RCM/RCA Workshop

This workshop covers the theories and practices of Reliability Centered Maintenance (RCM) and Root Cause Analysis (RCA) as applied to review of and feedback on preventive maintenance items, and the application of RCA methodologies for identifying shortfalls in maintenance, root causes of equipment, system failures, accidents and near misses.

The RCM portion of the workshop focuses on the three categories of maintenance, the five types of preventative maintenance tasks, and the differences between Classic RCM and Back-Fit RCM, which is the application of 3 filters in the review of existing maintenance actions to determine their suitability and periodicity. Failure Mode and Effects Analysis (FMEA) and the difference between Functional Failure and optimum performance is explained in detail. Also covered are Age-Related studies showing the percentage of age-related failures to random failures, and the methods used to reduce risk and improve system reliability. Attendees are shown examples of maintenance actions that were modified or deleted based on the application of RCM principles, and are given other actions to analyze using the RCM methodology. Emphasis is put on ensuring machinery history data is updated during maintenance, repairs, and deferrals, as a way to supplement and support future analysis of maintenance effectiveness.

The RCA portion of the workshop focuses on understanding the differences between Component Failure Analysis (CFA), Root Cause Investigation (RCI), and Root Cause Analysis (RCA), and how to use the available analytical tools to investigate and analyze physical, human, and latent information to identify causes, rather than symptoms, and how to apply the findings to other systems which may be prone to similar failures or accidents. Attendees are shown methods to perform preventative and reactive analysis, recognize the benefits and savings associated with RCA, and identify different logical analysis models used to perform various analyses depending on their unique situation and environment. Examples include barrier analysis, Bayesian inference, causal factor tree, change analysis, FMEA, fault tree analysis, the 5 whys, the Ishikawa diagram, Pareto analysis, cause mapping, and the 8D approach. Attendees receive instruction on how to remove fear from the workplace and the importance of avoiding any appearance of blame associated with an investigation. Historic examples are provided to reinforce RCA investigative concepts, and significant time is spent reviewing issues associated with situational blindness and bias.