

# Droshky #5 Plug and Abandonment

## Well Ops - Q4000



# The **Droshky #5 Plug and Abandonment** which Helix performed as our schedule permitted, allowed Helix to increase asset utilization with the **Q4000** between already scheduled projects.



## **Project Overview**

In January 2019, Helix Energy Solutions acquired the Droshky Prospect on Green Canyon Block 244, along with related infrastructure from Marathon Oil Corporation. As part of the transaction, Helix performed the required plug and abandonment operations through Deepwater Abandonment Alternatives (DAA). DAA enables Helix to own, operate and abandon satellite wells and subsea infrastructure that are located in the Gulf of Mexico.

In July 2019, DAA executed a rigless abandonment program on Droshky #5 including the following scopes of work:

- decommission the well in compliance with CFR 30 Part 250 Subpart Q, meeting the applicable requirements,
- isolate the current completion/perforation intervals as necessary,
- recover subsea tree, flowline jumper and tubing hanger to surface,
- isolate any annular space that communicates with open hole and extends to the mud line,
- abandon the well with wellhead and all casings "in place" above the mudline, due to the water depth being greater than 800 meters.



### **Experience**

Performing abandonment campaign in Hurricane season required thorough planning, with regards to coming up with multiple solutions to various hurdles we could encounter at different stages in the project.



### **Innovation**

Following the best practices time after time and executing the recurring activity better each time, is nothing short of a new method.



### **Value**

Performed P&A under budget meeting the regulations as necessary. Increased asset utilization by filling the gap in the schedule.

## About the Q4000

The Q4000 entered service in the Gulf of Mexico in 2002 and has since built one of the most extensive well intervention track records of any vessel in the world.

The Q4000 is a DP3 semi-submersible vessel purpose-built for well intervention and construction in water depths to 10,000 ft. Because of its stable design and unique open deck, the Q4000 is an optimal platform for a wide variety of tasks, including subsea well intervention, field and well decommissioning, installation and recovery of subsea equipment, well testing and emergency well containment.

Among the Q4000s notable features is its 600 ton multi-purpose tower capable of fulfilling all traditional derrick roles, plus a deepwater crane with lifting capacities to 360 mT and a work crane rated to 160 mT.

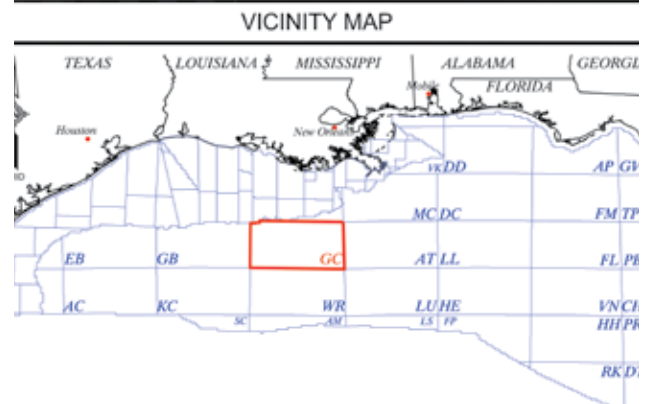
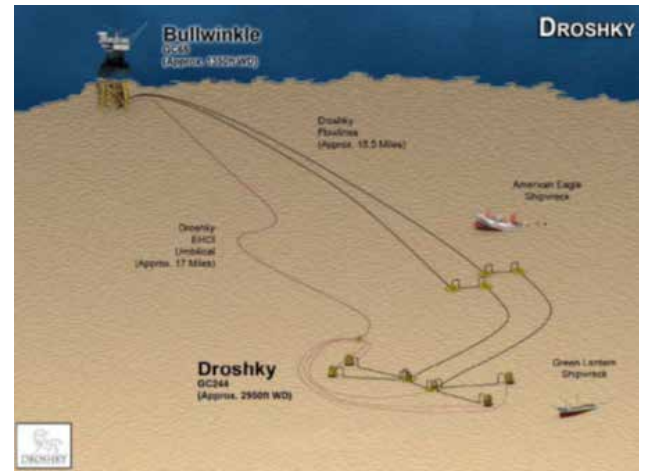
The Q4000 also features a 38 ft x 20 ft moon pool, a 7-3/8" 10,000 psi 10,000' rated Intervention Riser System (IRS) permanently onboard, a 10,000 ft heavy weather ROV system and an overall deck capacity of 4,000 mT. The open deck plan of the Q4000 simplifies loading and offloading of project supplies and equipment.

## Well History

Deepwater Abandonment Alternatives (DAA) closed a transaction with Marathon to purchase the Droschky Field. DAA has a 100% working interest in the field. DAA is owned 100% by Helix Energy Solutions Group.

The completion produced 2,302 MBO, 2.2 BCF and 334 MBW from July 14, 2010 to April 4, 2011 when the well was shut in due to a catastrophic downhole failure. The long perforation interval of 20,379' to 21,805' (1,426' MD in length) opened up multiple zones to flow. This and the absence of any conclusive information regarding the cause or location of the failure created considerable uncertainty that precludes consideration of attempting to fix the problem.

Marathon had kept the well shut in since 2011 with the intent to abandon it when the Droschky field would deplete. The well was completion with a triple smart completion in the M, O, Q and Lorien sands which were commingled.



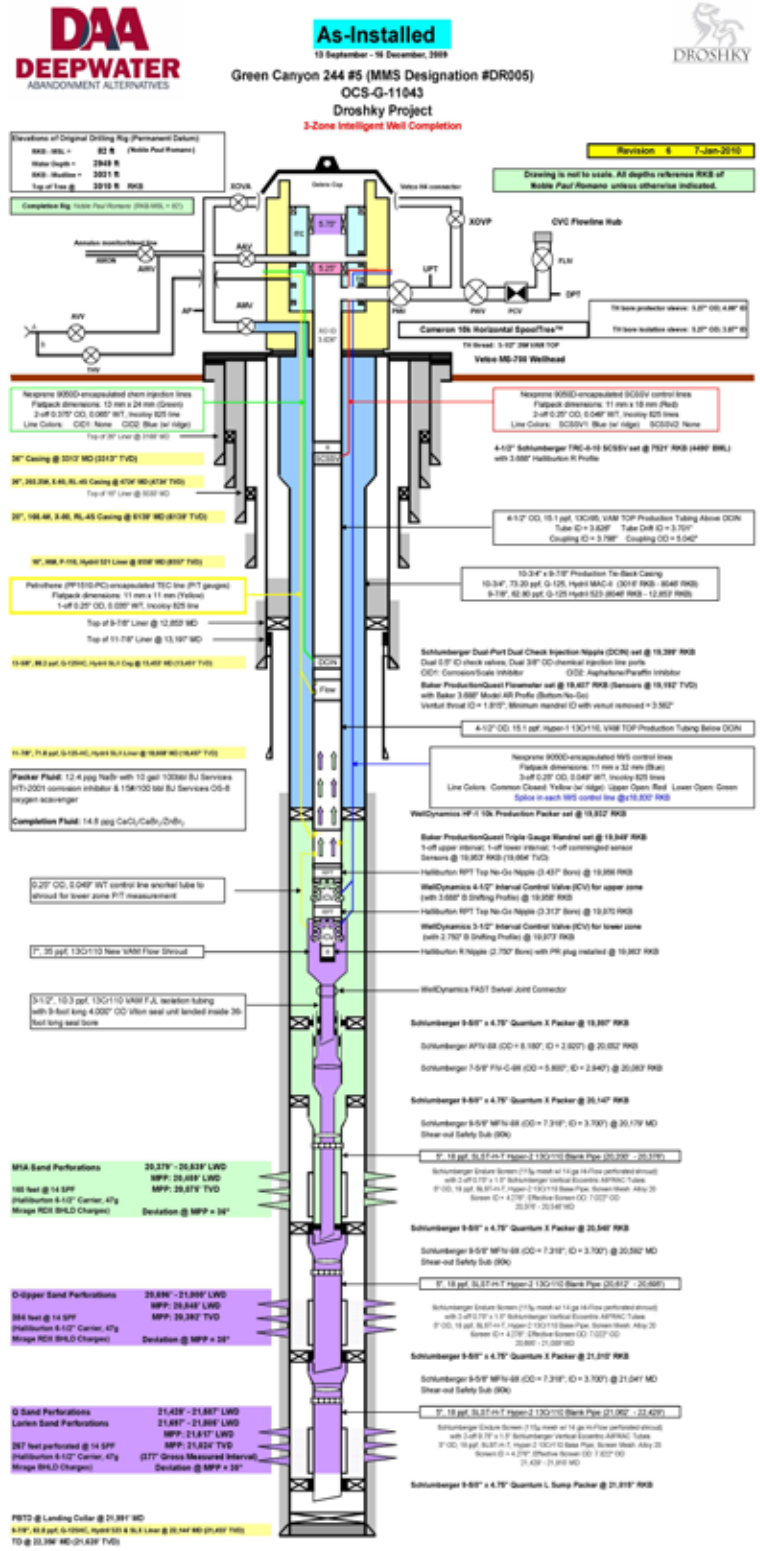
Environmental Conditions	
Hurricane Season	
Water Depth	2,949'
Water Temperature at Surface	93°F
Water Temperature at Seabed	43°F
BHP	14,152 psi
Mudline	8,819 psi
Surface/Q4000	7,934 psi

Breakdown of Project Timeline					
Q4000-Droschky #5 Activity	Planned* in Days	Actual in Days	Savings in Days	NPT in Days	Comments
Mobilization, landing, latching & testing IRS	3.2	2.4	0.8		ITC not pulled open water, as the plan was to pull plug in the ITC
Lower Abandonment	10.4	18.5		-4.94	Vertical access issues, fluid management issues, Jumper Blockage
Redeployment landing, latching & testing IRS for Upper Abandonment	2.3	6		-4.14	Tropical Storm
Upper Abandonment	5.5	6.3		-2.62	'C' annuli injectivity issues, ICR issues
Demobilization	3	1.2	1.8	0	
			2.6	-11.7	
<b>Total</b>	<b>24.4</b>	<b>34.4</b>	<b>*Planned Time is P10, doesn't account for contingency time</b>		

Deepwater Abandonment Alternatives (DAA) requested permission from BSEE to abandon the Droszky GC 244 #5 well in Q1 2019. DAA accelerated the abandonment operation as a prudent step towards insuring that the wellbore was made safe in July 2019.

**Conclusion:**

- Successfully abandoned Deepwater high pressure oil well with original BHP 14,152 psi.
- Project completed under budgeted AFE.
- Project completed in Hurricane Season.
- Open water cement plug installed prior to evacuation for Hurricane saving 24 hrs. on planned ops.
- End of Well Report approved from BSEE. Bond release requisition sent to BOEM.
- Method of isolating the open perforations required an alternate compliance request from the regulations at 30 CFR 250.1715(a)(3) however, the abandonment design was appropriate for its intended purpose as ICVs being sanded up, squeezing the previously commingled zones was not a feasible option.
- The Helix-Schlumberger subsea services alliance and other vendors like Oil States International, TAM international & J Connor Consulting played a major role in making the project cost effective and improve efficiency.



GC244 05 Completion Schematic As-Installed



**Corporate Headquarters**

3505 W. Sam Houston  
Parkway North  
Suite 400  
Houston, Texas  
77043 USA

T (281) 618 0400

**Helix Well Ops (USA)**

3505 W. Sam Houston  
Parkway North  
Suite 400  
Houston, Texas  
77043 USA

T (281) 618 0400

**Helix Well Ops (UK)**

Helix House,  
Kirkton Drive, Pitmedden  
Industrial Estate,  
Dyce, Aberdeen  
AB21 0BG, UK

T +44 (0) 1224 351800

**Helix do Brasil**

Praia de Botafogo, 228  
16º andar, Ala A  
Botafogo  
Rio de Janeiro, RJ  
Brazil

T +55 21 2006 0400