

# Offshore Coiled Tubing

## CATENARY COILED TUBING OPERATIONS

### OVERVIEW

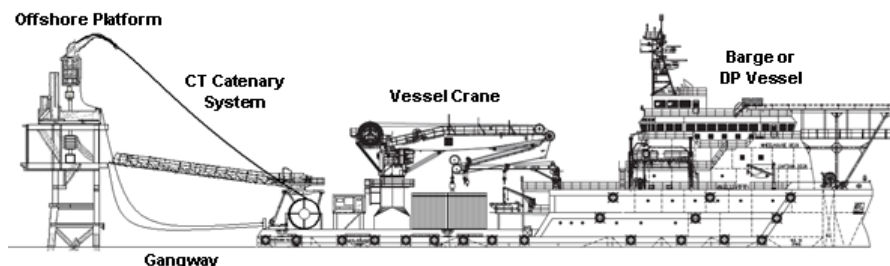
Halliburton catenary coiled tubing (CT) services provide the ability to perform well intervention operations in offshore environments that would be otherwise unworkable. Issues such as limited platform or deck space, insufficient crane lift capacity, or even concerns over unpredictable sea state can be mitigated through the use of catenary equipment.

Deck space is often a precious commodity for offshore infrastructure, and some intervention applications can become quite intensive in terms of equipment loadout. CT reels, fluid tanks, and pumping equipment can rapidly take over a large portion of available rigging space in many cases, and require a large number of crane lifts. Crane operations offshore, not only add time and additional points of HSE exposure to an operation, but are often delayed waiting on sea state or weather, and in some cases may be altogether unviable due to the load limits of available hoisting equipment.

Catenary operations can overcome these issues by allowing the bulk of the intervention equipment to be operated from a barge or dynamically positioned support vessel, with only a small portion of the service equipment staged on the rig or platform floor. This frees up deck space for other uses, eliminates heavy lift crane operations, and significantly reduces rigging time. Rapid disconnect systems allow the support vessel to safely disengage from the rig in the event of a sudden change in weather or sea state.



Example of a catenary CT rig-up



### APPLICATIONS

- » Offshore intervention operations
- » Jobs with limited deck space or deck load weight restrictions
- » Operations with limited or no crane lift capabilities

### FEATURES

- » Optional dynamic positioning system for support vessel
- » Option for dedicated vessel crane
- » Rapid emergency disconnect system
- » Independent well control operation panels on both rig / platform deck and support vessel
- » Auto compensated gangway for safe personnel transfer

### BENEFITS

- » Minimizes deck space requirements for intervention services
- » Eliminates heavy lift crane operations
- » Minimizes other crane operations
- » Reduces rigging time
- » Enables use of large CT strings on any rig or platform
- » Allows pumping equipment and tanks to remain on support vessel
- » Ability to work through monsoon season in affected regions
- » Keeps possible ignition sources from intervention equipment far away from "red zone" on service deck

## CATENARY EQUIPMENT

Catenary CT operations incorporate specialized equipment to ensure operational safety, with the ability to rapidly disconnect in the event of an emergency.

- » The catenary control panel provides a quick release interface for hydraulic hoses and air hoses between the platform and vessel. The quick release can be remotely activated from the CT control cabin, or manually from the control panel itself.
- » The CT catenary head works as both a depth counter as well as a coiled tubing cutter positioned on the support vessel. The catenary head is installed on the CT reel.
- » A high pressure hose disconnect system enables a quick release of co-flex hoses from the vessel in case of emergency. The hoses are equipped with a retrieving sling for easy recovery from the platform side.
- » An optional “flying gooseneck” provides a secondary tubing guide support to prevent contact between the CT string and edge of the rig or platform deck.
- » ISO locks provide an option for securing equipment to the support vessel deck as an alternative to chain boomers or welding. This also provides flexibility in equipment placement and changeout, such as swapping out empty fluid or nitrogen tanks during an operation.



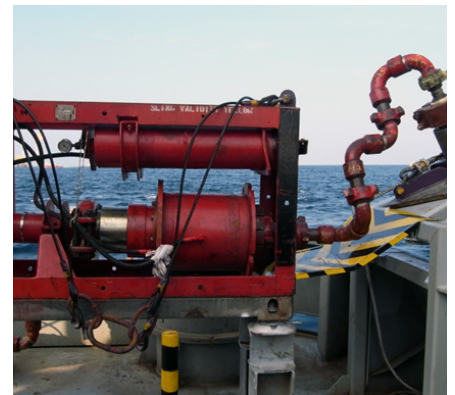
Catenary control panel



CT catenary head



Catenary operations minimize rig or platform deck space requirements



HP hose disconnect

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