Keg Line Improvements at Labatt Oland Brewery

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1. Problem Definition

Labatt Oland's Keg Line is currently their worst performing packaging line.

Inefficiency & downtime on the Keg Line can be primarily attributed to:

- **Mechanical issues**
- **Ineffective use of production, defect & quality information**

2. Project Objective

Achieve 66.12% Gross Line Yield (GLY)

- Increase keg throughput
- Maximize uptime on filling heads
- Improve product quality
- Drive cost savings

Using budgeted rate of 100 kegs/hr.

3. Approach

1. **Fill Head Irregularity Study**
2. **Downtime Data Analysis**
3. **Process Capacity Analysis**
4. **Performance Tracking**
5. **5S Evaluation**

4. Methods & Analyses

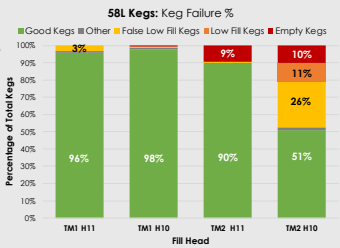
4A. Current State Analysis

Context: The Keg Line has 2 Transomatic (TM) Lines which clean/fill kegs. Each line has 2 filling heads (FH).

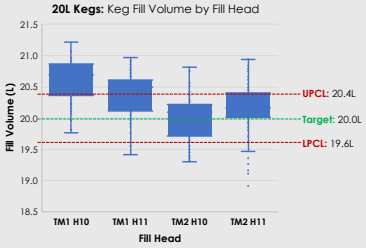
Fill Head Study

Findings:
Primary source of low fills for 58L kegs:
TM2 FH10

- Fill variance was >> than other FH's for 58L.
- Large # of falsely rejected kegs.

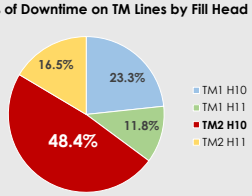


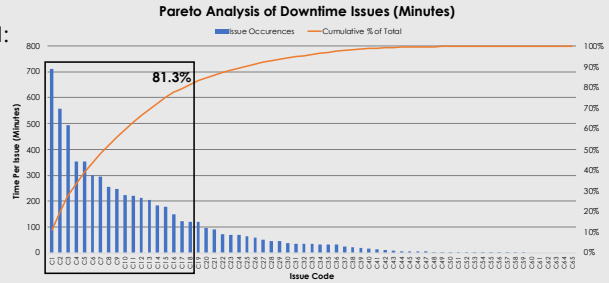
Fill variance for **20L kegs** is larger than quality tolerances.



Downtime Data

Findings:
Most problematic Fill Head:
TM2 FH10





Only one issue code is tracked for the Keg Line.

18 "Big Hitters" to track have been identified.

>80% of TM Line downtime comes from ~28% of the issues.

Capacity Analysis

Findings:
Same cycle times for 20L & 58L kegs.

Max Line Capacity of **151.7 kegs/hr.**

Process bottleneck: **TM Filling Lines**

Filling Line	Cycle Time	Hourly Throughput
TM1	2 kegs / 87.9s	**82 kegs**
TM2	2 kegs / 103.1s	**70 kegs**

TM2 is **slower** than TM1 by **~12 kegs/hr.**

Cycle Time = Fill Time + Non-Fill Time + 'Dwell' Time

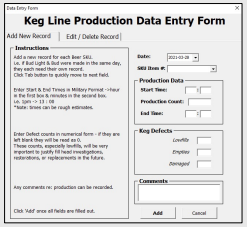
Keg Size	TM2 H11 Fill Time	Potential 20L "Dwell Time"
20L	14s	**14.7s**
58L	28.7s	

~16.6 keg/hr capacity increase if 20L dwell time is reduced.

4B. Continuous Improvement

Performance Tracking

Work Performed:
Developed an *Operator Dashboard* with data-entry forms to enable data-driven decision making.



5S Evaluation

Work Performed:
Ordered & implemented items to help maintain cleanliness and assist in the physical tracking of defects.

Examples of 5S Implementations.

5. Cost-Benefit Analysis

The restoration or replacement of the most problematic Fill Head (TM2 FH10) could result in:

Beer, Capacity, & Uptime Gains

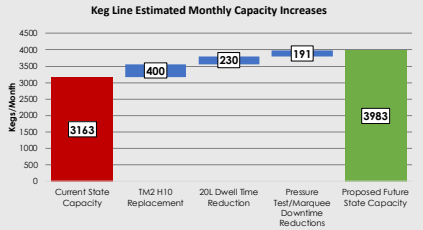
$220k Approx. NPV for replacing TM2 FH10.

Conservative estimate over 5 years using internal cost of defective kegs.

6. Performance Impact

Current State
53.08% GLY

Future State
66.85% GLY



25.94% increase in capacity.

7. Conclusion & Recommendations

1. Restore or replace TM2 FH10.
2. Actively track issue codes on the line in Oland's KPI system.
   - A list of 18 of the most impactful codes has been submitted.
3. Initiate work order to determine if 20L cycle time can be reduced to minimize "dwell time".
4. Operators to leverage dashboard to assess and act on the line's performance more proactively.
5. New counters must be used to consistently track keg defects.