

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RCVD APR6'07

OIL CONS. DIV.
DIST. 3

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

2000 NOV 15 PM 4 55
RECEIVED
070 FARMINGTON NM

| | |
|---|--|
| 1a. Type of Work DRILL | 5. Lease Number SF-078995 Unit Reporting Number |
| 1b. Type of Well GAS | 6. If Indian, All. or Tribe |
| 2. Operator ConocoPhillips | 7. Unit Agreement Name San Juan 31-6 Unit |
| 3. Address & Phone No. of Operator PO Box 4289, Farmington, NM 87499 (505) 326-9700 | 8. Farm or Lease Name 9. Well Number #50M |
| 4. Location of Well Surf Unit F (SENW), 2545' FNL & 1405' FWL, Bott Unit F (SENW), 1880' FNL & 1975' FWL Latitude 36° 51.3753" N 36° 51.4860" N Longitude 107° 30.4726"W 107° 30.3924"W | 10. Field, Pool, Wildcat Blanco Mesa Verde Basin Dakota 11. Sec., Twn, Rge, Mer. (NMPM) F Sec. 31 T31N, R06W, NMPM API # 30-039-30117 |
| 14. Distance in Miles from Nearest Town 24 miles to Gobernador | 12. County Rio Arriba 13. State NM |
| 15. Distance from Proposed Location to Nearest Property or Lease Line 1405' | |
| 16. Acres in Lease | 17. Acres Assigned to Well 320 acres W/2 |
| 18. Distance from Proposed Location to Nearest Well, Drig, Compl, or Applied for on this Lease | |
| 19. Proposed Depth 7720' 7893' TMD | 20. Rotary or Cable Tools Rotary |
| 21. Elevations (DF, FT, GR, Etc.) 6226' GL | 22. Approx. Date Work will Start |
| 23. Proposed Casing and Cementing Program See Operations Plan attached | |
| 24. Authorized by: <u>Nancy J. Memore</u> Regulatory Assistant | Date <u>11/14/06</u> |

PERMIT NO. _____ APPROVAL DATE _____
APPROVED BY [Signature] TITLE ATM DATE 4/3/87

Archaeological Report submitted separately
Environmental Assessment is 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 is not an HPA well

NOTIFY AZTEC OGD 24 HRS.
PRIOR TO CASING & CEMENT

HOLD G104 FOR

directional survey
+ BH survey

NMOCD

4/10/07

District I
PO Box 1980, Hobbs, NM 88241-1980

District II
PO Drawer DD, Artesia, NM 88211-0719

District III
1000 Rio Brazos Rd., Aztec, NM 87410

District IV
PO Box 2088, Santa Fe, NM 87504-2088

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION

PO Box 2088
Santa Fe, NM 87504-2088

Form O-102
Revised February 21, 1994

Instructions on back
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

AMENDED REPORT
RCVD APR 6 '07
OIL CONS. DIV.
DIST. 3

WELL LOCATION AND ACREAGE DEDICATION PLAT

| | | |
|------------------------------------|--|---|
| *API Number 30-039-30117 | *Pool Code 72319 / 71599 | *Pool Name BLANCO MESAVERDE / BASIN DAKOTA |
| *Property Code 31328 | *Property Name SAN JUAN 31-6 UNIT | *Well Number 50M |
| *GRID No. 217817 | *Operator Name CONOCOPHILLIPS COMPANY | *Elevation 6226' |

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 |
|---------------|---------|----------|-------|---------|---------------|------------------|---------------|----------------|------------|
| F | 31 | 31N | 6W | | 2545 | NORTH | 1405 | WEST | RIO ARriba |

11 Bottom Hole Location If Different From Surface

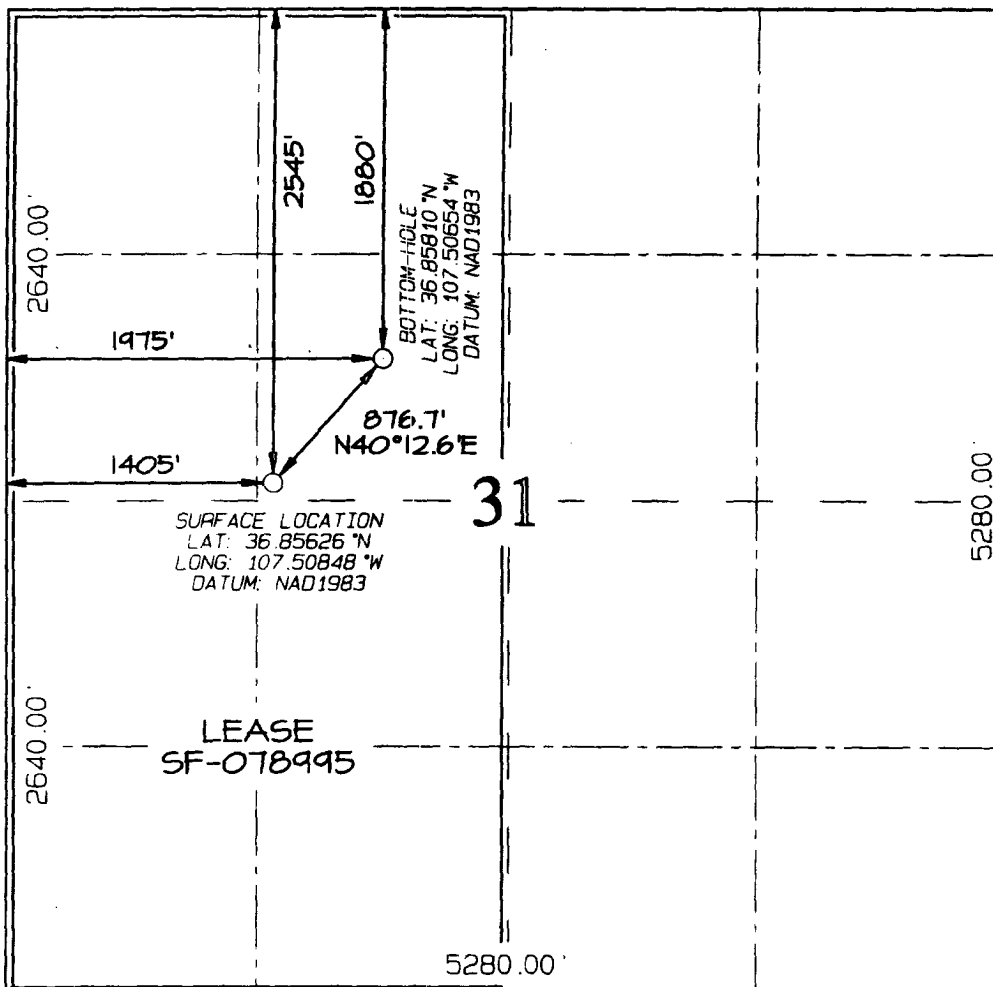
| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---------------|---------|----------|-------|---------|---------------|------------------|---------------|----------------|------------|
| F | 31 | 31N | 6W | | 1880 | NORTH | 1975 | WEST | RIO ARriba |

| | | | |
|---|--------------------|-----------------------|--------------|
| 12 Dedicated Acres 320.0 Acres - W/2 | 13 Joint or Infill | 14 Consolidation Code | 15 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

5273.40'



17 OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief

Signature

Virgil E. Chavez

Printed Name

Projects & Operations Lead

Title

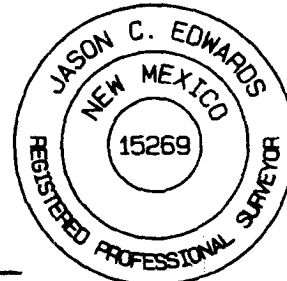
Date

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: JULY 26, 2006

Signature and Seal of Professional Surveyor



JASON C. EDWARDS

Certificate Number

15269

State of New Mexico

Energy, Minerals and Natural Resources

OIL CONSERVATION DIVISION

1220 South St. Francis Dr.

Santa Fe, NM 87505

Form C-103

May 27, 2004

WELL API NO.

30-039- 30117

5. Indicate Type of Lease

STATE ☐FEE ☐

6. State Oil & Gas Lease No.

Federal Lease - SF-078995

7. Lease Name or Unit Agreement Name

San Juan 31-6 Unit

8. Well Number

#50M

9. OGRID Number

217817

10. Pool name or Wildcat

Basin Dakota/Blanco Mesa Verde

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 Company

3. Address of Operator

3401 E. 30TH STREET, FARMINGTON, NM 87402

4. Well Location

Unit Letter F : 2545 feet from the North line and 1405 feet from the West line
Section 31 Township 31N Rng 6W NMPM County Rio Arriba

11. Elevation (Show whether DR, RKB, RT, GR, etc.)

6226'

Pit or Below-grade Tank Application

☐ or Closure ☐

Pit type

New Drill

Depth to Groundwater

>100'

Distance from nearest fresh water well

>1000'

Distance from nearest surface water

<1000'

Pit Liner Thickness:

12

mil

Below-Grade Tank:

Volume

bbls;

Construction Material

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:

Burlington Resources 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

Tracey N. Monroe

TITLE

Regulatory Technician

DATE

11/14/2006

Type or print name

Tracey N. Monroe

E-mail address:

Tracey.N.Monroe@conocophillips.com

Telephone No.

505-326-9752

For State Use Only

APPROVED BY

[Signature]

TITLE

DEPUTY OIL & GAS INSPECTOR, DIST. 1

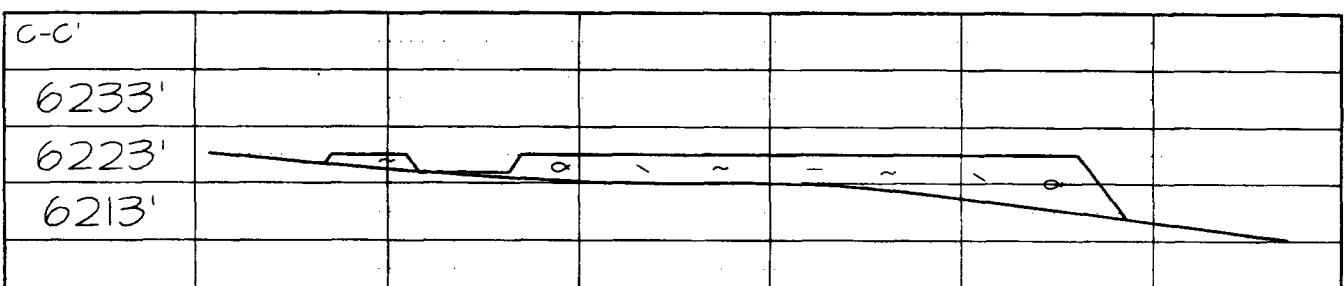
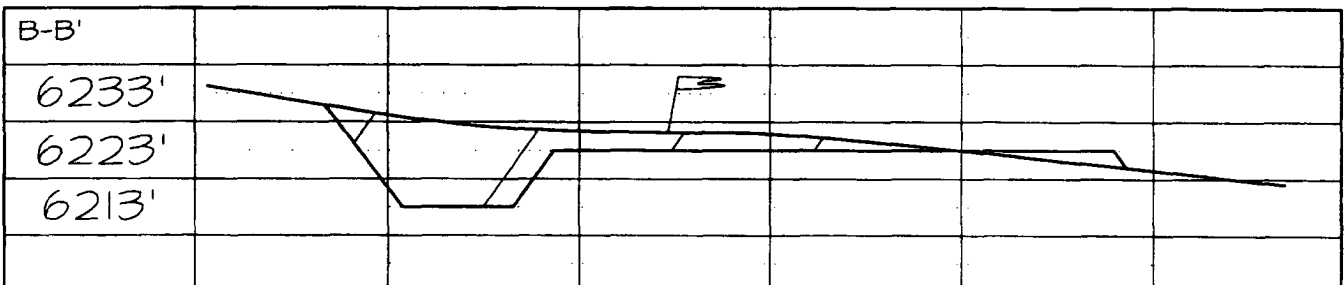
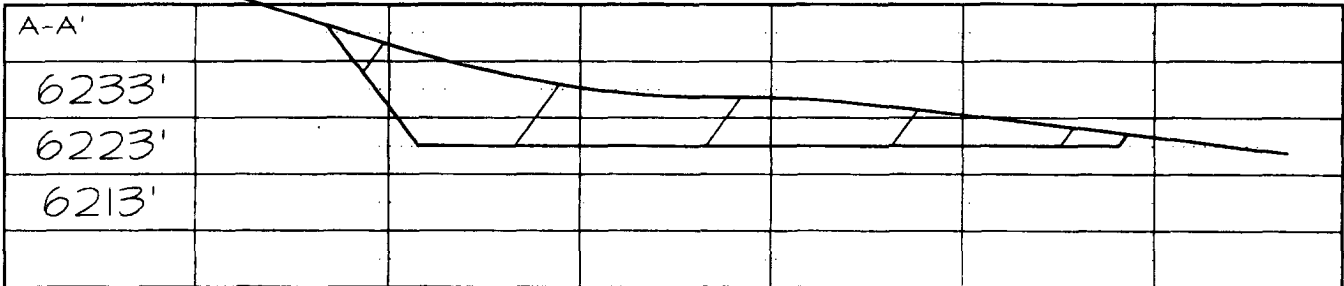
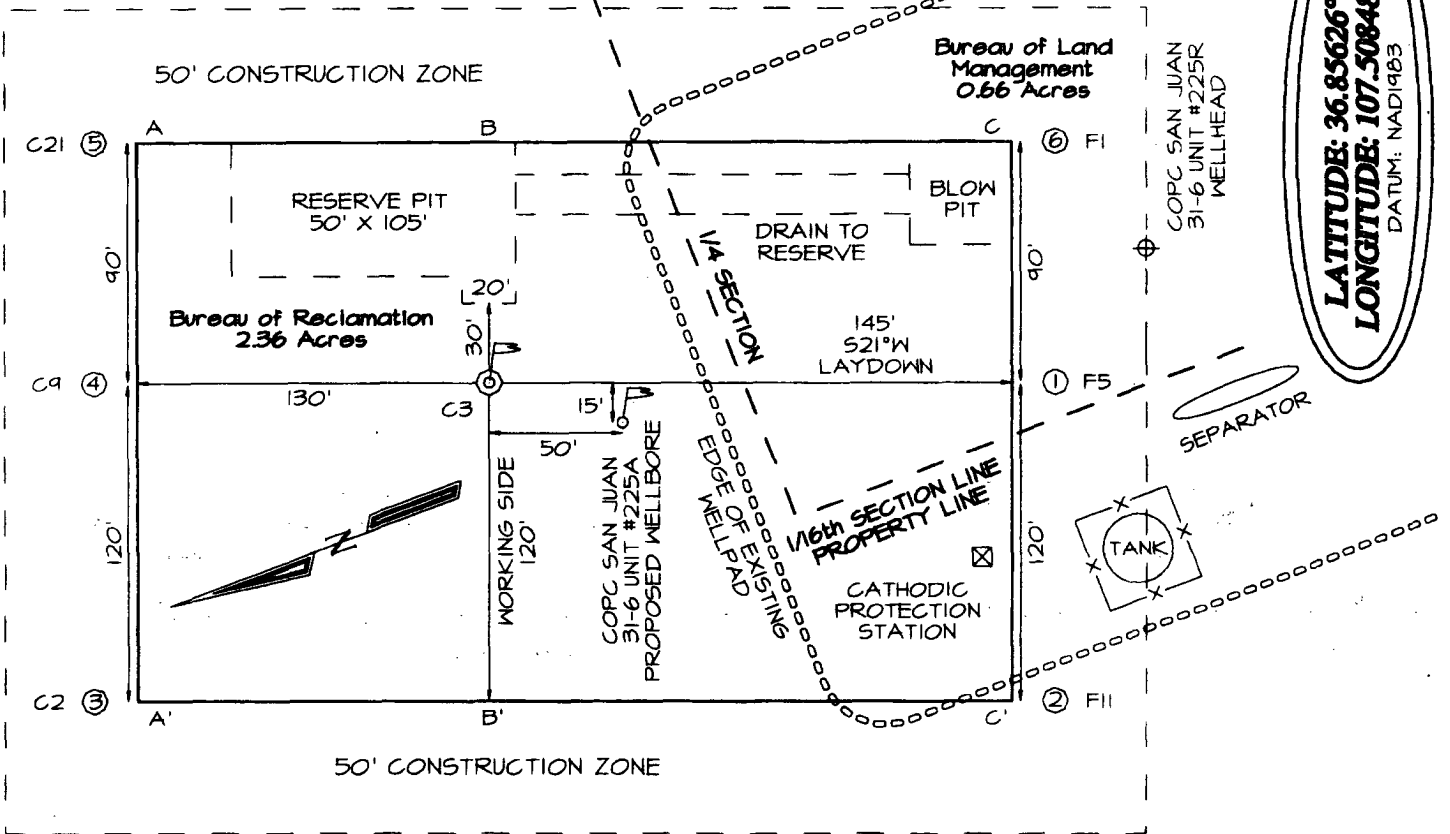
DATE

APR 10 2007

Conditions of Approval (if any):

CONOCOPHILLIPS COMPANY SAN JUAN 31-6 UNIT #50M
2545' FNL & 1405' FWL, SECTION 31, T31N, R6W, NMPM
RIO ARriba COUNTY, NEW MEXICO ELEVATION: 6226'

LATITUDE: 36.85626° N
LONGITUDE: 107.50848° W
 DATUM: NAD1983



SJ 31-6 #50M OPERATIONS PLAN

Well Name: SJ 31-6 #50M

Objective: Mesa Verde/Dakota

Location: Rio Arriba NM

Elevation: 6226'

2007 MAR 27 PM 3:21

Surface Coordinates/Footages

T - 31 N R - 6 W Sec.: 31
 2545' FNL 1405' FWL
 Latitude: 36° 51.3753' N
 Longitude: 107° 30.4726' W

Bottom Hole Coordinates/Footages

T - 31 N R - 6 W Sec.: 31
 1880' FNL 1975' FWL
 Latitude: 36° 51.4860' N
 Longitude: 107° 30.3924' W

| <u>Formation</u> | <u>Top (TMD)</u> | <u>Top (TVD)</u> | <u>Contents</u> |
|-------------------------|-------------------------|-------------------------|------------------------|
| San Jose | 0 | 0 | |
| Ojo Alamo | 2231' | 2136' | aquifer |
| Kirtland | 2394' | 2287' | |
| Fruitland | 2861' | 2722' | gas |
| Pictured Cliffs | 3173' | 3024' | |
| Lewis | 3383' | 3233' | |
| Huerfanito Bentonite | 4051' | 3901' | |
| Chacra | 4445' | 4295' | |
| Upper Cliffhouse | 4934' | 4784' | |
| Cliffhouse | 5244' | 5094' | gas |
| Menefee | 5282' | 5132' | gas |
| Point Lookout | 5562' | 5412' | gas |
| Mancos | 5881' | 5731' | |
| Gallup | 6673' | 6523' | gas |
| Greenhorn | 7617' | 7467' | gas |
| Graneros | 7675' | 7525' | |
| Two Wells | 7784' | 7634' | gas |
| Paguate | 7794' | 7644' | gas |
| Upper Cubero | 7800' | 7650' | gas |
| Lower Cubero | 7845' | 7695' | |
| Total Depth: | 7895' | 7745' | gas |

Logging Program: Cased Hole: CBL-GR
 Open Hole: None

| <u>Mud Program:</u> | <u>Interval (TMD)</u> | <u>Type</u> | <u>Weight (ppg)</u> | <u>Vis. (s/qt)</u> | <u>Fluid Loss (cc/30min)</u> |
|----------------------------|------------------------------|-----------------------|----------------------------|---------------------------|-------------------------------------|
| | 0' - 350' | Spud | 8.4-9.0 | 40-50 | No control |
| | 350' - 3483' | Non-dispersed | 8.4-9.0 | 30-60 | Less than 8 |
| | 3483' - 7895' | Air/Air Mist/Nitrogen | n/a | n/a | n/a |

| <u>Casing program:</u> | <u>Interval (TMD)</u> | <u>Hole Size</u> | <u>Casing Size</u> | <u>Weight</u> | <u>Grade</u> |
|-------------------------------|------------------------------|-------------------------|---------------------------|----------------------|---------------------|
| | 0' - 350' | 12 1/4" | 9 5/8" | 32.3# | H-40 |
| | 350' - 3483' | 8 3/4" | 7" | 23.0# | L-80 |
| | 3483' - 7895' | 6 1/4" | 4 1/2" | 11.6# | L-80 |

| <u>Tubing program:</u> | <u>Interval (TMD)</u> | <u>Hole Size</u> | <u>Casing Size</u> | <u>Weight</u> | <u>Grade</u> |
|-------------------------------|------------------------------|-------------------------|---------------------------|----------------------|---------------------|
| | 0' - 7895' | Cased | 2 3/8" | 4.7# | J-55 |

Wellhead Equipment

9 5/8" x 7" X 4 1/2" x 2 3/8" - 11" (2000 psi) wellhead assembly

Drilling: Saw tooth guide shoe on bottom. Bowspring centralizers will be run in accordance with Onshore Order #2.

Surface

Drill to surface casing point of 350' and set 9.625" casing.

Intermediate

Mud drill to kick off point of 400'. At this point the well will be directionally drilled by building 3 degrees per 100' with an azimuth of 40.6 degrees. The end of the build will be at a TVD of 1106', a TMD of 1123', a reach of 135', and an inclination of 21.7 degrees. This angle and azimuth will be held to a TVD of 2627', a TMD of 2760', and a reach of 741'. At this point the well will be drilled with a drop of 3 degrees per 100'. The end of the drop will be at a TVD of 3333', a TMD of 3483', a reach of 876', and an angle of 0.0 degrees. 7" casing will be set at this point.

Production

From the shoe of the intermediate string, the well will be drilled vertically with an air hammer to a TVD of 7745' (TMD of 7895'). 4.5" casing will be set at this point.

Cementing

9.625" surface casing conventionally drilled: **200%** excess cement to bring cement to surface.

Run 329 cu.ft. (257 sks) Type III cement with 3% CaCl₂ and 1/4 pps celloflake (1.28 sks/ cu.ft.). Wait on cement appropriate time until cement achieves 250 psi compressive strength at 60° F prior to nipple up of BOPE. Wait on cement for 8 hrs for conventionally set holes before pressure testing or drilling out from under surface.

7" intermediate casing: **50%** excess cement to bring cement to surface.

Lead with 662 cu.ft. (311 sks) Premium Lite w/ 3% CaCl₂, 0.25 pps Cello-Flake, 5 pps LCM-1, 0.4% FL-52 and 0.4% SMS (2.13 sks/ft³). Tail with 124 ft³ (90 sks) Type III cmt. w/ 1% CaCl₂, 0.25 pps Cello-Flake and 0.2% FL-52 (1.38 sks/ft³). If cement does not circulate to surface, a CBL or a temperature survey will be run to determine TOC.

4.5" production casing: **30%** excess cement to achieve 100' overlap with intermediate casing.

Run 600 cu.ft. (303 sks) Premium Lite HS FM + 0.25pps Cello-Flake, 0.3% CD-32, 6.25pps LCM-1, 1% FL-52 (1.98 sks/ft³.)

BOP and Tests

Surface to Total Depth – 11", 2000 psi double gate BOP stack (Reference Figure #1).

Surface to Total Depth – choke manifold (Reference Figure #2).

Prior to drilling out surface casing, test BOPE and casing to 600 psi for 30 minutes.

Pipe rams will be actuated at least once each day and blind rams will be actuated once each trip to test proper functioning. A Kelly cock valve and drill string safety valves to fit each drill string will be maintained and available on the rig floor.

BOPE tests will be performed using an appropriately sized test plug and test pump and will be recorded using calibrated test gauges and a properly calibrated strip or chart recorder. The test will be recorded in the driller's log and will include a low pressure test requirement of 250 psig held for five minutes and a high pressure test requirement held for ten minutes as described in Onshore Order No. 2 or otherwise noted in the APD. A successful BOPE test using a test plug is considered when no pressure drop occurs over the duration of the test. Test gauges and recorders must be of the proper range and resolution commensurate with the authorized test pressure. Where the intermediate casing strings are used, only one BOPE test will be necessary contingent upon the test being conducted to the highest approved test pressure to which BOPE will be exposed. Casing pressure tests must be held for 30 minutes with no more than 10 percent pressure drop during the duration of the test.

Additional Information:

- No gas dedication.
- New casing will be utilized.
- Pipe movement (reciprocation) will be done if hole conditions permit.
- No abnormal pressure zones are expected.
- BHP is expected to be 2000 psi.


Drilling Engineer

Date

3/26/07

PROJECT PROPOSAL - New Drill / Sidetrack

San Juan Business Unit

SAN JUAN 31-6 UNIT 50M

DEVELOPMENT

| | | | | | |
|------------------------------|--|------------------------|------------------------------------|--------------------|--------|
| Lease: | | AFE #: WAN.CNV.6248 | | AFE \$: | |
| Field Name: 31-6 | | Rig: Aztec Rig 673 | State: NM | County: RIO ARRIBA | API #: |
| Geologist: | | Phone: | Geophysicist: | | Phone: |
| Geoscientist: Riley, Brook | | Phone: +1 505-324-6108 | Prod. Engineer: | | Phone: |
| Res. Engineer: McKee, Cory J | | Phone: 505-326-9826 | Proj. Field Lead: Fransen, Eric E. | | Phone: |

Primary Objective (Zones):

| Zone | Zone Name |
|--------|-------------------|
| R20002 | MESAVERDE(R20002) |
| R20076 | DAKOTA(R20076) |

| | | | | | |
|------------------------------|------------------------|---------------------------|---------|-----------------|-------------|
| Location: Surface | | Datum Code: NAD 27 | | Deviated | |
| Latitude: 36.856260 | Longitude: -107.508480 | X: | Y: | Section: 31 | Range: 006W |
| Footage X: 1405 FWL | Footage Y: 2545 FNL | Elevation: 6226 | (FT) | Township: 031N | |
| Tolerance: | | | | | |
| Location: Bottom Hole | | Datum Code: NAD 27 | | Deviated | |
| Latitude: 36.858100 | Longitude: -107.506540 | X: 0.00 | Y: 0.00 | Section: 31 | Range: 006W |
| Footage X: 1975 FWL | Footage Y: 1880 FNL | Elevation: | (FT) | Township: 031N | |
| Tolerance: | | | | | |

| | | | |
|---|--------------------|------------------|--------------------|
| Location Type: Summer Only | Start Date (Est.): | Completion Date: | Date In Operation: |
| Formation Data: Assume KB = 6242 Units = FT | | | |

| Formation Call & Casing Points | Depth (TVD in Ft) | SS (Ft) | Depletion (Yes/No) | BHP (PSIG) | BHT | Remarks |
|--------------------------------|-------------------|---------|--------------------------|------------|-----|--------------------------------|
| OJAM | 2136 | 4106 | <input type="checkbox"/> | | | Possible water flows. |
| KRLD | 2287 | 3955 | <input type="checkbox"/> | | | |
| FRLD | 2722 | 3520 | <input type="checkbox"/> | | | Possible gas. |
| PCCF | 3024 | 3218 | <input type="checkbox"/> | | | |
| LEWS | 3233 | 3009 | <input type="checkbox"/> | | | |
| HURF | 3901 | 2341 | <input type="checkbox"/> | | | |
| CHRA | 4295 | 1947 | <input type="checkbox"/> | | | |
| UCLFH | 4784 | 1458 | <input type="checkbox"/> | | | |
| CLFH | 5094 | 1148 | <input type="checkbox"/> | | | Gas; possibly wet |
| MENF | 5132 | 1110 | <input type="checkbox"/> | | | Gas. |
| PTLK | 5412 | 830 | <input type="checkbox"/> | | | Gas. |
| MNCS | 5731 | 511 | <input type="checkbox"/> | | | |
| GLLP | 6523 | -281 | <input type="checkbox"/> | | | Gas. Possibly wet. |
| GRHN | 7467 | -1225 | <input type="checkbox"/> | | | Gas possible, highly fractured |
| GRRS | 7525 | -1283 | <input type="checkbox"/> | | | |
| TWLS | 7634 | -1392 | <input type="checkbox"/> | | | Gas |
| PAGU | 7644 | -1402 | <input type="checkbox"/> | | | Gas. Highly Fractured. |
| CBBO | 7650 | -1408 | <input type="checkbox"/> | | | Gas |
| CBRL | 7695 | -1453 | <input type="checkbox"/> | | | |
| TD | 7745 | -1503 | <input type="checkbox"/> | | | |

| Reference Wells: | | |
|-------------------------|------------------|---------------|
| Reference Type | Well Name | Comments |
| Intermediate | San Juan 30 6 47 | 32-21N-6W, SW |

ConocoPhillips

Survey Report

Company: ConocoPhillips Lower 48
Project: San Juan Basin
Site: MV/DK
Well: SJ 31-6 #50M
Wellbore: SJ 31-6 #50M
Design: SJ 31-6 #50M

Local Co-ordinate Reference: Well SJ 31-6 #50M
TVD Reference: WELL @ 6241.0ft (Original Well Elev)
MD Reference: WELL @ 6241.0ft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM Central Planning

Planned Survey

| Measured Depth (ft) | Inclination (d) | Azimuth (d) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (d/100ft) | Build Rate (d/100ft) | Turn Rate (d/100ft) |
|--------------------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|---------------------|
| 7,845.3 | 0.00 | 0.00 | 7,695.0 | 665.0 | 570.0 | 875.9 | 0.00 | 0.00 | 0.00 |
| Lower Cubero | | | | | | | | | |
| 7,895.3 | 0.00 | 0.00 | 7,745.0 | 665.0 | 570.0 | 875.9 | 0.00 | 0.00 | 0.00 |
| TD - SJ 31-6 #50M - PCP | | | | | | | | | |

Targets

Target Name

| - hit/miss target - Shape | Dip Angle (d) | Dip Dir. (d) | TVD (ft) | +N/-S ft | +E/-W ft | Northing (ft) | Easting (ft) | Latitude | Longitude |
|---|---------------|--------------|----------|----------|----------|---------------|--------------|-------------------|--------------------|
| SJ 31-6 #50M - ICP - plan hits target - Point | 0.00 | 0.00 | 3,333.0 | 665.0 | 570.0 | 2,131,766.85 | 595,610.48 | 36° 51' 29.092" N | 107° 30' 23.487" W |
| SJ 31-6 #50M - PCF - plan hits target - Point | 0.00 | 0.00 | 7,745.0 | 665.0 | 570.0 | 2,131,766.85 | 595,610.48 | 36° 51' 29.092" N | 107° 30' 23.487" W |

Formations

| Measured Depth (ft) | Vertical Depth (ft) | Name | Lithology | Dip (d) | Dip Direction (d) |
|---------------------|---------------------|------------------|-----------|---------|-------------------|
| 2,231.7 | 2,136.0 | Ojo Alamo | | 0.00 | |
| 2,394.2 | 2,287.0 | Kirtland | | 0.00 | |
| 2,861.4 | 2,722.0 | Fruitland | | 0.00 | |
| 3,173.0 | 3,024.0 | Pictured Cliffs | | 0.00 | |
| 3,383.3 | 3,233.0 | Lewis | | 0.00 | |
| 4,051.3 | 3,901.0 | Huerfano Bent. | | 0.00 | |
| 4,445.3 | 4,295.0 | Chacra | | 0.00 | |
| 4,934.3 | 4,784.0 | Upper Cliffhouse | | 0.00 | |
| 5,244.3 | 5,094.0 | Cliffhouse | | 0.00 | |
| 5,282.3 | 5,132.0 | Menefee | | 0.00 | |
| 5,562.3 | 5,412.0 | Pt. Lookout | | 0.00 | |
| 5,881.3 | 5,731.0 | Mancos | | 0.00 | |
| 6,673.3 | 6,523.0 | Gallup | | 0.00 | |
| 7,617.3 | 7,467.0 | Greenhorn | | 0.00 | |
| 7,675.3 | 7,525.0 | Graneros | | 0.00 | |
| 7,784.3 | 7,634.0 | Two Wells | | 0.00 | |
| 7,794.3 | 7,644.0 | Paguate | | 0.00 | |
| 7,800.3 | 7,650.0 | Upper Cubero | | 0.00 | |
| 7,845.3 | 7,695.0 | Lower Cubero | | 0.00 | |
| 7,895.3 | 7,745.0 | TD | | 0.00 | |

Checked By: _____ Approved By: _____ Date: _____

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 2nd, 3rd, & 4th joints

Intermediate: centralizers placed 10' above the shoe latched over a stop collar and at the top of the 2nd, 4th, 6th, 8th, & 10th 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 2nd, 3rd, & 4th joints

Production: centralizers placed 10' above the shoe latched over a stop collar and at the top of the 2nd, 4th, 6th, 8th, & 10th 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 2nd, 3rd, & 4th joints

Intermediate: centralizers placed 10' above the shoe latched over a stop collar and at the top of the 2nd, 4th, 6th, 8th, & 10th 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 2nd, 3rd, & 4th joints

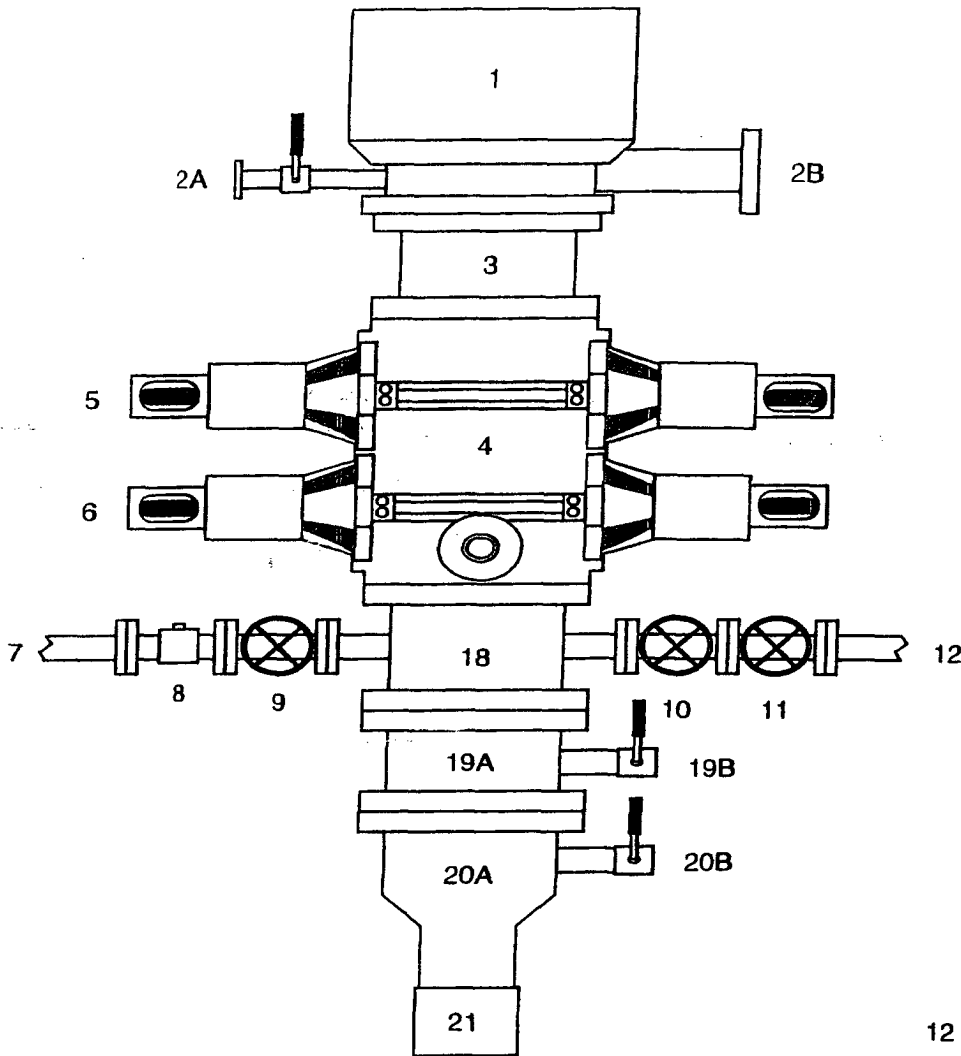
Intermediate: centralizers placed 10' above the shoe latched over a stop collar and at the top of the 2nd, 4th, 6th, 8th, & 10th joints

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

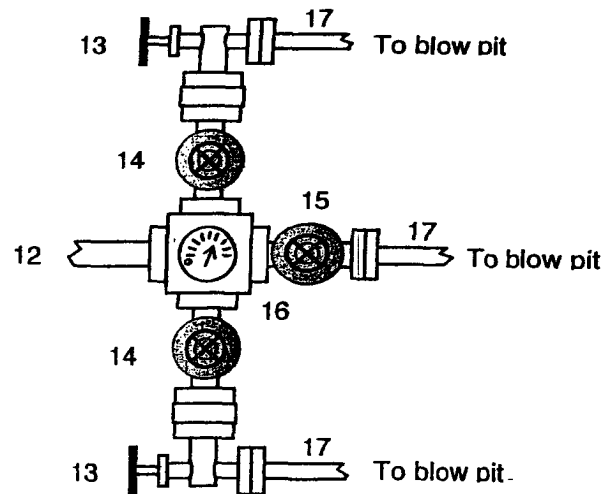
Below Intermediate: no centralizers used in air holes. In mud holes centralizers are spaced out appropriately

BLOWOUT PREVENTER ARRANGEMENT & PROGRAM

For Drilling to TD and Setting 4.5 inch Casing



1. Rotating Head
- 2A. Fill-up Line & valve
- 2B. Bleeie 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



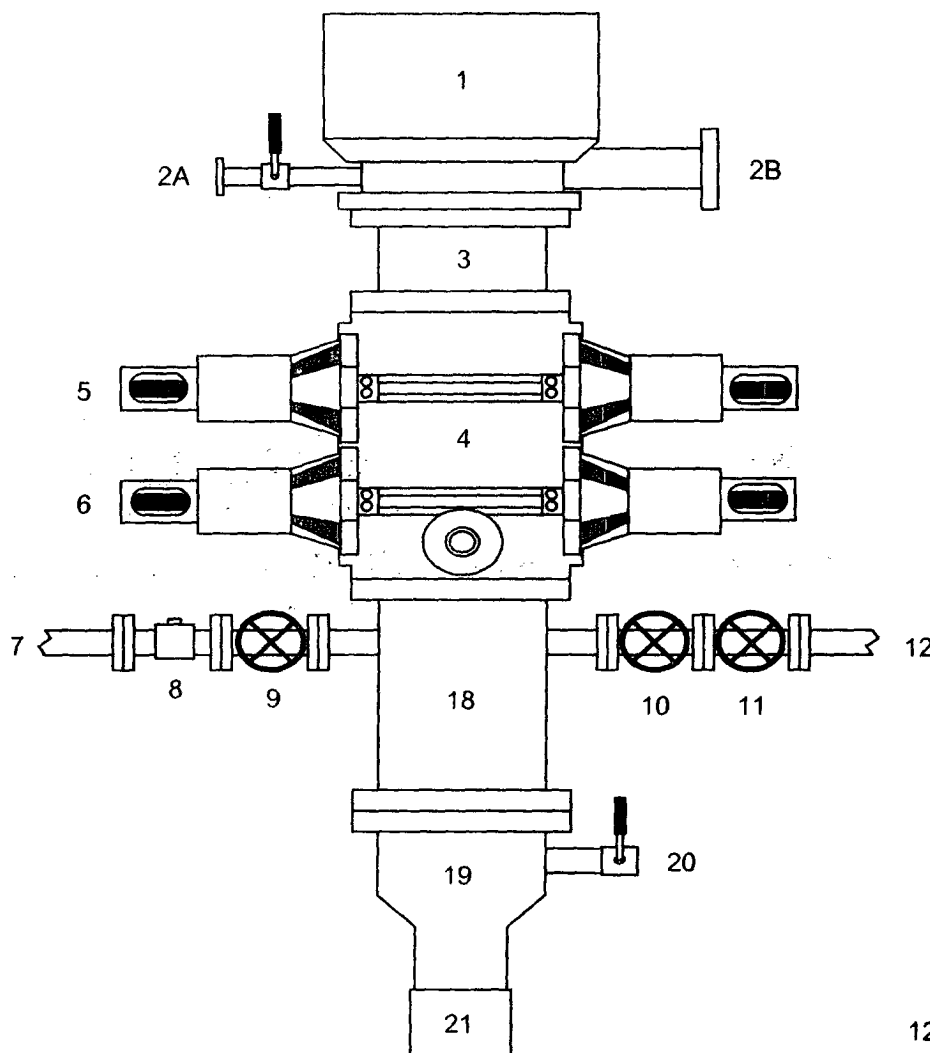
After the 7" intermediate casing has been run and cemented, the Casing Spool ("B" Section) will be installed on the wellhead ("A" Section) and the BOP will be installed on the Casing Spool. A test plug will be set in the wellhead and the pipe rams, blind rams, and choke manifold will be tested to 200 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:

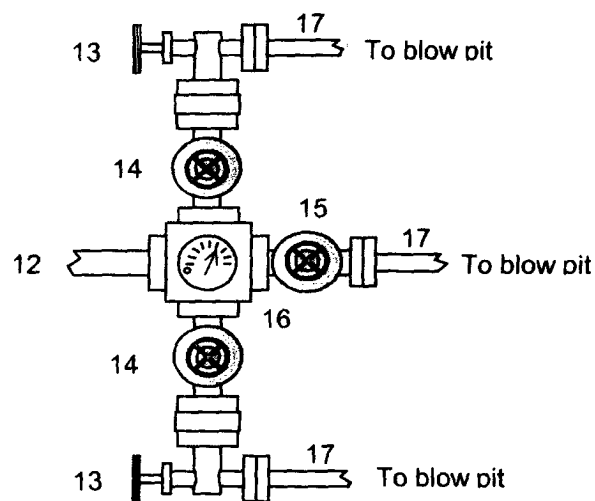
1. Upper Kelly cock Valve with handle
2. Stab-in TIW valve for all drillstrings in use

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 220' 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