DIST. S

Form C-101

District I 1625 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**

May-27,-2004 Submit to appropriate District Office
DIL CONS. DIV

Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, NM 87505

☐ AMENDED REPORT

APPL	<u>ICATI</u>					, RF	E-ENTE	ER, DEE	PE	N, PLUGBA	CK, OR		D A ZONE
Operator Name and Address Black Hills Gas Resources, Inc. P.O. Box 249							· —				013925 API Number		
Bloomfield, NM 87413						tu Nama			30-039	<u>- 30188</u>	Well	No	
Property Code Property Many Canyo							2				111		
		°Pm	oposed P	Pool 1						10 Pro	posed Pool 2		
	<u> </u>	3 lang Pic	ctured C	liffs	7.0			•				+	
	 	Г	_				ee Location						
UL or lot no.	Section 2	Township 30-N	Rang 4-W	1	Lot Idn	Feet from the 900'		North/South North	line	Feet from the 1,200'	East/West l West	ine:	County Rio Arriba
1			⁸ I	Proposed I	Bottom Ho	le Lo	cation If I	Different F	rom	Surface			
UL or lot no.			Rang				t from the North/South			Feet from the	East/West l	ine.	County
1180 /0	2	30-N	4-W	v	Addition		:1,197'	North		±691'	East		Rio Arriba
HB9 /A	Type Code		12 Well T	ype Code	Addition		Vell IIIIC able/Rotary	rmation	1-	⁴ Lease Type Code	1	5 Grou	nd Level Elevation
	N			G			R			ρ		, ,	6,832' GR
	Iultiple No			sed Depth 'TVD			Formation tured Cliffs			19 Contractor		20	Spud Date
Depth to Grou	ındwater:-1	00' or more	•		stance from n	earest :	fresh water	well: 1,000' o	or	Distance fro	om nearest surf	ace wa	ter: 100000
Die Tiere	S - 4 - 4 -	(50'	nils thick	mc		10.0	308 bb	1.		-12000			
	: Synthetic		nis mick	Clay 🗀	Pit Volume	:_18,8	DD			rillin <u>g Method:</u> r 🔯 Brine 🔲 D	inal/Oil bass		Carlain [
Close	d-Loop Sys	Sicili 🔲		21							iesel/Oii-basec		Jas/All
_				²¹ Pro	posed Ca	asing	g and Ce	ment Pro	ogra	m		11	
Hole Size	Hole Size Casing Size		Casing weight/foot		Setti	ng Depth	4	Sacks of Cement		<u> </u>	Estimated TOC		
12-1/4" 8-5/8"			J-55 24# ST&C		0' - 250' To surface (±175 sx: Standard Cement co				Surface				
			I			TVD			2% CaCl2 and 0.25 lb/sx				
									LCM)		<u>L.</u>		
7-7/8" 5-1/2"			J-55 15.5# LT&C New		0' -4,000'		1	ΓD to surface (Lead: +300		Surface		
		·				Т		TVD		sxs Lite Standard Cement.			
}								Tail: ±400 sxs 50:50 POZ containing 0.25 lb/sx LCM)					
									1	Containing 0.23 I		ļ	
4-3/4" 2-7/8"			РН-6		3,620' ((KOP) – End None			1				
			(Liner)		of La	teral Bore							
22 Describe t	he propose	d program. If the	his appli	cation is to	DEEPEN or l	PLUG	BACK, giv	e the data or	the p	present productive	zone and prop	osed n	ew productive zone.
Describe the	blowout pi	revention progra	am, ir ar	iy. Use addi	itional sheets	if nec	essary.	MOTOC	160	FOR dir	ection	a i	some
This is a new Plan.	w vertical	and horizonta	l well t	o be drilled	l into the Pi	ctured	Cliffs For	rmation. Sec	e the	attached Horizon	ntal Drilling I	Progra	m and Surface Use
²³ I hereby certify that the information given above is true and complete to				OIL CONSERVATION DIVISION									
the best of my knowledge and belief. I further certify that the drilling pit will be constructed according to NMOCD guidelines , a general				Approved	l by:				r	1.6			
permit □, or an (attached) alternative OCD-approved plan □.				•			AZTEC OC	. פנ	24h Break				
/ /					12		IN TIME	TOWITNE	\$5.	24hrs ceme			
Signature: Lody & Schneibiek							V V		-				
Printed name: Kathy L. Schneebeck					PUTY OR T	K GA	S'MISPECTOR,		-				
Title: Permit Agent for Black Hills Gas Resources, Inc.				Approval	Date: FEB	, ,	~ 6461	Expiration Da	te: F	EB 0 9 2008			
		@banko1.com									,		
Date: February 2, 2007 Phone: 303-820-4480				Condition	is of Approva	al Atta	ached 🔲 🎁	nomk	مالا	area for			

B 2/9/07

011 CONS. DIV.

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

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

DISTRICT III 1000 Rio Brozos Rd., Aztec, N.M. 87410 State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION 1220 South St. Francis Dr. Santa Fe, NM 87505 Revised October 12, 2005

Submit to Appropriate District Office State Lease - 4 Copies

Fee Lease - 3 Copies

☐ AMENDED REPORT

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

WELL LOCATION AND ACREAGE DEDICATION PLAT API Number ² Pool Code 30-039-30188 12400 Property Code ⁹Property Name Well Number 36295 MANY CANYONS 30-04-02 11H OGRID No *Operator Name Elevation BLACK HILLS GAS RESOURCES 6832 13925 ¹⁰ Surface Location UL or lot no. North/South line East/West line Section Township Feet from the Feet from the County 30-N 4-W 900 NORTH 1200 WEST RIO ARRIBA "Bottom Hole Location If Different From Surface North/South line East/West line Section Township Range Lot Idn Feet from the Feet from the County MACHINA 30-N 4-W 1197 NORTH 691 FAST RIO ARRIBA 14 Consolidation Code Joint or Infill 15 Order No. 320 (default) 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 N 89-58-43 W FD. 2 1/2" BC FD. 2 1/2" BC 17 OPERATOR CERTIFICATION 2638.25' (M) 1924 G.L.O. 1924 G.L.O. I hereby certify that the information contained hereit is true and complete to the best of my knowledge as belief, and that this organization either some a work 1197 LOT 2 H.E.S. NO. 283 MB 9 rest or unleased m eral interest in the land statement of timescale minimum interest in the including the proposed bottom hole location of right to drill this well of this location purn-contract with an owner of such a mineral o interest, or to a voluntary pooling agreemen 1200 691 LOT 3 LOT 4 LAT. 36.84650 N (NAD 83) ш 00-05-52 E 3009.41' (M) LONG. 107.22908' W (NAD 83) HBG LOT 7 2/1/2007 LOT 6 LOT 5 Printed Name LOT 9 SURVEYOR CERTIFICATION FD. 3 1/4" BC 1953 B.L.M. vas plotted from field notes of actual surveys or under my supervision, and that the same is true correct to the best of my belief. LOT 8 **LOT 12** LOT 11 LOT 10 280

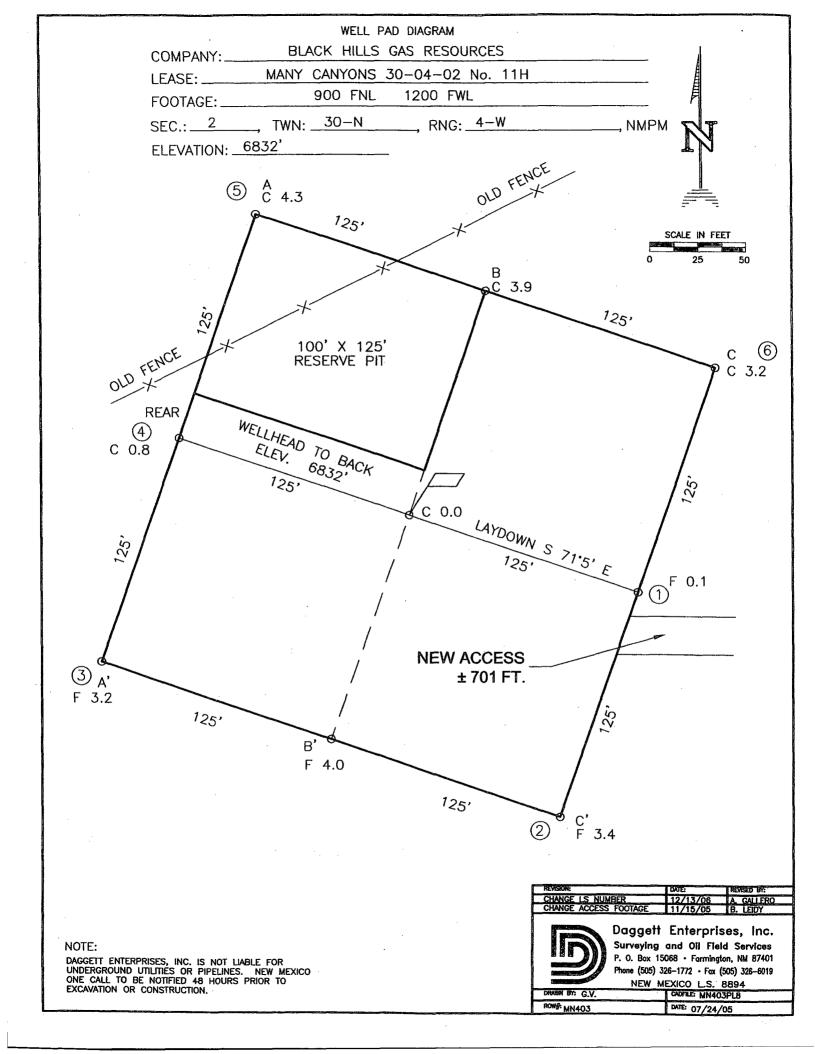
LOT 13

LOT 14

PROBLEMAL

Certificate Numb

Submit 3 Copies To Appropriate District	State of New Mexico	Form C-103		
Office District I	Energy, Minerals and Natural Resources	May 27, 2004		
1625 N. French Dr., Hobbs, NM 88240		WELL API NO. 30-039-30188		
<u>District II</u> 1301 W. Grand Ave., Artesia, NM 88210	5. Indicate Type of Lease			
District III	District III 1220 South St. Francis Dr.			
1000 Rio Brazos Rd., Aztec, NM 87410 District IV	Santa Fe, NM 87505	STATE FEE 6. State Oil & Gas Lease No.		
1220 S. St. Francis Dr., Santa Fe, NM 87505				
	CES AND REPORTS ON WELLS	7. Lease Name or Unit Agreement Name		
(DO NOT USE THIS FORM FOR PROPOS	SALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A CATION FOR PERMIT" (FORM C-101) FOR SUCH			
PROPOSALS.)		Many Canyons 30-04-02		
1. Type of Well: Oil Well	Gas Well Other:	8. Well Number 11H		
2. Name of Operator		9. OGRID Number		
Black Hills Gas Resources, Inc.		013925		
3. Address of Operator P.O. Box 249 Bloomfield, NM 874		10. Pool name or Wildcat Pictured Cliffs		
	•13	Fictured Cinis		
4. Well Location	000 foot from the North Line and 1 200	Seat from the West line		
Unit Letter: D :	_			
	rnship 30N Range 4W NMPM 11. Elevation (Show whether DR, RKB, RT, GR, etc.			
	6,832° GR			
Pit or Below-grade Tank Application 🛛 o	r Closure			
Pit type: <u>Drilling Pit</u> Depth to Ground	dwaterDistance from nearest fresh water well_>1000_D	istance from nearest surface water 200		
Pit Liner Thickness: 15 mil Below-	Grade Tank: Volumebbls; Construction Materia	al		
13. Check	Appropriate Box to Indicate Nature of Notice	e, Report or Other Data		
NOTICE OF IN	TENTION TO	OFOLIENT DEPORT OF		
NOTICE OF IN PERFORM REMEDIAL WORK □		SEQUENT REPORT OF:		
TEMPORARILY ABANDON	PLUG AND ABANDON REMEDIAL WOR CHANGE PLANS COMMENCE DR			
PULL OR ALTER CASING	MULTIPLE COMPL CASING/CEMEN			
TOLE ON METER ONO INC.	MOETH EE OOM E	- 00B		
OTHER: Pit Registration	□ OTHER:			
	oleted operations. (Clearly state all pertinent details, an ork). SEE RULE 1103. For Multiple Completions: At			
•				
	Drilling Pit Registration			
I hereby certify that the information grade tank has been/will be constructed or	above is true and complete to the best of my knowledg closed according to NMOCD guidelines \boxtimes , a general permit \square	e and belief. I further certify that any pit or below- or an (attached) alternative OCD-approved plan .		
SIGNATURE Cody & Schneles	TITLE: Permit Agent for Black Hills Gas Re	sources, Inc. DATE February 2, 2007		
Type or print name: Kathy L. Schn	neebeck E-mail address: kathys@bankol.com	Telephone No. 303-820-4480		
For State Use Only		THE MIT IN CER A A COOP		
APPROVED BY:	TITLE_TITLE	DATE PES 0 9 ZUU		
Conditions of Approval (if any):	ulnevable area-Pits to be C	DATE PEB 0 9 2007		



WELL PAD CROSS-SECTIONAL DIAGRAM BLACK HILLS GAS RESOURCES COMPANY:____ MANY CANYONS 30-04-02 No. 11H LEASE: ___ 900 FNL, 1200 FWL FOOTAGE: ____ SEC.: 2 TWN: 30-N RNG: 4-W NMPM ELEVATION: 6832' 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 6850 6840 6830 6820 6810 6800 6790 ELEV. B-B' C/L 6850 6840 6830 6820 6810 6800 6790 Surveying and Oil Field Services O. Box 15068 • Famington, NM 87401 ass (505) 228-1772 • Fax (505) 328-6019 NEW MEXICO • 6 ELEV. C-C' C/L 6850 6840 8 6830 IIIIIIIIIIIII 6820 6810 6800 6790

Black Hills Gas Resources, Inc. Many Canyons 30-04-02 11H

Surface: 900' FNL 1,200' FWL (NW/4 NW/4) – H.E.S. 283 BHL: ±1,197' FNL ±691' FEL (NE/4 NE/4) – Lot 3 Sec. 2 T30N R4W Rio Arriba County, New Mexico

Fee Lease

DRILLING PROGRAM

This Application for Permit to Drill (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 included an onsite 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.

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 - 6,832'

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

San Jose	Surface	Sandstone, shales & siltstones
Nacimiento	1,845'	Sandstone, shales & siltstones
Ojo Alamo	3,015'	Sandstone, shales & siltstones
Kirkland	3,200'	Sandstone, shales & siltstones
Fruitland Coal	3,465'	Sandstone, shales & siltstones
Pictured Cliffs	3,610'	Sandstone, shales & siltstones

TOTAL DEPTH	4,000'	TVD
	7,077.08'	MD (length of horizontal section)

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

Tertiary

San Jose	surface	Gas
Nacimiento	1,845'	Gas
Ojo Alamo	3,015'	Gas
Fruitland Coal	3,465'	Gas
Pictured Cliffs	3,610'	Gas

HORIZONTAL DRILLING PROGRAM

- A) Kick Off Point is estimated to be at ±3,620' TVD
- B) 5-1/2" casing will be set to 4,000' in the vertical portion of the well. After the casing is set vertically, a window will be milled out at the Kick Off Point, the horizontal portion of the well will be drilled and a liner will run the distance of the horizontal hole.

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)* **
3,620' 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: = $1.2 \text{ ft}^3/\text{sx}$ (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.

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.

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

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 $28 - 50 \sec$ Vis.: 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

DIL-CNL-FDC-GR - TD - BSC (GR to surface) A) Logging:

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) No abnormal conditions are anticipated Pressures:

Bottom hole pressure gradient – 0.31 psi/ft

B)

Temperatures: No abnormal conditions are anticipated

C) H₂S: See H₂S Plan if H₂S is encountered.

D) Estimated bottomhole pressure: 1,240 psi

ANTICIPATED START DATE

March 5, 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.

Many Canyons 30-04-02 11H

Surface:

900' FNL 1,200' FWL

Sec. 2 T 30N **R 4W**

BHL:

±1,197' FNL ±691' FEL (NE/4 NE/4) - Lot 3

Rio Arriba County, New Mexico

NMSF79482

(NW /4 NW /4)

SURFACE CASING AND CENTRALIZER DESIGN

Proposed Total Depth: 4.000 ' Proposed Depth of Surface Casing: 250 ' 0.31 psi/ft **Estimated Pressure Gradient:** 4,000 ' Bottom Hole Pressure at 0.31 psi/ft Х 4,000 ' 1,240 psi 0.22 psi/ft

4.000 '

Х

Hydrostatic Head of gas/oil mud: 0.22 psi/ft

880 psi

Maximum Design Surface Pressure

Bottom Hole Pressure Hvdrostatic Head 0.31 psi/ft x 4,000 ' 0.22 psi/ft 4.000 ') 1.240 880 360 psi psi 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 24 #/ft x 250 ' 6,000 # Tension (Dry): Safety Factor = 244,000 40.67 ok 6,000 2,950 Burst: Safety Factor = 8.19 ok psi = 360 psi Collapse: Hvdrostatic $0.052 \times 9.0 \text{ ppg} \times$ 250 '= 117 psi Safety Factor = 1,370 11.71 ok psi 117 psi

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

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

2 -1 each at every other joint

±40' spacing

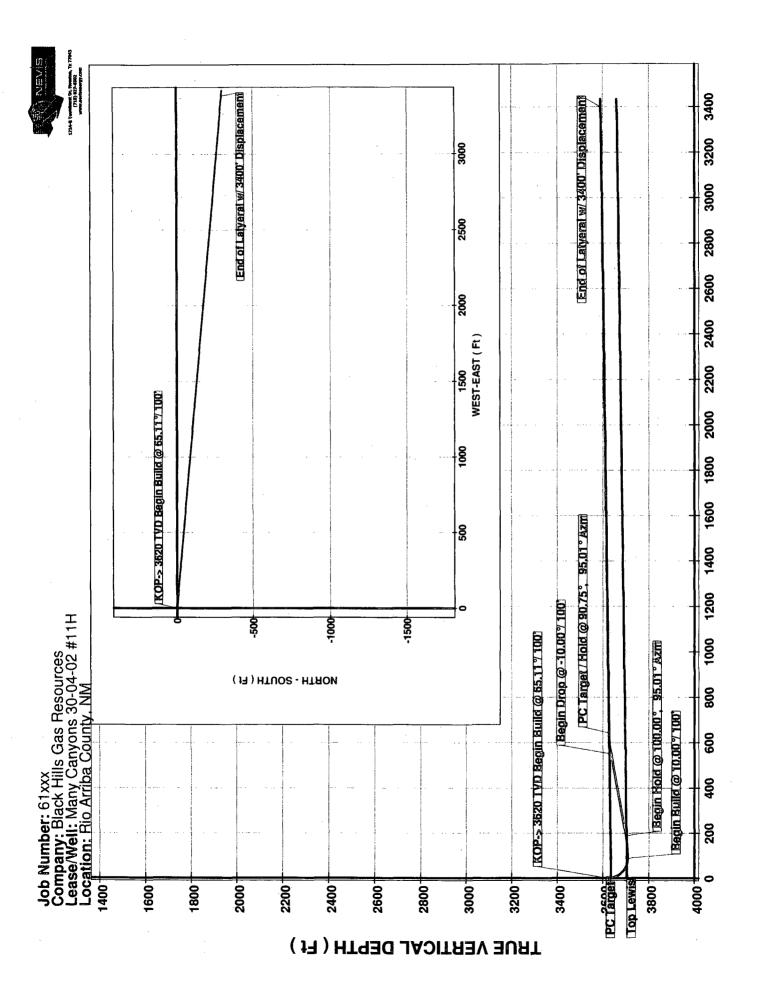
50'-

Total centralized

± 200 '(

250 ')

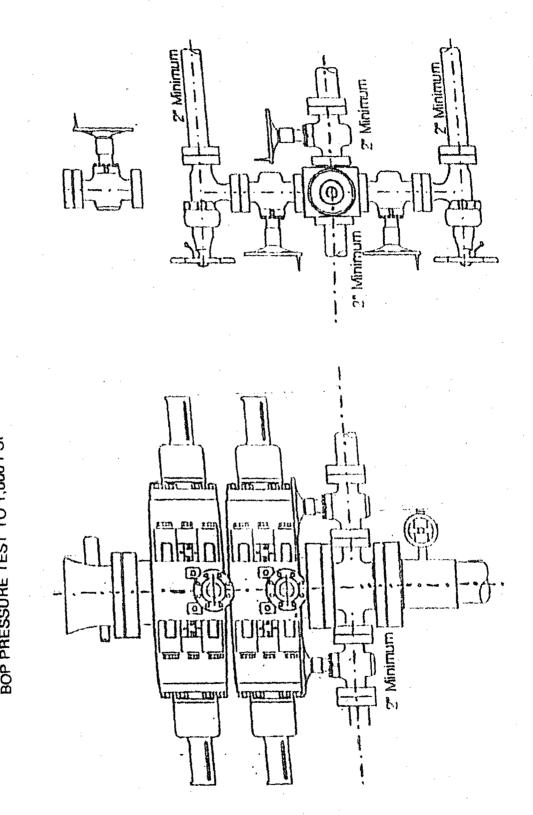
Note that field experience indicates that additional centralizers greatly increase the chance of "sticking" the surface casing prior to reaching surface casing total depth.



VERTICAL SECTION (Ft) @ 95.01 $^\circ$

2-M SYSTEM Black Hills Gas Resources, Inc.

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



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 H₂S 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 H₂S.

A. Well control equipment:

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

B. Protective equipment for essential personnel:

1. 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 H₂S monitors positioned on location for best coverage and response. These units have warning lights and audible sirens when H₂S 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.