

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTFORM APPROVED
OMB No. 1004-0135
Expires: January 31, 20042007 JUL 26 PM 1 46
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.

070 FARMINGTON NM

SUBMIT IN TRIPLICATE - Other instructions on reverse side

1. Type of Well <input type="checkbox"/> Oil Well <input checked="" type="checkbox"/> Gas Well <input type="checkbox"/> Other		5. Lease Serial No. Contract 458
2. Name of Operator Black Hills Gas Resources, Inc. Contact: Lynn H. Benally		6. If Indian, Allottee or Tribe Name Jicarilla Apache
3a. Address 3200 N 1st Street PO Box 249 Bloomfield, NM 87413	3b. Phone No. (include area code) 505-634-1111 ext 27	7. If Unit or CA/Agreement, Name and/or No.
4. Location of Well (Footage, Sec., T, R., M., or Survey Description) Surface: 2270' FNL 795' FEL SE/NE Unit H Sec.8 T30N R3W Bottom Hole: ±2000' FNL ± 1950' FEL SW/NE Unit G Sec. 9 T30N R3W		8. Well Name and No. Jicarilla 458-08 #7
		9. API Well No. 30-039-25759
		10. Field and Pool, or Exploratory Area E. Blanco/Pictured Cliffs
		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		
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/Resume)
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Reclamation
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal
			<input type="checkbox"/> Water Shut-Off
			<input type="checkbox"/> Well Integrity
			<input checked="" type="checkbox"/> Other <u>Convert Vertical well to Horizontal well</u>

3. 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 recompleate 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 recompleation 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 Pictured Cliff (PC) well was approved on September 27, 1988. The well was given API number 30-039-25759. After evaluation of drilling data in the immediate 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. Since the well was drilled several years ago included will be BHGRs updated H2S and BOP. The new horizontal well will be cased 50 feet across the section 8/9 interface, into section 9.

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 ±775 ft to 625' The bottom of the surface casing at 503 ft. KOP for re-entry will be ±200 ft. See attached Plug Back Procedure, Casing and Directional Plans.

The surface location of the well remains the same but the new bottom hole will be SW/NE ±2000' FNL ± 1950' FEL Unit G Sec. 9 T30N R3W.

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

RCVD AUG 16 '07
OIL CONS. DIV.
DIST. 3HOLD 0104 FOR directional survey
As Drilled C-102 Form14. I hereby certify that the foregoing is true and correct
Name (Printed/Typed)

Lynn H. Benally

Title Regulatory Specialist

Signature

Date

7/25/2007

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by (Signature)

Name
(Printed/Typed)

Title

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

Date

8/14/07

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)

NMOCB

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

WELL LOCATION AND ACREAGE DEDICATION PLAT

*API Number 30-039-25759		*Pool Code 72400	*Pool Name East Blanco Pictured Cliffs
*Property Code 22182	*Property Name JICARILLA 458-8		*Well Number 7
*OGRID No. 13925	*Operator Name BLACK HILLS GAS RESOURCES		*Elevation 7121'

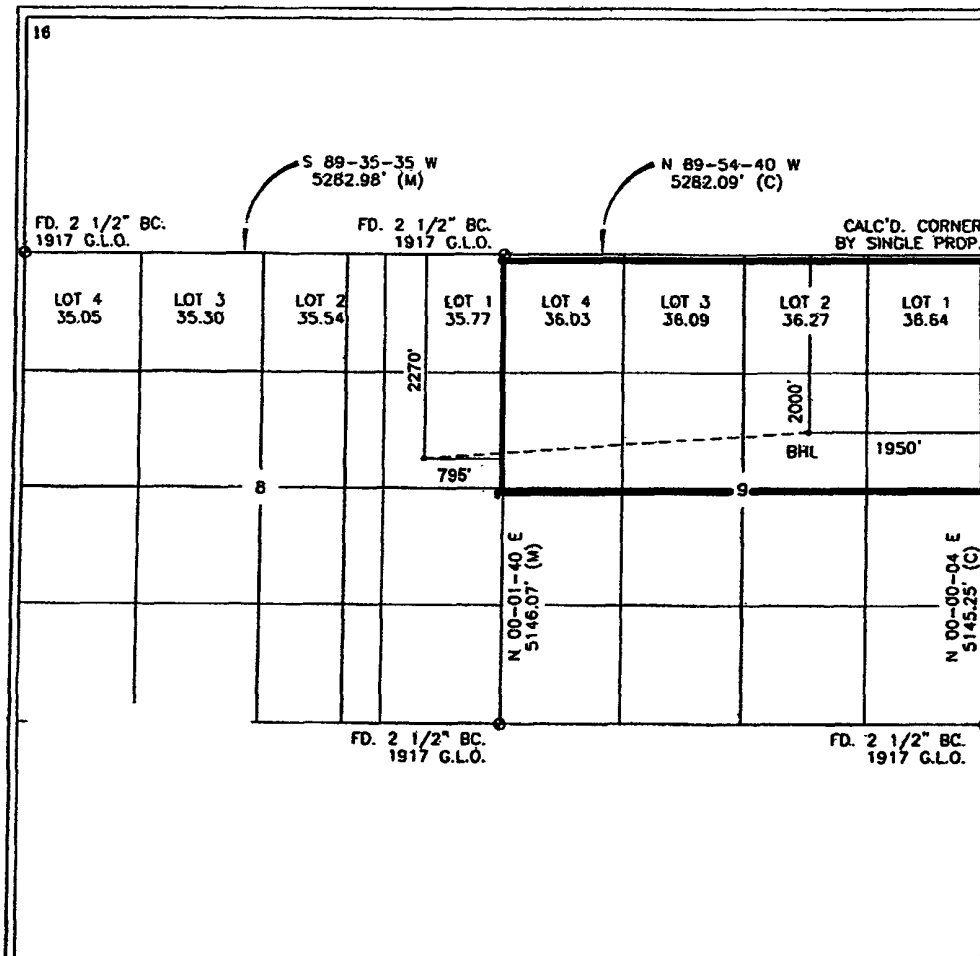
¹⁰ Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
H	8	30-N	3-W		2270	NORTH	795	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
G	9	30-N	3-W		2000	NORTH	1950	EAST	RIO ARRIBA
*Dedicated Acres 320 - N/2 Sect. 9		*Joint or Infill		*Consolidation Code		*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



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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.

Signature: *[Signature]* Date: 7/25/2007

Printed Name: Lynett H. Benally

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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.

SEPTEMBER 13, 2007

Date of Survey

Signature and Seal of Professional Surveyor: *[Signature]*

Certificate Number



Black Hills Gas Resources

Black Hills Gas Resources (BHGR)

Jicarilla 458-08 #7

Surface Location: SE/NE 2270' FNL 795' FEL Unit H

Sec. 8 T30N R3W

Bottom Hole Location: SW/NE ±2000' FSL ± 1950' FEL Unit G

Sec. 9 T30N R3W

Rio Arriba County, New Mexico

Jicarilla Contract 458

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 December 8, 1987. This new drilling plan addresses the horizontal re-entry into the existing Jicarilla 458-08 #7 well.

SURFACE FORMATION – San Jose

GROUND ELEVATION – 7,121'

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

San Jose	Surface	Sandstone, shales & siltstones
Ojo Alamo	3,129'	Sandstone, shales & siltstones
Kirtland	3,371'	Sandstone, shales & siltstones
Fruitland	3,608'	Sandstone, shales & siltstones
Pictured Cliffs	3,702'	Sandstone, shales & siltstones
Lewis	3,775'	Sandstone, shales & siltstones

TOTAL DEPTH 3,700' TVD

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

San Jose	surface	Fresh Water
Ojo Alamo	2,168'	Gas
Fruitland Coal	3,450'	Gas
Pictured Cliffs	3,607'	Gas

HORIZONTAL DRILLING PROGRAM

Kick Off Point (KOP) is estimated to be $\pm 200'$ TVD

CASING PROGRAM

Depth	Hole Diameter	Casing Diameter	Casing Weight and Grade	Cement
0-503' TVD	11"	8 5/8"	Existing Casing J-55 24#	Cemented to surface
503' - $\pm 3949'$ TVD	7-7/8	4-1/2 "	K-55 11.6# LT&C New	TD to surface (Lead: ± 375 sxs lite standard cement. Tail: 500 sxs 50:50 poz containing 0.25 lb/sx LCM) * **
$\pm 3949'$ TVD- End of Lateral Bore	4-3/4"	2-3/8"	J-55 4.7# LT&C New	None

* Actual cement volume to be determined by caliper log.

** Cement will be circulated to surface

Yields:

Surface: Standard cement yield = $1.2 \text{ ft}^3/\text{sx}$ (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)

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) H₂S: See attached H₂S plan in event H₂S is encountered.
- D) Estimated bottomhole pressure: 1,147 psi

ANTICIPATED START DATE

August 20, 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.



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 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 the 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.

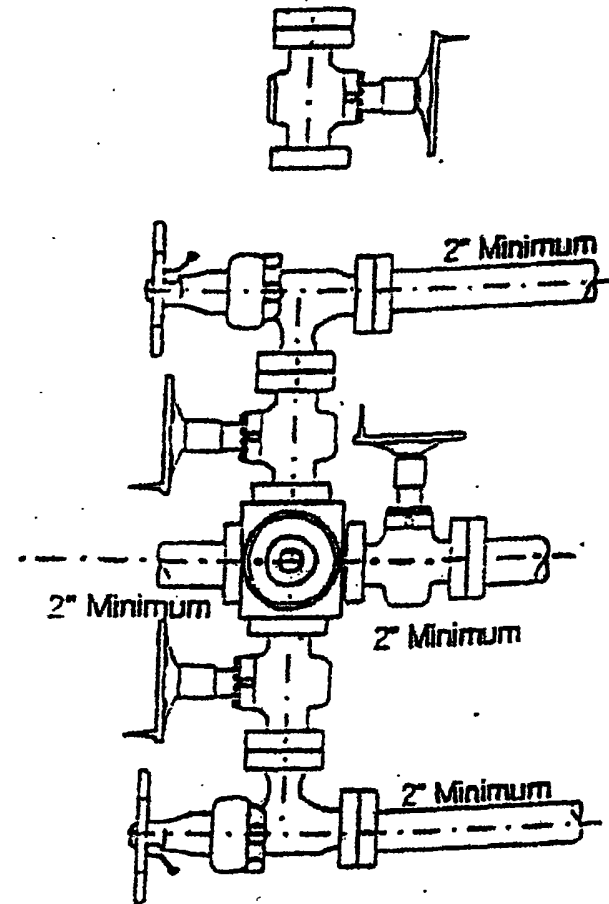
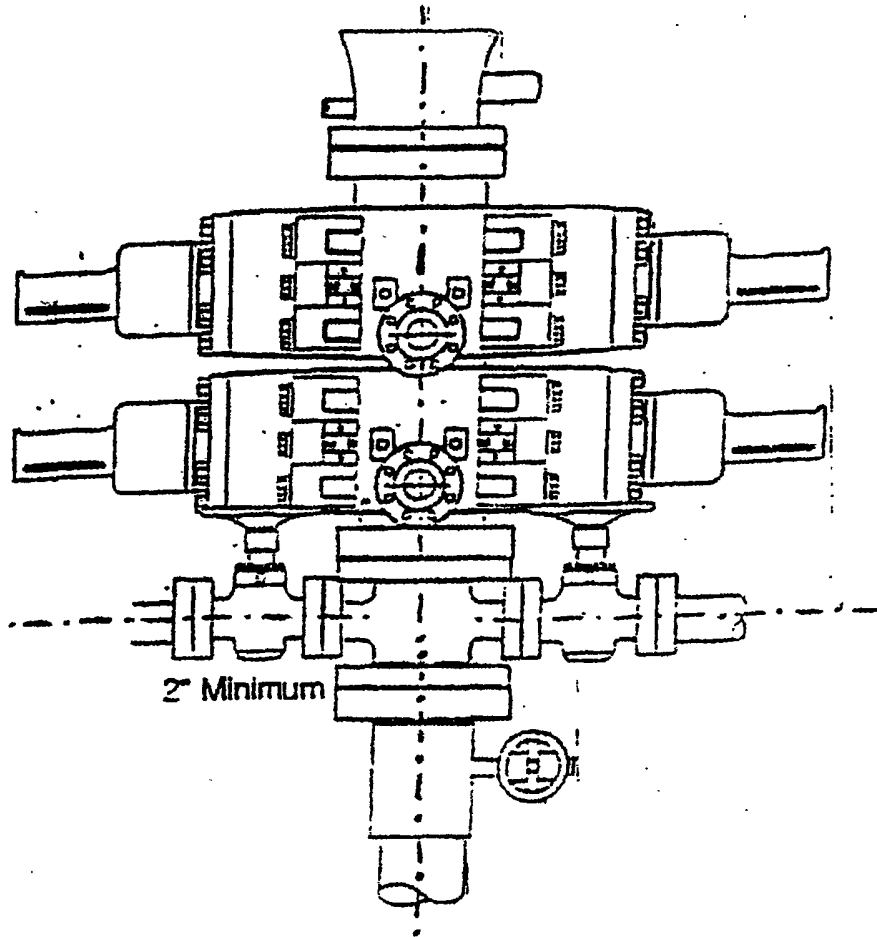
B. Protective equipment for essential personnel

1. Mark II Surniveair 30-minute units located in the doghouse and at briefing areas, as indicated on well site diagram.
- C. H₂S detection and monitoring equipment:
1. Two portable H₂S monitors positioned on location for best coverage and response. These units have warning lights and aquilbesirens when H₂S 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 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 preventers, drilling spool, 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.

2-M SYSTEM

Black Hills Gas Resources, Inc.

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



Jicarilla 458 – 8 #7

Current

Cabresto Canyon, Ojo Alamo Ext.,
East Blanco Pictured Cliffs

2270' FNL & 795' FEL, NE, Section 8, T-30-N, R-3-W

Rio Arriba County, NM / API #30-039-25759

Today's Date: 7/12/07

Spud: 1/28/1998

Completion: 3/9/98

Elevation: 7121' GI
7134' KB

Nacimiento @ 1950'

Ojo Alamo @ 3120'

Kirtland @ 3345'

Fruitland @ 3540'

Pictured Cliffs @ 3674'

12.25" hole

8.625" 24#, Casing set @ 503'
Cement with 345 sxs (Circulated to Surface)

Completion Report / Sundry Notice
indicates 100 sxs circulated to
Surface. TOC Calc at 75% indicates
TOC at 2830'

Nacimiento Perforations:
2929' – 3046'

2.375" tubing at 3684'
(113 jts, 4.7# J-55)

Ojo Alamo Perforations:
3133' – 3200'

AS-1 10K Packer set at 3266'

Pictured Cliffs Perforations:
3675' – 3695'

4.5" 11.6#, Casing set @ 3949'
Cemented with 440 sxs,

7.875" hole

TD 3950'
PBTD 3899'

Jicarilla 458 – 8 #7 **Proposed Plugback**

**Cabresto Canyon, Ojo Alamo Ext.,
East Blanoc Pictured Cliffs**

**2270' FNL & 795' FEL, NE, Section 8, T-30-N, R-3-W
Rio Arriba County, NM / API #30-039-25759**

Today's Date: 7/12/07

Spud: 1/28/1998

Completion: 3/9/98

Elevation: 7121' GI
7134' KB

Nacimiento @ 1950'

Ojo Alamo @ 3120'

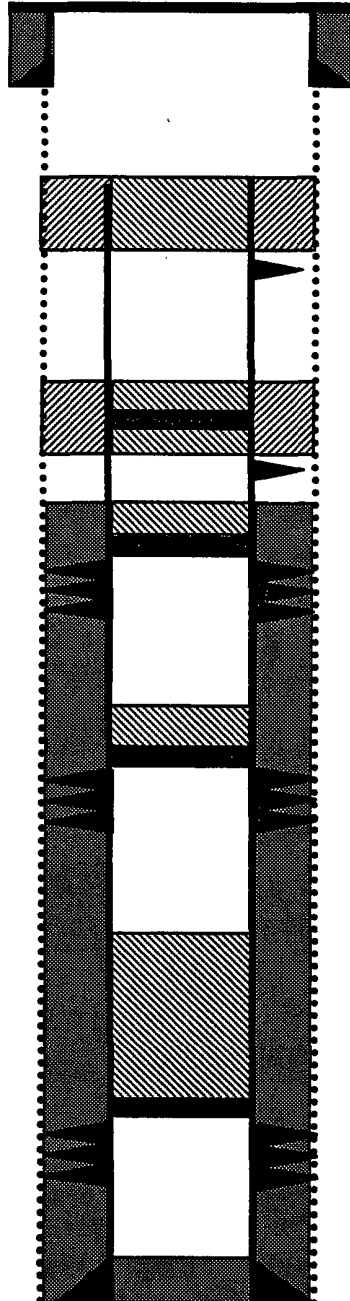
Kirtland @ 3345'

Fruitland @ 3540'

Pictured Cliffs @ 3674'

12.25" hole

7.875" hole



8.625" 24#, Casing set @ 503'
Cement with 345 sxs (Circulated to Surface)

Cut the 4.5" casing at 625'
To sidetrack and drill a
horizontal well into the PC.

Plug #5: 775' – 625'
Type III cement, 46 sxs:
35 outside and 11 inside

Plug #4: 2000' – 1900'
Type III cement, 46 sxs:
35 outside and 11 inside

Cmt Retainer @ 1950'

Perforate @ 2000'

Completion Report / Sundry Notice
indicates 100 sxs circulated to
Surface. TOC Calc at 75% indicates
TOC at 2830'

Set CR @ 2879'

Nacimiento Perforations:
2929' – 3046'

Plug #3: 2879' – 2779'
Type III cement, 11 sxs

Plug #2: 3083' – 2983'
Type III cement, 11 sxs

Cement Retainer @ 3083'

Ojo Alamo Perforations:
3133' – 3200'

Plug #1: 3625' – 3295'
Type III cement, 26 sxs

Set CR @ 3625'

Pictured Cliffs Perforations:
3675' – 3695'

4.5" 11.6#, Casing set @ 3949'
Cemented with 440 sxs,

**TD 3950'
PBD 3899'**

Black Hills Gas Resources

July 12, 2007

Jicarilla 458 – 8 #7

API # 30-039-25759

2270' FNL & 795' FEL, Section 8, T30N, R03W

Rio Arriba County, New Mexico

GL: 7121', KB: 7134', PBSD: 3899'

Surface casing: 8.625", 24.0 lb/ft, Casing at 503'; TOC at surface
Production casing: 4.5", 11.6 lb/ft, J-55, Casing at 3949'; Completion Report/
Sundry Notice indicate 100 sxs circulated to Surface. TOC
Calc, less 100 sxs, at 75% indicates TOC at 2830'
Current prod tubing: 2.375" 113 jts, 4.7#, J-55 tubing at 3793' with AS-1 10K
packer at 3266'.
Current pump/ rods: N/A

Current Perforated Zones:

Pictured Cliffs:	3675' – 3695'
Ojo Alamo:	3133' – 3200'
Nacimiento:	2929' – 3046'

Formation Tops:	Nacimiento:	1950'
	Ojo Alamo:	3120'
	Kirtland:	3345'
	Fruitland:	3540'
	Pictured Cliffs:	3674'

PLUG BACK PROCEDURE: Plan to plug back the well for use as re-entry.

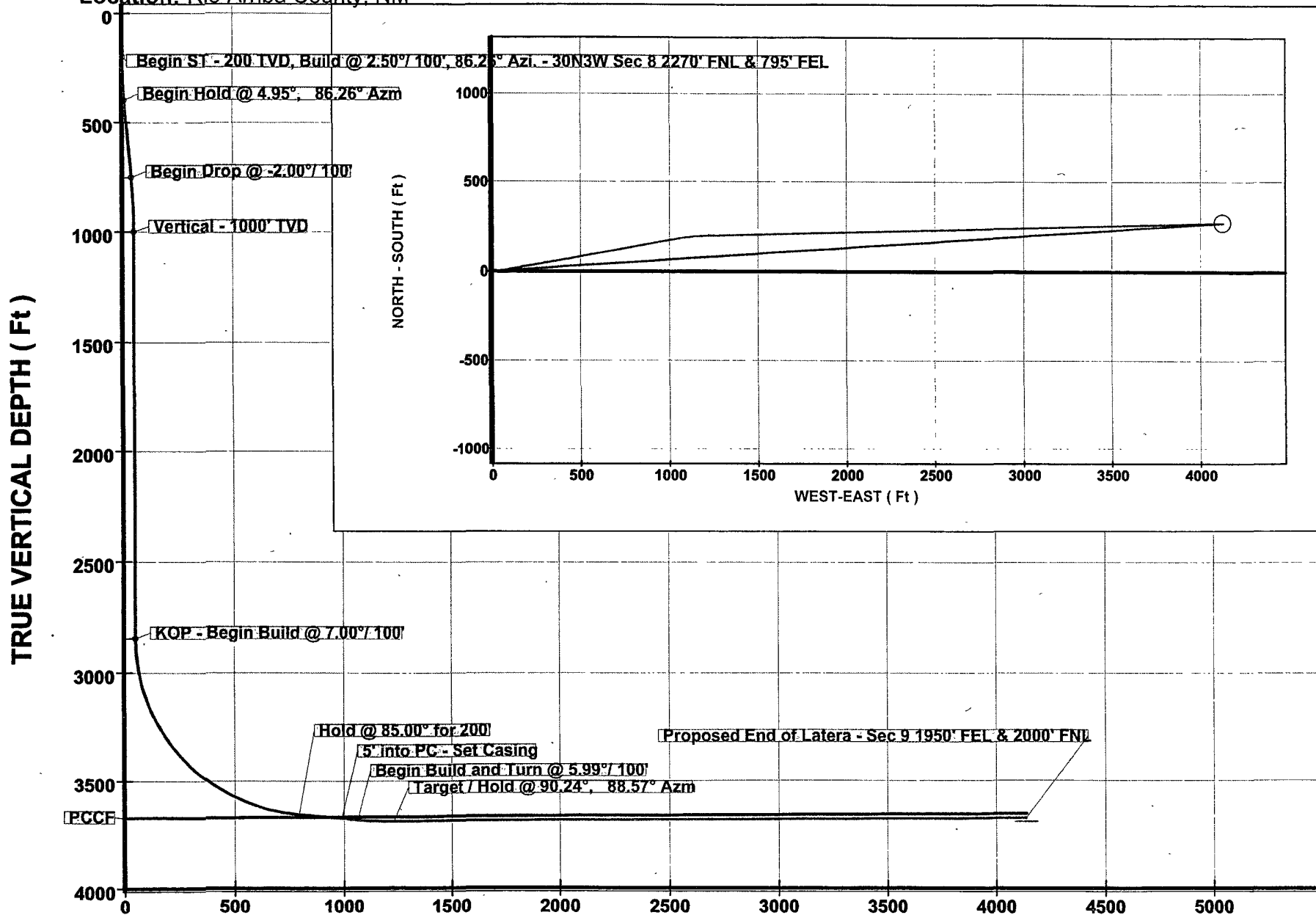
Note: All cement volumes use 100% excess outside pipe and 50' excess inside pipe. The stabilizing wellbore fluid will be 8.3 ppg, sufficient to balance all exposed formation pressures. All cement will be ASTM Type III, mixed at 14.8 ppg with a 1.32 cf/sx yield.

1. This project will use a lined reserve pit for holding waste fluids.
2. Install and test location rig anchors. Comply with all NMOCD, BLM, and Black Hills safety regulations. MOL and RU daylight pulling unit. Conduct safety meeting for all personnel on location. NU relief line and blow down well; kill with water as necessary. ND wellhead and NU BOP. Test BOP.
3. PU on tubing and release packer. TOH and tally 113 joints 4.7#, J-55 2.375" tubing, 3684' and LD packer. Visually inspect tubing and if necessary LD and PU workstring.

4. **Plug #1 (Pictured Cliffs perforations and Fruitland and Kirtland tops, 3625' – 3295'):** TIH and set a 4.5" CR at 3625'. Mix 26 sxs Type III cement and spot a balanced plug above the CR to isolate the Pictured Cliffs perforation and cover through the Kirtland top. TOH with tubing.
5. **Plug #2 (Ojo Alamo perforations and top, 3083' – 2983'):** RIH and set a 4.5" CR at 3083'. Load casing with water and circulate well clean. Mix 11 sxs cement and spot a balanced plug above CR to cover the Ojo Alamo perforations and top. TOH with tubing.
6. **Plug #3 (Nacimiento perforations, 2879' – 2779'):** Round trip 4.5" gauge ring or casing scraper to 2879' or as deep as possible. RIH and set a 4.5" CR at 2879'. Load casing with water and circulate well clean. Pressure test casing to 800#. If casing does not test, spot or tag subsequent plugs as appropriate. Mix 46 sxs cement and spot a balanced plug above CR to cover the Nacimiento perforations. TOH with tubing.
7. **Plug #4 (Nacimiento top, 2000' – 1900'):** Perforate 3 HSC squeeze holes at 2000'. If the 4.5" casing tested, then attempt to establish rate into the squeeze holes. Set a 4.5" cement retainer at 1950'. Establish rate below CR. Mix and pump 46 sxs Type III cement, squeeze 35 sxs outside the 4.5" casing and leave 11 sxs inside 4.5" casing to cover the Nacimiento top. TOH with tubing.
8. **Plug #5 (775' – 625'):** Perforate 3 HSC squeeze holes at 775'. Mix and pump 46 sxs Type III cement, squeeze 35 sxs outside 4.5" casing and leave 11 sxs inside 4.5" casing. PUH and reverse circulate cement. TOH and LD tubing.
9. Connect the pump line to the bradenhead valve. Load the bradenhead annulus with water, note volume to fill, and then attempt to pressure test the BH annulus to 800 PSI. If the BH annulus took a volume to fill, then calculate the BH annulus top of cement.
10. ND the BOP and tubing head. Weld a slip on collar on the 4.5" casing stub and pick up on the 4.5" casing to attempt to remove the wellhead slips. Note: use a 4.5" 11.6#, N-80 LTC slip on collar and an N-80 (or L-80) pick up joint. If the slips are free then determine the free point by stretch calculation.
11. If the slips can be pulled up enough, then remove them from the 4.5" casing. If the free point calculates to be of sufficient depth (by stretch or BH annulus filling volume), then RU Wireline Specialties and run a free point in the 4.5" casing. Then chemical cut the 4.5" casing as deep as possible. Pull and LD any casing cut. Install a steel plate cover on the casing head. RD and move off location.
12. If the 4.5" casing slips will not unseat, (Maximum pull on the 4.5" 11.6# J-55 casing is 162,000#) **[Maximum rig pull on 4 lines: 7/8" swedged – 115,900#; 1" swedged line – 150,300#]** Then dig out the surface casing head and cut both the 8.625" and 4.5" casing below the head. Weld an 8.625" casing extension onto the casing stub to bring a new casing head up to ground level or the desired height for the drilling rig to work with.

13. Install a steel plate cover on the 8.625" casing extension or a new surface casing head. RD and move off location.

Job Number: 71xxx
 Company: Black Hills Gas Resources
 Lease/Well: Jicarilla 458-08 #7
 Location: Rio Arriba County, NM



VERTICAL SECTION (Ft) @ 86.26°



1724-B Townhurst Dr, Houston, Tx 77043
(713) 827-8302
www.nevisenergy.com

Job Number: 71xxx
Company: Black Hills Gas Resources
Lease/Well: Jicarilla 458-08 #7
Location: Rio Arriba County, NM
Rig Name: Patt 744
RKB: ☐
G.L. or M.S.L.: ☐

State/Country: NM/USA
Declination: ☐
Grid: ☐
File name: Z:\BLACKH~1\NEWWEL~1\458-08~1\458-08#7.SVY
Date/Time: 19-Jul-07 / 15:52
Curve Name: Jic 458-08 #7 Plan 6-29-07

Jic 458-08 #7 Plan 6-29-07

WINSERVE PROPOSAL REPORT
Minimum Curvature Method
Vertical Section Plane 86.26
Vertical Section Referenced to Wellhead
Rectangular Coordinates Referenced to Wellhead

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	Vertical Section FT	N-S FT	E-W FT	CLOSURE Distance FT	Direction Deg	Dogleg Severity Deg/100
Begin ST - 200 TVD, Build @ 2.50°/ 100', 86.26° Azi. - 30N3W Sec 8 2270' FNL & 795' FEL									
200.00	.00	.00	200.00	.00	.00	.00	.00	.00	.00
230.00	.75	86.26	230.00	.20	.01	.20	.20	86.26	2.50
260.00	1.50	86.26	259.99	.79	.05	.78	.79	86.26	2.50
290.00	2.25	86.26	289.98	1.77	.12	1.76	1.77	86.26	2.50
320.00	3.00	86.26	319.95	3.14	.20	3.13	3.14	86.26	2.50
350.00	3.75	86.26	349.89	4.91	.32	4.90	4.91	86.26	2.50
380.00	4.50	86.26	379.82	7.06	.46	7.05	7.06	86.26	2.50
Begin Hold @ 4.95°, 86.26° Azm									
398.11	4.95	86.26	397.86	8.56	.56	8.54	8.56	86.26	2.50
498.11	4.95	86.26	497.49	17.19	1.12	17.15	17.19	86.26	.00
598.11	4.95	86.26	597.11	25.82	1.68	25.77	25.82	86.26	.00
698.11	4.95	86.26	696.74	34.46	2.25	34.38	34.46	86.26	.00
Begin Drop @ -2.00°/ 100'									
754.25	4.95	86.26	752.67	39.30	2.56	39.22	39.30	86.26	.00
784.25	4.35	86.26	782.58	41.74	2.72	41.65	41.74	86.26	2.00
814.25	3.75	86.26	812.50	43.86	2.86	43.76	43.86	86.26	2.00
844.25	3.15	86.26	842.45	45.66	2.98	45.57	45.66	86.26	2.00
874.25	2.55	86.26	872.41	47.16	3.08	47.06	47.16	86.26	2.00
904.25	1.95	86.26	902.38	48.34	3.15	48.23	48.34	86.26	2.00
934.25	1.35	86.26	932.37	49.20	3.21	49.10	49.20	86.26	2.00
964.25	.75	86.26	962.37	49.75	3.25	49.65	49.75	86.26	2.00
994.25	.15	86.26	992.37	49.99	3.26	49.88	49.99	86.26	2.00
Vertical - 1000' TVD									
1001.88	.00	86.26	1000.00	50.00	3.26	49.89	50.00	86.26	2.00

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	Vertical Section FT	N-S FT	E-W FT	C L O S U R E		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
1101.88	.00	86.26	1100.00	50.00	3.26	49.89	50.00	86.26	.00
1201.88	.00	86.26	1200.00	50.00	3.26	49.89	50.00	86.26	.00
1301.88	.00	86.26	1300.00	50.00	3.26	49.89	50.00	86.26	.00
1401.88	.00	86.26	1400.00	50.00	3.26	49.89	50.00	86.26	.00
1501.88	.00	86.26	1500.00	50.00	3.26	49.89	50.00	86.26	.00
1601.88	.00	86.26	1600.00	50.00	3.26	49.89	50.00	86.26	.00
1701.88	.00	86.26	1700.00	50.00	3.26	49.89	50.00	86.26	.00
1801.88	.00	86.26	1800.00	50.00	3.26	49.89	50.00	86.26	.00
1901.88	.00	86.26	1900.00	50.00	3.26	49.89	50.00	86.26	.00
2001.88	.00	86.26	2000.00	50.00	3.26	49.89	50.00	86.26	.00
2101.88	.00	86.26	2100.00	50.00	3.26	49.89	50.00	86.26	.00
2201.88	.00	86.26	2200.00	50.00	3.26	49.89	50.00	86.26	.00
2301.88	.00	86.26	2300.00	50.00	3.26	49.89	50.00	86.26	.00
2401.88	.00	86.26	2400.00	50.00	3.26	49.89	50.00	86.26	.00
2501.88	.00	86.26	2500.00	50.00	3.26	49.89	50.00	86.26	.00
2601.88	.00	86.26	2600.00	50.00	3.26	49.89	50.00	86.26	.00
2701.88	.00	86.26	2700.00	50.00	3.26	49.89	50.00	86.26	.00
2801.88	.00	86.26	2800.00	50.00	3.26	49.89	50.00	86.26	.00
KOP - Begin Build @ 7.00°/ 100'									
2845.88	.00	80.00	2844.00	50.00	3.26	49.89	50.00	86.26	.00
2875.88	2.10	80.00	2873.99	50.55	3.36	50.44	50.55	86.19	7.00
2905.88	4.20	80.00	2903.95	52.19	3.64	52.06	52.19	86.00	7.00
2935.88	6.30	80.00	2933.82	54.92	4.12	54.76	54.92	85.70	7.00
2965.88	8.40	80.00	2963.57	58.73	4.79	58.55	58.74	85.33	7.00
2995.88	10.51	80.00	2993.16	63.63	5.64	63.40	63.65	84.91	7.00
3025.88	12.61	80.00	3022.55	69.60	6.69	69.32	69.64	84.49	7.00
3055.88	14.71	80.00	3051.70	76.64	7.92	76.29	76.70	84.08	7.00
3085.88	16.81	80.00	3080.57	84.74	9.33	84.31	84.83	83.68	7.00
3115.88	18.91	80.00	3109.13	93.89	10.93	93.37	94.01	83.32	7.00
3145.88	21.01	80.00	3137.32	104.07	12.71	103.46	104.24	83.00	7.00
3175.88	23.11	80.00	3165.12	115.27	14.66	114.55	115.49	82.71	7.00
3205.88	25.21	80.00	3192.49	127.47	16.80	126.65	127.76	82.45	7.00
3235.88	27.31	80.00	3219.40	140.67	19.10	139.72	141.02	82.22	7.00
3265.88	29.41	80.00	3245.79	154.83	21.57	153.75	155.26	82.01	7.00
3295.88	31.52	80.00	3271.65	169.95	24.22	168.73	170.46	81.83	7.00
3325.88	33.62	80.00	3296.93	186.00	27.02	184.63	186.60	81.67	7.00
3355.88	35.72	80.00	3321.60	202.96	29.98	201.44	203.66	81.53	7.00
3385.88	37.82	80.00	3345.63	220.81	33.10	219.12	221.61	81.41	7.00
3415.88	39.92	80.00	3368.99	239.53	36.37	237.66	240.43	81.30	7.00
3445.88	42.02	80.00	3391.64	259.08	39.79	257.03	260.09	81.20	7.00
3475.88	44.12	80.00	3413.56	279.44	43.34	277.20	280.57	81.11	7.00
3505.88	46.22	80.00	3434.70	300.59	47.04	298.16	301.84	81.03	7.00
3535.88	48.32	80.00	3455.06	322.50	50.86	319.86	323.88	80.96	7.00
3565.88	50.42	80.00	3474.59	345.13	54.82	342.28	346.64	80.90	7.00

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	Vertical Section FT	N-S FT	E-W FT	CLOSURE Distance FT	Direction Deg	Dogleg Severity Deg/100
3595.88	52.53	80.00	3493.27	368.46	58.89	365.39	370.11	80.84	7.00
3625.88	54.63	80.00	3511.09	392.45	63.08	389.16	394.24	80.79	7.00
3655.88	56.73	80.00	3528.00	417.08	67.39	413.56	419.02	80.75	7.00
3685.88	58.83	80.00	3544.00	442.30	71.79	438.56	444.39	80.70	7.00
3715.88	60.93	80.00	3559.05	468.10	76.30	464.11	470.34	80.66	7.00
3745.88	63.03	80.00	3573.14	494.42	80.90	490.19	496.82	80.63	7.00
3775.88	65.13	80.00	3586.26	521.24	85.58	516.76	523.80	80.60	7.00
3805.88	67.23	80.00	3598.37	548.52	90.35	543.79	551.24	80.57	7.00
3835.88	69.33	80.00	3609.47	576.22	95.19	571.23	579.11	80.54	7.00
3865.88	71.43	80.00	3619.54	604.31	100.09	599.06	607.36	80.51	7.00
3895.88	73.54	80.00	3628.57	632.75	105.06	627.23	635.97	80.49	7.00
3925.88	75.64	80.00	3636.54	661.50	110.08	655.71	664.89	80.47	7.00
3955.88	77.74	80.00	3643.45	690.52	115.15	684.46	694.08	80.45	7.00
3985.88	79.84	80.00	3649.28	719.77	120.26	713.44	723.51	80.43	7.00
4015.88	81.94	80.00	3654.03	749.21	125.41	742.61	753.12	80.41	7.00
4045.88	84.04	80.00	3657.69	778.81	130.58	771.93	782.90	80.40	7.00
Hold @ 85.00° for 200'									
4059.58	85.00	80.00	3659.00	792.36	132.94	785.36	796.53	80.39	7.00
4159.58	85.00	80.00	3667.72	891.38	150.24	883.46	896.15	80.35	.00
5' into PC - Set Casing									
4259.58	85.00	80.00	3676.43	990.41	167.54	981.57	995.77	80.31	.00
Begin Build and Turn @ 5.99°/ 100'									
4334.58	85.00	80.00	3682.97	1064.68	180.52	1055.15	1070.48	80.29	.00
4364.58	85.93	81.54	3685.34	1094.45	185.31	1084.67	1100.38	80.30	5.99
4394.58	86.87	83.08	3687.22	1124.31	189.32	1114.34	1130.31	80.36	5.99
4424.58	87.81	84.61	3688.62	1154.25	192.53	1144.13	1160.22	80.45	5.99
4454.58	88.75	86.14	3689.52	1184.24	194.95	1174.02	1190.10	80.57	5.99
4484.58	89.69	87.67	3689.93	1214.23	196.57	1203.97	1219.91	80.73	5.99
Target / Hold @ 90.24°, 88.57° Azm									
4502.11	90.24	88.56	3689.94	1231.75	197.15	1221.49	1237.30	80.83	5.96
4602.11	90.24	88.56	3689.53	1331.67	199.66	1321.46	1336.46	81.41	.00
4702.11	90.24	88.56	3689.12	1431.59	202.17	1421.43	1435.73	81.91	.00
4802.11	90.24	88.56	3688.71	1531.50	204.69	1521.39	1535.10	82.34	.00
4902.11	90.24	88.56	3688.30	1631.42	207.20	1621.36	1634.55	82.72	.00
5002.11	90.24	88.56	3687.89	1731.34	209.71	1721.33	1734.06	83.05	.00
5102.11	90.24	88.56	3687.48	1831.26	212.22	1821.30	1833.62	83.35	.00
5202.11	90.24	88.56	3687.07	1931.18	214.74	1921.26	1933.23	83.62	.00
5302.11	90.24	88.56	3686.66	2031.10	217.25	2021.23	2032.87	83.87	.00
5402.11	90.24	88.57	3686.25	2131.02	219.76	2121.20	2132.55	84.09	.01
5502.11	90.24	88.57	3685.84	2230.93	222.26	2221.17	2232.26	84.29	.00
5602.11	90.24	88.57	3685.43	2330.85	224.77	2321.13	2331.99	84.47	.00
5702.11	90.24	88.57	3685.01	2430.77	227.27	2421.10	2431.75	84.64	.00
5802.11	90.24	88.57	3684.60	2530.69	229.78	2521.07	2531.52	84.79	.00

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	Vertical Section FT	N-S FT	E-W FT	C L O S U R E		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
5902.11	90.24	88.57	3684.19	2630.61	232.28	2621.04	2631.31	84.94	.00
6002.11	90.24	88.57	3683.78	2730.53	234.78	2721.01	2731.12	85.07	.00
6102.11	90.24	88.57	3683.37	2830.44	237.29	2820.97	2830.94	85.19	.00
6202.11	90.24	88.57	3682.96	2930.36	239.79	2920.94	2930.77	85.31	.00
6302.11	90.24	88.57	3682.55	3030.28	242.30	3020.91	3030.61	85.41	.00
6402.11	90.24	88.57	3682.14	3130.20	244.80	3120.88	3130.46	85.51	.00
6502.11	90.24	88.57	3681.73	3230.12	247.30	3220.84	3230.33	85.61	.00
6602.11	90.24	88.57	3681.32	3330.04	249.81	3320.81	3330.20	85.70	.00
6702.11	90.24	88.57	3680.91	3429.95	252.31	3420.78	3430.07	85.78	.00
6802.11	90.24	88.57	3680.50	3529.87	254.82	3520.75	3529.96	85.86	.00
6902.11	90.24	88.57	3680.09	3629.79	257.32	3620.72	3629.85	85.93	.00
7002.11	90.24	88.57	3679.68	3729.71	259.82	3720.68	3729.74	86.01	.00
7102.11	90.24	88.57	3679.27	3829.63	262.33	3820.65	3829.65	86.07	.00
7202.11	90.24	88.57	3678.85	3929.54	264.83	3920.62	3929.55	86.14	.00
7302.11	90.24	88.57	3678.44	4029.46	267.34	4020.59	4029.47	86.20	.00
7402.11	90.24	88.57	3678.03	4129.38	269.84	4120.56	4129.38	86.25	.00
Proposed End of Latera - Sec 9 1950' FEL & 2000' FNL									
7408.56	90.24	88.57	3678.01	4135.83	270.00	4127.00	4135.83	86.26	.00