

BACKGROUND

An industrial client received notice from their insurance provider that the existing fire water system is not performing as designed as the engine cooling filters plug after only a few minutes of operation causing the engine to overheat rapidly.

INITIAL CONDITION

Water filtration was used on the engine and gearbox cooling water streams to protect the engine cooler from becoming plugged with debris from the dirty fire water which was used for cooling water. When the fire system was in operation, mechanics would have to be on site to change the cooling water filter every 10 - 15 minutes of operation.

ANALYSIS

Induspec discussed the issue with mechanics and maintenance supervision to discover that an engine had previously failed due to a fouled heat exchanger. As a result a very fine (and expensive) hydraulic oil filter cartridge was used to safeguard the heat exchanger.

IDENTIFIED CAUSE

The cause of fouling filter elements rapidly was determined to have two sources. One was that the fire water was very dirty as the pump inlet pit had not been cleaned in many years. Secondly, the hydraulic filter cartridge was inappropriate for the application.

RECOMMENDATIONS

Induspec recommended that the source water storage pit be cleaned and inspected. Induspec also recommended a different type of filter which allowed for coarser filtering while eliminating the need for expensive cartridges. Finally, Induspec recommended a preventive maintenance program which would ensure that any heat exchanger fouling be identified and resolved well before it caused an engine overheating issue.

IMPLEMENTATION

Induspec revised the piping system and specified the right duplex strainer system for the water flows required. Induspec designed the preventive maintenance work to be completed, specified spare parts to be on site and worked with mechanics to show them how to properly execute the inspection. All recommendations were made on an ROI basis with three different options being presented along with the 5 year life-cycle cost of each.

Gallery



Induspec		Cooling Water Filtration	
Description	Estimated Cost		
Installation of heat exchangers (change 2X per year)		\$750	
Total Year 1			\$10,500
Total Subsequent Years		\$750	
Total for 5 Years			\$14,250
Install Duplex Self Cleaning Filters			
Description	Estimated Cost		
Azud Helix Duplex self cleaning filters (estimate only for 2 units)		\$70,000	
Installation of filters		\$3,000	
Total Year 1			\$73,000
Total Subsequent Years		\$0	
Total for 5 Years			\$73,000