

**NAVAJO NATION**

**APD**

**Tribal Operations on  
Tribal Lands**

**PERMIT**

**ACCEPTED FOR  
RECORD ONLY**

State of New Mexico  
Energy, Minerals and Natural Resources Department

Susana Martinez  
Governor

David Martin  
Cabinet Secretary-Designate

Brett F. Woods, Ph.D.  
Deputy Cabinet Secretary

Jami Bailey, Division Director  
Oil Conservation Division



New Mexico Oil Conservation Division approval and conditions listed below are made in accordance with OCD Rule 19.15.7.11 and are in addition to the actions approved by BLM on the following 3160-3 APD form.

Operator Signature Date: 1/18/11

Well information;

Operator NNOGC, Well Name and Number CBM 30-27-14-#8

API# 30-045-35344, Section 30, Township 27 NS, Range 14 EW

Conditions of Approval:

(See the below checked and handwritten conditions)

- Notify Aztec OCD 24hrs prior to casing & cement.
- Hold C-104 for directional survey & "As Drilled" Plat
- Hold C-104 for NSL, NSP, DHC
- Spacing rule violation. Operator must follow up with change of status notification on other well to be shut in or abandoned
- Regarding the use of a pit, closed loop system or below grade tank, the operator must comply with the following as applicable:
  - A pit requires a complete C-144 be submitted and approved prior to the construction or use of the pit, pursuant to 19.15.17.8.A
  - A closed loop system requires notification prior to use, pursuant to 19.15.17.9.A
  - A below grade tank requires a registration be filed prior to the construction or use of the below grade tank, pursuant to 19.15.17.8.C
- Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string
- Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils

WC Gallup Changed to Basin Mancos  
320 acre Spacing  
Chark Herr  
NMOCD Approved by Signature  
Date 4-24-2014

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

RECEIVED

DEC 05 2012

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.  
NO-G-1008-1773

6. If Indian, Allottee or Tribe Name  
NAVAJO NATION

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

1a. Type of work:  DRILL  REENTER  
Farmington Field Office  
Bureau of Land Management

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

8. Lease Name and Well No.  
CBM 30-27-14 #8

2. Name of Operator NAVAJO NATION OIL & GAS COMPANY

9. API Well No.  
30-045-35344

3a. Address 1675 BROADWAY, SUITE 1100  
DENVER, CO 80202

3b. Phone No. (include area code)  
303 534 8300

10. Field and Pool, or Exploratory  
BASIN FRUIT. COAL, ~~WEG~~ GALL, & DK

4. Location of Well (Report location clearly and in accordance with any State requirements.)\*  
At surface 1934' FNL & 839' FEL  
At proposed prod. zone SAME

11. Sec., T. R. M. or Blk. and Survey or Area  
SENE 30-27N-14W NMPM

14. Distance in miles and direction from nearest town or post office\*  
15 AIR MILES SW OF FARMINGTON, NM

12. County or Parish  
SAN JUAN

13. State  
NM

15. Distance from proposed\* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)  
25,269'

16. No. of acres in lease  
150,000

17. Spacing Unit dedicated to this well  
E2 (Fruit. Coal & Dakota) and SENE (Gallup)

18. Distance from proposed location\* to nearest well, drilling, completed, applied for, on this lease, ft.  
3,050'

19. Proposed Depth  
6,000'

20. BLM/BIA Bond No. on file  
RLB0006712

21. Elevations (Show whether DF, KDB, RT, GL, etc.)  
5,919' UNGRADED

22. Approximate date work will start\*  
04/01/2011

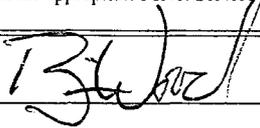
23. Estimated duration  
1 MONTH RCVD FEB 28 '14

24. Attachments

OIL CONS. DIV.  
DIST. 3

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

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

25. Signature  Name (Printed/Typed) BRIAN WOOD (505 466-8120) Date 01/18/2011

Title CONSULTANT (FAX 505 466-9682)

Approved by (Signature) Name (Printed/Typed) Date

Title 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.

(Continued on page 2)

\*(Instructions on page 2)

ACCEPTED FOR RECORD

FEB 26 2014

FARMINGTON FIELD OFFICE  
BY: tl salyess

NMOCD 14

State of New Mexico  
 Energy, Minerals & Mining Resources Department  
 OIL CONSERVATION DIVISION  
 2040 South Pacheco  
 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

APA Number 30-045-35344		Pool Code 71629	Pool Name BASIN FRUITLAND COAL (GAS)	
Property Code 40508	Property Name CBM 30-27-14		Well Number 8	
OGRID No. 292875	Operator Name NAVAJO NATION OIL & GAS CO., INC		Elevation 5919'	

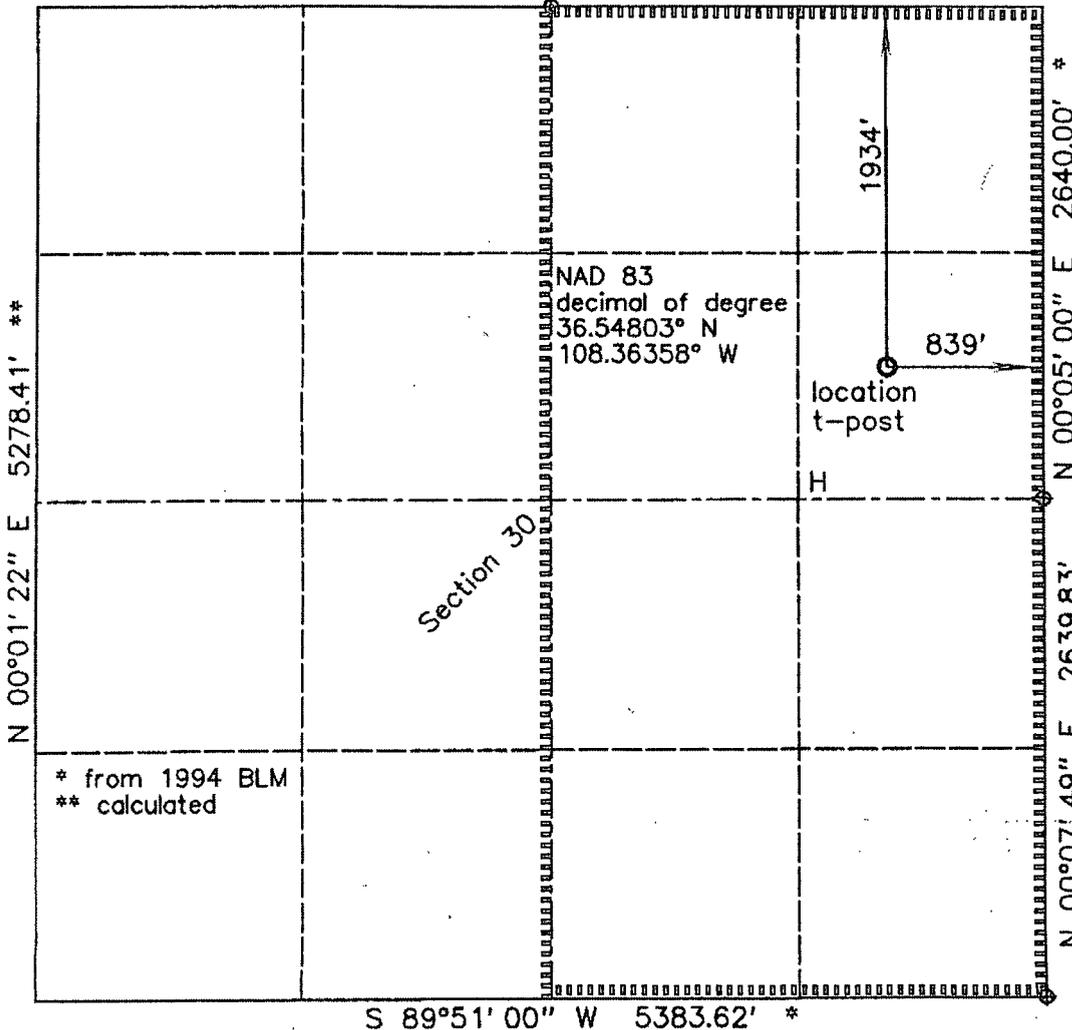
Surface Location									
UL or Lot	Sec.	Twp.	Rge.	Lot Idn.	Feet from	North/South	Feet from	East/West	County
H	30	27 N.	14 W.	400	1934'	NORTH	839'	East	SAN JUAN

Bottom Hole Location If Different From Surface									
UL or Lot	Sec.	Twp.	Rge.	Lot Idn.	Feet from	North/South	Feet from	East/West	County

Dedication 320	Joint ?	Consolidation	Order No.
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NO ALLOWABLE WILL ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

S 89°51' 00" W 2750.88' \* S 89°51' 48" W 2640.49' \*\*



\* from 1994 BLM  
 \*\* calculated

<b>OPERATOR CERTIFICATION</b>	
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 bottom hole location or has the right to drill this well at this location pursuant to a contract with an owner of a mineral interest or working interest, or to a voluntary pool agreement or a compulsory pooling order heretofore entered by the division.	
Date	1-18-11
Signature	<i>Brian Wood</i>
Printed Name	BRIAN WOOD
<b>SURVEYOR CERTIFICATION</b>	
I hereby certify that the well location 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 :	09/27/' 10
Signature and seal of Professional Surveyor	
Certificate Number 6844	

State of New Mexico  
 Energy, Minerals & Mining Resources Department  
 OIL CONSERVATION DIVISION  
 2040 South Pacheco  
 Santa Fe, NM 87505

Form C - 102  
 Revised October 12, 2005  
 Submit to appropriate District Office  
 State Lease - 4 Copies  
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AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

APA Number 30-045-35344		Pool Code 97232	Pool Name Basin Mancos
Property Code 40508	Property Name CBM 30-27-14		Well Number 8
OGRID No. 292875	Operator Name NAVAJO NATION OIL & GAS CO., INC		Elevation 5919'

Surface Location

UL or Lot	Sec.	Twp.	Rge.	Lot Idn.	Feet from	North/South	Feet from	East/West	County
H	30	27 N.	14 W.	400	1934'	NORTH	839'	East	SAN JUAN

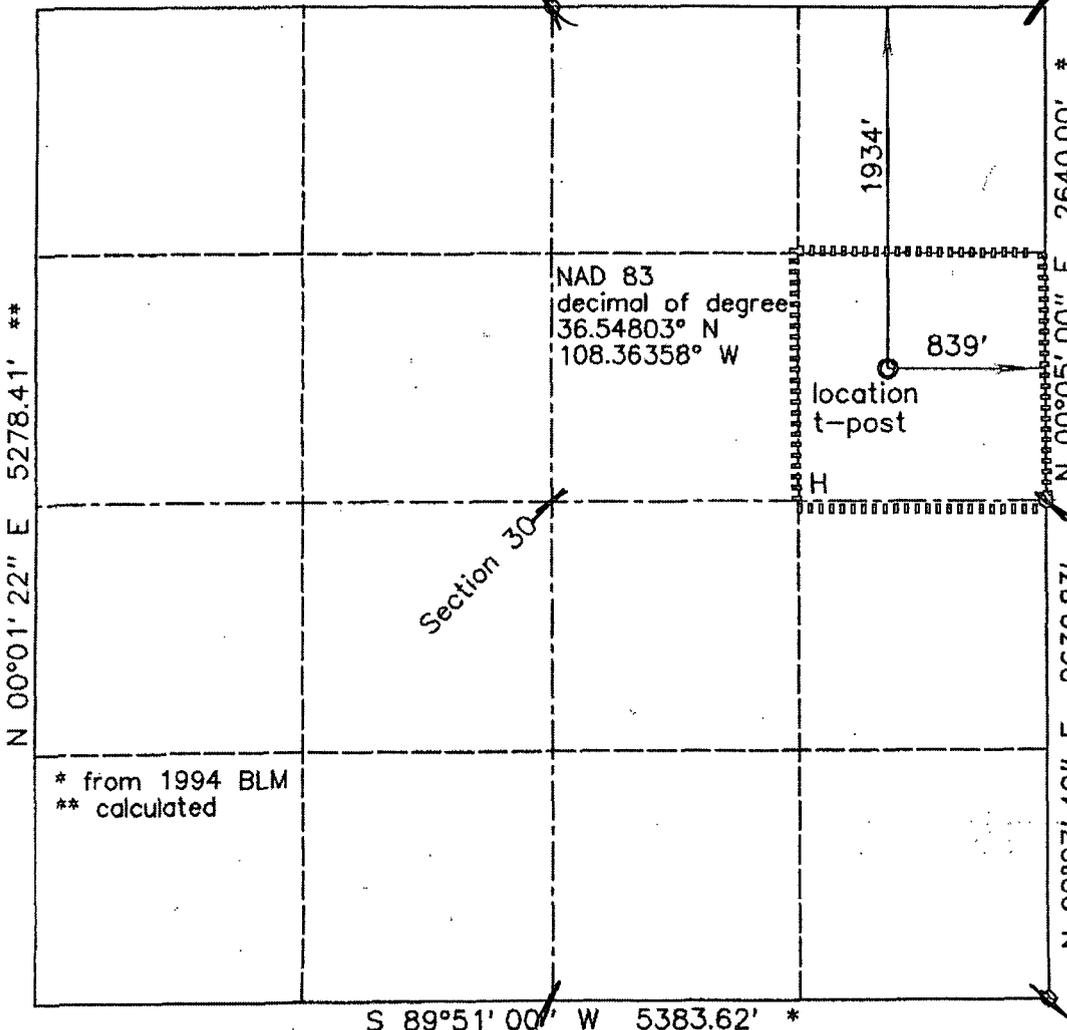
Bottom Hole Location If Different From Surface

UL or Lot	Sec.	Twp.	Rge.	Lot Idn.	Feet from	North/South	Feet from	East/West	County

Dedication 320	Joint ?	Consolidation	Order No.
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Date	1-18-11
Signature	<i>Brian Wood</i>
Printed Name	BRIAN WOOD
<b>SURVEYOR CERTIFICATION</b>	
I hereby certify that the well location 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	09/27/' 10
Signature and seal of Professional Surveyor	<i>Gerald G. Huddleston</i>
Certificate Number 6844	

\* from 1994 BLM  
 \*\* calculated

State of New Mexico  
 Energy, Minerals & Mining Resources Department  
 OIL CONSERVATION DIVISION  
 2040 South Pacheco  
 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

APA Number 30-045-35344	Pool Code 71599	Pool Name BASIN DAKOTA
Property Code 40508	Property Name CBM 30-27-14	Well Number 8
OGRID No. 292875	Operator Name NAVAJO NATION OIL & GAS CO., INC	Elevation 5919'

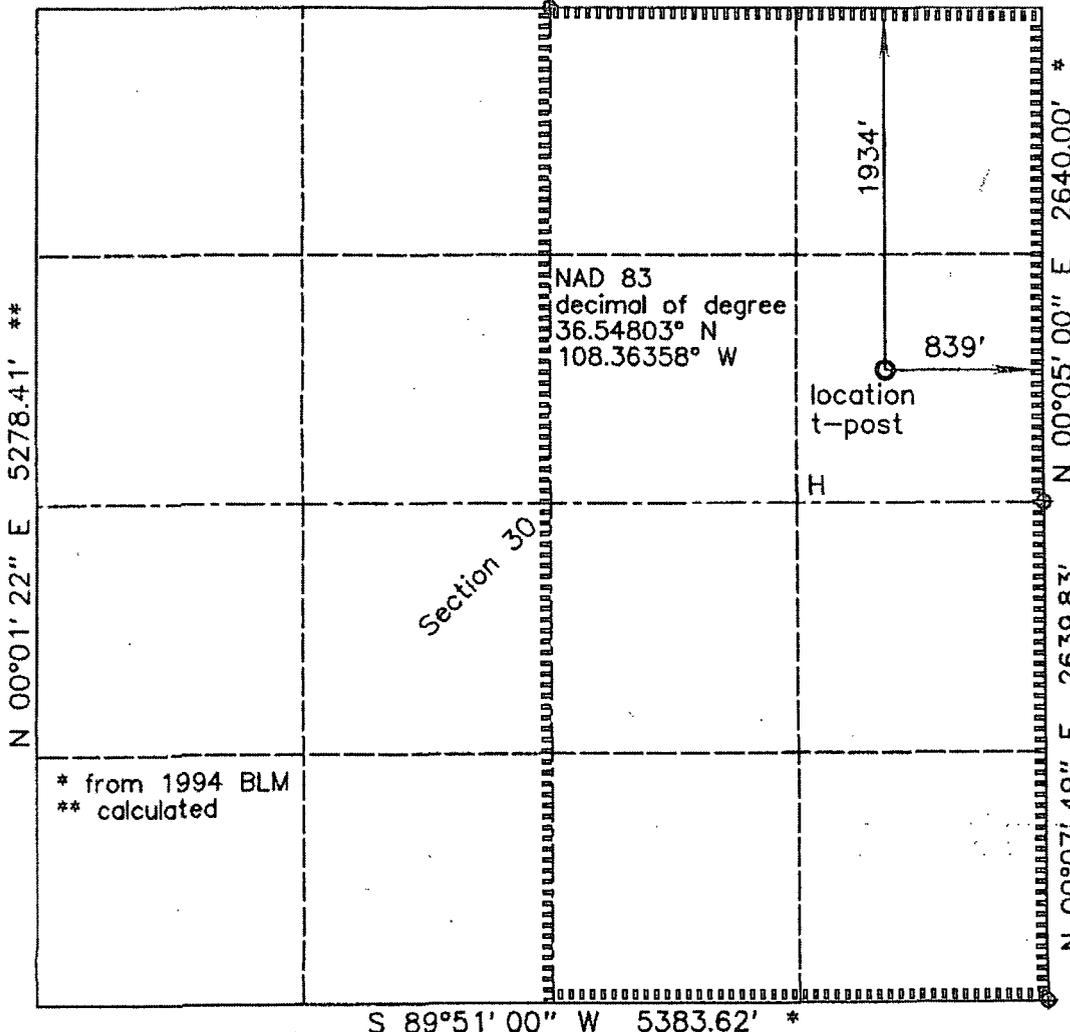
Surface Location									
UL or Lot	Sec.	Twp.	Rge.	Lot Idn.	Feet from	North/South	Feet from	East/West	County
H	30	27 N.	14 W.	W00	1934'	NORTH	839'	East	SAN JUAN

Bottom Hole Location If Different From Surface									
UL or Lot	Sec.	Twp.	Rge.	Lot Idn.	Feet from	North/South	Feet from	East/West	County

Dedication 320	Joint ?	Consolidation	Order No.
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 OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

S 89°51'00" W 2750.88' \* S 89°51'48" W 2640.49' \*\*



<b>OPERATOR CERTIFICATION</b>	
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 unshared mineral interest in the land including the bottom hole location or has the right to drill this well at this location pursuant to a contract with an owner of a mineral interest or working interest, or to a voluntary pool agreement or a compulsory pooling order heretofore entered by the division.	
Date	1-18-11
Signature	<i>Brian Wood</i>
Printed Name	BRIAN WOOD
<b>SURVEYOR CERTIFICATION</b>	
I hereby certify that the well location 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	09/27/'10
Signature and seal of Professional Surveyor	<i>Gerald G. Huddleston</i>
Certificate Number 6844	

\* from 1994 BLM  
 \*\* calculated

S 89°51'00" W 5383.62' \*

## Drilling Program

### 1. FORMATION TOPS

The estimated tops of important geologic markers are:

<u>Formation</u>	<u>GL Depth</u>	<u>KB Depth</u>	<u>Elevation</u>
Kirtland Shale	0'	12'	+5,919'
Fruitland Formation	619'	631'	+5,300'
Pictured Cliffs Sandstone	1,069'	1,081'	+4,850'
Lewis Shale	1,219'	1,231'	+4,700'
Mesa Verde Sandstone	1,839'	1,851'	+4,080'
Point Lookout Sandstone	3,619'	3,631'	+2,300'
Mancos Shale	3,759'	3,771'	+2,160'
Gallup Sandstone	4,899'	4,911'	+1,020'
Sanostee	5,419'	5,431'	+500'
Dakota Sandstone	5,769'	5,781'	+150'
Morrison Formation	5,919'	5,931'	0'
Total Depth (TD)	6,000'	6,012'	-81'

### 2. NOTABLE ZONES

Fruitland coal gas is the primary goal. Gallup and Dakota are the secondary goals. Oil and gas shows which appear to the well geologist to be commercial will be tested. All fresh water and prospectively valuable minerals will be recorded by depth and protected with casing and cement. Water could be found in the Fruitland, Pictured Cliffs, Point Lookout, Gallup, and Dakota formations.

### 3. PRESSURE CONTROL

Navajo Nation Oil & Gas Company  
CBM 30-27-14 #8  
1934' FNL & 839' FEL  
Sec. 30, T. 27 N., R. 14 W.  
San Juan County, New Mexico

PAGE 3

A double ram type  $\geq 2,000$  psi working pressure BOP with a rotating head system will be used. See the preceding page for details on the typical BOP equipment. All ram type preventers and related equipment will be hydraulically tested to  $\approx 1,500$  psi at nipple-up and after any use under pressure. A typical diagram is attached.

The blind rams will be hydraulically activated and checked for operational readiness each time the pipe is pulled out of the hole. All checks of the BOP stack and equipment will be noted on the daily drilling report. The BOP equipment will include a kelly cock, floor safety valve, and choke manifold. All will be rated to  $\geq 2,000$  psi.

#### 4. CASING & CEMENT

<u>Hole Size</u>	<u>O. D.</u>	<u>Weight</u>	<u>Grade</u>	<u>Age</u>	<u>Coupling</u>	<u>Depth Set</u>
12-1/4"	8-5/8"	24#	J-55	New	ST & C	350'
7-7/8"	4-1/2"	10.5#	J-55	New	LT & C	6,000'

Surface casing will be cemented to the surface with 245 sacks (289 cubic feet) Class B with 3% CaCl<sub>2</sub>. Yield = 1.18 cubic feet per sack. Slurry weight = 15.6 pounds per gallon. Excess = 100%. W. O. C.=12 hours. Pressure test the surface casing to  $\approx 1,500$  psi for  $\approx 30$  minutes. A notched collar and 3 centralizers will be used on the bottom 3 collars.

Production casing will be cemented to the surface. A DV tool will be set at  $\approx 3,000'$ . Hole will first be circulated with  $\geq 150\%$  hole volume of mud and  $\approx 30$  barrels of fresh water. Total cement volume = 2,284 cubic feet ( $\approx 65\%$  excess). A 4-1/2" cement guide shoe and self filling float collar will be used. Place the float one joint above the shoe. Place 10 centralizers spaced every other joint above the shoe, 2 turbolizers on the collar below the DV tool, and 2 turbolizers above the DV tool. Place 5 turbolizers every third joint from the top of the well.

Navajo Nation Oil & Gas Company  
CBM 30-27-14 #8  
1934' FNL & 839' FEL  
Sec. 30, T. 27 N., R. 14 W.  
San Juan County, New Mexico

PAGE 4

First Stage: Lead with 570 sacks (1,003 cubic feet) Class B 65/35 poz with 6% gel + 1% CaCl<sub>2</sub> + 4% phenoseal + 1/4 pound per sack cello flake. Yield = 1.76 cubic feet per sack. Slurry weight = 12.8 pounds per gallon.

First Stage: Tail with 100 sacks (146 cubic feet) Class B 50/50 poz with 0.15% dispersant + 1% CaCl<sub>2</sub> + 1/4 pound per sack cello flake. Yield = 1.46 cubic feet per sack. Slurry weight = 13.0 pounds per gallon.

Second Stage: Precede cement with ≈20 barrels of water. Cement with ≈645 sacks (1,135 cubic feet) Class B 65/35 poz with 6% gel + 1% CaCl<sub>2</sub> + 1/4 pound per sack cello flake. Yield = 1.76 cubic feet per sack. Slurry weight = 12.8 pounds per gallon.

## 5. MUD PROGRAM

The surface hole will be drilled with a fresh water mud. The production hole will be drilled with a fresh water polymer. Weighting materials will be drill solids or, if conditions dictate, barite. Maximum expected mud weight = 9.5 pounds per gallon.

## 6. CORES, LOGS, & TESTS

No cores or drill stem tests are currently planned. FDC/CNL/GR/SP and DIL logs will be run from the base of the surface casing to TD.

## 7. DOWN HOLE CONDITIONS

No abnormal temperatures, abnormal pressures, or hydrogen sulfide are expected. Maximum expected bottom hole pressure will be ≈2,598 psi.

Navajo Nation Oil & Gas Company  
CBM 30-27-14 #8  
1934' FNL & 839' FEL  
Sec. 30, T. 27 N., R. 14 W.  
San Juan County, New Mexico

PAGE 5

8. OTHER INFORMATION

The anticipated spud date is April 1, 2011. It is expected it will take  $\approx$ 10 days to drill and  $\approx$ 2 weeks to complete the well.

Navajo Nation Oil & Gas Company  
CBM 30-27-14 #8  
1934' FNL & 839' FEL  
Sec. 30, T. 27 N., R. 14 W.  
San Juan County, New Mexico

PAGE 6

## Surface Use Plan

### 1. DIRECTIONS (See PAGES 11 - 13)

From the NM 371 San Juan River bridge in southwest Farmington ....  
Go South  $\approx$ 6-1/2 miles on NM 371 to the equivalent of Mile Post 99.8  
Then turn right and go West 2.3 miles on paved N-3003  
Then turn left and go South 4.0 miles on paved N-4055  
Then turn right and go West and Southwest 3.9 miles on paved N-4150  
Then turn right and go West 1.5 miles on paved N-4154  
Then turn left and go South 9/10 mile on paved N-4065  
Then continue South 300 yards on a dirt road  
Then turn right and go West 4/5 mile on a dirt road parallel to a power line  
Then turn right and go North 1/3 mile on a sandy road  
Then turn left and go NW 1,397.22' cross country to the proposed pad

Roads will be maintained to at least equal to their present condition.

### 2. ROAD WORK (See PAGES 12 & 13)

NM One Call (811) and NAPI (505 566-2623 or 505 793-4923) will be called at least 2 working days before construction starts. The 1,397.22' of new road will be built to BLM Gold Book standards. Road will have a  $\approx$ 14' wide running surface and will be rocked as needed. A cattle guard will be installed in the fence which is crossed. Three 18" x 20' culverts will be installed between the cattle guard and pad. Upgrade of the existing road will consist of rocking where needed. No vehicle turn out is needed. Maximum disturbed width = 20'. Maximum cut or fill = 3'. Maximum grade = 8%.

Navajo Nation Oil & Gas Company  
CBM 30-27-14 #8  
1934' FNL & 839' FEL  
Sec. 30, T. 27 N., R. 14 W.  
San Juan County, New Mexico

PAGE 7

3. EXISTING WELLS (See PAGE 12)

There is one plugged well within a mile radius. There are no water, oil, gas, or injection wells within a mile radius.

4. PROPOSED PRODUCTION FACILITIES (See PAGE 14)

Production facilities will include a gas (propane or the well's own gas) powered pump, separator, meter run, and above ground tanks. All of the equipment will be painted a flat Carlsbad brown and installed on the pad.

NNOG will bury a gas pipeline and a water pipeline in one trench from its proposed CBM 29-27-14 #13 to its proposed Raven compressor (see the CBM 29-27-14 #13 APD for details). The trench will cross the northeast corner of this well pad.

5. WATER SUPPLY

Water will be trucked from Farmington.

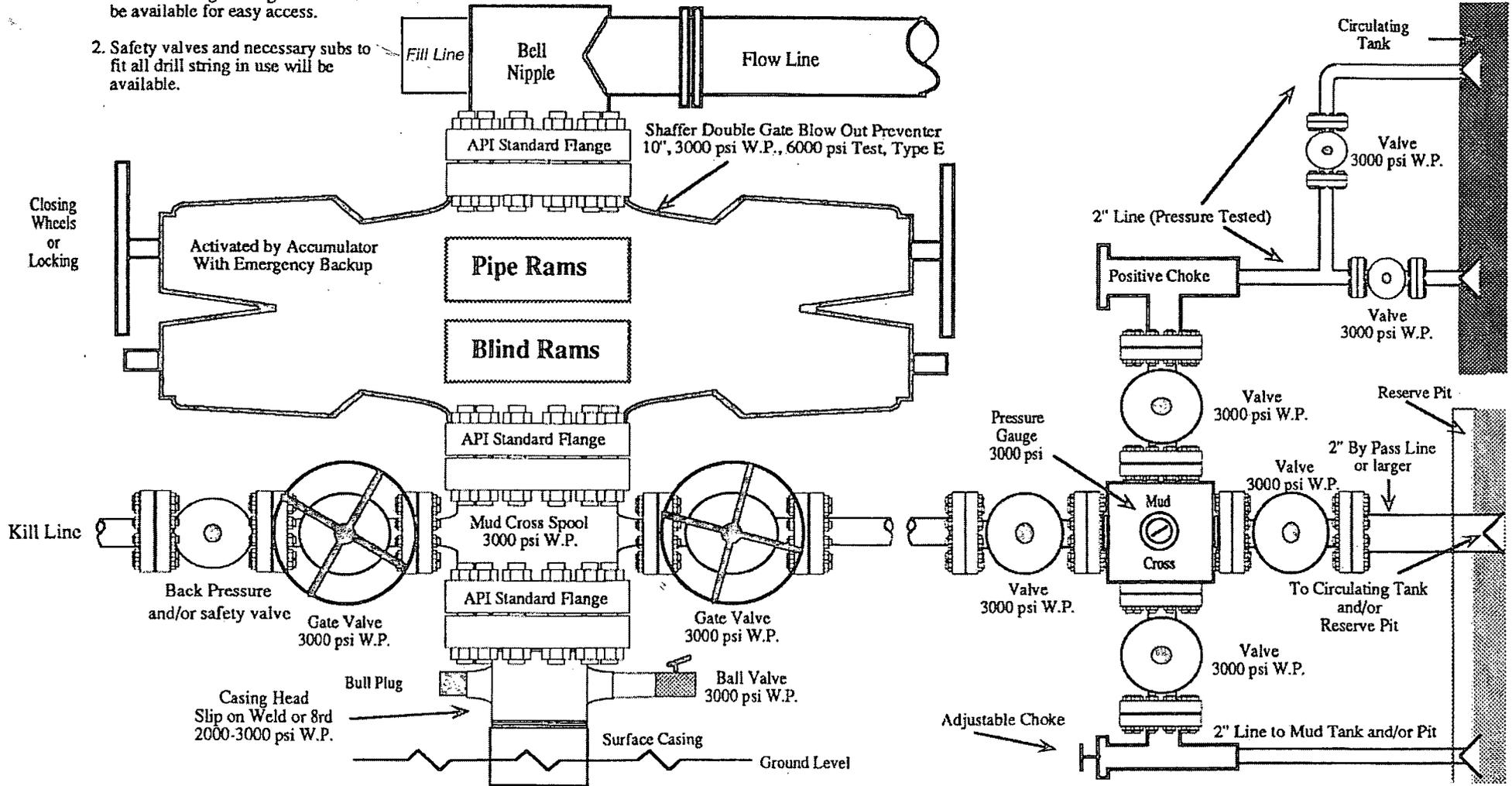
6. CONSTRUCTION METHODS & MATERIALS (See PAGES 15 - 17)

The top 6" of soil and brush will be stripped and stockpiled east of the pad. The pit subsoil will be piled north of the pit. A minimum 12 mil plastic liner will be installed in the reserve pit. The reserve pit will be fenced sheep tight on 3 sides with woven wire fence topped with barbed wire. The fourth side will be fenced once the rig moves off. The fence will be kept in good repair while the pit dries. Once dry, contents of the reserve pit will be buried in place.

Rock will be bought and trucked from Farmington.

# 2,000 PSI BOP SYSTEM

- Note: 1. An upper Kelly cock valve will be utilized during drilling. Handle will be available for easy access.
2. Safety valves and necessary subs to fit all drill string in use will be available.



Note: This equipment is designed to meet requirements for a 2-M rating standard per 43 CFR part 3160 (amended). Proper operation and testing of equipment will be carried out per standard. 2,000 psi equipment can be substituted in the drawing to meet minimum requirements per standard.

**PERMITS WEST, INC.**

PROVIDING PERMITS for LAND USERS

37Verano Loop, Santa Fe, New Mexico 87508

(505) 466-8120