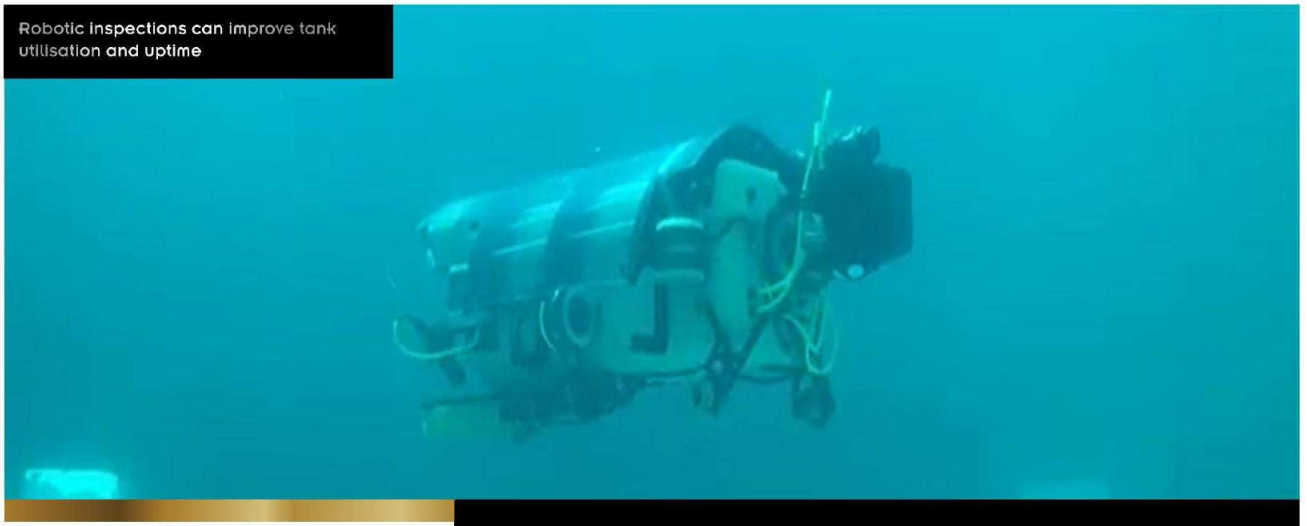

Robotic inspections can improve tank utilisation and uptime

ROBOTICS IN SUPPORT OF TANK INTEGRITY

Information acquired through robotic technology enables tank integrity practices to become more fully aligned with commercial requirements and improved, proactive risk management

Aboveground Storage Tank (AST) owners and operators face increased scrutiny to improve risk adjusted economic return through proactive and thorough environmental, social, and governance (ESG) programmes.

Longevity of aboveground storage tank service life is dependent on quality control of its initial construction as well as timeliness and effectiveness of periodic internal and external inspections. API Standard 653 Tank Inspection, Repair, Alteration, and Reconstruction describes in detail the minimum requirements for upkeep and maintenance of an AST. Tank evaluations include items such as tank bottom thickness, minimum remaining plate thickness, nozzle assessments, shell out-of-plane settlement, edge, and bottom settlement.

Traditional inspection methodologies and techniques require tanks to be taken out of service for preparation and inspection at a specified time period. Unfortunately, traditional time based out-of-service tank inspection methods disrupt commercial operations and are reactive, expensive, and carry inherent health, safety, and environmental risk. In recent years, robotics have quickly advanced through companies like Square Robot to more effectively provide high quality, compliant internal tank inspections without taking a tank out of service.

PROACTIVE

On-stream robotic tank inspections combined with risk assessment protocols and tool developed by companies like Becht offer a much more proactive approach to tank quality and risk management programmes with improved commercial economics that should be built into tank owner/operators quality program and AST inspections.

Robotic inspections, when applied properly, better align with corporate economic and ESG goals by removing personnel from unnecessary and unsafe work in confined spaces, reducing or eliminating air and product emissions from tanks, improving tank utilisation and uptime, safely extending out of service dates and tank life, and reducing overall inspection and repair cost.

TANK SELECTION CRITERIA

Tank owners and operators should engage with robotic inspection service providers as early as possible in their tank selection process to support tank screening and successful operations that ultimately will lead to desired reporting results.

Shared knowledge and experience are critical to optimising robotics as part of an operator's quality, asset integrity programme, and tank inspection programme. Significant value can be created by reviewing individual tank inspection priorities and deliverables in context with the operator's commercial priorities.

The customer/supplier team should work together to determine 'Good Actor' tanks that best fit the customer's goals in context with robot capabilities and safety considerations.

SCREENING

Finally, the tank screening process and final inspection planning should typically include completion of a tank questionnaire, most recent tank drawings, and past inspection reports or tank history. These documents should be used to screen candidate tanks, and then to plan safe and successful operations that lead to high quality, accurate inspection reports.

Tank drawings are used to pre-plan the robot missions ahead of the inspection job in order to navigate safely around or above exclusion zones including columns, sumps, suction lines, heating coils, mixers, and nozzles. Tanks can still be safely and successfully inspected by Second Generation robots without accurate tank drawings as their on-board echo sounders and navigation capability validate the pre-plan and are then able to update and adapt new information discovered once in the tank to its final mission plans.

To read the full version of this, visit: **www.squarerobots.com** ■

SAFETY BEGINS HERE

Robotics in Support of Tank Integrity

Employee Safety

Community Health

Data Integrity

Operational Development

Aboveground Storage Tank (AST) owners and operators face increased shareholder scrutiny to improve risk adjusted economic return through proactive and thorough Environmental, Social, and Governance (ESG) programs.

Square Robot and Becht partnered on the connecting paper explaining the evolution of tank data through robots and the immense impact it has on plant safety.

Scan here for more information

FLOWCODE

PRIVACY.FLOWCODE.COM

square ROBOT

www.SquareRobot.com

BECHT

Good. Better. Becht.™

www.Becht.com/contact