Case Study

Spectro Scientific / AMETEK

The benefits of Condition Based Monitoring for DOD assets

Jason Marshall Global Government BD, Spectro Scientific



In 2002, the Deputy Under Secretary of Defense (Logistics and Material Readiness) directed all service components to incorporate Condition Based Maintenance practices. This was in large part due to the US Defense Department taking a much closer look at both aging weapons platforms as well as rising sustainment spend DOD wide. In 2014, the Marine Corps published MCO 4790.25, Ground Equipment Maintenance Program (GEMP) directing the incorporation of CBM and other cost savings processes. Condition Based Maintenance (CBM) integrates improved processes, technology, and knowledge-based capabilities to improve the reliability and effectiveness of equipment.

Lt. Gen Charles Charotti, who ultimately headed up HQMC I&L - Pentagon at the time, partnered with industry via the Office of the Secretary of Defense and the National Center for Manufacturing Sciences to look for ways CBM could be adopted by USMC maintainers. The problem statement which led the effort was that every year the Marine Corps spends a large portion of its O&M budget on changing oil and filters at pre-ordained, time-based PMCS intervals (semi-, annual, biennial, etc.), regardless, of the life of the fluid. Current industry standards use technology to analyze the "health" of the fluid before replacement. Thus, saving valuable resources (time, money, etc.).

The USMC noted some commercial examples of fluid testing efficiencies as they pursued their business case:

1. Commercial Mining in Western Canada
   a. 1,400 assets
   b. Reduced Avg. response time from 420 days to 1
   c. Saved $15 million, with initial investment of $823,000 (2011-2015)
2. Global Energy Company
   a. 400 assets
   b. Reduced Avg. response time from 17 days to 6
   c. Saved $238,000, with initial investment of $15,000 (2015)
3. Calgary-based Well and Drilling Company
   a. 200 assets
   b. Savings of $1.4 million, representing a 569% return on investment

A CY15 study eventually conducted in the USMC assessed the fleet of LVSRs and MTVRs during normally scheduled Preventive Maintenance periods. Their results yielded enormous potential savings for the Marine Corps. Extrapolated across the Marine Corps over a two-year time frame, regression analysis data suggests recouping 60,809 labor hours and saving $6.5 Million for the two equipment platforms (LVSR & MTVR). Similar savings for all enterprise oil-wetted weapons platforms can be expected.

Example One: 47 LVSRs Assessed

ITEM	Cost / Time
Normal PM Cost (A & B) x 1 yr	$82,822.74 (CY 2015)
Normal Labor Hours (A & B)	844 hours
PM Cost with FieldLab	$47,252.24
Labor Hours with FieldLab	955* hours
Avoidance Cost savings with FieldLab	$35,570.50
Avoidance Labor savings with FieldLab	111 hours
Opportunity cost = Avoidance + HAZMAT + Transportation Cost + Admin + Overhead = Tremendous Financial Savings	

Example Two: 52 MTVRs Assessed

ITEM	Cost / Time
Normal PM Cost (A & B)	$49,999.84
Normal Labor Hours (A & B)	1042
PM Cost with FieldLab	$35,615.01
Labor Hours with FieldLab	850.5
Avoidance Cost savings with FieldLab	$14,384.83
Avoidance Labor savings with FieldLab	191.5
Opportunity cost = Avoidance + HAZMAT + Transportation Cost + Admin + Overhead = Tremendous Financial Savings	

"Over a two-year time frame, regression analysis data suggests recouping 60,809 labor hours and saving $6.5 Million for the two equipment platforms (LVSR & MTVR)."

For more info visit: www.spectrosci.com/fieldlab

Spectro Scientific
AMETEK

Spectro Scientific | One Executive Drive, Suite 101, Chelmsford, MA 01824-2563 | 978-431-1120 |
| sales.spectrosci@ametek.com | An ISO 9001:2015 company

Copyright © 2022 Spectro Inc. All rights reserved. While every effort is made to assure the information in this document is accurate, Spectro does not accept liability for any errors or mistakes that may arise. Specifications are subject to change without notice.
FieldLabMilitary_CS_2022-10-06