

DRILLING PLAN

PROSPECT/FIELD	NIOBRARA/ Denver Julesburg				COUNTY/STATE		Arapahoe Co., Colorado	
OWNERS	CONOCOPHILLIPS				LEASE			
WELL NO.	Tebo 29-1H				FNL	FSL	FEL	FWL
LOCATION	SESE	29 T4S-R64W	Surface Location:		265'	765'		
	SWSW	29 T4S-R64W	Bottom Hole Location:		660'		520'	
EST. T.D.	11,568' MD				GROUND ELEV.		5,855' (est) Finished Grade	

PROGNOSIS:	Based on 5,880' KB(est)	
MARKER	DEPTH TVD	DATUM
Fox Hills Aquifer	1,669	4,211
Pierre Shale (Fox Hill Base)	1,902	3,978
Surface Casing	2,105	3,775
Sharon Spring Shale	7,557	(1,677)
Niobrara	7,640	(1,760)
Niobrara B	7,706	(1,826)
Niobrara C Chalk	7,763	(1,883)
Target (landing point)	7,800	(1,920)
Target (BHL)	7,840	(1,960)

LOGS:	Type	Interval
Open Hole:	MWD/GR:	KOP to Int CSG shoe
	MWD/LWD: GR/RES-Imaging/Sonic/Density	Int CSG shoe to TD
Cased Hole:	CBL/USIT:	Intermediate casing from Surface to KOP / Liner Top
	DEVIATION:	
	Int (Curve):	Survey every 30'
	Prod:	2" max. INC, 0.6"/ 100' max DLS; survey every 90'
DST'S:	N/A	
CORES:	N/A	
SAMPLES:		
	Mudlogging:	KOP to TD
	Two-Man Unit:	Dry samples every 10'
		Wet samples every 30'
BOP:	COP Category 2 Well Control Requirements (Minium)	
	H&P Rig 280	BOPE: 11"-5M psi Annular
		11"-5M psi Pipe Ram
		11"-5M psi Blind Ram
		11"-5M psi Cross / Choke & Kill Lines
		11"-5M psi Pipe Ram

Estimated BHP (psi):	3853	0.49 psi/ft
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MUD:	Interval	Type	WT	Vls	MBT	LGS	WL	PH	Remarks
Surface:	0' - 2,105'	FW / Gel-Lime Sweeps	8.40 - 9.00	28-50	NC	< 6%	NC	8.0-8.5	Circ Mud Tanks
Int (Curve):	2,105' - 8,127'	Integrate OBM	9.20-10.00	40-50		< 4%	<6	(HpHt)	Circ Mud Tanks
Production Lat #1:	8,127' - 11,568'	LSND	9.20-10.00	35-45	5-10	< 4%	<4	8.0-8.5	Circ Mud Tanks

CASING:	Size	Wt ppf/Grd/Con	Hole	Depth	Cement Top	WOC	Remarks
Surface:	9-5/8"	36 J55 STC	12-1/4"	2,105'	To Surface	6 hrs	
Intermediate:	7"	26 P110 LTC	8-3/4"	8,127'	2,005'	6 hrs	Top Tail = 7,140'
Production Lat #1:	4-1/2"	13.5 P110 BTC	6-1/8"	11,568'	Uncemented		TOL = 7,127'

DIRECTIONAL PLAN							
	MD	TVD			AZ		
Surface RKB:	0'	0'	265' FSL	765' FEL	29 T4S-R64W	N/A	Survey Company: Sperry Halliburton
Vertical KOP (90° curve):	7,227'	7,227'	265' FSL	765' FEL	29 T4S-R64W	0.00	Curve Build Rate: 10° /100'
End Build:	8,127'	7,800'	487' FSL	1292' FEL	29 T4S-R64W	294.09	Land curve at 90° inc. and 294.09° Az.
7" Casing:	8,127'	7,800'	487' FSL	1292' FEL	29 T4S-R64W	294.09	
Tangent:	8202'	7800'	518' FSL	1360' FEL	29 T4S-R64W	294.09	
Turn / Drop:	9233'	7813'	731' FSL	2360' FEL	29 T4S-R64W	270.00	2.34°/100' turn to 270° Az; drop to 88.6°
Hold to TD:	11,568'	7,840'	660' FSL	520' FWL	29 T4S-R64W	270.00	

Comments:
MWD Surveys will be taken every 30' while building curve and every 90' while drilling lateral.

Prep By:	Gary Hamilton	Date:	5/25/12	Doc:	REV.1
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DRILLING PLAN

PROSPECT/FIELD	NIOBRARA/ Denver Julesburg				COUNTY/STATE		Arapahoe Co., Colorado																							
OWNERS	CONOCOPHILLIPS				LEASE		Fee																							
WELL NO.	Tebo 29-1H				FNL	FSL	FEL	FWL																						
LOCATION	SESE	29 T4S-R64W	Surface Location:		265'	765'																								
	SESE	29 T4S-R64W	Bottom Hole Location:		265'	765'																								
EST. T.D.	8,222' MD				GROUND ELEV.		5,855' (est)	Finished Grade																						
PROGNOSIS:	Based on 5,880' KB(est)				LOGS:		Type	Interval																						
MARKER	DEPTH TVD		DATUM		Open Hole: GR-MWD: Surface CSG shoe to TD GR/DENSITY/NEUTRON/SONIC SCANNER: Surface CSG shoe to TD RI-SCANNER/DIELECTRIC SCANNER/ECS: 6,000' to TD OBM: 6,000' to TD																									
Fox Hills Aquifer	1,669		4,211		DEVIATION: Surf: 2° max. INC, 1' / 100' max. DLS; svy every 500' GYRO-TD Int (Pilot Hole): 2° max. INC, 0.6' / 100' max DLS; svy every 90'																									
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Niobrara C Chalk	7,763		(1,883)																											
Niobrara D Chalk	7,929		(2,049)																											
Fort Hays Limestone	8,056		(2,176)																											
Carlisle Shale	8,086		(2,206)																											
Greenhorn	8,167		(2,287)		DST'S: N/A																									
Pilot Hole TD	8,222		(2,342)																											
					CORES: N/A																									
					SAMPLES: Mudlogging: Two-Man Unit: 6,000' to TD Dry samples every 10' Wet samples every 30'																									
					BOP: COP Category 2 Well Control Requirements (Minimum) H&P Rig 280 BOPE: 11"-5M psi Annular 11"-5M psi Pipe Ram 11"-5M psi Blind Ram 11"-5M psi Cross / Choke & Kill Lines 11"-5M psi Pipe Ram																									
Estimated BHP (psi):		4062	0.49 psi/ft																											
MUD:	Interval	Type	WT	Vls	MBT	LGS	WL	PH																						
Surface:	0' - 2,105'	FW / Gel-Lime Sweeps	8.40 - 9.00	28-50	NC	< 6%	NC	8.0-8.5																						
Int (Pilot Hole):	2,105' - 8,222'	Integrate OBM	9.20-10.00	40-50		< 4%	< 6	(HphI)																						
CASING:	Size	Wt ppf/Grd/Con	Hole	Depth	Cement Top	WOC	Remarks																							
Surface:	9-5/8"	36 J55 STC	12-1/4"	2,105'	To Surface	6 hrs	Top Tail = 1,605'																							
OH Whipstock (cemented plug back): Top at: 7,162' (+/- 65' above KOP) Bottom at: 7,177' with 2-7/8" tail pipe "cement stinger" from 7,177' to 8,192' Cemented in place with planned top of cement at: 6,962' (200' above top of whipstock)																														
DIRECTIONAL PLAN (Vertical Hole) <table style="width:100%;"> <tr> <td></td> <td>MD</td> <td>TVD</td> <td>265' FSL</td> <td>765' FEL</td> <td>29 T4S-R64W</td> <td>AZ</td> <td rowspan="3">Survey Company: Sperry Halliburton Gyro Data</td> </tr> <tr> <td>Surface:</td> <td>0</td> <td>0</td> <td></td> <td></td> <td></td> <td>0</td> </tr> <tr> <td>TD:</td> <td>8,222'</td> <td>8,222'</td> <td>265' FSL</td> <td>765' FEL</td> <td>29 T4S-R64W</td> <td>0</td> </tr> </table>										MD	TVD	265' FSL	765' FEL	29 T4S-R64W	AZ	Survey Company: Sperry Halliburton Gyro Data	Surface:	0	0				0	TD:	8,222'	8,222'	265' FSL	765' FEL	29 T4S-R64W	0
	MD	TVD	265' FSL	765' FEL	29 T4S-R64W	AZ	Survey Company: Sperry Halliburton Gyro Data																							
Surface:	0	0				0																								
TD:	8,222'	8,222'	265' FSL	765' FEL	29 T4S-R64W	0																								
Comments: Surveys will be taken at 90° Interval below surface casing when drilling vertical hole with PDC / Motor / MWD/GR until reach pilot hole TD @ 8,222' Gyro survey to be run in surface hole interval.																														
Prep By:		Gary Hamilton		Date:		5/25/12		Doc: REV.1																						

Permit:
COGCC#:
AD#:
Est#:

Directional:					
NO	TYO	FU/FSL	FU/PUL	S-LR	AZI
Surface	0°	285 FSL	785 FSL	20 74S-84NW	0.0
7th	0°	285 FSL	785 FSL	20 74S-84NW	0.0

Extraction, Milling, Casings, Drill Fluids, Cement, Logging/Cores

Notes for Weill

[illegible]

- 1.) Refer to the lifting program for detailed procedures.
- 2.) Drive 150 ft. at 5000 RPM.
- 3.) Drive 150 ft. at 5000 RPM with 100% fuel. Run every 200' Run time at TD
- 4.) Run 150 ft. every 200'.
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- 98.) Run 150 ft. every 200'.
- 99.) Run 150 ft. every 200'.
- 100.) Run 150 ft. every 200'.

Estimated BHP (psi):	4,062	0.494 psi/ft
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GOH 5-25-2012 / Rev 1

Niobrara Prospect, Colorado
CONOCO-PHILLIPS
Well: Tebo 23-1H
Loc: 29 T4S-R64W

Surface Casing:

Surface Casing Depth (Ft)	2,105
Surface Casing O.D. (in.)	9,625
Surface Casing ID (in)	8,921
Hole O.D. (in)	12,25
Excess (%)	125%
Calc. Volume Tail (Sx)	200
Yield Tail (Cu. Ft./Sx)	1.94
Yield Lead (Cu. Ft./Sx)	2.47
Shoe Joint (Ft)	40
Shoe Volume (Cu. Ft)	17.4
Shoe Volume (bbl)	3.1
Tail feet of cement	500
Calculated Total Volume (Cu. Ft.)	1,518
Calc. Tail Volume (Cu. Ft.)	370
Calc. Lead Volume (Cu. Ft.)	1,131
Calc. Tail Volume (bbl)	66
Calc. Lead Volume (bbl)	201
Calc. Lead Volume (Sx)	480
Calc. Displacement Vol (bbl)	160
Lead Weight (ppg)	12
Tail Weight (ppg)	13

Intermediate Casing (Lead):

Production Casing O.D. (in.)	7
Production Casing ID (in)	6,184
Hole O.D. (in)	8,75
Excess (%)	25%
Yield Lead (Cu. Ft./Sx)	2.23
Surface Shoe (Ft)	2,105
Top Lead (Ft) - 100ft above surface shoe	7,140
Base Lead (Ft) - 500ft above Niobrara Fm	5,135
Lead feet of cement	963
Calc. Lead Volume (Cu. Ft.)	171
Calc. Lead Volume (bbl)	440
Calc. Lead Volume (Sx)	11.5
Lead Weight (ppg)	

Intermediate Casing (Tail):

Production Casing Depth (Ft)	8,127
Production Casing O.D. (in.)	7
Production Casing ID (in)	6,184
Hole O.D. (in)	8,75
Excess (%)	25%
Yield Tail (Cu. Ft./Sx)	1.95
Shoe Joint (Ft)	80
Top Tail (Ft) - 500ft above Niobrara Fm	7,140
Tail feet of cement	987
Shoe Volume (Cu. Ft)	16.7
Shoe Volume (bbl)	3.0
Calc. Tail Volume (Cu. Ft.)	202
Calc. Tail Volume (bbl)	36
Calc. Displacement Vol (bbl)	110
Tail Weight (ppg)	298
	13

Pilot Hole: Plug Back Cement Program:

Hole O.D. (in)	8.75
Excess (%)	10%
Plug Top (ft)	6962
Plug Bottom (ft)	8,192
Yield Lead (Cu. Ft./Sx)	1.52
Lead Weight (ppg)	15.8
Whipstock OD (in)	7.53
OH Whipstock Top (ft)	7,162
OH Whipstock Bottom (ft)	7,177
Tubing OD (in)	2,875
2-7/8" tubing Top (ft)	7,177
2-7/8" tubing Bottom (ft)	8,192
Calc. Cement Volume (Cu. Ft.)	510
Calc. Cement Volume (Sx)	335
Calc. Cement Volume (bbl)	91

Placed as balanced plug