

Over-Processing – Part Washing

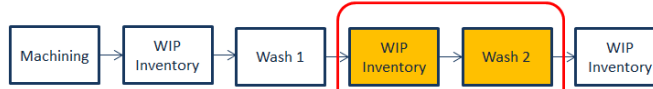
Client: Parts Manufacturer **Location:** TN **Date:** April 2019

Problem:

- Our client had been struggling with process capability as it relates to part cleanliness from their component washers prior to assembly. To consistently meet their clients' cleanliness specification of 500 micron max particle size, the goal was to identify and then control the process KPI's that impacted this lag metric.

Current State:

- In response to prior quality events, a Secondary wash process had been implemented in an effort to provide additional cleaning. This containment effort, resulted in the need for additional capital, while adding operating costs, inventory burden and direct labor. The Goal was to improve the capability of the process enough, that this secondary system could be removed entirely from the process.



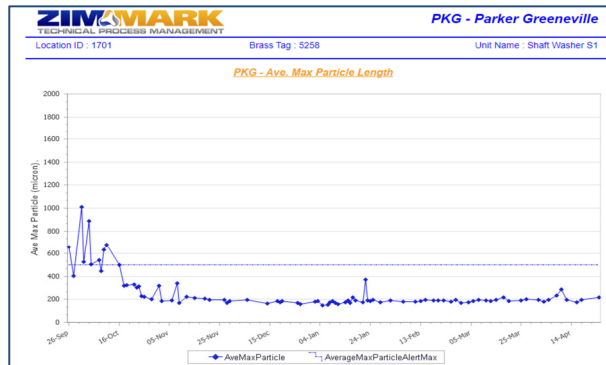
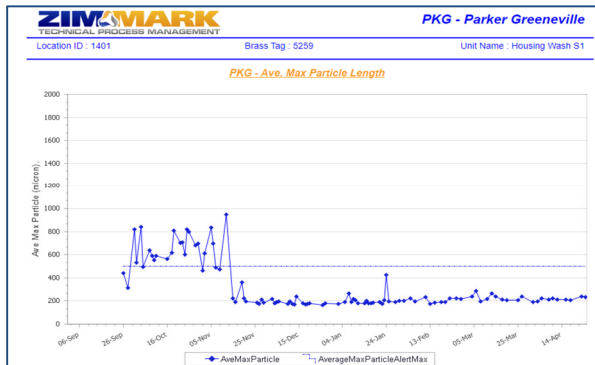
Secondary Wash Process / Non Value Add

Strategy:

- Zimmark to monitor the lead metrics and their impact on the desired cleanliness result. Once measurables with limits were established, Zimmark was to implement the controls/methods necessarily to consistently stay below the max. 500 micron partial requirement.
- Zimmark was to identify and facilitate corrective actions such as equipment repair, process adjustments and machine cleaning to improve "Current State" performance
- Zimmark to perform daily operational and inspection tasks identified on the control plan to sustain the improved process performance and capability
- Zimmark to monitor and report all task completion compliance and process capability performance on an ongoing basis with the client and look for opportunities to reduce the total process cost.

Performance Results:

Location	Machine Name	Corrective Action Date	Before (Micron)		After (Micron)	
			Max Ave.	Range	Max Ave	Range
1401	Housing	11/17/2018	611	752	209	298
1701	Shaft	10/17/2018	618	606	204	225
6401	Manifold	11/30/2018	994	1864	230	208
1101	Bolt	3/31/2019	542	668	230	250



Summary:

Since implementing the service on all four washers, the following results have occurred:

- Overall max average partial size has gone from **666 microns** to **271 microns**, resulting in **zero customer quality "spills"**
- Overall range has gone from **977 microns** to **247 microns**,
- Improving the capability of each of the 4 washers has allowed for the elimination of secondary non value add wash process. This has significantly reduced the total process cost due to the elimination of the operational, labor and inventory costs associated with these extra steps.

