Robotic Pit Cleaning System

**KEY FEATURES:**

- No confined space entry needed
- Thoroughly removes sludge and debris
- A video via an electronic link that allows supervisors to watch the cleaning process
- High resolution video of the cleaning process is provided
- Cost-effective and increases safety
- Available technical support team

**SYSTEM DESCRIPTION:**

The Pit Cleaning Solution (PCS) is an EX-Zone 1 mobile hydraulic operated device that provides an economical way to safely inspect and clean reservoirs, pits and storage tanks. The PCS can efficiently clean wells, concrete reservoirs and steel tanks of various sizes.

It is constructed with the intention to keep personnel away from areas that are too deep, confined, or hazardous inside pits and tanks.

The system has a good environmental signature. It enables effective cleaning with marginal amount of water compared to existing pit cleaning solutions that have rotating spray nozzles which use a lot of water and are less efficient.

The PCS provides quantifiable savings in time and expense. By replacing human workforce with a PCS, the client effectively saves on transportation costs, bed space and daily crew charges. And operations are safer overall.

**OPTIONAL WASTE MANAGEMENT SYSTEM**

- Vacuum unit - removes water/slop from tank/pit
- Filter units - filtrates up to 95% of all water used, this is re used in the cleaning process or discharged to sea (max 5 ppm oil and water)
- Includes slop and water holding tank
- Can also filtrate slop from other location on the vessel/rig/platform
- Both the PCS and the waste management system can be operated by 2 trained persons
The pit cleaner assembly consists of the following components:

**MAIN SKID:**
- High pressure pump
- Booster pump
- Hydraulic power unit
- Water, base oil and soap buffer tank
- Fully autonomous control system/motor starters
- Remote controlled from the control system location
- Logging of used cleaning liquid
- 10’2.7-1 container for use in ATEX - Zone 1

**MANIPULATOR ASSEMBLY:**
- Titan 4 manipulator arm
- Camera and flood light fixture for washing and inspection
- Interchangeable nozzles, changed in 5 minutes to fit all cleaning purposes
- Easily mounted ‘garage’ assembly, this facilitates movement from one pit to the next by using either retractable wheels or a trolley system mounted in the ceiling of the pit area.
- Remote controlled from the control system location
- All cable/hose connections are carried out with quick release couplings to enable quick and safe rigging
- Will fit in all known pits
- Certified for ATEX - Zone 1
- Worldwide accessible spare parts (Schilling robotics)

**CONTROL SYSTEM:**
The control system can be located either in the pit area or adjacent room or office.

- Operator chair
- Wall/pedestal mounted system
- Office desk control system

These options can be selected by client based on available locations in cooperation with the client’s HSE personnel.

All systems can be built for either safe or ATEX EX Zone.

The system can remote control both the manipulator arm and main skid system. It can also control the waste management system that is available as an option.