



KOCKUMATION^{GROUP}

 Kockum Sonics  POLARMARINE *Texon*

Washmaster

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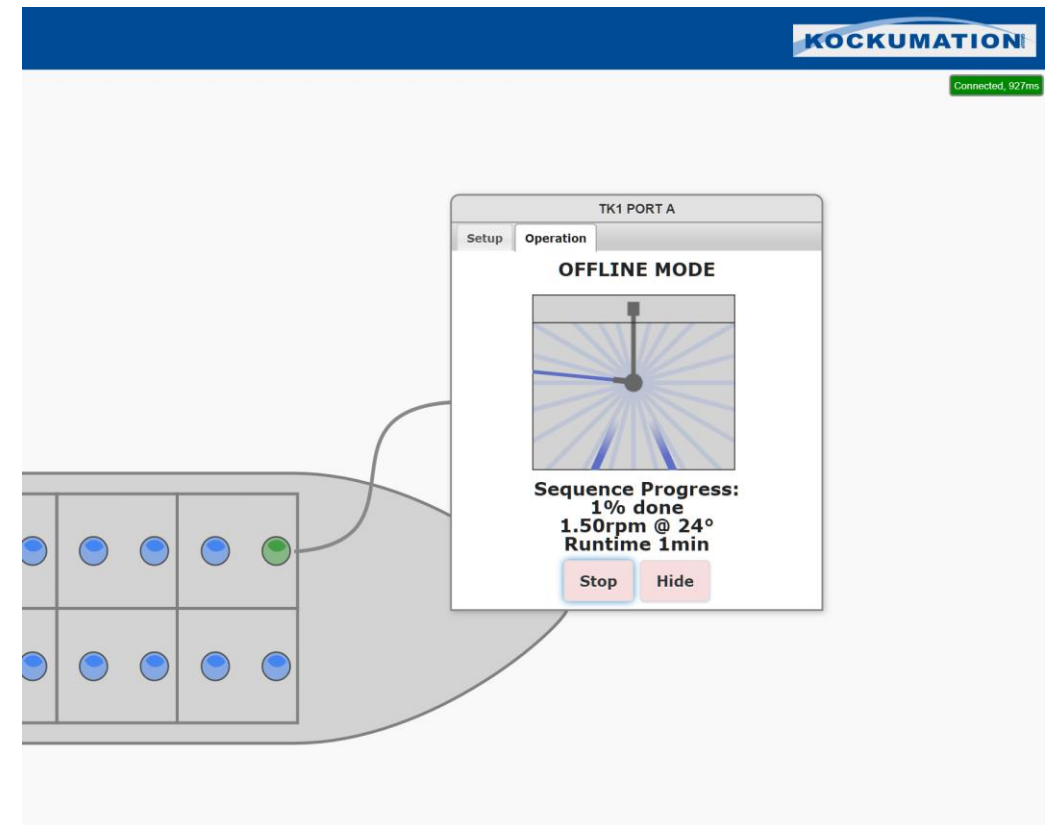
2019

Today's cleaning procedure – wall washing

- After completed washing cycle, a crew member enters the tank, applies a liquid which is then collected and analysed for a pass/fail cleanliness test.
- Based on old truths and individual experience
- As many procedures as chief officers
- Fear of not being load-ready leads to “over-washing”, ie longer the necessary wash cycles
- Arbitrary sample collection, which represent less than 1% of the actual surface
- Applied liquid volume is not controlled
- Due to the velocity/force in the water, cleaning detergent is bouncing of the wall
- Crew and officers are forced to do confined space entry (CSE), with enormous risk of fatality. Close to 10 fatalities are reported each year

WASHMASTER®

- Software for automated tank cleaning
- Possibility to track and monitoring the washing cycle, ensuring full coverage of tank
- Progress and positioning of cleaning process can be followed live



Wash water analysis

- Continuously analysing the wash water in the stripping line
- Washing cycle is closed when washing water no longer contain previous cargo




Spray

- Detergents are applied in a smother way, actually sticking to the surface instead of bouncing of it
- Saves additional time
- Less chemicals are needed




WASHMASTER® + Wash water analysis + Spray

- Minimizing/eliminating reason for confined space entry (CSE)
- Same level of cleanliness can be achieved in a third of the time
- Wash cycle is logged and signed off for documentation and future inspection

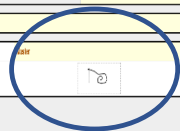




HEALTH, SAFETY, QUALITY & ENVIRONMENTAL MANAGEMENT SYSTEM (HSQEMS)
TSP/ 016/12501/WAF/20



Name	K041155	Percentage	92%	Infrared	T	2	75
Date/Time/Or. Name	2023/09/19 10:30	Start/End/Temp	2023/09/19 10:30	70%	Stop	Y	72cm

PROCESS CYCLE																		
Tab	Area (m ² /Cm)	Wash Cycle	Water Temperature	Pressure	Flow	Distance	Water Flow	Water Flow	Water Flow	Water Flow	Water Flow	Water Flow	Water Flow	Water Flow	Water Flow	Water Flow	Water Flow	Water Flow
W01 F001	32.00	30' 140° 30"	20%	20%	20%	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
W03 F100	30.00	30' 140° 30"	20%	05	20%	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
W05 F001	30.00	0' 140° 30"	20%	05	20%	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
W03 F100	30.00	0' 42° 30"	20%	05	20%	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
W03 F001	17.00	0' 42° 30"	20%		20%	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
BL0014 F001	17.00	30' 140° 30"	20%	0	20%													

Name	Signature	Signature	Signature	Signature
				

Real case Scenario

- Product/chem tanker
 - Previous Cargo: Dyed gas oil
 - Next Cargo: Methanol
- Current setup
 - Heated sea water for most part – typically 9h
 - Final part of washing programme utilizes fresh water – typically 3h
 - Refilling of N₂, inerting the tanks – 12h
 - CSE needed to verify cleanliness
- 6 tank pairs
- Equipped with super stripping line
- Washmaster + water wash analysis + spray
 - Sea water cycle can be reduced to 3h
 - Fresh water cycle can be reduced to 1h
 - Tank already inerted
 - No need for CSE as inspection has been done digitally
 - Load – ready in less than 4h



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