



# Spiral Freezers: Their Design, Cleaning, and Treatment

March 3, 2020





# Who Am I and Why Am I Here?



**David Vallina**  
**Sanitation Program**  
**Manager**

- Responsible for development and implementation of sanitation best practices, education, and training for 21+ facilities in the US and Canada.
- Manage the plant sanitation audit process, along with the compliance to standards by the 3<sup>rd</sup> party chemical and pest elimination vendors.
- Work closely with the Operations and Engineering groups, setting guidance standards for hygienic design of equipment and facilities. Also work with OEMs to provide systems that meet Rich standards.
- Over 45 years of food safety and sanitation experience, having worked for large and small companies, and with a variety of product types, including low-acid canning, aseptic, snacks, PNB, RTE, and frozen foods.





# CLEAN MACHINE TEAM

- Donuts
- Cheesecakes
- Ice Cream desserts
- Sheet cakes
- ND Whipped topping
- Icings, fillings, mixes
- Frozen dough
- Pizza crusts (incl. veggie crusts)
- BBQ
- Meatballs
- Fish and shrimp products
- Cookies
- Cheese sticks
- Gluten Free & Organic



Juan Ruiz  
Production Shift Leader  
Union City, CA



Ted Norwood  
Sanitation Manager  
Fresno, CA



Martin Perez  
Sanitation Manager  
Santa Fe Springs, CA



Vella Gregg  
Sanitation Manager  
Santa Ana, CA

## CORPORATE SUPPORT TEAM



Dave Vallina  
Sanitation Program  
Manager  
WHQ



AJ Bogan  
Sanitation Audit  
Manager  
WHQ



Bobbi Berger  
QA Team Leader  
Eagan, MN



Jan Jarocha  
Sanitation Manager  
Crest Hill, IL



Tom Foss  
Sanitation Manager  
Niles, IL



Mario Stranges  
Continuous Improvement  
Manager  
Ft. Erie, ON



Kerry Hart  
Sanitation Manager  
Hilliard, OH



Chris Worcester  
Sanitation Manager  
New Britain, CT

OPEN

Sanitation Manager  
Vineland, NJ



Glenn Pervatt  
Sanitation Shift Leader  
Gallatin, TN



Margaret Livesay  
Sanitation Manager  
Morristown, TN



Joe Adkins  
Sanitation Manager  
Fountain Inn, SC



Dan Huerta  
Sanitation Team Leader  
Brownsville, TX



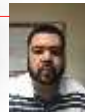
Miguel Padilla  
Sanitation Manager  
Missouri City, TX



Darrel Patterson  
Sanitation Manager  
Arlington, TN



Chris Ellison  
Sanitation Manager  
Murfreesboro, TN



Jamal Morris  
Sanitation Manager  
Brunswick, GA

Revised 10-29-2019

Listeria Control Program

Food Safety Resources ▾

Food Safety Partnerships ▾

Education ▾

Training

Research



+ ALL Freezer Management

+ Add to Library



Control Listeria in Freezers

+ Add to Library



Environmental Monitoring of Freezers

+ Add to Library



Freezer Management: Guidelines for Listeria Control

+ Add to Library



Freezer Sanitation Procedure

+ Add to Library



Listeria Control Program Introduction

+ Add to Library



A well-know microbiologist once said this about spirals:

*“A breeding ground for Listeria”*







## Spiral facts

- Rich's has been in business for 75 years, acquiring “legacy” equipment.
- Almost all of our products are frozen.
- We utilize ammonia spiral freezing almost exclusively.
- 30% of these spirals are >25 years old.
- Many require manual cleaning, having been purchased without an ACS or a CIP system.
- Access to all areas inside are a “challenge”.





## HOW DID WE IMPROVE THIS PROCESS?

- Refrigeration Energy Management System (REMS).
- No frost process freezing (desiccant dehumidification).
- Awareness resulted in proper maintenance.
- Improving the work area (humidity and temperature).
- Heat trace in entrance and exit.
- Maintenance and sanitation of freezer entrance and exit areas.















# What Can We Do?



Containment and Monitoring



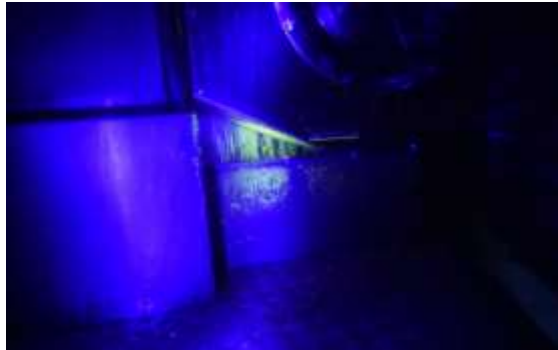
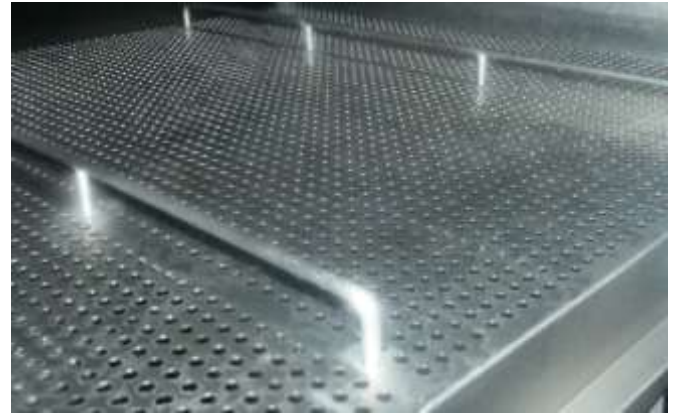
Manual and/or ACS cleaning



Fogging – Quat or Silver Ion



# What Can We Do?







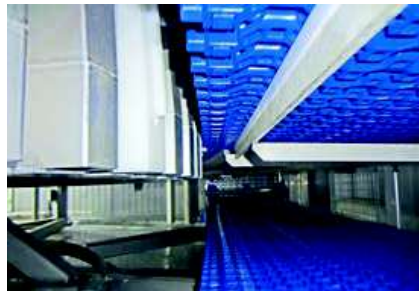
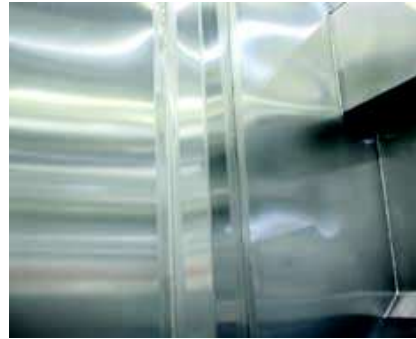
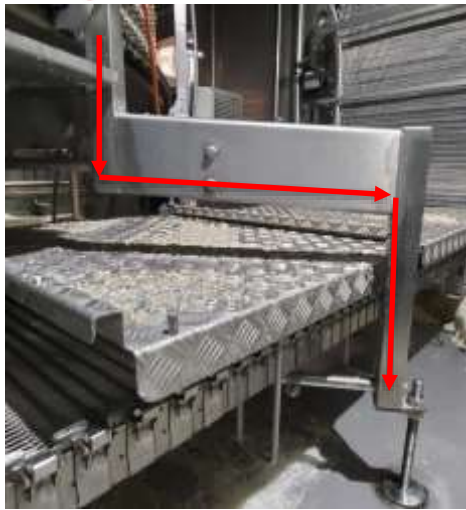
## What Can We Do?

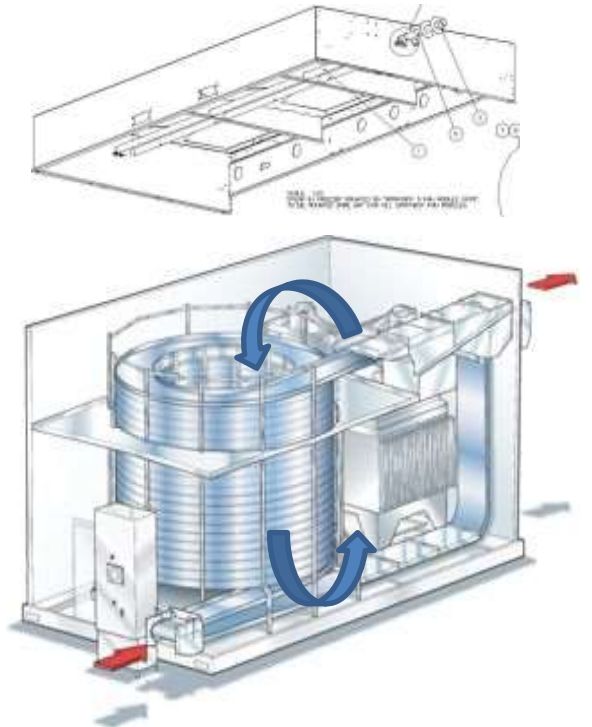
- Optimize spiral performance, maintenance, and repair.
- Interior and exterior design improvements, as practical.
- Continue micro monitoring.
- Enhance cleaning and sanitizing process.
- Validate and verify cleaning processes.

## What Else Can We Do?

- Change our programming to dry the spiral prior to extended downtime.
- Chlorine dioxide
  - Presently used for post-construction and environmental remediation.
  - Needs to be part of a regular program.



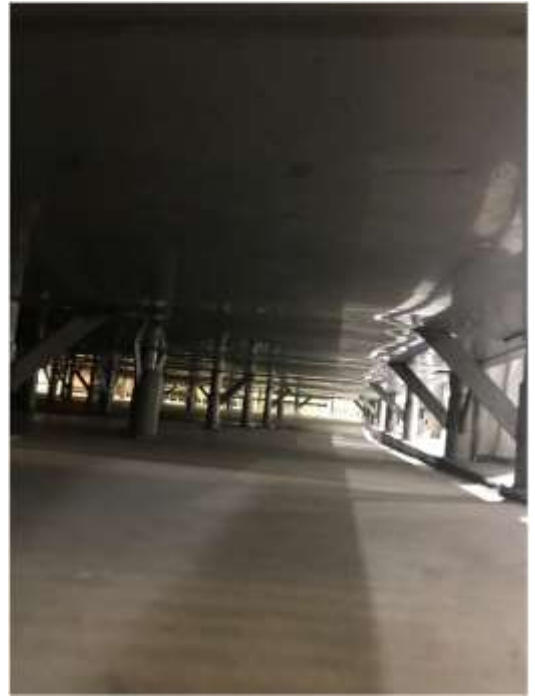




Components Supplied:

- 2" Manifold for injecting steam
- Actuated control valve
- Constant pressure valve
- Temperature Sensors
- Programming
- Suggested piping schematic









In summary:

- Spiral freezers will continue to have the potential to be *breeding grounds for Listeria*

**RICH'S**

