Managing Security for the Food Supply

Establishing Security Programs
Assessing and Managing Risk
Why Establish a Security Program

- The world has changed since 9-11-01
- Large food manufacturers requiring demonstrated security processes
- Good business to assess and reduce risk
Security Plans

- **TEAM Assessment**
  Threat Exposure Assessment & Management

- **ORM**
  Operational Risk Management
Operation Risk Management (ORM)

- Based on military principles
- Decision making tool for identifying and controlling hazards
- Goal: Minimize risks so the mission can be accomplished with minimum amount of loss
- Four Principles:
  - Accept risk when Benefit > Risk
  - Accept no unnecessary risk
  - Anticipate and manage risks by planning
  - Make risk decisions at the right level
Threat Exposure Assessment & Management (TEAM)

TEAM Process Outline
Several Groups have published a set of Security Guidelines:

- Food Safety Inspection Service (FSIS-USDA)
- Food and Drug Administration (FDA)
- National Food Processors Association (NFPA)
- The Sugar Association
- The American Feed Industry Association

Threat Exposure Assessment & Management (TEAM)

TEAM Process Outline

- **Mission:** The desired outcome (food security)
- **Management:** Directs the food security operation by defining standards, procedures and controls.
- **Threat Sources:**
  - People
  - Machines
  - Environmental Forces
- **Food Security:** Protection of the food supply against deliberate introduction of a harmful agent into the food chain with intent to cause illness, injury or death, property damage or business degradation
TEAM Definitions

- **Risk**: An expression of possible loss in terms of severity and probability that may result from threats.
- **Risk assessment**: Identifying threats and determining impact on the safety of food or the business or mission.
- **Risk management**: Analyze food security risks and implement risk control decisions.
- **Threat**: Potential for deliberate introduction of a harmful agent into the food chain with intent to cause illness, injury or death, property damage or business degradation.
TEAM Assessment

Six Step Process
1. Identify the Threats
2. Assess the Risk
3. Analyze Risk Control Measures
4. Make Control Decisions
5. Implement Risk Controls
6. Supervise & Review
Identify the Threats - Step 1

- Operation Analysis - Flow Diagram
- Identify Where Threats Could be Introduced
- “What If” Brainstorming
Assess the Risks - Step 2

- Risk is a product of:

Severi ty \times \text{Probability} \times \text{Detectability}

The application of quantitative or qualitative measures to determine the level of risk associated with a specific threat.
# Probability

The likelihood a threat can happen

- **Frequent** - 5
- **Likely** - 4
- **Occasional** - 3
- **Seldom** - 2
- **Unlikely** - 1
<table>
<thead>
<tr>
<th>Severity</th>
<th>Description</th>
<th>Value</th>
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<tr>
<td>Catastrophic</td>
<td>The threat will damage the business severely.</td>
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<td>Critical</td>
<td>The threat will have a significant impact on the business.</td>
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<td>Moderate</td>
<td>The threat will have a moderate impact on the business.</td>
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<td>Negligible</td>
<td>The threat will have a negligible impact on the business.</td>
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## Detectability

The likelihood of the ability to detect a contaminant:

- **Almost Impossible** - 5
- **Low** - 4
- **Medium** - 3
- **High** - 2
- **Almost Certain** - 1
Risk Priority Number (RPN)

Example:

Severity x Probability x Detectability = RPN

4 x 5 x 5 = 100
Analyze Risk Control Measures - Step 3

- Investigate strategies and tools that reduce, mitigate, or eliminate the risk.
- Address the highest Risk Priority Numbers (RPNs) first
- Reduction of any of the three risk factors (Severity, Probability, Detectability) can reduce the overall RPN
Make Control Decisions - Step 4

Analyze and determine Level of Effectiveness of Risk Control Measures

- Most effective
- Very effective
- Effective
- Somewhat Effective
Implement Risk Control - Step 5

- Document each change
- Inform personnel of the changes
Supervise & Review - Step 6

- Conduct reassessment to determine if risk has been reduced through Risk Control Measure Implementation
- Address next highest RPNs by following the same process
- Maintain documentation of risk changes
Getting Started

- Assemble Team at Each Plant, comprised of cross-functional plant personnel
- Develop process flow starting from entry of raw materials into the plant and ending with the shipment of finished product
- Identify risk areas (personnel, machines, environment)
- Assess risk (severity, probability, detectability)
### TEAM Assessment Risk Analysis

<table>
<thead>
<tr>
<th>Flow Diagram Step</th>
<th>Description</th>
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<td>Threat</td>
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