Submit 3 Copies To Appropriate District Office
District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Ave., Artesia, NM 882 1 0
District III
I 000 Rio Brazos Rd., Aztec, NM 8741 0
District IV
1220 S. St. Francis Dr., Santa I e, 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. | 30-045-32895 |
| 5. Indicate Type of Lease | STATE ☒ FEE ☐ |
| 6. State Oil & Gas Lease No. | B-10938-51 |
| 7. Lease Name or Unit Agreement Name | STATE COM I |
| 8. Well Number | 5C |
| 9. OGRID Number | 217817 |
| I 0. Pool name or Wildcat | BASIN DAKOTA / BLANCO MESAVERDE |

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: 4001 PENBROOK, ODESSA, TX 79762

4. Well Location
Unit Letter B 660 feet from the NORTH line and 1945 feet from the EAST line
Section 36 Township 31N Range 9W NMPM SAN JUAN County

I 1. Elevation *(Show whether DR, RKB, RT, GR, etc.)* 6352' GL

**Pit or Below -grade Tank Application ☐ Closure ☐**

**Pit type_____ Depth to Groundwater_____ Distance from nearest fresh water well_____ Distance from nearest surface water_____**

**Liner Thickness: 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: | | 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: ☒ | | 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 I 1 03. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

ConocoPhillips Company requests to change the completion of this well from a single Blanco Mesaverde to a downhole commingled Blanco Mesaverde / Basin Dakota.

The spacing unit for the Basin Dakota will be the N/2 of the section, 320.0 dedicated acres.

Revised well plan and cement calculations are attached as supporting documents.

OCT 2005
RECEIVED
OIL CONS. DIV.
DIST. 3

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 Peggy James Peggy James TITLE Sr. Associate DATE 10/19/2005

Type or print name E-mail address: Telephone No.

**For State Use Only**

APPROVED BY: TITLE DEPUTY OIL & GAS INSPECTOR, DIST. #3 DATE OCT 21 2005
Conditions of Approval (if any):

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 C-102
Revised February 21, 1994
Instructions on back
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

☐ AMENDED REPORT

# WELL LOCATION AND ACREAGE DEDICATION PLAT

| [1] API Number | [2] Pool Code | [3] Pool Name |
|---|---|---|
| 30-045-32895 | 72319 | BLANCO MESAVERDE / BASIN DAKOTA |

| [4] Property Code | [5] Property Name | [6] Well Number |
|---|---|---|
| 31634 | STATE COM I | 5C |

| [7] OGRID No. | [8] Operator Name | [9] Elevation |
|---|---|---|
| 217817 | CONOCOPHILLIPS COMPANY | 6352' |

## [10] Surface Location

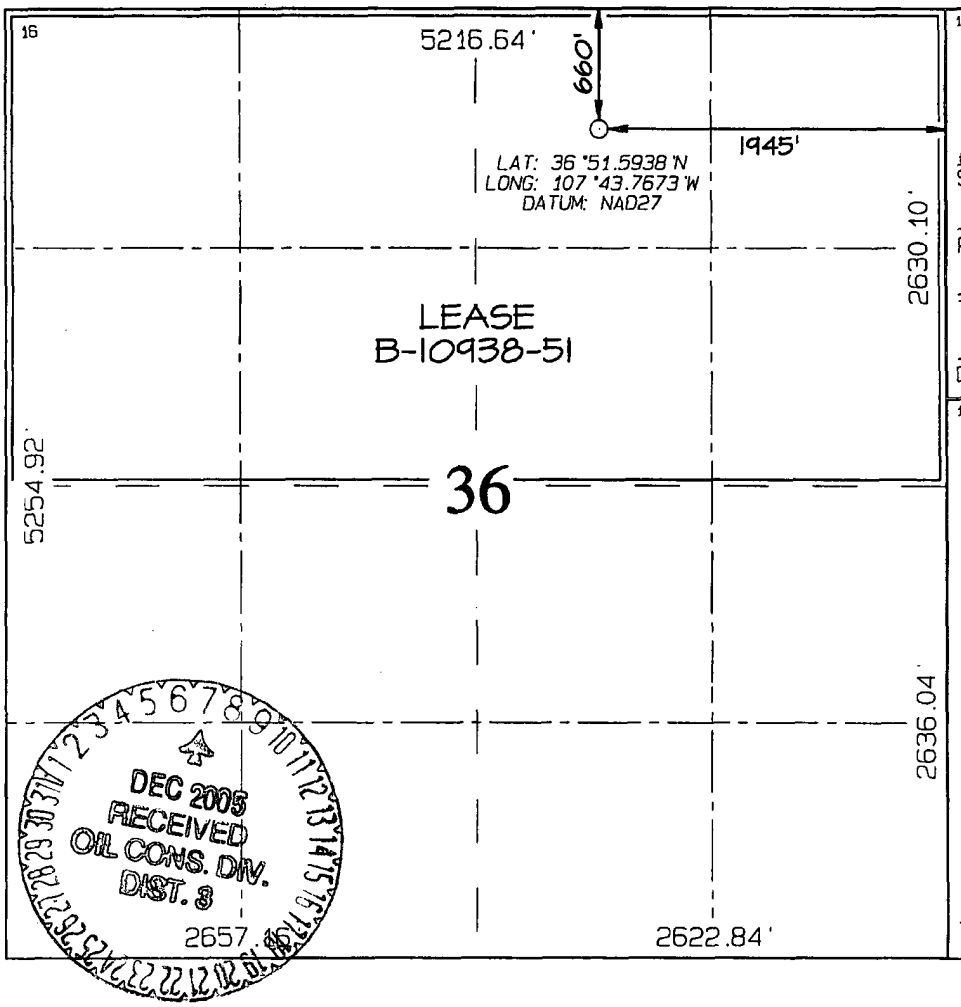
| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---|---|---|---|---|---|---|---|---|---|
| B | 36 | 31N | 9W | | 660 | NORTH | 1945 | EAST | SAN JUAN |

## [11] Bottom Hole Location If Different From Surface

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

| [12] Dedicated Acres | [13] Joint or Infill | [14] Consolidation Code | [15] Order No. |
|---|---|---|---|
| MV - 320.00 ACRES (N/2)<br>DK - 320.00 ACRES (N/2) | | | |

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

Vicki Westby
Signature

Vicki R. Westby
Printed Name

Staff Agent
Title

2-24-05
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.

Survey Date: JANUARY 20, 2005

Signature and Seal of Professional Surveyor

JASON C. EDWARDS
NEW MEXICO
15269
REGISTERED PROFESSIONAL SURVEYOR

JASON C. EDWARDS
Certificate Number 15269

ConocoPhillips

San Juan Business Unit

# PROJECT PROPOSAL - New Drill / Sidetrack

**STATE COM I 5C**

| | | | | |
|---|---|---|---|---|
| Lease: | AFE #: WAN.CNV.5146 | | | AFE $: |
| Field Name: WEST | Rig: | State: NM | County: SAN JUAN | API #: 3004532895 |
| Geoscientist: Brain, Ted H. | Phone: 832-486-2592 | Prod. Engineer: Piotrowicz, Greg M. | | Phone: +1 832-486-3486 |
| Res. Engineer: Skinner, Steve E | Phone: 832 486-2651 | Proj. Field Lead: Fransen, Eric E. | | Phone: |

**Primary Objective (Zones):**

| Zone | Zone Name |
|---|---|
| 2049 | DAKOTA |
| R20002 | MESAVERDE(R20002) |

**Location:** Surface — **Straight Hole**

| | | | | | |
|---|---|---|---|---|---|
| Latitude: 36.86 | Longitude: -107.73 | X: | Y: | Section: 36 | Range: 9W |
| Footage X: 1945 FEL | Footage Y: 660 FNL | Elevation: 6352 (FT) | Township: 31N | | |
| Tolerance: | | | | | |
| Location Type: Year Round | Start Date (Est.): | Completion Date: | Date In Operation: | | |
| Formation Data: Assume KB = 6365 | Units = FT | | | | |

| Formation Call & Casing Points | Depth (TVD in Ft) | SS (Ft) | Depletion (Yes/No) | BHP (PSIG) | BHT | Remarks |
|---|---|---|---|---|---|---|
| SURFACE CSG | 213 | 6152 | ☐ | | | 12-1/4 hole. 9 5/8" 32.3 ppf, H-40, STC casing. Circulate cement to surface. |
| NCMT | 605 | 5760 | ☐ | | | |
| OJAM | 1875 | 4490 | ☐ | | | Possible water flows. |
| KRLD | 2025 | 4340 | ☐ | | | |
| FRLD | 2890 | 3475 | ☐ | | | Possible gas. |
| PCCF | 3190 | 3175 | ☐ | | | |
| LEWS | 3390 | 2975 | ☐ | | | |
| Intermediate Casing | 3490 | 2875 | ☐ | | | 8 3/4" Hole. 7", 20 ppf, J-55, STC Casing. Circulate cement to surface. |
| CHRA | 4250 | 2115 | ☐ | | | |
| CLFH | 5000 | 1365 | ☐ | | | Gas; possibly wet |
| MENF | 5075 | 1290 | ☐ | | | Gas. |
| PTLK | 5385 | 980 | ☐ | | | Gas. |
| MNCS | 5635 | 730 | ☐ | | | |
| GLLP | 6725 | -360 | ☐ | | | Gas. Possibly wet. |
| GRHN | 7430 | -1065 | ☐ | | | Gas possible, highly fractured |
| PAGU | 7620 | -1255 | ☐ | | | Gas. Highly Fractured. |
| CBBO | 7665 | -1300 | ☐ | | | Gas |
| Total Depth | 7785 | -1420 | ☐ | | | 6-1/4" hole. 4-1/2", 11.6 lb/ft, N-80, LTC casing. Circulate cement a minimum of 100' inside the previous casing string. No open hole logs. Cased hole TDT to 150' above the Ojo Alamo & GR to surface. CBL to 250' above top of cement. |

**Reference Wells:**

| Reference Type | Well Name | Comments |
|---|---|---|

ConocoPhillips

# PROJECT PROPOSAL - New Drill / Sidetrack

San Juan Business Unit

**STATE COM I 5C**

| Logging Program: | | | | | |
|---|---|---|---|---|---|
| Intermediate Logs: ☐ Log only if show ☐ GR/ILD ☐ Triple Combo | | | | | |
| | | | | | |
| TD Logs: ☐ Triple Combo ☐ Dipmeter ☐ RFT ☐ Sonic ☐ VSP ☑ TDT ☑ Other | | | | | |
| Cement Bond Log | | | | | |
| Additional Information: | | | | | |
| **Log Type** | **Stage** | **From (Ft)** | **To (Ft)** | **Tool Type/Name** | **Remarks** |

Comments: Zones - This well was originally a MV and was changed to a MV/DK in Oct. 2005

General/Work Description - State lease

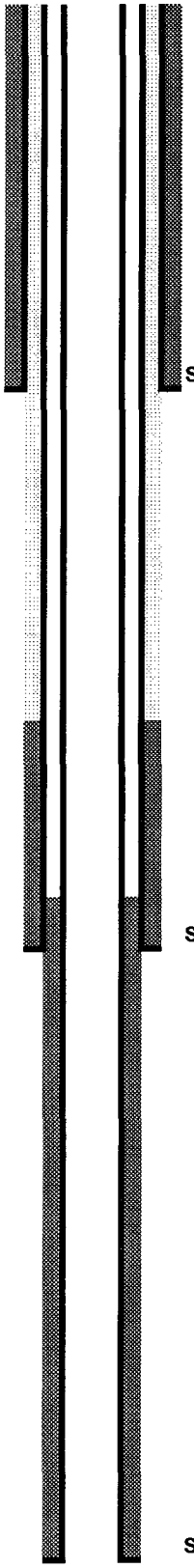
Drilling Mud Program:
Surface: spud mud
Intermediate: fresh water mud with bentonite and polymer as needed
Below Intermediate: air/mist/nitrogen drilling media with foamer, polymer, & corrosion inhibitor as needed

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

Funds in the amount of $791,544 gross ($643,129 COPC net) are requested to drill and equip the referenced well as an 5,735' MV 80-acre well, to be located 660' FNL & 1945' FEL of Section 36-T31N-R9W, San Juan Co., NM. COPC has 81.25/68.125% in the MV. The pre-drill charge code is WAN.RFE.PDR5.56. The subject well is scheduled to spud on December 8, 2005.

Section 36-T31N-R9W is in an area with well-developed pay in both the Point Lookout and Cliffhouse members of the Mesaverde Group. It is estimated that this well will get 1.3 Bcf EUR from the Mesaverde. The Mesaverde flowstream is based on a 35/65% new reserves/acceleration split, with an IP of 228 mcf/d. The 10/13% economic indicators generated are: PI 1.67/1.42, NPV $713M/$463M, AARR of 23.1%.

# State Com I #5C
## Schlumberger Cementing Program



**SURFACE CASING :**

| | | | |
|---|---|---|---|
| Drill Bit Diameter | 12.25 | " | |
| Casing Outside Diameter | 9.625 | " | Casing Inside Diam. 9.001 " |
| Casing Weight | 32.3 | ppf | |
| Casing Grade | H-40 | | |
| Shoe Depth | 235 | ' | |
| Cement Yield | 1.17 | cuft/sk | |
| Cement Density | 15.8 | lb/gal | |
| Excess Cement | 125 | % | |
| **Cement Required** | **148** | **sx** | |

**SHOE 235 ', 9.625 ", 32.3 ppf, H-40 STC**

**INTERMEDIATE CASING :**

| | | | |
|---|---|---|---|
| Drill Bit Diameter | 8.75 | " | |
| Casing Outside Diameter | 7 | " | Casing Inside Diam. 6.456 " |
| Casing Weight | 20 | ppf | |
| Casing Grade | J-55 | | |
| Shoe Depth | 3490 | ' | |
| Lead Cement Yield | 2.72 | cuft/sk | |
| Lead Cement Density | 11.7 | lb/gal | |
| Lead Cement Excess | 150 | % | |
| **Lead Cement Required** | **369** | **sx** | |
| Tail Cement Length | 698 | ' | |
| Tail Cement Yield | 1.31 | cuft/sk | |
| Tail Cement Density | 13.5 | lb/gal | |
| Tail Cement Excess | 150 | % | |
| **Tail Cement Required** | **208** | **sx** | |

**SHOE 3490 ', 7 ", 20 ppf, J-55 STC**

**PRODUCTION CASING :**

| | | | |
|---|---|---|---|
| Drill Bit Diameter | 6.25 | " | |
| Casing Outside Diameter | 4.5 | " | Casing Inside Diam. 4.000 " |
| Casing Weight | 11.6 | ppf | |
| Casing Grade | N-80 | | |
| Top of Cement | 3290 | ' | 200' inside intermediate casing |
| Shoe Depth | 7785 | ' | |
| Cement Yield | 1.44 | cuft/sk | |
| Cement Density | 13 | lb/gal | |
| Cement Excess | 50 | % | |
| **Cement Required** | **475** | **sx** | |

**SHOE 7785 ', 4.5 ", 11.6 ppf, N-80 LTC**

| State Com I #5C | | | |
|---|---|---|---|
| Schlumberger Cementing Program | | | |
| | Surf. Csg | Int. Csg | Prod. Csg |
| OD | 9.625 | 7 | 4.5 |
| ID | 9.001 | 6.456 | 4.000 |
| Depth | 235 | 3490 | 7785 |
| Hole Diam | 12.25 | 8.75 | 6.25 |
| % Excess Lead | | 150 | |
| % Excess Tail | 125 | 150 | 50 |
| Lead Yield | | 2.72 | |
| Tail Yield | 1.17 | 1.31 | 1.44 |
| Ft of Tail Slurry | 235 | 698 | 4495 |
| Top of Tail Slurry | 0 | 2792 | 3290 |
| Top of Lead Slurry | N/A | 0 | N/A |
| Mud Wt (ppg) | 8.9 | 9.0 | air dril |
| Mud Type | WBM | WBM | air dril |

| Surface Casing | | | | | | |
|---|---|---|---|---|---|---|
| | Ft | Cap | XS Factor | bbls | cuft | sx |
| Open Hole Annulus[1] | 219 | 0.055804 | 2.25 | 27.5 | 154.4 | 132.0 |
| Shoe Track Volume | 42 | 0.078735 | 1 | 3.3 | 18.6 | 15.9 |
| Total | | | | 30.8 | 172.9 | 147.8 |

| Intermediate Casing | | | | | | |
|---|---|---|---|---|---|---|
| | Ft | Cap | XS Factor | bbls | cuft | sx |
| Lead Open Hole Annulus | 2557 | 0.026786 | 2.5 | 171.2 | 961.4 | 353.4 |
| Lead Cased Hole Annulus | 235 | 0.031116 | 1 | 7.3 | 41.1 | 15.1 |
| Lead Total | | | | 178.5 | 1002.4 | 368.5 |
| Tail Open Hole Annulus | 698 | 0.026786 | 2.5 | 46.7 | 262.4 | 200.3 |
| Tail Shoe Track Volume | 42 | 0.040505 | 1 | 1.7 | 9.6 | 7.3 |
| Tail Total | | | | 48.4 | 272.0 | 207.6 |

| Production Casing | | | | | | |
|---|---|---|---|---|---|---|
| | Ft | Cap | XS Factor | bbls | cuft | sx |
| Open Hole Annulus | 4295 | 0.018282 | 1.5 | 117.8 | 661.3 | 459.2 |
| Cased Hole Annulus | 200 | 0.020826 | 1 | 4.2 | 23.4 | 16.2 |
| Total | | | | 121.9 | 684.7 | 475.5 |

1. The length of the open hole annulus for the surface casing is Shoe Depth minus RKB.

| State Com I #5C | | |
|---|---|---|
| Schlumberger Cementing Program | | |
| 9-5/8 Surface Casing | | |
| Cement Recipe | Class G Cement | |
| | + 3% S001 Calcium Chloride | |
| | + 0.25 lb/sx D029 Cellophane Flakes | |
| Cement Volume | 148 | sx |
| Cement Yield | 1.17 | cuft/sx |
| Cement Volume | 172.9 | cuft |
| Cement Density | 15.8 | ppg |
| Water Required | 4.973 | gal/sx |
| | | |
| Compressive Strength | | |
| Sample cured at 60 deg F for 8 hrs | | |
| 6 hrs | 250 | psi |
| 8 hrs | 500 | psi |

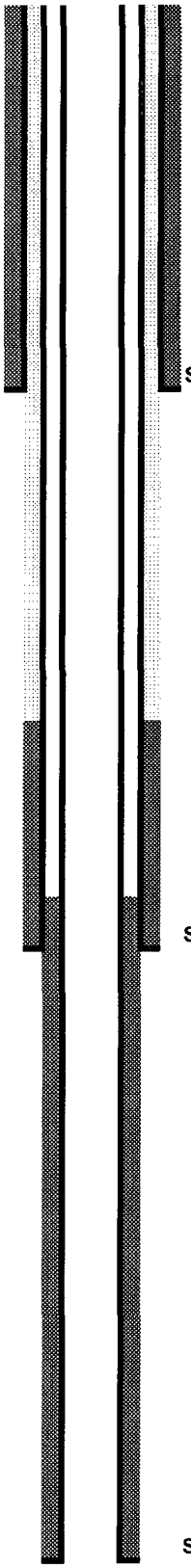
| State Com I #5C |
|---|
| Schlumberger Cementing Program |

| 7" Intermediate Casing | | |
|---|---|---|
| Lead Slurry | | |
| Cement Recipe | Class G Cement | |
| | + 0.25 lb/sx D029 Cellophane Flakes | |
| | + 3% D079 Extender | |
| | + 0.20% D046 Antifoam | |
| | + 10 lb/sx Pheno Seal | |
| Cement Required | 369 | sx |
| Cement Yield | 2.72 | cuft/sx |
| Slurry Volume | 1002.4 | cuft |
| | 178.5 | bbls |
| Cement Density | 11.7 | ppg |
| Water Required | 15.74 | gal/sx |
| | | |
| Compressive Strength | | |
| Sample cured at 140 deg F for 24 hrs | | |
| 9 hrs | 300 | psi |
| 48 hrs | 525 | psi |

| 7" Intermediate Casing | | |
|---|---|---|
| Tail Slurry | | |
| Cement Slurry | 50 / 50 POZ: Class G Cement | |
| | + 0.25 lb/sx D029 Cellophane Flakes | |
| | + 2% D020 Bentonite | |
| | + 1.5 lb/sx D024 Gilsonite Extender | |
| | + 2% S001 Calcium Chloride | |
| | + 0.10% D046 Antifoam | |
| | + 6 lb/sx Pheno Seal | |
| Cement Required | 208 | sx |
| Cement Yield | 1.31 | cuft/sx |
| Slurry Volume | 272.0 | cuft |
| | 48.4 | bbls |
| Cement Density | 13.5 | ppg |
| Water Required | 5.317 | gal/sx |
| | | |
| Compressive Strength | | |
| Sample cured at 140 deg F for 24 hrs | | |
| 3 hrs 53 min | 500 | psi |
| 8 hrs 22 min | 1000 | psi |
| 24 hr | 3170 | psi |
| 48 hr | 5399 | psi |

| State Com I #5C | | |
|---|---|---|
| Schlumberger Cementing Program | | |
| 4-1/2" Production Casing | | |
| Cement Recipe | 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 | |
| | + 0.15% D065 Dispersant | |
| | + 0.1% D800 Retarder | |
| | + 0.1% D046 Antifoamer | |
| | + 3.5 lb/sx PhenoSeal | |
| Cement Quantity | 475 | sx |
| Cement Yield | 1.44 | cuft/sx |
| Cement Volume | 684.7 | cuft |
| | 121.9 | |
| Cement Density | 13 | ppg |
| Water Required | 6.47 | gal/sx |
| | | |
| Compressive Strength | | |
| Sample cured at 198 deg F for 24 hrs | | |
| 7 hrs | 500 | psi |
| 24 hr | 2100 | psi |

# State Com I #5C
# Halliburton Cementing Program



## SURFACE CASING :

| | | | |
|---|---|---|---|
| Drill Bit Diameter | 12.25 | " | |
| Casing Outside Diameter | 9.625 | " | Casing Inside Diam. 9.001 " |
| Casing Weight | 32.3 | ppf | |
| Casing Grade | H-40 | | |
| Shoe Depth | 235 | ' | |
| Cement Yield | 1.21 | cuft/sk | |
| Cement Density | 15.6 | lb/gal | |
| Excess Cement | 125 | % | |
| **Cement Required** | **143** | **sx** | |

**SHOE 235 ', 9.625 ", 32.3 ppf, H-40 STC**

## INTERMEDIATE CASING :

| | | | |
|---|---|---|---|
| Drill Bit Diameter | 8.75 | " | |
| Casing Outside Diameter | 7 | " | Casing Inside Diam. 6.456 " |
| Casing Weight | 20 | ppf | |
| Casing Grade | J-55 | | |
| Shoe Depth | 3490 | ' | |
| Lead Cement Yield | 2.88 | cuft/sk | |
| Lead Cement Density | 11.5 | lb/gal | |
| Lead Cement Excess | 150 | % | |
| **Lead Cement Required** | **348** | **sx** | |
| Tail Cement Length | 698 | ' | |
| Tail Cement Yield | 1.33 | cuft/sk | |
| Tail Cement Density | 13.5 | lb/gal | |
| Tail Cement Excess | 150 | % | |
| **Tail Cement Required** | **204** | **sx** | |

**SHOE 3490 ', 7 ", 20 ppf, J-55 STC**

## PRODUCTION CASING :

| | | | |
|---|---|---|---|
| Drill Bit Diameter | 6.25 | " | |
| Casing Outside Diameter | 4.5 | " | Casing Inside Diam. 4.000 " |
| Casing Weight | 11.6 | ppf | |
| Casing Grade | N-80 | | |
| Top of Cement | 3290 | ' | 200' inside intermediate casing |
| Shoe Depth | 7785 | ' | |
| Cement Yield | 1.45 | cuft/sk | |
| Cement Density | 13.1 | lb/gal | |
| Cement Excess | 50 | % | |
| **Cement Required** | **472** | **sx** | |

**SHOE 7785 ', 4.5 ", 11.6 ppf, N-80 LTC**

| State Com I #5C | | | |
|---|---|---|---|
| Halliburton Cementing Program | | | |
| | Surf. Csg | Int. Csg | Prod. Csg |
| OD | 9.625 | 7 | 4.5 |
| ID | 9.001 | 6.456 | 4.000 |
| Depth | 235 | 3490 | 7785 |
| Hole Diam | 12.25 | 8.75 | 6.25 |
| % Excess Lead | | 150 | |
| % Excess Tail | 125 | 150 | 50 |
| Lead Yield | | 2.88 | |
| Tail Yield | 1.21 | 1.33 | 1.45 |
| Ft of Tail Slurry | 235 | 698 | 4495 |
| Top of Tail Slurry | 0 | 2792 | 3290 |
| Top of Lead Slurry | N/A | 0 | N/A |
| Mud Wt (ppg) | 8.9 | 9.0 | air dril |
| Mud Type | WBM | WBM | air dril |

| Surface Casing | | | | | | |
|---|---|---|---|---|---|---|
| | Ft | Cap | XS Factor | bbls | cuft | sx |
| Open Hole Annulus[1] | 219 | 0.055804 | 2.25 | 27.5 | 154.4 | 127.6 |
| Shoe Track Volume | 42 | 0.078735 | 1 | 3.3 | 18.6 | 15.3 |
| Total | | | | 30.8 | 172.9 | 142.9 |

| Intermediate Casing | | | | | | |
|---|---|---|---|---|---|---|
| | Ft | Cap | XS Factor | bbls | cuft | sx |
| Lead Open Hole Annulus | 2557 | 0.026786 | 2.5 | 171.2 | 961.4 | 333.8 |
| Lead Cased Hole Annulus | 235 | 0.031116 | 1 | 7.3 | 41.1 | 14.3 |
| Lead Total | | | | 178.5 | 1002.4 | 348.1 |
| Tail Open Hole Annulus | 698 | 0.026786 | 2.5 | 46.7 | 262.4 | 197.3 |
| Tail Shoe Track Volume | 42 | 0.040505 | 1 | 1.7 | 9.6 | 7.2 |
| Tail Total | | | | 48.4 | 272.0 | 204.5 |

| Production Casing | | | | | | |
|---|---|---|---|---|---|---|
| | Ft | Cap | XS Factor | bbls | cuft | sx |
| Open Hole Annulus | 4295 | 0.018282 | 1.5 | 117.8 | 661.3 | 456.1 |
| Cased Hole Annulus | 200 | 0.020826 | 1 | 4.2 | 23.4 | 16.1 |
| Total | | | | 121.9 | 684.7 | 472.2 |

1. The length of the open hole annulus for the surface casing is Shoe Depth minus RKB.

| State Com I #5C | | |
|---|---|---|
| Halliburton Cementing Program | | |
| 9-5/8 Surface Casing | | |
| Cement Recipe | Standard Cement | |
| | + 3% Calcium Chloride | |
| | + 0.25 lb/sx Flocele | |
| Cement Volume | 143 | sx |
| Cement Yield | 1.21 | cuft/sx |
| Slurry Volume | 172.9 | cuft |
| | 30.8 | bbls |
| Cement Density | 15.6 | ppg |
| Water Required | 5.29 | gal/sx |
| | | |
| Compressive Strength | | |
| Sample cured at 60 deg F for 8 hrs | | |
| 5hrs 58 mins | 250 | psi |
| 8 hrs | 500 | psi |

| State Com I #5C |
|---|
| Halliburton Cementing Program |

| 7" Intermediate Casing | | |
|---|---|---|
| Lead Slurry | | |
| Cement Recipe | Standard Cement | |
| | + 3% Econolite (extender) | |
| | + 10 lb/sx Pheno Seal | |
| Cement Required | 348 | sx |
| Cement Yield | 2.88 | cuft/sx |
| Slurry Volume | 1002.4 | cuft |
| | 178.5 | bbls |
| Cement Density | 11.5 | ppg |
| Water Required | 16.85 | gal/sx |
| | | |
| Compressive Strength | | |
| Sample cured at 121 deg F for 24 hrs | | |
| 2 hr 31 min | 50 | psi |
| 12 hr | 328 | psi |
| 24 hr | 438 | psi |

| 7" Intermediate Casing | | |
|---|---|---|
| Tail Slurry | | |
| Cement Slurry | 50 / 50 POZ:Standard Cement | |
| | + 2% Bentonite | |
| | + 6 lb/sx Pheno Seal | |
| Cement Required | 204 | sx |
| Cement Yield | 1.33 | cuft/sx |
| Slurry Volume | 272.0 | cuft |
| | 48.4 | bbls |
| Cement Density | 13.5 | ppg |
| Water Required | 5.52 | gal/sx |
| | | |
| Compressive Strength | | |
| Sample cured at 121 deg F for 24 hrs | | |
| 2 hr 21 min | 50 | psi |
| 4 hr 58 min | 500 | psi |
| 24 hr | 1697 | psi |
| | | |

| State Com I #5C | | |
|---|---|---|
| Halliburton Cementing Program | | |
| 4-1/2" Production Casing | | |
| Cement Recipe | 50 / 50 POZ:Standard Cement | |
| | + 3% Bentonite | |
| | + 3.5 lb/sx PhenoSeal | |
| | + 0.2% CFR-3 Friction Reducer | |
| | + 0.1% HR-5 Retarder | |
| | + 0.8% Halad-9 Fluid Loss Additive | |
| Cement Quantity | 472 | sx |
| Cement Yield | 1.45 | cuft/sx |
| Cement Volume | 684.7 | cuft |
| | 121.9 | |
| Cement Density | 13.1 | ppg |
| Water Required | 6.55 | gal/sx |
| | | |
| Compressive Strength | | |
| Sample cured at 200 deg F for 24 hrs | | |
| 9 hr 32 min | 50 | psi |
| 12 hr | 500 | psi |
| 13 hr 29 min | 1026 | psi |
| 24 hr | 2300 | psi |