

# Single entry point cleaning

## Aqua Milling® Technology



CLEANER. FASTER. SAFER.



# Agenda

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## ➤ Pipetech & Aqua Milling® overview

### Two case studies:

- Remote waste removal from vessel  
*reduced shutdown duration by 3 days.*
- Long reach, negotiating multiple bends  
*500kg of wax removed, reaching 270 metres.*

## ➤ Benefits

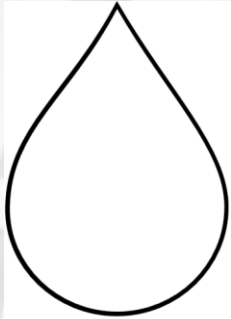
# Pipetech – Overview

- Established in 2001 in Stavanger
- Acquired by Ramco in 2014 & additional operating unit setup in Aberdeen
- Track record of 150 offshore jobs carried out by Pipetech in the last 3 years in Norway, UK and Denmark
- 2 flagship technologies - Aqua Milling® & Aqua Sonic®
- Zero LTIs to date

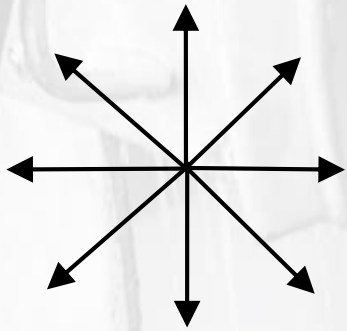


# Aqua Milling® Technology

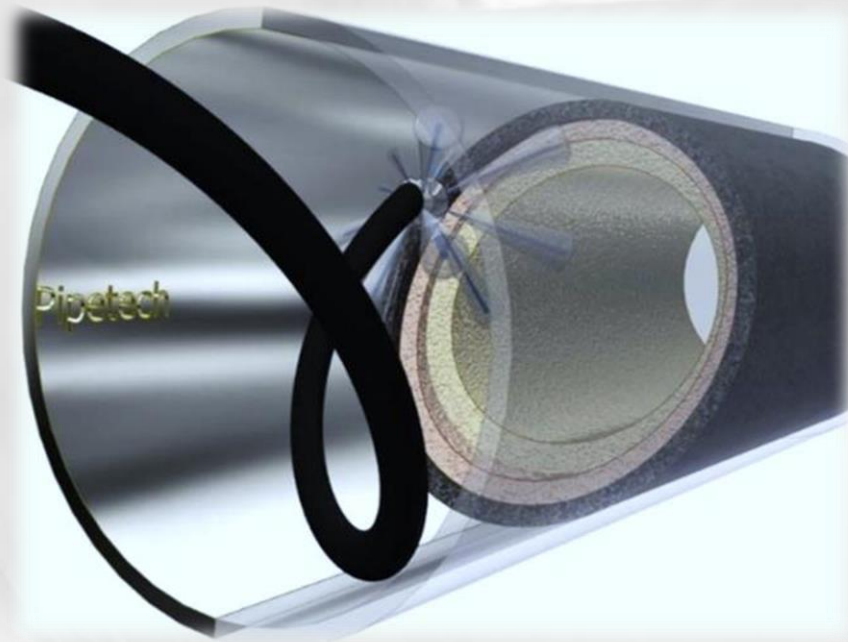
Market leader in bend & reach capability



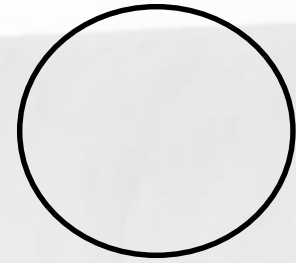
Clean water  
technology



Multi  
directional  
20 steps



600m reach



Ø 12 mm ▶ 10 m

100m  
free climb





# Case study 1: Remote waste removal from vessel

## Reducing vessel entry time

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# Scope of Work / Challenge

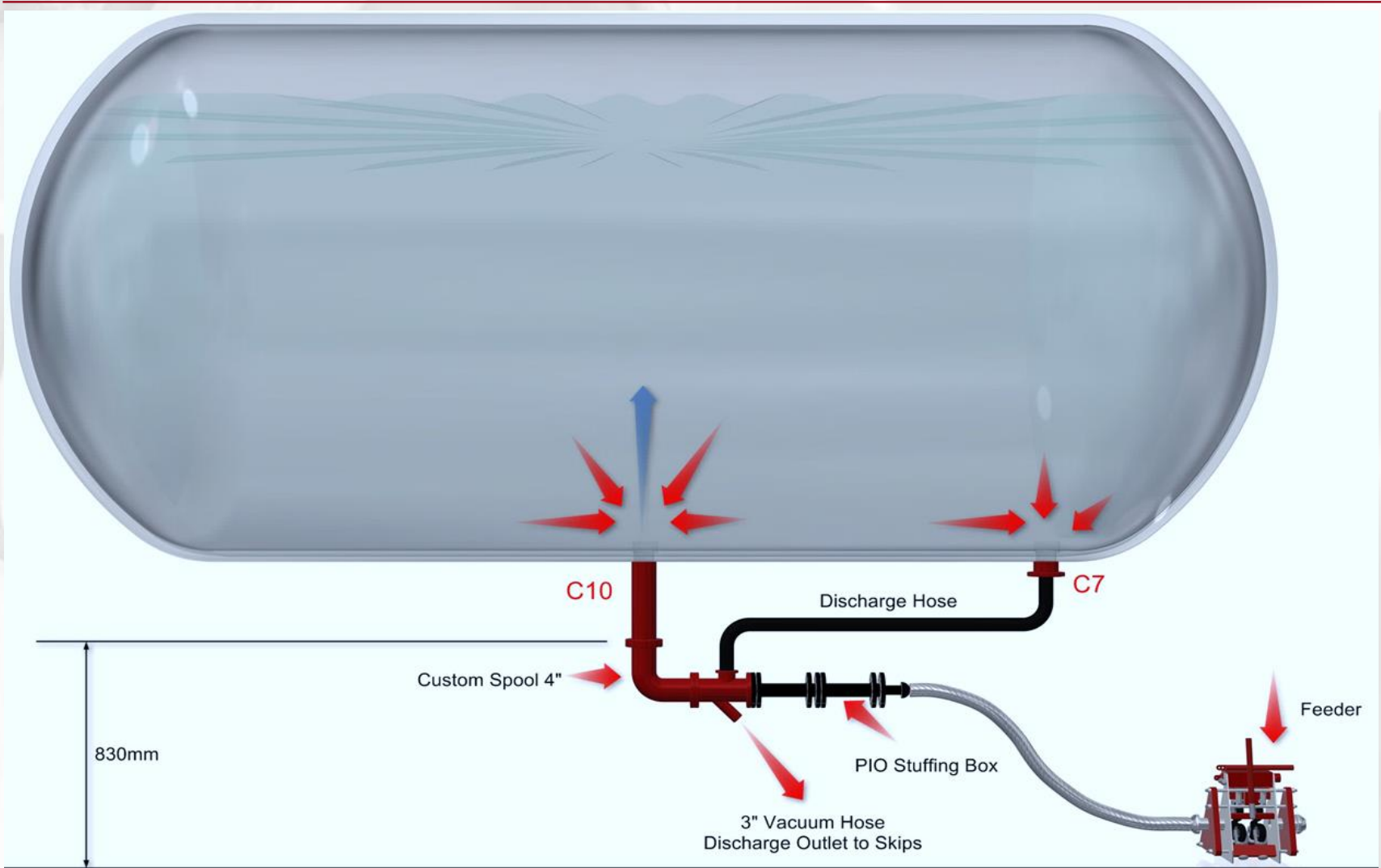
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- **Feasibility assessment – January 2015**
- **Mobilisation – February 2015.**
- **Sand waste content inside a vent knockout drum was too heavy for client to pump out.**
- **Limited POB availability.**
- **No vessel entry permitted during this period, only single isolations in place.**
- **Remote access by using to outlet nozzles at the bottom of vessel.**
- **Full containment required and mitigations in place to avoid spillage.**
- **Reduce levels as far as reasonable, prior to the planned shutdown.**
- **Recover waste and store for client disposal.**

# Aqua Milling® Setup



# Vessel Interface





# Containment

- Bespoke fabricated spool acting as a manifold for waste agitation and waste removal.
- PIO Pipeline in Operation (stuffing box) rated to 30 bar.



# Outcome

- Aqua Milling® with high flow pump unit, operating 177litres/minute @ 800bar within a fully contained system.
- Minimal waste level remaining
- 18,000 litres of waste and water removed and stored in vacuum skips.
- Shortened the planned Shutdown outage time.
- Using “conventional” methods during the shutdown to 100% clean would have required an additional 3 man/days.
- Enhanced safety by reducing personnel time working in a confined space.
- Effective cleaning time of only 18 operational hours.





## Case Study 2 - Long Reach Negotiating Multiple Bends

Single entry point Aqua Milling®

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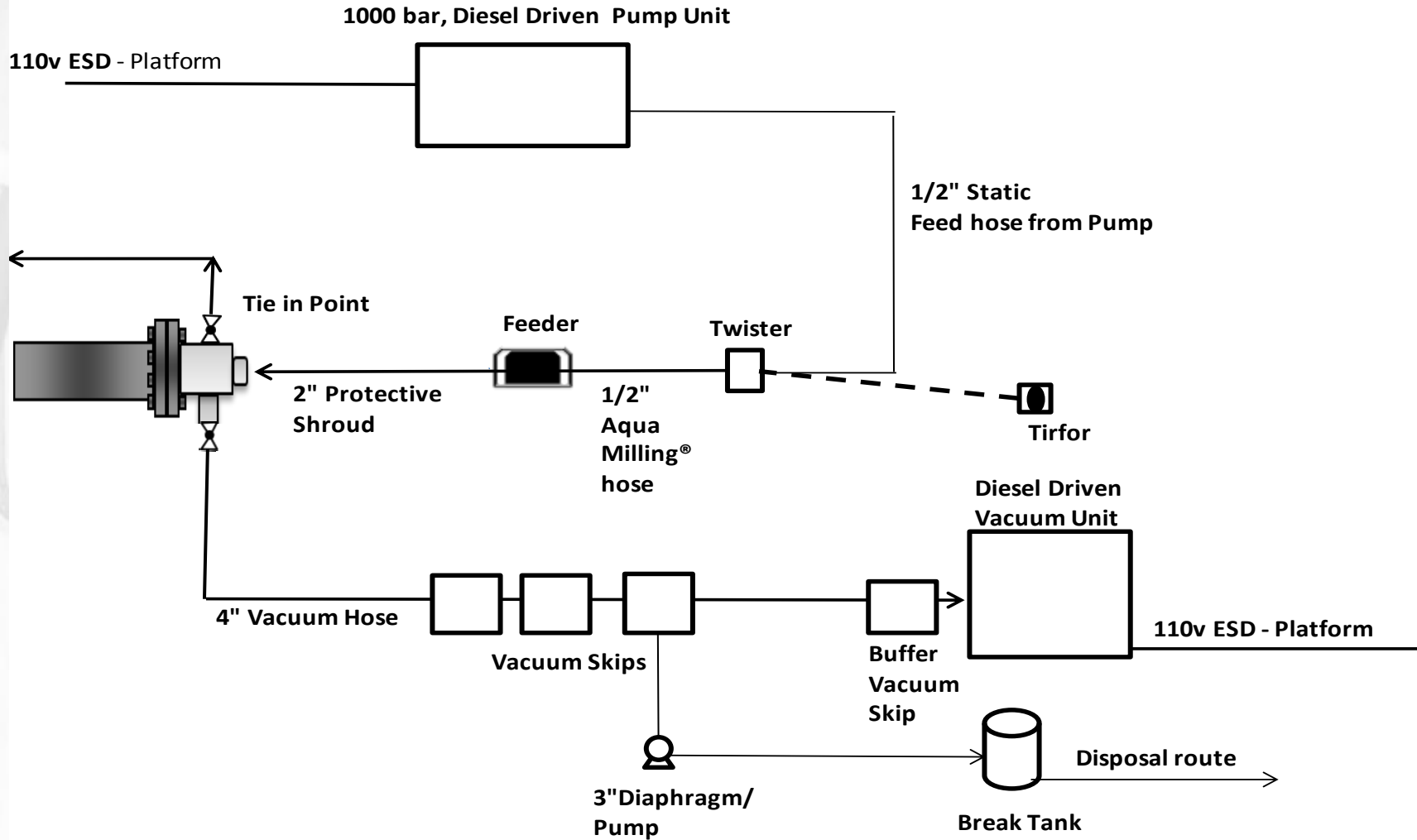


# Scope of Work & Challenge

- Pre mobilisation demonstration – Pipetech
- Mobilisation – May 2015.
- Problematic 6” pipeline with restricted flow due to suspected wax.
- Other flushing methods used previously, improved the flow however pipeline remained blocked.
- Wax blockage suspected around 250m – 300m.
- Clean & remove restriction using Aqua Milling technology.
- Recover waste and store for client disposal.
- Single point of entry through a 6” Pig Launcher, negotiating through a “Y” junction & multiple bends.



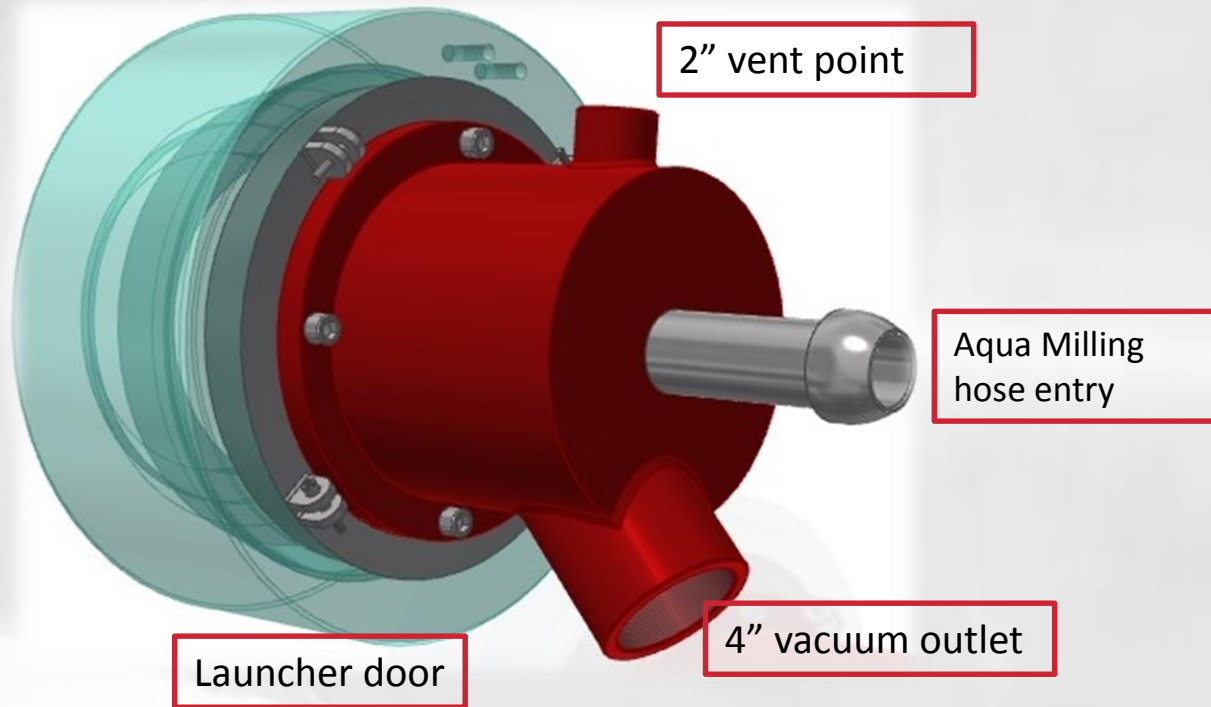
# Plant & Equipment Schematic – Aqua Milling





# Enclosed safe system

Aqua Milling® incorporating a vacuum system using a bespoke Entry Point Alignment tool, creating a fully enclosed system.



# Outcome

- Aqua Milling with high flow pump unit, operating 200 litres/minute @ 800bar.
- Cleaning and removal of debris reaching 270 metres.
- Negotiated 11 bends/directional changes.
- Specialised cutting nozzle to bore through the wax build-up, initially.
- Further cleaning operations using a polishing nozzle with a rear pusher head.
- A total of 500kg of wax based waste recovered up 120 metre vertical lift through a vacuum system in to skips.
- An effective cleaning time of 64 operational hours.



# Benefits

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**Aqua Milling® , benefits using different applications....**

- **Reduced shutdown period by 3 days due to our ability to agitate waste using high flow water and specialist nozzles.**
- **Removed 500kg of problematic wax inside a pipeline using extended reach and bend capability.**
- **Contained safe systems – no environmental impact.**

 **Thank you.**