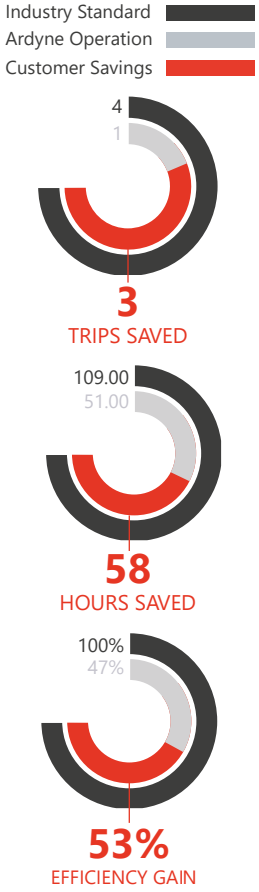
Case Study - 2019USA025

TRIDENT® DELIVERS 58 HOURS SAVING IN GULF OF MEXICO

Performing cut & pull operation in 3,798ft water depth



THE CHALLENGE

In a deepwater direct vertical access (DVA) slot recovery operation, Shell required casing recovery to a critical location in the wellbore in order to perform sidetracking operations. To minimize well costs from alternative solutions, Ardyne proposed the **TRIDENT System** as a **single trip casing retrieval solution**.

Utilizing annulus cement bond logs of 13-5/8" casing to be recovered, Shell was able to identify the critical target depth in order to deliver the sidetracking operation.

THE SOLUTION

Conventional and alternative technology may have the ability to cut and recover casing however the TRIDENT System with its unique integral tension set packer design enables repeated cuts and annulus circulation clean-ups following each and every cut.

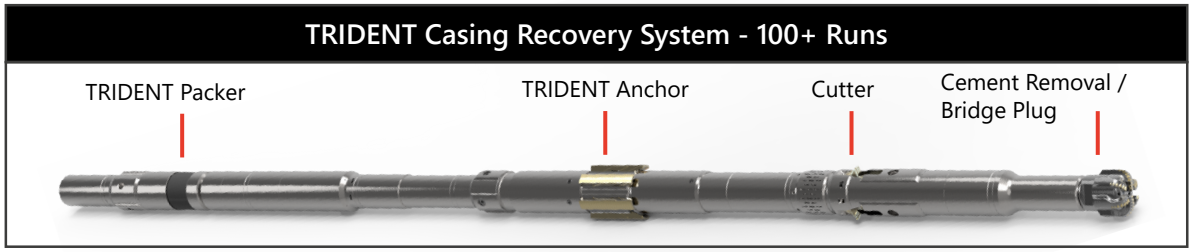
> ***THE TRIDENT WAS SUCCESSFULLY DEPLOYED IN THE GULF OF MEXICO AND PROVED TO OPERATORS LIKE SHELL THAT THE SYSTEM CAN HELP ACHIEVE THEIR SAFETY AND PERFORMANCE AMBITIONS. THE TRIDENT SYSTEM ENABLED SHELL TO REMOVE UNNECESSARY TRIPS IN AND OUT OF THE HOLE AND PREVENTED DOUBLE HANDLING***

Operation carried out from Shell's Ursa Platform in conjunction with Wellbore Fishing & Rental Tools

THE RESULT

The primary cut was performed at 7,572ft in a water depth of 3,798ft, annulus circulation could not be achieved due to the extent of dehydrated barite sag. As a result we performed the second cut as per the plan. As a unique feature of TRIDENT we were able to re-set the integral packer and subsequently achieved annulus circulation in order to free the casing. In comparison with the original slot recovery plan, TRIDENT saved 58 hours of planned rig time with this **truly one trip system**.

Through Ardyne's network of fishing company partnerships, we can supply globally through your existing contracts.

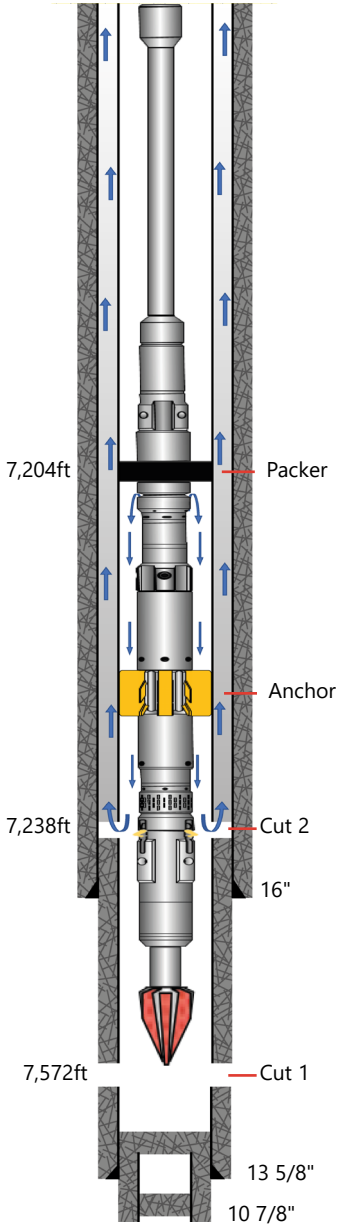


© 2019

THE VALUE TRIDENT CREATES

Proven time saving - the TRIDENT one trip system

TRIDENT on Ursa



Conventional Approach

	Rig Activity	Time
Run 1 26.00	P/U and test casing cutter	1.50
	RIH 3500ft DP spaceout	4.00
	P/U Marine Swivel	1.00
	Continue RIH to 7572ft	6.50
	Cut casing @ 7572ft	1.00
	Pump slug and pull out 4000ft DP	5.50
	L/D Marine Swivel & POOH cutter BHA to surface	6.50
Run 2 19.00	P/U Jar & Spear BHA	2.00
	RIH to hanger	6.50
	Attempt to jar casing free	4.00
	Pull out jar assembly, L/D BHA	6.50
Run 3 26.00	RIH to 3241ft	5.50
	P/U Marine Swivel and spaceout	2.00
	RIH to cut depth 7238ft	5.00
	Cut casing @ 7238ft	1.00
	Pump slug and POOH, L/D Marine Swivel & cutter assembly	12.50
Run 4 38.00	P/U BHA	3.00
	RIH to 7238ft	5.00
	Pull free casing & Circulate out old mud in 13 5/8" annulus	10.50
	Pump out of hole	16.50
	L/D BHA	3.00
TOTAL		**109.00**

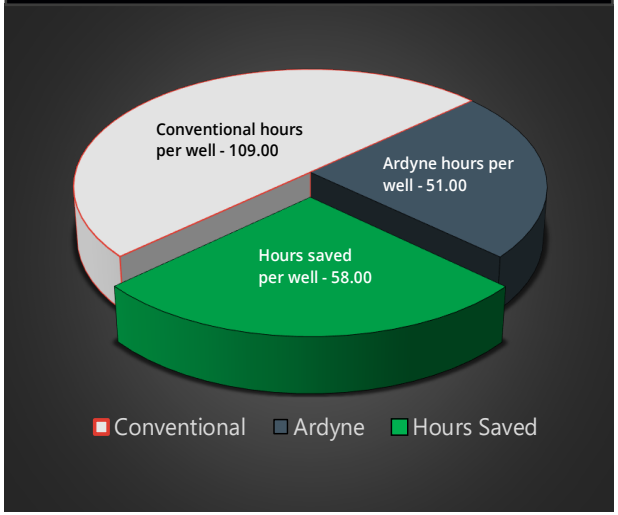
Ardyne Real Time Hours

	Rig Activity	Time
Run 1 51.00	Make up & Test 13 5/8" TRIDENT BHA	2.25
	RIH Trident BHA to 7572ft	10.50
	Cut 13 5/8" casing @ 7572ft & test pull	2.00
	Pull wet 3 stands to next cutting depth, 7238ft	1.50
	Cut casing @ 7238ft	0.75
	Circulate out 13 5/8" casing annulus	9.50
	Pump slug and POOH to casing hanger @ 3997ft	5.00
	Set packer and anchor at casing hanger and pull free	1.00
	Pump out of hole	16.50
	L/D TRIDENT assembly	2.00
TOTAL		**51.00**

Single Trip Accomplished

- Two cuts made - in the same trip (*more were possible if required*)
- Circulation at cut point (*indicating casing free*)
- Recover to surface - reset anchor at hanger
- 2 trips saved = eliminated red zone activity

TRIDENT Time Savings



Ardyne Efficiency Gain

- **No requirement** for Marine Swivel
- Ability to make **multiple cuts in same trip**
- **High flow rate** available for circulation (590gpm) - bypassing cutter
- **Multiple Packer settings** in same trip
- **Circulation at cut point** - displace annulus at depth, handle any gas immediately
- TRIDENT assembly required only **one connection to make up BHA**
- **Circulation at cut point** - giving indication if casing free
- Red Zone reduction - **22,000ft of tripping avoided** - Less BHA handling
- **Eliminates** requirement for **extensive fishing equipment** - conventional approach

contact@ardyne.co www.ardyne.co
© 2019