Environmental Monitoring For Listeria, Effectively

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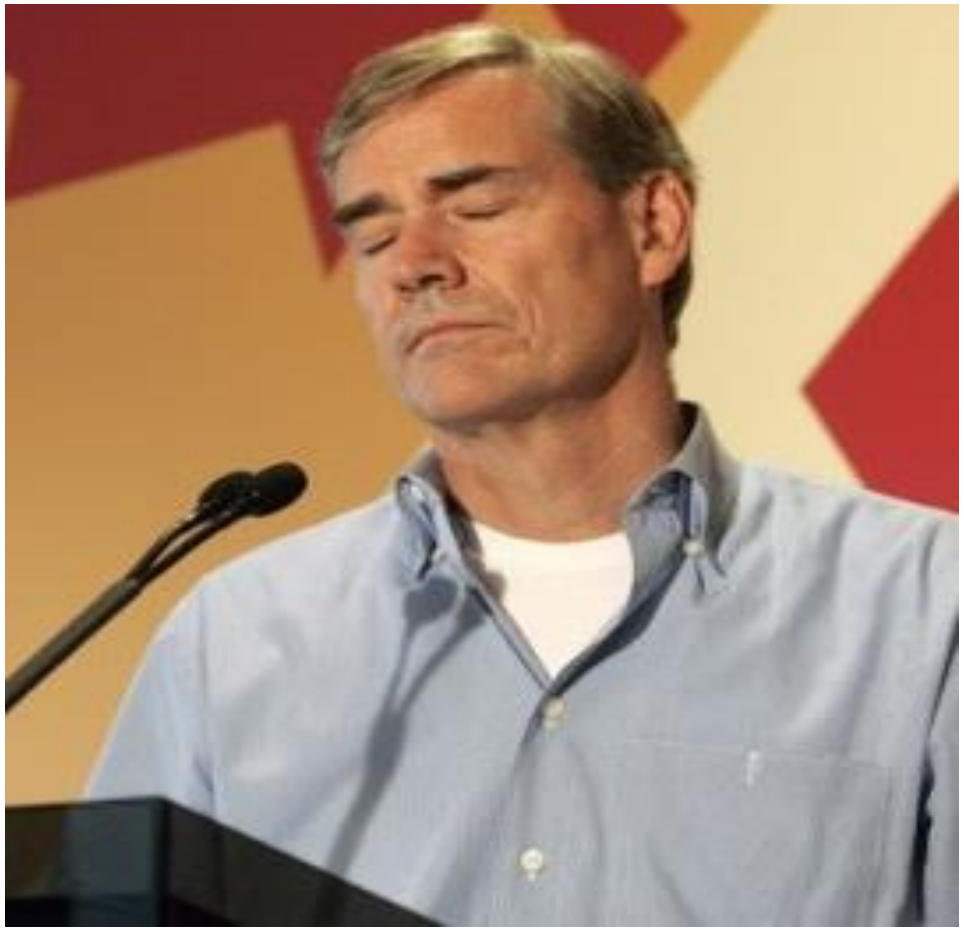
AFCO/ZEP

Purpose of Monitoring the Environment for Listeria

- To know where *L.m.* is present in your facility.
- Find Listeria ASAP and eliminate it before it gets on contact surfaces.
- To determine whether you should sleep at night.



Known Risk: It's Just a Matter of Time

- Recalls due to *L.m.* contamination in finished product have occurred many, many times so it is not a coincidence.

- RTE environments have agreeable conditions for Listeria growth.

- When *L.m.* is not detected, located, and removed from the environment, eventually it **will be** in the Finished Product.

L.m. can catch a ride on:

Ingredients
Pallets
People
Equipment
Packaging materials
Air
Water

Environmental Monitoring Programs

- ✓Have an EMP.
- ✓Taking samples for *Listeria monocytogenes (L.m.)*
- ✓Program is fine.
- ✓Test for two years and not one positive!!
- ✓Not encouraged to find it.

- ✓If you want 0 positives, we can give you 0 positives.
- ✓**Remember: 0 positives does not mean 0 *L.m.***

Recalls in 2017-18 Due to Listeria Contamination

- Pumpkin seeds
- Raw pet food
- Pimento cheese spread
- Hummus
- Frozen vegetables
- French bread and waffles
- Egg salad and ham sandwiches
- RTE ground beef
- Ice cream / Cookie Dough
- RTE meatballs
- RTE chicken skewer items
- Frozen biscuit dough
- RTE ham products
- RTE sliced deli meat
- Frozen RTE chicken

Firms Discovered Their Product was Contaminated with Listeria:

- FDA tested 27 swabs in processing environment that were positive. Then sampled 18 more environmental samples near food handling equipment and found more positives.

- FDA got positives in their environmental samples and then found positives in the finished product.

- Random testing from retail markets by the Ohio and NC Dept. of Agriculture.

Discovery…

- FSIS Canadian import inspector discovered contamination while inspecting incoming US shipments.
- During a Food Safety Assessment by FSIS.
- FDA found it in copacker product and facility.
- Plant employee notified FSIS that their product could be contaminated due to a recurring Listeria spp. issue in facility.

Discovery Continues…

- Notified by supplier that product was contaminated due to results from supplier's Environmental Monitoring program.

- Firm discovered through routine *L.m.* testing program, but did not put product on hold during testing.

Three Ways to Check for Listeria in Product

1. Check the finished product.

2. Check Zone 1 Contact Surfaces.

3. Check the environment in which finished product is produced.

1. Finished Product

- Literally test product and place on hold
- Do a single lot – product produced between cleanup to cleanup
- Do periodically
- Sample for ***Listeria monocytogenes***.
- This is a verification of all processes in places to prevent, minimize, and eradicate *L.m.* from the environment and RTE food.

- However, *L.m.* is not spread uniformly throughout product.

2. Zone 1 Contact Surfaces

- Test equipment after sanitation but before application of sanitizer. Good results from this method. But, the reality of results depends on how well you sample the equipment.

- Test equipment during production and place product on hold. If inside equipment and you cannot reach the Listeria, then, you may detect it after equipment runs for a couple of hours.

3. Monitor the Environment

- Most proactive method.

- Provides plant with ability to see the true picture of Listeria presence prior to finding or not finding it in Finished product.
- Test and not have to put product on hold.

- Allows time to search for the niche and take Corrective Action.

What is the Environment?

- Floor, walls, ceiling, drain, carts, equipment, door frame, gasket, support structure, framework, catch pans, behind sinks, along the curbing, rollup doors, flap doors, jacks, inside electrical boxes, inside label cabinets, inside duct work, tools, compressed air…..

- ***Everything in that processing space that does not touch product***

Environmental Zones for Testing

Zone Key	Examples of locations
1= Direct Contact	Conveyor belts, baggers, slicers, pumps, valves, gaskets, filling eq.
2=Indirect contact	Framework, motor housing, conveyor sprockets, drip pans, hollow rollers
3= Non-contact	Floors, walls, drains, jack wheels, HVAC screens, inside control panels
4=Auxiliary	Welfare room floors and drains, raw product areas, hallways

Signs of Poor Monitoring Program

- **Inadequate due-diligence on your Supplier**
  - No environmental sponges, swabs, Pre-Op inspections, and no observations of sanitation process
  - No routine verification of supplied product (Trust but Verify)!!
- Supplier did not find *L.m*. in environment before it got onto product.
- **State and federal inspectors** readily picked up *L.m.* but plant monitoring did not.
- Firm admits to Listeria issues, **continues to run, and ship** without testing food contact surfaces or finished product.

Requirements for an Effective EMP

1. Management commitment.
2. Effective facility, environmental, and equipment maintenance program.
3. Sanitary-designed equipment.
4. Effective sanitation program.
5. Smart Listeria sampling plan.
6. Analyze, chart and trend data.
7. Be proactive and react urgently.

1. Management Commitment

- Employee Training provided on how to do the task.
- Appropriate tools are available.
- Adequate number of employees to return the facility, environment, and equipment to a hygienic condition each day.
- Adequate downtime given to the Sanitation crew to return facility to the hygienic state.

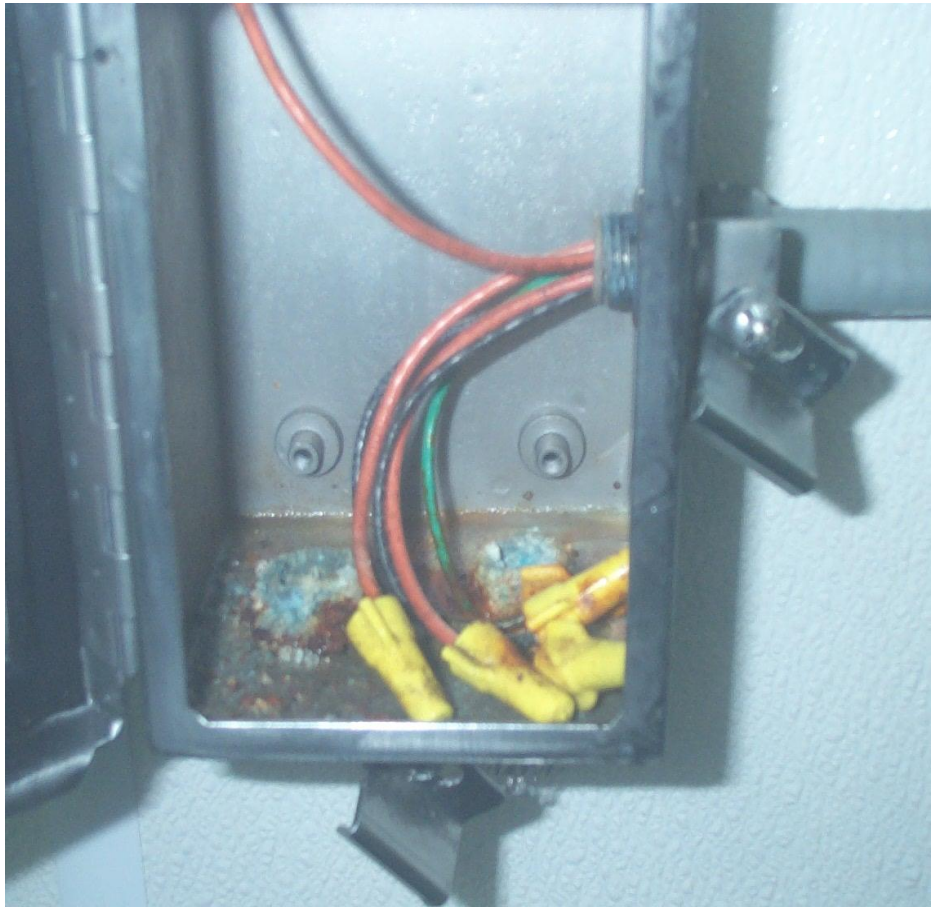
1. Management Commitment

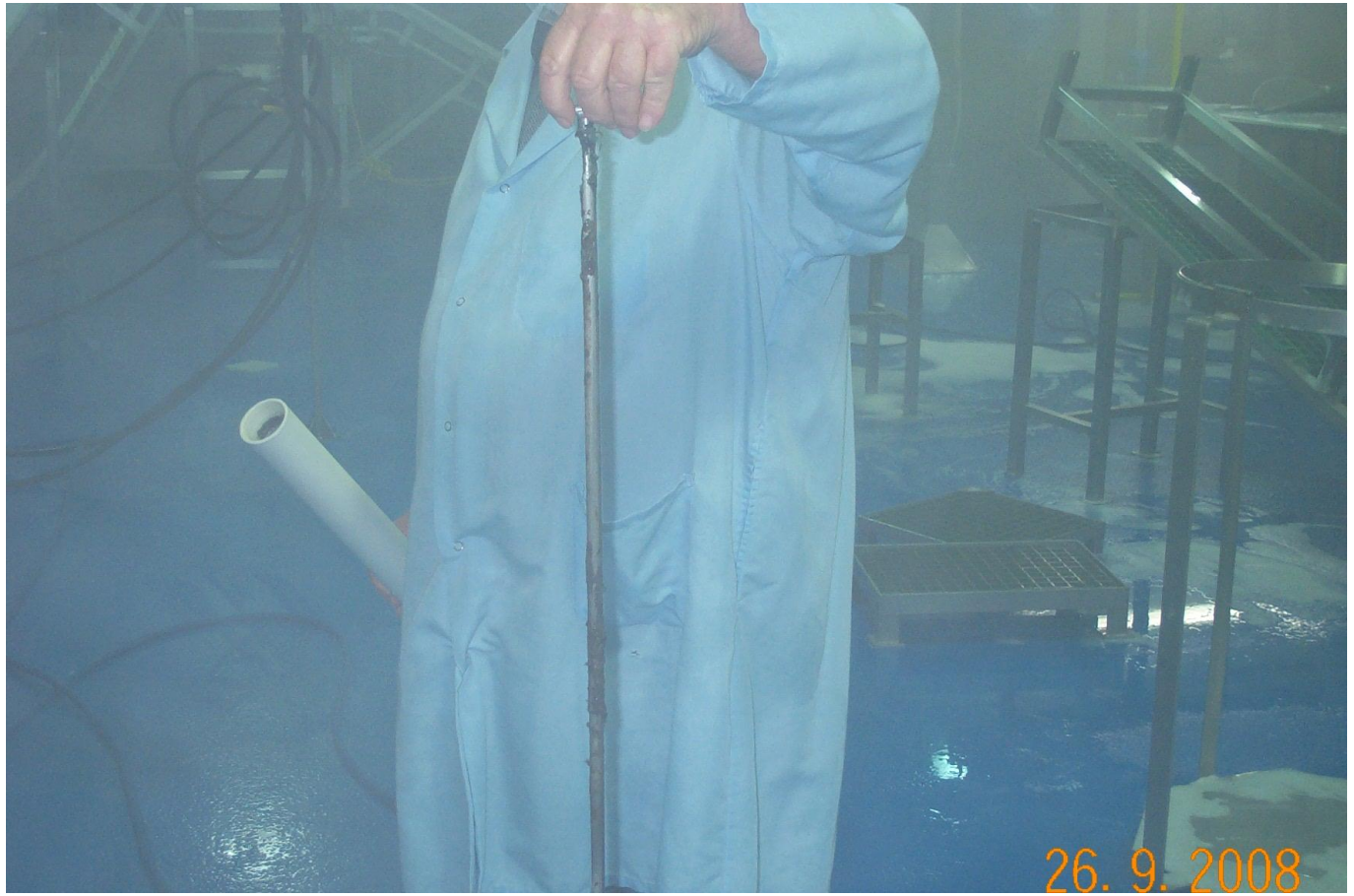
- Production downtime to allow cleaning of Other-than-daily equipment and areas – Master Sanitation Schedule (MSS).
- Directed to diligently search for Listeria.
- Approval to take appropriate action on every positive and find the source of contamination.

View During Sanitation

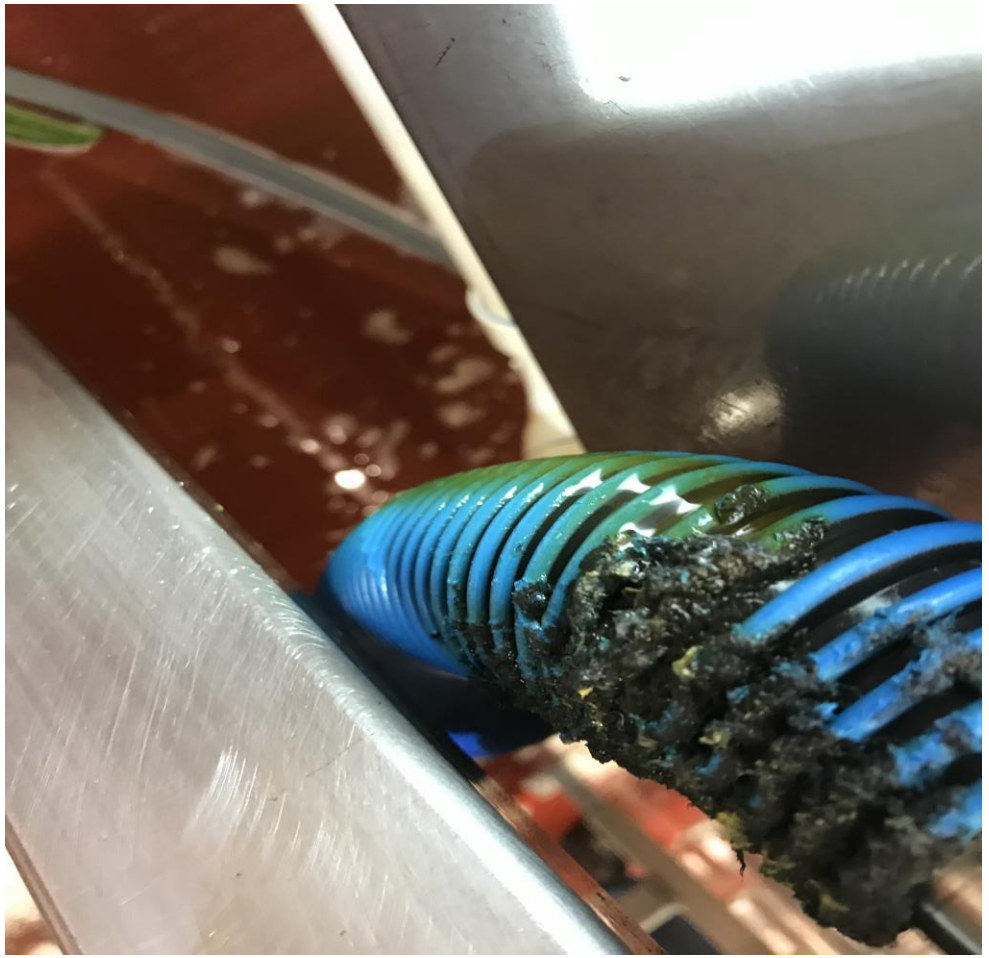
2. Facility, Environmental and Equipment Maintenance

- 11.2.1 – Maintenance of premise and equipment

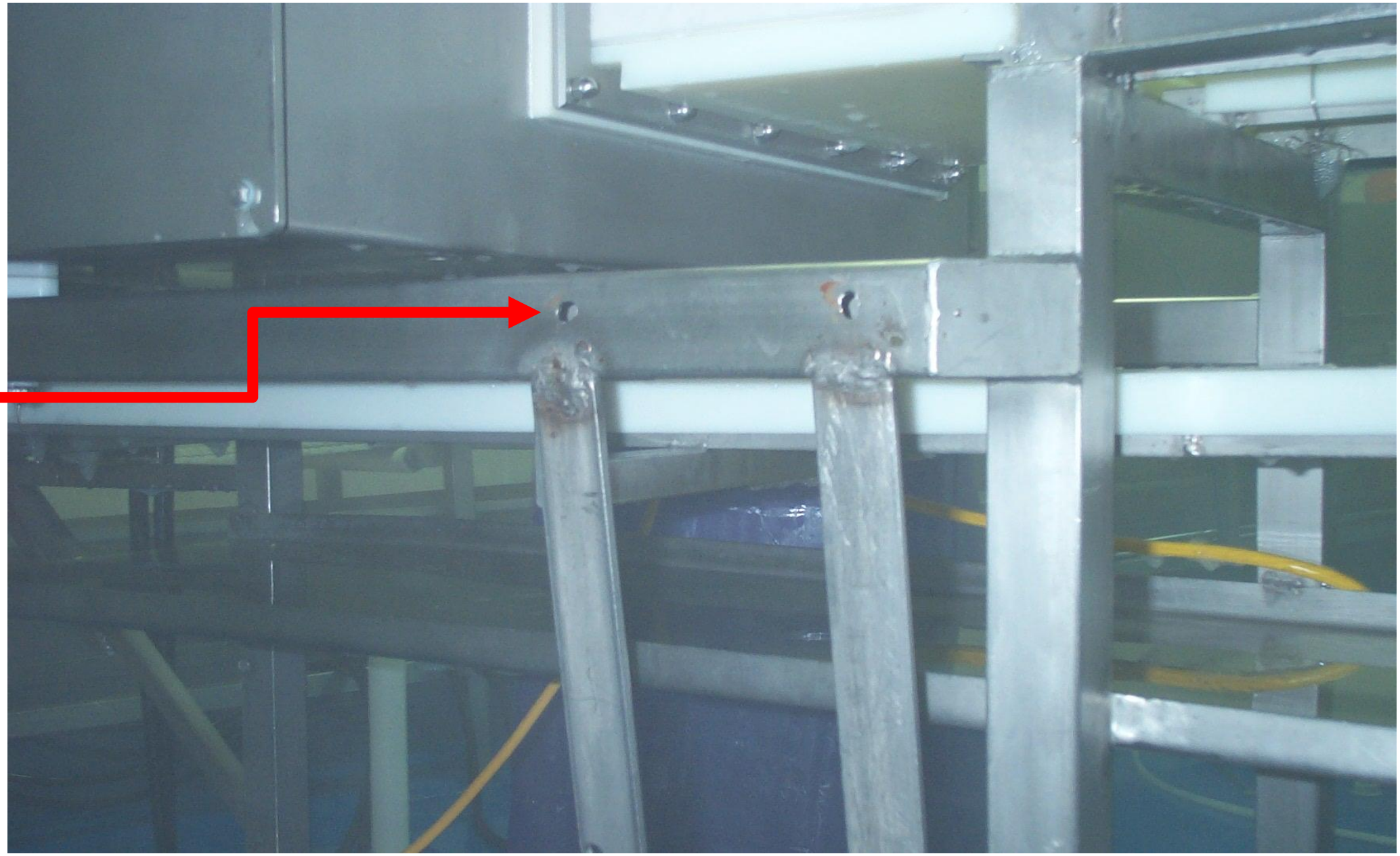




Facility Maintenance – 1st Line of Defense



Holes in framework of metal detector



3. Unsanitary Designed Equipment

- Slicers
- Accumulation table
- Drake hot dog sorter
- Hot dog peeler
- Skinners
- Frigo freezers
- Eagle scales

3. Sanitary Designed Equipment

- Easy to Disassemble
- Waterproof
- Cleaned in a timely manner

4. Effective Sanitation Program

- Sanitation manager is on the floor during sanitation – **Critical**.
- Sanitation manager understands that Food Safety and Shelf Life are directly impacted by Sanitation Quality.
- Sanitation manager comes to work “ON” every day with the intention to make it look like Day 1 of a brand new plant.

- Adequate number of employees
- Adequate number of supervisors

4. Dedicated Sanitation Crew

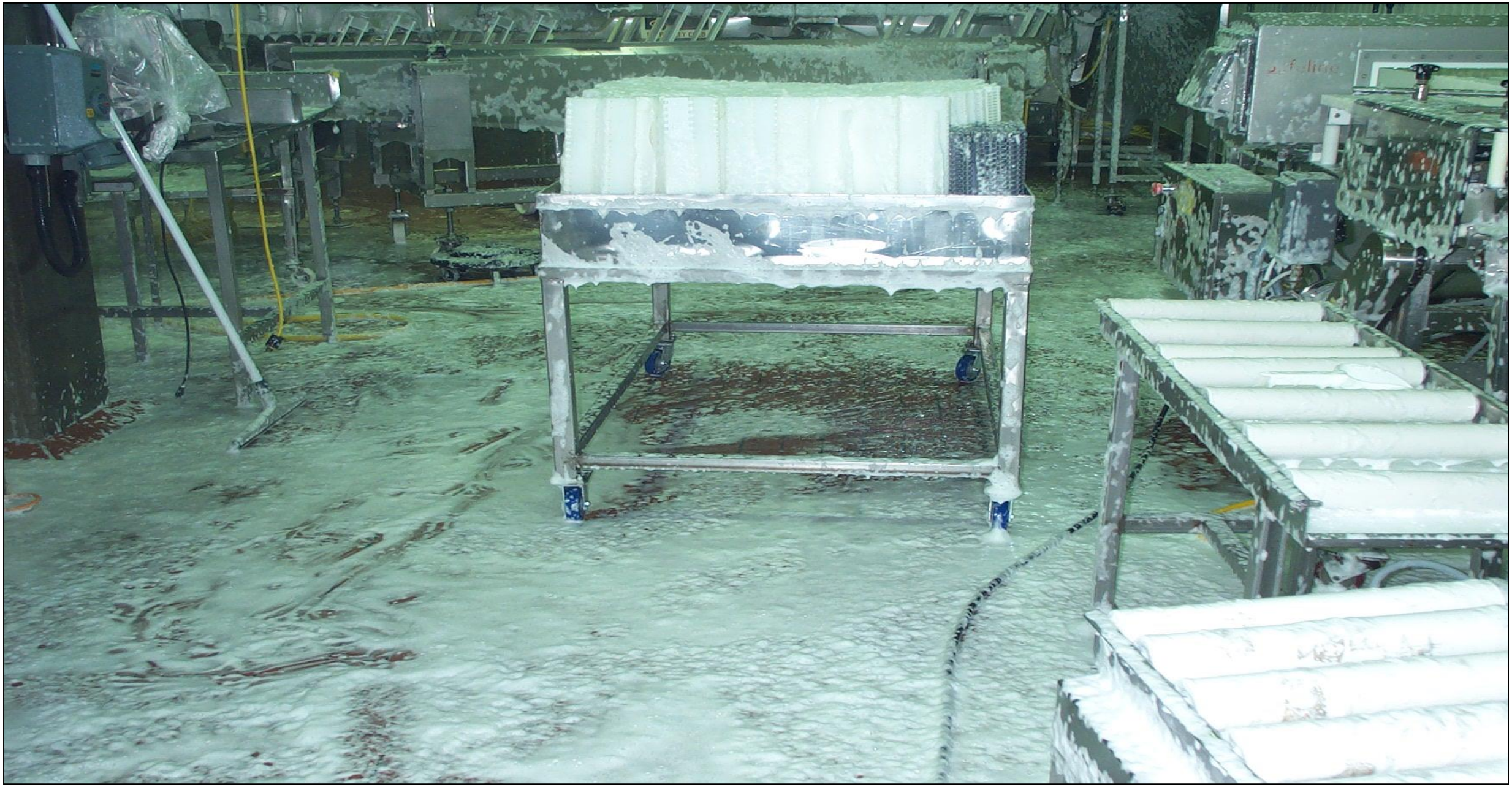
- Trained in Food Safety, Micro, Sanitation techniques, Listeria.
- Understand that sanitary equipment means safe food, longer shelf life, and more opportunities for company.

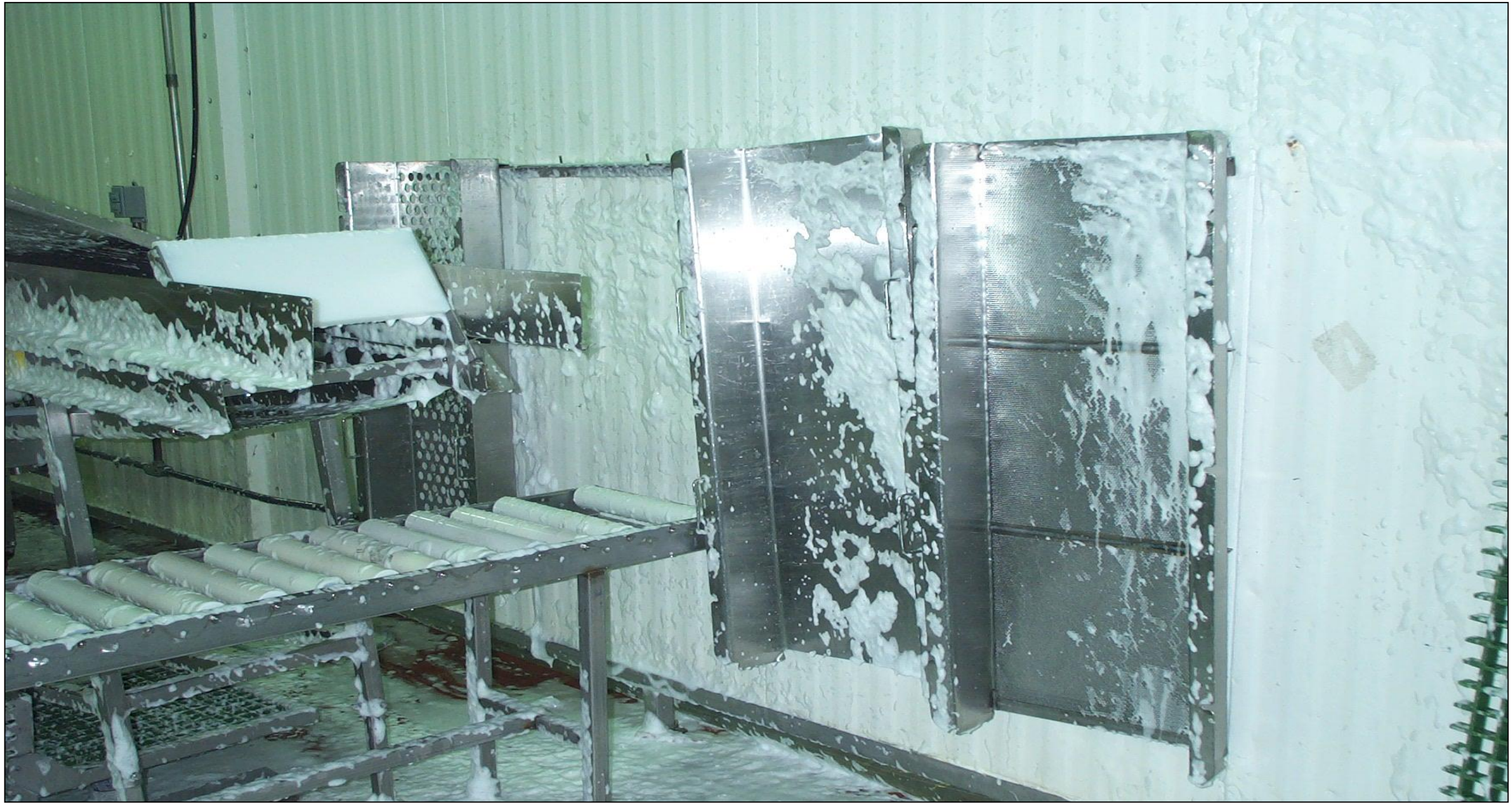
- **NO ONE** contributes more to producing safe and clean food.

- Pre-Op with **flashlights**

4. Validated Sanitation Process

1. Dry Pickup.
2. Adequate equipment disassembly.
3. First rinse top down.
4. Push floor and get all remaining food scraps, trash off floor and out of area. Clean out drains.
5. Apply foam detergent with complete coverage. Let dwell/**never dry.**
6. Start scrubbing. Do we have to???
7. Do 2nd Rinse from top down.
8. Inspect and correct any discrepancies.
9. Sanitize with complete coverage.





Sanitizing application

4. Verify Sanitizer Application

- Completely cover all surfaces of RTE areas and equipment.

- Trust but Verify:
  - Concentration
  - Coverage
  - Presence

4. Stick to the Master Sanitation Schedule

4. Listeria ***is*** a Sanitation Issue. . .

- Not cleaning thoroughly.
- Can’t breakdown equipment to get to the *L.m.*
- Pre-Op inspections may not be taken seriously.
- Ignoring non-contact surfaces due to time constraints.
- Not adhering to the Master Sanitation Schedule due to production or maintenance scheduling.

5. Smart Listeria Sampling Plan

- **Goal: To find *L.m.* before anyone else and before it is transferred to Zone 1 food contact surfaces.**

- **QA Sampler is Critical!!**
- Must be smart, educated about Listeria and growth conditions.
- With authority to sample where growth conditions are present.
  - Justify every sample site.

5. Smart Sampling Plan

- Understand that drains are indicators.
- Find a positive, don’t assume it’s a GMP issue.

- Always look for the source.
- Investigate the food contact surfaces.
- Sample where a niche is possible.

5. Smart Sampling

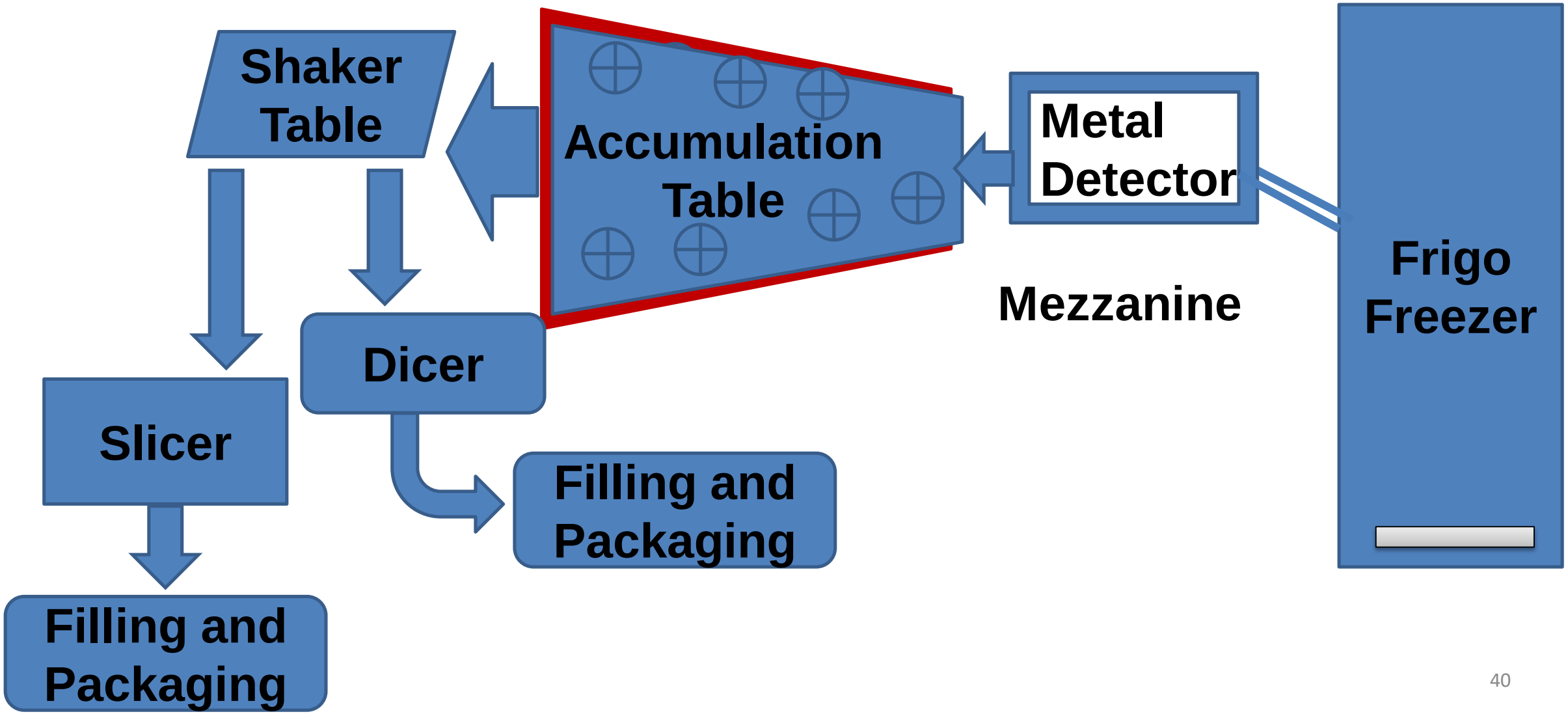
- Use sponges most of time – all edges and sides.
- **Forget the 12” x 12” rule.**
- Touch sponge to as much area and parts as you can.
- Always take picture or note where you sampled.
- Sample after equipment has been cleaned but before sanitizer.
- **Number of samples - ? Location, Location, Location!!!**
- Data will provide direction for testing.
- **Random sampling is not effective.**

6. Tracking and Trending Data

- Need two sets of facility floor plans laid out in zones.
  - 1. Historical positives and eliminated hot spots.
  - 2. Current positive and negative locations and dates.

- Break floor plan into areas and chart each area.
- Constantly analyze the Listeria sampling plan and data.
- Report trends.

6. Tracking, Trending, and Wrong Conclusions



7. Response Time and Attitude

- When positive locations are detected, inform Sanitation manager immediately.
- Begin searching for the contamination ASAP.
- Look up and under equipment. Use flashlight.
- Focus on the surrounding equipment.
- Notice water flow patterns.
- Take additional focused samples to help guide to *L.m.* source.

Summary

- Get the most out of your samples. Location vs. Number.
- Check equipment with a history of contamination.
- Always check drains thoroughly.
- Take **ACTION** on **all** positives.
- Have the smartest, most knowledgeable person on staff taking samples.
- Make sure Sanitation Manager is present, involved, and “ON.”
- Analyze and report the data.

Conclusion

- An effective EMP is a continual battle to be fought.
- Results will provide a **true picture** of the amount of Listeria and its locations in your facility.
- An effective program locates the Listeria before it is transferred to contact surfaces and
- Provides true confidence that product is safe allowing peaceful sleep.

Thank You

Questions? Comments?