DRILLING AND GEOLOGICAL INFORMATION

PROSPECT/FIELD	DJ Basin	**COUNTY**	Weld	**GROUND ELEVATION**	GR 4,734'	**Source of drilling program:**	Brian Cocchiere
OPERATOR	Synergy - Cemented LongString	**STATE**	Colorado	**RIG HT. 25.0' KB**	KB ± 4,759'	**Source of geological tops:**	Julia Caldaro
LEASE & WELL NO.	Hood 14N-22A-M Sidetrack	**FORM @ TD (HORIZONTAL HOLE)**	Niobrara A Chalk				
FORM @ TD (PILOT HOLE)	NA						
Initial Target Line	6,828ft TVD @ 0ft VS with 89.36deg INC						

WELLBORE

9 5/8" CASING DEPTH	
MD:	**1,763'**
TVD:	**1,758'**
5.5" CEMENT TOP TARGET	
MD:	0'
TVD:	0'
KOP Curve	
TVD/MD:	**6,317'**
KOP Sidetrack	
MD:	**11,096'**
TVD:	**6,869'**
Landing (+/- 90 deg)	
MD	**7,237'**
8 1/2" Total Depth	
MD:	**15,068'**
TVD:	**6,896'**

Based on 4,759' KB

GEOLOGICAL TOPS:

Formation	MD	TVD	Thickness	Comments
Base of Fox Hills	800 '	800 '		
Parkman	3,497 '	3,480 '		
Sussex	4,011 '	3,990 '		
Shannon	4,581 '	4,555 '		
Lower Pierre	6,442 '	6,400 '		
Sharon Springs	6,916 '	6,759 '		
Nio A Chalk	7,056 '	6,814 '		
Nio A Marl				
Nio B Chalk				
Nio B Marl				
Nio C Chalk				
Nio C Marl				
Nio C Shale				
Ft Hays				
Codell				
Carlile				
Target Center Line		6,828ft TVD @ 0ft VS with 89.36deg INC		
Target Window +/-		5 Foot Above or below TCL		
Proposed TD (Horizontal)	**15,068 '**	**6,896 '**		

LOGGING PROGRAM:

Interval	LWD & Mud Logging Requested	Waypoints:
Surf Csg -KOP	GR	Waypoint #1: 6,859ft TVD @ 2,773ft VS with 86.27deg INC
		Waypoint #2: 6,892ft TVD @ 3,260ft VS with 90.91deg INC
		Waypoint #3: 6,844ft TVD @ 6,169ft VS with 88.48deg INC
KOP - LP	GR	Waypoint #4: 6,898ft TVD @ 8,225ft VS with 90.13deg INC
		Target #5: 6,897ft TVD @ 9,024ft VS
HZ Lateral	GR	
Pilot hole	NA	

POTENTIAL DRILLING PROBLEMS:

DEVIATION:

MUD PROGRAM:

Mud Type	Interval	Corresponding Depths	Weight	Vis	HTHP	Remarks
OBM	Near Vertical	Surface Casing - KOP	9.6-10	15-30	10-20	Rerefence the pad program for more mud specs
OBM	Curve	KOP - Landing Point	9.6-10	15-30	10-20	Rerefence the pad program for more mud specs
OBM	Lateral	Landing Point - TD	9.6-10	15-30	10-20	Rerefence the pad program for more mud specs

CASING & CEMENT PROGRAM:

	Size	Wt (ppf)	Grade	Thread	Hole	Top	Bottom	Cement:	Ft	Sx	Density (ppg)	Yield (cf/sk)	GPS	Type
Surface Casing:	9.625"	36.0	J-55	LTC	13.5"	0'	1,763'	**Single Slurry**	1,763 '	±970 sx	13.4	1.79	9.53	Type III
**Note Conductor to be pre-set*	*16"*	*42.09*	Conductor to be cemented with 5 bags ready mix			*0'*	*60'*							

	Size	Wt (ppf)	Grade	Thread	Hole	Top	Bottom	Cement:	Ft	Sx	(ppg)	(cf/sk)	GPS	Type
Production Csg:	5.500"	20	HCP-110	CDC-HTQ	8.5"	0'	15,068'	**1st Stage**	6,317 '	±981 sx	13.2	1.57	7.7	Elasticem
								2nd Stage	8,751 '	±988 sx	13.5	2.09	7.9	Econocem

40 bbl tuned spacer to be pumped ahead, CMT to be followed by 40 bbl MMCR

5 ½" CASING SETTING DEPTH:
MD: **15,068'** **TVD:** **6,896'**

LATERAL LENGTH
MD: **7,831'**

PILOT HOLE:		**BOTTOM HOLE PRESSURE**													
MD:	NA	Formation:	Section				3,448	psi @		6,896'		or	Gradient:	0.50	psi/ft
TVD:	NA							psi @				or	Gradient:		psi/ft

Prepared by: Brian Cocchiere **Date:** 04/17/17 **Doc:** Well Draft Drilling Diagram.xls