



# IADC WellCAP Well Control Worksheet

## Subsea Stack - Wait and Weight Method

Well Name: \_\_\_\_\_ Completed By: \_\_\_\_\_ Date: \_\_\_\_ / \_\_\_\_ / \_\_\_\_

### PRE-RECORDED INFORMATION

**TRUE PUMP OUTPUT:** \_\_\_\_\_ X \_\_\_\_\_ = \_\_\_\_\_  
m<sup>3</sup>/Stk @ 100%      % Efficiency      TPO (m<sup>3</sup>/Stk)

Surface : \_\_\_\_\_ (Liters) ÷ \_\_\_\_\_ = \_\_\_\_\_  
 Line      Surface Line Capacity      True Pump Output (m<sup>3</sup>/Stk)      Strokes to Pump

**DRILL STRING CAPACITY:**

Drill #1: \_\_\_\_\_ X \_\_\_\_\_ = \_\_\_\_\_ m<sup>3</sup>  
 Pipe      Size (mm)      Weight (kg/m)      m<sup>3</sup>/m      Length (m)      DP

Drill #2: \_\_\_\_\_ X \_\_\_\_\_ = \_\_\_\_\_ m<sup>3</sup>  
 Pipe      Size (mm)      Weight (kg/m)      m<sup>3</sup>/m      Length (m)      DP

HWDP : \_\_\_\_\_ X \_\_\_\_\_ = \_\_\_\_\_ m<sup>3</sup>  
 Size (mm)      Weight (kg/m)      m<sup>3</sup>/m      Length (m)      HWDP

Drill #1: \_\_\_\_\_ X \_\_\_\_\_ = \_\_\_\_\_ m<sup>3</sup>  
 Collars      Size (mm)      Weight (kg/m)      m<sup>3</sup>/m      Length (m)      DC

Drill #2: \_\_\_\_\_ X \_\_\_\_\_ = \_\_\_\_\_ m<sup>3</sup>  
 Collars      Size (mm)      Weight (kg/m)      m<sup>3</sup>/m      Length (m)      DC

**STROKES FROM SURFACE TO BIT:** \_\_\_\_\_ Total Drill String Capacity (m<sup>3</sup>)

\_\_\_\_\_ ÷ \_\_\_\_\_ = \_\_\_\_\_  
 Total Drill String Capacity (m<sup>3</sup>)      True Pump Output (m<sup>3</sup>/Stks)      Strokes, Surface to Bit

**ANNULAR CAPACITY**

Between CSG and DP: \_\_\_\_\_ m<sup>3</sup>/m X \_\_\_\_\_ m = \_\_\_\_\_ m<sup>3</sup>

Between Liner #1 and DP: \_\_\_\_\_ m<sup>3</sup>/m X \_\_\_\_\_ m = \_\_\_\_\_ m<sup>3</sup>

Between Liner #2 and DP: \_\_\_\_\_ m<sup>3</sup>/m X \_\_\_\_\_ m = \_\_\_\_\_ m<sup>3</sup>

Between OH and DP/HWDP: \_\_\_\_\_ m<sup>3</sup>/m X \_\_\_\_\_ m = \_\_\_\_\_ m<sup>3</sup>

Between OH and DC: \_\_\_\_\_ m<sup>3</sup>/m X \_\_\_\_\_ m = \_\_\_\_\_ m<sup>3</sup>

Choke line capacity: \_\_\_\_\_ m<sup>3</sup>/m X \_\_\_\_\_ m = \_\_\_\_\_ m<sup>3</sup>

**STROKES FROM BIT TO SHOE:**

\_\_\_\_\_ ÷ \_\_\_\_\_ = \_\_\_\_\_  
 Open Hole Annular Vol. (m<sup>3</sup>)      True Pump Output (m<sup>3</sup>/Stks)      Strokes, Bit to Shoe

**STROKES FROM BIT TO SURFACE:**

\_\_\_\_\_ ÷ \_\_\_\_\_ = \_\_\_\_\_  
 Total Annular Volume (m<sup>3</sup>)      True Pump Output (m<sup>3</sup>/Stks)      Strokes, Bit to Surface

**ANNULAR VOL. BETWEEN DRILL PIPE & RISER:**

( \_\_\_\_\_ - \_\_\_\_\_ ) ÷ 1273 = \_\_\_\_\_  
Riser ID<sup>2</sup>      Drill Pipe OD<sup>2</sup>      Capacity Drill Pipe/Riser (m<sup>3</sup>/m)

\_\_\_\_\_ X \_\_\_\_\_ m = \_\_\_\_\_  
 Capacity Drill Pipe/Riser (m<sup>3</sup>/m)      Riser Length      Volume between Drill Pipe & Riser (m<sup>3</sup>)

**STROKES TO DISPLACE RISER:**

\_\_\_\_\_ ÷ \_\_\_\_\_ = \_\_\_\_\_  
 Volume between Drill Pipe & Riser (m<sup>3</sup>)      True Pump Output (m<sup>3</sup>/Stks)      Strokes

### CURRENT WELL DATA

**PRESENT MUD WEIGHT:** \_\_\_\_\_ kg/m<sup>3</sup>

**SLOW CIRCULATION RATE (SCR):**

SCR taken @ \_\_\_\_\_ (m)

	Stks/min	Pressure(bar)	m <sup>3</sup> /min	Pressure(bar)
Pump #1				
Pump #2				
Pump #3				

**CASING DATA:**

CASING \_\_\_\_\_ size , \_\_\_\_\_ ID , \_\_\_\_\_ weight

SHOE DEPTH @ MD / TVD \_\_\_\_\_ / \_\_\_\_\_ m

**SHOE TEST DATA:**

Depth #1 \_\_\_\_\_ @ Test MW of \_\_\_\_\_  
 (kPa)      (kg/m<sup>3</sup>)

Depth #2 \_\_\_\_\_ @ Test MW of \_\_\_\_\_  
 (kPa)      (kg/m<sup>3</sup>)

Depth #3 \_\_\_\_\_ @ Test MW of \_\_\_\_\_  
 (kPa)      (kg/m<sup>3</sup>)

LINER #1 \_\_\_\_\_ size , \_\_\_\_\_ ID , \_\_\_\_\_ weight

LINER #2 \_\_\_\_\_ size , \_\_\_\_\_ ID , \_\_\_\_\_ weight

LINER #1 TOP DEPTH \_\_\_\_\_ m

LINER #2 TOP DEPTH \_\_\_\_\_ m

LINER #1 SHOE DEPTH \_\_\_\_\_ m

LINER #2 SHOE DEPTH \_\_\_\_\_ m

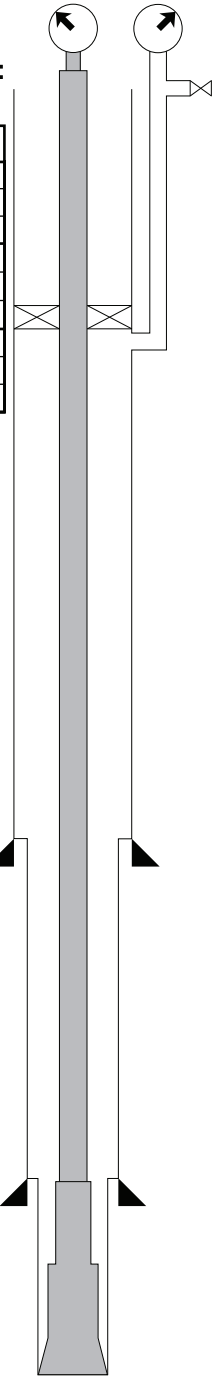
TVD CASING or LINER \_\_\_\_\_ m

**HOLE DATA:**

TOTAL DEPTH (MD) \_\_\_\_\_ m

TOTAL DEPTH (TVD) \_\_\_\_\_ m

BIT DEPTH @ MD / TVD \_\_\_\_\_ / \_\_\_\_\_ m



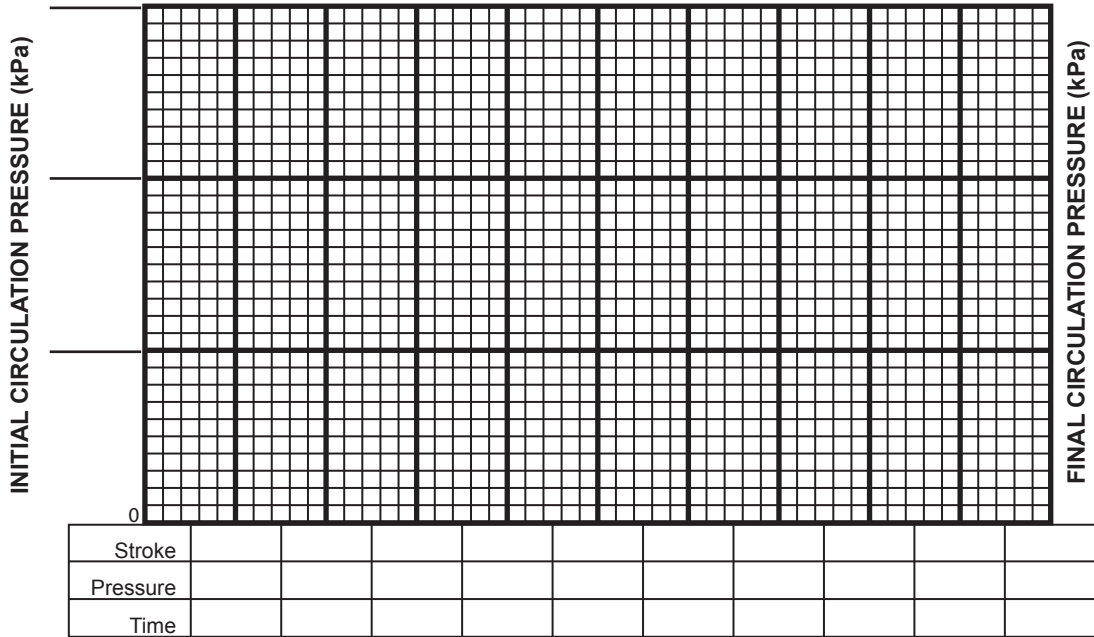
### KICK DATA

SIDPP: \_\_\_\_\_ kPa      SICP: \_\_\_\_\_ kPa      PIT GAIN: \_\_\_\_\_ m<sup>3</sup>      Time of Incident: \_\_\_\_ : \_\_\_\_

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# GRAPHIC ANALYSIS



## FORMULAS

1. Pressure Gradient (kPa/m) = Fluid Density (kg/m<sup>3</sup>) x 0.00981
2. Hydrostatic Pressure (kPa) = Fluid Density (kg/m<sup>3</sup>) x 0.00981 x TVD (m)
3. Capacity (m<sup>3</sup>/m) = Inside Diameter<sup>2</sup> (mm) ÷ 1273
4. Annular Capacity (m<sup>3</sup>/m) = (Inside Diameter of Casing<sup>2</sup> (mm) or Hole Diameter<sup>2</sup>(mm) - Outside Diameter of Pipe<sup>2</sup> (mm)) ÷ 1273
5. Pipe Displacement (m<sup>3</sup>/m) = (Outside Diameter of pipe<sup>2</sup> (mm) - Inside Diameter of pipe<sup>2</sup> (mm)) ÷ 1273
6. Maximum Allowable Fluid Density (kg/m<sup>3</sup>) =  $\frac{\text{Surface LOT Pressure (kPa)}}{\text{Shoe TVD (m)} \times 0.00981} + \text{LOT Fluid Density (kg/m}^3\text{)}$
7. MAASP (kPa) = [Maximum Allowable Fluid Density (kg/m<sup>3</sup>) - Current Fluid Density (kg/m<sup>3</sup>)] x 0.00981 x Shoe TVD (m)
8. Pressure Drop per Metre Tripping Dry Pipe (kPa/m) =  $\frac{\text{Drilling Fluid Density (kg/m}^3\text{)} \times 0.00981 \times \text{Metal Displacement (m}^3\text{/m)}}{\text{Riser/Casing Capacity (m}^3\text{/m)} - \text{Metal Displacement (m}^3\text{/m)}}$
9. Pressure Drop per Metre Tripping Wet Pipe (kPa/m) =  $\frac{\text{Drilling Fluid Density (kg/m}^3\text{)} \times 0.00981 \times \text{Closed End Displacement (m}^3\text{/m)}}{\text{Riser/Casing Capacity (m}^3\text{/m)} - \text{Closed End Displacement (m}^3\text{/m)}}$
10. Formation Pressure (kPa) = Hydrostatic Pressure Mud in Hole (kPa) + SIDPP (kPa)
11. Equivalent Circulating Density (kg/m<sup>3</sup>) =  $\frac{\text{Annular Pressure Loss (kPa)}}{\text{TVD (m)} \times 0.00981} + \text{Fluid Density (kg/m}^3\text{)}$
12. Kg of Barite Needed to Weight-Up Mud =  $\frac{\text{m}^3 \text{ of Mud in System} \times 4250 \times (\text{KMW} - \text{OMW})}{(4250 - \text{KMW})}$
13. Volume Increase from Adding Barite (m<sup>3</sup>) =  $\frac{\text{Kg of Barite Needed to Weight-Up Mud}}{4250}$
14. Estimated New Pump Pressure at New Pump Rate (kPa) = Old Pump Pressure (kPa) x  $\left[ \frac{\text{New Pump Rate (SPM)}}{\text{Old Pump Rate (SPM)}} \right]^2$
15. Estimated New Pump Pressure with New Mud Weight (kPa) = Old Pump Pressure (kPa) x  $\frac{\text{New Mud Weight (kg/m}^3\text{)}}{\text{Old Mud Weight (kg/m}^3\text{)}}$

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