

**DRILLING PLAN**

PROSPECT/FIELD	NIOBRARA/ Denver Julesburg				COUNTY/STATE				Arapahoe Co., Colorado	
OWNERS	CONOCOPHILLIPS				LEASE		Fee			
WELL NO.	Tebco 32-3H				FNL	FSL	FEL	FWL		
LOCATION	SESW	32 T4S-R64W	Surface Location:		350'			1980'		
	SENW	32 T4S-R64W	Bottom Hole Location:	.600'				1980'		
EST. T.D.	0' MD				GROUND ELEV.				5,968' (est)	ungraded

PROGNOSIS:			Based on 5,986' KB(est)			LOGS:			Type		Interval	
MARKER			DEPTH TVD			DATUM			Open Hole:		MWD/GR: KOP to Int CSG shoe	
Fox Hills Aquifer			1,775			4,211					Int CSG shoe to TD	
Pierre Shale (Fox Hill Base )			2,008			3,978			MWD/LWD: GR/RES/Imaging			
Surface Casing			2,210			3,776						
Sharon Spring Shale			7,555			(1,569)						
Niobrara			7,685			(1,699)			Cased Hole:			
Niobrara B			7,725			(1,739)			CBL:		Surface CSG shoe to TD	
Target Lateral Niobrara C Chalk			7,745			(1,769)			DEVIATION:			
									Int (Curve): Svy every 30'			
									Prod: 2° max. INC, 0.6°/ 100' max DLS; svy 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)			
									PD-522 BOPE:		11"-5Mpsi Annular (Hydri GK)	
											11"-5Mpsi Pipe Ram (Cameron U)	
											11"-5Mpsi Blind Ram (Cameron U)	
											11"-5Mpsi Cross / Choke & Kill Lines	
											11"-5Mpsi Pipe Ram (Cameron U)	

<b>Estimated BHP (psi):</b>	0		0.49 psi/ft						
<b>MUD:</b>	<b>Interval</b>	<b>Type</b>	<b>WT</b>	<b>Vis</b>	<b>MBT</b>	<b>LGS</b>	<b>WL</b>	<b>PH</b>	<b>Remarks</b>
Surface:	0' - 2,210'	FW / Gel-Lime Sweeps	8.40 - 9.00	28-50	NC	< 6%	NC	8.0-8.5	Circ Mud Tanks
Int (Curve):	7,224' - 8,042'	LSND	9.20-10.00	28-60	5-10	< 6%	<20	8.0-8.5	Circ Mud Tanks
Production Lat #1:	8,042' - 11,868'	LSND	9.20-10.00	35-45	5-10	< 4%	<4	8.0-8.5	Circ Mud Tanks

<b>CASING:</b>	<b>Size</b>	<b>Wt ppf/Grd/Con</b>	<b>Hole</b>	<b>Depth</b>	<b>Cement</b>	<b>WOC</b>	<b>Remarks</b>
Surface:	9-5/8"	36 J55 STC	12-1/4"	2,210'	To Surface	6 hrs	
Intermediate:	7"	26 L80 LTC	8-3/4"	8,042'	2,110'	6 hrs	100' above Surf Shoe
Production Lat #1:	4 1/2"	11.6 P110 LTC	6-1/8"	11,868'	7,124'	6 hrs	100' above KOP

<b>DIRECTIONAL PLAN</b>									
	<b>MD</b>	<b>TVD</b>	<b>350' FSL</b>	<b>1980' FVL</b>	<b>32 T4S-R64W</b>	<b>AZ</b>			
Surface:	N/A	N/A	350' FSL	1980' FVL	32 T4S-R64W	N/A	Survey Company: Weatherford		
Vertical KOP (90° curve):	7,224'	7,224'	350' FSL	1980' FVL	32 T4S-R64W	0	Curve Build Rate: 11° /100'		
End Build:	8,042'	7,745'	871' FSL	1980' FVL	32 T4S-R64W	1.4	Land curve at 90° inc. and 1.4° Az.		
7" Casing:	8,042'	7,745'	871' FSL	1980' FVL	32 T4S-R64W	1.4	Hold Az to TD.		
Tangent:	N/A	N/A	N/A	N/A	N/A	N/A			
Turn:	N/A	N/A	N/A	N/A	N/A	N/A			
TD:	11,868'	7,745'	600' FNL	1980' FVL	32 T4S-R64W	1.4			

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

<b>Prep By:</b>	Ricardo Avila	<b>Date:</b>	1/7/11	<b>Doc:</b>	REV.0
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Niobrara Prospect, Colorado  
CONOCO-PHILLIPS  
Well: Tebo 32-3H  
Loc: 32 T4S-R64W

**Surface Casing:**

Surface Casing Depth (Ft)	2,210
Surface Casing O.D. (in.)	9,625
Surface Casing ID (in)	8,921
Hole O.D. (in)	12.25
Excess (%)	12.5%
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 (bb)	3.1
Tail feet of cement	500
Calculated Total Volume (Cu. Ft.)	1,592
Calc. Tail Volume (Cu. Ft.)	370
Calc. Lead Volume (Cu. Ft.)	1,205
Calc. Tail Volume (bb)	66
Calc. Lead Volume (bb)	215
Calc. Lead Volume (Sx)	490
Calc. Displacement Vol (bb)	163
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)	2,210
Top Lead (Ft) - 100ft above surface shoe	2,110
Base Lead (Ft) - 500ft above Niobrara Fm	7,185
Lead feet of cement	5,075
Calc. Lead Volume (Cu. Ft.)	951
Calc. Lead Volume (bb)	169
Calc. Lead Volume (Sx)	430
Lead Weight (ppg)	11.5

**Intermediate Casing (Tail):**

Production Casing Depth (Ft)	8,042
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	7,185
Tail feet of cement	857
Shoe Volume (Cu. Ft)	16.7
Shoe Volume (bb)	3.0
Calc. Tail Volume (Cu. Ft.)	178
Calc. Tail Volume (bb)	32
Calc. Tail Volume (Sx)	100
Calc. Displacement Vol (bb)	295
Tail Weight (ppg)	13

**Pilot Hole: Plug Back Cement Program:**

Hi-Cem W10 - 35% Silica	8.75
Hole O.D. (in)	25%
Excess (%)	8959
Plug Top (ft)	8067
Plug Bottom (ft)	1.52
Yield Lead (Cu. Ft/Sx)	15.8
Lead Weight (ppg)	7.53
Whipstock OD (in)	7,159
OH Whipstock Top (ft)	7,187
OH Whipstock Bottom (ft)	2,875
Tubing OD (in)	7,187
2-7/8" tubing Top (ft)	8067
2-7/8" tubing Bottom (ft)	5,118
Calc. Cement Volume (Cu. Ft.)	341
Calc. Cement Volume (Sx)	82
Calc. Cement Volume (bb)	82

Placed as balanced plug

**Liner (Lead):**

ExtendaCem	4.5
Liner O.D. (in.)	6,276
Casing ID (in)	6,125
Hole O.D. (in)	30%
Excess (%)	2.23
Yield Lead (Cu. Ft/Sx)	7,124
Liner Top (Ft)	8042
Casing Shoe (Ft)	7,124
Top Lead (Ft) - 100ft above KOP	8042
Base Lead (Ft) - Casing Shoe	8042
Lead feet of cement	918
Calc. Lead Volume (Cu. Ft.)	125
Calc. Lead Volume (bb)	22
Calc. Lead Volume (Sx)	56
Lead Weight (ppg)	11.5

**Liner (Tail):**

Varicem	4.5
Liner O.D. (in.)	6,276
Casing ID (in)	6,125
Hole O.D. (in)	30%
Excess (%)	1.95
Yield Lead (Cu. Ft/Sx)	8042
Casing Shoe (Ft)	11,868
Liner Bottom (Ft)	8042
Top Tail (Ft) - Casing Shoe	8042
Base Tail (Ft) - Liner Bottom	11,868
Tail feet of cement	3,828
Calc. Lead Volume (Cu. Ft.)	458
Calc. Lead Volume (bb)	83
Calc. Lead Volume (Sx)	240
Lead Weight (ppg)	13



Well: Tabo 33-3H  
Surface Location:  
Bottom Hole Location:

SAP Network:  
Inv. Handler ID: PRIMEO  
AFSE:  
Drilling:  
Completion:  
Facilities: Total: \$0

Permit:  
NDIC #:  
API #:  
Est #:

Directional:				
MD	TVD	RLPWL	ELPWL	S-LR
Surface	N/A	357 FSL	1887 FWL	32 T4S-ROAW
Vertical KOP (80' entry)	7.224	357 FSL	1887 FWL	32 T4S-ROAW

Estimation: MULTID RKB

Conductor 80

For Hills Aquifer  
Pierre Shale (Fox Hill Shale)  
Surface Casing

COND 16" 0.25" WT

SURF 6-58" 508 J-55 STC

OH Whipstock Assembly

Top at: 7,159' (+/- 65' above KOP)

Bottom at: 7,187'

2-7/8" Tubing 7,187' - 8,087'

7,253

7,513

7,593

7,742

7,828

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**DRILLING PLAN**

<b>PROSPECT/FIELD</b>	NIOBRARA/ Denver Julesburg				<b>COUNTY/STATE</b>		Arapahoe Co., Colorado	
<b>OWNERS</b>	CONOCOPHILLIPS				<b>LEASE</b>		Fee	
<b>WELL NO.</b>	Tebo 32-3H				<b>FNL</b>	<b>FSL</b>	<b>FEL</b>	<b>FWL</b>
<b>LOCATION</b>	SESW	32 T4S-R64W	Surface Location:		350'		1980'	
	SENW	32 T4S-R64W	Bottom Hole Location:		350'		1980'	
<b>EST. T.D.</b>	8,100' MD				<b>GROUND ELEV.</b>		5,968' (est) ungraded	

  

<b>PROGNOSIS:</b>	Based on 5,968' KB(est)	
<b>MARKER</b>	<b>DEPTH TVD</b>	<b>DATUM</b>
Fox Hills Aquifer	1,775	4,211
Pierre Shale (Fox Hill Base)	2,008	3,978
Surface Casing	2,210	3,776
Sharon Spring Shale	7,555	(1,569)
Niobrara	7,616	(1,630)
Niobrara B	7,685	(1,699)
Niobrara C Chalk	7,745	(1,759)
Niobrara D Chalk	7,808	(1,822)
Fort Hays Limestone	7,930	(1,944)
Carlisle Shale	7,960	(1,974)
Greenhorn	8,045	(2,059)
 Pilot Hole TD	 8,100	 (2,604)

  

<b>LOGS:</b>	<b>Type</b>	<b>Interval</b>
<b>Open Hole:</b>	GR-MWD:	Surface CSG shoe to 8,100'
	GR/DENSITY/NEUTRON/SONIC SCANNER:	Surface to TD
	RI-SCANNER/DIELECTRIC SCANNER/ECS:	6,000' to TD
	IMAGE:	6,000' to TD
<b>DEVIATION:</b>		
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'	
<b>DST'S:</b>	N/A	
<b>CORES:</b>	N/A	
<b>SAMPLES:</b>		
Mudlogging:	6,000' to TD	
Two-Man Unit:	Dry samples every 10'	
	Wet samples every 30'	
<b>BOP:</b>		
	COP Category 2 Well Control Requirements (Minimum)	
PD-522	BOPE:	11"-5Mpsi Annular (Townsend Type 90)
		11"-5Mpsi Pipe Ram (Townsend Type 82)
		11"-5Mpsi Blind Ram (Townsend Type 82)
		11"-5Mpsi Cross / Choke & Kill Lines
		11"-5Mpsi Pipe Ram (Townsend Type 82)

  

<b>Estimated BHP (psi):</b>	4001	0.49 psi/ft
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<b>MUD:</b>	<b>Interval</b>	<b>Type</b>	<b>WT</b>	<b>Vis</b>	<b>MBT</b>	<b>LGS</b>	<b>WL</b>	<b>PH</b>	<b>Remarks</b>
Surface:	0' - 2,210'	FW / Gel-Lime Sweeps	8.40 - 9.00	28-50	NC	< 6%	NC	8.0-8.5	Circ Mud Tanks
Int (Pilot Hole):	2,210' - 8,100'	LSND	9.20-10.00	28-60	5-10	< 6%	<20	8.0-8.5	Circ Mud Tanks

  

<b>CASING:</b>	<b>Size</b>	<b>Wt ppf/Grd/Con</b>	<b>Hole</b>	<b>Depth</b>	<b>Cement</b>	<b>WOC</b>	<b>Remarks</b>
Surface:	9-5/8"	36 J55 STC	12-1/4"	2,210'	To Surface	6 hrs	

OH Whipstock (cemented plug back):  
Top at: 7,159' (+/- 65' above KOP)/ Bottom at: 7,187' with 2-7/8" tail pipe "cement stinger" from 7,187' to 8,067'  
Cemented in place with planned top of cement at: 6,959' (200' above top of whipstock)

  

<b>DIRECTIONAL PLAN</b>							
(Vertical Hole)							
	<b>MD</b>	<b>TVD</b>				<b>AZ</b>	
Surface:	20	20	350' FSL	1980' FWL	32 T4S-R64W	0	Survey Company: Weatherford
TD:	8,100'	8,100'	350' FSL	1980' FWL	32 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 @ +/- 8,100'

  

<b>Prep By:</b>	Ricardo Avila	<b>Date:</b>	1/7/11	<b>Doc:</b>	REV.0
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