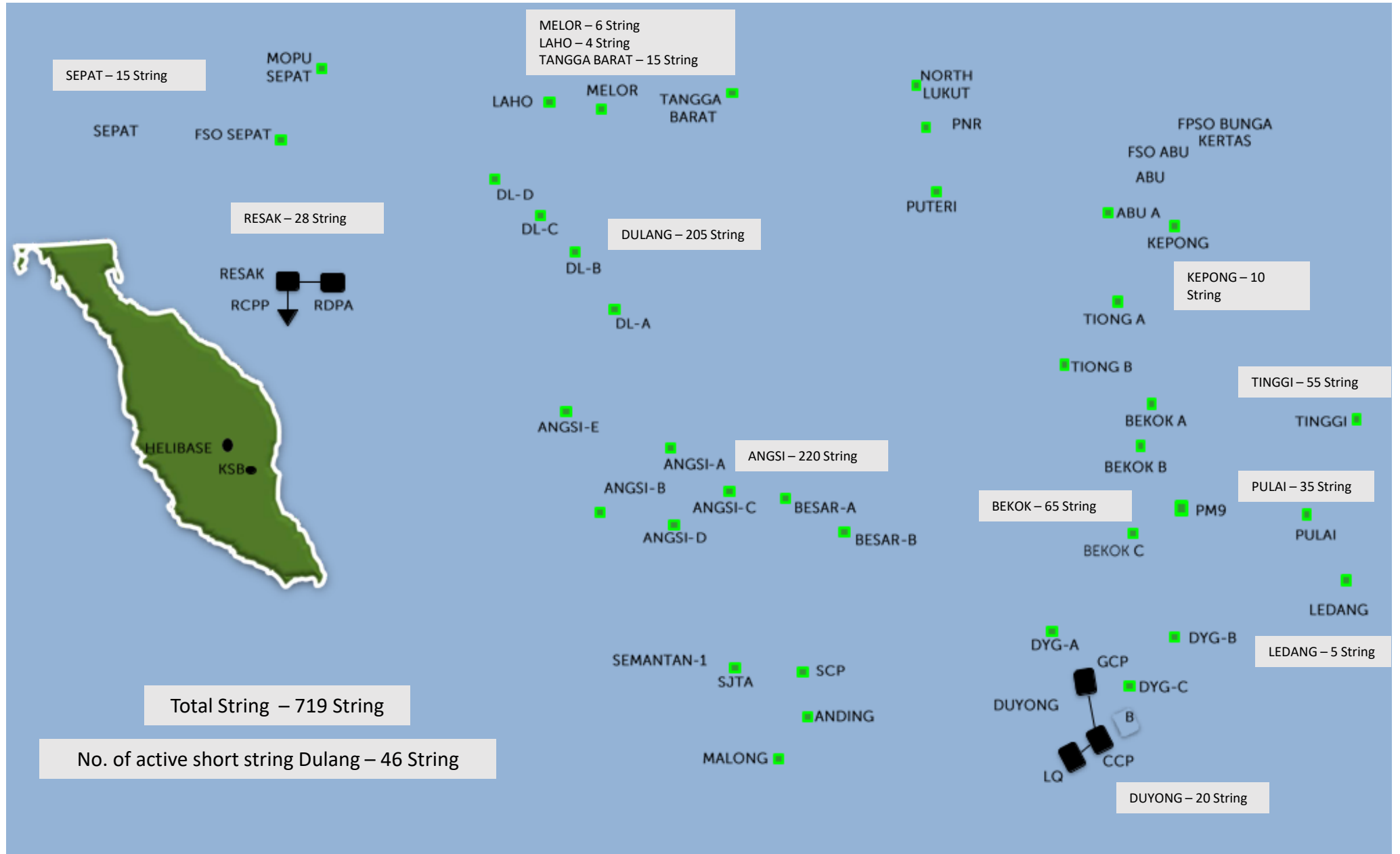


BREAKOUT PRESENTATION

SCO INSIDE CASING SECTION (SHORT STRING) USING DEPLOYMENT SETUP

(DULANG FIELD – CASE STUDY)

PMA-1 MAPPING



Total String – 719 String

No. of active short string Dulang – 46 String

TABLE OF CONTENT

- Introduction
- Technical Limitation
- Potential Revenue Analysis
- Cost Analysis
- Return of Investment
- Job Improvement Plan
- Project Promotion Strategy

INTRODUCTION

➤ Problem statement

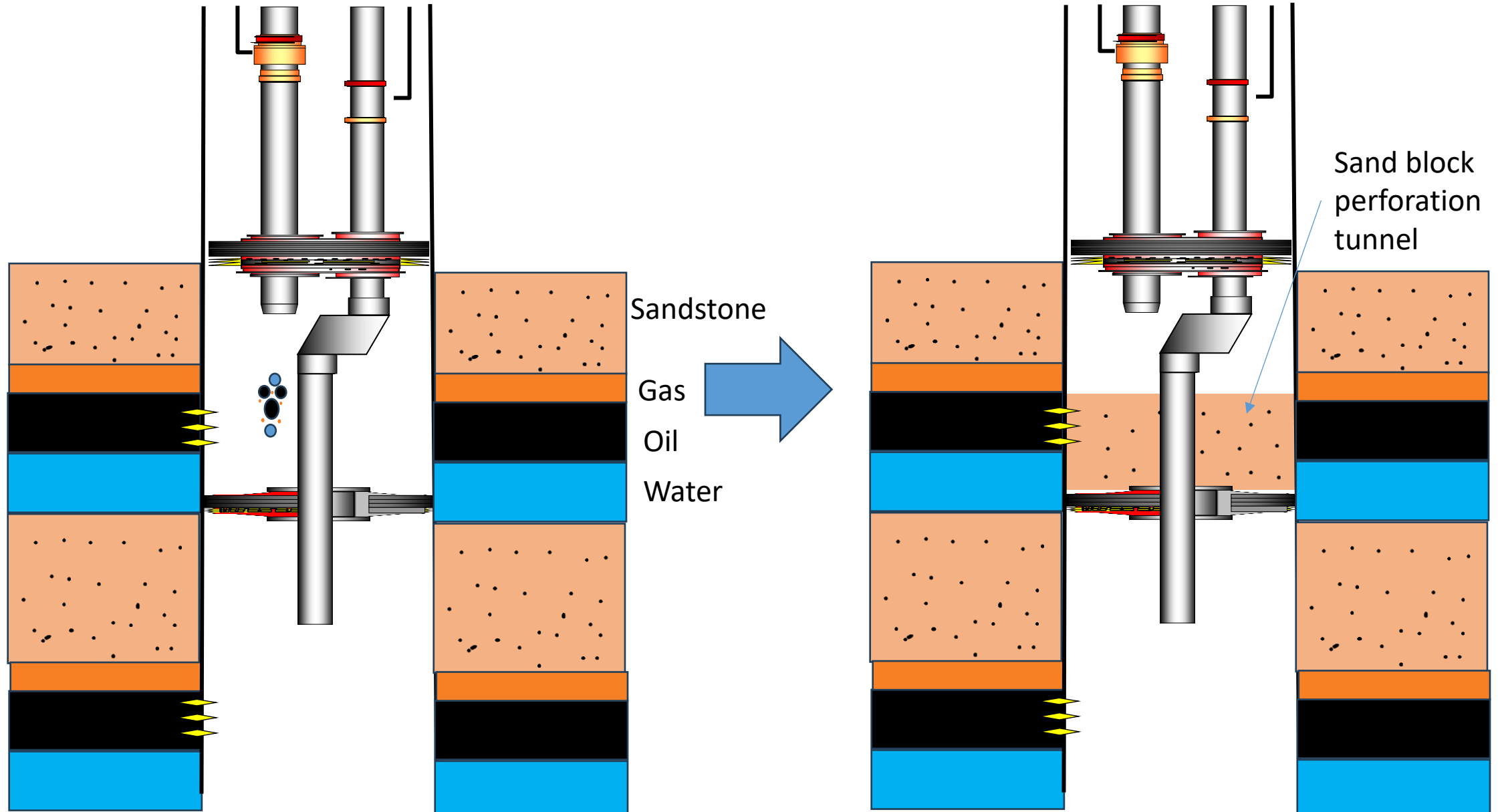
Over time, all production zones will eventually produce sand or debris, which can plug the reservoir and reduce the production rate. Sand cleanout is a common method used to remove sand and debris from the well.

However, performing a cleanout inside the casing using a short-string is very risky due to the inherent behavior of the coiled tubing (CT) string. There is a risk that the CT string may become entangled with the lower completion tubing. Based on the previous entry in 2020, there was an encounter with a high pulling weight (CT stuck condition), which required significant force to release. Fortunately, it was successfully released.

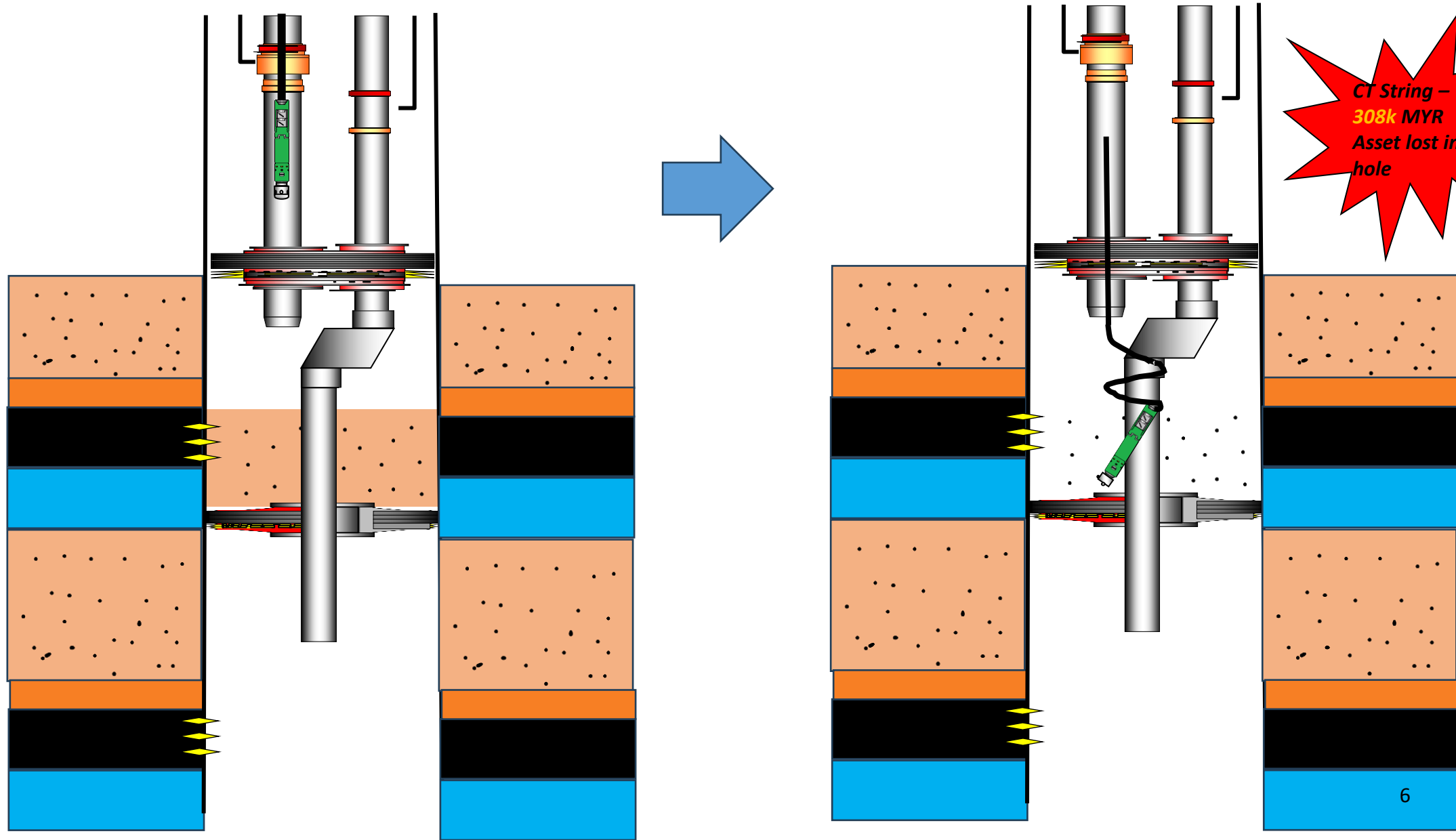
When this issue occurs, there is a high chance that the CT string cannot be released from the stuck condition, even after dropping the ball to disconnect at the MHA. In such cases, an external or internal cutter needs to be mobilized from shore to assist in releasing the CT string.

This results in additional costs for the client and may lead to the loss of the next scheduled job if the cutter takes time to mobilize to the site, or if no backup CT string and equipment are available to support the next well.

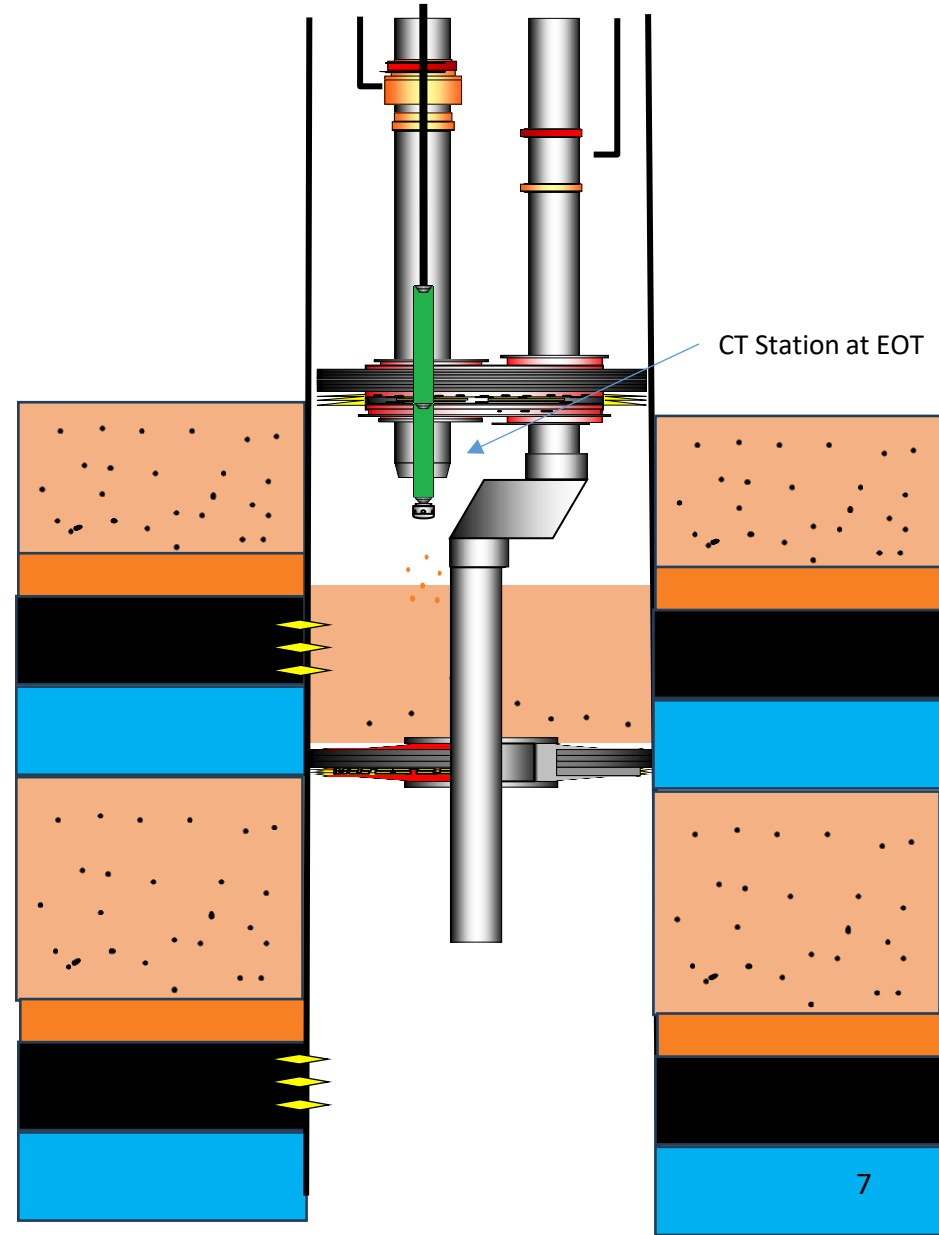
INTRODUCTION – OIL PRODUCTION



INTRODUCTION – COILED TUBING ENTRY



INTRODUCTION – SOLUTION



TECHNICAL LIMITATION

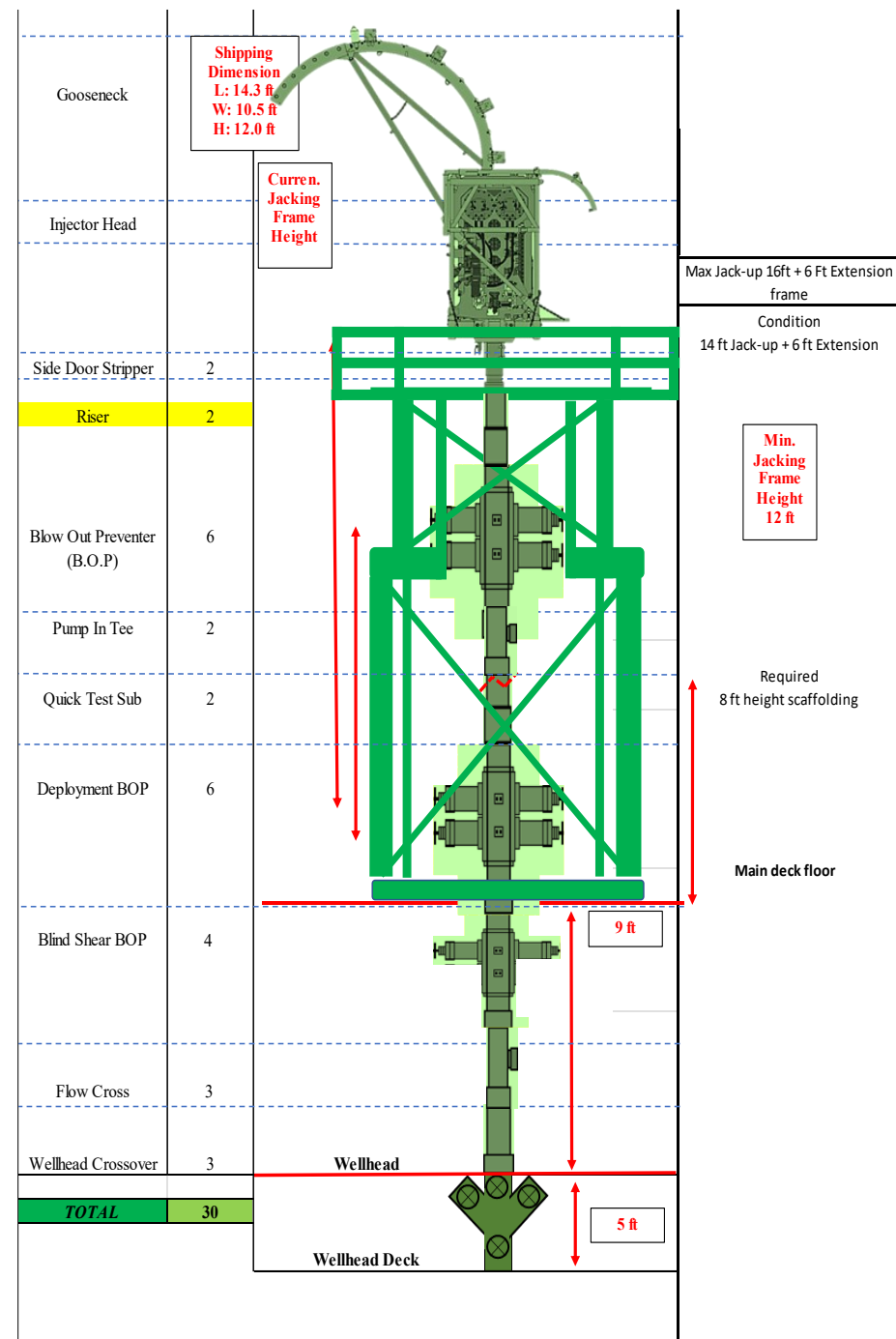
➤ Solution and limitation

The risk of the CT string getting stuck can be avoided by ensuring that the CT string is stationed at the End of Tubing (EOT) without exiting the completion tubing.

To reach the target depth, a longer Bottom Hole Assembly (BHA) must be deployed, extending from the EOT to the target reservoir zone depth.

However, due to height limitations from the wellhead deck to the main deck and at the jacking frame, an alternative deployment method is required.

The Dulang platform has a clearance height of approximately 9 ft, while the jacking frame with extension provides a maximum height of around 22 ft.



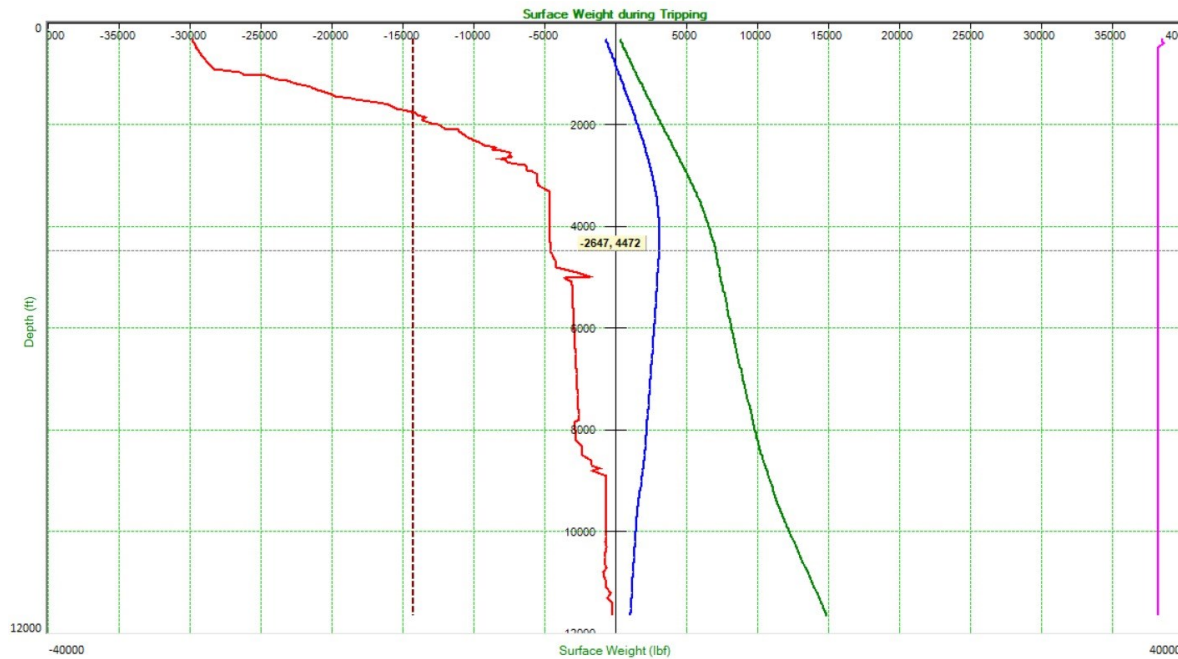
TECHNICAL LIMITATION

➤ Solution and limitation

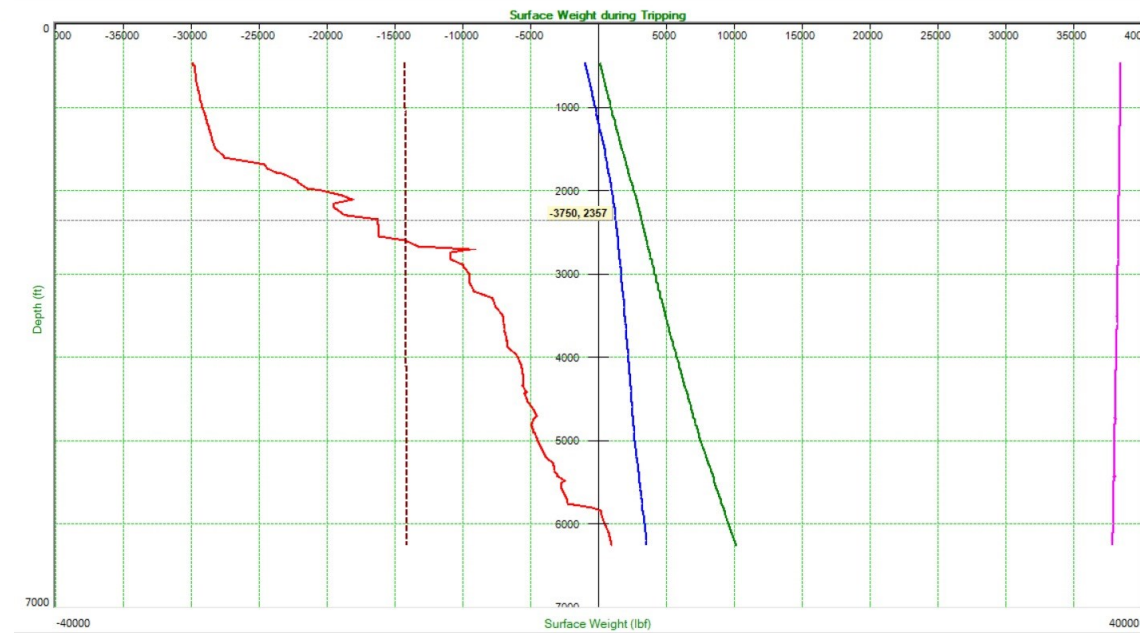
Average depth (for Dulang field) from EOT to Bottom Reservoir depth – 66 ft ~ 262 ft (max)

Max Crane Height for deployment – 110 ft

Based on TFA still able to arrived TD (Packer below SS) with 500 ft BHA



Dulang A4S – 500 ft BHA



Dulang B7S – 500 ft BHA

POTENTIAL REVENUE ANALYSIS

Currently flowing well (Latest Data Receive Feb 2025)

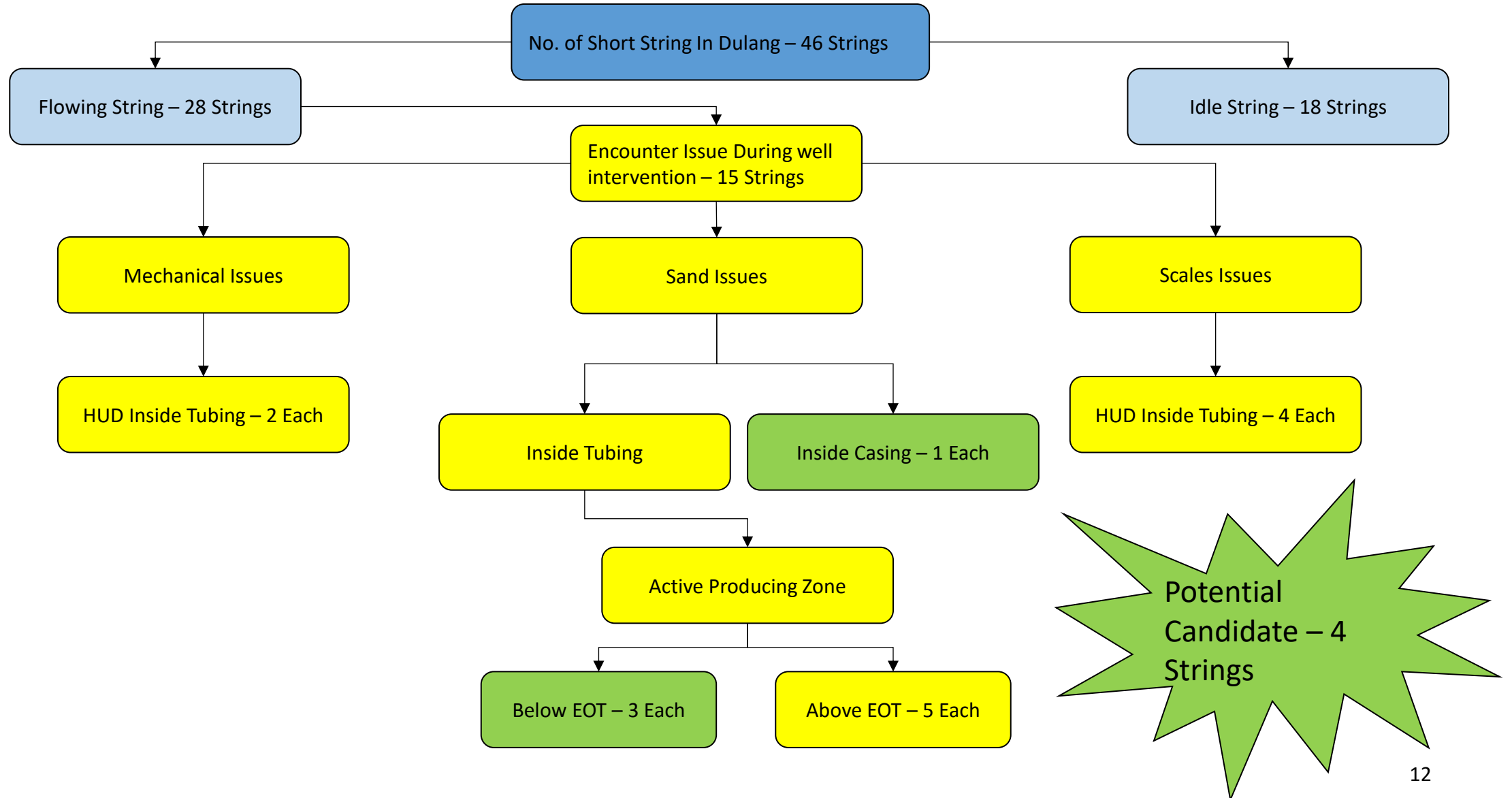
No.	Platform	Well	Well History Issue (based on well history)	Remaining Reserve (MMBOPD)
1	DLA	DULG-A015-SS	A few times attempt this well, encounter HUD suspected fine sand at interval range from 1867 to 1879 m - MDTHF. Still unable to pass through the depth until EOT	0.198
2	DLA	DULG-A027-SS	Suspected tubing stop sleeve left in hole inside tubing	0.053554
3	DLB	DULG-B001-SS	No HUD	N/A
4	DLB	DULG-B004-SS	Encounter HUD at several depth and suspected sand based on observation on tool string, however, slickline still able to pass through until NO-GO Nipple	0.192295
5	DLB	DULG-B006-SS	Uknown HUD inside Tubing	N/A
6	DLB	DULG-B007-SS	Last Cleanout 2024 inside casing	N/A
7	DLB	DULG-B009-SS	Got HUD inside tubing, suspected Sand	N/A
8	DLB	DULG-B011-SS	Suspected scale build up at tubing wall	N/A
9	DLB	DULG-B014-SS	Got HUD inside tubing, suspected Sand	N/A
10	DLB	DULG-B019-SS	Slickline unable to retrieve tubing stop, suspected sand accumulate	N/A
11	DLB	DULG-B020-SS	Got HUD @ 1416 m - THF & 1422 m - WLTHF, suspected scale (Impression on LIB). However, on 15 Nov 21, slickline run 2.29 gauge ring and able to tagged XN nogo @ 1429 m - MDTHF	0.124815
12	DLB	DULG-B028S02-SS	No HUD Encounter	N/A
13	DLB	DULG-B032S01-SS	Got HUD inside tubing, suspected Sand	0.084171
14	DLC	DULG-C001-SS	Got HUD inside tubing, suspected Sand	N/A
15	DLC	DULG-C004S01-SS	Produce at zone above first packer	N/A
16	DLC	DULG-C006-SS	No HUD Encounter	N/A
17	DLC	DULG-C007-SS	Suspected scale build up at tubing wall	N/A
18	DLC	DULG-C009-SS	Suspected scale build up at tubing wall	N/A
19	DLC	DULG-C012-SS	No HUD Encounter	N/A
20	DLC	DULG-C015-SS	No HUD Encounter	N/A
21	DLC	DULG-C018-SS	No Intervention History	N/A
22	DLC	DULG-C019S02-SS	No HUD Encounter	N/A
23	DLC	DULG-C020-SS	No HUD Encounter	N/A
24	DLC	DULG-C025W01-SS	No HUD Encounter	N/A
25	DLC	DULG-C027-SS	Encounter sand inside tubing	N/A
26	DLD	DULG-D015-SS	No HUD Encounter	N/A
27	DLD	DULG-D016-SS	No HUD Encounter	N/A
28	DLD	DULG-D032-SS	No Intervention History	N/A

POTENTIAL REVENUE ANALYSIS

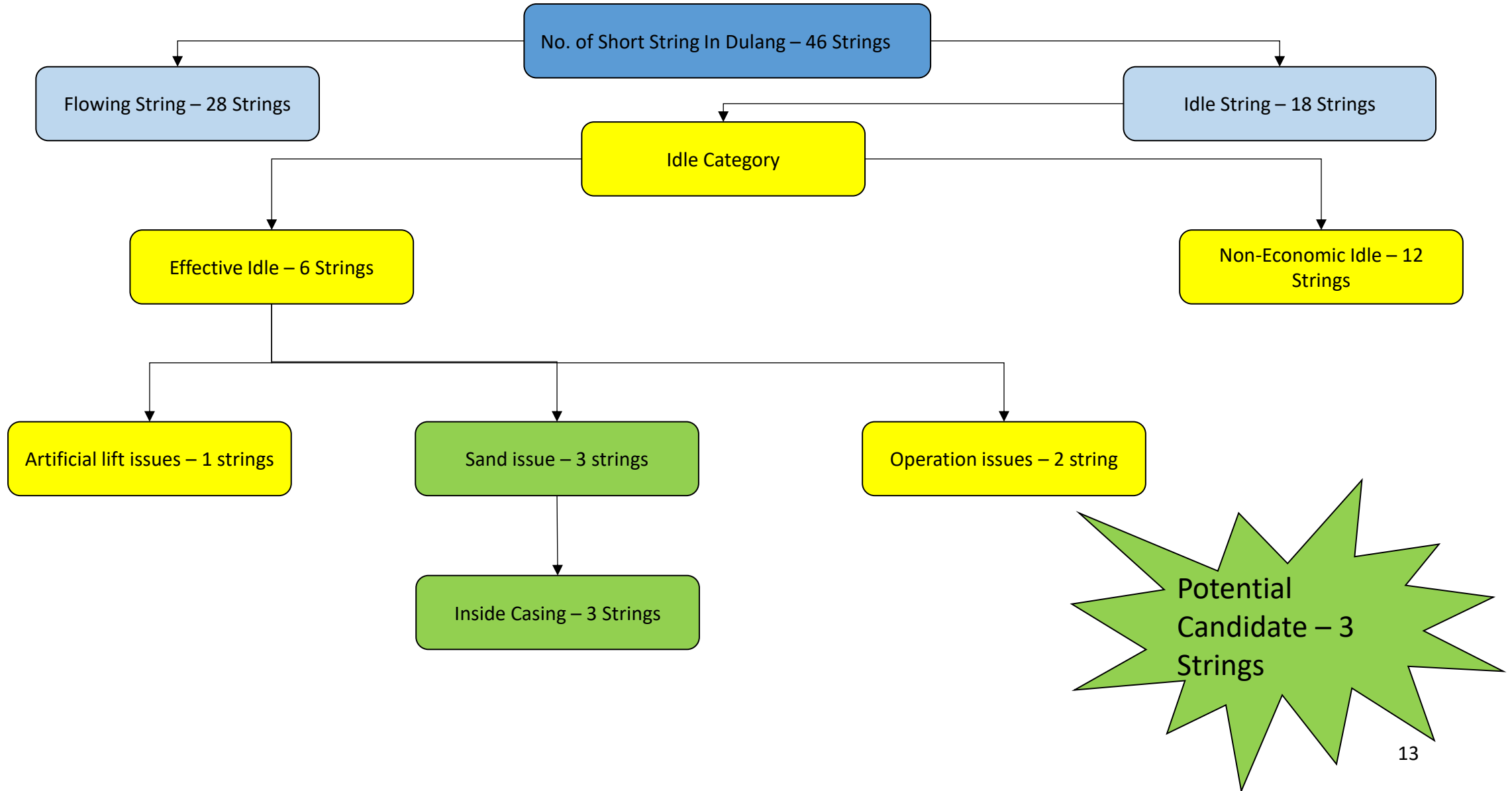
Currently Idle well (Latest Data Receive Feb 2025)

	Field	Well Type	Wellname	Idle Category Type	Idle Code	Current Status	Well History Issue (based on well history)	Remaining Reserve (MMBOPD)
1	DULG	OP	DULG-A002-SS	Non-Economic Idle	Reserves	IDLE	No HUD Encounter	0.0878
2	DULG	OP	DULG-A004S01-SS	Effective Idle (EI)	Remedial (RMD)	IDLE	Last intervention through CT, TCC/Cleanout until EOT, however after SCO n Kick-off activity, well still unable to flow, potential Sand Accumulate inside Casing	N/A
3	DULG	OP	DULG-A010S02-SS	Non-Economic Idle	Reserves	IDLE	Suspected Scale in Tubing	N/A
4	DULG	OP	DULG-A018-SS	Non-Economic Idle	Reserves	IDLE	Suspected Cement in Tubing	N/A
5	DULG	OP	DULG-A021-SS	Non-Economic Idle	Reserves	IDLE	Encounter sand inside tubing	N/A
6	DULG	OP	DULG-A030-SS	Non-Economic Idle	Reserves	IDLE	No wireline activity	N/A
7	DULG	OP	DULG-B002S01-SS	Non-Economic Idle	Reserves	IDLE	No wireline activity	N/A
8	DULG	OP	DULG-B021-SS	Non-Economic Idle	Reserves	IDLE	RIH LIB and encounter sand at 1342 m - MDTHF. On surface recovered sample like black rubber + small stone.	0.063352
9	DULG	OP	DULG-B022-SS	Non-Economic Idle	Reserves	IDLE	No HUD Encounter	N/A
10	DULG	OP	DULG-B026W01-SS	Non-Economic Idle	Reserves	IDLE	Scale above upper pack-off	N/A
11	DULG	OP	DULG-C002-SS	Effective Idle (EI)	Operation (OPNS)	IDLE	No wireline activity	N/A
12	DULG	OP	DULG-C005-SS	Non-Economic Idle	Reserves	IDLE	No wireline activity	N/A
13	DULG	OP	DULG-C008S01-SS	Non-Economic Idle	Reserves	IDLE	No wireline activity	N/A
14	DULG	OP	DULG-C021-SS	Non-Economic Idle	Reserves	IDLE	No wireline activity	N/A
15	DULG	OP	DULG-D004-SS	Effective Idle (EI)	Mechanical (MECH)	IDLE	No wireline activity	N/A
16	DULG	OP	DULG-D007S01-SS	Effective Idle (EI)	Remedial (RMD)	IDLE	Encounter sand inside Casing	N/A
17	DULG	OP	DULG-D019H01-SS	Effective Idle (EI)	Artificial Lift (AL)	IDLE	No wireline activity	N/A
18	DULG	OP	DULG-D023-SS	Effective Idle (EI)	Mechanical (MECH)	IDLE	Encounter sand inside casing	

POTENTIAL REVENUE ANALYSIS – CANDIDATE SCREENING



POTENTIAL REVENUE ANALYSIS – CANDIDATE SCREENING



REVENUE ANALYSIS

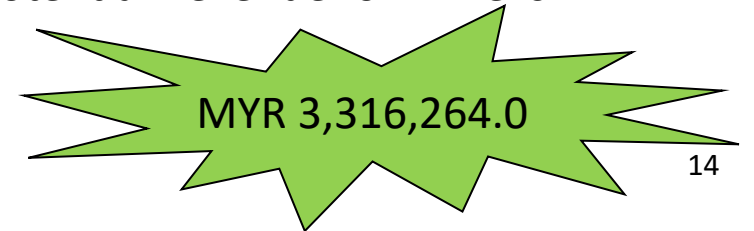
Daily standby cost without deployment	Daily standby cost with deployment setup
MYR 71,721.46	MYR 94,750.49

Date		Date
		17-Aug
Service Provider #2 Dimension Bid	Call-out Monthly Coiled Tubing Package	6,803.27
	Call-out Monthly Pressure Control Equipment	2,801.26
	Call-out Monthly Pumping Unit Package	4,276.13
	Call-out Monthly Nitrogen Package	4,116.00
	Call-out Monthly Downhole Tools	2,281.31
	Call-out Monthly Coiled Tubing Personnel	12,530.00
	Call-out Monthly Desander Personnel	9,363.90
	Call-out Monthly Desander Equipment	9,871.60
	Call-Out Equipment	12,628.00
	Call-Out Personnel	7,050.00
	Call-out / Additional Downhole Tools	0.00
	Chemical	0.00
	Run In Hole Charges	0.00
	Mob / Demob Charges	0.00
Total Dimension Bid (Daily)	71,721.46	

Date		Date
		26-Aug
Service Provider #2 Dimension Bid	Call-out Monthly Coiled Tubing Package	6,803.27
	Call-out Monthly Pressure Control Equipment	17,516.26
	Call-out Monthly Pumping Unit Package	4,276.13
	Call-out Monthly Nitrogen Package	5,579.00
	Call-out Monthly Downhole Tools	6,497.34
	Call-out Monthly Coiled Tubing Personnel	12,530.00
	Call-out Monthly Desander Personnel	9,363.90
	Call-out Monthly Desander Equipment	9,871.60
	Call-Out Equipment	11,938.00
	Call-Out Personnel	10,375.00
	Call-out / Additional Downhole Tools	
	Chemical	
	Run In Hole Charges	
	Mob / Demob Charges	0.00
Total Dimension Bid (Daily)	94,750.49	

Total cost per well, 5 Days operation (Not include Mob demob, 2 days rigup/rigdown from well to well)	
Without deployment	With deployment setup
MYR 358,607	MYR 473,752

Potential Revenue for 7 Wells



COST ANALYSIS – PREVIOUS SCO JOB

Total Revenue generated in Dulang for Dulang B-7S (Deployment set-up) – 11 Days
= MYR 1,165,724.04

P&L for Rental BHA vs cost charge to client

	Rental cost (MYR)	Cost charge to client (MYR)	Profit (MYR)
BHA (Straight Bar, DKCV and CARSAC)	39,729	67,277	27,548
Tool Specialist	29,050	23,275	- 5,775

Purchase price vs Rental price

Item	Rental (per day) (MYR)	Purchase price, each		
		NOV	LIMAR	LOCAL
Straight Bar	Standby cost 1,891 Operational cost 7,420	MYR 8,681.53	MYR 5,253.75	MYR 5,000
DKCV		MYR 15,901.35	MYR 14,019.34	-
CARSAC		MYR 8,391.99	MYR 15,060.75	-
Deployment Bar		MYR 11,412.31	MYR 5,720.75	-

COST ANALYSIS – P&L PURCHASE

Cost to purchase

Item	Purchase price, each			Quantity	Total Cost
	NOV	LIMAR	LOCAL		
Straight Bar (5 ft)	MYR 8,681.53	MYR 5,253.75	MYR 5,000	10	MYR 50,000
DKCV	MYR 15,901.35	MYR 14,019.34	-	2	MYR 31,803
CARSAC	MYR 8,391.99	MYR 15,060.75	-	2	MYR 16,784
Deployment Bar	MYR 11,412.31	MYR 5,720.75	-	2	MYR 11,442
					MYR 110,029

Cost Charge to client

	Cost charge to client per day	Quantity	Total per Day
Straight Bar (5 ft)	MYR 31.50	10	MYR 315
DKCV	MYR 1,200	2	MYR 2,400
CARSAC	MYR 750	2	MYR 1,500
Deployment Bar	MYR 31.50	2	MYR 63
Daily cost charge to client (total)			MYR 4,278

RETURN OF INVESTMENT

Return of investment

= MYR 110,029 / MYR 4,278

= 26 Days (assuming per well 5 Days)

= 6 well SCO (30 Days)

Cost for tool specialist, Rental = MYR 4,150, Charge to Client = MYR 3,255

Daily Lost = MYR 895

Potential lost per month= MY 26,850 (30*MYR 895)

Potential revenue generate per month = 30 Days x 3,255 = MYR 97,650 (Using DB crew as Tool specialist)


JOB IMPROVEMENT PLAN

- To increase cleanout efficiency, include Tornado BHA into the cleanout program (+ MYR 1,600 per day)
- Revenue increase MYR 1,600 per Day

DIMENSION BID

BHA DIAGRAM #1 -MULTIJET NOZZLE BHA

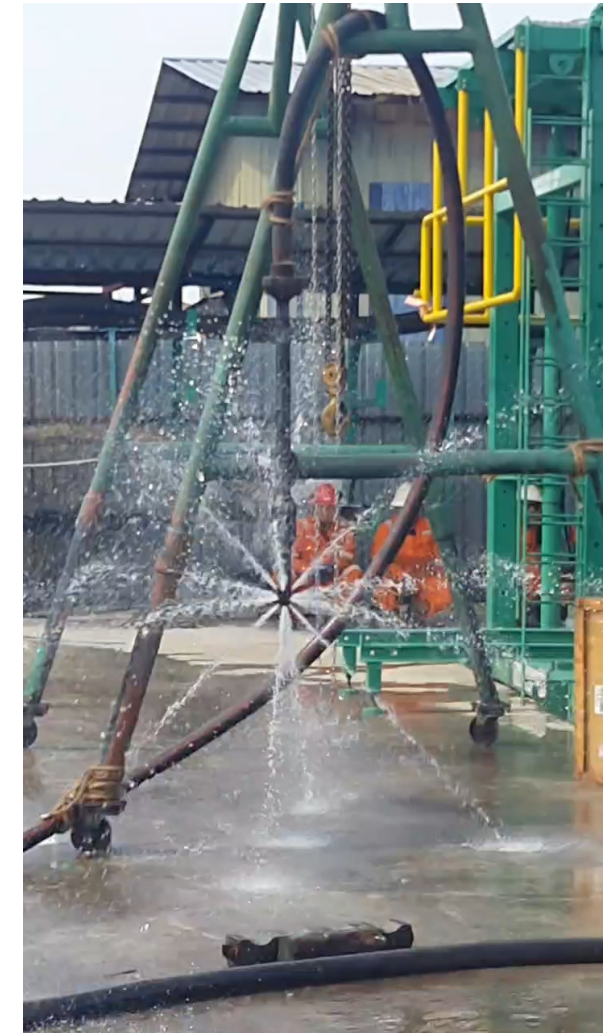
Client	Petronas Carigali	Well	A-4L
Field	Melor	Min Restriction	2.69
Job Type	SCO & CT Perf	BHP	
Job No.		BHT	

BHA DRAWING	DESCRIPTION	CONNECTION		ID	OD	TOOL LENGTH	CUMULATIVE LENGTH
		UPHOLE	DOWNHOLE				
	External Dimple CT Connector	1.5" CT	1.5" AMMT Pin		2.125	0.50	0.5
	2-1/8" Motorhead Assembly Disconnect drop ball 3/4" Circulating drop ball 5/8" Burst Disc 5,000 psi	1.5" AMMT Box	1.5" AMMT Pin		2.125	2.50	3.0
	5 FT Straight Bar	1.5" AMMT Box	1.5" AMMT Pin		2.125	5.0	8.0
	3 FT Straight Bar	1.5" AMMT Box	1.5" AMMT Pin		2.125	3.0	11.0
	Tornado Flo Activated cir sub	1.5" AMMT Box	1.5" AMMT Pin		2.125	1.5	12.5
	MultiJet Nozzle	1.5" AMMT Box			2.125	0.5	0.5

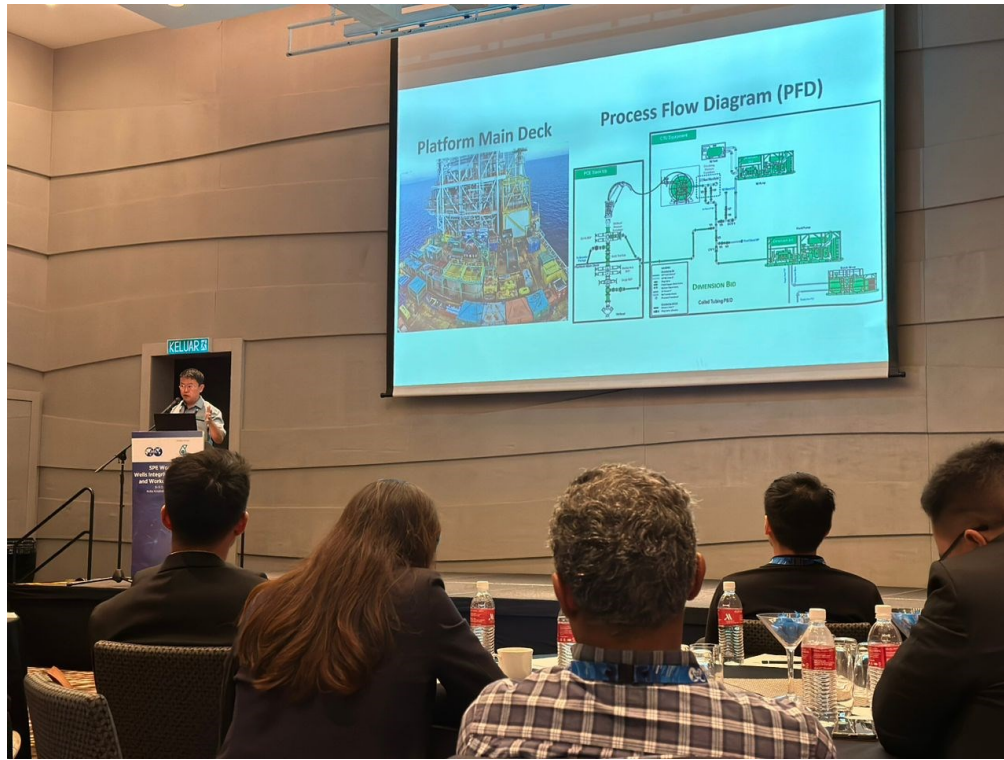
BHA LENGTH	12.50
MAXIMUM OD	2.125
MINIMUM ID	

Prepared by:	Muhammad Hafiz
Review by:	
Revision:	
Date:	

ADDITIONAL INFORMATION:
Ensure to measure the length & OD of BHA and record in DOR.



PROJECT PROMOTION STRATEGY



SPE 2024 Workshop Presentation,
KOTA KINABALU



GOTECH 2025, DUBAI

PROJECT PROMOTION STRATEGY



DB PMA 2025, LUNCH AND LEARN WITH PMA 1
(PCSB)



DB PMA 2025, LUNCH AND LEARN WITH PMA 2
(Ex – Exxon Mobil)

Thank you