



Water Conservation at General Mills, Inc.

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UNIVERSITY OF MINNESOTA
Driven to DiscoverSM

General Mills, Inc.

- **James Ford Bell Technical Center**

- Global R&D Center
- Golden Valley, MN
- 923 employees
- 720,000 sq. ft.
- Innovation of all products



Incentive to Change

- Sustainability
- Responsible water stewardship
- Commitment to reducing water consumption by 1% annually at each facility



<https://empower-prod.s3.ap-south-1.amazonaws.com/movement/36618/92/159705821646363.jpg>

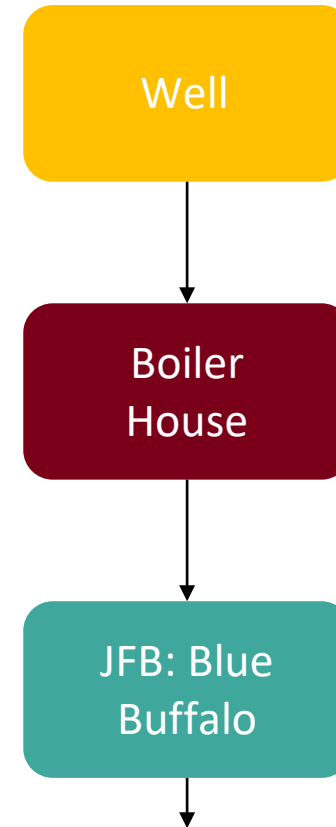
Approach

- **Well to Drain**

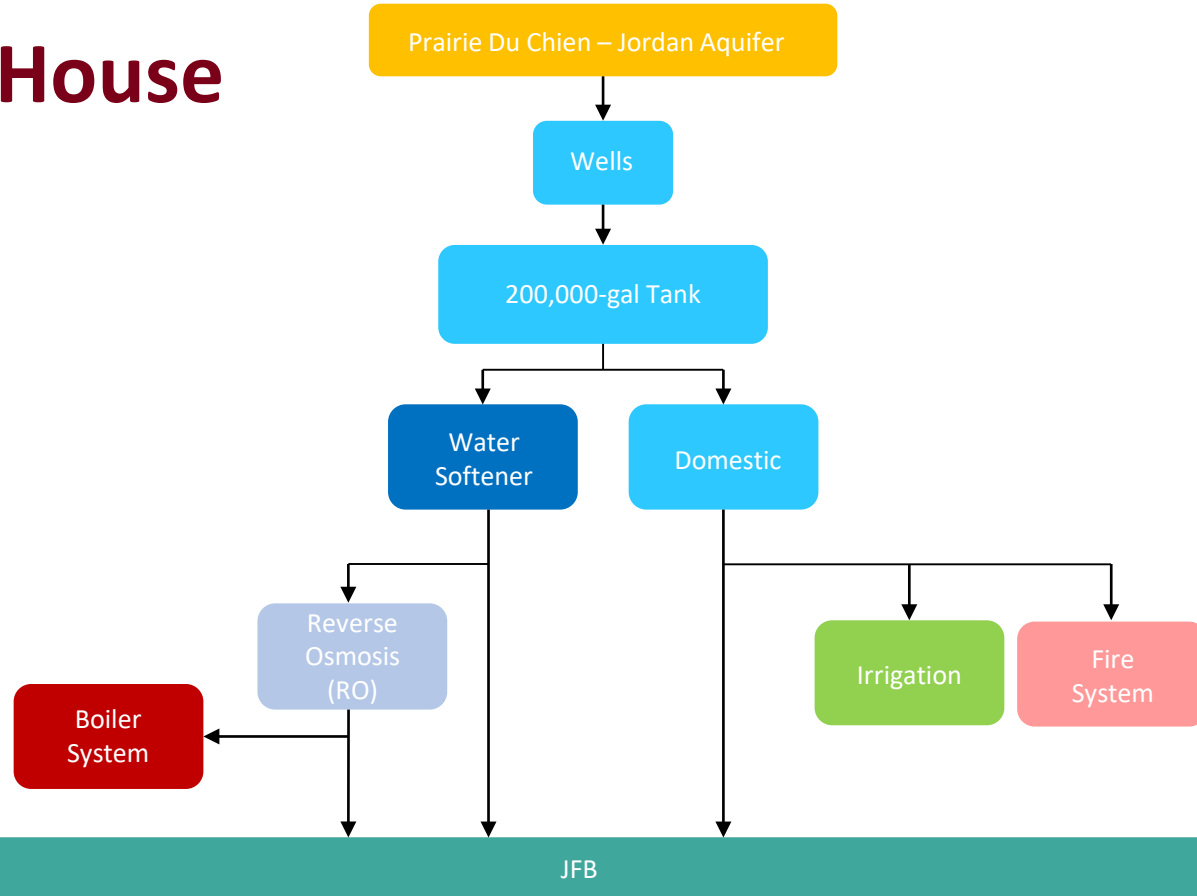
- Examined and quantify water usage from the Boiler House into Pet Area
- Calculated associated costs

- **Blue Buffalo Pilot Plant**

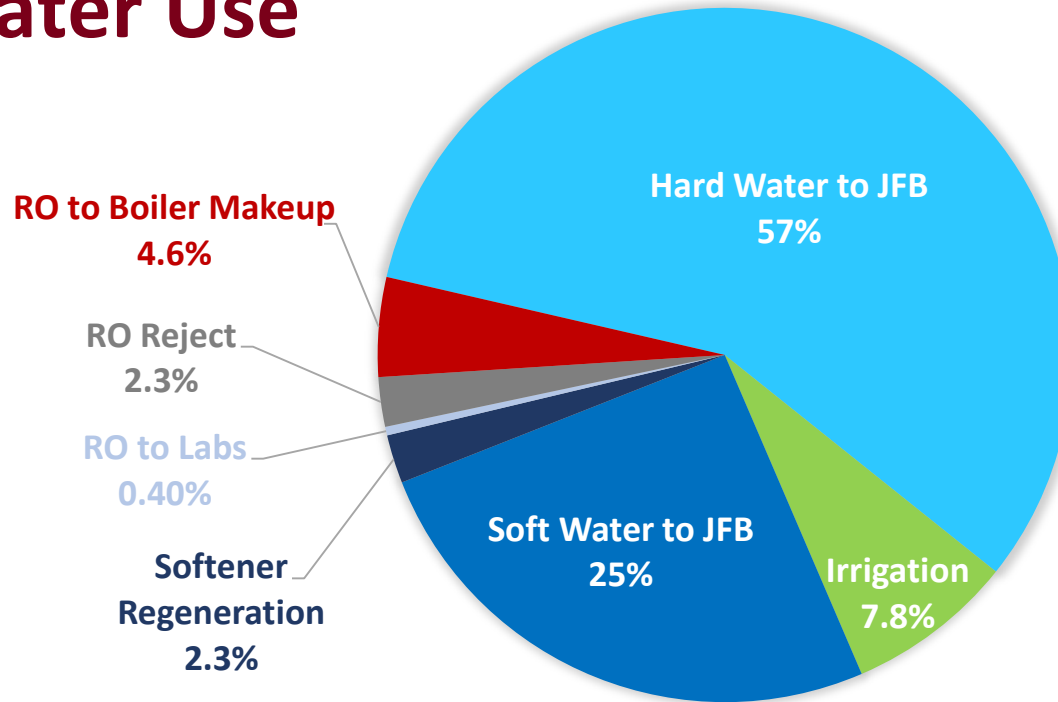
- Small Scale
- New Production Line
- Water Intensive Cleaning



Boiler House

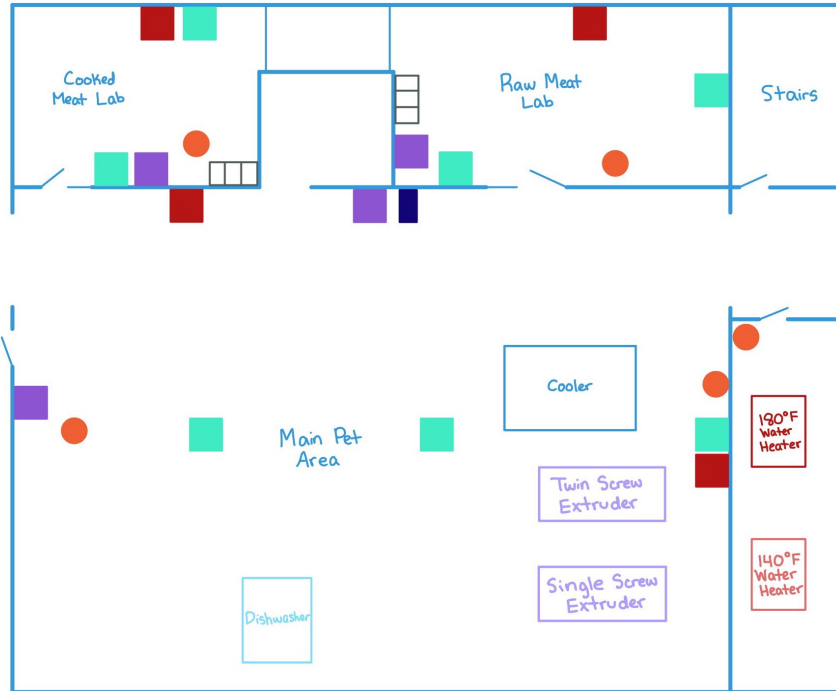


Well Water Use



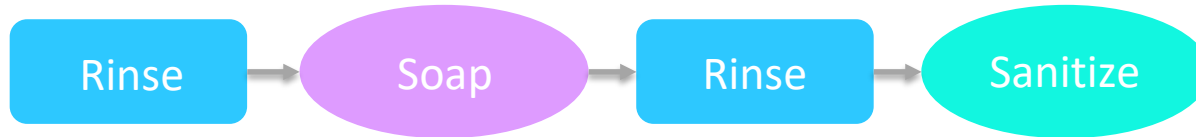
*Based on 2020 well water usage

Blue Buffalo Pilot Plant



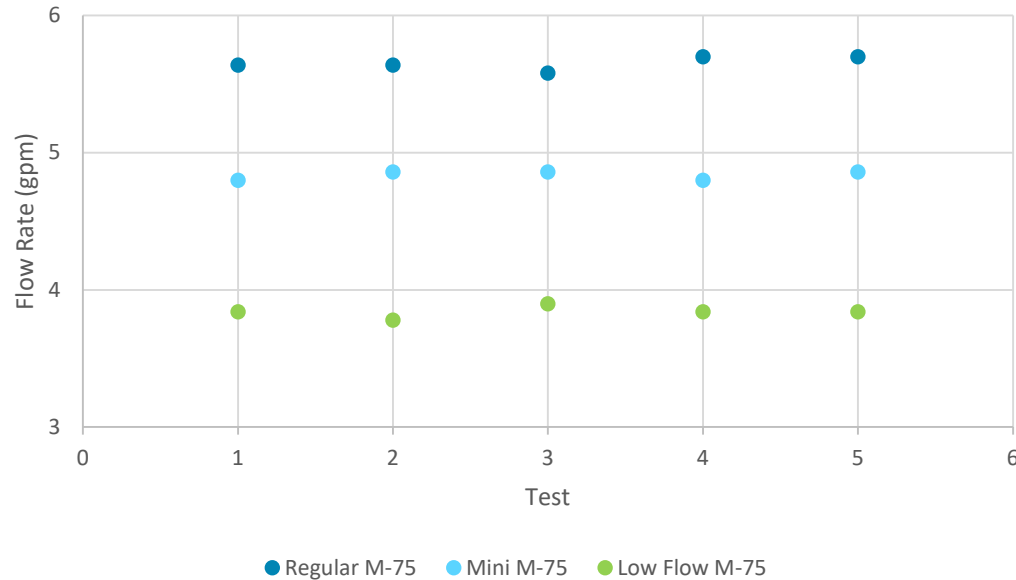
Sanitation

- Primary water use
- Strahman Stations
- Meters



Low Flow Nozzle

Strahman Nozzle Flow Rates



Nozzle	Flow Rate (gpm)
Regular M-75	5.7
Mini M-75	4.8
Low Flow M-75	3.8

Low Flow Nozzle

- 2,500 gallons per week
- 130,000 gallons per year
 - 35,000 – 42,000 gallons of water saved
- 26-32% reduction in water and energy used in sanitation
- Further savings with ozone



https://www.strahmanvalves.com/getmetafile/699d8a6f-2c86-4df8-972e-eaefe1173856/Strahman_0106_M-75-Low-Series-Nozzle-600x600

Water Treatment

- **Softener Regeneration Cycle**

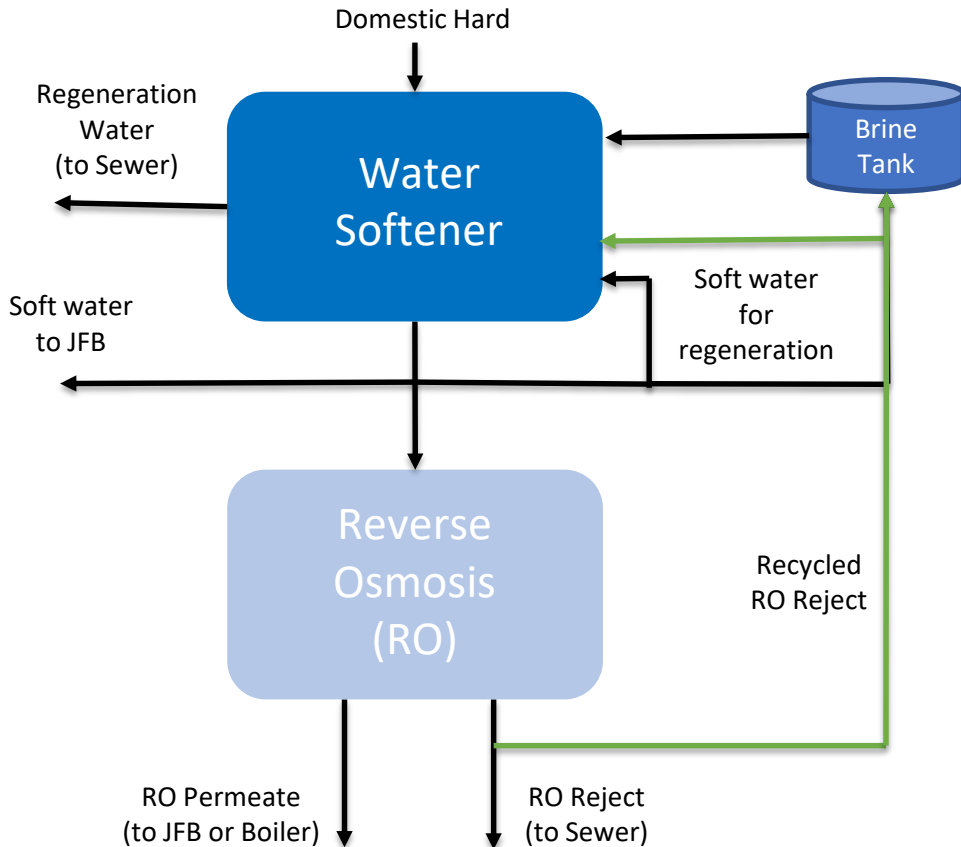
- Backwash
- Brine
- Slow Rinse
- Rapid Rinse

- **68% RO Recovery**

- **600,000 gallons RO Reject**

- 300,000 gallons
- \$3,800*

*Does not include potential salt savings



Solutions

Recommendation	Annual reduction	Total cost	Annual savings	Payback period	Status
Low Flow Nozzles*	38,000 gal 480 therms	\$1,300	\$700	< 2 years	Recommended
RO Reject Recycling	300,000 gal	TBD	\$3,800**	TBD	Recommended
Hand Sink Aerators (1 gpm)*	840 gal 1.8 therms	\$26	\$10	2.5 years	Recommended
Optimized Free Chlorine Testing	8,100 gal	\$0	\$110	-none-	Implemented
Toilet Replacement	640,000 gal	\$51,000	\$4,600	11 years	Recommended
Stormwater Collection	1,600,000 gal	Unknown	\$3,000	Unknown	Future Opportunity
Ozone Sanitation	TBD	TBD	TBD	TBD	Proposed

*Savings for Blue Buffalo Pilot Plant only

**Does not include potential salt savings

Personal Benefits

- Sustainability in the food industry
- Exposure to R&D and pilot plant environment
- Independence and leadership
- Comfortable reaching out to people

