I4 – Design and Implementation of Daily Operator Assignment Schedule

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Objectives

Main Objective: Create an application to clearly identify overlapping work assignments
- Import data for all engine stands from Lab Status
- Compile scheduled tasks for each engine stand
- Incorporate ongoing and upcoming tests
- Display engine stand, test type and assignment timetable
- Simple to manage and update

Deliverable

The scheduling application identifies the time to complete each sample and blowby along with any overlapping assignments within a ten-hour shift duration. The application imports the current status of each engine from Intertek’s database, Lab Status. With the current status, the time until the next assignment is determined and identified. After the application identifies the time until next assignment for each engine stand into a directed cell, the number of overlapping assignments that occur within a fifteen-minute time interval is known. For clarity, the program highlights overlapping assignments according to the assignment type as well as highlight any tests that are currently running. By clearly identifying these overlapping occurrences, operators can mitigate the risk of missing a scheduled event. The scheduling application (Figure 4) utilizes a color-coded system to assist the user in visually recognizing upcoming sample times, blowby times, running engines, and overlapping assignments.

Methodology

The scheduling application was developed through Excel VBA. The application will read from a text file exported from Lab Status and reference the predetermined time to complete an assignment. The txt file is set to update every 5 minutes. The schedule is formatted according to the time at which it is generated. With the data from Lab Status and the predefined time to complete an assignment, the time until the next assignment is determined and scheduled. With the Lab Status input as a reference, the scheduling application can accurately identify when to complete an assignment for each test. Once the assignment times are determined, the number of overlapping assignments within a 15-minute time interval are identified and highlighted. The scheduling application will eliminate missed assignments by clearly identifying overlapping assignments and the precise time to complete them. This resource will ultimately reduce human error and optimize operator assignments.

Risk Analysis

The greatest failure of concern identified by Intertek is not completing operator tasks as scheduled, resulting in an invalid test. Intertek absorbs all costs associated with an invalid test. To narrow down the area of focus, the FMEA identifies the potential causes for not completing the task. The potential cause for a missed assignment with the largest RPN (risk priority number), is ‘overlapping time dependent tasks’ and thus determined to be the focus of the project.

Summary

The scheduling application is a visual aid that identifies upcoming events. This scheduling application will reduce the time and motion spent generating each shift schedule; thus, minimizing the risk of miscommunication between each shift change. Missed assignments and defects will be eliminated by clearly identifying a precise time of occurrence. Through this easy to use application, user error will be minimized.

Future Work

The application will properly generate the schedule based on only two assignment types. The program will have to be modified if more than is an additional assignment type to consider. Having the txt file continuously update will reduce the risk of not properly scheduling properly. Currently, the program works by retrieving the file from a specified location. The location will need to be updated to Intertek’s local network.