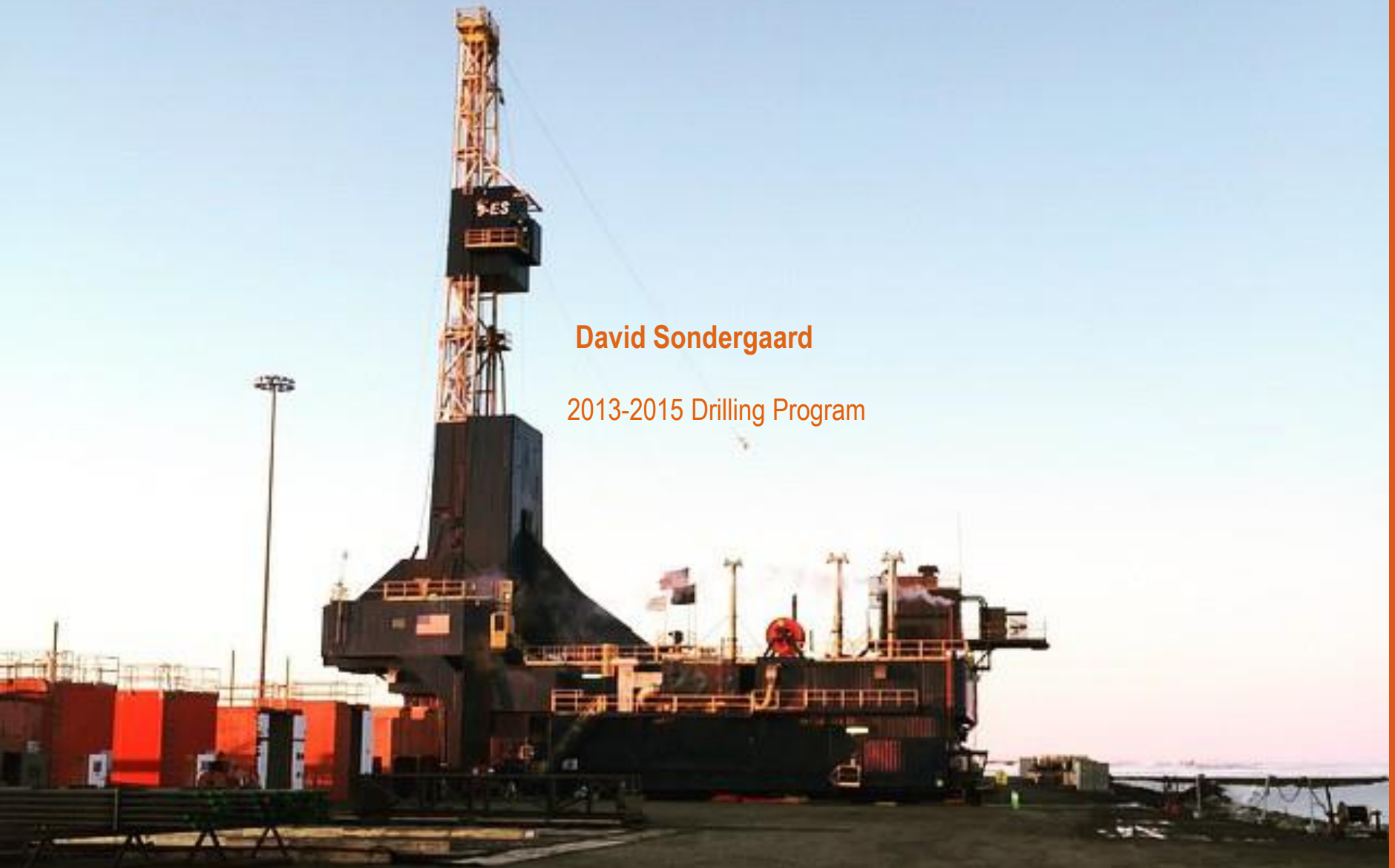


# Conoco Phillips Alaska Nabors 9 ES Tarn Field An Oilfield Data Story

David Sondergaard

2013-2015 Drilling Program

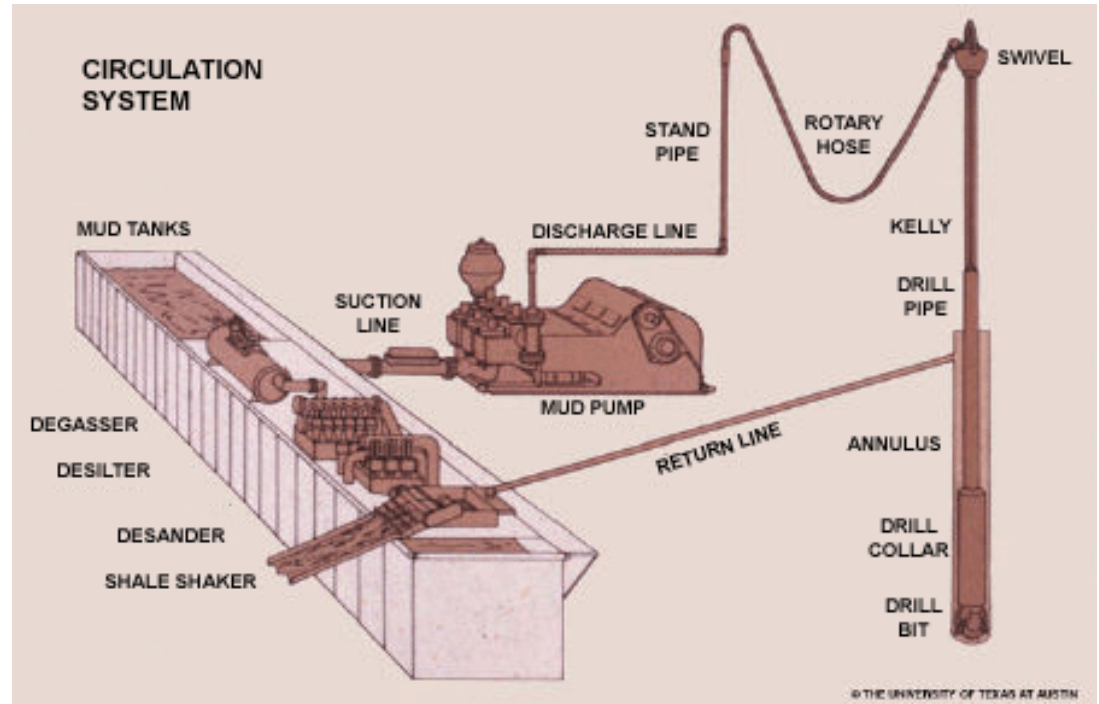


# Illustration

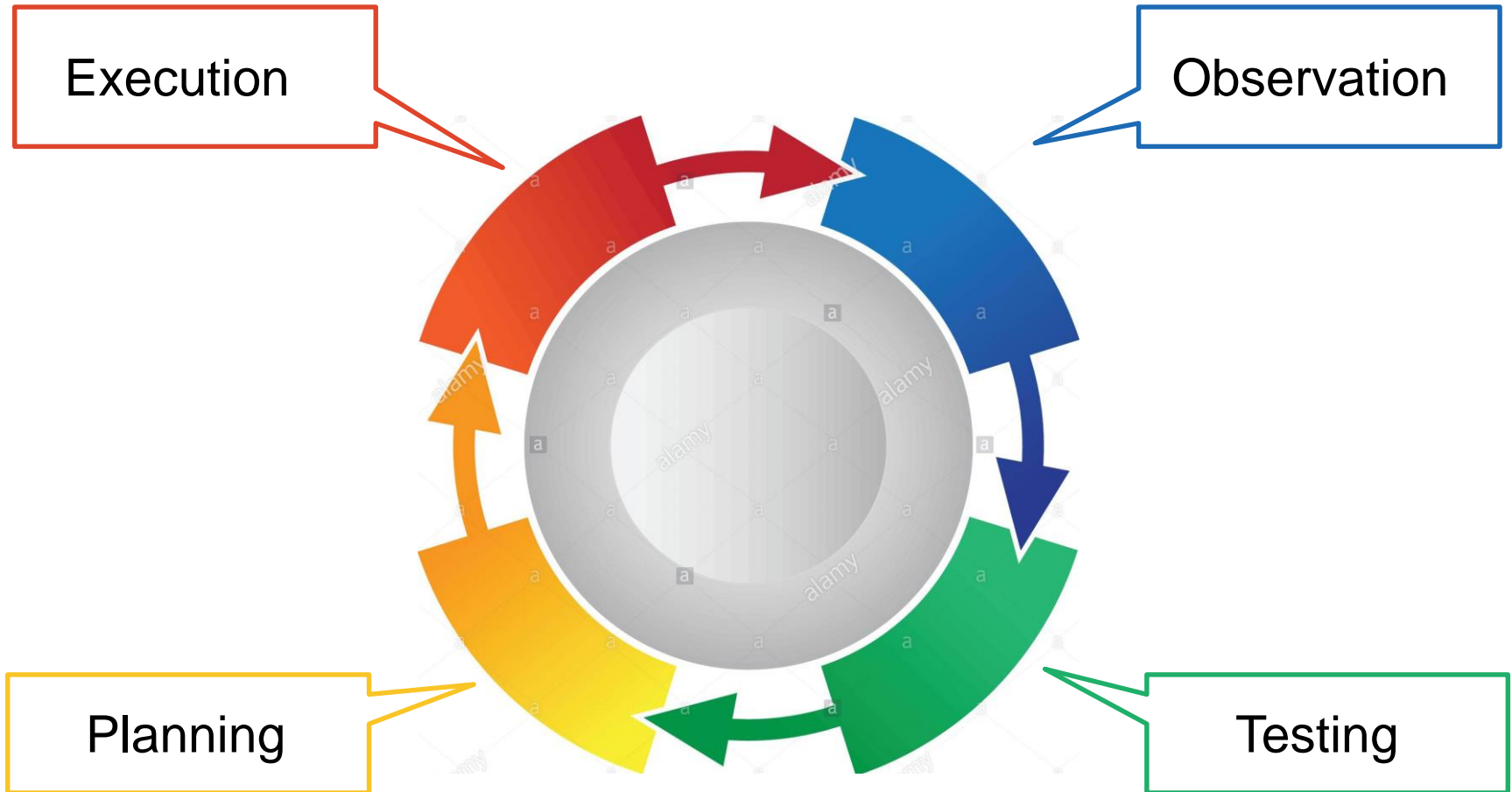


# What does mud do?

- Clean the wellbore
- Provide wellbore stability
- Controls downhole pressures
- Provides lubricity for drill string



# What is the process?

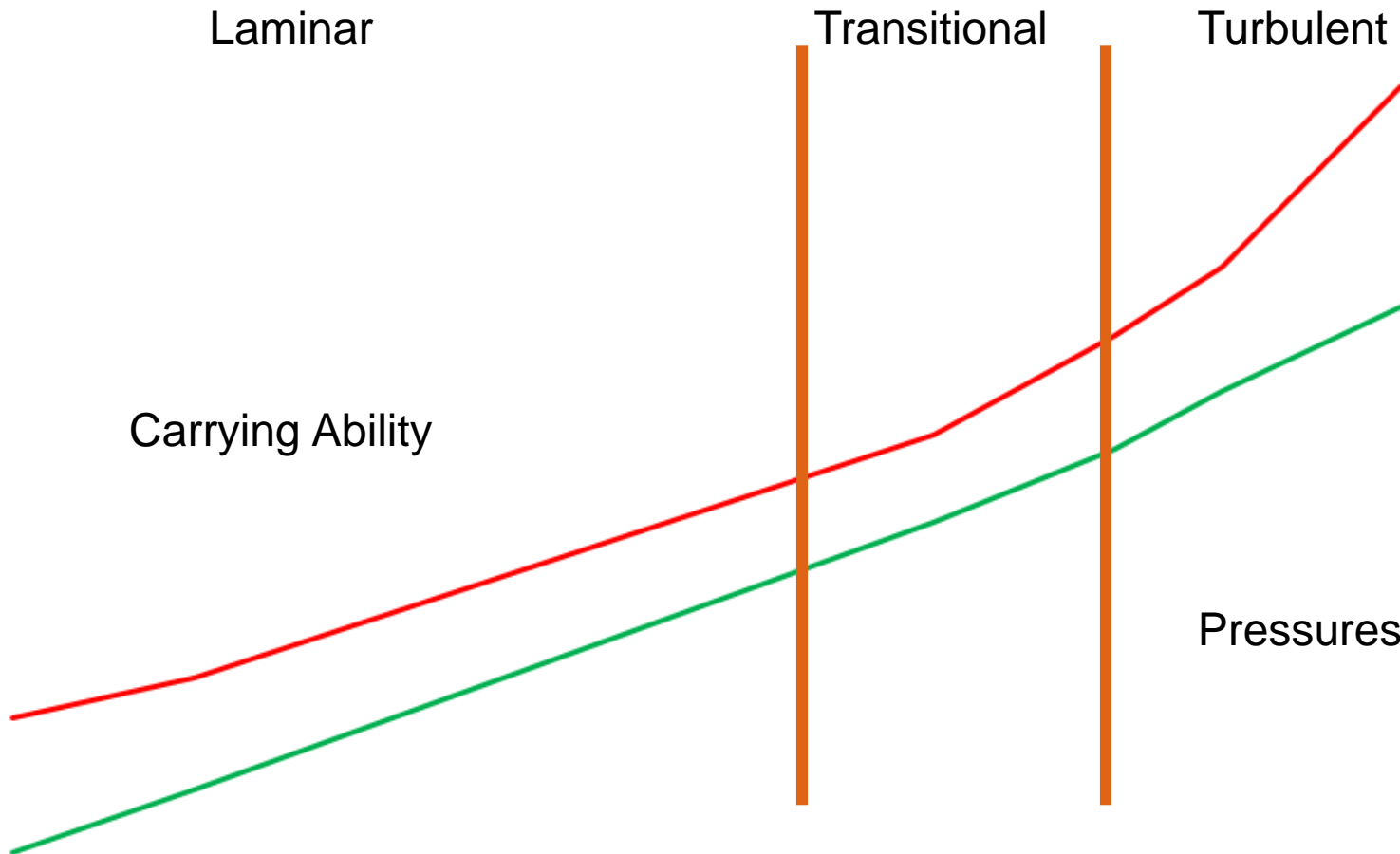


# What does mud look like?

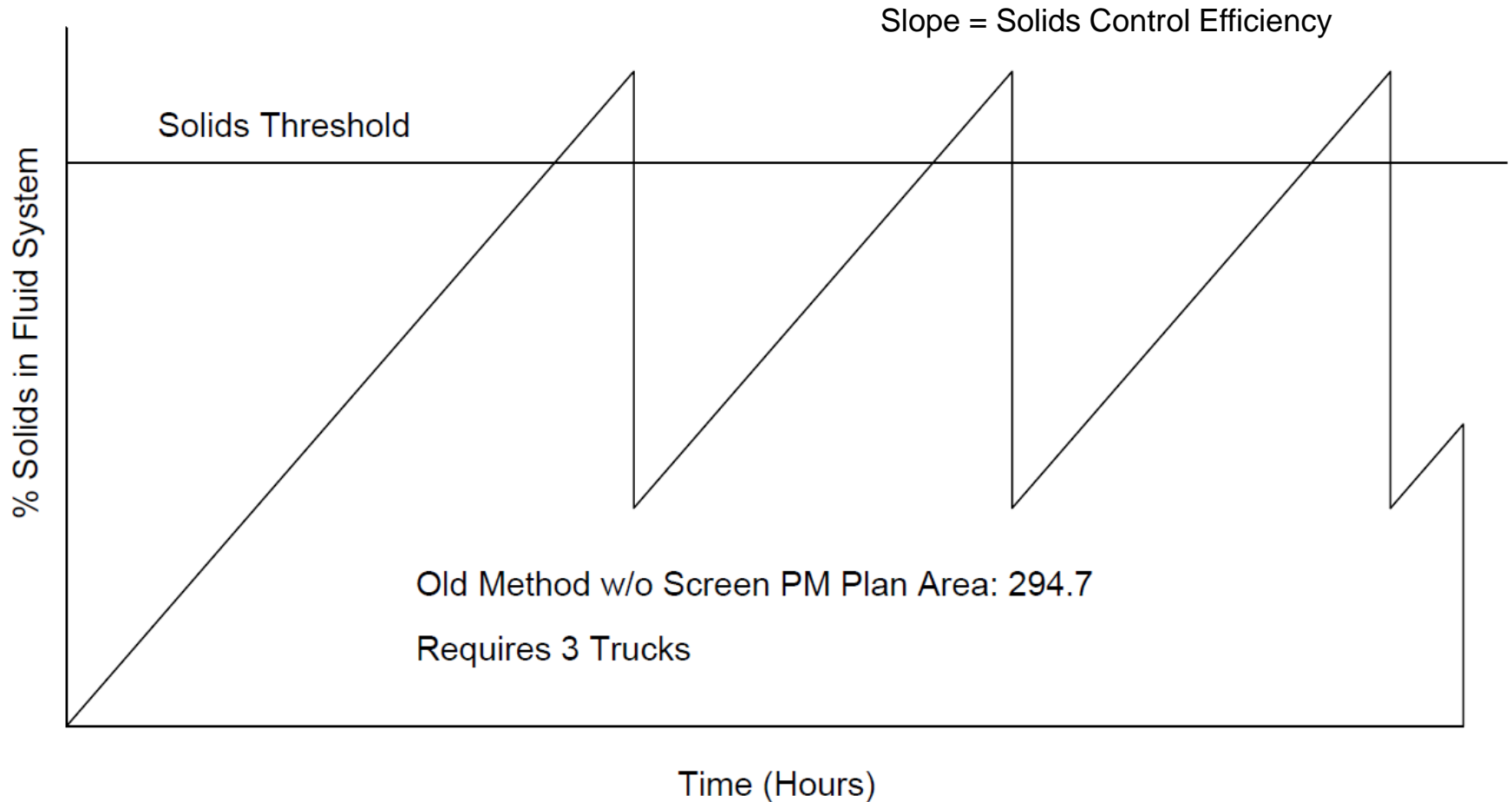
Properties	Hyd 1
Fluid Set	INTEGRADE
Source	Flow Line
Time	5:00
Depth (MD/TVD)	ft 7,696/7,543
FL Temp	°F 110
Density @ °F	ppg 10.50@100
FV @ °F	sec/qt 55@100
PV @ °F	cp 18@120
YP	#2 26
GELS	
600	4.0
200	16.0
6/3	
Filter	
HTH	50
Cake	7.1
Corr Solid	0.3
NAP / Water	% by vol 37.0/30.0
NAP / Water Ratio	65.5/34.5
Sand	% by vol
Chlorides	mg/L 50,000
Calcium	mg/L 9,800
CaCl2	ppb 9.50
NaCl(Sol/Insol)	ppb 18.87/0.00
Excess Lime	ppb 0.78
LGS / HGS	% by vol 1.6/8.7
LGS / HGS	ppb 14.55/125.10
ASG	SG 3.868
Elec. Stability	V 480

Properties	Hyd 1
Fluid Set	ENVIROMUL
Source	Pit 6
Time	14:00
Depth (MD/TVD)	ft 8,765/6,311
FL Temp	°F 150
Density @ °F	ppg 10.50@145
FV @ °F	sec/qt 145
PV @ °F	cp 20
YP	
GE	
600	12.0
200	16.0
6/3	
Filter	
HTH	
Cake (API/HTH)	0.3
Corr Solid	vol 14.3
NAP / Water	vol 64.0/20.0
NAP / Water Ratio	76.2/23.8
Sand	vol 1.00
AgNO3	ml 1.45
THTS	ml 1.50
CaCl2	ppb 13.06
NaCl(Sol/Insol)	ppb 7.19/0.00
WPS	ppm 224,155
Excess Lime	ppb 4.79
LGS / HGS	% by vol 7.7/6.5
LGS / HGS	ppb 70.48/93.87
ASG	SG 3.287
Elec. Stability	V 700

# What does high solids look like?



# What does this data look like?

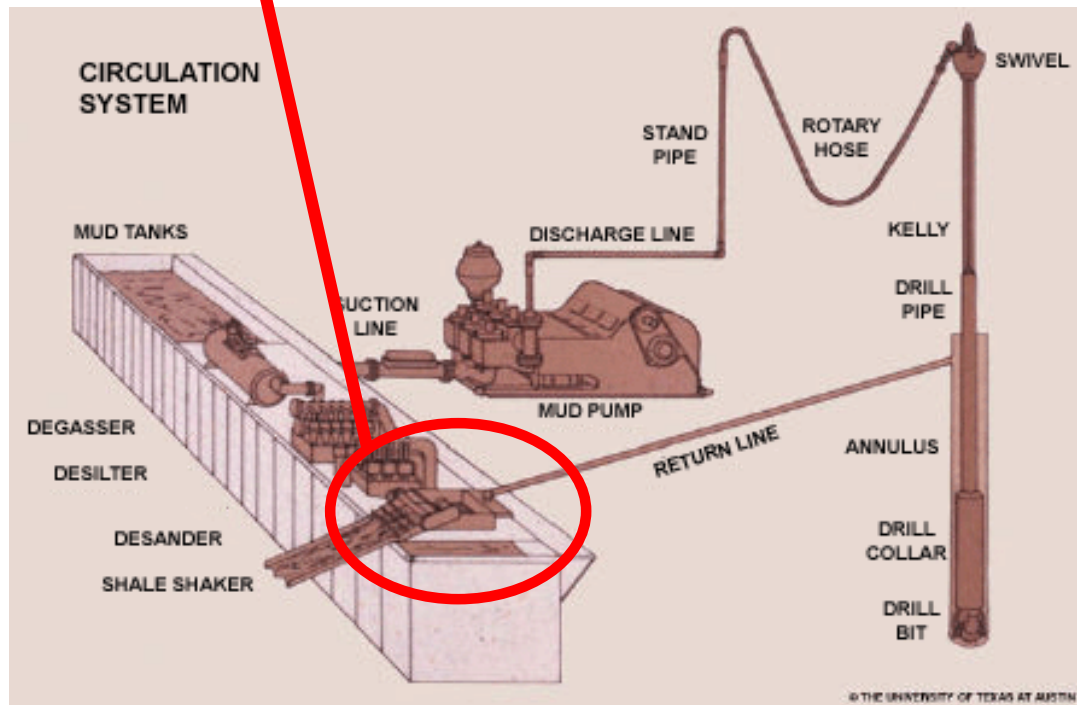




# How do we control this curve

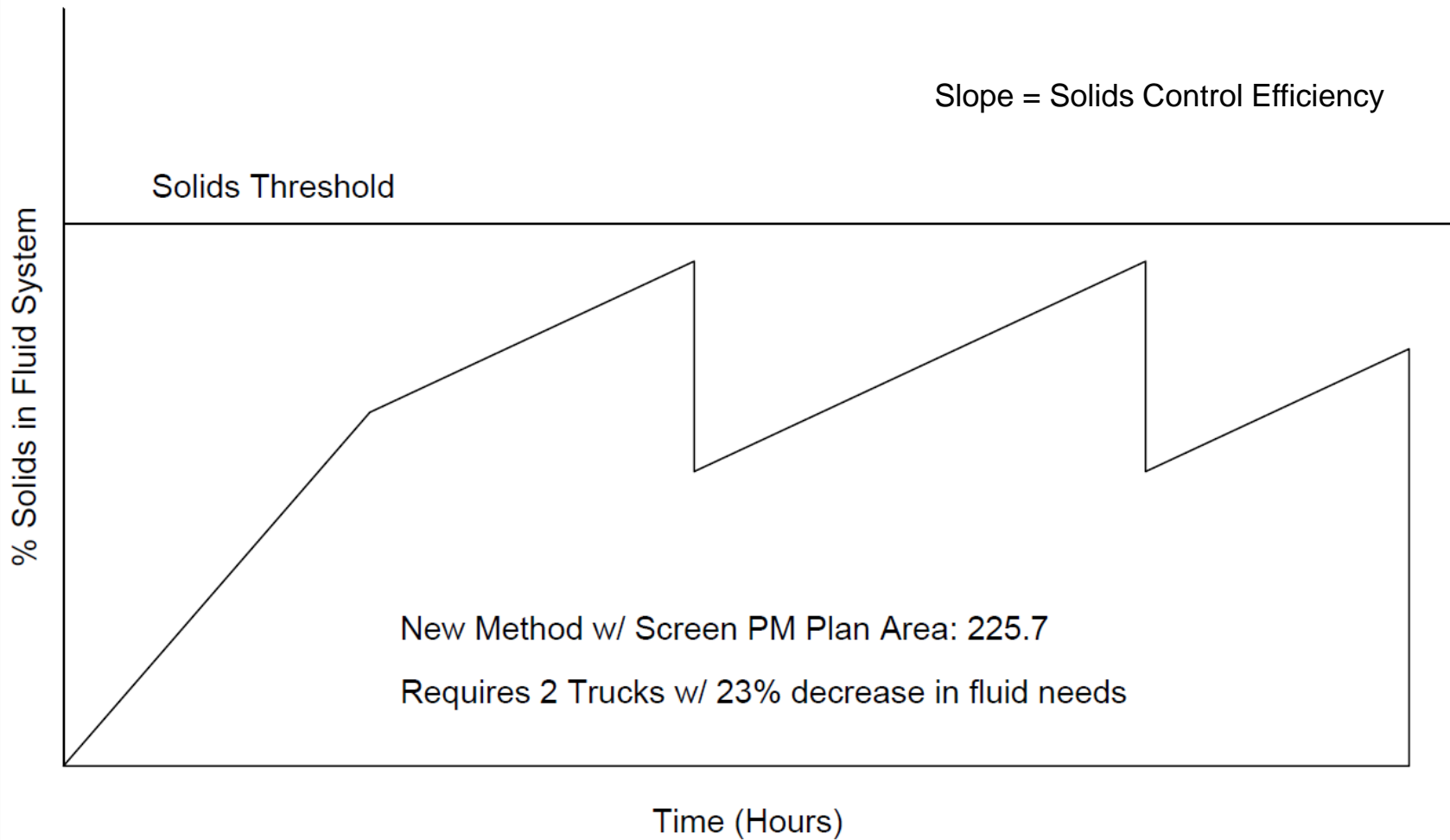
## Solids Control Efficiency

How efficient are the shakers at removing solids from the fluids?

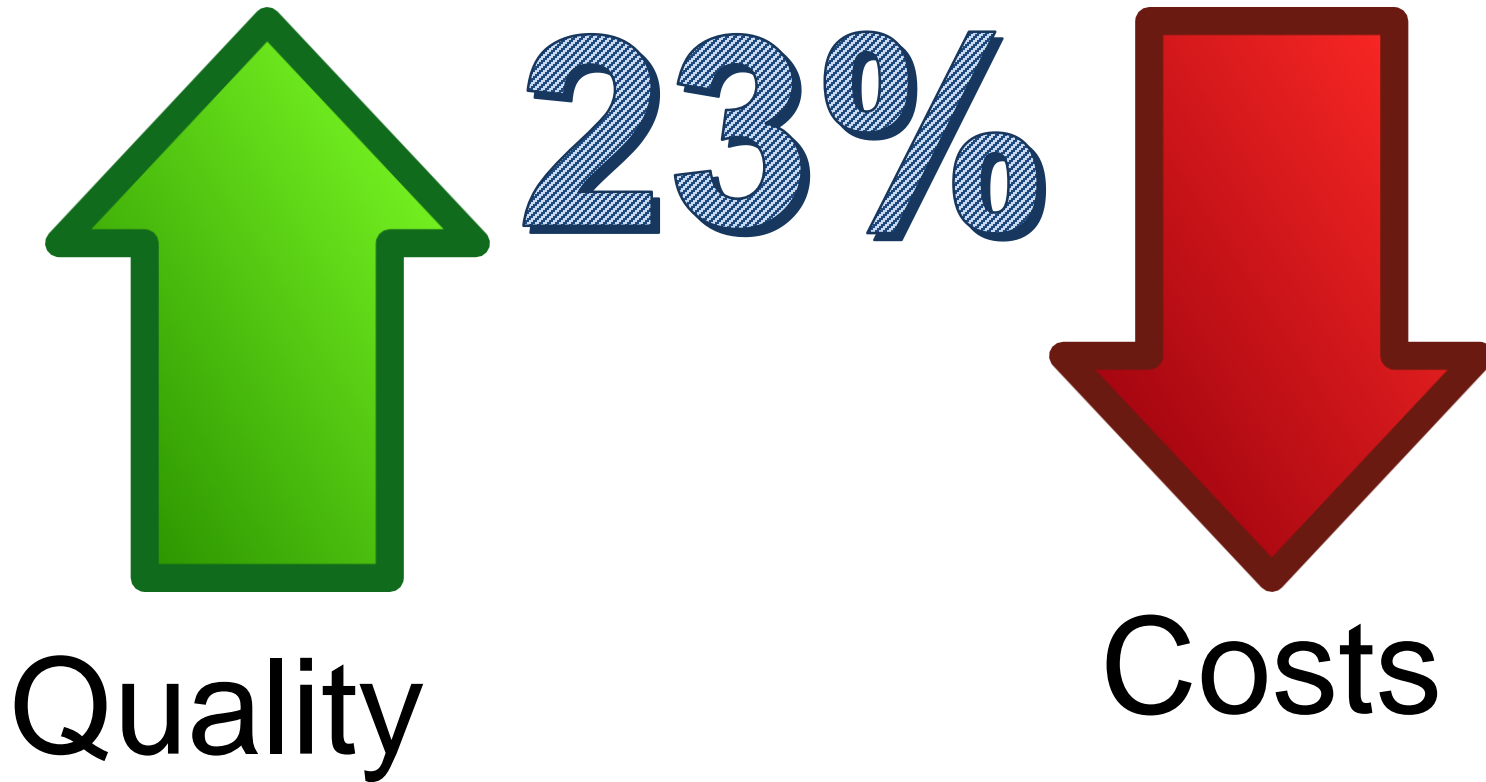




# New Method



So what?



# Now what?

---

## **To get to 23%**

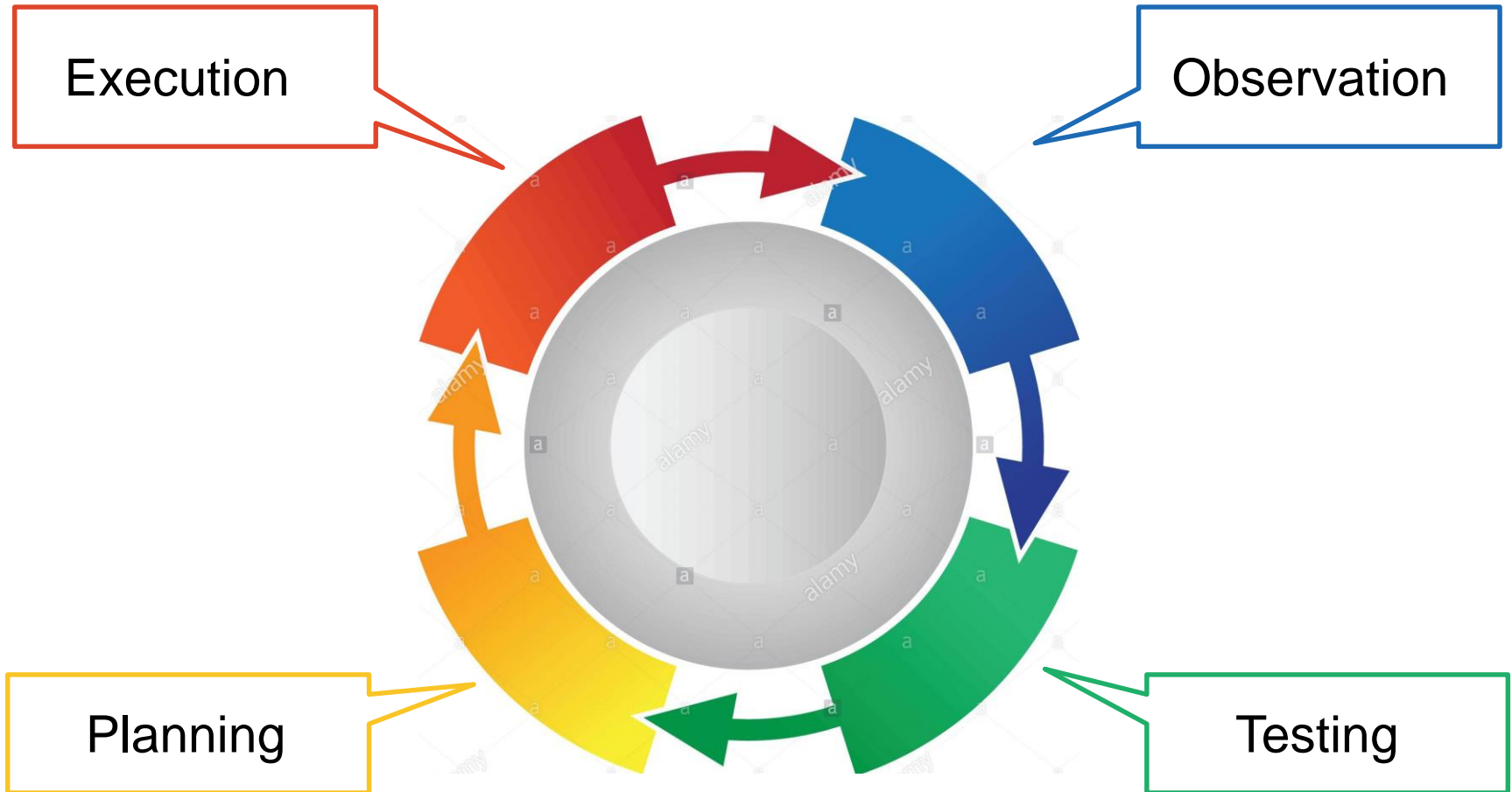
1. Use finer screens to increase our efficiency
2. Retire screens once they are past their service life

**But wait lets turn it up to 11!**

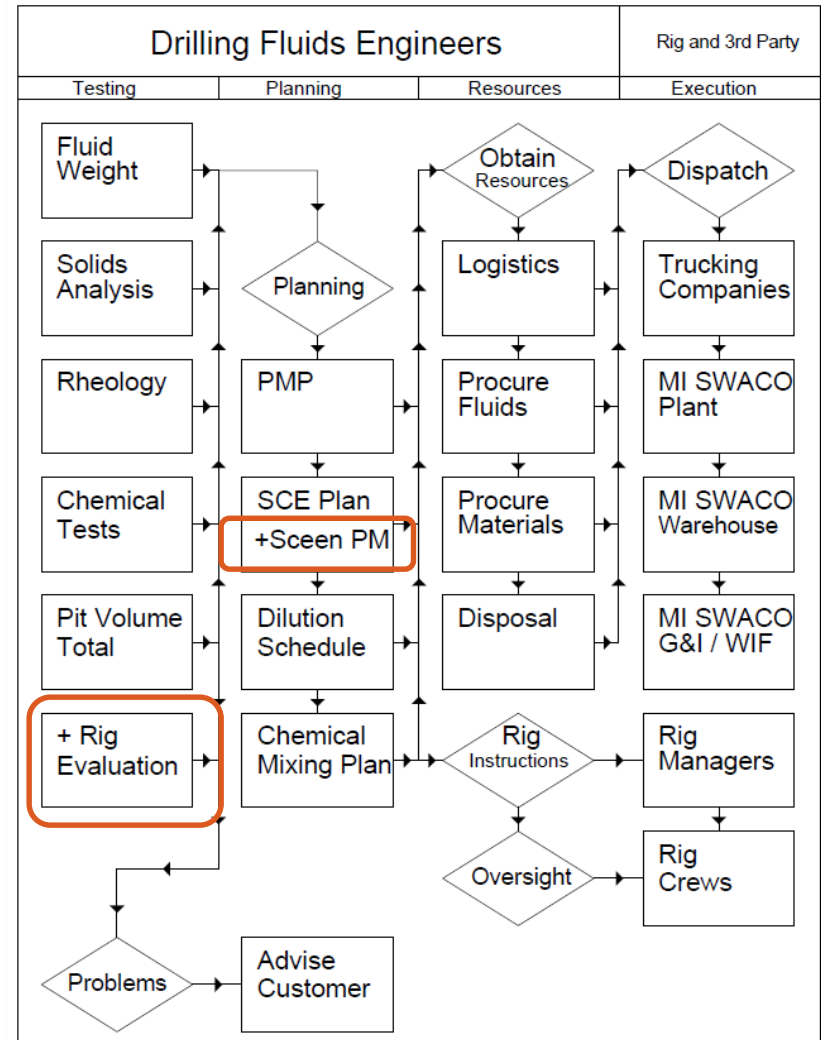
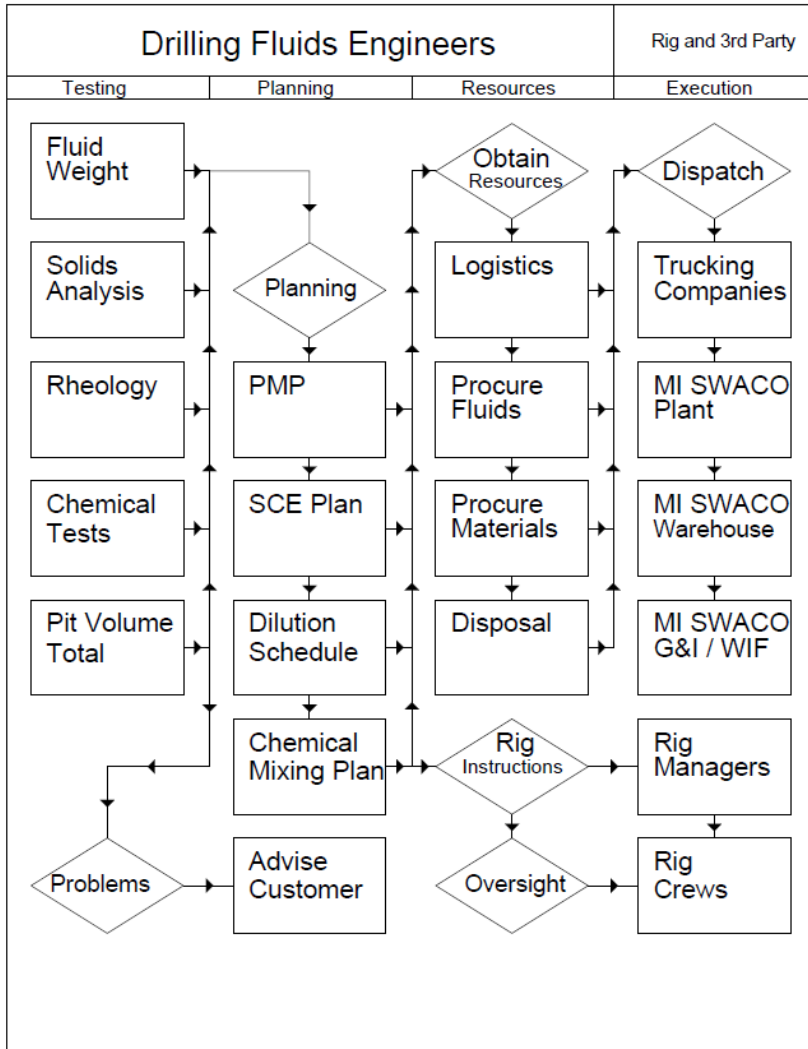
Lets observe the performance  
of the solids control

**Rig Evaluation!**

# What is the process?



# What is the process?



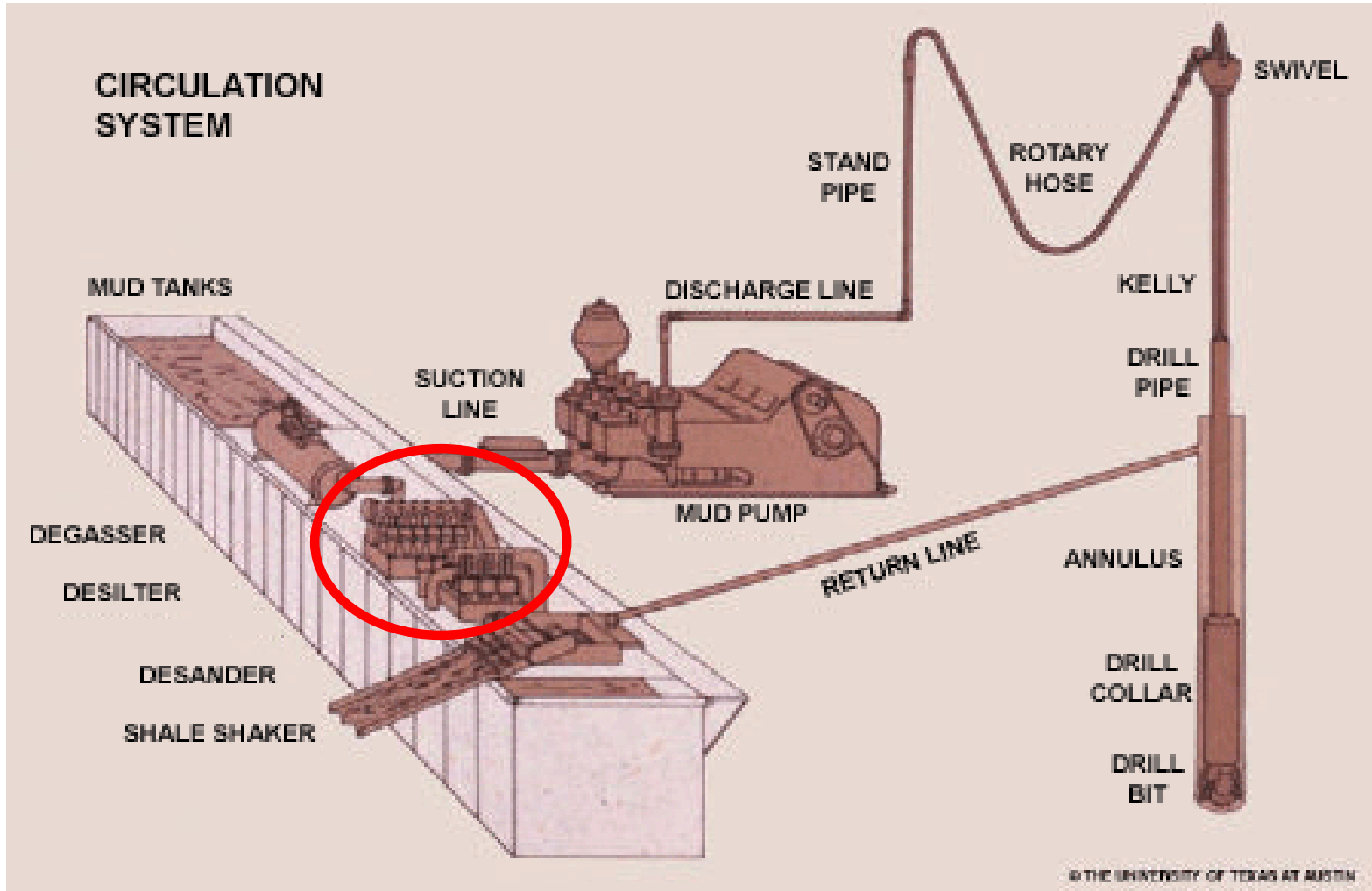
# Rig Evaluation? - What is that?

A rig Evaluation is an assessment of the Rig's strengths and weaknesses. It also assess the performance of secondary solids control:

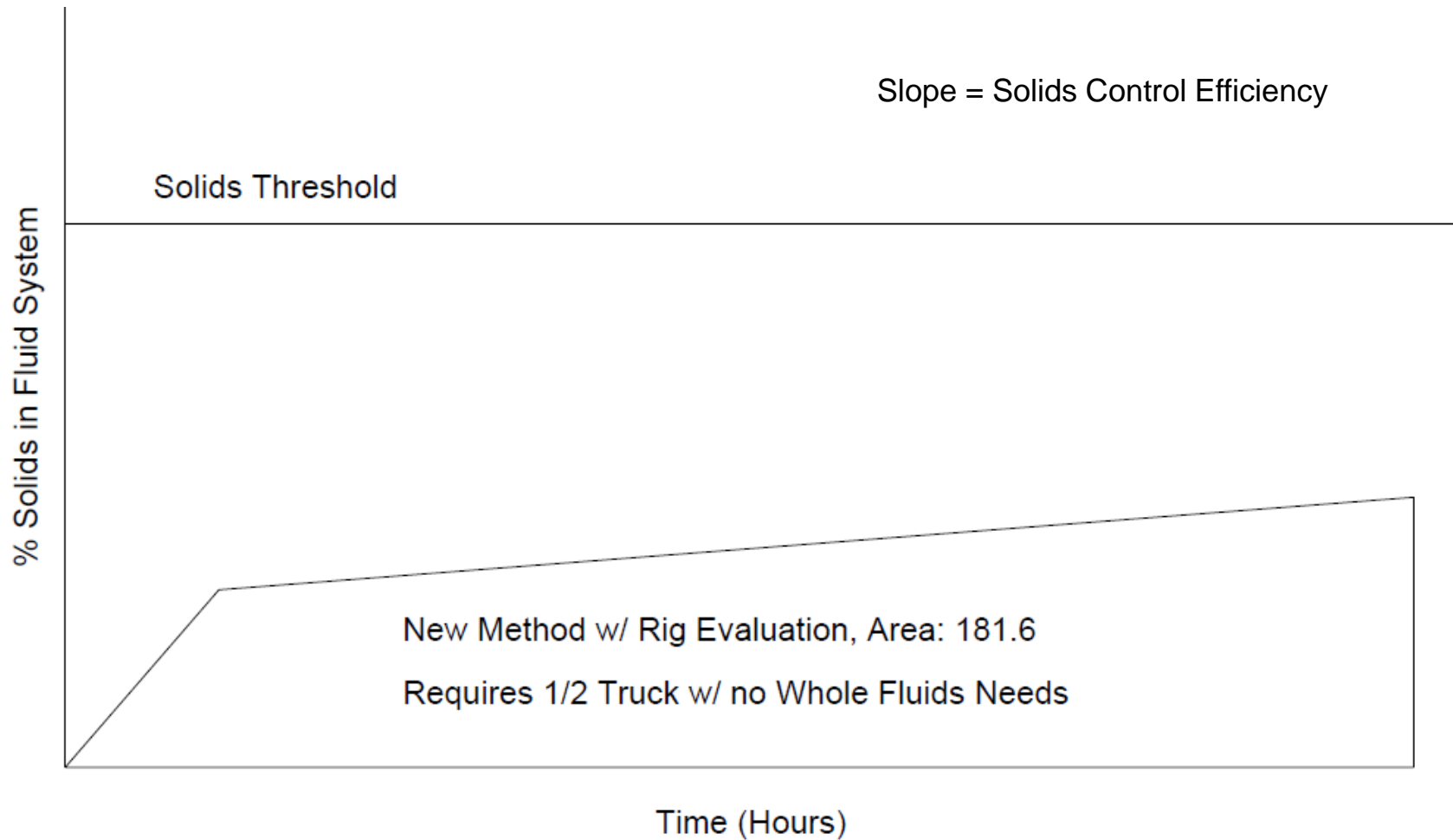




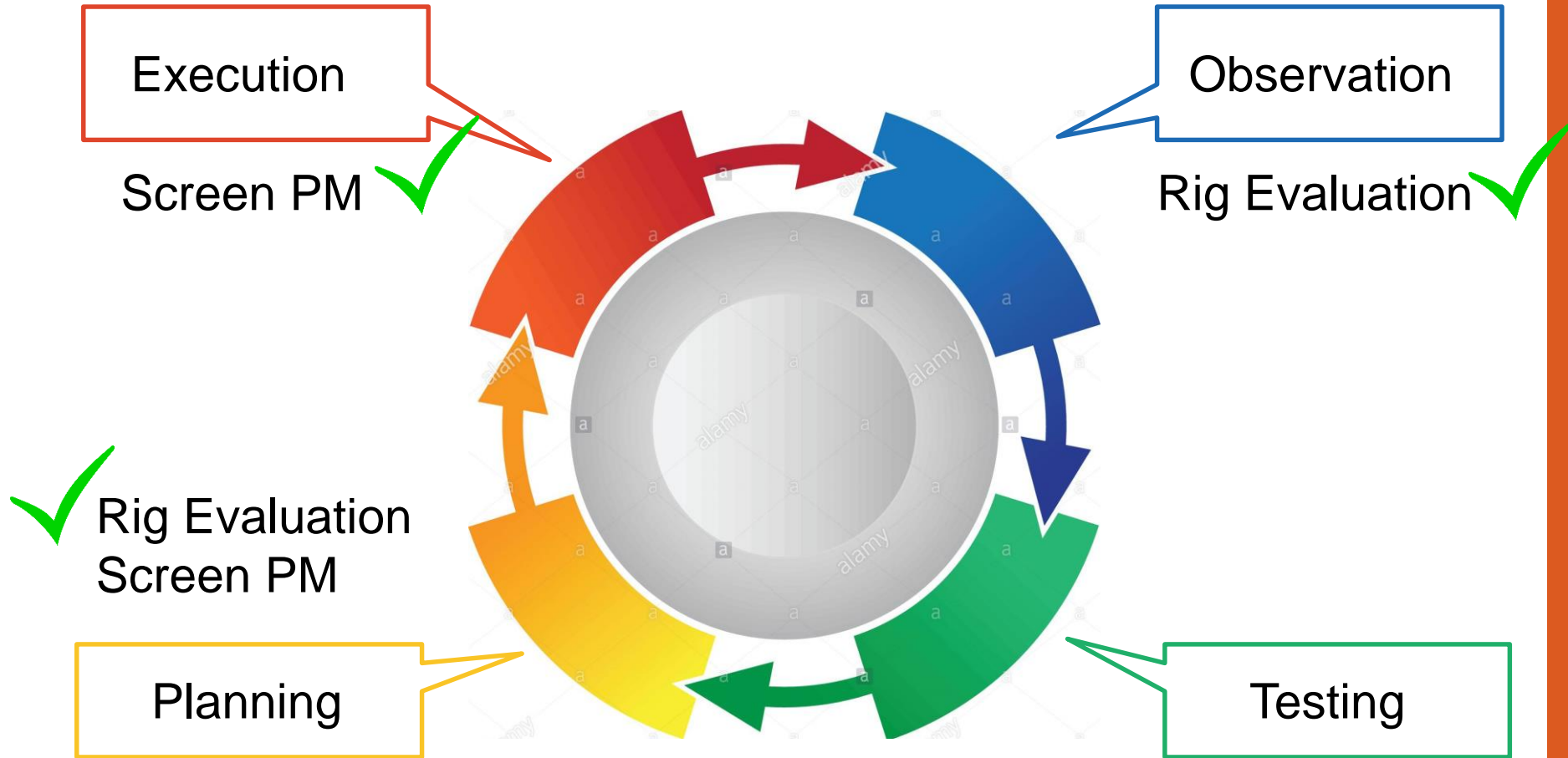
# Rig Evaluation



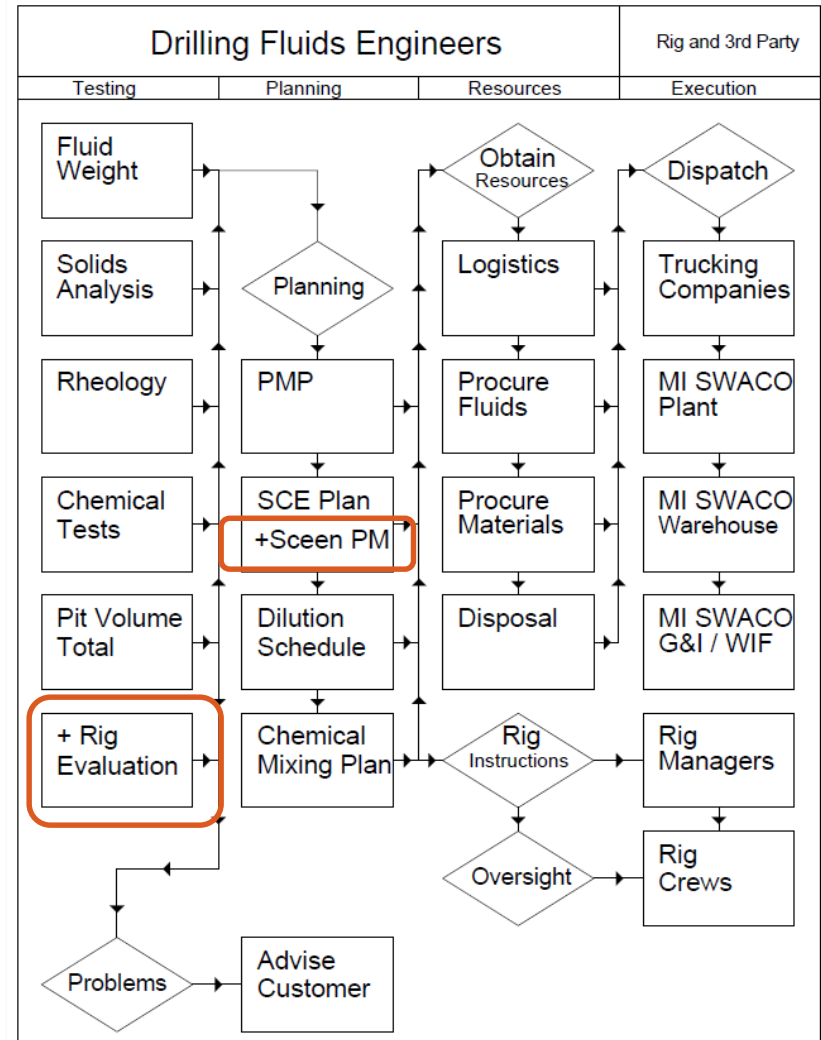
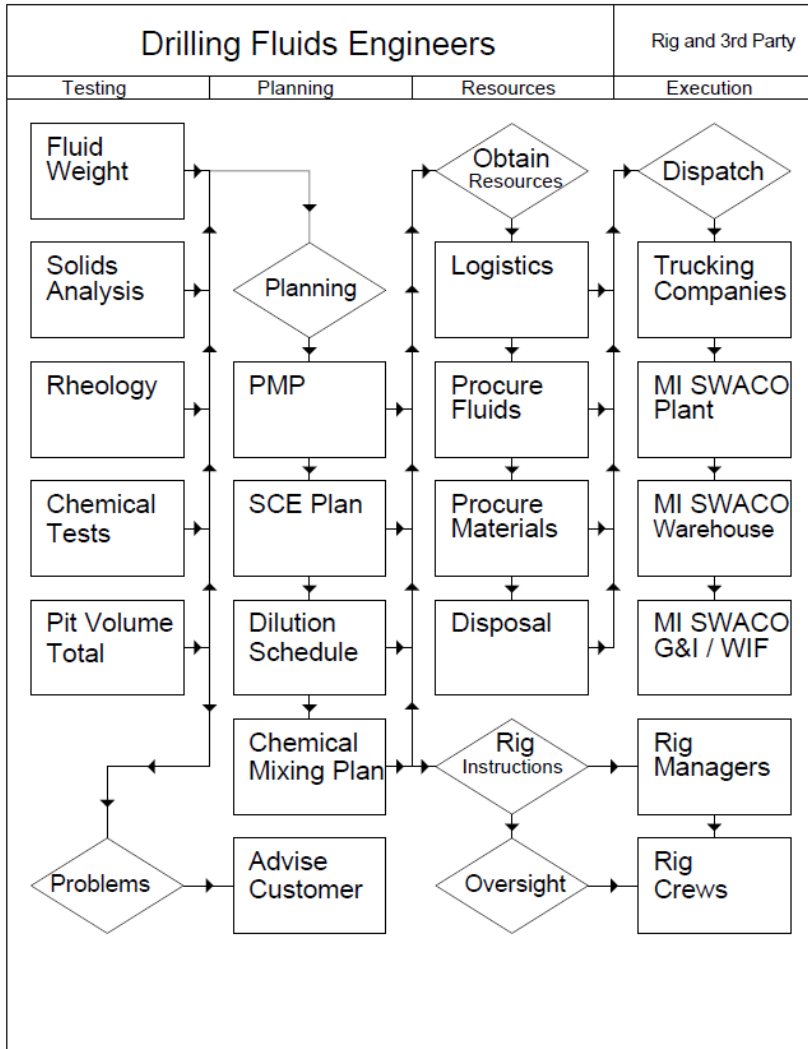
# How does this help us?



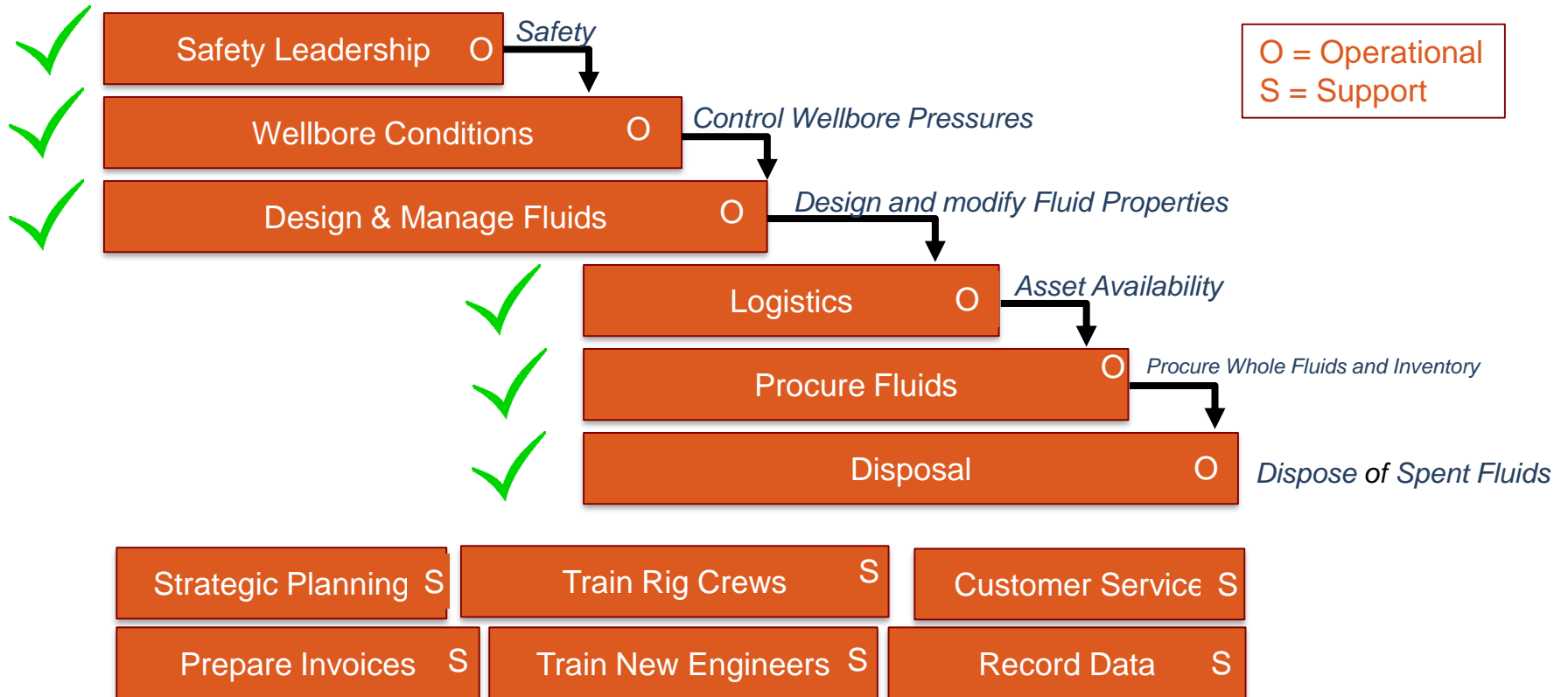
# Lets recap – Where are the improvements?



# Where are we at in the Process?



# Lets check against the Balanced Score Card Process Map



**THANK YOU**

Real World – Well 2L-322A:  
Budgeted for 1.2 million for fluids  
and only expensed 289,000

