

## DRILLING PROGNOSIS- WESCO OPERATING, INC.

**WELL: MAUDLIN GULCH # 22R**

**MAUDLIN GULCH FIELD, MOFFAT COUNTY, COLORADO**

**LOCATION: 12' FEL, 1958' FSL, SECTION 21, TN, R95W**

SURFACE LOCATION	BOTTOM HOLE LOCATION	DISPLACEMENT	ELEVATION
12' FEL, 1958' FSL	SAME	0	7795 EST gr
SECTION 21, T4N, R95W			

The casing head from the Maudlin Gulch # 22 will be dug up and a new wellhead will be welded on top. A pulling unit will be rigged up and the cement plugs and Cast Iron Bridge Plug will be drilled up during daylight operations with a 6 1/8" bit. A 6 1/8" PDC bit will then be picked up and the well will be deepened to a depth capable of testing the Entrada with logs and a 5 1/2 & 5" liner will be run and cemented to ~4000 ft. The Morrison formation will then be perforated and acidized with 15% HCL acid if required.

### 1. GEOLOGIC DATA AND OBJECTIVES:

There is potential for lost circulation from surface to TD if a hole in the casing exists.

FORMATION	DEPTH		POSSIBLE CONTENT	Drilling Hazards
	TVD	SUBSEA		
KB ELEVATION	0	7795		
Frontier	5767	2028	Oil, Water, Gas	
Mowry	6047	1748	Oil, Water, Gas	
Dakota	6170	1669	Oil, Water, Gas	Loss Circulation
End of 7" casing	6163	1625		
Morrison	6523	1267	Oil, Water, Gas	Loss Circulation
Entrada	6722	1073	Oil, Water, Gas	Loss Circulation
TD	6797	998		

## 2. CASING SUMMARY:

INTERVAL	CSG	HOLE	SIZE	WEIGHT	GRADE	THREAD	COLLAPSE (psi) / a	BURST (psi) / b	Yield (k lbs) / c
0' – 798'	Surf		10 3/4"	40.5#	J-55	8rd	1580	3130	629
0-6163'	Intr	8 3/4"	7"	20/23/26#	J-55	8rd	2270	3740	316
0-6000'	Prod	6 1/8"	5 1/2	15.5#	N-80	8rd	4990/1.7	7000/2.4	362/3.9
6000'-6797'	Prod	6 1/8"	5	15 #	N-80	SC	7250/2.2	8290/2.6	240/20

Design criteria not calculated for Surface and Intermediate as they are currently set in the wellbore.

Production string safety factor evaluation assumptions a) 9 ppg outside casing b) 9 ppg inside casing c) 9ppg inside & outside + 100K over pull

## 3. SUMMARY OF DRILLING HAZARDS

Lost circulation is possible when drilling through the Dakota perforations or at any depth if a casing hole exists. After drilling through each plug the casing will be tested to 300 psi, if a hole exists it will be repaired before drilling up the next plug. If circulation is lost while drilling up the perforations, a LCM plug may be pumped and tank levels monitored. While drilling the open hole, there is a potential for loss circulation in the Morrison and Entrada formations. If this is found, LCM sweeps may be pumped and tank volumes monitored.

## 4. MUD PROGRAM

The reentry will be drilled with 3% KCL water. The maximum anticipated bottom hole pressure is less than 3000 psi. The maximum anticipated bottom hole temperature is 150 degrees F at TD. This well is located in a field where pressure depletion has lowered the expected bottom hole pressures

## 5. EVALUATION PROGRAM

The flat tank will be visually checked while drilling up cement and creating new hole for hydrocarbon accumulation. A geologist will be on location from drilling out the casing shoe to TD.

The following cased hole logs will be run:

GR-CBL-CCL – from 6163' to top of cement  
GR, hole volume, & triple combo- TD to 6163

### CORING OPERATIONS:

No cores are planned

## 6. CEMENTING PROGRAM

### 5 1/2" & 5" Production casing

A tapered casing string will be run to allow for proper clearance in the open hole sections 5" 15# will be run from TD to ~6150' KB and 5 1/2" 15.5# will be run from ~6150 to surface. A guide shoe and float collar will be run on the casing and chemically welded with thread lock. Due to the tight tolerances of the open hole and the casing no centralizers will be run. Casing will be lowered slowly to avoid excess surge pressure. Mud volumes will be monitored throughout the job. Cement will be pumped at greater than 2 BPM. Cement volumes are calculated on 20 % excess.

Production String	
TYPE	Lead: 60 sacks 12.5 ppg LT class G, and Tail: 50 sacks, 15.8 ppg G w/ 1/4 lb sack LCM
SLURRY WEIGHT	12.5 & 15.8 ppg
YIELD	2.19 & 1.16 ft <sup>3</sup> /sack
MIX WATER	12.54 & 5.085 gal/sack
MIN. CEMENT REQUIRED	(gauge hole + 20% excess)
TOP OF CEMENT	4000'

## 7. WELLHEAD EQUIPMENT

### Production String Well Head

A bell nipple will be welded on to the 7" casing string and a 3000# 7 1/16" Flanged well head will be installed

## 8. WELL CONTROL

- BOPE and accumulator shall meet or exceed Onshore Order #2 requirements for the 2M system.
- A 2 M system will be used in the reentry as shown on the attached "Well Control Schematic". All equipment exposed to the wellbore will meet or exceed a 2 M system.
- The BOP will be tested following drilling out the surface plug but prior to drilling out the surface casing shoe plug. The test pressures will be as follows

ITEM	HIGH PRESSURE TEST	
<u>Pipe Rams</u>	2000 psi	
<u>Blind Rams</u>	2000 psi	
<u>Manifold Valves</u>	2000 psi	

- Auxiliary equipment will include the following items:
  - Drill string safety valve(s) for all string components, 2000 psi WP or greater

- Visual pit volume measurement

Additionally, the following procedures will be followed:

- Each tour, the well control system will be inspected
- Schedule and conduct BOP drills each week.

(9) The anticipated duration: 7 Days.

PREPARED BY:

Thomas C. Kirkwood

DATE:

12/12/2016