

# Oil & Gas INNOVATION

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# Re-Gen Robotics Confronts Outdated Perceptions to Robotic Tank Cleaning

A global survey, commissioned by Re-Gen Robotics and carried out by tankstoragemag.com at the end of 2020, asked engineers, managers and senior executives with responsibility for hazardous area operations, their preferred option for cleaning oil terminal tanks.

While an overwhelming 86 per cent of survey respondents, expressed a preference for 100% 'no man entry' tank cleaning at their terminal, the survey also provided a troublesome insight from a third of companies surveyed, who said that they had used some form of robotic cleaning in the past.

Just under two thirds (64%) of the companies that had used robotic cleaning, reported that the tank clean was unsuccessful. The main reasons given included, lack of skill and incompetency of the tank cleaning company, that the robotic tank cleaning involved at least 60% manned entry and that the contract was not fulfilled to agreed standards.

Commenting on the survey findings, Fintan Duffy, Managing Director of Re-Gen Robotics said; "Most tanks owners have used some form of 'robotic' tank cleaning but invariably at points during the cleaning process, personnel have had to enter the tank to fix ramps and complete the wash out of the tank manually with a lance, as previous machines were not equipped with integrated augers or jetting systems. In reality, the robots until now, have not been fit for purpose.

"While some systems have reduced the amount of time staff will spend in the tank, by up to 40 per cent, compared to manual cleaning, this has not eliminated the significant HSE and commercial risks tank owners are exposed to. And one would argue that it has presented

genuine, 100% no man entry, robotic tank cleaning with a challenge. One of course, that Re-Gen Robotics is more than happy to address.

"Applying fully integrated, 100% no man entry, closed loop, robotic cleaning technology is where a monumental difference can be made to safety in oil tank industry. Our state-of-the-art tank cleaning system is eradicating industry fatalities and hugely decreasing all risk categories, by eliminating human exposure to confined spaces.

"At no time during the Re-Gen Robotics cleaning process is there a need for human presence in the confined storage

container. Our technical operator remains a safe distance away in the Zone 1 control unit, where they can monitor activity and progress through a series of ATEX cameras fixed to the robot.

"There is no human exposure to sludge or waste materials during the cleaning process and once cleaning is complete, the robot safely exits the container via its hydraulic ramp and is returned to the control unit."

A follow up poll, taken during the online Terminal of the Future Conference in March '21 asked attendees; 'Would you like to see 'No Man Entry Robotic Tank Cleaning' at your Terminal in place of Confined Space Entry Tank Cleaning?' A massive 88% per cent of respondents, said yes, indicating that the oil industry is acutely keen to commit to enhancing safety in their operations, by completely eradicating manned entry cleaning.

For more information visit:

[www.regenrobotics.com](http://www.regenrobotics.com)

**Re-Gen Robotics Ltd.**

Fintan Duffy, Managing Director of Re-Gen Robotics.



Re-Gen Robotics Control Room.



## 10 Reasons Why Oil Companies Don't Utilise Robotic Tank Cleaning and Why They Should!

### 1. It's never 100% 'no man entry'

Our process is strictly 100% no man entry. The protection of personnel is the cornerstone of our business.

Our technical operator remains in the Zone 1 control unit where activity is monitored through a series of ATEX cameras fixed to the robot inside the tank. Our second crew member remains in the jet/vac tanker, to operate the access cranes via remote control, and to control the suction and jetting pressures feeding the robotic equipment.

*The robotic system takes too long to set up.*

Not true, from arrival onsite, to the robot entering the tank is approximately four hours.

### 2. The robot can't clean a floating roof tank

Our specialised equipment is designed to navigate around tank legs and furniture. With forward and rear facing ATEX cameras and lighting, our technical operator can see the location of any obstacles. A 360-degree jet head ensures even the tank roof is thoroughly cleaned.

### 3. The robot can't clean around heating coils

It can. Our offset suction head reaches under water suction pipes around the external diameter of tanks. The offset suction head is a low-profile tool, to access under pipes and has the ability to remove waste from below floor level. It can operate offset on the left, right and straight-ahead positions. This tool alone can

decrease tank cleaning time by 10-12%.

### 5. The robot can't remove heavy oil fuel

It can. Our Robots have an auger system located at the front which breaks down heavy sludge, without the requirement to use water, thereby generating less waste. The sludge is then extracted by an ADR certified jet/vac tanker with a 4,800 C/ m3 per hour vacuum capacity.

### 6. The robot not submersible

The robot is powered via hydraulics and can work if fully submerged in sludge. The ATEX cameras rise to a maximum height of 1.5m and are equipped with water nozzles to clean camera lenses when dirty.

### 7. You can't get the robot out of a tank remotely, if it breaks down

You can. In the event of a mechanical failure, our robots can be retrieved via their umbilical cords, using our self-contained craneage system

### 8. The ramps for the robot can't be placed inside the tanks without manned entry

The system comes with a hydraulic ramp which we set up outside the manhole. A hydraulic pump sets the ramp section in place for the inside of the tank, with no fuss or requirement for manned entry.

### 9. We'll have to provide scaffolding, craneage and a safety rescue team anyway

Re-Gen Robotics supplies the complete system to clean your tank. We operate a fully contained system so no scaffolding, craneage or vacuum jetting is required. Because the service is 100% no man entry, standby rescue teams are not required.

### 10. It's more expensive and time consuming

It's really not. The robot has proven to reduce time of tank cleaning by 45%, this translates to cost saving in production uptime and job man-hours.

On average we allow two/three days to clean a 30m diameter white oil tank. As there is no requirement for human presence in the oil tank, Re-Gen Robotics is classed as a medium risk contractor. This reduces paperwork and permits, there is no requirement for capital outlay, standby rescue teams, spading of tanks or inhouse robot operators. •



Self Contained Craneage System.