

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT



RCVD NOV 7 '07

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

APPLICATION FOR PERMIT TO DRILL OR DEEPEN

1a. Type of Work ☒ DRILL ☐ REENTER

1b. Type of Well ☐ Oil Well ☒ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone

2. Name of Operator **Black Hills Gas Resources, Inc.** E-mail: lbenally@bhep.com  
Contact: Lynn Benally

3a. Address P.O. Box 249 Bloomfield NM 87413  
3b. Phone No. (include area code) 505-634-1111

4. Location of Well (Report location clearly and in accordance with any State Requirements.)  
At surface 1,980' FNL 2,405' FWL SE 1/4 NW 1/4  
Lat: 36° 50' 33.9" Long: 107° 09' 21.9"

At proposed production zone

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 Drng, unit line, if any)	Unit= n/a Lease= ±1,980'	16. No. of acres in lease 2560.00	17. Spacing Unit dedicated to this well 160 160.17
18. Distance from proposed location to nearest well, drilling, completed or applied for, on this lease, ft.	± 1,700' Jicarilla 457-4 2	19. Proposed depth 4,000' TVD	20. BLM/BIA Bond No. on file MMSP02675 MMSP02668
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 7,112' GR	22. Approximate date work will start * August 13, 2007	23. Estimated duration 45-60 days drlg + 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.
2. A Drilling Plan.
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).

4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification.
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 July 13, 2007
Title Permit Agent for Black Hills Gas Resources, Inc.		

Approved by (Signature) <i>[Signature]</i>	Name (Printed/Typed)	Date 11/6/07
Title Acting ADM Minerals	Office	

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.



H<sub>2</sub>S POTENTIAL EXIST

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

NMOCD

NOV 13 2007

AV

This action is subject to technical and  
procedural review pursuant to 43 CFR 3165.9  
and appeal pursuant to 43 CFR 3165.4

NOTIFY AZTEC OGD 24 HRS.  
PRIOR TO CASING & CEMENT

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

COPY

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

<sup>1</sup> API Number 30-039-30296	<sup>2</sup> Pool Code 72400	<sup>3</sup> Pool Name E Blanco Pictured Cliffs
<sup>4</sup> Property Code 24245 22865	<sup>5</sup> Property Name JICARILLA 457-04	<sup>6</sup> Well Number 22
<sup>7</sup> OGRID No 013925	<sup>8</sup> Operator Name BLACK HILLS GAS RESOURCES	<sup>9</sup> Elevation 7112'

<sup>10</sup> Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
F	4	30-N	3-W		1980	NORTH	2405	WEST	RIO ARRIBA

<sup>11</sup> 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
<sup>12</sup> Dedicated Acres 160 acres - NW/4					<sup>13</sup> Joint or Infill		<sup>14</sup> Consolidation Code		<sup>15</sup> 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

<sup>16</sup> SEC. CORNER FD. 2 1/2" BC. G.L.O. 1917 LOT 4 N 03-10-12 W 2570.36' (M) 2405'	N 88-37-56 E LOT 3 1980'	5254.59' (C) LOT 2 LAT. 36°50'33.9" N (NAD 83) LONG. 107°09'21.9" W (NAD 83)	CALC. CORNER SNGL. PROP. LOT 1	<sup>17</sup> OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief  Signature Kathy L. Schneebeck Printed Name Permit Agent for Black Hills Title Date July 13, 2007
QTR. CORNER FD. 2 1/2" B.C. G.L.O. 1917				<sup>18</sup> 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.  Date August 19, 2005 Signature JOHN A. WUKONICH NEW MEXICO REGISTERED PROFESSIONAL SURVEYOR 14831 Certificate Number

Submit 3 Copies To Appropriate District Office  
District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
1301 W. Grand Ave., Artesia, NM 88210  
District III  
1000 Rio Brazos Rd., 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-103  
May 27, 2004

OIL CONSERVATION DIVISION  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

COPY

WELL API NO. <u>30-039-30296</u>
5. Indicate Type of Lease STATE <input type="checkbox"/> FEE <input type="checkbox"/>
6. State Oil & Gas Lease No. <u>17</u>
7. Lease Name or Unit Agreement Name <u>Jicarilla 457-04</u>
8. Well Number <u>22</u>
9. OGRID Number <u>013925</u>
10. Pool name or Wildcat <u>Pictured Cliffs</u>

SUNDRY NOTICES AND REPORTS ON WELLS (DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)	
1. Type of Well: <input type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input checked="" type="checkbox"/> Other:	
2. Name of Operator <b>Black Hills Gas Resources, Inc.</b>	
3. Address of Operator <b>P.O. Box 249 Bloomfield, NM 87413</b>	
4. Well Location Unit Letter: <u>F</u> : <u>1,980</u> feet from the <u>North</u> line and <u>2,405</u> feet from the <u>West</u> line Section: <u>4</u> Township <u>30N</u> Range <u>3W</u> NM PM County: <u>Rio Arriba</u>	
11. Elevation (Show whether DR, RKB, RT, GR, etc.) <u>7,112' GR</u>	
Pit or Below-grade Tank Application <input checked="" type="checkbox"/> or Closure <input type="checkbox"/>	
Pit type: <u>Drilling Pit</u> Depth to Groundwater <u>&gt; 100</u> Distance from nearest fresh water well <u>&gt; 1000</u> Distance from nearest surface water <u>&gt; 200</u>	
Pit Liner Thickness: <u>15</u> mil Below-Grade Tank: Volume _____ bbls; Construction Material _____	

12. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:	SUBSEQUENT REPORT OF:
PERFORM REMEDIAL WORK <input type="checkbox"/>	REMEDIAL WORK <input type="checkbox"/>
TEMPORARILY ABANDON <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
PULL OR ALTER CASING <input type="checkbox"/>	COMMENCE DRILLING OPNS. <input type="checkbox"/>
PLUG AND ABANDON <input type="checkbox"/>	P AND A <input type="checkbox"/>
CHANGE PLANS <input type="checkbox"/>	CASING/CEMENT JOB <input type="checkbox"/>
MULTIPLE COMPL <input type="checkbox"/>	OTHER: <input type="checkbox"/>
OTHER: <b>Pit Registration</b> <input checked="" type="checkbox"/>	

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 1103. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

Drilling Pit Registration

I hereby certify that the information above is true and complete to the best of my knowledge and belief. I further certify that any 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 ☐.

SIGNATURE Kathy L. Schneebeck TITLE: Permit Agent for Black Hills Gas Resources, Inc. DATE July 13, 2007

Type or print name: **Kathy L. Schneebeck** E-mail address: **kathys@banko1.com** Telephone No. **303-820-4480**

For State Use Only

APPROVED BY: [Signature] TITLE Deputy Oil & Gas Inspector, District #3 DATE NOV 13 2007  
Conditions of Approval (if any):

Black Hills Gas Resources, Inc.  
**Jicarilla 457-04 22**  
1,980' FNL 2,405' FWL (SE/4 NW/4)  
Sec. 4 T30N R3W  
Rio Arriba County, New Mexico  
Lease: Contract 457

**DRILLING PROGRAM**

This Application for Permit to Drill (APD) was initiated under the Notice of Staking (NOS) process as stated in Onshore Order No. 1 (OSO #1) and supporting Bureau of Land Management (BLM) documents. This NOS process included an on-site meeting, which was held on February 15, 2006, as determined by Bureau of Indian Affairs (BIA) and Jicarilla Oil and Gas Administration (JOGA), and at which time the specific concerns of Black Hills Gas Resources, Inc. (Black Hills), BIA and JOGA were discussed.

SURFACE FORMATION – San Jose

GROUND ELEVATION – 7,112'

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

San Jose	Surface	Sandstone, shales & siltstones
Nacimiento	2,005'	Sandstone, shales & siltstones
Ojo Alamo	3,130'	Sandstone, shales & siltstones
Kirkland	3,350'	Sandstone, shales & siltstones
Fruitland Coal	3,519'	Sandstone, shales & siltstones
Pictured Cliffs	3,575'	Sandstone, shales & siltstones
Lewis	3,673'	Sandstone, shales & siltstones
TOTAL DEPTH	4,000'	

ESTIMATED DEPTHS OF ANTICIPATED WATER, OIL, GAS, OR MINERAL BEARING FORMATIONS

Estimated depths at which water, oil, gas or other mineral-bearing formations are expected to be encountered:

Tertiary

San Jose	surface	Gas
Nacimiento	2,005'	Gas
Ojo Alamo	3,130'	Gas

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 ( $\pm 175$ sxs Standard Cement containing 2% $\text{CaCl}_2$ 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: $\pm 300$ sxs Lite Standard Cement. Tail: $\pm 400$ sxs 50:50 POZ containing 0.25 lb/sx LCM) * **

\* 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)

## Cement additives -

Surface:	Standard Cement	2.0% $\text{CaCl}_2$ 0.25 lbs/sx LCM
Production:	Lead: Lite Standard Cement Tail: 50:50 Poz	6.0% gel 0.25 lbs/sx LCM

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 preventers and related pressure control equipment will be pressure tested to 1,000 psi. Annular type preventer 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 preventer as per Onshore Order No. 2 (OSO #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 OSO #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 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<sub>2</sub>S: See attached H<sub>2</sub>S plan in the event H<sub>2</sub>S is encountered.
- D) Estimated bottomhole pressure: 1,240 psi

ANTICIPATED START DATE

August 13, 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.

## 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 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  $H_2S$  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 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. $H_2S$ 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:

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.

**Black Hills Gas Resources, Inc.**

**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. H<sub>2</sub>S detection and monitoring equipment:**

1. Two portable H<sub>2</sub>S monitors positioned on location for best coverage and response. These units have warning lights and audible sirens when H<sub>2</sub>S levels of 10 ppm are reached.

**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 program has been designed to minimize the volume of H<sub>2</sub>S circulated to the surface. Proper mud weight, safe drilling practices, and the use of H<sub>2</sub>S scavengers will minimize hazards when penetrating H<sub>2</sub>S 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 H<sub>2</sub>S service.
2. All elastomers used for packing and seals shall be H<sub>2</sub>S trim.

**G. Communication:**

1. Cellular telephone communications in company vehicles.

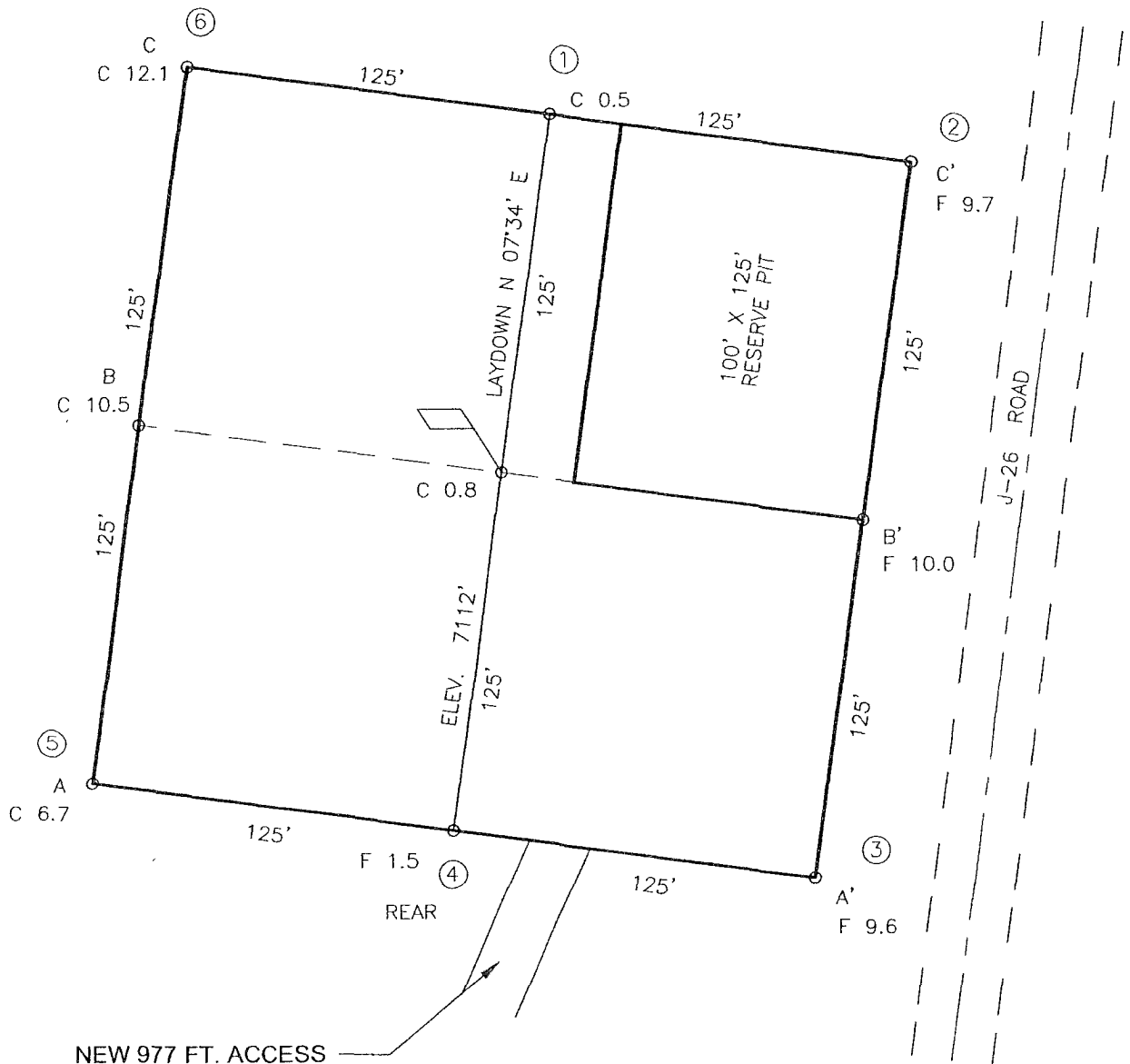
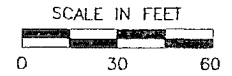
**H. Well testing:**

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 H<sub>2</sub>S environment will use the closed chamber method of testing.




# WELL PAD DIAGRAM

COMPANY: BLACK HILLS GAS RESOURCES  
 LEASE: JICARILLA 457-04 No. 22 (AKA) JICARILLA 30-03-04 No. 22  
 FOOTAGE: 1980 FNL 2405 FWL  
 SEC.: 4 , TWN: 30-N , RNG: 3-W , NMPM  
 ELEVATION: 7112'



## 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.

REVISION:	DATE:	REVISED BY:
NAME CHANGE per CLIENT	09/13/05	B.L.
 <b>Daggett Enterprises, Inc.</b> 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		
DRAWN BY: B.L.	CADFILE: MN444PLB	
ROW#: MN444	DATE: 08/22/05	

# WELL-PAD CROSS-SECTIONAL DIAGRAM

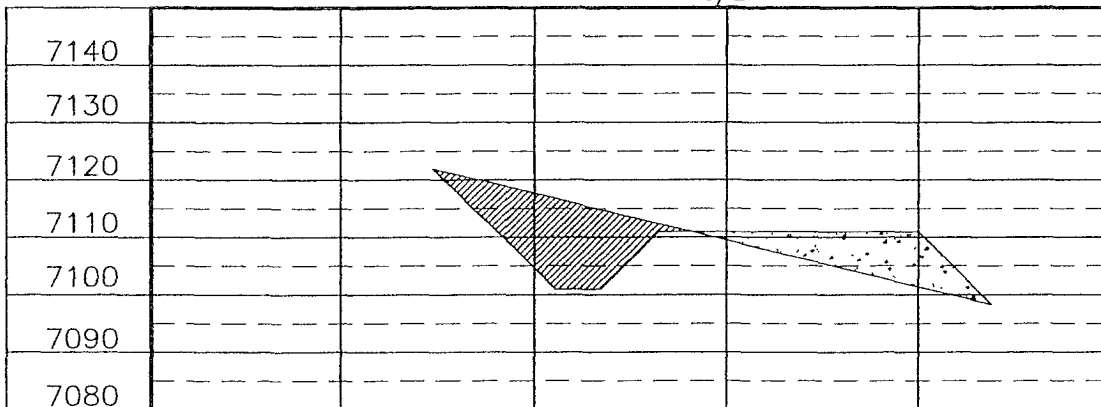
COMPANY: BLACK HILLS GAS RESOURCES  
 LEASE: JICARILLA 457-04 No. 22 (AKA) JICARILLA 30-03-04 No. 22  
 FOOTAGE: 1980' FNL, 2405' FWL  
 SEC.: 4, TWN: 30-N, RNG: 3-W, NMPM  
 ELEVATION: 7112'

## 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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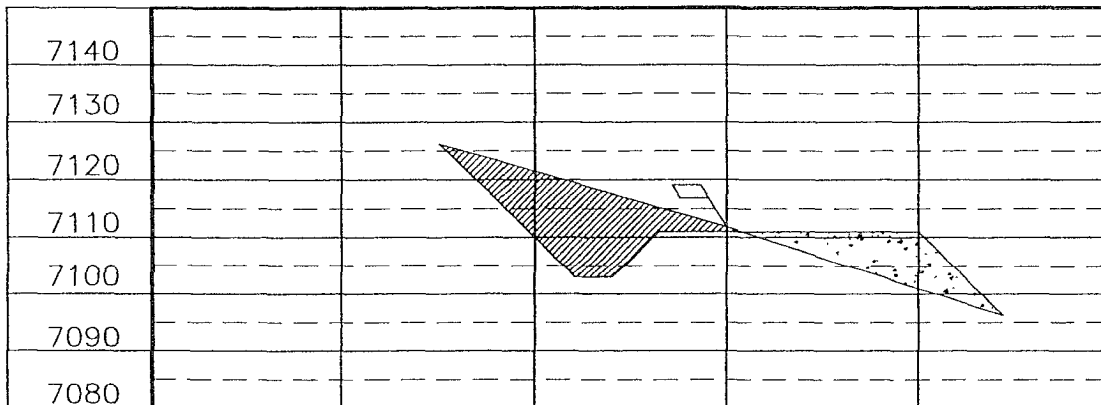
ELEV. A-A'

C/L



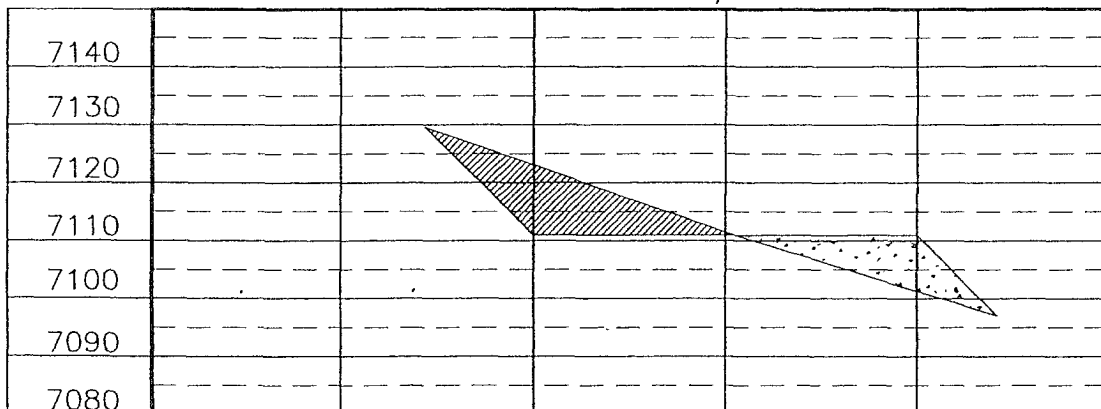
ELEV. B-B'


C/L



ELEV. C-C'

C/L



REVISION	DATE	REMOVED BY
NAME CHANGE per CLIENT	09/13/05	B.L.
<b>Daggett Enterprises, Inc.</b> 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		
 DRAWN BY: B.L. ROW# MN444	GORLE: MN444CFB DATE: 08/22/05	

# 2-M SYSTEM

Black Hills Gas Resources, Inc.

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

