

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT



FORM APPROVED
OMB No. 1004-0137
Expires March 31, 2007

APPLICATION FOR PERMIT TO DRILL OR DEEPEN

1a. Type of Work <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. MDA 701-98-0013, Tract 1	
1b. Type of Well <input type="checkbox"/> Oil Well <input checked="" type="checkbox"/> Gas Well <input type="checkbox"/> Other <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		6. If Indian, Allottee or Tribe Name Jicarilla Apache Nation	
2. Name of Operator Black Hills Gas Resources, Inc. E-mail: lbenally@bhep.com Contact: Lynn Benally		7. If Unit or CA Agreement, Name and No.	
3a. Address 350 Indiana Street, Suite 400 Golden CO 80401		8. Lease Name and Well No. Jicarilla 29-02-20 31	
3b. Phone No. (include area code) 505.634.1111		9. API Well No. 30-039-29524	
4. Location of Well (Report location clearly and in accordance with any State Requirements.) At surface 2,340' FSL 1,000' FWL NW 1/4 SW 1/4 Lat: 36° 42' 35.0" Long: 107° 04' 18.9" At proposed production zone		10. Field and Pool, or Exploratory East Blanco Pictured Cliffs	
11. Sec., T., R., M., or Blk. and Survey or Area Sec. 20 T 29N R 2W		12. County or parish Rio Arriba	
13. State New Mexico		14. Distance in miles and direction from nearest town or post office. * Well is located approximately 57 miles east of Bloomfield, New Mexico.	
15. Distance from proposed location to nearest property of lease line, ft. (Also nearest Drig, unit line, if any) Unit= n/a Lease= ±2,340'		16. No. of acres in lease 9,920.0	
17. Spacing Unit dedicated to this well 160 SW/4		18. Distance from proposed location to nearest well, drilling, completed or applied for, on this lease, ft. Jicarilla 29-02-19 34 ± 1,800'	
19. Proposed depth 4,000' TVD		20. BLM/BIA Bond No. on file NMB000230	
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 7,083' GR		22. Approximate date work will start * May 10, 2005	
23. Estimated duration 45-60 days drig + completion		24. Attachments	

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, shall be attached to this form:

- | | |
|---|--|
| 1. Well plat certified by a registered surveyor. | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan. | 5. Operator certification. |
| 3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO shall be filed with the appropriate Forest Service Office). | 6. Such other site specific information and/or plans as may be required by the authorized officer. |

25. Signature <i>Kathy L. Schneebeck</i>	Name (Printed/Typed) Kathy L. Schneebeck, 303.820.4480	Date April 7, 2005
Title Agent for Black Hills Gas Resources, Inc.		

Approved by (Signature) <i>Wayne Townsend</i>	Name (Printed/Typed) Wayne Townsend	Date 8/21/05
Title Acting AFM	Office FFO	

Application approval 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.

Conditions of approval, if any, are attached.

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.

DRILLING OPERATIONS AUTHORIZED ARE
SUBJECT TO COMPLIANCE WITH ATTACHED
"GENERAL REQUIREMENTS"

This action is subject to technical and
procedural review pursuant to 43 CFR 3165.3
and appeal pursuant to 43 CFR 3165.4

NMOC

RECEIVED
SEP 2 5 56 PM '05

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 June 10, 2003

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

*API Number	*Pool Code	*Pool Name
	72400	E. Blanco / Pictured Cliffs
*Property Code	*Property Name	*Well Number
242438	JICARILLA 29-02-20	31
*GRID No.	*Operator Name	*Elevation
013925	BLACK HILLS GAS RESOURCES	7083'

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
L	20	29-N	2-W		2340	SOUTH	1000	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
*Dedicated Acres					*Joint or Infill		*Consolidation Code		*Order No.
160 acres - SW/4									

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 FD P+C 8894				17 OPERATOR CERTIFICATION	
				I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief	
				Signature <i>Kathy L. Schneebeck</i>	
				Printed Name Kathy L. Schneebeck	
				Permit Agent for Black Hills	
				Title April 7, 2005	
				Date	
				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.	
				Signature <i>JOHN A. VUKOBICH</i>	
				Printed Name JOHN A. VUKOBICH	
				Permit Agent for Black Hills	
				Title April 7, 2005	
				Date	
				19	
				Certificate Number	

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

Form C-144
June 1, 2004

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

For drilling and production facilities, submit to
appropriate NMOCD District Office.
For downstream facilities, submit to Santa Fe
office

Pit or Below-Grade Tank Registration or Closure

Is pit or below-grade tank covered by a "general plan"? Yes ☒ No ☐

Type of action: Registration of a pit or below-grade tank ☒ Closure of a pit or below-grade tank ☐

Operator: Black Hills Gas Resources, Inc. Telephone: *720-210-1300 e-mail address: lbenally@bhgp.com
Address: 300 Indiana St, Suite 400, Golden, CO 80401
Facility or well name: Jicarilla 29-02-20 31 API #: Pending U/L or Qtr/Qtr NW SW Sec 20 T 29N R 2W
County: Rio Arriba Latitude 36° 42' 35.0" Longitude 107° 04' 18.9" NAD: 1927 ☐ 1983 ☒ Surface Owner Federal ☐ State ☐ Private ☐ Indian ☒

Pit

Type: Drilling ☒ Production ☐ Disposal ☐

Workover ☐ Emergency ☐

Lined ☐ Unlined ☒

Liner type: Synthetic ☐ Thickness mil Clay ☒

Pit Volume ±17,811 bbl

Below-grade tank

Volume: bbl Type of fluid:

Construction material:

Double-walled, with leak detection? Yes ☐ If not, explain why not.

Depth to ground water (vertical distance from bottom of pit to seasonal high water elevation of ground water.)

Less than 50 feet	(20 points)
50 feet or more, but less than 100 feet	(10 points)
100 feet or more	(0 points)

Wellhead protection area: (Less than 200 feet from a private domestic water source, or less than 1000 feet from all other water sources.)

Yes	(20 points)
No	(0 points)

Distance to surface water: (horizontal distance to all wetlands, playas, irrigation canals, ditches, and perennial and ephemeral watercourses.)

Less than 200 feet	(20 points)
200 feet or more, but less than 1000 feet	(10 points)
1000 feet or more	(0 points)

Ranking Score (Total Points)	0 points
-------------------------------------	-----------------

If this is a pit closure: (1) attach a diagram of the facility showing the pit's relationship to other equipment and tanks. (2) Indicate disposal location: (check the onsite box if you are burying in place) onsite ☐ offsite ☐ If offsite, name of facility . (3) Attach a general description of remedial action taken including remediation start date and end date. (4) Groundwater encountered: No ☐ Yes ☐ If yes, show depth below ground surface ft. and attach sample results. (5) Attach soil sample results and a diagram of sample locations and excavations.

Additional Comments:

* Local contact in New Mexico is Lynn Benally at 505-634-1111 Ext. 27

I hereby certify that the information above is true and complete to the best of my knowledge and belief. I further certify that the above-described pit or below-grade tank has been/will be constructed or closed according to NMOCD guidelines ☒, a general permit ☐, or an (attached) alternative OCD-approved plan ☐.

Date: 04/07/05

Printed Name/Title Kathy L. Schneebeck / Permit Agent for Black Hills Gas Resources, Inc.

Signature Kathy L. Schneebeck

Your certification and NMOCD approval of this application/closure does not relieve the operator of liability should the contents of the pit or tank contaminate ground water or otherwise endanger public health or the environment. Nor does it relieve the operator of its responsibility for compliance with any other federal, state, or local laws and/or regulations.

Approval:

DEPUTY OIL & GAS INSPECTOR, DIST. 43

Printed Name/Title

Signature [Signature]

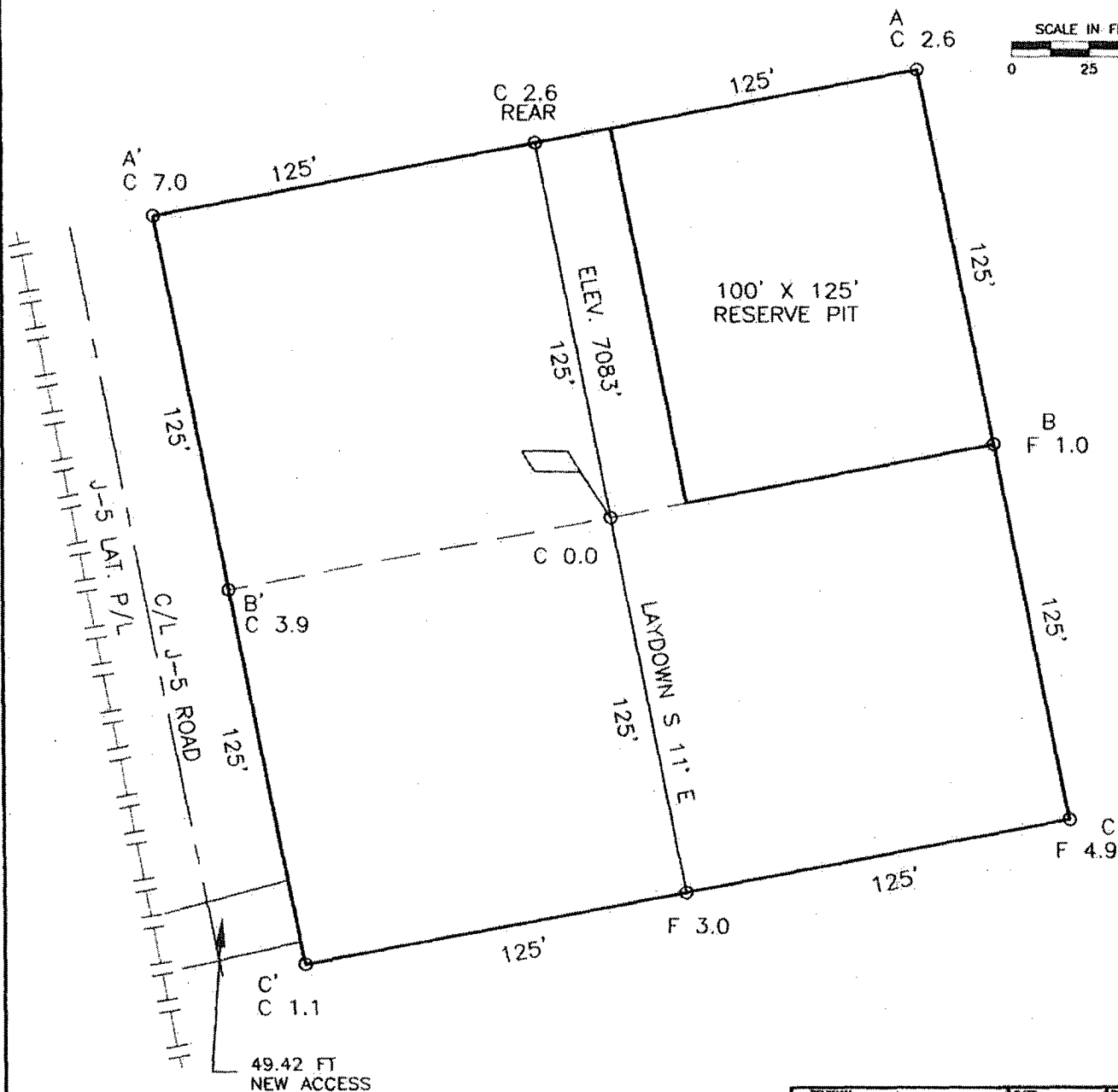
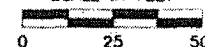
Date:

SEP 06 2005


COMPANY: BLACK HILLS GAS RESOURCES
LEASE: JICARILLA 29-02-20 No. 31
FOOTAGE: 2340 FSL, 1000 FWL
SEC.: 20, TWN: 29-N, RNG: 2-W, NMPM
ELEVATION: 7083'



SCALE IN FEET



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.

REVISION:	DATE:	REVISED BY:
 <p>Daggett Enterprises, Inc. Surveying and Oil Field Services P. O. Box 15068 • Farmington, NM 87401 Phone (505) 326-1772 • Fax (505) 326-6019 NEW MEXICO L.S. 14831</p>		
DRAWN BY: A.G	CADFILE: MN347PLB	
RDWG: MN347	DATE: 10/27/04	

WELL PAD CROSS-SECTIONAL DIAGRAM

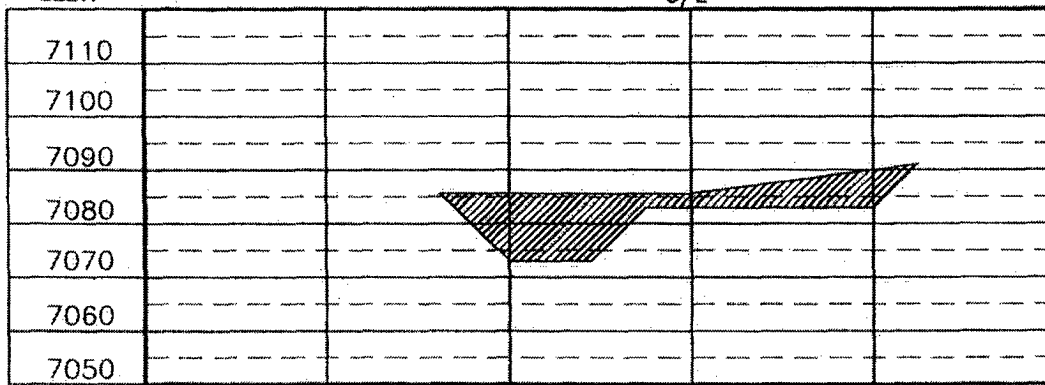
COMPANY: BLACK HILLS GAS RESOURCES
 LEASE: JICARILLA 29-02-20 No. 31
 FOOTAGE: 2340' FSL 1000' FWL
 SEC.: 20 TWN: 29-N RNG: 2-W NMPM
 ELEVATION: 7083'

NOTE:

DAGGETT ENTERPRISES, INC. IS NOT LIABLE FOR
 UNDERGROUND UTILITIES OR PIPELINES. NEW MEXICO
 ONE CALL TO BE NOTIFIED 48 HOURS PRIOR TO
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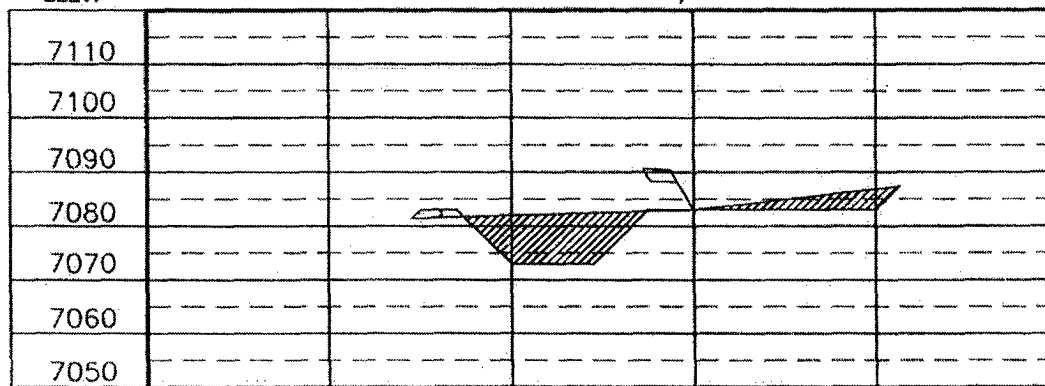
ELEV. A-A'

C/L



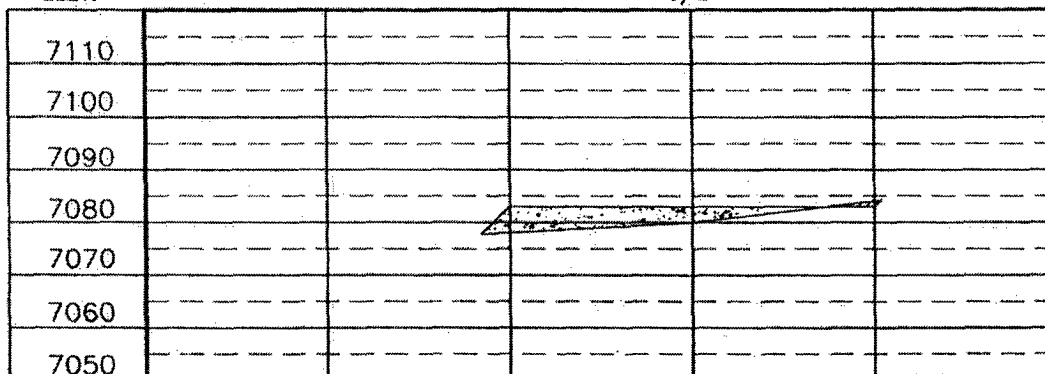
ELEV. B-B'

C/L



ELEV. C-C'

C/L



REF. DWG. MN347PUB WELL PAD DIAGRAM

REVISION: _____

DATE: _____

DESIGNED BY: _____

Daggett Enterprises, Inc.
 Surveying and Oil Field Services
 P. O. Box 15068 • Farmington, NM 87401
 Phone (505) 326-1772 • Fax (505) 326-6019

NEW MEXICO L.S. 14831

CORP. # MN347CFB

DATE: 10/27/04



DRAWN BY: A.G.

NOVA: MN347

Black Hills Gas Resources, Inc.
Jicarilla 29-02-20 31
2,340' FSL 1,000' FWL (NW/4 SW/4)
Sec. 20 T29N R2W
Rio Arriba County, New Mexico
Lease: MDA 701-98-0013, Tract 1

DRILLING PROGRAM

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 NOS process included an onsite meeting, which was held on November 4, 2004, as determined by BLM, Bureau of Indian Affairs (BIA) and Jicarilla Oil & Gas Administration (JOGA), and at which time the specific concerns of Black Hills Gas Resources, Inc. (Black Hills), BLM, BIA and JOGA were discussed.

SURFACE FORMATION – San Jose

GROUND ELEVATION – 7,083'

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

San Jose	Surface	Sandstone, shales & siltstones
Nacimiento	2,029'	Sandstone, shales & siltstones
Ojo Alamo	3,093'	Sandstone, shales & siltstones
Kirkland	3,342'	Sandstone, shales & siltstones
Fruitland Coal	3,466'	Sandstone, shales & siltstones
Pictured Cliffs	3,506'	Sandstone, shales & siltstones
Lewis	3,623'	Sandstone, shales & siltstones

TOTAL DEPTH 4,000'

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

Tertiary

San Jose	surface	Gas
Nacimiento	2,029'	Gas
Ojo Alamo	3,093'	Gas
Fruitland Coal	3,466'	Gas
Pictured Cliffs	3,506'	Gas

CASING PROGRAM

Depth	Hole Diameter	Casing Diameter	Casing Weight and Grade	Cement
0' – 250'	12-1/4"	8-5/8"	J-55 24# ST&C New	To surface (± 175 sxs Class B)
0' – T.D.	7-7/8"	5-1/2"	J-55 15.5# LT&C New	TD to surface (± 630 sxs lite or 65:35 poz and ± 270 sxs 50:50 poz)*

* Actual cement volume to be determined by caliper log.

Yields: Class B yield = $1.18 \text{ ft}^3/\text{sx}$
 65:35 Poz yield = $1.62 \text{ ft}^3/\text{sx}$
 50:50 Poz yield = $1.26 \text{ ft}^3/\text{sx}$

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' -	250'	Fresh water – M.W. 8.5 ppg, Vis 30-33
250' -	TD	Fresh water - 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) H₂S: None anticipated
- D) Estimated bottomhole pressure: 1,240 psi

ANTICIPATED START DATE

April 12, 2005

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.

Jicarilla 29-02-20 31
 2,340' FSL 1,000' FWL (NW /4 SW /4)
 Sec. 20 T 29N R 2W
 Rio Arriba County, New Mexico
 MDA 701-98-0013, Tract 1

SURFACE CASING AND CENTRALIZER DESIGN

Proposed Total Depth: 4,000 '
 Proposed Depth of Surface Casing: 250 '
 Estimated Pressure Gradient: 0.31 psi/ft
 Bottom Hole Pressure at 4,000 '
 $0.31 \text{ psi/ft} \times 4,000' = 1,240 \text{ psi}$
 Hydrostatic Head of gas/oil mud: 0.22 psi/ft
 $0.22 \text{ psi/ft} \times 4,000' = 880 \text{ psi}$

Maximum Design Surface Pressure

Bottom Hole Pressure – Hydrostatic Head =
 $(0.31 \text{ psi/ft} \times 4,000') - (0.22 \text{ psi/ft} \times 4,000') =$
 $1,240 \text{ psi} - 880 \text{ psi} = 360 \text{ psi}$

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

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 250 ' = 6,000 #
 Safety Factor = $\frac{244,000}{6,000} = 40.67$ ok

Burst: Safety Factor = $\frac{2,950 \text{ psi}}{360 \text{ psi}} = 8.19$ ok

Collapse: Hydrostatic = $0.052 \times 9.0 \text{ ppg} \times 250' = 117 \text{ psi}$
 Safety Factor = $\frac{1,370 \text{ psi}}{117 \text{ psi}} = 11.71$ ok

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

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

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.

2-M SYSTEM

Black Hills Gas Resources, Inc.

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

