

Water Conservation at Kemps-Farmington

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Company Supervisor: Tim Zellmann



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Driven to DiscoverSM



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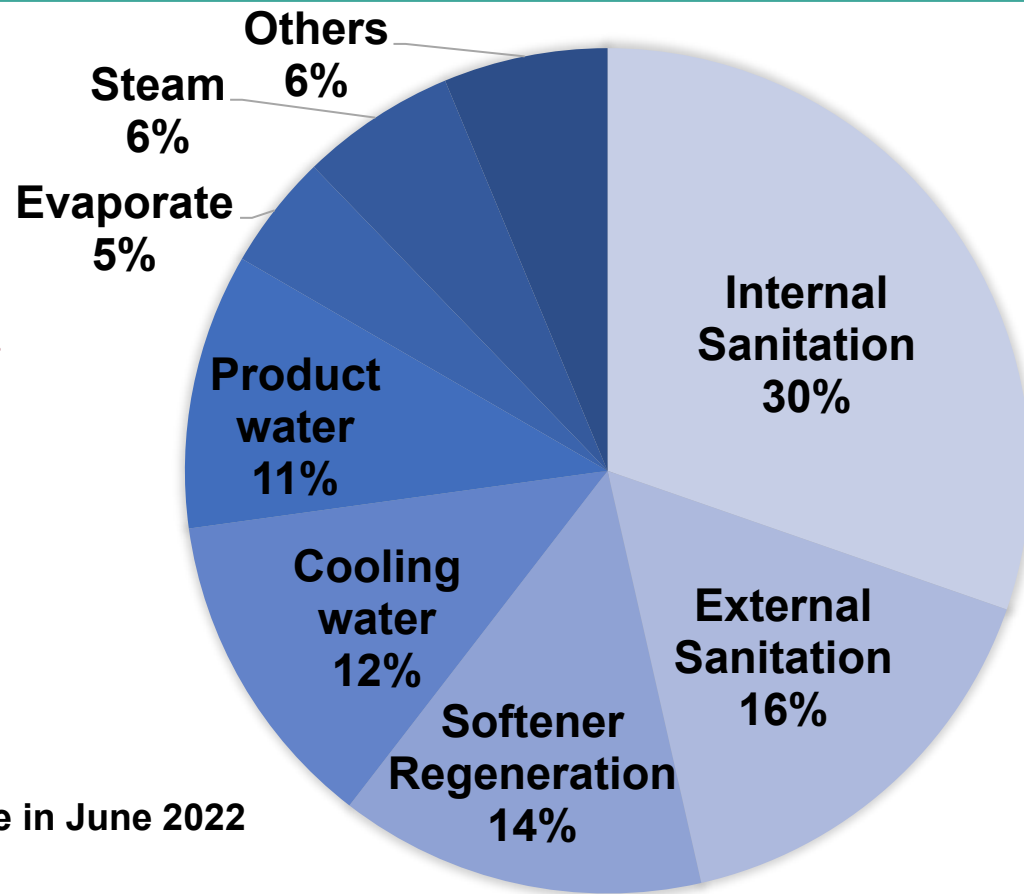
Company Background

- **Location:** Farmington, MN
- **Built in 1930**
- **Size:** 87,125 sq. ft
- **Employees:** 132
- **Products**
 - Cottage cheese
 - Sour cream
 - Yogurt



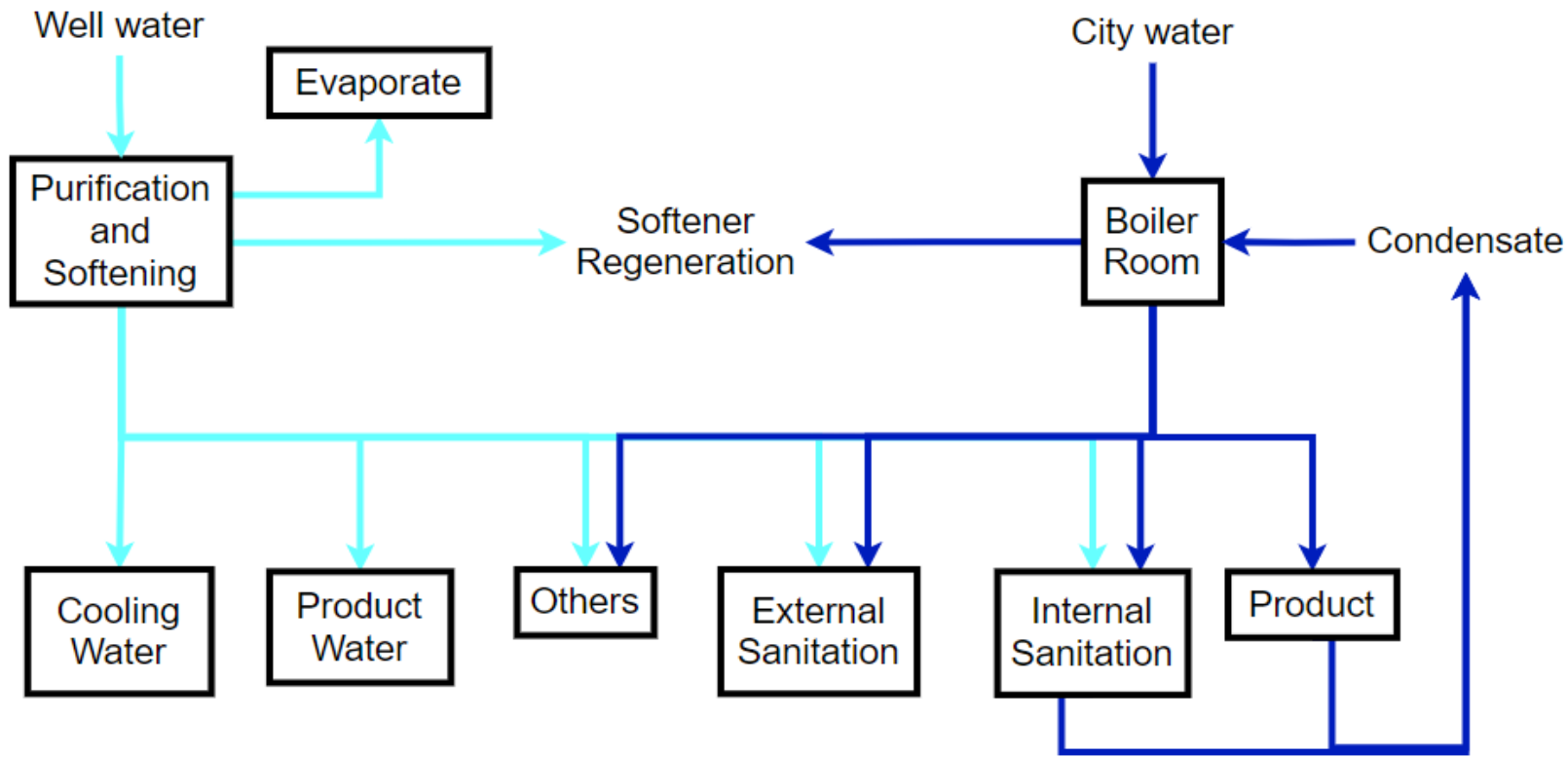
Incentive to Change

- Kemps values continuous improvement
 - Goal of 7% reduction by the end of 2022
- Drought

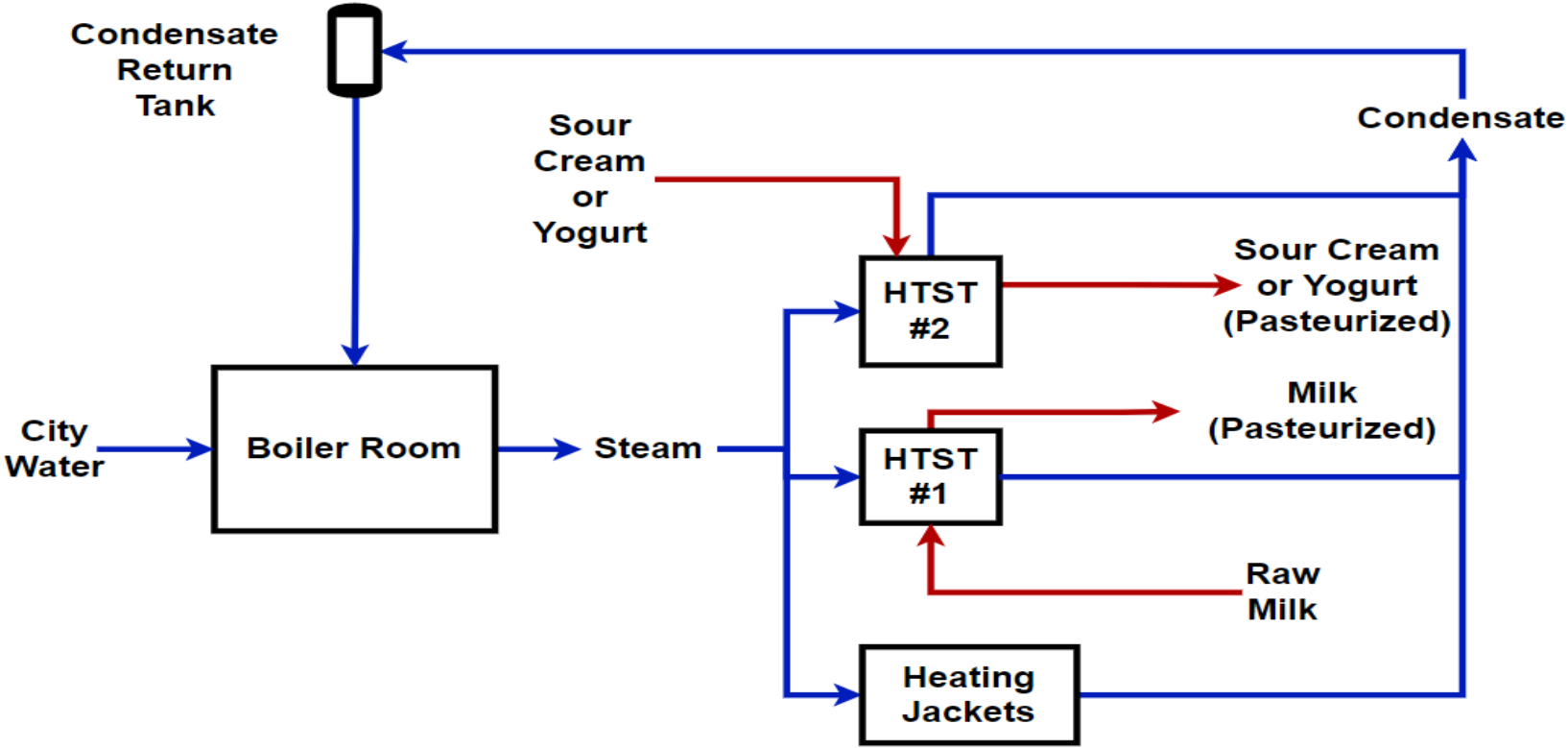


Kemps – Farmington Water Usage in June 2022

Simplified Water Flow of the Facility



Steam Usage with Final Products



Condensate Recovery

Current Situation

- Condensate to drain
- Cold-water hose

Approach

- Measure flowrate
- Measure temperature



Results from Measuring Condensate

- **On average, the flowrate of**

- Condensate is 5 GPM

- 2.6 million GPY

- Hose is 8 GPM

- 4.4 million GPY

- Both combined is 13 GPM

- 7 million GPY

- **The temperature varies around 180 °F**



Recommendations

Condensate Pump

- Recollects the condensate for reuse
- Capacity: 14 Gallons
- Max Temperature: 200 °F

Cost Analysis

- Cost of pump and labor: \$16,220
- Annual Savings: \$74,350
 - Sewer Cost: \$40,000
 - Boiler Energy: \$25,000
 - City Water: \$9,000
 - Well Water: \$350
- Payback Period: 2.6 Months
- Status: Implementing

Solutions

Recommendation	Annual reduction	Total cost	Annual savings	Payback period	Status
Install condensate pump	7,000,000 Gals 34,000 Therms	\$ 16,220	\$ 74,350	2.6 months	Implementing
Tighten leaks	87,000 Gals	\$ 17*	\$ 500	2 weeks	Implementing
Improve product rinse	310,000 Gals	\$ 8,000*	\$ 1800	4.5 years	Investigating
Switch to conductivity-based rinses	8,000,000 Gals	\$ 40,000	\$ 46,000	10.5 months	Implementing
Install scrubber	22,700,000 Gals	TBD	\$ 130,000	TBD	Investigating

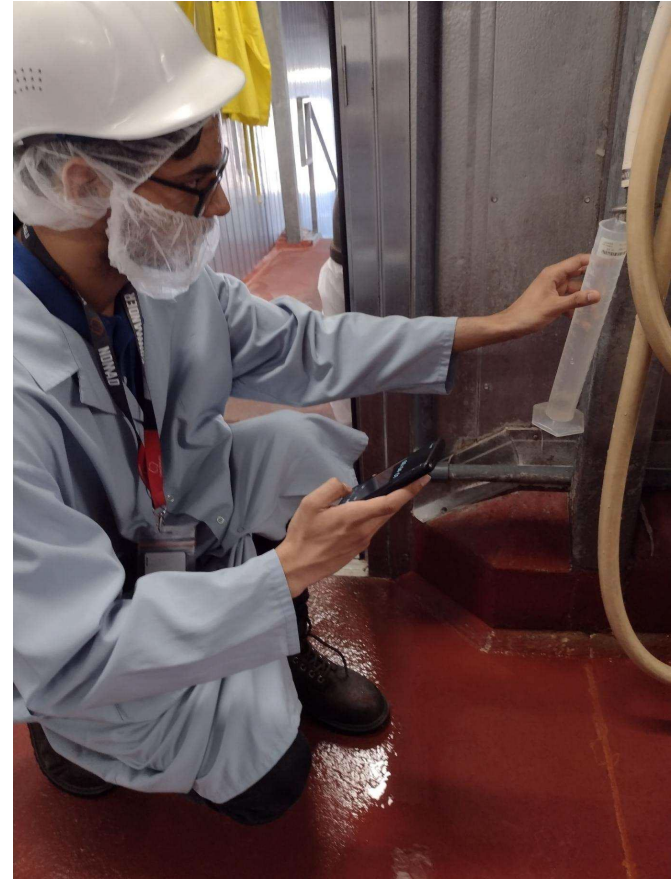
* the cost shown is not the complete cost



Personal Benefits

What I have gained from this internship:

- Better understanding of dairy facilities
- Different possibilities with water conservation
- Crucial industry experience
- Network with various professionals



Acknowledgements

•Kemps Leadership

- Brad Cuthbert (General Manager)
- Tim Zellmann (Plant Manager)
- Peter Stollberg (QA Supervisor)

• MnTAP Team

- Kevin Philpy (Senior Engineer)
- Matt Donski (Intern Program Manager)
- Jon Vanyo (Engineer)
- Gabrielle Martin (Associate Engineer)

Acknowledgements (Cont.)

•Quality Assurance (QA) Team

- Paul Dolezal (QA Manager)
- Colin Fraser (Ecolab Field Representative)
- Jannie Gillispie (QA Lead)
- Nicholas Blonigen (QA Technician)

•Production Team

- Dennis Wunderlich (Production Manager)
- Andrew Lind (Production Supervisor)
- David Chenvert (Production Supervisor)
- Travis Bartel (Production Supervisor)
- Gary Symitzek (Production Lead)
- Stewart Goodman (Production Lead)

• Maintenance Team

- Nathan Johnson (Maintenance Manager)
- Randall Feuling (Maintenance Lead)
- Jim Chojnacki (Maintenance Lead)
- Tony Solis (Maintenance Technician)
- Seth Nechville (Maintenance Technician)

• Engineer Team

- Dan Rober (Chief Boiler Engineer)
- Kelly Barnes (Boiler Engineer)

• Intake Team

- Terry Masso (Intake Operator)

• Financial Team

- Susan Sandberg (Plant Accountant)
- Karen Kimber (Accounting Specialist)