

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

RCVD FEB21'07  
OIL CONS. DIV.

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

DIST. 3

207 JAN 30 PM 2:37

1a. Type of Work DRILL	5. Lease Number SF-079047 Unit Reporting Number	
1b. Type of Well GAS	6. If Indian, All. or Tribe	
2. Operator ConocoPhillips	7. Unit Agreement Name San Juan 32-8 Unit	
3. Address & Phone No. of Operator PO Box 4289, Farmington, NM 87499 (505) 326-9700	8. Farm or Lease Name 9. Well Number #118	
4. Location of Well Unit N (SESW), 1070' FSL & 1721' FWL,  Latitude 36° 54.4380752' N Longitude 107° 38.8439293' W	10. Field, Pool, Wildcat Basin DK/Blanco MV 11. Sec., Twn, Rge, Mer. (NMPM) Sec. 11, T31N, R8W API # 30-045-34152	
14. Distance in Miles from Nearest Town 15 miles/Bloomfield	12. County San Juan	13. State NM
15. Distance from Proposed Location to Nearest Property or Lease Line 1070'	17. Acres Assigned to Well 320 - (W/2)	
16. Acres in Lease		
18. Distance from Proposed Location to Nearest Well, Drig, Compl, or Applied for on this Lease		
19. Proposed Depth 8257'	20. Rotary or Cable Tools Rotary	
21. Elevations (DF, FT, GR, Etc.) 6658' GL	22. Approx. Date Work will Start	
23. Proposed Casing and Cementing Program See Operations Plan attached		
24. Authorized by: Rhonda Rogers (Regulatory Technician)	Date 1-26-07	

PERMIT NO.

APPROVAL DATE

APPROVED BY

TITLE

DATE

Archaeological Report attached

Threatened and Endangered Species Report attached

NOTE: This format is issued in lieu of U.S. BLM Form 3160-3

Title 18 U.S.C. Section 1001, makes 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 presentations as to any matter within its jurisdiction.

This action is subject to technical and procedural review pursuant to 43 CFR 3165.3 and appeal pursuant to 43 CFR 3165.4

NMOCD

2/26/07

NOTIFY AZTEC OCD 24 hrs  
IN TIME TO WITNESS Csg Cement

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

**District I**

1625 N. French Dr., Hobbs, NM 88240

**District II**

1301 W. Grand Avenue, Santa Fe, NM 87510

**District III**

1000 Rio Grande Rd., Santa Fe, NM 87410

**District IV**

1220 S. 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

Fee Lease - 3 Copies  
 State Lease - 7 Copies  
 Submit to Appropriate District Office  
 Revised June 10, 2003  
 Form C-102

207 JUN 30 PM 2:37

RECEIVED

☐ AMENDED REPORT**WELL LOCATION AND ACREAGE DEDICATION FLAT**

<sup>1</sup> API Number 30-045 - <b>34152</b>	<sup>2</sup> Well Code 72319/71599	<sup>3</sup> Well Name Blanco Mesaverde/Blanco Dakota
<sup>4</sup> Property Code 31330	<sup>5</sup> Property Name SAN JUAN 32-8	<sup>6</sup> Well Number <b>18</b>
<sup>7</sup> OGRID No. 217817	<sup>8</sup> Operator Name CONOCO-PHILLIPS COMPANY	<sup>9</sup> Elevation 6868.1'

**10 SURFACE LOCATION**

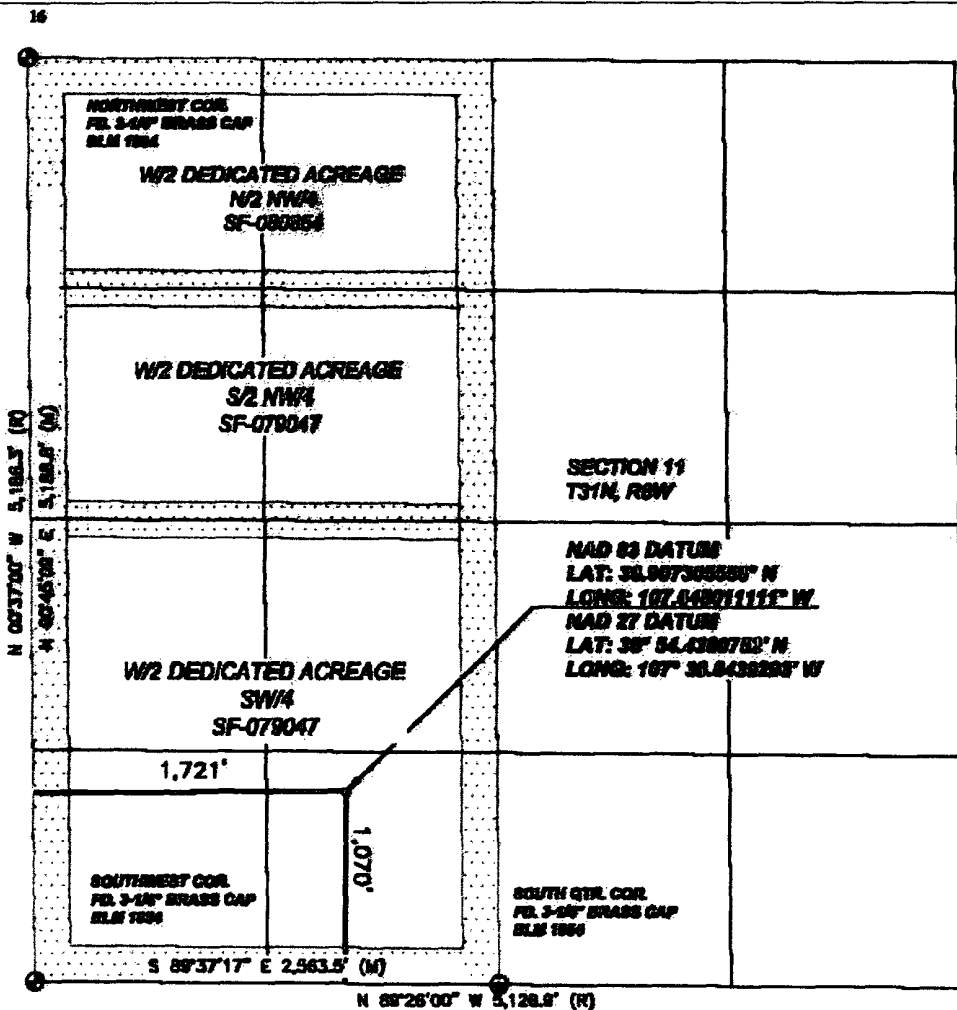
UL or lot no.	Section	Township	Range	Lot 1/4	Feet from the	North/South line	Feet from the	East/West line	County
N	11	31-N	8-W		1,070	SOUTH	1,721	WEST	SAN JUAN

**11 Bottom Hole Location If Different From Surface**

UL or lot no.	Section	Township	Range	Lot 1/4	Feet from the	North/South line	Feet from the	East/West line	County

<sup>12</sup> Dedicated Acres <b>320</b> W/2	<sup>13</sup> Joint or Infill	<sup>14</sup> Consolidation Code	<sup>15</sup> Order No.
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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

**17 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 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 hereinafter entered by the state.

*Junetta Farrell*  
 Signature

*Junetta Farrell*  
 Printed Name

Regulatory Specialist

Title and E-mail Address

12/18/2006

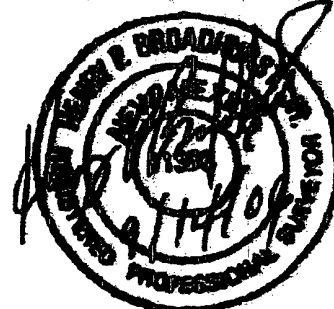
Date:

**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.

Date of Survey: 8-25-06

Signature and Seal of Professional Surveyor:



Certificate Number: NE 11393

## District I

1625 N. French Dr., Hobbs, NM 88240

## District II

1301 W. Grand Ave., Artesia, NM 88210

## District III

1000 Rio Brazos Rd., Aztec, NM 87410

## District IV

1220 S. St. Francis Dr., Santa Fe, NM 87505

Energy, Minerals and Natural Resources

## OIL CONSERVATION DIVISION

1220 South St. Francis Dr.

Santa Fe, NM 87505

WELL API NO.

30-045-34152

5. Indicate Type of Lease

STATE ☐FEE ☐

6. State Oil &amp; Gas Lease No.

SF-079047

7. Lease Name or Unit Agreement Name

San Juan 32-8 Unit

8. Well Number

#9

9. OGRID Number

217817

10. Pool name or Wildcat

Basin DK/Blanco MV

## SUNDRY NOTICES AND REPORTS ON WELLS

(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)

1. Type of Well:

Oil Well ☐Gas Well ☒

Other

2. Name of Operator

ConocoPhillips

3. Address of Operator

3401 E. 30TH STREET, FARMINGTON, NM 87402

4. Well Location

Unit Letter N : 1070' feet from the South line and 1721' feet from the West line  
Section 11 Township 31N Rng 8W NMPM County San Juan11. Elevation (Show whether DR, RKB, RT, GR, etc.)  
6658'

Pit or Below-grade Tank Application

☐ or Closure ☐Pit type New Drill

Depth to Groundwater

&gt;100'

Distance from nearest fresh water well

&gt;1000'

Distance from nearest surface water

200-1000

Pit Liner Thickness:

12

mil

Below-Grade Tank:

Volume 4400

bbls;

Construction Material

Synthetic

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

## NOTICE OF INTENTION TO:

PERFORM REMEDIAL WORK ☐TEMPORARILY ABANDON ☐PULL OR ALTER CASING ☐PLUG AND ABANDON ☐CHANGE PLANS ☐MULTIPLE COMPL ☐

## SUBSEQUENT REPORT OF:

REMEDIAL WORK ☐COMMENCE DRILLING OPNS. ☐CASING/CEMENT JOB ☐ALTERING CASING ☐P AND A ☐

OTHER:

New Drill ☒OTHER: ☐

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

New Drill, Lined:

ConocoPhillips proposes to construct a new drilling pit and an associated vent/flare pit. Based on Burlington's interpretation of the Ecosphere's risk ranking criteria, the new drilling pit will be a lined pit as detailed in Burlington's Revised Drilling / Workover Pit Construction / Operation Procedures dated November 11, 2004 on file at the NMOCD office. A portion of the vent/flare pit will be designed to manage fluids and that portion will be lined as per the risk ranking criteria. Burlington Resources anticipates closing these pits according to the Drilling / Workover Pit Closure Procedure dated August 2, 2004 on file at the NMOCD office.

I hereby certify that the information above is true and complete to the best of my knowledge and belief. I further certify that any pit or below-grade tank has been/will be constructed or closed according to NMOCD guidelines ☐, a general permit ☒, or an (attached) alternative OCD-approved plan ☐.

SIGNATURE

TITLE

Regulatory Technician

DATE

1-26-07

Type or print name

Rhonda Rogers

E-mail address:

rogers@conocophillips.com

Telephone No.

505-599-4018

For State Use Only

DEPUTY OIL &amp; GAS INSPECTOR, DIST. 43

APPROVED BY

TITLE

DATE

FEB 26 2007

Conditions of Approval (if any):

# CONOCOPHILLIPS COMPANY

SAN JUAN 32-8 UNIT #9

1,070' FSL, 1,721' FWL

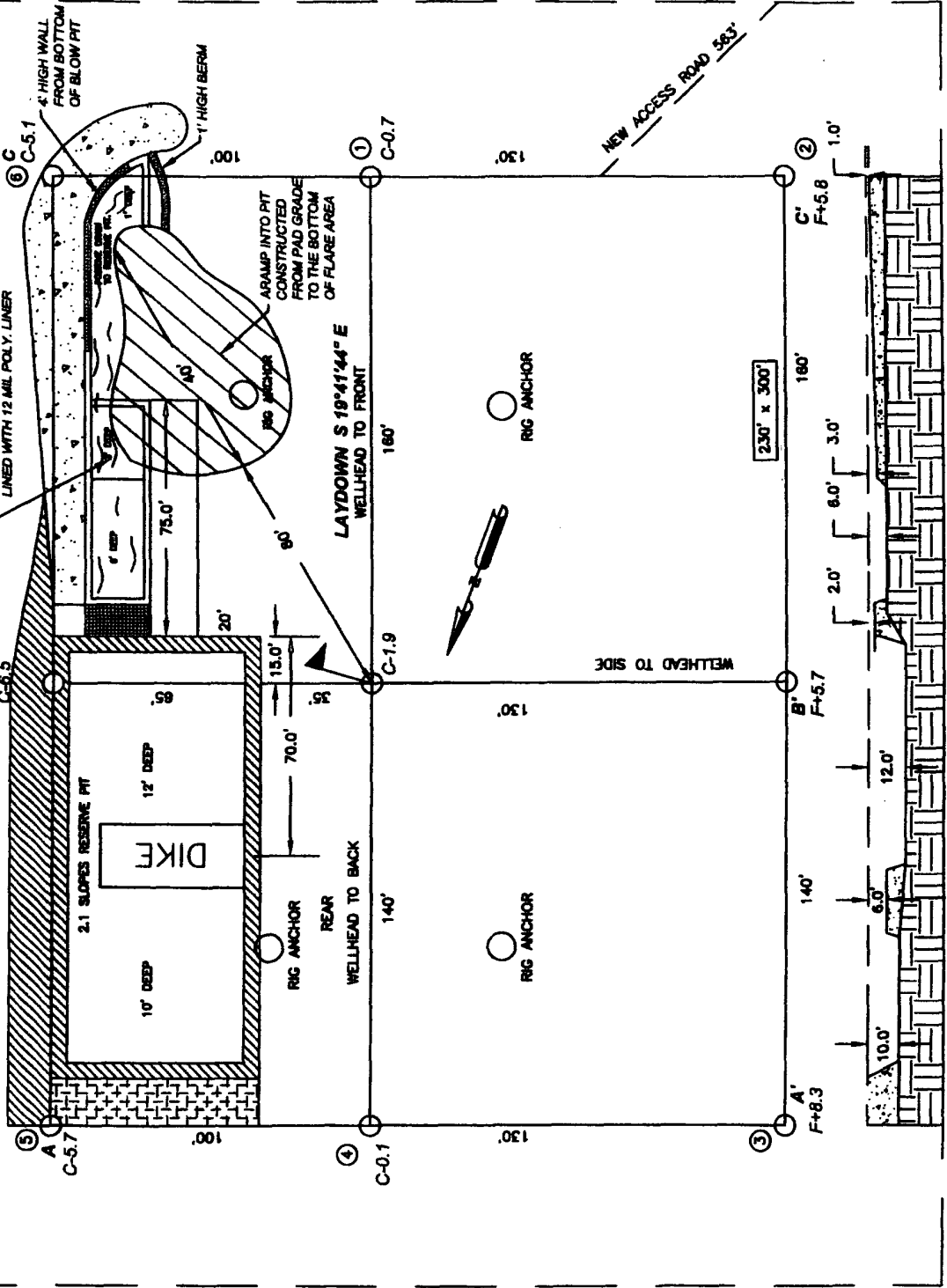
SECTION 11, T31N, R08W, N.M.P.M.,

SAN JUAN COUNTY, NEW MEXICO

GROUND ELEV.: 6658.1' NADV88 DATE: AUGUST 25, 2006

NEW ACCESS ROAD 563'

APPROXIMATE 15X75 PIT AREA  
LINED WITH 12 MIL POLY. LINER



50' EDGE OF DISTURBANCE

CCI

1300 W. BROADWAY  
BLOOMFIELD, NM, 87413  
CHENAU CONSULTING INC. PHONE: (505) 832-7777

## PIT CROSS SECTION

NAD 83 LAT.: 36.907305556°N / LONG.: 107.648011111°W

330' x 400' = 3.03 ACRES

NOTES:

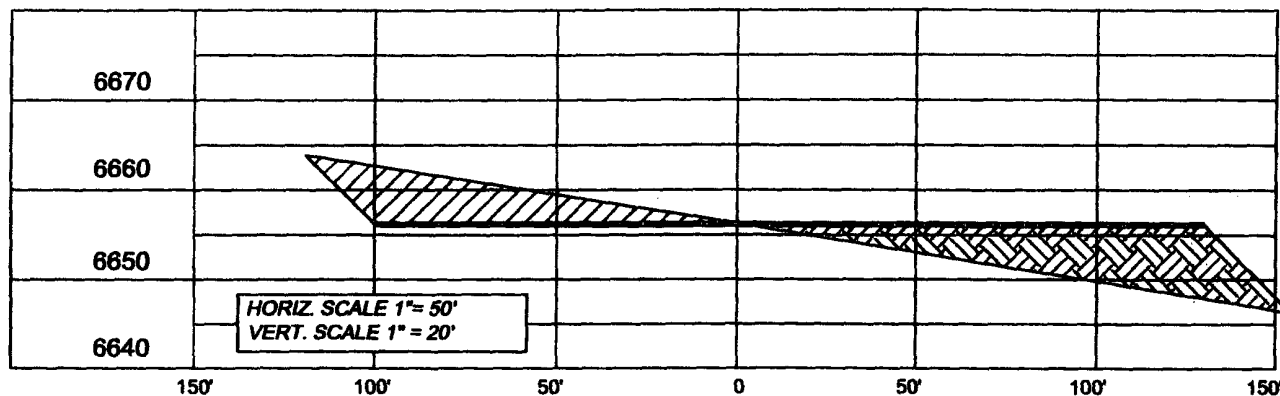
1. RESERVE PIT DIKE: TO BE 8' ABOVE DEEP SIDE (OVERFLOW-3' WIDE AND 1' ABOVE SHALLOW SIDE).
2. C.C.I. SURVEYS IS NOT LIABLE FOR UNDERGROUND UTILITIES OR PIPELINES. CONTRACTOR SHOULD CALL ONE-CALL FOR LOCATION OF ANY MARKED OR UNMARKED BURIED PIPELINES OR CABLES ON WELL PAD AND OR ACCESS ROAD AT LEAST TWO (2) WORKING DAYS PRIOR TO CONSTRUCTION.

# CONOCOPHILLIPS COMPANY

SAN JUAN 32-8 UNIT #9  
 1,070' FSL, 1,721' FWL  
 SECTION 11, T31N, R8W, N.M.P.M.,  
 SAN JUAN COUNTY, NEW MEXICO  
 ELEV.: 6,658.1' NAVD88

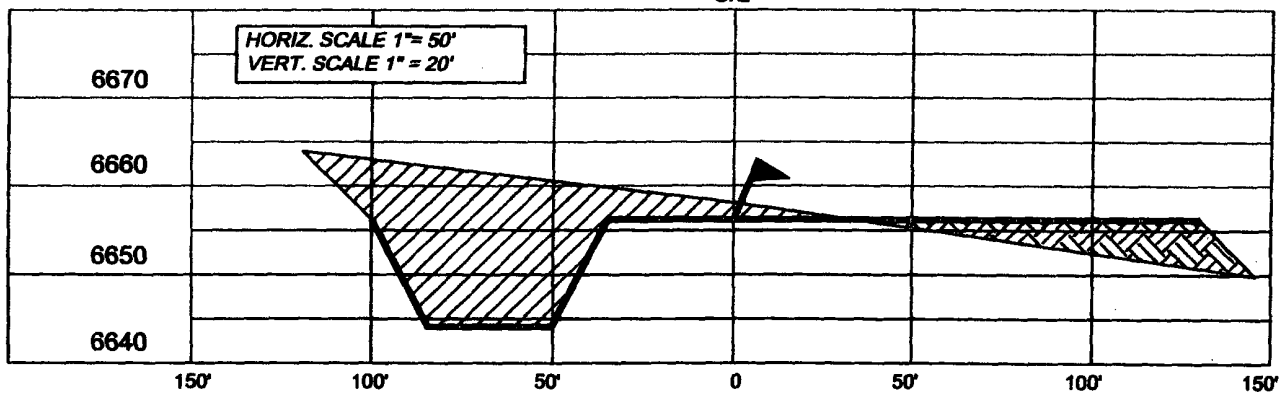
A - A'

C/L



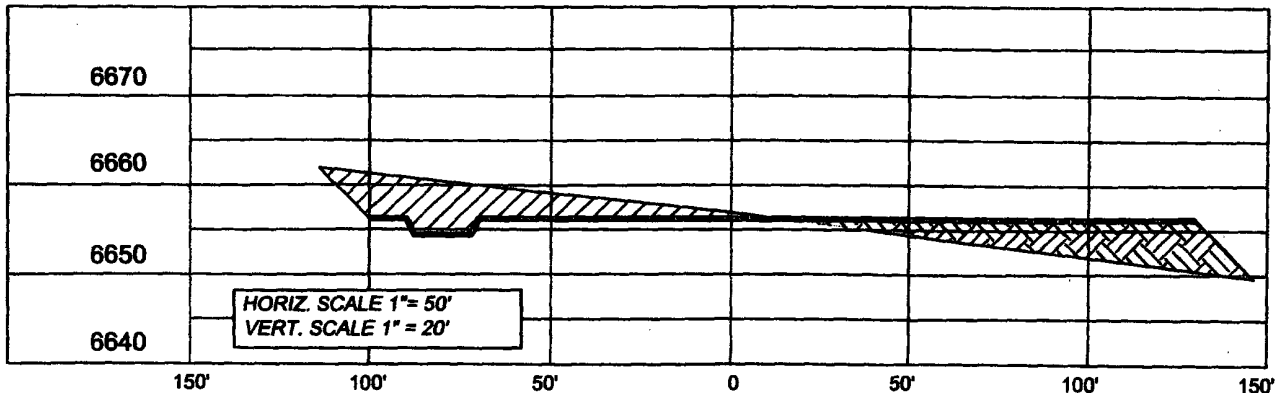
B - B'

C/L



C - C'

C/L



NOTE: CCI IS NOT LIABLE FOR UNDERGROUND UTILITIES OR PIPELINES.

CONTRACTOR SHOULD CALL ONE-CALL FOR LOCATION OF ANY MARKED OR UNMARKED BURIED PIPELINES OR CABLES ON WELL PAD AND OR ACCESS ROAD PRIOR TO CONSTRUCTION.

## REVISIONS

NO.	DESCRIPTION	REVISED BY	DATE

**CCI**

1300 W. BROADWAY  
 BLOOMFIELD, NM, 87413  
 PHONE: (505) 632-7777

**CHENAULT CONSULTING INC.**

# PROJECT PROPOSAL - New Drill / Sidetrack

San Juan Business Unit

SAN JUAN 32-8 UNIT 9

Lease:		AFE #: WAN.CNV.7115		AFE \$:	
Field Name: 32-8		Rig: Bearcat Rig 5		State: NM	County: SAN JUAN
Geoscientist: Pippin, Eddie A		Phone: 505-326-9780	Prod. Engineer: Piotrowicz, Greg M.		Phone: +1 832-486-3486
Res. Engineer: Prabowo, Wahyu		Phone: 832-486-2275	Proj. Field Lead: Fransen, Eric E.		Phone:
<b>Primary Objective (Zones):</b>					
<b>Zone</b>	<b>Zone Name</b>				
R20002	MESAVERDE(R20002)				
R20076	DAKOTA(R20076)				

<b>Location:</b> Surface		<b>Datum Code:</b> NAD 27		<b>Straight Hole</b>	
Latitude: 36.907301	Longitude: -107.647399	X:	Y:	Section: 11	Range: 008W
Footage X: 1721 FWL	Footage Y: 1070 FSL	Elevation: 6658	(FT)	Township: 031N	
Tolerance:					
Location Type: Summer Only		Start Date (Est.):		Completion Date:	Date In Operation:
Formation Data: Assume KB = 6672 Units = FT					

Formation Call & Casing Points	Depth (TVD in Ft)	SS (Ft)	Depletion (Yes/No)	BHP (PSIG)	BHT	Remarks
200	-3327	9999	<input type="checkbox"/>			null
216	-3327	9999	<input type="checkbox"/>			null
OJAM	2348	4324	<input type="checkbox"/>			Possible water flows.
KRLD	2443	4229	<input type="checkbox"/>			
FRLD	3028	3644	<input type="checkbox"/>			Possible gas.
PCCF	3555	3117	<input type="checkbox"/>			
LEWS	3764	2908	<input type="checkbox"/>			
Intermediate Casing	3842	2830	<input type="checkbox"/>			
HURF	4366	2306	<input type="checkbox"/>			
CHRA	4725	1947	<input type="checkbox"/>			
UCLFH	5170	1502	<input type="checkbox"/>			
CLFH	5465	1207	<input type="checkbox"/>			Gas; possibly wet
MENF	5557	1115	<input type="checkbox"/>			Gas.
PTLK	5867	805	<input type="checkbox"/>			Gas.
MANCOS	6219	453	<input type="checkbox"/>			
UPPER GALLUP	7182	-510	<input type="checkbox"/>			
GREENHORN	7931	-1259	<input type="checkbox"/>			
GRANEROS	7983	-1311	<input type="checkbox"/>			
TWLS	8084	-1412	<input type="checkbox"/>			
PAGU	8110	-1438	<input type="checkbox"/>			
CBRO	8120	-1448	<input type="checkbox"/>			
CBRL	8152	-1480	<input type="checkbox"/>			10' up dip to 32-8 #23M
ENCINAL	8212	-1540	<input type="checkbox"/>			
TD	8257	-1585	<input type="checkbox"/>			TD 45' below T/ENCN

Reference Wells:		
Reference Type	Well Name	Comments
Intermediate	SJ 32-8 42	10-31N-8W-NE, KB = 6749
Intermediate	SJ 32-8 243	11-31N-8W-SW, KB = 6630
Production	32-8 #23M	NW 14-31N_8W

# PROJECT PROPOSAL - New Drill / Sidetrack

San Juan Business Unit

SAN JUAN 32-8 UNIT 9

## Logging Program:

Intermediate Logs: ☐ Log only if show ☐ GR/ILD ☐ Triple Combo

TD Logs: ☐ Triple Combo ☐ Dipmeter ☐ RFT ☐ Sonic ☐ VSP ☐ TDT ☒ Other

CBL/GR

MUDLOGGER 100' above Grhn to TD

Additional Information:

Log Type	Stage	From (Ft)	To (Ft)	Tool Type/Name	Remarks
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Comments: Location/Tops/Logging - T/PCCF is PCCF Main DKNM031N008W11SW1 AND MVNM031N008W11SW1 \*\*\*\*\*MUDLOGGER\*\*\* 100' above Grhn to TD

Zones - DKNM031N008W11SW1 AND MVNM031N008W11SW1

General/Work Description - 11/9/06 ADDED THE DK FORMATION. NO LEWIS IN THE MV

HOLE: 12.25 "  
CSG OD: 9.625 "  
CSG ID: 9.001 "  
WGT: 32.3 pcf  
GRADE: H-40  
EXCESS: 125 %

DEPTH: 2001'

**SURFACE:**  
Option 1  
127 sx  
26.4 bbls 6 hrs 250 psi  
148.3 cuft 8 hrs 500 psi  
15.8 ppg  
4.973 gal/sx  
Class G Cement  
+ 3% S001 Calcium Chloride  
+ 0.25 lb/sx D029 Cellophane Flakes

Option 2  
123 sx  
26.4 bbls 6 hrs 250 psi  
148.3 cuft 8 hrs 500 psi  
1.21 ft<sup>3</sup>/sx  
15.6 ppg  
5.29 gal/sx  
Standard Cement  
+ 3% Calcium Chloride  
+ 0.25 lb/sx Floccale

Option 3  
56 sx  
16.1 bbls 8 hrs 475 psi  
90.6 cuft 24 hrs 1375 psi  
1.61 ft<sup>3</sup>/sx  
14.5 ppg  
7.41 gal/sx  
Type I-II Ready Mix  
+ 20% Fly Ash

HOLE: 8.75 "  
CSG OD: 7 "  
CSG ID: 6.456 "  
WGT: 20 pcf  
GRADE: J-55  
EXCESS: 50 %

TAIL: 772.8'

DEPTH: 3884'

**INTERMEDIATE LEAD:**  
Option 1  
253 sx  
122.4 bbls 9 hrs 300 psi  
687.1 cuft 48 hrs 525 psi  
2.72 ft<sup>3</sup>/sx  
11.7 ppg  
15.74 gal/sx  
Class G Cement  
+ 3% D079 Extender  
+ 0.20% D046 Antifoam  
+ 10 lb/sx Phenoseal

Option 2  
264 sx  
122.4 bbls 1:47 hrs 50 psi  
687.1 cuft 12 hrs 350 psi  
2.60 ft<sup>3</sup>/sx  
11.5 ppg  
14.62 gal/sx  
Type III Asphgrove Cement  
+ 30 lb/sx San Juan Poz  
+ 3% Bentonite  
+ 5.0 lb/sx Phenoseal

Option 3  
281 sx  
122.4 bbls 3 hrs 100 psi  
687.1 cuft 24 hrs 443 psi  
2.63 ft<sup>3</sup>/sx  
11.7 ppg  
15.92 gal/sx  
Class G Cement  
+ 3% D079 Extender  
+ 0.20% D046 Antifoam  
+ 1.0 lb/bbl CemNet

**INTERMEDIATE TAIL:**

Option 1  
140 sx  
32.8 bbls 3:53 500 psi  
183.9 cuft 8:22 1000 psi  
1.31 ft<sup>3</sup>/sx 24 hrs 3170 psi  
13.5 ppg 48 hrs 5399 psi  
5.317 gal/sx

50/50 Poz: Class G Cement  
+ 0.25 lb/sx D029 Cellophane Flakes  
+ 3% S001 Calcium Chloride  
+ 2% D020 Bentonite  
+ 1.5 lb/sx D024 Gilsontite Extender  
+ 0.1% D046 Antifoamer  
+ 6 lb/sx Phenoseal

Option 2  
138 sx  
32.8 bbls 2:05 50 psi  
183.9 cuft 4:06 500 psi  
1.33 ft<sup>3</sup>/sx 12 hrs 1250 psi  
13.5 ppg 24 hrs 1819 psi  
5.52 gal/sx

50/50 Poz: Standard Cement  
+ 2% Bentonite  
+ 6.0 lb/sx Phenoseal

Option 3  
144 sx  
32.8 bbls 24 hrs 1850 psi  
183.9 cuft 48 hrs 3411 psi  
1.28 ft<sup>3</sup>/sx  
13.5 ppg  
5.255 gal/sx

50/50 Poz: Class G Cement  
+ 2% D020 Bentonite  
+ 5.0 lb/sx D024 Gilsontite Extender  
+ 2% S001 Calcium Chloride  
+ 0.15% D046 Antifoamer  
+ 0.15% D065 Dispersant  
+ 1.0 lb/bbl CemNet

HOLE: 6.25 "  
CSG OD: 4.5 "  
CSG ID: 4 "  
WGT: 10.5/11.6 pcf  
GRADE: J-55  
EXCESS: 30 %  
DEPTH: 8257'

**PRODUCTION:**

Option 1  
423 sx  
108.6 bbls 7 hrs 500 psi  
609.6 cuft 24 hrs 2100 psi  
1.44 ft<sup>3</sup>/sx  
13.0 ppg  
6.47 gal/sx

50/50 Poz: Class G Cement  
+ 0.25 lb/sx D029 Cellophane Flakes  
+ 3% D020 Bentonite  
+ 1.0 lb/sx D024 Gilsontite Extender  
+ 0.25% D167 Fluid Loss  
+ 0.25% D065 Dispersant  
+ 0.1% D800 Retarder  
+ 0.1% D046 Antifoamer  
+ 3.5 lb/sx Phenoseal

Option 2  
420 sx  
108.6 bbls 9:32 50 psi  
609.6 cuft 12 hrs 500 psi  
1.45 ft<sup>3</sup>/sx 13:29 1026 psi  
13.1 ppg 24 hrs 2300 psi  
6.55 gal/sx

50/50 Poz: Standard Cement  
+ 3% Bentonite  
+ 0.2% CFR-3 Friction Reducer  
+ 0.1% HR-5 Retarder  
+ 0.8% Halc-9 Fluid Loss Additive  
+ 3.5 lb/sx Phenoseal



HOLE: 12.25 "

CSG OD: 9.625 "

CSG ID: 9.001 "

WGT: 32.3 ppf

GRADE: H-40

EXCESS: 125 %

DEPTH: 200'

## INTERMEDIATE LEAD:

### Option 4

239 sx

122.4 bbbs

687.1 cuft

2.88 ft<sup>3</sup>/sx

11.5 ppq

16.85 gal/sx

Standard Cement

+ 3% Econolite (Extender)

+ 10 lb/sx Phenoseal

Comp. Strength

1:47 50 psi

12 hrs 350 psi

24 hrs 450 psi

### Option 5

327 sx

122.4 bbbs

687.1 cuft

2.10 ft<sup>3</sup>/sx

11.7 ppq

11.724 gal/sx

75% Type XI / 25% Class G Cement

+ 0.25 lb/sx D029 Cellulophane Flakes

+ 3% D079 Extender

+ 0.20% D046 Antifoam

Comp. Strength

10:56 500 psi

42 hrs 1012 psi

HOLE: 8.75 "

CSG OD: 6.456 "

CSG ID: 20 ppf

WGT: J-55

GRADE: 50 %

EXCESS: 50 %

TAIL: 772.8'

DEPTH: 3864'

## INTERMEDIATE TAIL:

If the 9 5/8" surface casing is preset drilled (MOTIE) will cement w/75 sx Type I-II cement w/20% Flyash mixed @ 1.61 cf/sx. Will bring cement to surface. Wait on cement for 24 hours for pre-set hole before pressure testing or drilling out. If H&P rig is used to drill the well will use 13 1/2" surface hole then will adjust cement to insure cement reaches surface.

HOLE: 6.25 "

CSG OD: 4.5 "

CSG ID: 4 "

WGT: 10.5/11.6 ppf

GRADE: J-55

EXCESS: 30 %

DEPTH: 8257'

## PRODUCTION:

**TOPSET FRUITLAND COAL Wells:** (topset casing above coal to prepare for cavitation/DO/UR)

**Drilling Mud Program:**

Surface: spud mud

Intermediate: fresh water mud with bentonite and polymer as needed

Below Intermediate: air/mist/nitrogen drilling media with foamer, polymer, & corrosion inhibitor as needed

**Centralizer Program:**

Surface: centralizers placed 10' above the shoe latched over a stop collar and at the top of the 2<sup>nd</sup>, 3<sup>rd</sup>, & 4<sup>th</sup> joints

Intermediate: centralizers placed 10' above the shoe latched over a stop collar and at the top of the 2<sup>nd</sup>, 4<sup>th</sup>, 6<sup>th</sup>, 8<sup>th</sup>, & 10<sup>th</sup> joints

Turbolizers placed one per joint from the top of the Ojo Alamo to the top of the Kirtland Shale

Below Intermediate: no centralizers used in air holes. In mud holes centralizers are spaced out appropriately

**CASE & FRAC FRUITLAND COAL Wells:** (casing set below coal to prepare for frac completion)

**Drilling Mud Program:**

Surface: spud mud

Production: fresh water mud with bentonite and polymer as needed

**Centralizer Program:**

Surface: centralizers placed 10' above the shoe latched over a stop collar and at the top of the 2<sup>nd</sup>, 3<sup>rd</sup>, & 4<sup>th</sup> joints

Production: centralizers placed 10' above the shoe latched over a stop collar and at the top of the 2<sup>nd</sup>, 4<sup>th</sup>, 6<sup>th</sup>, 8<sup>th</sup>, & 10<sup>th</sup> joints

Turbolizers placed one per joint from the top of the Ojo Alamo to the top of the Kirtland Shale

**MESA VERDE Wells:**

**Drilling Mud Program:**

Surface: spud mud

Intermediate: fresh water mud with bentonite and polymer as needed

Below Intermediate: air/mist drilling media with foamer, polymer, & corrosion inhibitor as needed

**Centralizer Program:**

Surface: centralizers placed 10' above the shoe latched over a stop collar and at the top of the 2<sup>nd</sup>, 3<sup>rd</sup>, & 4<sup>th</sup> joints

Intermediate: centralizers placed 10' above the shoe latched over a stop collar and at the top of the 2<sup>nd</sup>, 4<sup>th</sup>, 6<sup>th</sup>, 8<sup>th</sup>, & 10<sup>th</sup> joints

Turbolizers placed one per joint from the top of the Ojo Alamo to the top of the Kirtland Shale

Below Intermediate: no centralizers used in air holes. In mud holes centralizers are spaced out appropriately

**DAKOTA Wells:**

**Drilling Mud Program:**

Surface: spud mud

Intermediate: fresh water mud with bentonite and polymer as needed

Below Intermediate: air/mist/nitrogen drilling media with foamer, polymer, & corrosion inhibitor as needed

**Centralizer Program:**

Surface: centralizers placed 10' above the shoe latched over a stop collar and at the top of the 2<sup>nd</sup>, 3<sup>rd</sup>, & 4<sup>th</sup> joints

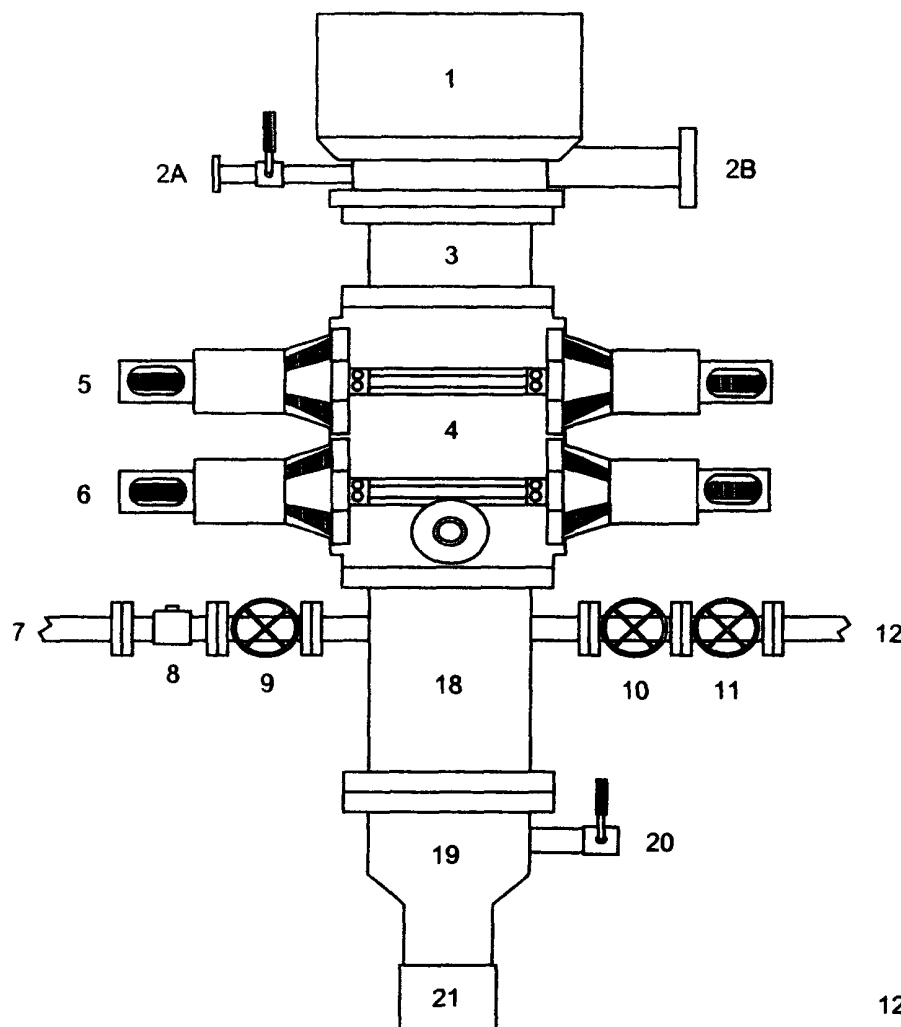
Intermediate: centralizers placed 10' above the shoe latched over a stop collar and at the top of the 2<sup>nd</sup>, 4<sup>th</sup>, 6<sup>th</sup>, 8<sup>th</sup>, & 10<sup>th</sup> joints

Turbolizers placed one per joint from the top of the Ojo Alamo to the top of the Kirtland Shale

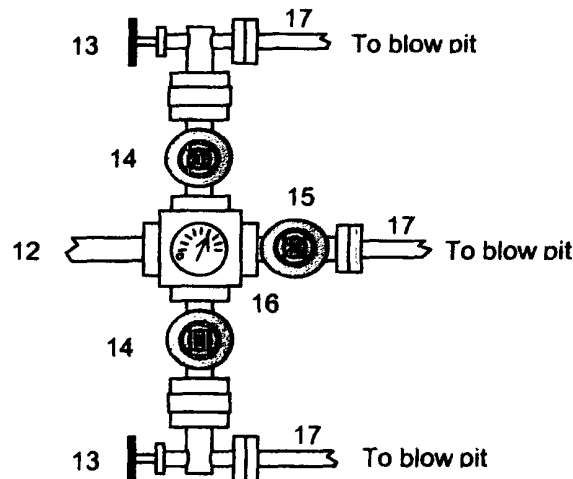
Below Intermediate: no centralizers used in air holes. In mud holes centralizers are spaced out appropriately

# BLOWOUT PREVENTER ARRANGEMENT & PROGRAM

For Drilling to Intermediate Casing Point & Setting 7" Intermediate Casing



1. Rotating Head
- 2A. Fill-up Line & valve
- 2B. Flowline
3. Spacer Spool
4. Double Ram BOP (11", 3000 psi)
5. Pipe Rams
6. Blind Rams
7. Kill Line
8. Kill Line Check Valve
9. Kill Line Valve
10. Inner Choke Line Valve (3")
11. Outer Choke Line Valve (3")
12. Choke Line (3")
13. Variable Choke
14. Choke Line Valve (2")
15. Panic Line Valve (3")
16. Choke Manifold Pressure Gauge
17. Choke Line (2")
18. Mud Cross Spacer Spool
19. Casing Head "A" Section
20. Casing Head "A" Section 2" Valve
21. 9 5/8" Casing Collar



A 12-1/4" hole will be drilled to approximately 200' and the 9-5/8" surface casing will be run and cemented. The Casing Head "A" Section will be screwed onto the 9-5/8" surface casing stub. The BOP will be installed on the Casing Head "A" Section. A test plug will be set in the wellhead and the pipe rams and choke manifold will be tested to 200 psi to 300 psi (low pressure test) for 10 minutes and to 1000 psi (high pressure test) for 10 minutes. Then the test plug will be removed, and the 9-5/8" casing will be pressure tested against closed blind rams to 200 psi to 300 psi for 10 minutes and to 1000 psi for 30 minutes (this value is one 44% of the minimum internal yield pressure of the 9-5/8" casing). (Note: per regulatory requirements we will wait on cement at least 8 hrs after placement before testing the 9-5/8" surface casing). Then an 8-3/4" hole will be drilled to intermediate casing point and 7" intermediate casing will be run and cemented.

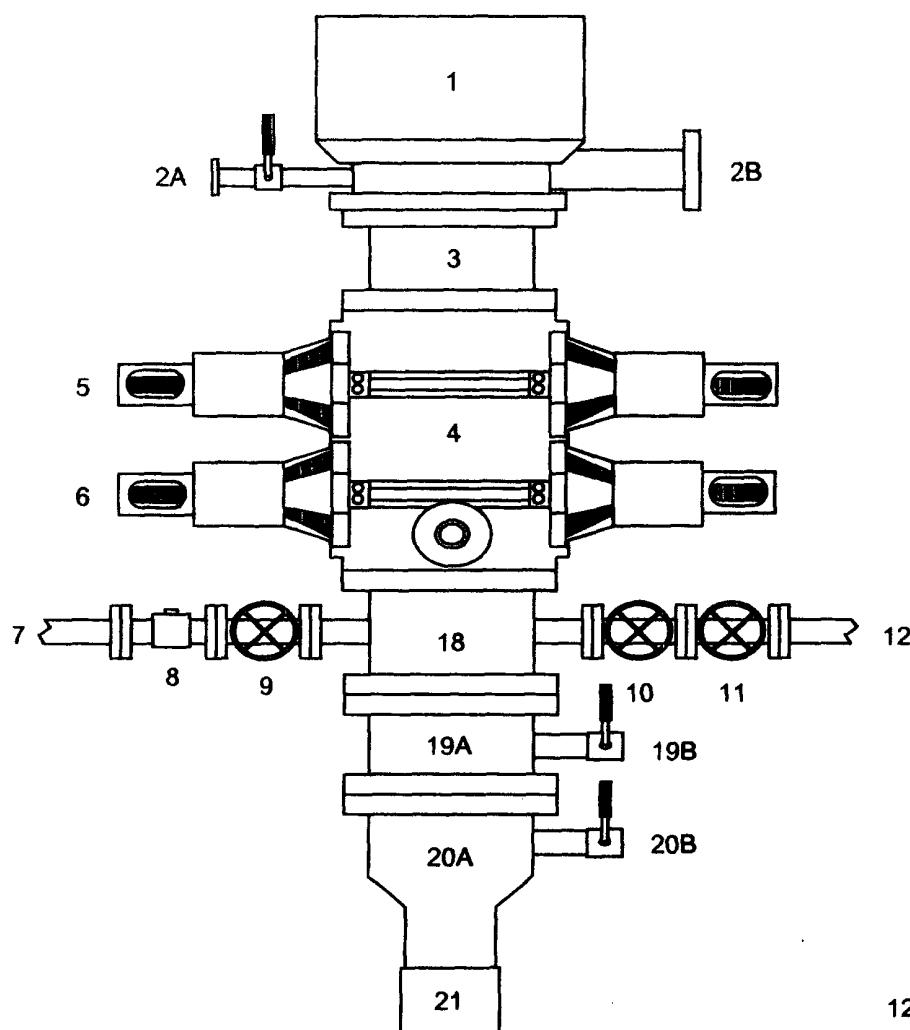
In addition to the equipment in the above diagram the following equipment will comprise the BOP system:

1. Upper Kelly cock Valve with handle
2. Stab-in TIW valve for all drillstrings in use

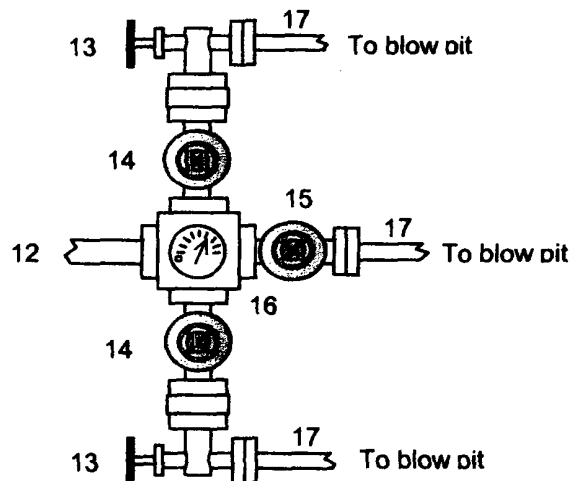
Revision Date: September 1, 2004

# BLOWOUT PREVENTER ARRANGEMENT & PROGRAM

For Drilling to TD and Setting 4.5 inch Casing



1. Rotating Head
- 2A. Fill-up Line & valve
- 2B. Blooie Line (for Air Drilling)
3. Spacer Spool
4. Double Ram BOP (11", 3000 psi)
5. Pipe Rams
6. Blind Rams
7. Kill Line
8. Kill Line Check Valve
9. Kill Line Valve
10. Inner Choke Line Valve (3")
11. Outer Choke Line Valve (3")
12. Choke Line (3")
13. Variable Choke
14. Choke Line Valve (2")
15. Panic Line Valve (3")
16. Choke Manifold Pressure Gauge
17. Choke Line (2")
18. Mud Cross Spacer Spool
- 19A Csg Spool "B" Section (11", 3M)
- 19B "B" Section Csg Valve (2", 3M)
- 20A Csg Head "A" Section (11", 3M)
- 20B "A" Section Csg Valve (2", 3M)
21. 9 5/8" Casing Collar



After the 7" intermediate casing has been run and cemented, the Casing Spool ("B" Section) will be installed on the wellhead ("A" Section) and the BOP will be installed on the Casing Spool. A test plug will be set in the wellhead and the pipe rams, blind rams, and choke manifold will be tested to 200 psi to 300 psi (low pressure test) for 10 minutes and to 3000 psi (high pressure test) for 10 minutes. Then the test plug will be removed and the 7" casing will be pressure tested against closed blind rams to 200 psi to 300 psi for 10 minutes and to 1800 psi for 30 minutes - this test pressure is 48% of the minimum internal yield strength of 3740 psi for the 7", 20#, J-55, STC casing. Then we will air drill the 6-1/4" hole to TD and run and cement the 4-1/2" casing.

In addition to the equipment in the above diagram the following equipment will comprise the BOP system:

1. Upper Kelly cock Valve with handle
2. Stab-in TIW valve for all drillstrings in use

Revision Date: September 1, 2004