Study of Performance of the Mechanical Maintenance Section at Water Transmission Directorate


Submitted by
Yaqoob Yusuf Ahmed
University Number: 19972133

Supervised By

Professor Saad Suliman
Professor of Manufacturing Systems & Processes
University of Bahrain

Dr. Yaser Al-Alawi
Assistant Professor of Mechanical Engineering
University of Bahrain

Kingdom of Bahrain
June, 2014
ABSTRACT

Performance measurement of maintenance function is a major issue for management, because maintenance effectiveness is part of any organization's success. Maintenance seeks to reduce the probability of failures by applying the preventive maintenance and reduce the severity of equipment failures once they occur using corrective maintenance. This research is studying the performance of Mechanical Maintenance Section at Water Transmission Directorate at Kingdom of Bahrain for both types of maintenances to ensure the section achieves the desired performance.

Hundreds of defects recorded for 34 pumps from 2005 to 2011 for five water pumping stations belongs to Mechanical Maintenance Section such as leakage and smoking of gland packing, leakage from headers, noise and vibrations of bearings including many failures of non-return valves. The continuity of reoccurrences of these defects, and why maintenance actions and repair works are not reducing or eliminating these defects are the main issues of this study.

Suitable performance indicators are utilized to measure the performance of the maintenance section using data collected from the field which cover the frequency of defects, time to repair and cost of repair. Furthermore, the current applied practices of doing the maintenance repairs and inspections are evaluated including the efficiency and effectiveness of their actions.

The study shows that unavailability of standard procedures for corrective and preventive maintenance actions based on the best practices, and absence of a measurement process for maintenance performance are the hurdles in front of Mechanical Maintenance Section to perform efficiently and effectively. Furthermore, the results of the study indicate a need to conduct extra training for maintenance workforce to improve the efficiency of their work, as well to provide basic maintenance training for all operational personnel to create the integration between operation and maintenance. There is a lack of efficient communications between the different levels within the directorate and within the maintenance department. Identification of the existing problems and tracking the repetitive equipment failures, their causes and consequences must be practiced in order to reduce their occurrences.