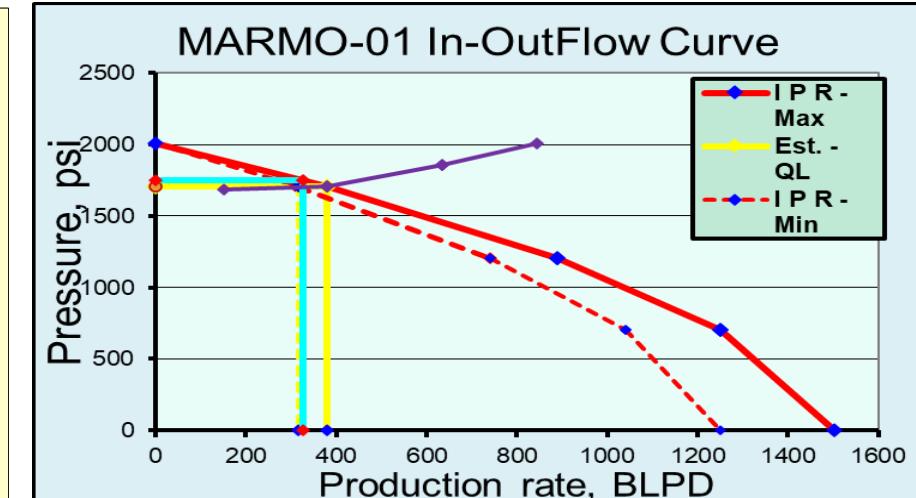
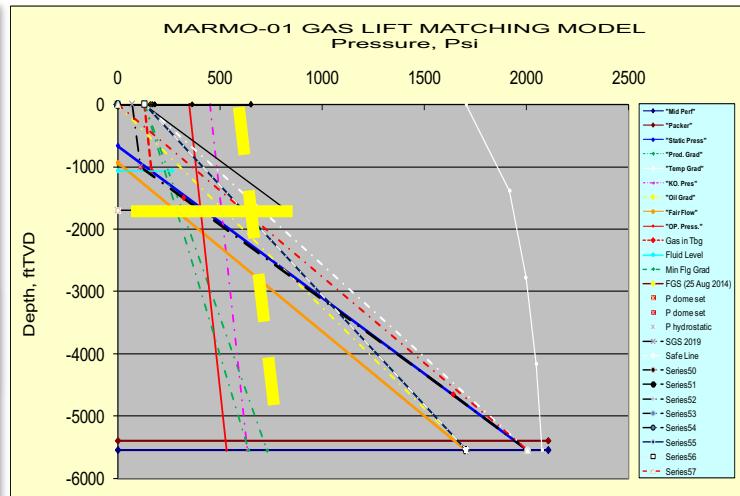
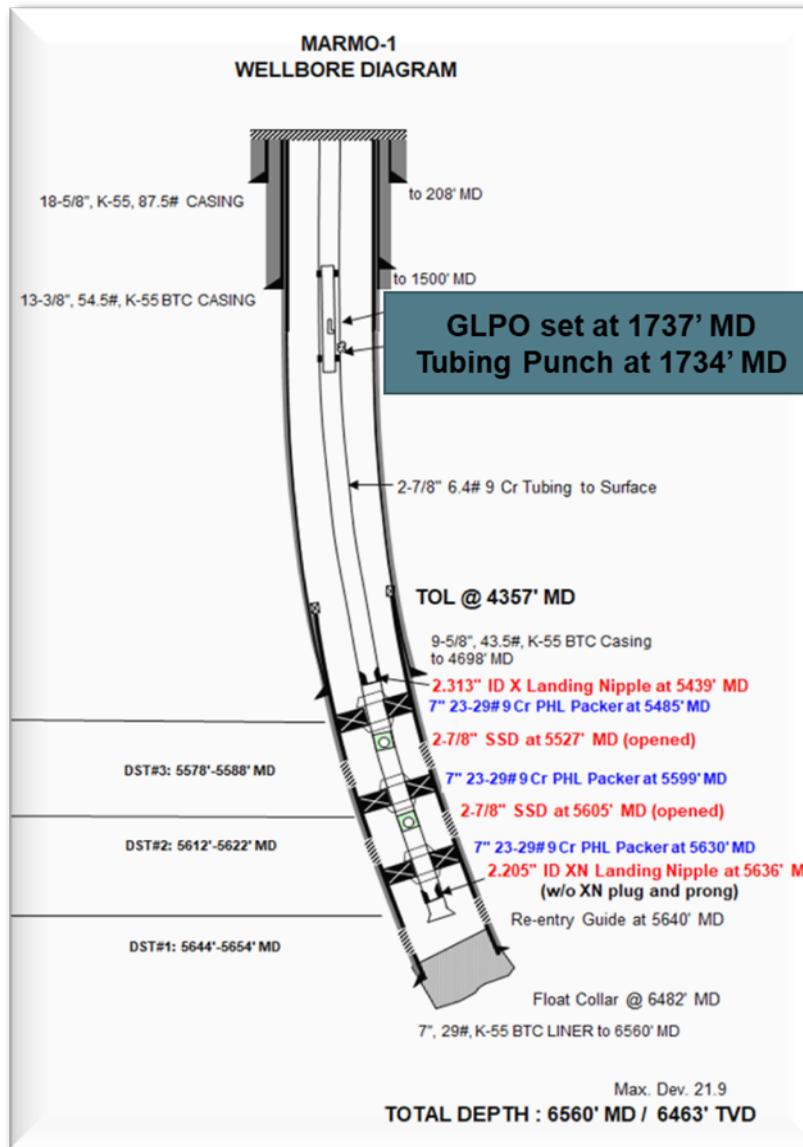


Gas Lift Pack Off Implementation at Jabung Block

Petrochina International Jabung Ltd.

GAS LIFT PACK OFF TECHNOLOGY

Gas Lift pack Off a method to create the gas lift passage from the well annulus into the tubing flow area at a desired location



Base on IPR fluid target 250 BFPD with expected oil 230 BOPD depend on WC, gas lift pack off original depth design at 1700' MD

SPM	Depth ft (MD)	Depth ft (TVD)	Existing			Proposed		
			Valve Type	Port Size	Ptro (Psi)	Valve Type	Port Size	Ptro @ 60 Deg. F (Psi)
1	1700	1700	NA	NA	NA	C. SOV	16	NA

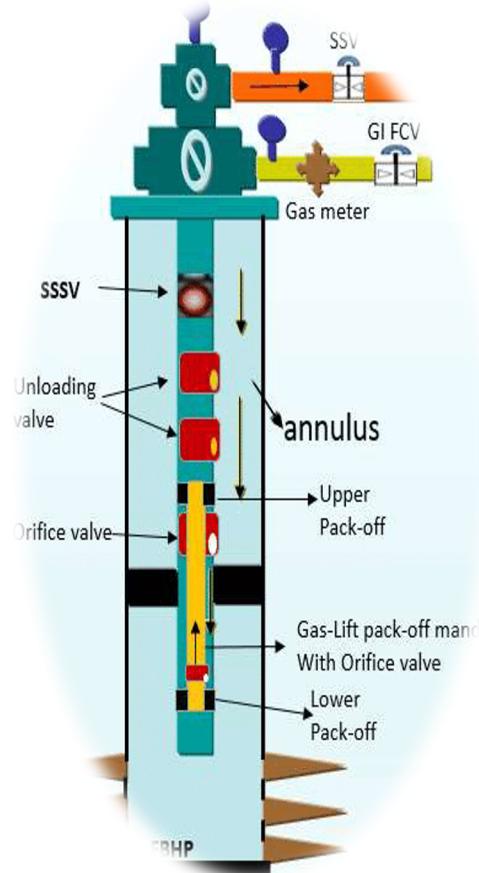
MARMO-1 Technical Data

SBHP	2006 Psi @5545' TVD
Productivity Index	1.2 BLPD/Psi
FGOR	583 : 1
Water Cut	10%
Static Gradient	0.40 psi/ft
Casing Head Pressure	450 psi (KO) ; 350 psi (OP)
Flowing Tubing Head Pressure	130 psi
Casing Size	7"
Tubing Size	2-7/8"
SPM Depth	N/A
Temperature	Bottom : 253 Deg F Surface : 87 Deg F



Gas Source from Trunkline
Marmo-3 Well

GLPO IMPLEMENTATION AT OTHER WELLS AT JABUNG BLOCK



2019

Technical Review &
agreement
preparation

2020

2 Wells:
Marmo-1
SB-D6
Total IP 419 BOPD

2021

4 Wells:
- WB-D15A, - Pan Ut-1
- NG-28, - MK-1
Total IP 696 BOPD

2022

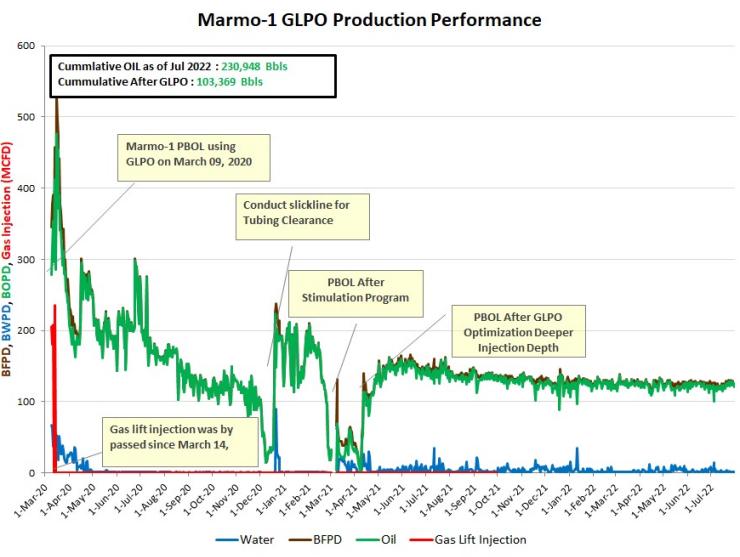
2 Wells:
- Panen-D9
- NG-34
Total IP 271 BOPD



GLPO RESULTS AT 3 WELLS:

Marmo-1

Flow with short period and intermittent.
Optimizing Production usuing GLPO

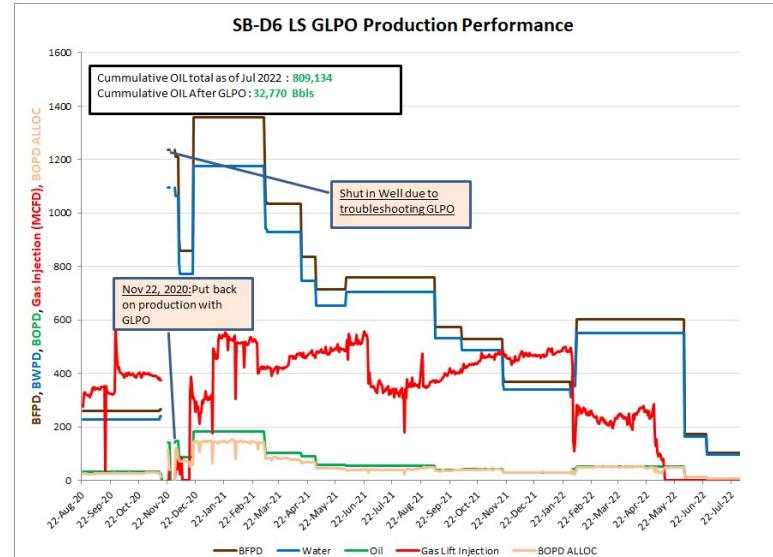


After install GLPO (28 June 2021):
IP gain 554 BOPD (1185 BFPD)
Cumm. Prod after GLPO as of Jul 2022:
103,369 Bbls

Note : Marmo-1 already optimize by deepening gas injection

SB-D6

Fluid Gross Up Optimize Gas Lift Injection Depth:
Flow with small rate 24 BOPD (250 BFPD).

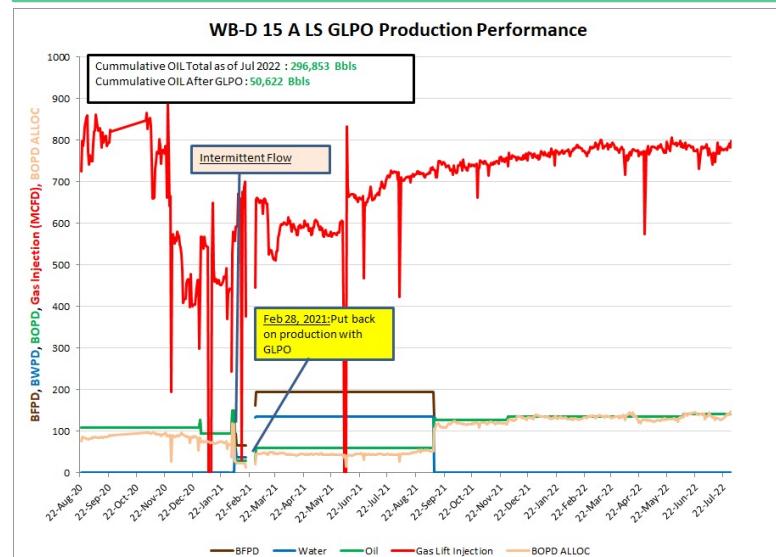


After install GLPO (22 Nov 2020):
SB-D6 IP gain 141 BOPD (1237 BFPD)
Cumm. Prod after GLPO as of Jul 2022:
32,770 Bbls

Note : currently SB-D6 waiting for CTU job for Scale removal, prior to optimized

WB-D15A

Deepening Injection Point
Flow intermittent est. +/- 30 BOPD (67 BFPD).

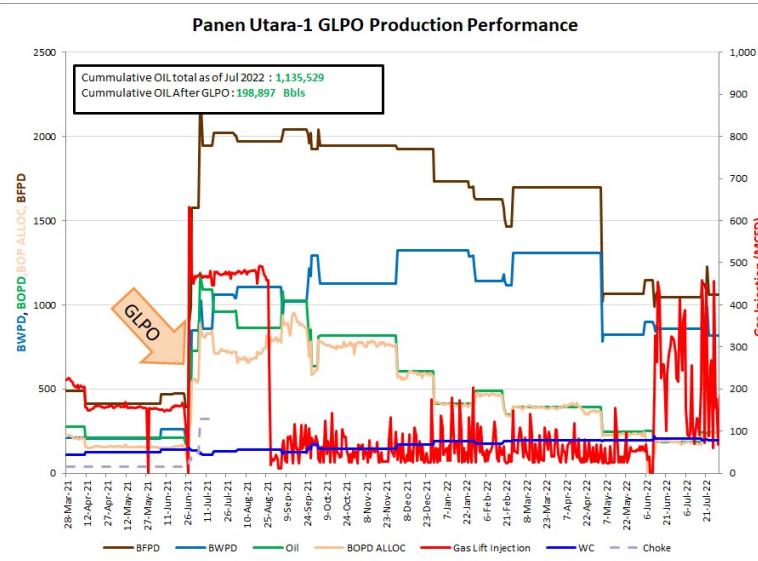


After install GLPO (28 Feb 2021):
IP gain 59 BOPD (195 BFPD)
Cumm. Prod after GLPO as of Jul 2022:
50,622 Bbls

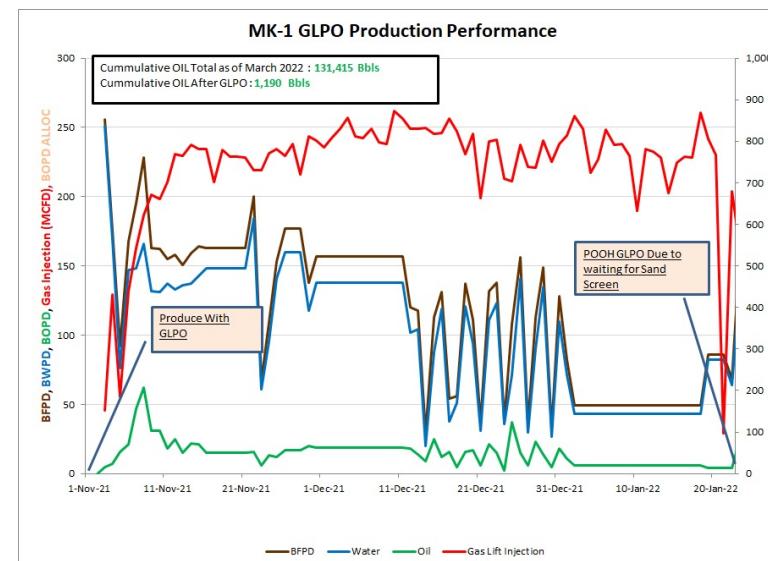
Note : Currently well still on optimum production (Continue Monitor)

GLPO RESULTS AT 3 WELLS:

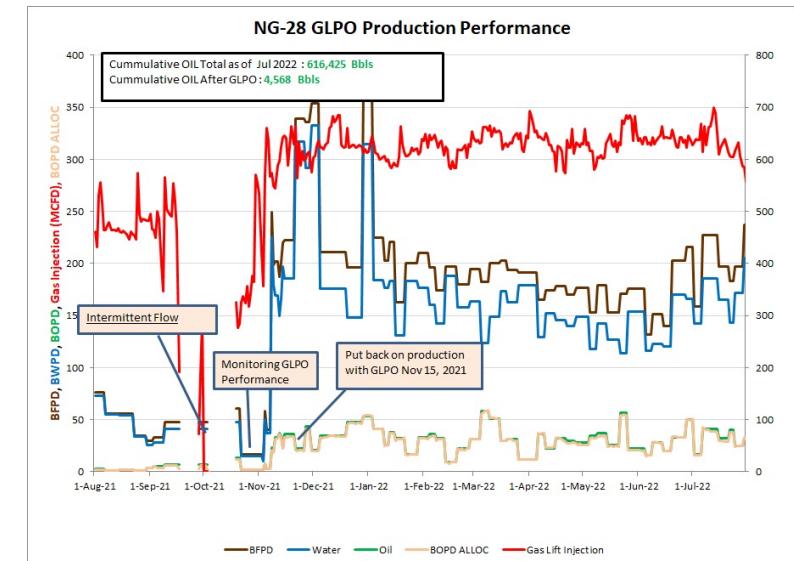
Panen - Utara1
Optimizing Oil rate with GLPO
Before GLPO flow with rate 200 BOPD



MK-1
To Produce existing oil with GLPO:
Well shut in due to no Flow.



NG-28
Deepening Injection Point
Flow intermittent est. +/- 7 BOPD (48 BFPD).



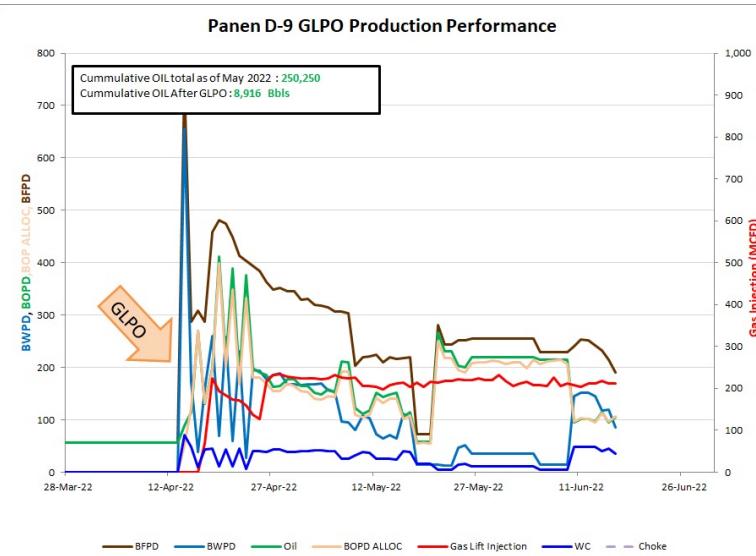
After install GLPO (28 June 2021):
IP gain 554 BOPD (1185 BFPD)
Cumm. Prod after GLPO as of Jul 2022:
198,897 Bbls.
Note : Panen Utara-1 continue monitor
after Optimization in early June 2022

After install GLPO (5 Nov 2021):
MK-1 IP gain 47 BOPD (195 BFPD)
Cumm. Prod after GLPO as of Jul 2022:
1,190 Bbls.
Note : In Jan 2022, POOH GLPO due to
sand problem, waiting for sand screen.

After install GLPO (15 Nov 2021):
IP gain 36 BOPD (222 BFPD)
Cumm. Prod after GLPO as of Jul 2022:
4,568 Bbls.
Note : well still continue monitor due to
on optimum production

GLPO RESULTS AT 3 WELLS:

Panen D-9
Produce Oil with GLPO
Before GLPO the well shut in due to no flow



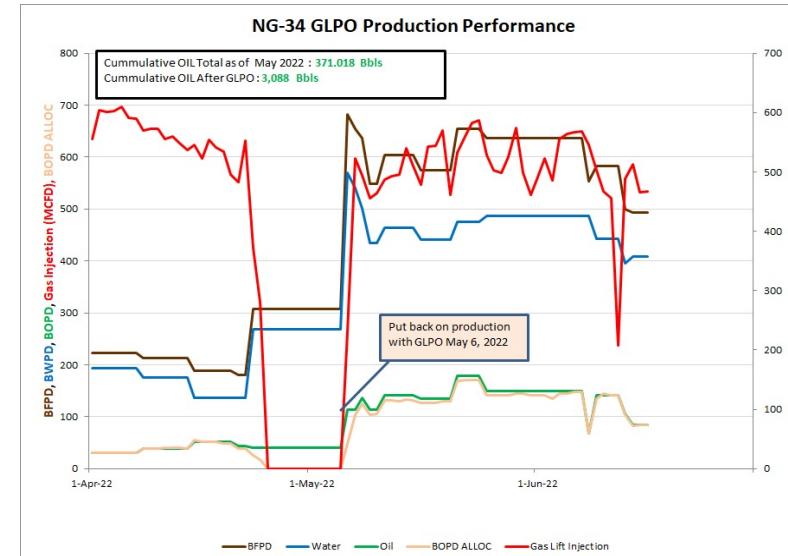
After install GLPO (18 Apr 2022):

IP gain 198 BOPD

Cumm. Prod after GLPO as of Jul 2022:
12,523 Bbls.

Note : Panen D-9 continue monitor due to
still high gas production

NG-34
Deepening injection point
Flow with est 30 BOPD (175 BFPD).



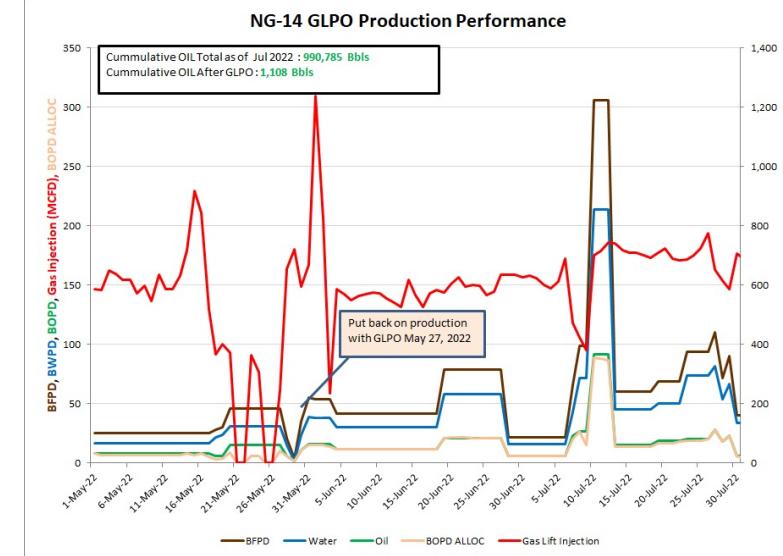
After install GLPO (6 May 2022):

IP gain 73 BOPD

Cumm. Prod after GLPO as of Jul 2022:
10,748 Bbls.

Note : still on optimum production,
continue monitor.

NG-14
Deepening Injection Point
Flow intermittent est. +/- 6 BOPD (30 BFPD).



After install GLPO (27 May 2022):

IP gain 10 BOPD (55 BFPD)

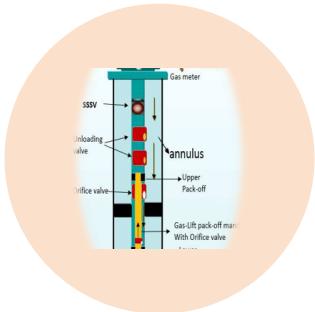
Cumm. Prod after GLPO as of Jul 2022:
1,108 Bbls.

Note : Prepare for survey prior to check
GLPO and optimize well

SUMMARY GLPO RESULTS:

GLPO	Start Onstream	Initial Gain BOPD	Initial Gain MMSCFD	Cummulative as of Jul 2022		Remarks
				OIL (BOE)	GAS (MMSCFD)	
Marmo-1 (Gas Lift Pack Off)	09-Mar-20	278	0	103,369		Done
SB-D6 LS (Gas Lift Pack Off)	22-Nov-20	120	0	32,770	159.0	Done
WB-D15 A LS (Gas Lift Pack Off)	28-Feb-21	29	0.197	50,622	81.9	Done
Panen Utara-1 (Gas Lift Pack Off)	30-Jun-21	554	0.228	198,897	196.1	Done
Makmur-1 (Gas Lift Pack Off)	05-Nov-21	47	0	1,190	0.2	GLPO Retrieve due to Not Economical and waiting for sandscreen
NG-28 (Gas Lift Pack Off)	15-Nov-21	36	0.037	4,568	43.5	Done
Panen D-9	18-Apr-22	198		12,523	185.5	Done
NG-34	06-May-22	73	0	10,748		Done
NG-14	27-May-22	86	0.064	1,108	0.0	Done

SUMMARY & LESSON LEARN



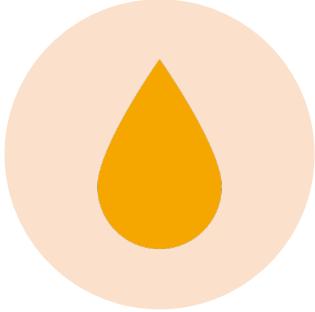
-Rigless Operation

GLPO Technology is one of rigless method that can be applied for oil field that having gas source for oil lifting, less capex and personal requirement.



- Integrated Well Data

Key successful for method application is to determine first best well candidate and finalizing base line production, at this stage update reservoir data and production parameter must be conducted



- Increase Oil Production

GLPO already been applied in Jabung for normal artificial lift method for oil well without mandrel in tubing, deepening gas injection point without pulling tubing string, fluid gross up to increase oil production with satisfying result



- Easy Troubleshooting

Gas Lift Pack Off operationally easy to install as well as to retrieve for changing injection depth or changing well to well candidate

Thank You

