Form 3160-3
(April 2004)

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No. **Jicarilla Apache Gas Com 35A**

6. If Indian, Allotee or Tribe Name **Jicarilla Apache Tribe**

7. If Unit or CA Agreement, Name and No.

1a. Type of work: ☑ DRILL ☐ REENTER

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

8. Lease Name and Well No. **Jic Gas Com 35A # 1F**

2. Name of Operator **CDX RIO, LLC**

9. API Well No. 30-039-29221

3a. Address **4801 N. Butler, Suite 2000 Farmington, NM 87401**

3b. Phone No. *(include area code)* **505-326-3003**

10. Field and Pool, or Exploratory **Wildcat MV/West Lindrith GP DK**

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface **1815' FSL and 1770'FWL**
At proposed prod. zone **Same**

11. Sec., T. R. M. or Blk. and Survey or Area **K Sec 11, T24N- R 5W**

14. Distance in miles and direction from nearest town or post office* **12 Miles West and 11 Miles North of Counselor, New Mexico**

12. County or Parish **Rio Arriba**

13. State **NM**

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) **1800'**	16. No. of acres in lease **640.0**	17. Spacing Unit dedicated to this well **160** **Wildcat MV SW4 - West Lindrith GP DK SW/4**
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. **1275'**	19. Proposed Depth **7284'**	20. BLM/BIA Bond No. on file **RLB0005805**
21. Elevations (Show whether DF, KDB, RT, GL, etc.) **6622' 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.
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 Charles Hanson — 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 SEP 2 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

[1] API Number	[2] Pool Code	[3] Pool Name
30-039-29221	97386 / 72319	WC 24N 5W 11; Mesaverde / ~~Wildcat MV~~ - West Lindrith GP DK

[4] Property Code	[5] Property Name	[6] Well Number
~~24056~~ 34288	JIC GAS COM 35 A	1F

[7] OGRID No.	[8] Operator Name	[9] Elevation
222374	CDX RIO, LLC	6622

[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
K	11	24-N	5-W		1815	SOUTH	1770	WEST	RIO ARRIBA

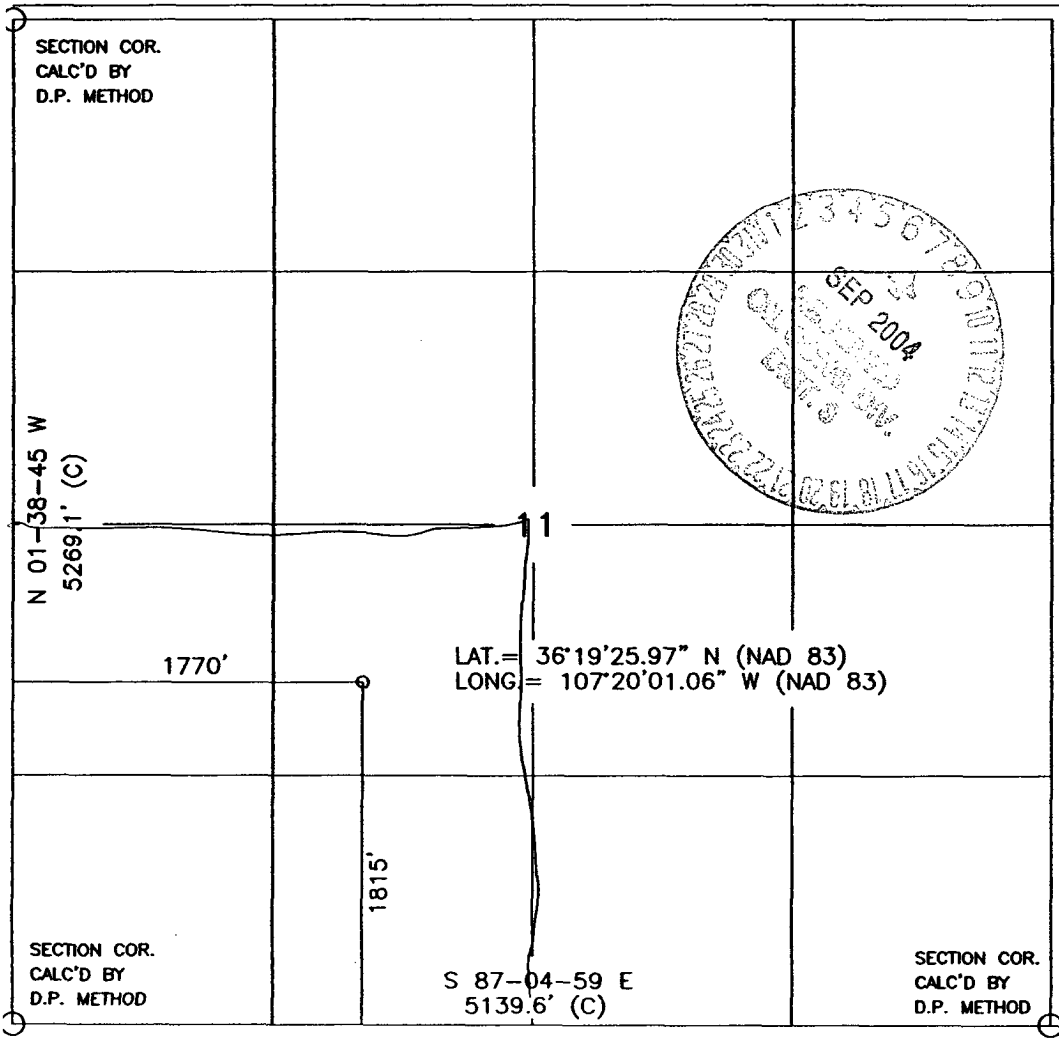
[11] Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
~~640.0~~ 160			

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

Charles Hanson
Printed Name

Agent HL Permitting
Title

6/15/04
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.

JOHN E. VORONICH
NEW MEXICO
14831
REGISTERED PROFESSIONAL SURVEYOR

MAY 28, 2004
Date of Survey

Signature and Seal of Professional Surveyor:

14831
Certificate Number

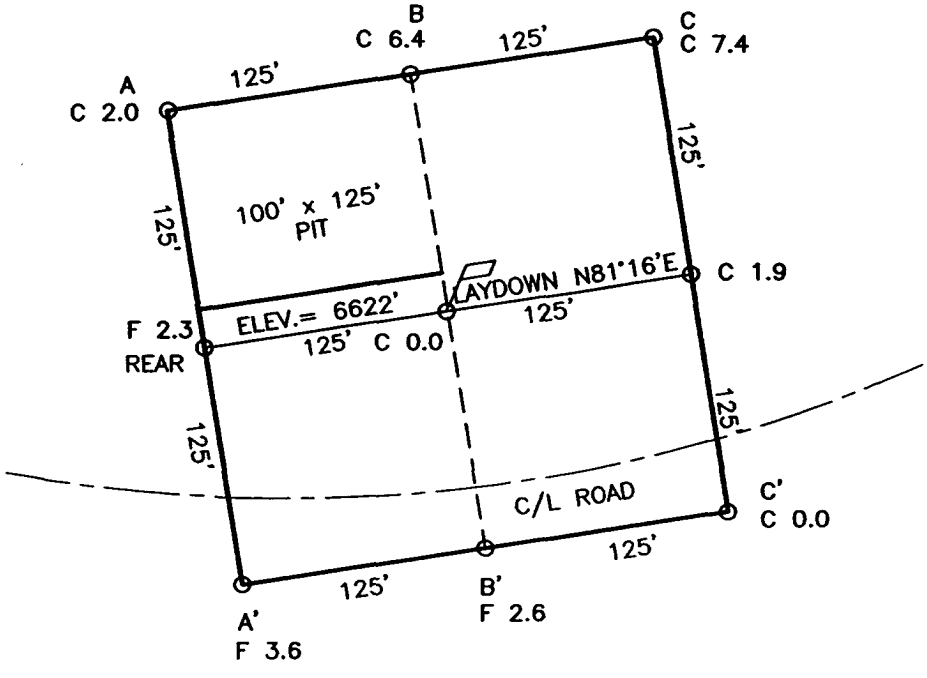
COMPANY: CDX RIO, LLC

LEASE: JIC GAS COM 35 A No. 1F

FOOTAGE: 1815' FSL 1770' FWL

SEC.: 11, TWN: 24-N, RNG: 5-W, NMPM

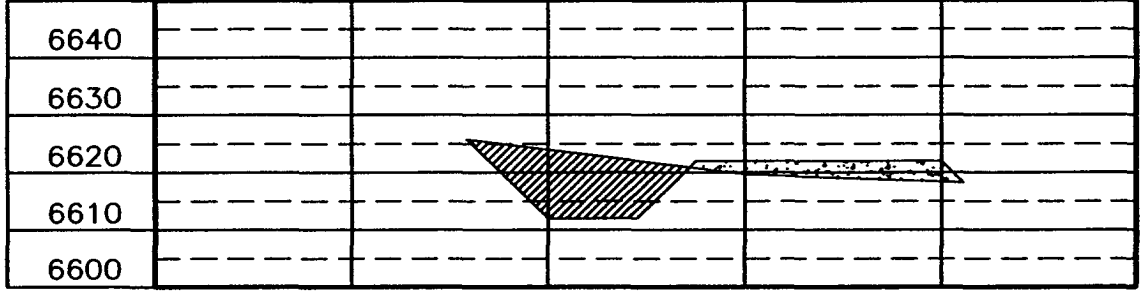
ELEVATION: 6622'



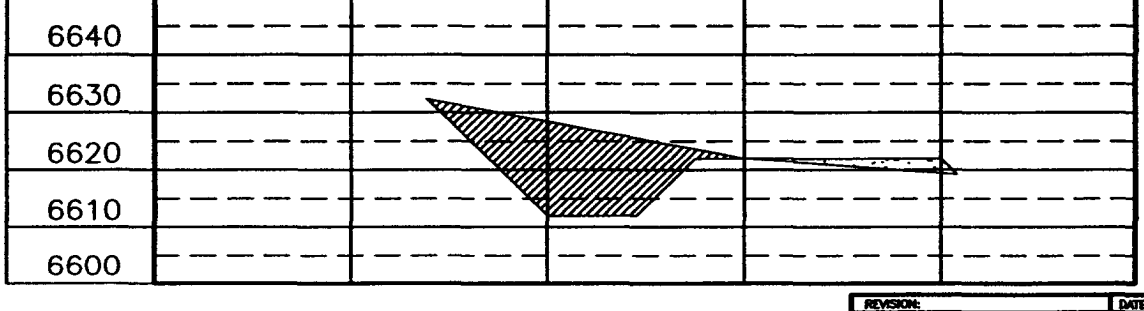
SCALE IN FEET

0 50 100

ELEV. A–A'



ELEV. B–B'



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:
RELOCATION	05/26/04	A.G.
FINAL STAKING	05/15/04	A.G.

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

DRAWN BY: A.G.	CADFILE: CDXGAS057CF8
ROW#: CDXGAS057	DATE: 04/16/04

CDX GAS

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

Jic Gas Com 35A - 1F
1815 FSL & 1770 FWL, Sec 11, T24N - R5W

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**

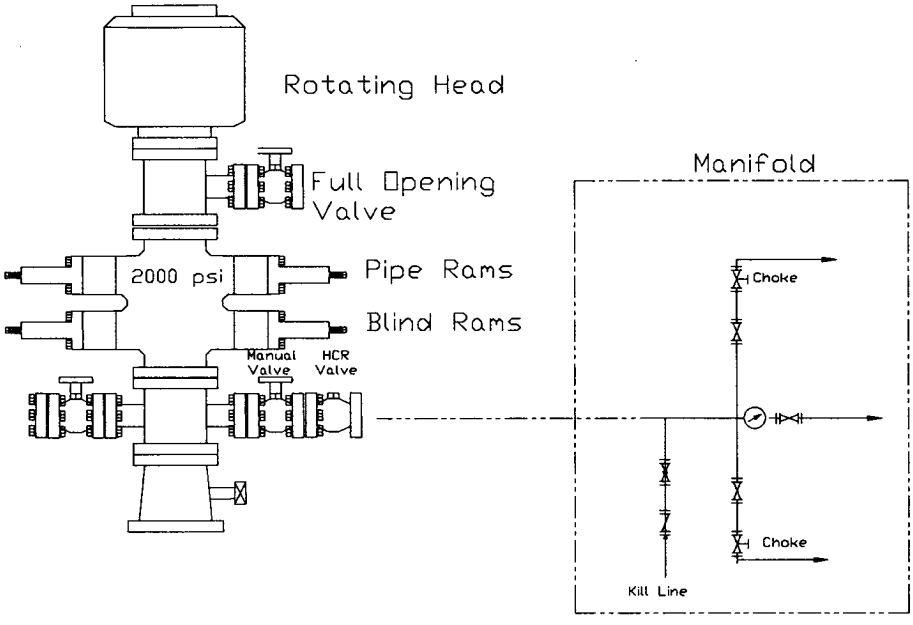
Estimated KB Elev: 6634
Ground Elev: 6622

Formation	Depth SS	Depth KB	Rock Type	Comments
Quaternary Alluvium	Surface	0.0	Gravel	Water
San Jose	Surface	0.0	SS / SH	
Ojo Alamo	4,657.0	1,977.0	SS / SH	
Kirtland	4,463.0	2,171.0	SH	
Fruitland	4,268.0	2,366.0	Coal / SH / SS	Possible Lost Circulation
Pictured Cliffs	4,103.0	2,531.0	SS	Water / Gas
Lewis Shale	4,009.0	2,625.0	SH	Set Casing 200' below top
Huerfanito	3,765.0	2,869.0	SH	
Chacra	3,297.0	3,337.0	Siltstone	Water / Gas
Mesaverde	2,581.0	4,053.0	Coal / SH / SS	
Cliff House	2,581.0	4,053.0	SS	Water / Gas
Menefee	2,507.0	4,127.0	Coal / SH / SS	
Point Lookout	1,968.0	4,666.0	SS	Possible Lost Circulation
Mancos Shale	1,821.0	4,813.0	SH	
Gallup	872.0	5,762.0	SS / SH	GAS
Tocito				
Juan Lopez				
Greenhorn	-44.0	6,678.0	LMST	
Graneros Shale	-118.0	6,752.0	SH	
Dakota Formation	-150.0	6,784.0	SS / SH / Coal	GAS
Morrison	-450.0	7,084.0	SH / SS	
TD	-550.0	7,184.0		TD 100' into Morrison

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

3.

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									
TVD	MD	Length	Size	Weight	Grade	Threads	ID	Drift	Conn OD
300.0 ft	300.0 ft	300.0 ft	9.625 in	32.30 #/ft	H40	STC	9.0 in	8.8 in	10.6 in

BURST			COLLAPSE			TENSILE			Optimum
Rated	Load	S.F.	Rated	Load	S.F.	Rated	Load	S.F.	Torque
2270 psi	168 psi	13.5	1370 psi	109 psi	12.6	254000 lbs	109690 lbs	2.3	2540 ft*lbs

Intermediate

Setting Depth									
TVD	MD	Length	Size	Weight	Grade	Threads	ID	Drift	Conn OD
2,825.0 ft	2,825.0 ft	2,825.0 ft	7.000 in	20.0 #/ft	J55	STC	6.5 in	6.3 in	7.656 in

BURST			COLLAPSE			TENSILE			Optimum
Rated	Load	S.F.	Rated	Load	S.F.	Rated	Load	S.F.	Torque
3,740 psi	924 psi	4.05	2,270 psi	997 psi	2.3	316,000 lbs	156,500 lbs	2.0	5,190 ft*lbs

Production Casing Design

Setting Depth									
TVD	MD	Length	Size	Weight	Grade	Threads	ID	Drift	Conn OD
7,184.0 ft	7,184.0 ft	7,184.0 ft	4.500 in	11.60 #/ft	N80	LTC	4.0 in	3.9 in	5.000 in

BURST			COLLAPSE			TENSILE			Optimum
Rated	Load	S.F.	Rated	Load	S.F.	Rated	Load	S.F.	Torque
7,780 psi	2,349 psi	3.31	6,350 psi	2,536 psi	2.5	223,000 lbs	183,334 lbs	1.2	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% CaCl2	Yield	1.39 ft3/sx
Excess	125%				Density	14.6 ppg
Intermediate	0 - 2825	Lead 1	211 sx	Premium Lite FM +8% Gel + 3% CaCl2 + LCM	Yield	2.14 ft3/sx
Excess	75%				Density	12.1 ppg
		Tail 1	100 sx	Type III + 2% CaCl2 + 0.2% FL-52 + LCM	Yield	1.4 ft3/sx
					Density	14.6 ppg
		Tail 2	450 sx	Premium Lite FM +8% Gel + 3% CaCl2 + LCM	Yield	2.14 ft3/sx
					Density	12.1 ppg
Production	2325 - 7184	Lead	80 sx	Premium Lite HS+2% CaCl2 +0.75% FL52 +LCM	Yield	2.38 ft3/sx
Excess	75%				Density	11.9 ppg
		Tail	323 sx	Premium Lite HS+2% CaCl2 +0.75% FL52 +LCM	Yield	2.02 ft3/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.

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. **<u>Abnormal Temperatures or Pressures / H2S:</u>**

A. No abnormal temperatures or pressures are anticipated. No H_2S 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

Casing String	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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	2,825	2,825	8.50	12.00	9.00	**425**	2
Production	4 1/2	11.60	N80	7,780	7,184	7,184	8.50	12.00	9.00	**2,349**	3

0.115 psi/ft Assumed Gas Gradient

Calculation Methods

1 [(FG + 1) * .052 * TVD] - (gas to surf)
Assumes kick below shoe with form break down at FG + 1, GTS

2 (PP * .052 * TVD)-(0.5 * Mud Grad * TVD)-(0.5 * Gas Grad * TVD)
Assumes kick below casing, 50/50 mud gas

3 (PP * 0.052 * TVD) - (Gas Grad * TVD)
Worse case scenario, all gas

8. **<u>Other Considerations</u>**

A. None