

## Case Study

### **Mitigating Financial Liability and Eliminate Unexpected Production Outages with intelligentMRO™**

- Sector:** Plastics Manufacturing
- Company Size:** Maintenance operations with 25 to 50 employees
- End Results:**
1. Return-on-Investment took two (2) months.
  2. Unexpected production downtime was reduced by 53.4%.
  3. The facility increased production throughput by 12.7% on one key production line.
  4. Maintenance operations, year-over-year spend, on the key facility production line was reduced by 8% in the first fiscal year.



110 Frobisher Drive  
Waterloo, ON N2V 2G7, Canada  
[www.perspectanalytics.com](http://www.perspectanalytics.com)  
[info@perspectanalytics.com](mailto:info@perspectanalytics.com)  
[www.linkedin.com/company/77612656](https://www.linkedin.com/company/77612656)

Perspect Analytics Inc. is a software and solution company with a sole focus on developing innovative analytical solutions to improve all areas of the Maintenance, Repair and Operational (MRO) operations. The goal is to eliminate non-value-added MRO activities while creating a responsive, data-driven continuous improvement culture by leveraging state-of-the-art AI/ML technologies.

**Actionable | Measurable | Sustainable | Adaptable**

### *The Opportunity*

The corporate-mandated RCM continuous improvement initiative for the facility was to reduce unexpected production downtime on the key critical facility production line by a minimum of 20%. All project activities were completed during standard working hours.

### *The Approach*

To meet the mandate's goals and objectives, the plant manager determined the primary focus of the RCM initiative would be on the packaging section of the line, as it was a known bottleneck. The secondary focus of the RCM initiative was on the extruder system. PM Effectiveness, Workflow Efficiency, and MRO (spare parts) Inventory Optimization measures were used, eliminating the time required to gather and massage information for the RCM initiative. Highspeed video cameras, laser alignment, and balancing tools were used to determine set-up and alignment concerns.

In PM Effectiveness, the regulatory PMs were considered non-touchable. The lubrication program for the entire line was reviewed. It was determined someone had added zerks to the housings of sealed bearings. All lubrication activities on sealed bearings were stopped. It was determined that all PM tasks and activities that do not add value should be stopped. The frequency suggestions of the remaining PM program activities, adding value, was adjusted based on the equipment condition and production environment. Based on failure mode findings from the RCM initiative, autonomous maintenance cleaning tasks performed by maintenance and operations were introduced.

From the RCM process, the MRO inventory optimization focused on ensuring the right part based on risk was in inventory. Min/max levels were reset to eliminate the risk of spare part stock-outs and lower financial liability from overstocked SKUs. To maximize the return on investment for the initiative, min/max levels on all MRO inventory parts were optimized. Individual SKU/Store/Bin overstocked parts classified as critical or maintenance usage highlighted usage within 5 years were kept.

Workflow Efficiency measures suggested improvements in business processes and highlighted equipment-specific training opportunities. The RCM process's outcome recommended introducing maintenance planning and spare parts kitting to improve manpower efficiency and eliminate repeated, unexpected outages. All business process and training suggestions and RCM equipment redesign recommendations were implemented. A planned shutdown (outage) of eight hours every two weeks was scheduled to provide a window for maintenance to repair components before they fail and to perform quality alignment checks.

### The Results

The duration of the RCM initiative was one (1) month. Implementing the equipment redesign suggestions took an additional six (6) months. The after results show the eight (8) months after the equipment redesign suggestions were implemented. The total project cost was \$375K.

Benchmark Eight (8) Months			
Measure		Before	After
Reactive Work %		84%	51%
Proactive Work %		9.4%	41%
* PM Activities		100%	27%
* Corrective Activities (Fix Before Fail)		0.0%	65%
Reactive Labour Hours		288	92
Production Unexpected Outage Minutes (8 months)		4,373	2,002
*Average Production Unexpected Outage Minutes per month		547	250
PM Job's Failing to Add Value		56%	8%
Equipment Reliability (Uptime)		63%	87%

The equipment reliability project for MRO inventory optimization lasted two (2) months. The after results show the eight (8) months after the equipment redesign suggestions were implemented.

Benchmark Eight (8) Months			
Measure		Before	After
Stock-outs		237	23
SKU Min/Max			
* Over-stocked (Financial Liability)		\$71,000.00	\$32,000.00
* Under-stocked (Risk Stock-outs)		\$43,000.00	\$8,000.00
Holding Costs		\$208,000.00	\$235,000.00
Cost Avoidance (first year)		N/A	\$37,000.00