lateral			<u> </u>						
Describe the Describe the										e the dat	a on the	preser	it producti	ve zone	and propos	ed new p	productive zone.
	•								•	.•	G 1				. 15		
Use Plan.	v verticai	and i	norizor	ntai weli to	be arii	nea inte	o the Pic	cturea C	шпѕ го	rmation.	See als	so the	attached	Horizo	ntal Drillin	ig Progr	am and Surface
²³ I hereby cer	rtify that th	e info	rmation	n given abov	ve is true	e and co	mplete to	o the	OIL CONSERVATION DIVISION								
best of my kn	owledge ar	nd beli	ief. I fu	rther certi	fy that t	he drill	ing pit v	vill be	Approved by:								
constructed according to NMOCD guidelines , a general permit , or an (attached) alternative OCD-approved plan .					Applo	ved by.	,										
Signature:												$I_{\mathcal{L}}$	<u>~</u>				
Printed name: Kathy L. Schneebeck Kardy J. Behneebeck					Title: OEPUTY OIL & GAS INSPECTOR, DIST. FE												
Title: Permit Agent for Black Hills Gas Resources, Inc.						Appro	val Date:	JUN	2 2	2006	Expi	ration Date:					
E-mail Addre	ss: kathys@) bank	col.com	<u> </u>													
Date: June 15	, 2006			Phone:	303-820	-4480	16		Condi	tions of A	pproval	Attach	ed 🗌		<u>, , , , , , , , , , , , , , , , , , , </u>	iona	Survey atus to am #7
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DISTRICT I 1625 N. French Dr., Hobbs, N.M. 88240

State of New Mexico Energy, Minerals & Natural Resources Department

Form C-102 Revised June 10, 2003

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

DISTRICT III 1000 Rio Brazos Rd., Aztec, N.M. 87410 OIL CONSERVATION DIVISION 1220 South St. Francis Dr. Santa Fe, NM 87505

epoc Joce

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

Pool Name

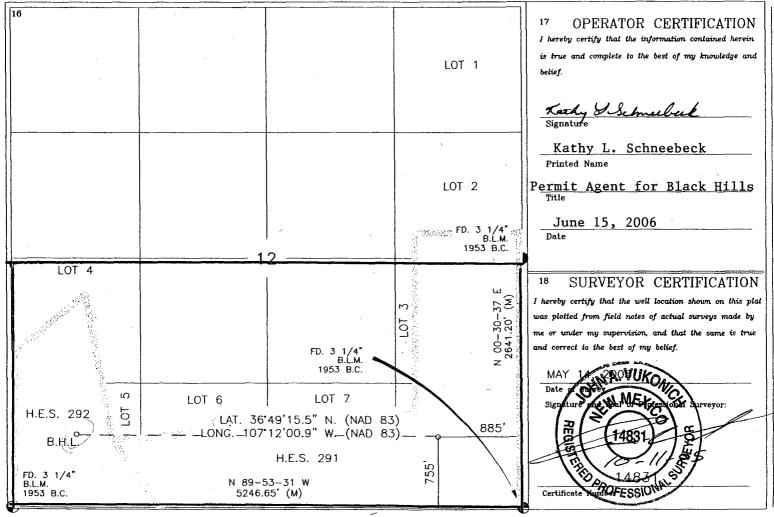
☐ AMENDED REPORT

DISTRICT IV 1220 South St. Francis Dr., Santa Fe, NM 87505

1 API Number - O - -

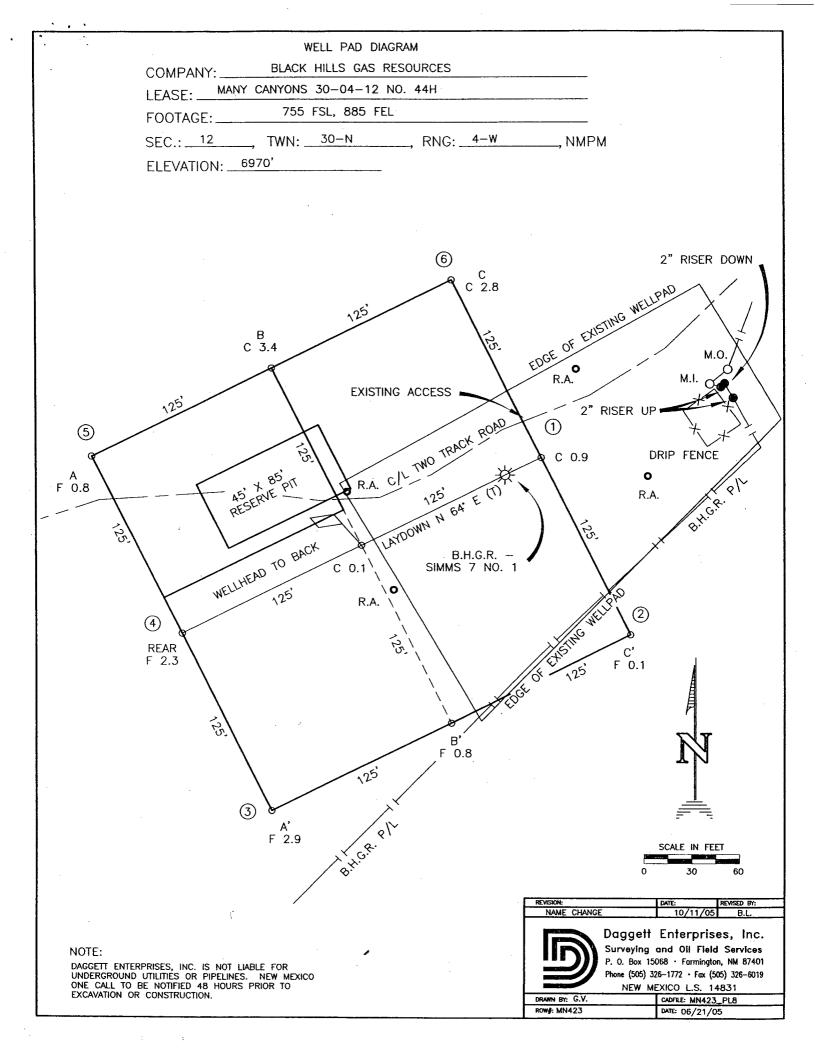
WELL LOCATION AND ACREAGE DEDICATION PLAT

30-031-29971 72400						East Blanco / Pictured Cliffs					
Property Co		⁶ Property Name					* We)	⁸ Well Number			
35771		MANY CANYONS 30-04-12						44H			
OGRID No		Operator Name						⁹ Elevation			
013925 BLACK HILLS GAS RESOURCES							6970				
	¹⁰ Surface Location										
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the		Feet from the	East/West line	County		
Р	12	30-N	4-W		755	SOUTH	885	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		
М	12	30-N	4-W		775	SOUTH	660	WEST	RIO ARRIBA		
See Attached 13 Joint or In				Infill	14 Consolidation	n 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											



Submit 3 Copies To Appropriate District Office	State of New Mexico	ocouroos		Form C-1 May 27, 2
District I	Energy, Minerals and Natural Re	sources	WELL API NO.	Wiay 27, 2
1625 N. French Dr., Hobbs, NM 88240			WELL AFI NO.	
District II 1301 W. Grand Ave., Artesia, NM 88210	OIL CONSERVATION DIV	ISION	5. Indicate Type of Le	3360
District III	1220 South St. Francis D	r.	STATE	ease FEE 🔀
1000 Rio Brazos Rd., Aztec, NM 87410	Santa Fe, NM 87505	}	6. State Oil & Gas Le	
District IV 1220 S. St. Francis Dr., Santa Fe, NM	2	İ	o. omic on a das Le	700U 11U.
87505				
	ES AND REPORTS ON WELLS		7. Lease Name or Uni	it Agreement Nam
(DO NOT USE THIS FORM FOR PROPOSA	ALS TO DRILL OR TO DEEPEN OR PLUG BAC ATION FOR PERMIT" (FORM C-101) FOR SUC	K IO A		
PROPOSALS.)	THORTOR TERMIT (TORM C-101) TOR SEC	••	Many Canyo	ons 30-04-12
1. Type of Well: Oil Well	Gas Well Other:		8. Well Number	4 4YY
2. Name of Operator			9. OGRID Number	44N
Black Hills Gas Resources, Inc.			9. OGRID Number	925
3. Address of Operator		- +	10. Pool name or Wil	
P.O. Box 249 Bloomfield, NM 874	13		East Blanco / I	
4. Well Location		1		
	TEE food from the Good 11 1 00	0E C4 C	4ha 17 = -4 11	
	55 feet from the South line and 88			
Section: 12 Tow	nship 30N Range 4W	NMPM	County: R	io Arriba
1.14 TO 18 18 18 18 18 18 18 18 18 18 18 18 18	11. Elevation (Show whether DR, RKB,	RT, GR, etc.)		
	6,970'			
Pit or Below-grade Tank Application 🛛 or				
Pit type: <u>Drilling Pit</u> Depth to Ground	vater > 100 Distance from nearest fresh water	well > 1000 Dis	tance from nearest surface	water <u>> 200</u>
Pit Liner Thickness: 15 mil Below-G	rade Tank: Volumebbls; Const	ruction Material		
12. Check A	ppropriate Box to Indicate Nature	of Notice, I	Report or Other Dat	ta
NOTICE OF INC	TENTION TO:	SHE	SECHENT DEDO	DT OE:
NOTICE OF IN1 PERFORM REMEDIAL WORK □			SEQUENT REPO	
	PLUG AND ABANDON REM	IEDIAL WORK	、 ⊔ ALI	TERING CASING
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				AND A
TEMPORARILY ABANDON DULL OR ALTER CASING DULL OR ALTER CASING		IMENCE DRIL ING/CEMENT	_	ND A
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WELL PAD CROSS-SECTIONAL DIAGRAM BLACK HILLS GAS RESOURCES COMPANY: ____ MANY CANYONS 30-04-12 NO. 44H LEASE: ____ FOOTAGE: ____ 755 FSL, 885 FEL SEC.: 12 , TWN: 30-N , RNG: 4-W , NMPM ELEVATION: 6970' NOTE: DAGGETT ENTERPRISES, INC. IS NOT LIABLE FOR UNDERGROUND UTILITIES OR PIPELINES. NEW MEXICO ONE CALL TO BE NOTIFIED 48 HOURS PRIOR TO EXCAVATION OR CONSTRUCTION. ELEV. A-A' C/L 7000 6990 6980 6970 6960 6950 6940 ELEV. B-B' C/L 7000 6990 6980 6970 6960 6950 6940 ELEV. C-C' Surveying and Oll Field Services P. 0. Box 15068 · Farmington, NM 87401 Phone (505) 326–1772 · Fox (505) 326–6019 NEW MEXICO L.S. 14831 Owne: 06/21/05 C/L WELL PAD DIAGRAM 7000 6990 6980 Daggett 6970 MN423_PL8 6960 6950 6940



Black Hills Gas Resources, Inc. Many Canyons 30-04-12 44H

Surface: 755' FSL 885' FEL (SE/4 SE/4) – H.E.S. 291 BHL: ±775' FSL ±660' FWL (SW/4 SW/4) – H.E.S. 292

Sec. 12 T30N R4W
Rio Arriba County, New Mexico
Surface Lease: Fee
Mineral Lease: NMSF79484A & Fee

DRILLING PROGRAM

This APD is filed under the APD process as stated in Onshore Order No. 1 and supporting Bureau of Land Management (BLM) documents. This APD process may include an on-site meeting as determined by BLM, at which time the specific concerns of Black Hills Gas Resources, Inc. (Black Hills) and BLM will be discussed. Best efforts will be made to address specific concerns of the BLM representatives.

Please contact Lynn Benally at 505-634-1111 (office) or 505-793-6336 (cell) to schedule an on-site meeting, if necessary.

This is a new vertical and horizontal well to be drilled into the Pictured Cliffs formation. See also the attached Horizontal Drilling Program.

SURFACE FORMATION – San Jose

GROUND ELEVATION - 6,970'

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

San Jose	Surface	Sandstone, shales & siltstones
Nacimiento	1,870'	Sandstone, shales & siltstones
Ojo Alamo	3,080'	Sandstone, shales & siltstones
Kirkland	3,295'	Sandstone, shales & siltstones
Fruitland Coal	3,450'	Sandstone, shales & siltstones
Pictured Cliffs	3,638'	Sandstone, shales & siltstones
TOTAL DEPTH	4,000'	TVD
	7,537.91'	MD (length of horizontal bore)

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

Tertiary

San Jose	surface	Gas
Nacimiento	1,870'	Gas
Ojo Alamo	3,080'	Gas
Fruitland Coal	3,450'	Gas
Pictured Cliffs	3,638'	Gas

HORIZONTAL DRILLING PROGRAM

A) Kick Off Point is estimated to be at $\pm 3,735$ TVD

CASING PROGRAM

Depth	Hole Diameter	Casing Diameter	Casing Weight and Grade	Cement
0' – 250' TVD	12-1/4"	8-5/8"	J-55 24# ST&C New	To surface (±175 sxs Standard Cement containing 2% CaCl2 and 0.25 lb/sx LCM) **
0' – 4,000' 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)* **
3,735' 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.

Yields:

Surface: Standard Cement yield: = 1.2 ft³/sx (mixed at 15.6 lb/gal)

Production: Lite Standard Cement yield: = 1.59 ft³/sx (mixed at 13.4 lb/gal) 50:50 POZ yield = 1.27 ft³/sx (mixed at 14.15 lb/gal)

All fresh water and prospectively valuable minerals encountered during drilling, will be recorded by depth and protected.

^{**} Cement will be circulated to surface.

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 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: 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 H_2S Plan if H_2S is encountered.

D) Estimated bottomhole pressure: 1,240 psi

Many Canyons 30-04-12 44H

Surface:

755' FSL 885' FEL

(SE /4 SE /4)

Sec. 12 T 30N

R 4W

BHL:

775' FSL 660' FWL (SW/4 SW/4) Rio Arriba County, New Mexico

NMSF79484A

SURFACE CASING AND CENTRALIZER DESIGN

Proposed Total Depth:

4,000 ' TVD

Proposed Depth of Surface Casing:

250 '

Estimated Pressure Gradient:

0.31 psi/ft

Bottom Hole Pressure at

4,000 '

0.31 psi/ft x 4,000 '

1,240 psi

Hydrostatic Head of gas/oil mud:

0.22 psi/ft

0.22 psi/ft x 4,000 '

880 psi

Maximum Design Surface Pressure

Bottom Hole Pressure

Hydrostatic Head

 $0.31 \text{ psi/ft} \times 4,000 ') - ($

0.22 psi/ft 4.000 ')

psi

1,240

psi

880

360 psi

Casing Strengths

8-5/8" J-55 24# ST&C New

Wt.	Tension (lbs)	Burst (psi)	Collapse (psi)
24 #	244,000	2,950	1,370
32 #	372,000	3,930	2,530

Safety Factors

Tension (Dry):

1.8

Burst:

1.0

Collapse:

1.125

Tension (Dry):

24 #/ft x Safety Factor =

250 '

6,000 #

Burst:

Safety Factor =

2,950 psi =

psi

244,000

6,000

8.19

40.67

ok

ok

Collapse:

Hydrostatic =

 $0.052 \times 9.0 \text{ ppg } x$

250 ' = 117 psi

Safety Factor =

1,370 psi = 117 psi

360

11.71

ok

250 ' 8-5/8" J-55 24# ST&C New

Use 2,000 psi minimum casinghead and BOP's

Centralizers

5 Total

1 near surface at

40'

2 -1 each at middle of bottom joint, second joint, third joint

2 -1 each at every other joint

±40' spacing

Total centralized

± 200 '(

50' -250 ')

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

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 (H₂S).
- 2. The proper use and maintenance of personal protective equipment and life support systems.
- 3. The proper use of H₂S 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 H₂S on metal components. If high tensile tubulars 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 H₂S 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 session shall 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 be 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 installed, tested, and operational when drilling reaches a depth of 500 feet above or three days prior to penetrating the first zone containing or reasonably expected to contain H_2S .

A. Well control equipment:

- 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:
 - Mark II Surviveair 30-minute units located in the doghouse and at briefing areas, as indicated on well site diagram.
- C. H₂S detection and monitoring equipment:
 - 1. Two portable H_2S monitors positioned on location for best coverage and response. These units have warning lights and audible sirens when H_2S levels of 10 ppm are reached.
- D. Visual warning systems:
 - 1. Wind direction indicators as shown on well site diagram.
 - 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 program has been designed to minimize the volume of H₂S circulated to the surface. Proper mud weight, safe drilling practices, and the use of H₂S scavengers will minimize hazards when penetrating H₂S bearing zones.

F. Metallurgy:

- 1. All drill strings, casings, tubing, wellhead, blowout preventors, drilling spools, kill lines, choke manifold and lines, and valves shall be suitable for H₂S service.
- 2. All elastomers used for packing and seals shall be H₂S trim.

G. Communication:

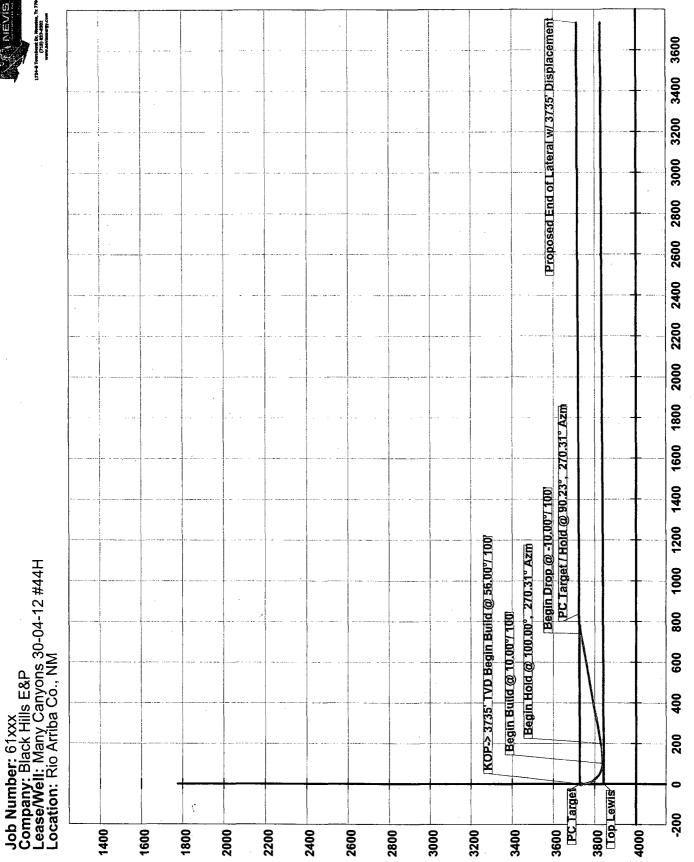
1. Cellular telephone communications in company vehicles.

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 testing will be conducted during daylight hours and formation fluids will not be flowed to the surface. All drill stem testing operations conducted in an H₂S environment will use the closed chamber method of testing.

VERTICAL SECTION (Ft) @ 270.31°





TRUE VERTICAL DEPTH (Ft)

PC Target / Hold @ 90.23°, 270.31° Azm 1000 Begin Drop @ -10.00°/ 100 800 900 Begin Hold @ 100.00°, 270.31° Azm 400 KOP-> 3735' TVD Begin Build @ 56.00°/ 100' Begin Build @ 10,00°/ 100 Job Number: 61xxx Company: Black Hills E&P Lease/Well: Many Canyons 30-04-12 #44H Location: Rio Arriba Co., NM 200 Top Lewis PC Target ١, 3800 4000 3200 3400 3600

(14) HT99L DEPTH (Ft)

VERTICAL SECTION (Ft) @ 270.31°

2-M SYSTEM Black Hills Gas Resources, Inc.

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

