RCVD JAN 8'07
OIL CONS. DIV.
DIST. 3

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

2006 DEC 20 PM 4 04

RECEIVED
070
210 FARMINGTON NM

1a. Type of Work
DRILL

1b. Type of Well
GAS

5. Lease Number
NMNM-012698

Unit Reporting Number
NMNM-78416B-DK NMNM-78416A-MV

6. If Indian, All. or Tribe

2. Operator
ConocoPhillips

7. Unit Agreement Name
San Juan 29-6 Unit

3. Address & Phone No. of Operator
PO Box 4289, Farmington, NM 87499

(505) 326-9700

8. Farm or Lease Name

9. Well Number
#89R

4. Location of Well
Unit J (NWSE), 2590' FSL, 1645' FEL

Latitude 36° 44.40221'N
Longitude 107° 25.69923'W

10. Field, Pool, Wildcat
Basin Dakota/Blanco Mesaverde

11. Sec., Twn, Rge, Mer. (NMPM)
Sec. 11, T29N, R6W

API # 30-039- 30145

14. Distance in Miles from Nearest Town
50 Miles Bloomfield

12. County
Rio Arriba

13. State
NM

15. Distance from Proposed Location to Nearest Property or Lease Line
1645'

16. Acres in Lease

17. Acres Assigned to Well
MV - ~~319.97~~ acres E/2 320
DK - ~~319.83~~ acres S/2 320

18. Distance from Proposed Location to Nearest Well, Drlg, Compl, or Applied for on this Lease
900', SJ 29-6 Unit 103

19. Proposed Depth
8161'

20. Rotary or Cable Tools
Rotary

21. Elevations (DF, FT, GR, Etc.)
6783'GL

22. Approx. Date Work will Start

23. Proposed Casing and Cementing Program
See Operations Plan attached

24. Authorized by: Juanita Farrell — Regulatory Specialist — 12/20/06 Date

PERMIT NO. _____ **APPROVAL DATE** _____

APPROVED BY _____ **TITLE** Acting AFM Minerals **DATE** 1/8/07

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.

HOLD C104 FOR For missing Sundries plugging 29-6 #89M

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

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

1/10/07 NMOCD

DISTRICT I
1625 N. French Dr., Hobbs, N.M. 88240

DISTRICT II
811 South First, Artesia, N.M. 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, N.M. 87410

DISTRICT IV
2040 South Pacheco, Santa Fe, NM 87505

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION
2040 South Pacheco
Santa Fe, NM 87505

Form C-102
Revised August 15, 2000

Submit to Appropriate District Office
State Lease – 4 Copies
Fee Lease – 3 Copies

2006 DEC 27 ☒ AMENDED REPORT

RCVD JAN9'07
OIL CONS. DIV.
DIST. 3

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
30-039-30145	71599/72319	DAKOTA/MESA VERDE

[4] Property Code	[5] Property Name	[6] Well Number
31326	SAN JUAN 29-6 UNIT	89 R

[7] OGRID No.	[8] Operator Name	[9] Elevation
217817	CONOCOPHILLIPS	6783'

[10] Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
J	11	29N	6W		2590'	SOUTH	1645'	EAST	RIO ARRIBA

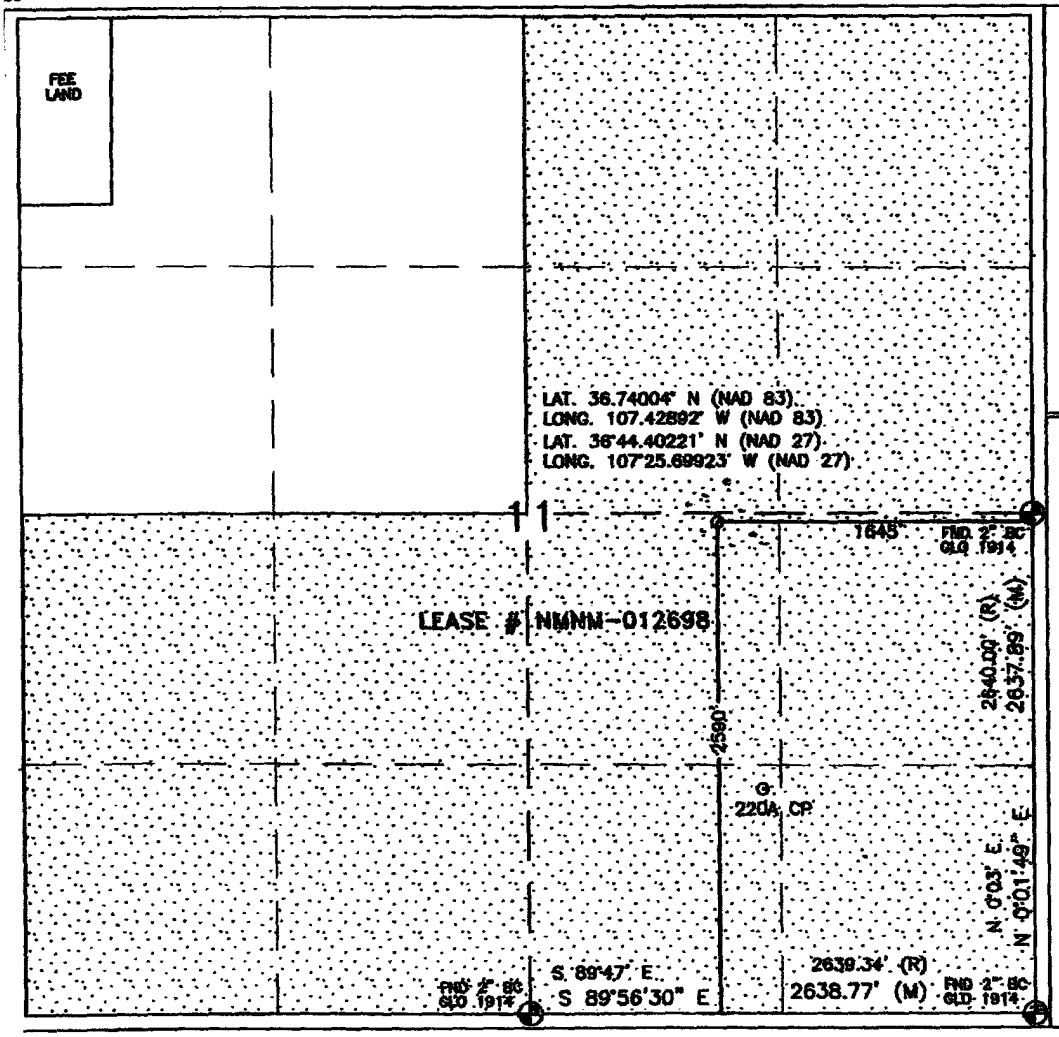
[11] Bottom Hole Location If Different From Surface

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

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
319.97 Acres – (E/2) MV 319.83 Acres – (S/2) DK			

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: Juanita Farrell

Printed Name: Juanita Farrell

Title: Regulatory Specialist

Date: October 27 2006

[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: OCTOBER 6, 2006

Signature and Seal of Professional Surveyor:

DAVID RUSSELL
NEW MEXICO
10201
REGISTERED PROFESSIONAL LAND SURVEYOR

DAVID RUSSELL

Certificate Number: 10201

Submit 3 Copies To Appropriate District Office

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

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. 30-039-30145

5. Indicate Type of Lease STATE ☐ FEE ☐

6. State Oil & Gas Lease No. Federal Lease - NMNM012698

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.)

7. Lease Name or Unit Agreement Name: San Juan 29-6 Unit

1. Type of Well: Oil Well ☐ Gas Well ☒ Other

8. Well Number: #89R

2. Name of Operator: ConocoPhillips Company

9. OGRID Number: 217817

3. Address of Operator: 3401 E. 30TH STREET, FARMINGTON, NM 87402

10. Pool name or Wildcat: Blanco Mesaverde/Basin Dakota

4. Well Location
Unit Letter J : 2590' feet from the South line and 1645' feet from the East line
Section 11 Township 29N Rng 6W NMPM County Rio Arriba

11. Elevation *(Show whether DR, RKB, RT, GR, etc.)* 6783' GL

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 4400 bbls; Construction Material Synthetic

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

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
PERFORM REMEDIAL WORK	☐	PLUG AND ABANDON	☐	REMEDIAL WORK	☐	ALTERING CASING	☐
TEMPORARILY ABANDON	☐	CHANGE PLANS	☐	COMMENCE DRILLING OPNS.	☐	P AND A	☐
PULL OR ALTER CASING	☐	MULTIPLE COMPL	☐	CASING/CEMENT JOB	☐		
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, an associated vent/flare pit and a pre-set mud pit (if required). Based on ConocoPhillips' interpretation of the Ecosphere's risk ranking criteria, the new drilling pit and pre-set mud pit will be lined pits as detailed in ConocoPhillips' General Plan dated June 2005 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. ConocoPhillips anticipates closing these pits according to the November 1, 2004 Guidelines.

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 Juanita Farrell TITLE Regulatory Specialist DATE 12/7/2006

Type or print name Juanita Farrell E-mail address: Telephone No. 505-326-9597

For State Use Only

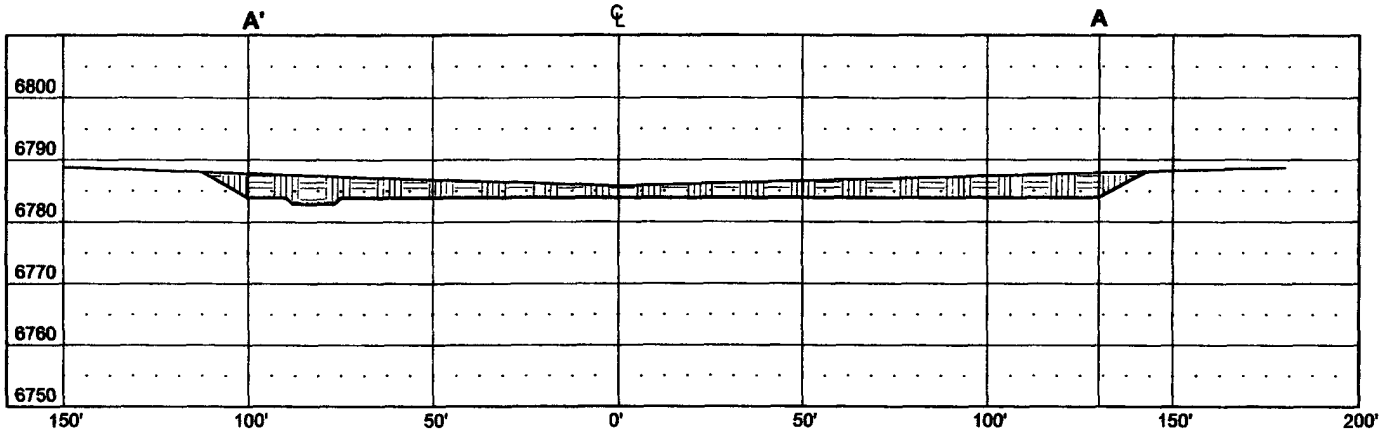
APPPROVED BY [signature] TITLE DEPUTY OIL & GAS INSPECTOR, DIST. ♦ DATE JAN 11 2007

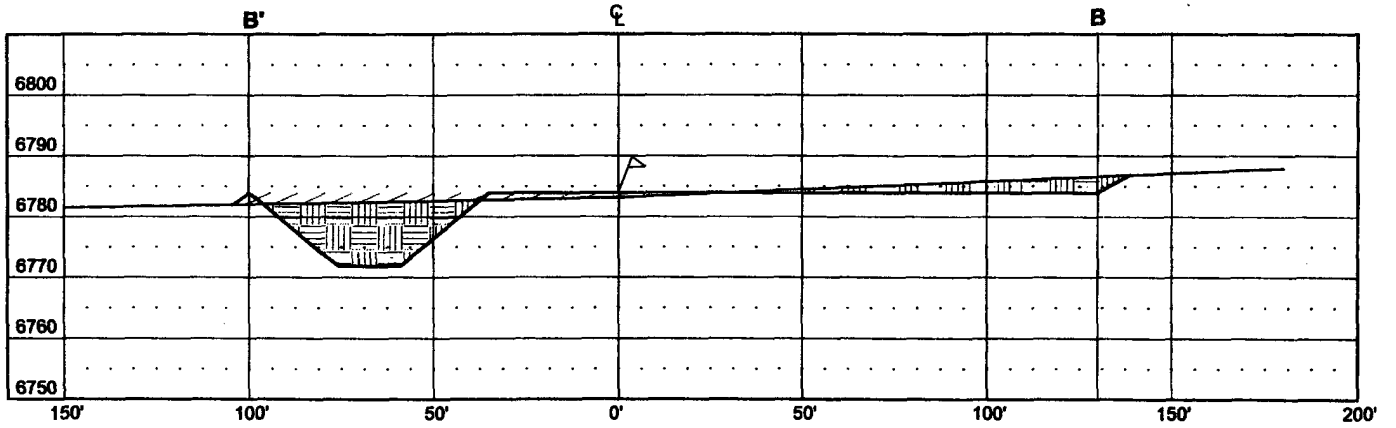
Conditions of Approval (if any):

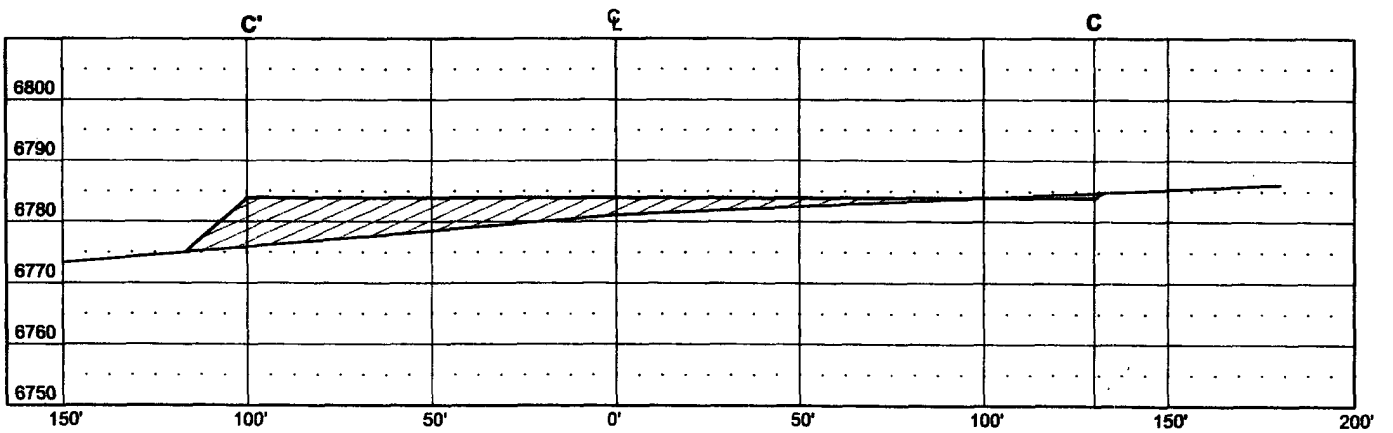
LATITUDE: 36.74004°N
LONGITUDE: 107.42892°W
DATUM: NAD 83

CONOCO PHILLIPS, COMPANY

SAN JUAN 29-6 UNIT #89 R
2590' FSL & 1645' FEL
LOCATED IN THE NW/4 SE/4 OF SECTION 11,
T29N, R6W, N.M.P.M.,
RIO ARRIBA COUNTY, NEW MEXICO
GROUND ELEVATION: 6783', NAVD 88
FINISHED PAD ELEVATION: 6783.9', NAVD 88







THIS DIAGRAM IS AN ESTIMATE OF DIRT BALANCE AND IS NOT INTENDED TO BE AN EXACT MEASURE OF VOLUME

VERT. SCALE: 1" = 30'
HORZ. SCALE: 1" = 50'
JOB No.: COP042
DATE: 10/23/06

CUT
FILL

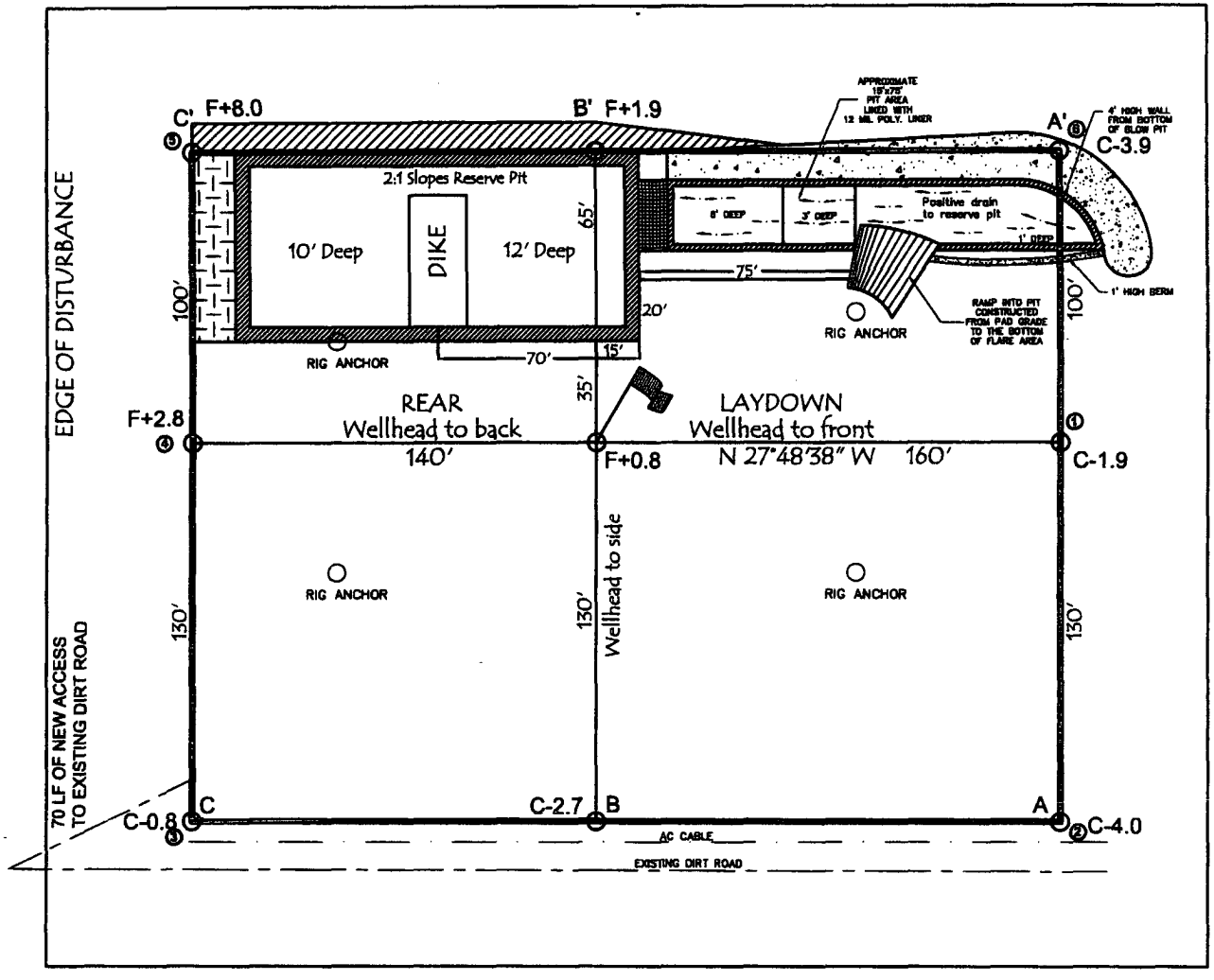
Russell Surveying
1409 W. Aztec Blvd. #5
Aztec, New Mexico 87410
(505) 334-8637

LATITUDE: 36.74004°N
LONGITUDE: 107.42892°W
DATUM: NAD 83

CONOCO PHILLIPS, COMPANY

SAN JUAN 29-6 UNIT #89 R
2590' FSL & 1645' FEL
LOCATED IN THE NW/4 SE/4 OF SECTION 11,
T29N, R6W, N.M.P.M.,
RIO ARRIBA COUNTY, NEW MEXICO
GROUND ELEVATION: 6783', NAVD 88
FINISHED PAD ELEVATION: 6783.9', NAVD 88

30' 0 30' 60'
SCALE = 60'



330' x 400' = 3.03 ACRES OF DISTURBANCE
SCALE: 1" = 60'
JOB No.: COP042
DATE: 10/23/06

NOTE:
RESERVE PIT DIKE: TO BE 8' ABOVE DEEP SIDE (OVERFLOW – 3' WIDE AND 1' ABOVE SHALLOW SIDE).
RUSSELL SURVEYING, INC. 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, IN CONSTRUCTION ZONE AND/OR ACCESS ROAD AT LEAST TWO (2) WORKING DAYS PRIOR TO CONSTRUCTION.

Russell Surveying
1409 W. Aztec Blvd. #5
Aztec, New Mexico 87410
(505) 334-8637

ConocoPhillips

PROJECT PROPOSAL - New Drill / Sidetrack

San Juan Business Unit

SAN JUAN 29-6 89R

Lease:	AFE #: WAN.CNV.7217			AFE $:
Field Name: 29-6	Rig: XX 2008 Projects	State: NM	County: RIO ARRIBA	API #:
Geoscientist: Glaser, Terry J	Phone: (832)486-2332	Prod. Engineer:		Phone: 486-2334
Res. Engineer:	Phone: 832-486-2385	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**				**Straight Hole**
Latitude: 36.740033	Longitude: -107.428317	X:	Y:	Section: 11	Range: 6W
Footage X: 1645 FEL	Footage Y: 2590 FSL	Elevation: 6783 (FT)	Township: 29N		
Tolerance:					

Location Type: Year Round	Start Date (Est.):	Completion Date:	Date In Operation:

Formation Data: Assume KB = 6797 Units = FT

Formation Call & Casing Points	Depth (TVD in Ft)	SS (Ft)	Depletion (Yes/No)	BHP (PSIG)	BHT	Remarks
Surface Casing	120		☐			13-1/2" hole. 9 5/8" 32.3 ppf, H-40, STC casing. Circulate cement to surface.
NCMT	1316	5481	☐			
OJAM	2830	3967	☐			Possible water flows.
KRLD	2978	3819	☐			
FRLD	3393	3404	☐			Possible gas.
PCCF	3716	3081	☐			
LEWS	3797	3000	☐			
Intermediate Casing	3897	2900	☐			8 3/4" Hole. 7", 20 ppf, J-55, STC Casing. Circulate cement to surface.
HURF	4451	2346	☐			
CHRA	4711	2086	☐			
UCLFH	5274	1523	☐			
CLFH	5510	1287	☐			Gas; possibly wet
MENF	5593	1204	☐			Gas.
PTLK	5892	905	☐			Gas.
MNCS	6231	566	☐			
UPPER GLLP	7133	-336	☐			Gas. Possibly wet.
GRHN	7864	-1067	☐			Gas possible, highly fractured
GRRS	7917	-1120	☐			
TWLS	7996	-1199	☐			Gas
PAGU	8028	-1231	☐			Gas. Highly Fractured.
CBBO	8043	-1246	☐			Gas
CBRL	8093	-1296	☐			
TD	8161	-1364	☐			
TOTAL DEPTH DK	8161	-1364	☐			6-1/4" hole possibly underreamed to 9.5". Optional Liner: 5.5", 15.5#, J-55 LTC [redacted]

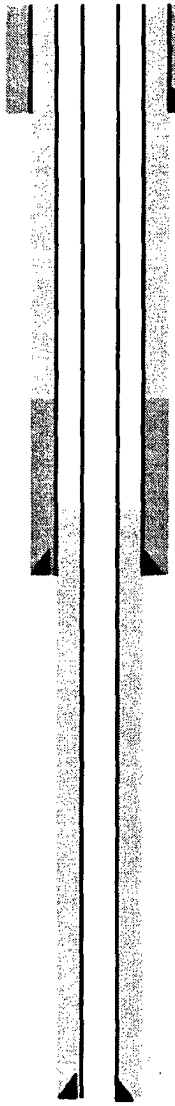
Reference Wells:

Reference Type	Well Name	Comments
Intermediate	SJ 29-6 92	12-29N-6W-SW, KB = 6592

Printed on: 12/14/2006 11:33:00 AM

San Juan 29-6 Unit #89R

APD Cement Calculations



HOLE:	12.25 "
CSG OD:	9.625 "
CSG ID:	9.001 "
WGT:	32.3 ppf
GRADE:	H-40
EXCESS:	125 %
DEPTH:	129 '

SURFACE:

Option 1

79	**sx**	Comp. Strength	
16.4	bbls	6 hrs	250 psi
91.9	cuft	8 hrs	500 psi
1.17	ft^3/sx		psi
15.8	ppg		
4.973	gal/sx		

Class G Cement
+ 3% S001 Calcium Chloride
+ 0.25 lb/sx D029 Cellophane Flakes

Option 2

76	**sx**	Comp. Strength	
16.4	bbls	6 hrs	250 psi
91.9	cuft	8 hrs	500 psi
1.21	ft^3/sx		
15.6	ppg		
5.29	gal/sx		

Standard Cement
+ 3% Calcium Chloride
+ 0.25 lb/sx Flocele

Option 3

37	**sx**	Comp. Strength	
10.6	bbls	8 hrs	475 psi
59.3	cuft	24 hrs	1375 psi
1.61	ft^3/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 ppf
GRADE:	J-55
EXCESS:	50 %
TAIL:	779.4 '
DEPTH:	3897 '

INTERMEDIATE LEAD:

Option 1

256	**sx**	Comp. Strength	
124.2	bbls	9 hrs	300 psi
697.2	cuft	48 hrs	525 psi
2.72	ft^3/sx		
11.7	ppg		
15.74	gal/sx		

Class G Cement
+ 3% D079 Extender
+ 0.20% D046 Antifoam
+ 10 lb/sx Phenoseal

Option 2

268	**sx**	Comp. Strength	
124.2	bbls	1:47 hrs	50 psi
697.2	cuft	12 hrs	350 psi
2.60	ft^3/sx	24 hrs	450 psi
11.5	ppg		
14.62	gal/sx		

Type III Ashgrove Cement
+ 30 lb/sx San Juan Poz
+ 3% Bentonite
+ 5.0 lb/sx Phenoseal

Option 3

265	**sx**	Comp. Strength	
124.2	bbls	3 hrs	100 psi
697.2	cuft	24 hrs	443 psi
2.63	ft^3/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

142	**sx**	Comp. Strength	
33.0	bbls	3:53	500 psi
185.4	cuft	8:22	1000 psi
1.31	ft^3/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 Gilsonite Extender
+ 0.1% D046 Antifoamer
+ 6 lb/sx Phenoseal

Option 2

139	**sx**	Comp. Strength	
33.0	bbls	2:05	50 psi
185.4	cuft	4:06	500 psi
1.33	ft^3/sx	12 hrs	1250 psi
13.5	ppg	24hrs	1819 psi
5.52	gal/sx		

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

Option 3

145	**sx**	Comp. Strength	
33.0	bbls	24 hrs	1850 psi
185.4	cuft	48 hrs	3411 psi
1.28	ft^3/sx		
13.5	ppg		
5.255	gal/sx		

50/50 Poz: Class G Cement
+ 2% D020 Bentonite
+ 5.0 lb/sx D024 Gilsonite Extender
+ 2% S001 Calcium Chloride
+ 0.1% D046 Antifoamer
+ 0.15% D065 Dispersant
+ 1.0 lb/bbl CemNet

HOLE:	6.25 "
CSG OD:	4.5 "
CSG ID:	4.052 "
WGT:	10.5 ppf
GRADE:	J-55
EXCESS:	30 %
DEPTH:	8161 '

PRODUCTION:

Option 1

411	**sx**	Comp. Strength	
105.5	bbls	7 hrs	500 psi
592.4	cuft	24 hrs	2100 psi
1.44	ft^3/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 Gilsonite Extender
+ 0.25% D167 Fluid Loss
+ 0.25% D065 Dispersant
+ 0.1% D800 Retarder
+ 0.1% D046 Antifoamer
+ 3.5 lb/sx Phenoseal

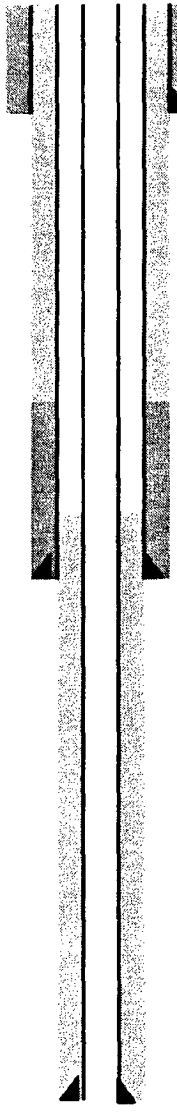
Option 2

409	**sx**	Comp. Strength	
105.5	bbls	9:32	50 psi
592.4	cuft	12 hrs	500 psi
1.45	ft^3/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% Halad-9 Fluid Loss Additive
+ 3.5 lb/sx Phenoseal

M3. 12/1/06

San Juan 29-6 Unit #89R



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

DEPTH: 120 '

SURFACE:

INTERMEDIATE LEAD:

Option 4			Option 5		
242 sx	Comp. Strength		**332 sx**	Comp. Strength	
124.2 bbls	1:47	50 psi	124.2 bbls	10:56	500 psi
697.2 cuft	12 hrs	350 psi	697.2 cuft	42 hrs	1012 psi
2.88 ft^3/sx	24 hrs	450 psi	2.10 ft^3/sx		
11.5 ppg			11.7 ppg		
16.85 gal/sx			11.724 gal/sx		
Standard Cement			75% Type XI / 25% Class G Cement		
+ 3% Econolite (Extender)			+ 0.25 lb/sx D029 Cellophane Flakes		
+ 10 lb/sx Phenoseal			+ 3% D079 Extender		
			+ 0.20% D046 Antifoam		

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

TAIL: 779.4 '

DEPTH: 3897 '

INTERMEDIATE TAIL:

If the 9 5/8" surface casing is preset drilled (MOTE) 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: 4.052 "
WGT: 10.5 ppf
GRADE: J-55
EXCESS: 30 %

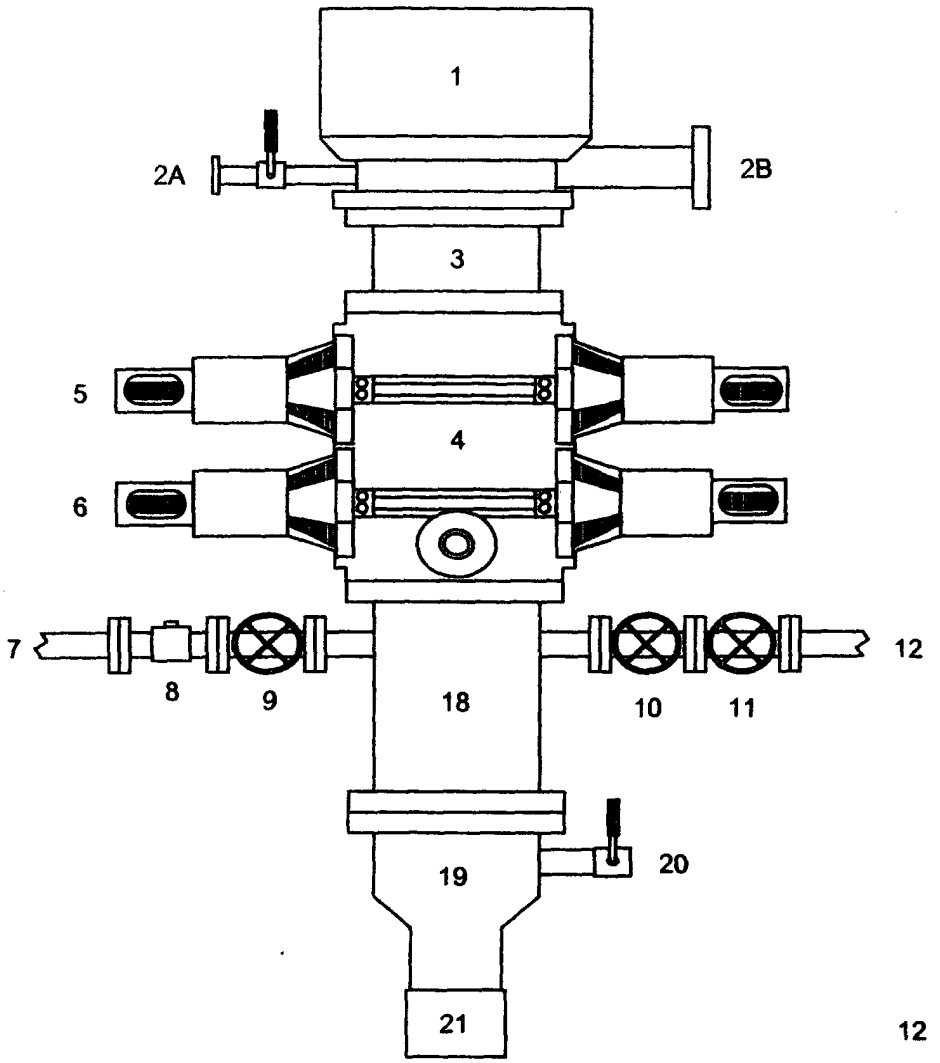
DEPTH: 8161 '

PRODUCTION:

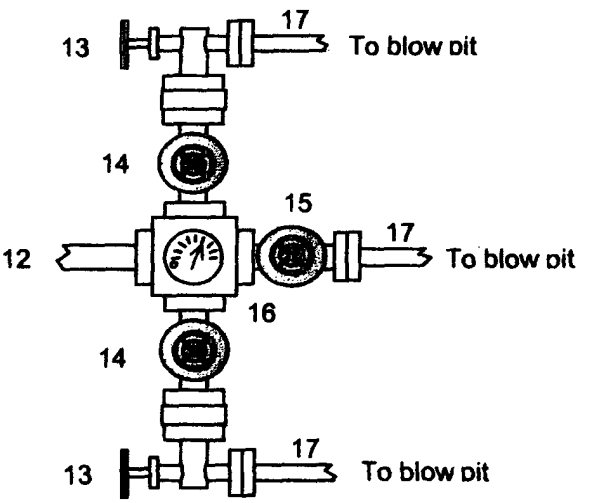
MJ 12/1/06

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



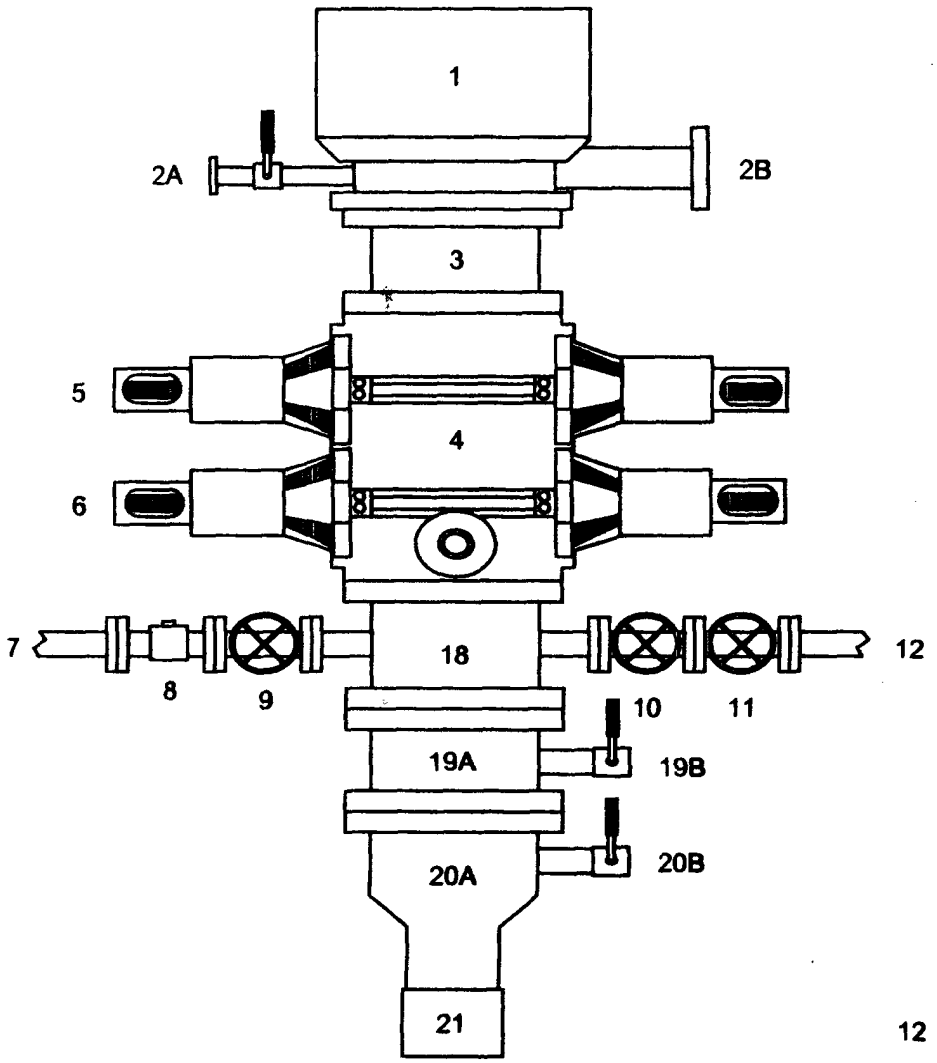
A 12-1/4" hole will be drilled to approximately 220' and the 9-5/8" surface casing will be run and cemented. The Casing Head "A" Section will be screwed onto the 9-5/8" surface casing stub. The BOP will be installed on the Casing Head "A" Section. A test plug will be set in the wellhead and the pipe 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

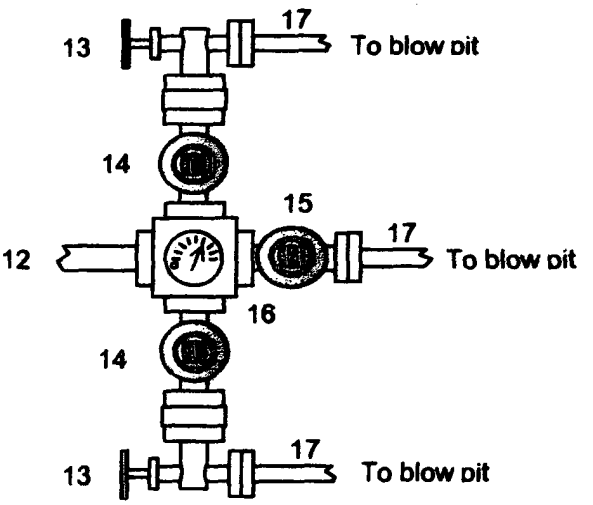
Revision Date: September 1, 2004

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

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