WELL CONTROL PRE-KICK SHEET
( Surface BOP Stack )

Name : __________________ Date : ______________ Level : ______________

Measured Depth : __________ ft.  True Vertical Depth (TVD) : __________ ft.

Measured Casing Shoe Depth : __________ ft.  Casing Shoe TVD : __________ ft.

CAPACITIES AND VOLUMES

<table>
<thead>
<tr>
<th>DRILL STRING DATA</th>
<th>O.D. (in)</th>
<th>I.D. (in)</th>
<th>Wt. (lb/ft)</th>
<th>CAPACITY (bbl/ft)</th>
<th>LENGTH (ft)</th>
<th>VOLUME (bbl)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DRILL PIPE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HWDP</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>DRILL COLLARS</td>
<td></td>
<td></td>
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<tr>
<td>DRILL COLLARS</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

CHECK THAT TOTAL LENGTH = MEASURED DEPTH

TOTAL LENGTH

Total Length

Total Drill string

(bbls)

ft

ANNULUS DATA

<table>
<thead>
<tr>
<th>ANNULUS DATA</th>
<th>CAPACITY (bbl/ft)</th>
<th>LENGTH (ft)</th>
<th>VOLUME (bbl)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DRILL PIPE IN CASING</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DRILL PIPE IN OPEN HOLE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DRILL COLLARS IN OPEN HOLE</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
</tr>
</tbody>
</table>

CHECK THAT TOTAL LENGTH = MEASURED DEPTH

TOTAL LENGTH

Total Length

Total Annulus

(bbls)

= Bit to Shoe Volume

(bbls)

TOTAL DRILLSTRING (SURFACE TO BIT)

TOTAL ANNULUS (BIT TO SURFACE)

TOTAL SYSTEM VOLUME

(bbls)

(bbls)

(bbls)
Read and record SLOW CIRCULATION RATE.

\[
\begin{array}{ccc}
\text{Pump Output} & \text{PUMP No.1} & \text{PUMP No. 2} \\
\text{bbls/stk} & & \\
\end{array}
\]

\[
\begin{array}{cccc}
\text{S.C.R.} & \text{psi} & \text{psi} \\
20 \text{ spm} & \square & \square \\
30 \text{ spm} & \square & \square \\
40 \text{ spm} & \square & \square \\
\end{array}
\]

**Drill String Data**

\[
\begin{array}{ccc}
\text{Drill String Volume} & \text{Pump Output} & \text{Surface to Bit Strokes} \\
(\text{bbls}) & (\text{bbl/stk}) & \text{Surface to Bit Time} \\
\text{Surface to Bit Strokes} & \square & \text{min} \\
\text{Slow Circulating Rate (spm)} & \square & \text{min} \\
\end{array}
\]

**Open Hole Data**

\[
\begin{array}{ccc}
\text{Bit to Shoe Volume} & \text{Pump Output} & \text{Bit to Shoe Strokes} \\
(\text{bbls}) & (\text{bbl/stk}) & \text{Bit to Shoe Time} \\
\text{Bit to Shoe Strokes} & \square & \text{min} \\
\text{Slow Circulating Rate (spm)} & \square & \text{min} \\
\end{array}
\]

**Annulus Data**

\[
\begin{array}{ccc}
\text{Bit to Surface Volume} & \text{Pump Output} & \text{Bit to Surface Strokes} \\
(\text{bbls}) & (\text{bbl/stk}) & \text{Bit to Surface Time} \\
\text{Bit to Surface Strokes} & \square & \text{min} \\
\text{Slow Circulating Rate (spm)} & \square & \text{min} \\
\end{array}
\]
**WELL CONTROL KICK SHEET**  
(Surface BOP Stack)

Name: __ __ __ __ __ __ __ __ __ __ __ __ __ __ __ __ __ __

**Read and Record SIDPP, SICP and PIT GAIN.**

<table>
<thead>
<tr>
<th>S.I.D.P.P.</th>
<th>PIT GAIN</th>
<th>S.I.C.P.</th>
</tr>
</thead>
<tbody>
<tr>
<td>__ __ __ __</td>
<td>__ __ __ __ bbls</td>
<td>__ __ __ __ psi</td>
</tr>
</tbody>
</table>

Day: __ __ __ __  Date: __/__/__  Time: __ __ __ __

**Max. Mud Wt.**

**Surface Leak Off Test**

\[
\text{Max. Mud Wt.} = \frac{\text{Surface Leak Off Test (psi)}}{\text{Casing T.V.D. (ft)}} \times \frac{0.052}{\text{Formation Breakdown Gradient (psi/ft)}} + \text{Leak off Test Mud Weight (ppg)}
\]

**OR**

\[
\text{Max. Mud Wt.} = \frac{\text{Maximum Allowable Annulus Surface Pressure (psi)}}{0.052}
\]

**M.A.A.S.P.**

**Maximum Mud Weight**

\[
\text{M.A.A.S.P.} = \frac{\text{Maximum Mud Weight (ppg)}}{\text{Drilling Mud Weight (ppg)}} \times 0.052 \times \frac{\text{Casing T.V.D. (ft)}}{\text{Formation Breakdown Gradient (psi/ft)}}
\]

**NEW M.A.A.S.P.**

**Maximum Mud Weight**

\[
\text{New M.A.A.S.P.} = \frac{\text{New Maximum Allowable Annulus Surface Pressure (psi)}}{0.052}
\]

**M.A.C.P.**

\[
\text{M.A.C.P.} = \frac{\text{Casing Yield (psi)}}{\text{Safety Factor (0.80)}} \times \text{Kill Mud Weight (ppg)}
\]

**Kill Mud**

\[
\text{Kill Mud} = \text{S.I.D.P.P. (psi)} \times \frac{\text{T.V.D. from RKB (ft)}}{0.052} + \text{Current Mud Weight (ppg)}
\]

P.T.O.
Pressure Step Down Chart

1) Calculate I.C.P.

2) Calculate F.C.P.

3) Calculate Stepdown

4) In the left hand column record strokes in 100 Stroke intervals, until final circulating pressure is reached.

5) Record I.C.P. in top right column, and deduct pressure ΔP until F.C.P. is reached.

6) Calculate complete circulation, in strokes and time.

<table>
<thead>
<tr>
<th>Strokes to bit</th>
<th>D.P. psi</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>I.C.P</td>
</tr>
<tr>
<td>ΔP x 100 psi/100 stk</td>
<td></td>
</tr>
</tbody>
</table>

**I.C.P.**

\[
\text{SCR psi} + \text{SIDPP psi} = \text{Initial Circulating Pressure psi}
\]

**F.C.P.**

\[
\text{SCR psi} \times \text{Kill Mud ppg} \div \text{Drilling Mud Weight ppg} = \text{Final Circulating Pressure psi}
\]

**ΔP**

\[
\frac{(\text{ICP} - \text{FCP}) \text{ psi}}{\text{Surface to Bit Strokes}} = \text{Pressure Stepdown psi/stk}
\]

**Complete Circulation**

\[
\text{Surface to Bit Strokes} + \text{Bit to Surface Strokes} = \text{Total Strokes to Kill Well}
\]

\[
\text{Surface to Bit Time} + \text{Bit to Surface Time} = \text{Total Time to Kill Well min}
\]