Sanitation

Alternative 3

1

How does *Lm* get into plants and RTE food products?

- Because *Lm* is everywhere in the environment it can easily enter the processing plants (transported by humans, equipment, vehicles, shoes, etc.)
- Once inside a processing plant (typically cold and wet environment), *Lm* can establish itself and persist for long periods of time

2

FSIS *Listeria* Risk Assessment

- ***Listeria*** **positive food contact surfaces result in increased likelihood of RTE products positive for *Lm.***
- **Combinations of interventions were shown more effective at reducing potential contamination of RTE products with *Lm* than a single intervention**

3

Post-Lethality Environment

- ***Lm*** **can continually be re-introduced into the plant environment**
- **When present in the plant environment *Lm* can eventually lead to contamination of food contact surfaces and RTE product**

4

Why have Testing in your Sanitation Program?

- ***Required*** **for plants that choose Alternative 3**
- ***Required*** **for plants that choose Alternative 2 and choose to use only an antimicrobial agent or process that suppresses or limits the growth of *Lm***
- **Verify sanitary condition(s)**
  - **Essential to continually assess a plant's *Lm* controls**
  - **Identify problems and *Lm* contamination sources that would otherwise go undetected**

5

Alternative 3 (and 2)

- **Establishment sanitation program must:**

A. **Test food contact surfaces in post-lethality processing environment**
B. **Identify the conditions to start hold-and-test procedures following positive test of food-contact surface for *Lm* or indicator organism**
C. **State testing frequency**
D. **Identify size and location of sample sites**
E. **Explain why testing frequency is sufficient to ensure effective control of *Lm* or indicator organisms**

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Alternative 3 only

- Deli product or hotdog product additionally:

A. Verify corrective action after positive test of a post-lethality contact surface
   - Follow-up testing to ensure effectiveness

B. If follow-up testing results in a second positive, establishment must hold lots until corrected

C. Sample and test with statistical confidence level before product can enter into commerce or rework held product

7

Harborage Site or Niches

- The location in the food processing environment where microorganisms can live and multiply.
- A place where they can hide, spread, and contaminate equipment/product.
- Niches may contain spoilage organisms and/or pathogens.
- Microbiological testing is necessary to detect the niche.

8

Biofilm

- A bacterial film that is attached to a surface and protects the organism.
- Biofilms make sanitizers less effective.
- Biofilms can occur on surfaces such as metal, flooring materials, rubber, fabric, wood that are infrequently or inadequately cleaned.

9

Testing Program

- Food Contact
  - Equipment
  - Workers
  - Packaging
- Non-Food Contact Surfaces
  - Environment
- Other Factors

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Sanitation

Workshop Discussion

Refer to Handout

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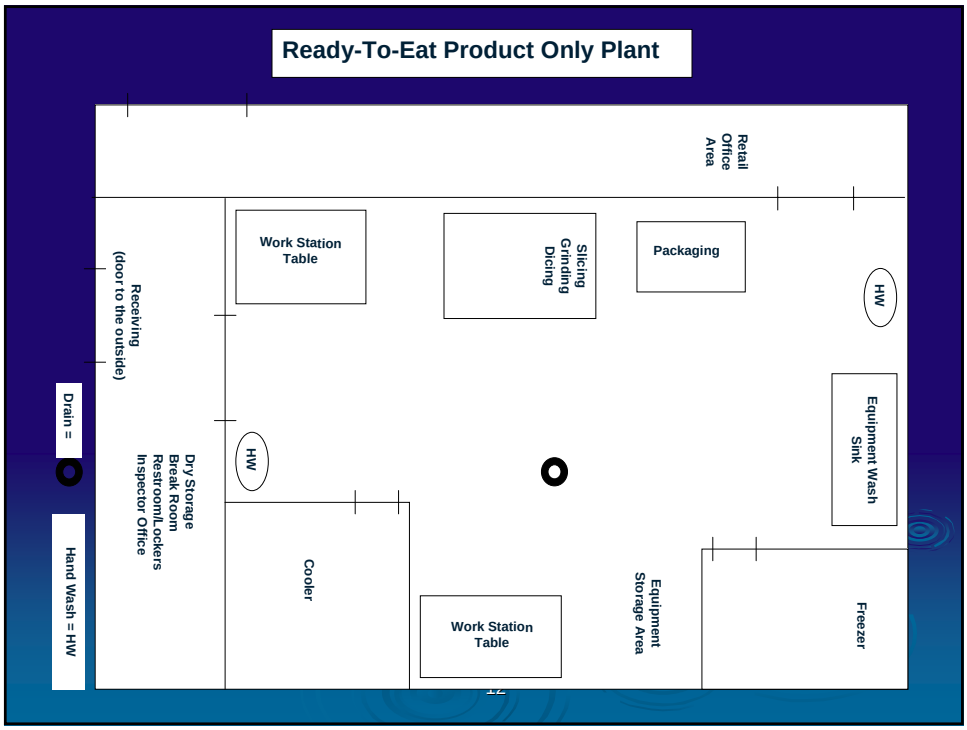

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Color Codes

- GREEN = People traffic pattern
- BLUE = RTE Product flow
- ORANGE = Raw Product flow
- PINK = Inedible / Trash flow
- RED = Food Contact Sampling Sites
- TAN = NON CONTACT Environmental Sampling Sites

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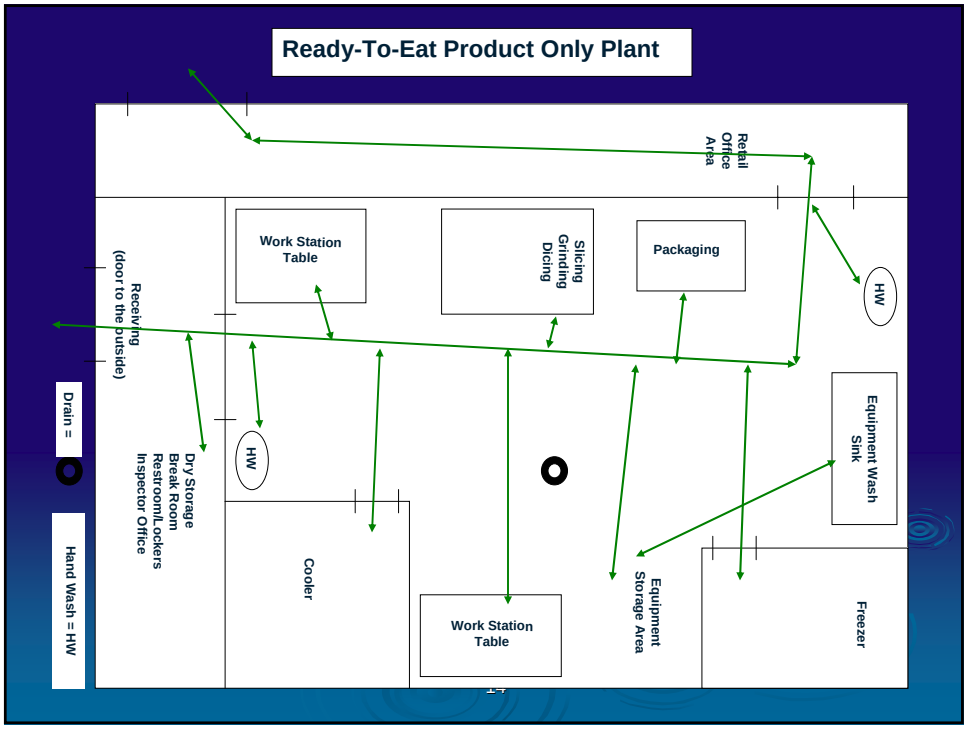
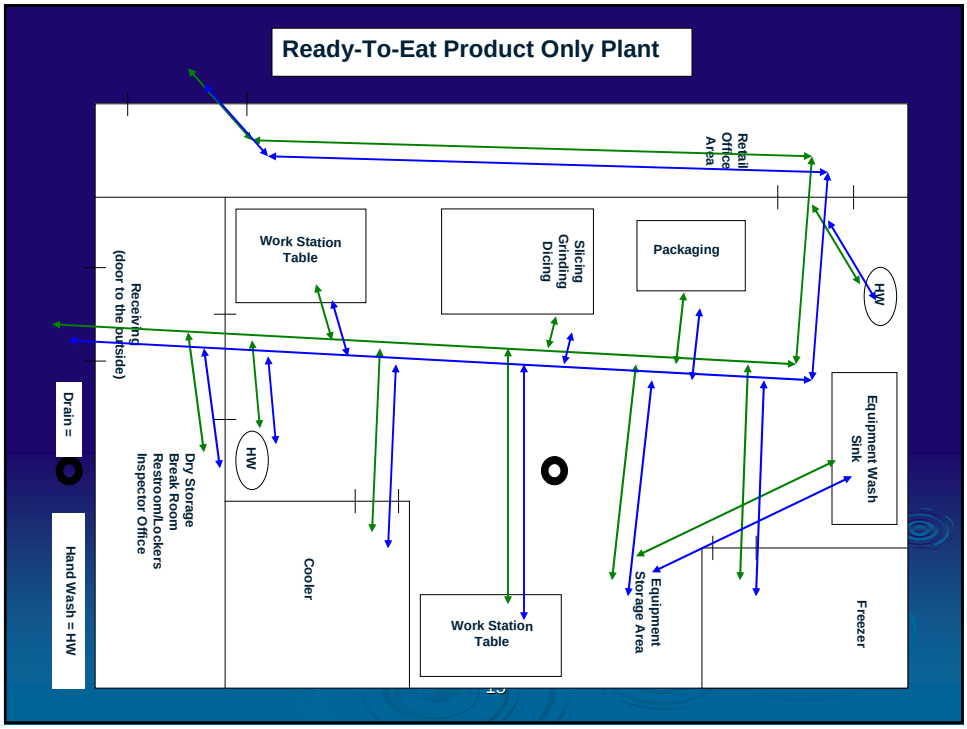
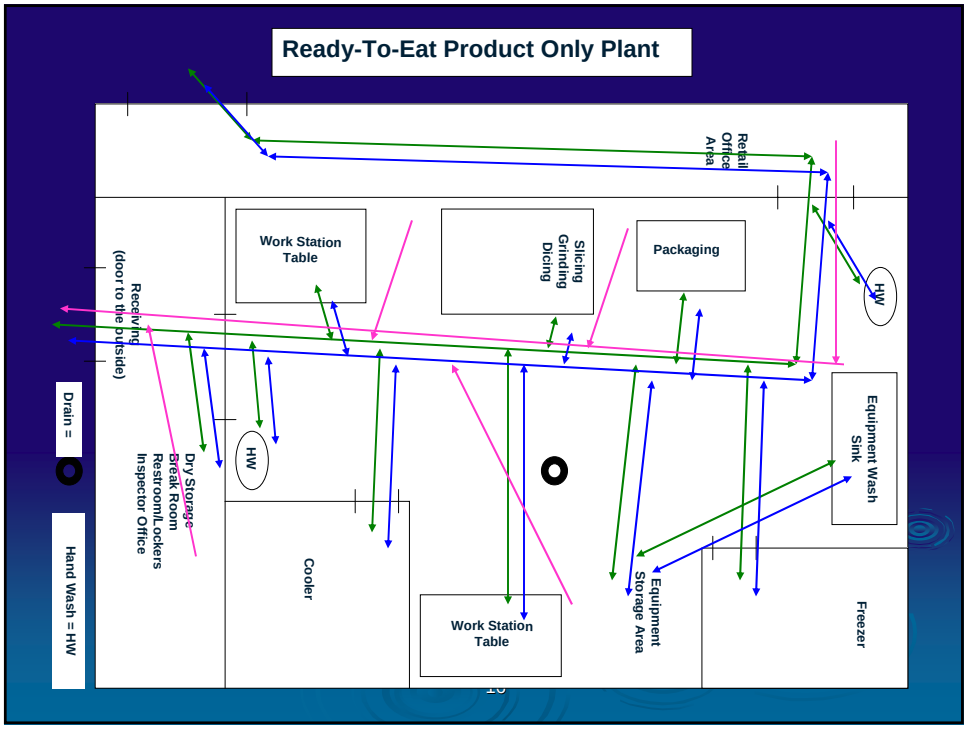



Ready-To-Eat Product Only Plant
Retail Office Area
Work Station Table
Slicing Grinding Dicing
Packaging
HW
Receiving (door to the outside)
Drain =
Dry Storage Break Room Restroom/Lockers Inspector Office
HW
Equipment Wash Sink
Cooler
Work Station Table
Equipment Storage Area
Freezer
Hand Wash = HW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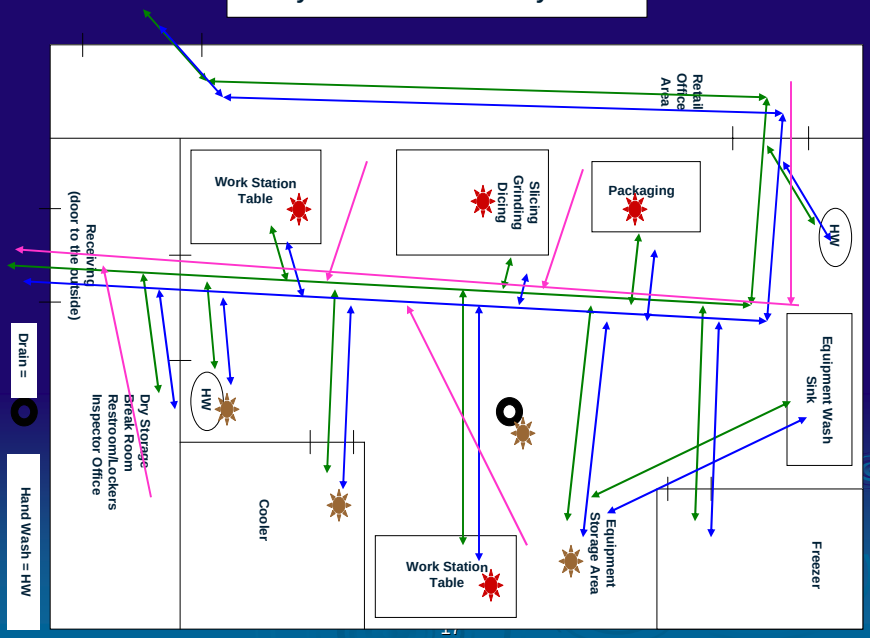

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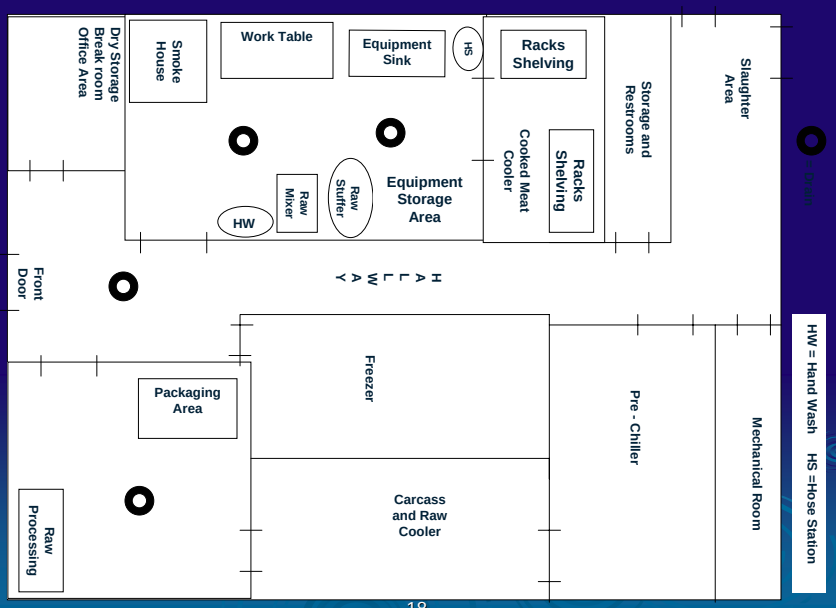
Raw and Ready to Eat Plant Layout - Example



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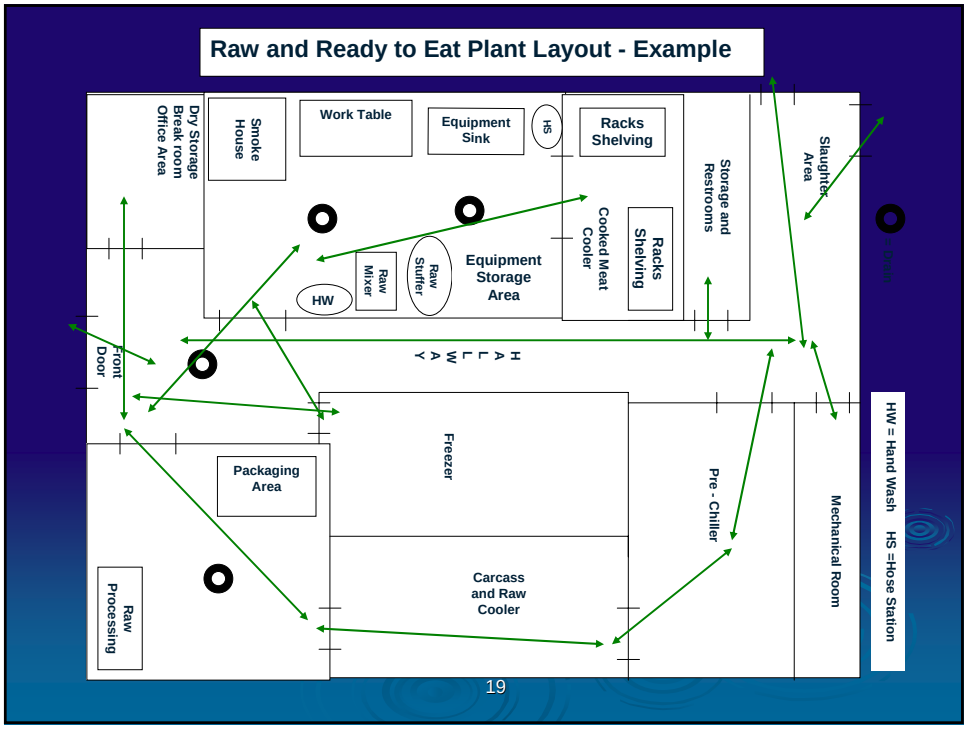
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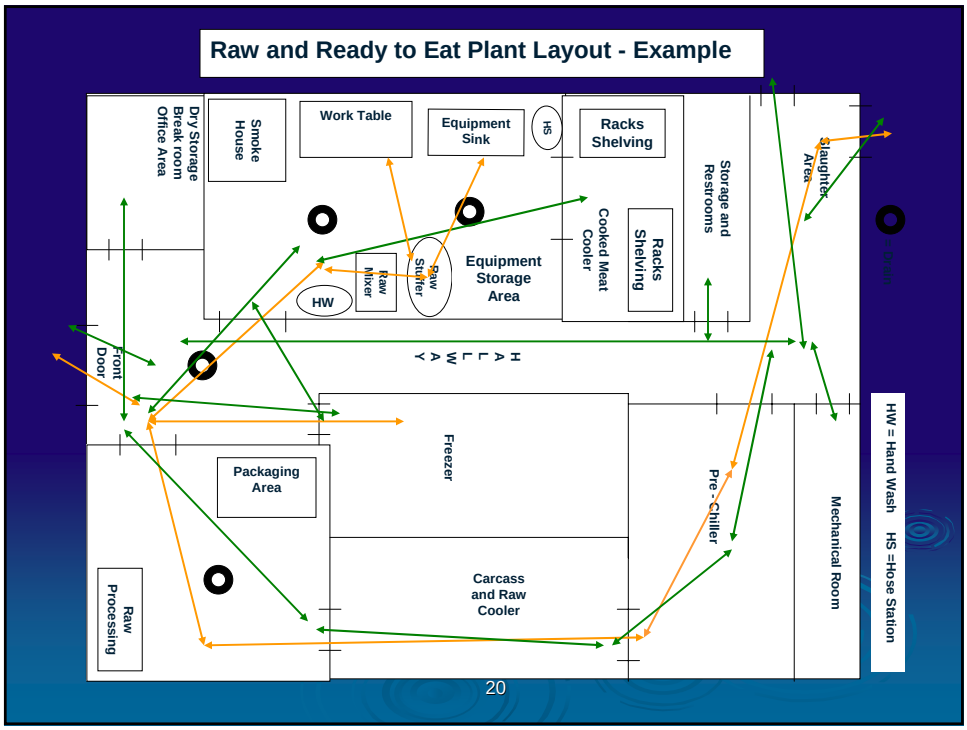
Smoke House
Work Table
Equipment Sink
HS
Racks Shelving
Storage and Restrooms
Slaughter Area
Drain
Cooked Meat Cooler
Racks Shelving
Raw Mixer
Raw Stuffer
Equipment Storage Area
HW
HALLWAY
Front Door
Freezer
Packaging Area
Pre - Chiller
Mechanical Room
Raw Processing
Carcass and Raw Cooler
HW = Hand Wash HS =Hose Station
19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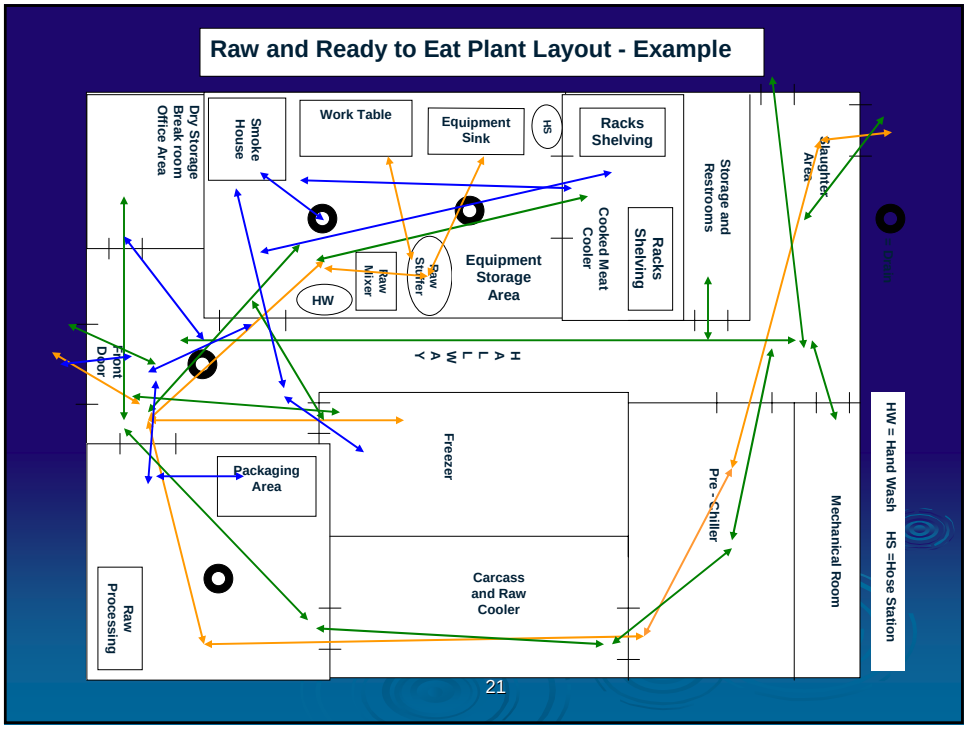
20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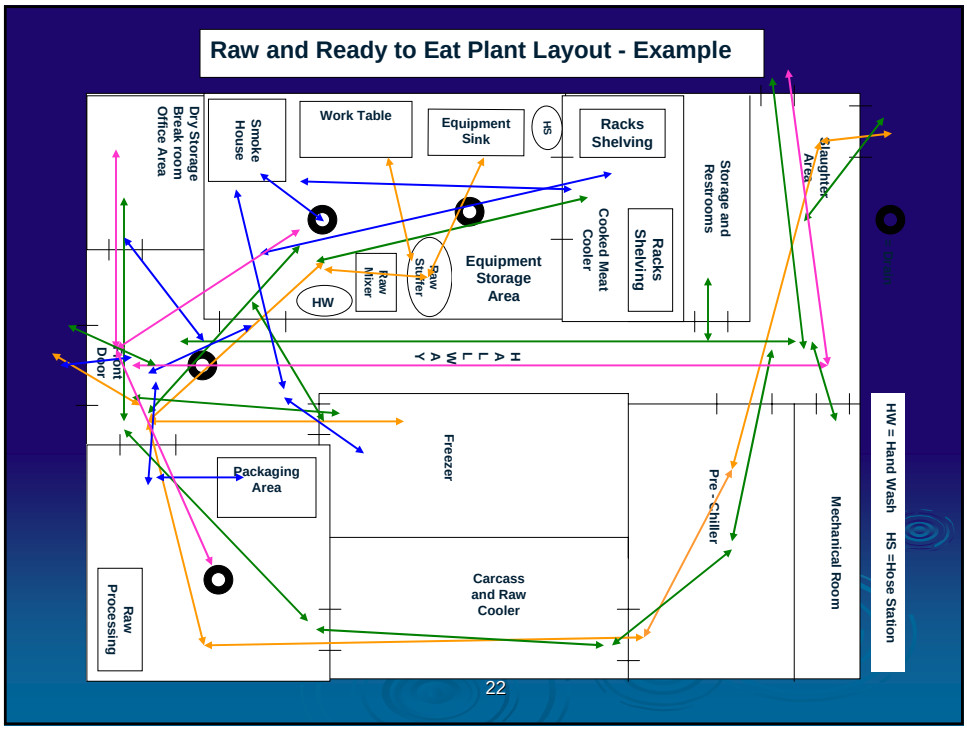
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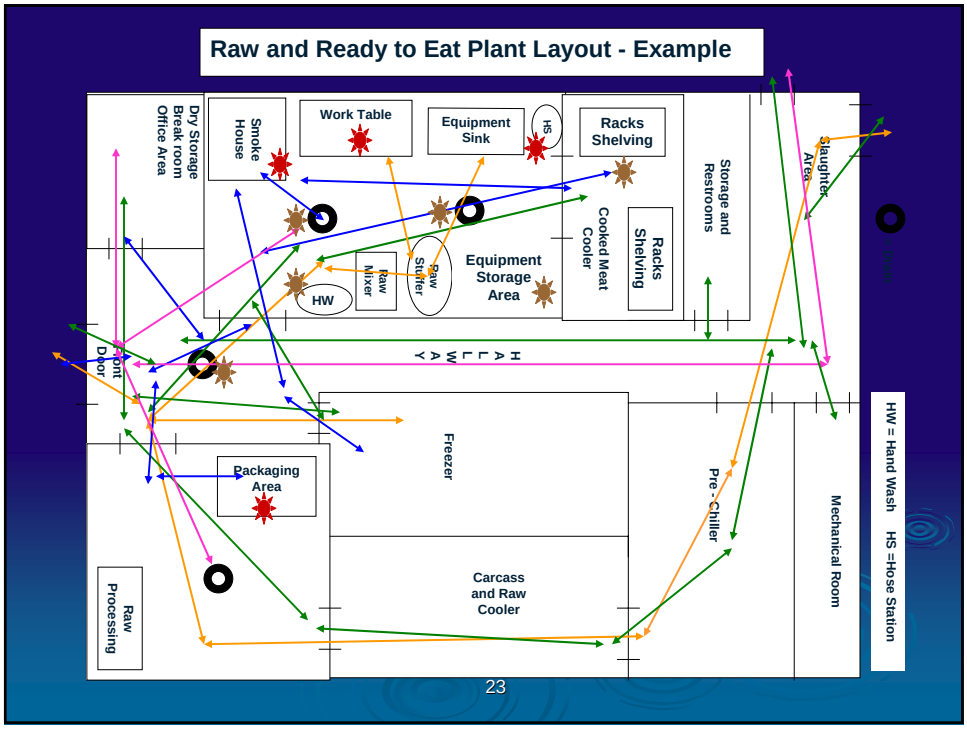

Testing Frequency

- Testing frequency should be based on:
  - History and trends
  - Features of the plant
  - Type of product and volume
  - Plant layout
  - Product flow

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Materials Needed for Testing

- Surface Testing
  - Pre-sterilized sponges in the sample bag or commercially available kit
  - Sterile sample bags
  - Sterile, disposable gloves
  - Sterile neutralizing broth (e.g., Dey-Engley (D/E))
  - Clipboard

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Materials Needed for Testing (Cont.)

- Surface Testing
  - A basket to hold the sample bags for preparation
  - Marking pen and label stickers
  - Sample shippers with pre-frozen refrigerant packs and cardboard separator
  - A system for next day delivery to the lab
  - Plastic bags for trash

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Materials Needed for Testing

- Product Testing
  - Product sample in the final, intact package
  - Sterile sample bags
  - A basket to hold the sample bags for preparation
  - Marking pen and label stickers
  - Sample shippers with pre-frozen refrigerant packs and cardboard separator
  - A system for next day delivery to the lab

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Materials Needed for Testing (Cont.)

- Liquid Testing
  - Sterile ladles with handles for aseptic handling of solution
  - Sterile, disposable gloves
  - Sterile plastic specimen cups with water tight screw caps
  - Self-closing bags of an appropriate size
  - Sterile disposable pipettes
  - Pipettor or equivalent

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Sampling Technique

Workshop Demonstration

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How to Collect a Sample

- Sampling Procedure Example:
  - Sterile gloves may or may not be required
  - Wash and sanitize your hands
  - Open the bag containing the pre-sterilized sponge
  - Aseptically pour sterile neutralizing broth into bag to hydrate the sponge
  - Press the mouth of the bag back together
  - Moisten the sponge by using hand pressure on outside of the bag

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How to Collect a Sample (Cont.)

- Sampling Procedure Example
  - Squeeze the excess broth out of the sponge
  - Carefully take the sponge out of the bag
  - Swab at least a 1 foot square area
  - Swab the area vertically ten times, then use other side of sponge to swab horizontally and diagonally, 10 times respectively

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How to Collect a Sample (Cont.)

- Sampling Procedure Example
  - Open the bag and insert the sponge back into the bag
  - Grip the sponge through the bag
  - Squeeze air out of the bag. Fold the top of the bag down at least 3 times. Fold in the tabs to lock the fold in place

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How to Collect a Sample (Cont.)

- Sampling Procedure Example
  - The primary container is placed into a self-closing bag with an identifying label. Label with company name, date, time, and location
  - As soon as possible, place the bagged sponge inside an insulated sample shipper

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Packing the Sample

- The Shipping containers should be pre-chilled. Place two pre-frozen gel packs into the bottom of the pre-chilled container.
- Place a cardboard separator on top of the gel packs and then put in the samples.
- Add a foam plug or cardboard
- Send the boxes to the lab by overnight shipment or by other means acceptable to the lab.

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Participant practice session

Take Home Message:

- **Always maintain aseptic technique**

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Conclusion

- **FSIS may perform more frequent verification testing if the establishment chooses Alternative 3**

- **Log onto www.fsis.usda.gov**
  - **More Hot Topics**
    - ***Listeria monocytogenes***

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