

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

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

1a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. Jicarilla Apache #102
1b. Type of Well: <input type="checkbox"/> Oil Well <input checked="" type="checkbox"/> Gas Well <input type="checkbox"/> Other <input type="checkbox"/> Single Zone <input checked="" type="checkbox"/> Multiple Zone		6. If Indian, Allottee or Tribe Name Jicarilla Apache Tribe
2. Name of Operator CDX RIO, LLC		7. If Unit or CA Agreement, Name and No.
3a. Address 4801 N. Butler, Suite 2000 Farmington, NM 87401		8. Lease Name and Well No. Jic Apache #102 12M
3b. Phone No. (include area code) 505-526-3003		9. API Well No. 30-039-27851
4. Location of Well (Report location clearly and in accordance with any State requirements) At surface 1740' FSL and 1865' FEL At proposed prod. zone Same		10. Field and Pool, or Exploratory Blanco Mesa Verde/Basin Dakota Sec., T. R. M. or Blk. and Survey or Area Sec 9, T26N- R 4W
14. Distance in miles and direction from nearest town or post office* 20 Miles North and 12 Miles East of Counselor, New Mexico		12. County or Parish Rio Arriba
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 1900'		13. State NM
16. No. of acres in lease 2567.94		Spacing Unit dedicated to this well Blanco Mesa Verde S2/Basin Dakota E2
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 780'		20. BLM/BIA Bond No. on file RLB0005805
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 7136 GL		22. Approximate date work will start* 08/01/2004
		23. Estimated duration

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>Charles Hanson</i>	Name (Printed/Typed) Charles Hanson, Agent	Date 06/16/2004
Title HLPermitting Inc. P.O. Box 6684 Farmington, NM 87499		

Approved by (Signature) /s/ David R. Sitzler	Name (Printed/Typed)	Date JUL 29 2004
Title Assistant Field Manager	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.

*(Instructions on page 2)

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 30039-27851	*Pool Code 71599/72319	*Pool Name Basin Dakota Blanco Mesa Verde
*Property Code 24056 38455	*Property Name JIC - APACHE 102	*Well Number 12M
*OGRID No. 222374	*Operator Name CDX RIO, LLC	*Elevation 7136

¹⁰ Surface Location

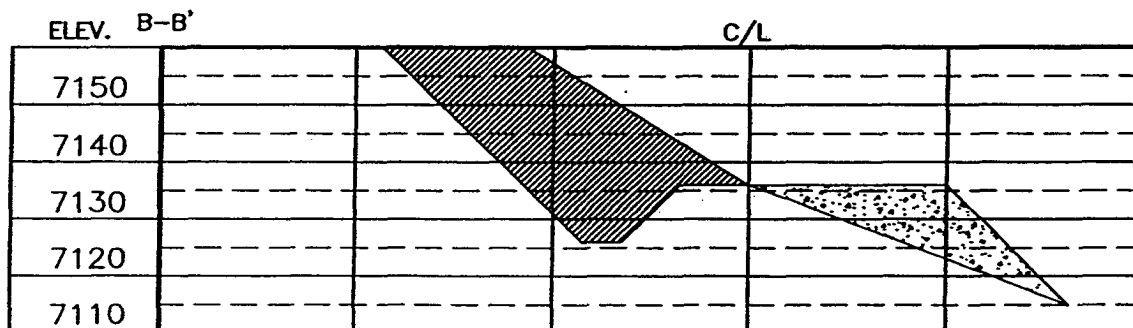
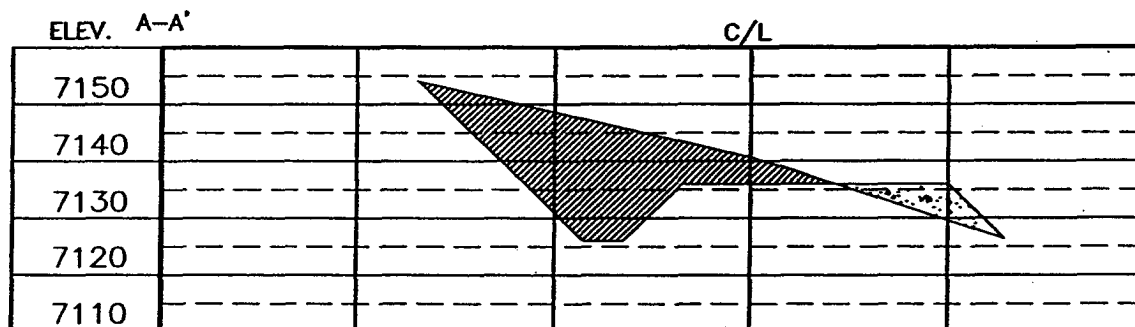
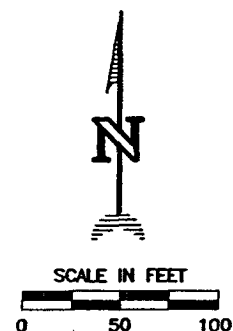
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
J	9	26-N	4-W		1740	SOUTH	1865	EAST	RIO ARRIBA

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
Dedicated Acres DK EA 320+ MG			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

16		17	OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief. Signature: <u>Patty Shelton</u> Printed Name: <u>Patty Shelton</u> Title: <u>mgr H.L. Ferrell Inc</u> Date: <u>5-18-2004</u>
CALC CORNER DBL PROP.	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. Date of Survey: <u>5-18-2004</u> Signature and Seal of Professional Surveyor: <u>[Signature]</u> Certificate Number: <u>14831</u>		
CALC CORNER DBL PROP.			



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 CDX	5/24/04	B.L.
FINAL STAGING	5/15/04	B.L.



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. No. 14831

DRAWN BY: A.G.	CADFILE: CDXGAS058CF8
ROW#: CDXGAS058	DATE: 04/17/04

CDX GAS

ONSHORE OIL & GAS ORDER NO. 1 Approval of Operations on Onshore Federal and Indian Oil and Gas Leases

Jic Apache 102 - #12M
1740 FSL & 1865 FEL, Sec 9, T26N - R4W

Drilling Plan

All lease and/or unit operations will be conducted in such a manner that full compliance is made with applicable laws, regulations (43 CFR 3100), Onshore Oil and Gas Order No. 1, and the approved plan of operations. The operator is fully responsible for the actions of his subcontractors. A copy of these conditions will be furnished to the field representative to insure compliance.

1. **Estimated Tops of Important Geologic Markers (and)**
2. **Anticipated Water, Oil, Gas, or Mineral Formations**

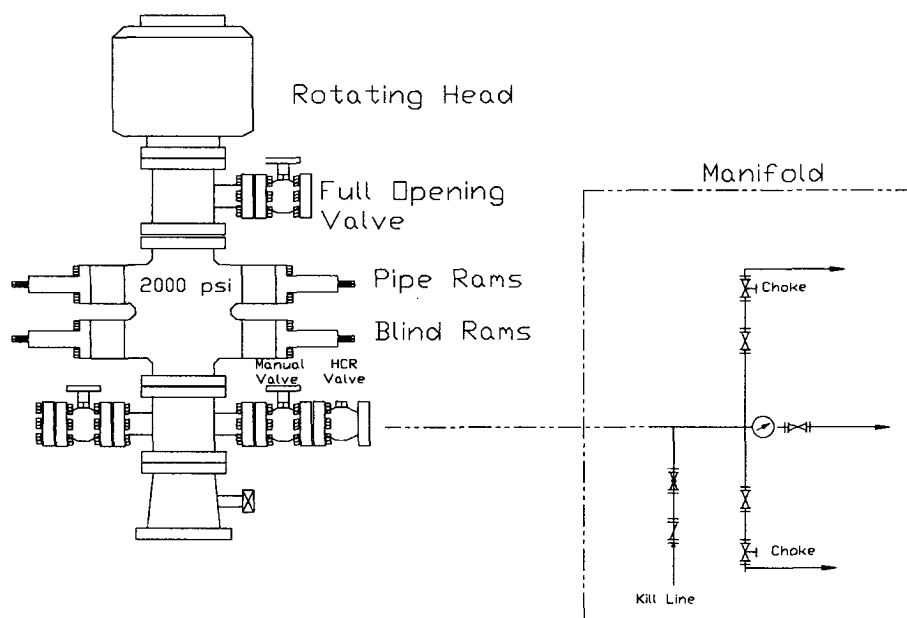
Estimated KB Elev: 7148

Ground Elev: 7136

Formation	Depth SS	Depth KB	Rock Type	Comments
Quaternary Alluvium	Surface	0.0	Gravel	Water
San Jose	Surface	0.0	SS / SH	
Ojo Alamo	3,944.0	3,204.0	SS / SH	
Kirtland	3,729.0	3,419.0	SH	
Fruitland	3,441.0	3,707.0	Coal / SH / SS	Possible Lost Circulation
Pictured Cliffs	3,308.0	3,840.0	SS	Water / Gas
Lewis Shale	3,233.0	3,915.0	SH	Set Casing 200' below top
Huerfanito	2,838.0	4,310.0	SH	
Chacra	2,371.0	4,777.0	Siltstone	Water / Gas
Mesaverde	1,661.0	5,487.0	Coal / SH / SS	
Cliff House	1,661.0	5,487.0	SS	Water / Gas
Menefee	1,537.0	5,611.0	Coal / SH / SS	
Point Lookout	1,155.0	5,993.0	SS	Possible Lost Circulation
Mancos Shale	1,019.0	6,129.0	SH	
Gallup	-29.0	7,177.0	SS / SH	GAS
Tocito	-386.0	7,534.0	SS	
Juan Lopez	-477.0	7,625.0	SS	
Greenhorn	-781.0	7,929.0	LMST	
Graneros Shale	-839.0	7,987.0	SH	
Dakota Formation	-861.0	8,009.0	SS / SH / Coal	GAS
Morrison	-1,161.0	8,309.0	SH / SS	
TD	-1,261.0	8,409.0		TD 100' into Morrison

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

3. Pressure Control Equipment, CDX Minimum Specifications:



- A. BOP will consist of 2000-psi double ram BOP with a rotating head.
- B. Kill line and Choke line will be minimum 2" 2000 psi rating with pressure gauge on choke manifold.
- C. Ram type preventers and associated equipment shall be tested to approved stack working pressure if isolated by test plug or to 70 percent of internal yield pressure of casing. Pressure shall be maintained for at least 10 minutes or until requirements of test are met, whichever is longer. If a test plug is utilized, no bleed-off pressure is acceptable. For a test not utilizing a test plug, if a decline in pressure of more than 10 percent in 30 minutes occurs, the test shall be considered to have failed. Valve on casing head below test plug shall be open during test of BOP stack.
- D. Annular type preventers (if used) shall be tested to 50 percent of rated working pressure. Pressure shall be maintained for at least 10 minutes or until provisions of test are met, whichever is longer.
- E. As a minimum, the above test shall be performed:
 1. When initially installed
 2. Whenever any seal subject to test pressure is broken
 3. Following related repairs
 4. At 30-day intervals
- F. Valves shall be tested from working pressure side during BOP tests with all down stream valves open.
- G. When testing the kill line valve(s) the check valve shall be held open or the ball removed.
- H. Annular preventers shall be functionally operated at least weekly.
- I. Pipe and blind rams shall be activated each trip, however, this function need not be performed more than once a day.
- J. A BOP pit level drill shall be conducted weekly for each drilling crew.
- K. Pressure tests shall apply to all related well control equipment.
- L. All of the above described tests and/or drills shall be recorded in the drilling log.

- M. BOP systems shall be consistent with API RP53. Pressure tests will be conducted before drilling out from under casing strings which have been set and cemented in place. Blowout preventer controls will be installed prior to drilling the surface casing plug and will remain in use until well is completed or abandoned. Preventers will be inspected and operated at least daily to ensure good mechanical working order, and this inspection will be recorded on the daily drilling report. Preventers will be pressure tested before drilling casing cement plugs.
- N. The District Office should be notified, with sufficient lead-time, in order to have the BLM representative on location during pressure testing.
1. The size and rating of the BOP stack is shown on the attached diagram. Although a rig has not been chosen to drill this well, most of the equipment for this depth of hole in the area uses a 2000-psi working pressure blowout preventer.
 2. A choke line and a kill line are to be properly installed. The kill line is not to be used as a fill-up line.
 3. The accumulator system shall have a pressure capacity to provide for repeated operation of hydraulic preventers.
 4. Drill string safety valve(s), to fit all tools in the drill string, are to be maintained on the rig floor while drilling operations are in progress.

4. Proposed Casing Program:

The proposed casing and cementing program shall be conducted as approved to protect and/or isolate all usable water zones, potentially productive zones, lost circulation zones, abnormally pressured zones, and any prospectively valuable deposits of minerals. Any isolating medium other than cement shall receive approval prior to use. The casing setting depth shall be calculated to position the casing seat opposite a competent formation, which will contain the maximum pressure to which it will be exposed during normal drilling operations. Determination of casing setting depth shall be based on all relevant factors, including; presence/absence of hydrocarbons; fracture gradients; usable water zones; formation pressures; lost circulation zones; other minerals; or other unusual characteristics. All indications of usable water shall be reported.

SURFACE

Setting Depth		Length	Size	Weight	Grade	Threads	ID	Drift	Conn OD
TVD	MD	300.0 ft	9.625 in	32.30 #/ft	H40	STC	9.0 in	8.8 in	10.6 in
300.0 ft	300.0 ft								
BURST			COLLAPSE			TENSILE			Optimum Torque
Rated	Load	S.F.	Rated	Load	S.F.	Rated	Load	S.F.	
2270 psi	168 psi	13.5	1370 psi	109 psi	12.6	254000 lbs	109690 lbs	2.3	2540 ft*lbs

Intermediate

Setting Depth		Length	Size	Weight	Grade	Threads	ID	Drift	Conn OD
TVD	MD	4,115.0 ft	7.000 in	20.0 #/ft	J55	STC	6.5 in	6.3 in	7.656 in
4,115.0 ft	4,115.0 ft								
BURST			COLLAPSE			TENSILE			Optimum Torque
Rated	Load	S.F.	Rated	Load	S.F.	Rated	Load	S.F.	
3,740 psi	1,346 psi	2.78	2,270 psi	1,453 psi	1.6	316,000 lbs	182,300 lbs	1.7	5,190 ft*lbs

Production Casing Design

Setting Depth		Length	Size	Weight	Grade	Threads	ID	Drift	Conn OD
TVD	MD	8,409.0 ft	4.500 in	11.60 #/ft	N80	LTC	4.0 in	3.9 in	5.000 in
8,409.0 ft	8,409.0 ft								
BURST			COLLAPSE			TENSILE			Optimum Torque
Rated	Load	S.F.	Rated	Load	S.F.	Rated	Load	S.F.	
7,780 psi	2,750 psi	2.83	6,350 psi	2,968 psi	2.1	223,000 lbs	197,544 lbs	1.1	2,280 ft*lbs

- A. Casing design shall assume formation pressure gradients of 0.44 to 0.50 psi per foot for exploratory wells (lacking better data).
- B. Casing design shall assume fracture gradients from 0.70 to 1.00 psi per foot for exploratory wells (lacking better data).
- C. Casing collars shall have a minimum clearance of 0.422 inches on all sides in the hole/casing annulus, with recognition that variances can be granted for justified exceptions.
- D. All waiting on cement times shall be adequate to achieve minimum of 500-psi compressive strength at the casing shoe prior to drilling out.
- E. All casing, except the conductor casing, shall be new or reconditioned and tested used casing that meets or exceeds API standards for new casing.
- F. The surface casing shall be cemented back to surface either during the primary cement job or by the remedial cementing.
- G. All indications of usable water shall be reported to the authorized officer prior to running the next string of casing or before plugging orders are requested, whichever occurs first.
- H. Centralizers will be run on the bottom three joints of the surface casing with a minimum of 1 centralizer per joint starting with the shoe joint.
- I. Top plugs shall be used to reduce contamination of cement by displacement fluid. A bottom plug or other acceptable technique, such as a suitable pre-flush fluid, inner string cement method, etc. shall be utilized to help isolate the cement from contamination by the mud fluid being displaced ahead of the cement slurry.
- J. All Casing strings below the conductor shall be pressure tested to 0.22 psi per foot of casing string length or 1500 psi, whichever is greater, but not to exceed 70 percent of the minimum internal yield. If pressure declines more than 10 percent in 30 minutes, corrective action shall be taken.
- K. On all exploratory wells, and on that portion of any well approved for a 5M BOP system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.
- L. Casing design subject to revision based on geologic conditions encountered.

M. **Proposed Cementing Program:**

Surface	0 - 300	Tail	165 sx	Class 'B' + 2% CaCl ₂	Yield	1.39 ft ³ /sx
Excess	125%				Density	14.6 ppg
Intermediate	0 - 4115	Lead 1	211 sx	Premium Lite FM+8% Gel + 3% CaCl ₂ + LCM	Yield	2.14 ft ³ /sx
Excess	75%	Tail 1	100 sx	Type III + 2% CaCl ₂ + 0.2% FL-52 + LCM	Density	12.1 ppg
		Tail 2	450 sx	Premium Lite FM+8% Gel + 3% CaCl ₂ + LCM	Yield	1.4 ft ³ /sx
					Density	14.6 ppg
					Yield	2.14 ft ³ /sx
					Density	12.1 ppg
Production	3615 - 8409	Lead	80 sx	Premium Lite HS+2% CaCl ₂ +0.75% FL52 +LCM	Yield	2.38 ft ³ /sx
Excess	50%	Tail	323 sx	Premium Lite HS+2% CaCl ₂ +0.75% FL52 +LCM	Density	11.9 ppg
					Yield	2.02 ft ³ /sx
					Density	12.5 ppg

*Actual volumes to be calculated from caliper log.

*Depending on hole conditions Foam Cement may be run for production casing. If Foam cement is run the cement will be circulated to surface.

1. Anticipated cement tops will be reported as to depth; not the expected number of sacks of cement to be used. The District Office should be notified, with sufficient lead time, in order to have a BLM representative on location while running all casing strings and cementing.

2. After cementing but before commencing any test, the casing string shall stand cemented until the cement has reached a compressive strength of at least 500 psi at the shoe. WOC time shall be recorded in the driller's log.
- N. The following report shall be filed with the District Manager within 30 days after the work is completed.
1. Progress reports, Form 3160-5 (formerly 9-331) "Sundry Notices and Reports on Wells," must include complete information concerning:
 2. Setting of each string of casing showing the size, grade, weight of casing set, hole size, setting depth, amount and type of cement used, whether cement circulated or the top of the cement behind the casing, depth of cementing tools used, casing test method and results, and the date work was done. Show the spud date on the first reports submitted.
 3. Temperature or bond logs must be submitted for each well where the casing cement was not circulated to the surface.

5. **Mud Program:**

Section	Interval	Mud Type	MW	PP
Surface	0 - 300	Fresh water gel and native clays	9.00	8.40
Intermediate	300 - 4115	Fresh water with polymer for reology. Mud up to LSND system prior to Fruitland	8.5-9.0	8.40
Production	4115 - 8409	Air or Air/Mist. Mudding up to Fresh Water / Polymer system if hole conditions dictate.	<8.7	<8.5

- A. Sufficient quantities of mud materials will be maintained or readily accessible for the purpose of assuring well control during the course of drilling operations.
- B. A mud test shall be performed every 24 hours after mudding up to determine, as applicable: density, viscosity, gel strength, static filtration loss, and Ph.
- C. Mud monitoring equipment to be used is as follows:
 1. Periodic checks of the mud system will be made each tour. The mud level will be checked visually.
 2. No chromate additives will be used in the mud system on Federal and/or Indian lands without prior BLM approval to ensure adequate protection of fresh water aquifers.
 3. No chemicals subject to reporting under SARA Title III in an amount equal to or greater than 10,000 pounds will be used, produced, stored, transported, or disposed of annually in association with the drilling of this well. Furthermore, no extremely hazardous substances, as defined in 40 CFR 355, in threshold planning quantities, will be used, produced, stored, transported, or disposed of in association with the drilling of this well.
 4. The use of materials under BLM jurisdiction will conform to 43 CFR 3610.2-3.

6. **Evaluation Program:**

The anticipated type and amount of testing, logging and coring are as follows:

- A. No drill stem tests are anticipated, however, if they are run the following will be adhered to... Initial opening of drill stem test tools shall be restricted to daylight hours unless specific approval to start during other hours is obtained from the authorized officer. However, DST's may be allowed to continue at night if the test was initiated during daylight hours and the rate of flow is stabilized and if adequate lighting is available (i.e. lighting which is adequate for visibility and vapor-proof for safe operations). Packers can be released, but tripping shall not begin before daylight, unless prior approval is obtained from the authorized officer. Closed chamber DST's may be accomplished day or night.

1. A DST that flows to the surface with evidence of hydrocarbons shall be either reversed out of the testing string under controlled surface conditions. This would involve providing some means for reverse circulation.
 2. Separation equipment required for the anticipated recovery shall be properly installed before a test starts.
 3. All engines within 100 feet of the wellbore that are required to "run" during the test shall have spark arresters or water cooled exhausts.
- B. The logging program will consist of a DIL-CNL-GR-Cal from T.D. to base of surface casing with a GR to the surface.
- C. Cores may be run from 3,700 to T.D.
- D. Whether the well is completed as a dry hole or as a producer, "Well Completion and Recompletion Report Log" (Form 3160-4) will be submitted not later than 30 days after completion of the well or after completion of operations being performed, in accordance with 43 CFR 3164. Two copies of all logs, core descriptions, core analyses, well-test data, geologic summaries, sample description, and all other surveys or data obtained and compiled during the drilling, workover, and/or completion operations, will be filed with form 3160-4. Samples (cuttings, fluids, and/or gases) will be submitted when requested by the authorized officer (A.O.).

7. Abnormal Temperatures or Pressures / H₂S:

- A. No abnormal temperatures or pressures are anticipated. No H₂S has been encountered in or known to exist from previous wells drilled to similar depths in the general area.
- B. The maximum anticipated bottom hole pressure will be approximately 3500 psi at T.D.

MAXIMUM ANTICIPATED SURFACE PRESSURE

Surface	9 5/8	32.30	H40	2,270	300	3,500	8.50	14.20	9.20	203	1
Intermediate	7	20.00	J55	3,740	4,115	4,115	8.50	12.00	9.00	619	2
Production	4 1/2	11.60	N80	7,780	8,409	8,409	8.50	12.00	9.00	2,750	3

0.115 psi/ft Assumed Gas Gradient

Calculation Methods

- 1 $[(FG + 1) * .052 * TVD] - (\text{gas to surf})$
Assumes kick below shoe with form break down at FG + 1, GTS
- 2 $(PP * .052 * TVD) - (0.5 * \text{Mud Grad} * TVD) - (0.5 * \text{Gas Grad} * TVD)$
Assumes kick below casing, 50/50 mud gas
- 3 $(PP * 0.052 * TVD) - (\text{Gas Grad} * TVD)$
Worse case scenario, all gas

8. Other Considerations

- A. None