VINCI TECHNOLOGIES

Pipe Conveyed Logging While Fishing System (PCLWF)

- Without cutting the wireline cable and without removing the tool string from the well the **PCLWF system** allows the successful completion of all wireline logging objectives under unexpected Stuck-Tool conditions.

- To allow the transformation of a Stuck-Tool situation into a Pipe-Conveyed Logging set up, the **PCLWF system** is mounted on top of the tool string before lowering it into the well using a wireline cable.

The details of the different operation stages required to transform a Stuck-Tool situation into a Pipe-Conveyed Logging are documented in an animation posted in our website and the following pages.

PCLWF BENEFITS AND ADVANTAGES

- **Pipe-Conveyed Logging (PCL) is an effective method to avoid Stuck-Tool situations and hazardous expensive wireline fishing operations in long and/or inclined wells where the open hole interval crosses zones with high pressure overbalance.**

  A trouble-free PCL single-run operation in a 25,000 ft well with 5,000 ft of open hole could last three days - this same operation performed with unassisted wireline will likely take only one day.

- **Logging While Fishing/Retrieving (LWF/R) is a popular Stuck-Tool contingency method that allows performing the outstanding "critical" logging objectives and the safe recovery of the tools.**

  This contingency method requires cutting the cable at surface to strip drillpipe over it during the fishing stage, and it is only viable for the "critical" objectives within the vicinity of the stuck-tool depth – using LWF/R in the same unassisted wireline operation example given above will likely take three days.

- **Inserting the PCLWF Adapter Tool at the top of the tool string allows a safe fast transformation of a Stuck-Tool condition into a PCL operation.**

  This contingency method does NOT require cutting the cable at surface and allows access to the complete open hole interval with NO limitations - using PCLWF in the same unassisted wireline operation example given above will likely take two days.

  The safety, time reduction, and financial benefits the PCLWF System offers over the alternative methods are maximized in long wells with large openhole intervals.

PCLWF SYSTEMS & SPECIFICATIONS

The following downhole equipment is required to perform a PCLWF operation:

- **PCLWF Adapter Tool – This includes a Male and Female Wet Connectors.**
- **PCLWF Drillpipe Fishing Overshot – Designed to engage the PCLWF Lower Assembly.**
- **PCL Side-Entry Sub – Standard PCL Equipment.**
- **PCL Female Wet Connector Tool – Standard PCL Equipment.**

PCLWF Overall System Operational Specifications

Maximum Operating Temperature	**500 °F**
Maximum Operating Pressure	**30,000 psi**
Type of fluids	**All types, including salt-saturated up to 300 g/l**
Sour atmosphere	**Up to 10 % H2S**
VTLC-8 Wet Connector	**8 Conductors**

PCLWF Adapter Tool Specifications

Maximum OD @ Upper Assembly	**4.125 in**
Overall Length	**8.33 ft**
Release Selectable Tension Range	**Up to 14,000 lb.**
Operational Tensile Strength	**139,000 lb. (with a 2:1 safety factor)**

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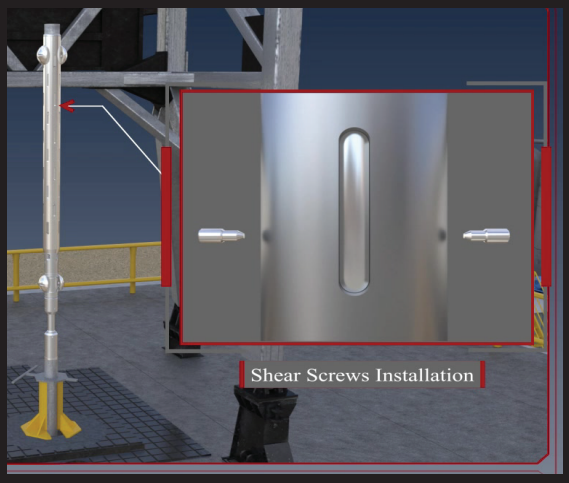
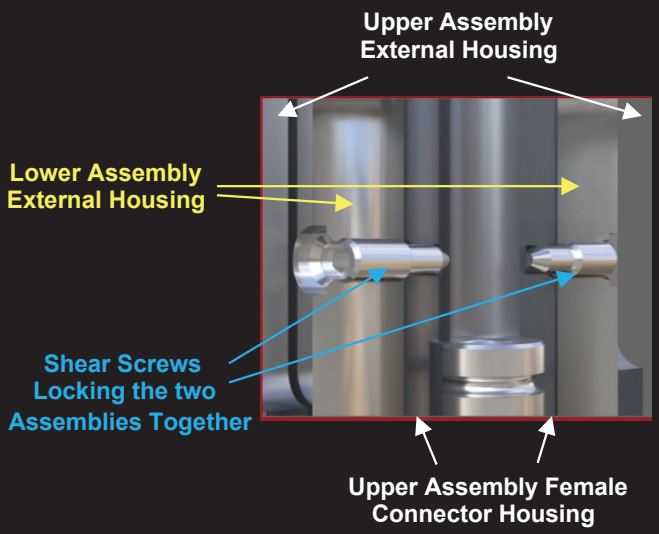
PCLWF SEQUENCE OF OPERATIONS

1. PCLWF Adapter Tool Rig Up





The PCLWF Adapter Tool Upper Assembly is slidden over the Lower Assembly until the Wet Connectors are fully mate before locking them together using two shear screws designed to break at a pre-determined tension. The wireline cablehead is then attached to the PCLWF Adapter Tool before running the toolstring in the hole.

2. Differentially Stuck Toolstring

The toolstring becomes differentially stuck and after failed attempts to free it by pulling on the cable, the decision to transform this condition into a Pipe-Conveyed Logging operation is taken.

3. Removing the Cable and Female Wet Connector

The PCLWF Upper Assembly is detached from the stuck toolstring by pulling tensions high enough to break the two shear screws used. The cable and PCLWF Upper Assembly are then remove from the well and rigged down.

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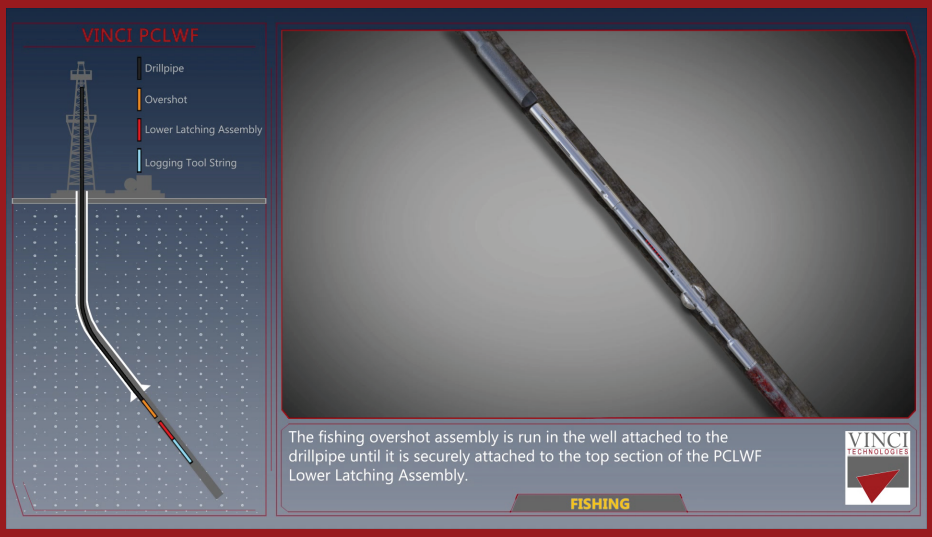
4. Catching and freeing the Stuck Toolstring

The PCLWF Fishing Overshot is run in the hole attached to the drillpipe until engages the PCLWF Lower Assembly on the top of the stuck toolstring. The drillpipe is pushed/pulled until the tool string is free before pulling it inside the casing.

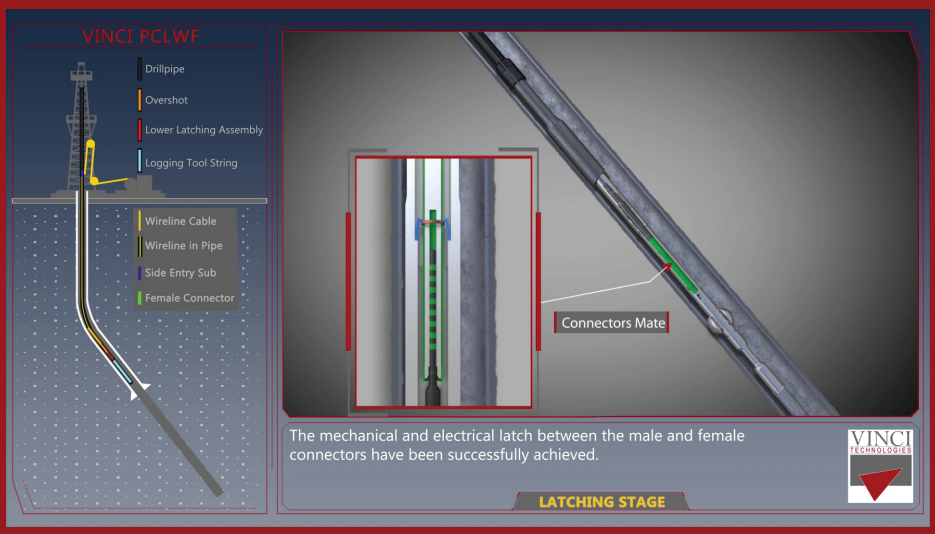


5. PCL Side-Entry-Sub and Female Wet Connector Tool rig up

The PCL Female Wet Connector tool attached to the cable is rigged up inside the drillpipe through the Side-Entry-Sub before lowering it to the bottom of the drillpipe right above the PCLWF Lower Assembly.

6. Successful Wet Connectors latch and start of PCL Operation

While pumping drilling mud through the drillpipe, the PCL Female Wet Connector tool is rushed down into the PCLWF Lower Assembly until the Female and Male Wet Connectors are fully engaged. The logging operations planned are then completed using PCL procedures.



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