

Underwater Drones



What's the Risk?

Nutrien's Trinidad site uses submerged seawater pumps to facilitate the production of nitrogen fertilizer. Every three months, these pumps are inspected for silt and biological build-up, and cleaned if necessary. Before leveraging drone technology, this job was performed by human divers. Along with being physically exhausting, divers often face murky, low visibility waters and strong currents, increasing the risk of drowning and other serious injury.

These serious injury and fatality (SIF) events are possible wherever underwater operations are performed, including work performed to maintain ports, offshore oil & gas operations and in other industries where underwater pumps or cooling towers are used.

Another common risk involved in this work relates to inclement weather or passing vessels that can interrupt human dives, which leads to delays and other operational inefficiencies.



Impacts

Benefits of adopting underwater drones include:

- Eliminating the risk of SIF events to human divers
- Streamlining the logistic planning process
- Improved efficiency and reliability of inspections
- Significant reduction in the manpower, equipment, and logistics necessary for each inspection and cleaning.



Lessons Learned

The use of underwater drones, despite being the first of their kind trialed by the Nutrien Trinidad site, proved to not only increase safety, but also reduced the overall cost and resources associated with tank inspection.

The process of adoption, from ideation to vendor demos, to training and implementation inspired the use of new technologies and provided a blueprint for successful adoption.

Nutrien has since adopted several different drone types to be used on land, underwater, and in the air to tackle other potentially dangerous tasks.

Employer



Nutrien

Based in Saskatoon, Saskatchewan, Nutrien is the world's largest provider of crop nutrients, feed, crop protection and services. The company serves over half a million growers across 1,500 stores worldwide.

Technology



Deep Trekker

Founded in 2010 and based in Waterloo Region, Ontario, Canada, Deep Trekker is a company focused on delivering fully assembled, tested and ready-to-use submersible robots and remotely operated vehicles (ROVs). Their technology has been used to solve a variety of environmental and industrial situations.

