

5º FÓRUM TÉCNICO PRÉ-SAL PETRÓLEO

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CARGO TRANSFER VESSEL (CTV): An alternative solution to conventional offloading applied in the Brazilian pre-salt

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Apoio:



Realização:



MINISTÉRIO DE
MINAS E ENERGIA



Agenda

- CTV concept and motivation
- Conventional Offloading operation
- CTV Offloading operation
- Concept proof
- Conclusion

Concept

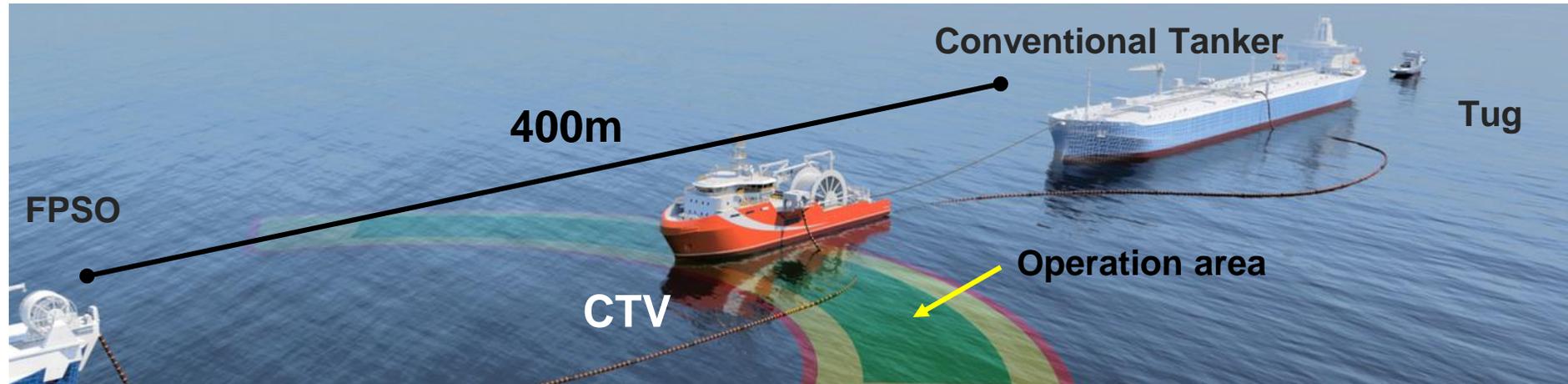
The CTV is a dynamic position (DP2) vessel designed to be positioned between the FPSO and the conventional tanker as well as connected to both at the same time (see picture).

There is approx. 400m total length between the FPSO and the tanker ensuring safety distance while the oil offloading operation takes place.

The CTV concept encompass the utilization of a Tug vessel to stabilize the connected system (FPSO:CTV:Tanker) while in operation.

Motivation

It is an alternative safe solution that enables oil offloading direct into the tanker (eliminating steps of the conventional route) and thus making the export logistic chain simpler and more flexible.



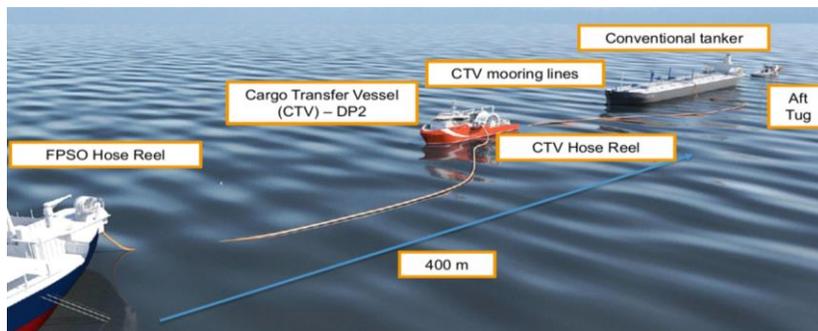
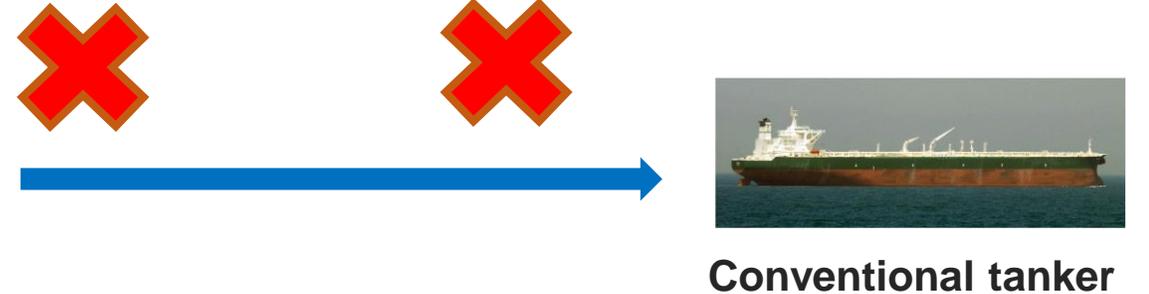
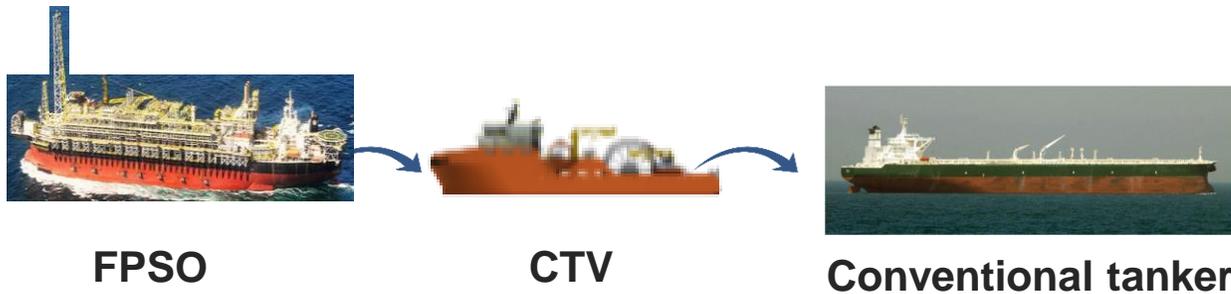
Conventional offloading operation

At Petrobras, offloading from spread mooring FPSOs must take place through DPST vessels securing safe operations even at adverse weather conditions such as in Santos Basin. These minimum requirements allow close distances between the FPSO and the vessel (approx. 100-150m) facilitating the connection and operation.



CTV offloading operation

The CTV adoption enables the tanker to receive the oil parcel directly in the field thus eliminating the terminal activities as well as making the export logistic chain simpler and more flexible. This concept minimizes operational risks by eliminating steps and also brings cost reduction associated with improved export options.

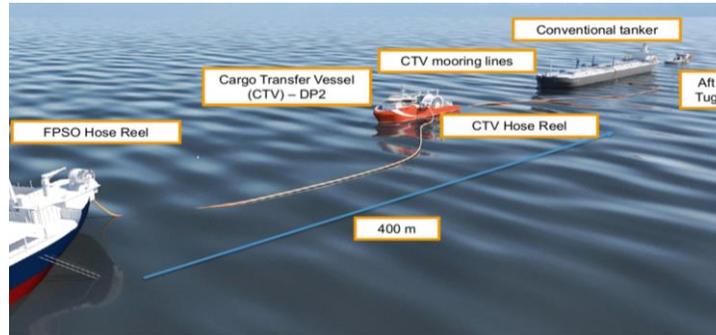


CTV offloading operation

Integrated System

Position, connection with FPSO and oil transfer

System demobilization



Conventional tanker ready to the market

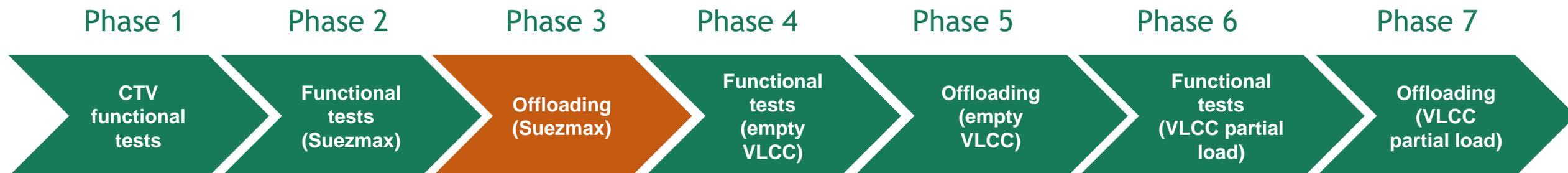
CTV offloading operation – real time simulation



Objectives:

- ❖ Safe end to end operations from field arrival to connection, transfer and demobilization
- ❖ Connected system stable and maintained in position

Field trial – Estimated completion: Mid/2023



- ❖ Suezmax field trials are confirming the original simulations
- ❖ Concept proof completion estimated to the end of the phase 7

Suezmax – 1.0 MM bbl
VLCC – 2.0 MM bbl

Conclusion

-  Alternative solution to conventional offloading generating operational flexibility and cost reduction
-  Enables the export logistic chain to be simpler and opened to additional tanker options
-  Reduces vessel's movement leading to emissions reduction
-  Reduces the oil time to reach market through the elimination of terminal operations
-  Reduction of HSSE risks (HHER)

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Obrigado!
Thank you!

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