MEETING AGENDA

- Project Overview
- Current state of Design (Quick Summary)
- Detailed Proposal Review
  - Proposal 1: Marble Table Move
  - Proposal 2: AWP Unit
  - Proposal 3: Depanning Kaizen
  - Proposal 4: New Sheet Pans
  - Simplification/5S
  - New Greaser Information
  - Other Suggestions
- Project Wrap-up
- Moving Forward
PROJECT OVERVIEW:
TOP 10 CUSTOMER NEEDS REVIEW

<table>
<thead>
<tr>
<th>Customer Need</th>
<th>Description</th>
<th>Comment</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>CN1</td>
<td>All solutions must feel safe and secure.</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>CN2</td>
<td>Reducing water usage is efficient and safe for the employee.</td>
<td>Well reduce time and ergonomic issues associated with oven unloading water spillage.</td>
<td>2</td>
</tr>
<tr>
<td>CN3</td>
<td>Reduce variability throughout entire cheeseball line.</td>
<td>Improve worker efficiency for new workers. Reduce safety and ergonomic issues associated with oven and process.</td>
<td>2</td>
</tr>
<tr>
<td>CN4</td>
<td>Minimize excessive press on mimics cheeseball.</td>
<td>Will reduce cycle time for mimics cheeseball.</td>
<td>2</td>
</tr>
<tr>
<td>CN5</td>
<td>Efficient brake belt feeding.</td>
<td>Standard procedure for employees to follow will increase productivity.</td>
<td>2</td>
</tr>
<tr>
<td>CN6</td>
<td>Reduces the distance to push / pull heavy material and carts.</td>
<td>Reduces ergonomic strain for employees.</td>
<td>2</td>
</tr>
<tr>
<td>CN7</td>
<td>Labrador water pump trimmed.</td>
<td>No more amount of labor needed at oven load.</td>
<td>2</td>
</tr>
<tr>
<td>CN8</td>
<td>Diminishing cement throughout cheeseball tunnel.</td>
<td>Reduce the need to pull water and end of oven. Reduce the number of safety issues associated with cement aris.</td>
<td>2</td>
</tr>
<tr>
<td>CN9</td>
<td>Effectively up speed of oven at better manner</td>
<td>Will eliminate double handling of cheeseball after time to 2007.72.</td>
<td>2</td>
</tr>
<tr>
<td>CN10</td>
<td>Organizational oven load due to heating sheet is difficult.</td>
<td>Will eliminate better to improve due to injury.</td>
<td>2</td>
</tr>
</tbody>
</table>

PROJECT OVERVIEW: FISHBONE DIAGRAM AND MSDII PROPOSALS
## DESIGN SPECIFICATION REVIEW

<table>
<thead>
<tr>
<th>Metric No.</th>
<th>Metric Description</th>
<th>Marginal Value</th>
<th>Target Value</th>
<th>Actual Value</th>
<th>Proposal(s) to Obtain Spec</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cheesecake per labor hour</td>
<td>≥ 45</td>
<td>≥ 50</td>
<td>50</td>
<td>1, 2, 3, 4</td>
</tr>
<tr>
<td>2</td>
<td>Risk of injuries</td>
<td>≥ 25% reduction of benchmarking unit</td>
<td>≥ 75% reduction of benchmarking unit</td>
<td>N/A</td>
<td>2, 4</td>
</tr>
<tr>
<td>3</td>
<td>People travel distance</td>
<td>≥ 10%</td>
<td>≥ 25%</td>
<td>50%*</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>Number of reworked</td>
<td>≥ 25% reduction of current rework rate</td>
<td>≥ 50% reduction of current rework rate</td>
<td>**</td>
<td>2, 3, 4</td>
</tr>
<tr>
<td>5</td>
<td>Throughput Rate</td>
<td>≥ 475 Small Cakes/Hr or ≥ 420 Large Cakes/Hr</td>
<td>≥ 560 Small Cakes/Hr or ≥ 470 Large Cakes/Hr</td>
<td>800 Small Cakes/Hr or 420 Large Cakes/Hr</td>
<td>3, 4</td>
</tr>
<tr>
<td>6</td>
<td>Process improvement has full ROI for customer</td>
<td>≤ 1 Year</td>
<td>≤ 0.5 Year</td>
<td>4 Weeks for 1, 2, 3</td>
<td>1, 2, 3, 4</td>
</tr>
<tr>
<td>7</td>
<td>Solutions meet Wegmans specific health code standards</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>1, 2, 3, 4</td>
</tr>
<tr>
<td>8</td>
<td>Cheesecake retains &quot;homemade&quot; feel</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>1, 2, 3, 4</td>
</tr>
<tr>
<td>9</td>
<td>Process changes can meet holiday demand</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>1, 2, 3, 4</td>
</tr>
</tbody>
</table>

*Reduction in travel distance is in marble process

**While the raw data of the number reworked did not significantly change, the AWP Unit install ensures that a less variable amount of water is in each pan. The set amount of water in each pan applies consistency across the baking process and reduced variability in baking.

## CURRENT STATE OF DESIGN

- **Proposal 1: Marble Table Move**
  - Design met customer needs
- **Proposal 2: AWP Unit**
  - Design met most target specifications
  - Few tweaks to fully meet customer needs
- **Proposal 3: Depanning Kaizen**
  - Design met all Marginal Value targets, and majority met Target Values
- **Proposal 4: New Sheet Pans**
  - Design further developed for Wegmans implementation in upcoming years
- **Simplification/5S**
  - Implemented standard work and processes
PROPOSAL 1: MARBLE TABLE MOVE

• Increase worker visibility of process
• Reduce worker/product travel distance by 50%
• Time saved when moving racks of batter

Problems addressed:
• Marble cheesecake procedure performed in next room
• Difficult for workers to know if they are needed to help reduce queue in next room

IMPLEMENTATION STEPS

• Cake ingredient pallets must be relocated on a daily basis
• Water discharge hose for cleaning must be placed in different drain
• Marble dropper/table must be moved to new location when doing marble cheesecakes
• Air supply hose/power must be connected
IMPLEMENTED MARBLE PROCESS

- Takes place in same room as rest of process
  + Increase in visual for cheesecake crew
- Operators were able to see when queues were building and would help accordingly
- Reduced people/product travel distance by 50%
- Good feedback from operators

PROPOSAL 2: AWP UNIT

- Reduce ergonomic strain by bringing the water to the operator’s fingertips.
- Ensure consistent water amounts in the sheet pans to eliminate burning and reduce excess water at depanning.

- Pneumatically operated and timed
- Custom designed handle and nozzle
- Cart mounted for mobility
PROPOSAL 2: AWP UNIT REVIEW

- Milestones:
  + Parts Ordered – Week 10 MSD I
  + Parts Arrived (Partial) – Week 1 MSD II
  + Partial Assembly – Week 2 (remaining parts arrived)
  + Preliminary Testing – Week 3
  + Handle Assembled – Week 4
  + Final Build for Lab Testing – Week 6
  + Rebuild and Test Run – Week 7
  + Modifications and Implementation – Weeks 8 and 9
  + Implemented Operator Suggestions - Week 10

*Proposed schedule was mostly met throughout the quarter.*

*Due to changing specifications, parts were reordered and replaced during rebuild.*

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PROPOSAL 2: AWP UNIT REVIEW

- Budget:
  + Final Design Cost ~$345
    - Original MSDI estimate is $356
  + Handle and Nozzle from RIT Brinkman Lab – TBD
  + Cart and Misc parts donated from Bakery
PROPOSAL 2: AWP UNIT

Review

- Operator Response:
  + After testing and implementing at Wegman’s Bakery, operator’s generally liked AWP but offered suggestions to improve it.

- Actions taken:
  + Removed 1 trigger
  + Designed smaller handle

PROPOSAL 3: DEPANNING KAIZEN

- Reduce total depanning time by 50%
- Reduce repetitive motion
- Reduce depanning queue

Problems Addressed:
- Queue in front of depanning station with small cheesecakes
- Quality issues associated with current process

Kaizen Solutions:
- Reduced queue
- Sense of urgency to depan
- No obvious quality issues
New Depanning Area

Cheesecake Depanning Layout

Conveyor Path Used

Current Depanning Area

Cheesecake Depanning Layout

Water Spider

Empty Pan Rack

Work Table

Stack of "Bread Baskets"

Depanning Worker

Conveyor
PROPOSAL 3: DEPANNING KAIZEN

- Enthusiastic employee and supervisor reaction to tests
- Meets and exceeds time standards to keep up with cakes exiting tunnel oven
- Overall, will save $15,400 per year if implemented permanently

For permanent implementation:
- Regular Cheesecake Staffing (2 at depanning, 1 water spider, 1 unloading)
- Management sustained (ensure new station is set up and used)

PROPOSAL 4: NEW SHEET PANS

<table>
<thead>
<tr>
<th>Sheet Size</th>
<th>Small Cake Increase</th>
<th>Large Cake Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>10x12x1.75&quot; Sheet Pan</td>
<td>12.2006</td>
<td>10.2006</td>
</tr>
<tr>
<td>18x26x1.75&quot; Sheet Pan</td>
<td>12.2006</td>
<td>10.2006</td>
</tr>
</tbody>
</table>

Due to the high cost of this proposal, the team decided not to pursue this option further.

As Wegmans expands its stores and the demand for cheesecakes grow, this option will be necessary in order to meet the growing demand.

The proposed sheet pans reduce the excess space both in each individual sheet pan and on the oven belt, increasing the number of cheesecakes baked per row.
PROPOSAL 4: NEW SHEET PANS
COST ANALYSIS

<table>
<thead>
<tr>
<th></th>
<th>Approximate Cost Per Tray</th>
<th>Total Approximate Cost</th>
<th>Current Possible Yearly Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 Inch Wide Design</td>
<td>$46.79</td>
<td>$4,164.31</td>
<td>$0.00</td>
</tr>
<tr>
<td>16 Inch Wide Design</td>
<td>$48.78</td>
<td>$4,878.00</td>
<td>$3,388.50</td>
</tr>
</tbody>
</table>

All quotes received from Universal Precision, 2009
*89 12 inch wide cheesecake pans required; 100 16 inch cheesecake pans required

Using a backwards ROI method:

• At $0.02 removed to go towards the trays per cheesecake it would take 207,700 cheesecakes to pay off the 12” cheesecake design.

• If Wegmans averaged 1460 cheesecakes per night it would take 284 nights to pay this off.

• At $0.02 removed to go towards the trays per cheesecake it would take 243,900 cheesecakes to pay off the 16” cheesecake design.

• If Wegmans averaged 1460 cheesecakes per night it would take 334 nights to pay this off.

SIMPLIFICATION/5S EFFORTS

Job Element Sheets (Standard Work) were developed for:

• Mixing Process
• Dropping Process
• Oven Loading Process (Current)
• Oven Loading Process (Proposed with AWP)
• Post Tunnel/Depanning Process (Current)
• Post Tunnel/Depanning Process (Proposed)
• Depanning Set-up (Proposed)
NEW GREASER INFORMATION

Bakon / Bakon Greaser
- Yves Keyaerts - Sales Manager East Coast
- yves@bakonusa.com
- Designed for your application

Mallet / Model 425 M
- 800-245-2757
- Several models to choose, 425 M fits the best

Arcall / 800 Pan Greaser
- sales@arcall.com
- 800R Greaser includes rotary action to fully coat vertical walls of round pans

OTHER SUGGESTIONS:

Cheesecake Information board
- Display on 4’ x 3’ poster board:
  × Weekly Schedule
  × Management Contact Information
  × Job Element Sheets
  × Nightly Production Schedule
  × Employee and Process News

Standard Cheesecake Crew
Standard Weekly Cheesecake Schedule
Post Pass/Fail Greasing and Crumbing Pictures at respective stations
SUCCESSES:
- Developed Standard Work to aid in better training new employees
- Marble table move proved to be a success with operator buy-in
- Depanning kaizen event achieved goals set
- AWP unit improves consistency and ergonomics in oven loading

ISSUES:
- Full implementation is difficult for marble table move and kaizen depanning changes
- Not optimal water pressure for AWP unit to operate
- Difficult to coordinate work between day and night shifts

PROJECT WRAP-UP

MOVING FORWARD

Suggestions for Future MSD Projects:
- Greasing/crumbling affects depanning more than originally anticipated
- Water removing device for depanning

Suggestions for smoother run MSD Projects:
- Ensure all stakeholders are aware of responsibilities/changes to take place
- Don’t let communications diminish during school breaks
- Make customer/stakeholders more aware of project schedule
THANK YOU!

For all files and related documents, please visit:

https://edge.rit.edu/content/P10712/public/Home