



**U.S. Department of Agriculture
Food Safety and Inspection Service**

**Model Food Security Plan
for
Egg Processing Facilities**

Draft of April 2005

1.0 Introduction

In May 2002, the Food Safety and Inspection Service (FSIS) issued the *FSIS Security Guidelines for Food Processors* to assist meat, poultry, and egg product plants in identifying ways to strengthen their food security protection. In August 2003, the *FSIS Safety and Security Guidelines for the Transportation and Distribution of Meat, Poultry, and Egg Products* were issued, which focused on enhancing food safety and security in the transportation and distribution segments of the supply chain. These guidelines are voluntary and provide recommendations about types of security measures that may be used to prevent contamination of meat, poultry, and egg products during processing, transportation, and storage. A particularly important aspect of the guidelines was the recommendation that each facility should develop and implement a Food Security Plan. The purpose of this document is to provide additional guidance about the development and implementation of food security plans for egg processing facilities.

2.0 Why Develop a Model Plan?

FSIS believes that the security of egg processing facilities can be enhanced through the implementation of risk management techniques that are tailored to the needs of each establishment. This process can be facilitated by the use of Food Security Plans. These plans identify the types of preventive steps that establishment operators may take to minimize the risk that food products under their control will be subject to tampering or other malicious criminal actions.

The main value of a plan is to increase preparedness. Although the plan should be executed at all times, it may be particularly helpful during emergencies. During a crisis, when stress is high and response time is at a premium, a documented set of procedures provides facility operators the ability to more readily execute standard response actions while focusing on an appropriate course of action for the specific event. Therefore, Food Security Plans will be particularly beneficial under elevated threat conditions, especially when there is reason to believe that the food sector may be targeted for attack. Development and effective implementation of prevention and response strategies at every establishment will improve the security status of supply chains in the food sector.

FSIS understands that, in addition to concern for product liability and brand name protection, market-driven forces have already caused some companies in the food industry to invest in security enhancements for their establishments. One driver for these actions has been the request for security improvements by customers. In these cases, the security status of an establishment typically is characterized by third party auditors using checklists adopted from FSIS or Food and Drug Administration (FDA) guidelines. The audit findings determine the nature of the security enhancements required by the customer.

Another driver is the incorporation of food security requirements in government sponsored programs. For example, the USDA's Agricultural Marketing Service (AMS) purchases food products for Federal nutrition assistance programs through the Commodity Procurement Program. AMS intends to include food security requirements in its contract specifications in the coming procurement cycle.

Against this background of Federal agency guidance and market-driven requirements, FSIS intends for these model plans to serve as the framework for a reasoned and cost-effective approach to improving the security status of the food sector. Although these model plans may be useful to all types of food industry establishments, the focus is on small and very small plants that may not have an internal security department or that lack experience dealing with food security issues.

This document presents a model food security plan that can be used as a starting point for the development of an egg processing facility-specific plan. This generic model is not intended to be used "as is" for the facility-specific food security plan. Further, all of the guidance contained in this document may not be appropriate or practical for every egg processing facility. FSIS recommends that facility owners review the guidance and assess which preventive measures are suitable for their operation. Example preventive measures are presented for each of the security goals discussed in this document. These measures should not be considered an inclusive list of all potential approaches to achieving food security. Each establishment should determine the most cost-effective means to achieve food security goals based on the current security status of the establishment.

3.0 What is Food Security?

Food security involves preventing, minimizing, or responding to the deliberate contamination of food products by a variety of potential threat agents (biological, chemical, radiological). These are criminal actions that involve willful intent to do harm; they cannot be anticipated without intelligence information. The motivation for these illegal actions includes the ability to cause illness and deaths following consumption of adulterated products and the desire to cause economic and psychological damage, including inspiring fear among the public and loss of confidence in the safety of the food supply.

Food security is *not* the same as food safety. Food safety addresses the accidental contamination of food products during processing or storage by biological, chemical or physical hazards. The main types of food safety hazards are microbes, chemicals and foreign objects. This unintentional contamination of food products can be reasonably anticipated based on the type of processing. This principle is the foundation of the Hazard Analysis Critical Control Point (HACCP) process used to ensure food safety and the basis for Sanitation Standard Operation Procedure (SSOP) requirements.

Note that because of the differences between food safety and food security, a facility HACCP Plan should not be used as a substitute for a Food Security Plan. However, like a HACCP Plan, a Food Security Plan should emphasize preventive over reactive measures.

4.0 Who Might Adulterate a Food Product?

When evaluating the potential vulnerability of an egg processing establishment, the facility operator should consider a variety of potential perpetrators who may execute an attack from both inside and outside the facility. These include both opportunistic attacks by single individuals and planned attacks by lone or organized aggressors. Table 1 lists some examples of the types of individuals that might be motivated to adulterate food products. Facility operators should contact their local law enforcement community for additional information about potential local threats to their facility.

Table 1. Example Types of Internal and External Attackers

Internal	External
Disgruntled employee	Organized terrorist or activist groups
Cleaning crew	Truck drivers (shipping and receiving)
Contractors	Contractors
Temporary employees	Suspect suppliers
Members of terrorist groups posing as employees	Visitors

Individuals motivated to attack a facility that do not have authorized access are considered to be intruders or external attackers. Another threat comes from internal attackers, such as disgruntled employees and other insiders, who typically know what procedures are followed in the plant and often know how to bypass many security controls that would detect or delay an outside intruder.

5.0 Food Security Principles

The following guiding principles will assist facility operators in developing effective Food Security Plans for their establishments:

Principle 1. Clearly Understand What Needs to Be Protected

An understanding of the threats and what is to be protected can help assure that measures can be applied where they will be most effective. It is important to identify the most vulnerable components of an operation. A vulnerability assessment, or food security assessment (see Section 6, Step 1), can be used to accomplish this task, but it is also possible to apply common sense to identify some of the most likely threats that a facility may encounter.

Principle 2. Apply the Highest Security to the Most Critical Components

Security measures, costs, practices and procedures should be appropriate and proportionate to the criticality of the systems and to the severity, probability and extent of potential harm. Not all components of a facility need the same level of security controls. Recognizing the unique components of each facility allows implementation of lower assurance solutions (with lower costs) to protect less critical components and the use of higher assurance solutions only for the most critical components. This approach is known as Pareto’s Principle, or “The 80/20 Rule”. Identify and focus on the few (20 percent) actions that will produce the most (80 percent) benefit or results.

Principle 3. Employ a Layered Approach

Securing a facility against a broad spectrum of threats requires the use of multiple overlapping approaches that address elements of physical security, personnel security and operational security. Consider establishing concentric rings of protection, with facility access control as the outermost ring; a trained and screened staff as the next ring; and processes and procedures designed to minimize operational risks as the innermost ring (see Figure 1).

Principle 4. Reduce Risk to an Acceptable Level

Elimination of all food security risk is not possible, nor is it cost effective. Cost-benefit factors should be considered for each proposed countermeasure. At some point, the incremental increase in security gained will not justify the associated costs. There is a need to maintain balance between countermeasures and operational effectiveness.

Principle 5. Security Must Have Strong Management Support

Food security begins with an organization’s basic commitment to the process. Strong management support is critical for the success of a security program. This support establishes a focus on security within the highest levels of the organization. Without such support, the effectiveness of a security program can fail when pressured by production schedules and budget limitations. Roles and responsibilities must be clearly defined and authorized at a level commensurate with the criticality of the system components. Management should clearly demonstrate that food security is of equal importance to food safety and quality control.



Figure 1. Target-Barrier Concept Displaying Multiple Layers of Security. Critical processing steps should employ the most layers of security. (Adapted from Department of Energy. 1996.)

6.0 Steps in Developing a Food Security Plan

In developing their establishment-specific plans, FSIS recommends that egg processing facility operators use a three step process: (1) conduct a food security assessment for the establishment; (2) develop a plan, based on risk management principles, of preventive measures to minimize the potential vulnerabilities identified in Step 1; and (3) implement and test the plan.

These steps are discussed in greater detail in the following sections.

Step 1 – Conduct a Food Security Assessment

Each facility should designate an individual or team responsible for the security of the establishment. The team may use a number of different types of tools to aid in conducting a food security assessment. These tools include various models and checklists, such as the FSIS *Industry Self-Assessment Checklist for Food Security* (available at http://www.fsis.usda.gov/PDF/Self_Assessment_Checklist_Food_Security.pdf) or a more formal vulnerability assessment process, as presented in Appendix A. The goal is to develop an understanding of the potential vulnerabilities at each facility, based on the types of processes so that effective countermeasures can be developed. No matter what type of tool is used in the assessment, the team should

consider both internal and external threats (see Section 4). The results of the assessment should be kept confidential so that they do not provide a roadmap for future attacks.

Step 2 – Develop a Food Security Plan

The focus of a Food Security Plan is on the identification of cost-effective preventive actions that can be taken to minimize the facility-specific vulnerabilities identified in the security assessment. The plan should address a number of food security goals. At a minimum, the plan should address the following:

Goal Number 1 – Ensure General Inside Security

This goal addresses access for visitors (i.e., non-plant employees) to designated areas inside the plant, including in-plant laboratories and other potentially vulnerable areas. It also addresses protection of vital plant systems, such as central control for airflow, water systems, and electricity. Finally, it includes screening and supervision of contract workers with authorized access to the facility. This group includes maintenance and sanitation crews, who often receive limited supervision from plant management.

Some example vulnerabilities, and options for mitigation are listed in the following table.

General Inside Security	
Sample Vulnerabilities	Potential Security Measures
Unescorted visitors with access to critical processing areas	Limit visitor access through the use of checkpoints and badging.
Water and airflow security	Secure access points for water and airflow systems.
Personnel security - contractors	Require contractors to screen and train their employees. Provide plant supervision or oversight of contract staff working in the facility.
In-house analytical laboratory access unsecured	Utilize interior access controls to restrict all but authorized and trained personnel.

Goal Number 2 – Ensure Processing Security

This goal addresses monitoring of the equipment used in the egg processing facility and the flow of all raw materials, finished products, returned goods, and other items that are used in production. It also includes personnel security for employees.

Liquid egg products are potentially vulnerable because adulterants can be relatively easily mixed into fluids. Large volumes of liquid product are transported between facilities via tanker trucks and are stored at processing facilities in raw and pasteurized product silos.

Some example vulnerabilities, and options for mitigation, are shown in the following table.

Processing Security	
Sample Vulnerabilities	Potential Security Measures
Threat agents placed in water supply or cleaning materials	Perform periodic checks of water supply and cleaning material inventory.
Threat agents introduced at critical processing points (e.g., balance tanks, storage silos)	Restrict access at critical operations to employees that receive additional training and/or background investigations (see Figure 2). Increase employee awareness of risks. Monitor critical processing points.
Disgruntled employee or terrorist posing as employee	Monitor employee morale. Restrict access at critical operations to employees that receive additional training and/or background investigations. Increase employee food security awareness. Establish procedures for reporting suspicious activities.
Temporary employees with access to critical operations	Provide plant supervision or oversight. Train permanent employees to raise their food security awareness. Require use of personnel identification badges. Use colored uniforms, jackets, etc.



Figure 2. Example of varying employee access levels by sensitivity of the operation. Areas containing the most vulnerable operations should be restricted to a limited number of employees, and these employees should receive background investigations and additional training.

Goal Number 3 – Ensure Storage Security

This goal addresses measures to control access to ingredient and product storage areas and the maintenance of appropriate records. Ensuring storage security will protect against the intentional misuse of ingredients or non-food items used in the plant as food adulterants. Storage areas should be adequately secured and monitored, with access limited to authorized personnel only.

Some example vulnerabilities, and options for mitigation, are shown in the following table.

Storage Security	
Sample Vulnerabilities	Potential Security Measures
Threat agents placed in non-egg ingredients (additives, cultures, enzymes) and non-food items (disinfectants, cleaners)	Keep storage areas locked and limit access according to job function. Make periodic checks of inventories and check integrity of packaging.
Threat agents placed in storage silos	Restrict access to storage silos; secure all access points. Increase employee food security awareness. Increase perimeter security around silos.

In addition to ensuring general inside security, processing security, and storage security, a Food Security Plan for egg processing facilities may also address ensuring general outside security and shipping and receiving security. Establishment operators should assess whether these goals are relevant to their operation and then design approaches to efficiently and effectively accomplish them.

Goal Number 4 – Ensure General Outside Security

This goal addresses access to the establishment by unauthorized intruders. Potential security measures include perimeter control through the use of fencing, gates, guard stations, and key card access. All entry ways, windows, vents, and delivery docks should be secured. Exterior lighting and closed circuit camera systems may also be used.

General Outside Security	
Sample Vulnerabilities	Potential Security Measures
Open perimeter, allowing access to facility	Secure all entry ways, windows, vents, loading bays, and other access points
Exterior access to storage tanks, silos, onsite trailers used for cold and dry storage	Fence exterior access points to storage structures. Secure all access points, including loading and sampling ports. Install exterior lighting. Use tamper-evident locks or seals on trailers.

Goal Number 5 – Ensure Shipping and Receiving Security

This goal addresses the need to ensure the integrity of the raw materials received and the finished products shipped from the facility. Potential security measures include purchasing raw materials only from recognized vendors, establishing controls on incoming deliveries, limiting driver access to the facility during deliveries, careful inspection and inventory accounting of delivered materials, use of tamper-evident packaging for finished products, and the use of tamper-evident seals on incoming and outgoing shipments.

Shipping and Receiving Security	
Sample Vulnerabilities	Potential Security Measures
Unscheduled raw material deliveries	Purchase materials only from recognized vendors. Accept receipt of only scheduled deliveries. Inventory packages against manifest and order forms and examine package integrity. Require vendors to ship materials in tamper-evident packaging.
Products shipped in unsecured trucks, or multiple deliveries per shipment (less-than-truckload)	All truck and tanker shipments should be secured by use of tamper-evident seals. Drivers should be trained and certified.

A useful source for additional information on preventive measures is the set of recommended minimum security standards for Federal facilities developed by the United States Marshals Service of the U.S. Department of Justice, 1995. This report recognizes that the security needs of Federal facilities are influenced by a range of factors, including number of employees, use, the need for public access, agency mission, crime statistics and threat intelligence. Standards have been recommended for facility perimeter security, entry security, interior security, and security planning.

Step 3 – Implement the Plan

Once the Food Security Plan is developed, it should be tested and implemented. Key elements of implementation include assigning responsibilities, training staff, conducting drills, developing contact lists, and creating a recall plan.

- **Assign Responsibilities**
Individual security responsibilities should be defined and documented. Assign overall responsibility for food security to a single employee who has an understanding of the security requirements for the facility.
- **Train Facility Staff on Elements of the Plan**
Train facility staff in all provisions of the plan. The purpose of security awareness training is to ensure that employees know their food security responsibilities. Training should address badging and access control procedures, access to restricted areas, protection of critical components, and procedures for reporting suspicious activities. Understanding the threat of intentional adulteration and the potential consequences should help employees consistently execute preventive measures, increasing the overall effectiveness of the plan.

- **Conduct Drills and Revise Plan**
Conduct drills regularly to test and verify the effectiveness of the plan and document lessons learned. Continually review policies and procedures in the plan for process improvements. Revise the plan as needed to address changing conditions.
- **Develop Contact Lists**
Current local, State and Federal government Homeland Security contacts and public health officials should be listed in the plan. Local law enforcement and FBI offices should also be included in the contact list. This list should be updated regularly. Procedures for notifying appropriate law enforcement and public health officials when a food security threat is received, or when evidence of actual product tampering is observed, should be detailed in the plan.
- **Develop a Recall Plan**
A Food Security Plan should include details on how to conduct a recall of adulterated products from trade and consumer channels. Safe handling and disposal of products contaminated with threat agents should also be included in the plan.

A sample food security plan for an egg processing facility is presented in Appendix B.

References Cited

Department of Energy, 1996. Hazard and Barrier Analysis Guidance Document. U.S. Department of Energy, EH-33, Office of Operating Experience Analysis and Feedback. Rev. 0. November 1996.

Department of Justice, 1995. Vulnerability Assessment of Federal Facilities. United States Marshals Service, U.S. Department of Justice. June 28, 1995.

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Appendix A - Food Security Assessments

A food security vulnerability assessment is a tool that can be used by meat, poultry, or egg processing, storage, or distribution facilities to evaluate the potential vulnerabilities of their operations to tampering or other malicious acts. Based on the results of the assessment, corrective actions can be taken to reduce the risk of product adulteration. The assessment serves as a guide by identifying the need for security upgrades, modifications of operational procedures, and/or policy changes to mitigate the unique vulnerabilities at a specific establishment.

The elements of a food security assessment include:

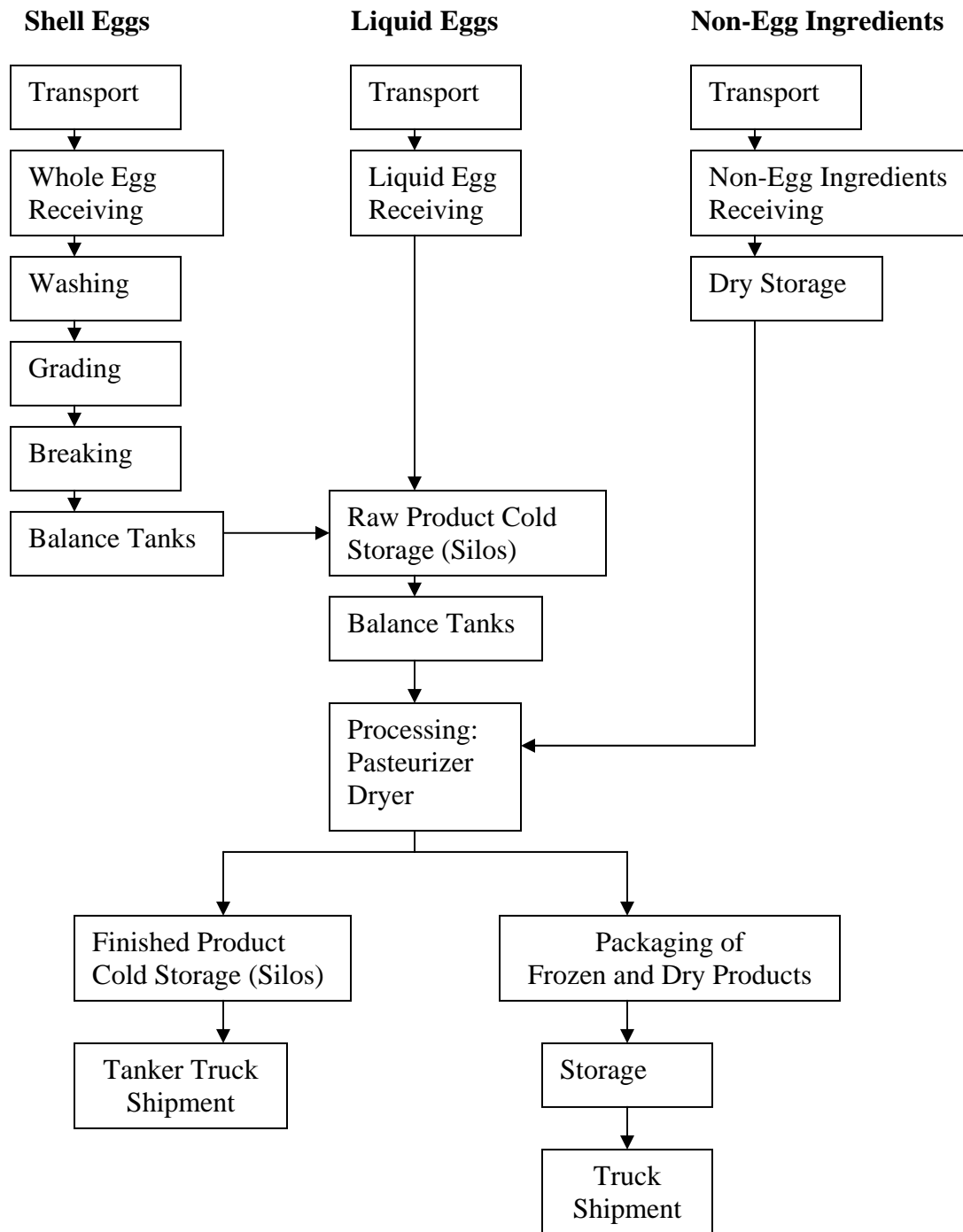
- Characterize facility operations
- Identify and prioritize potential adverse consequences
- Determine critical production components that might be subject to criminal actions
- Evaluate existing preventive measures and the need for additional countermeasures
- Develop a prioritized plan for corrective actions to reduce or mitigate potential vulnerabilities

Table A-1. Elements of a Food Security Assessment

Basic Element	Points to Consider
Characterize facility operations	<p>Develop a simple diagram that shows the steps the company uses when it processes the product. Consider access to the facility and the product at each step. Figure A-1 is an example of a generic process flow diagram for egg processing. Operations to consider include:</p> <ul style="list-style-type: none"> ▪ Receipt of raw materials ▪ Storage of raw materials and finished products ▪ Processing ▪ Shipping of finished products
Identify and prioritize potential adverse consequences	<p>Factors to consider in assessing potential consequences may include:</p> <ul style="list-style-type: none"> ▪ Number of product servings contaminated ▪ Economic impact (loss of revenue) ▪ Damage to brand name ▪ Disruption in product supply chain

Table A-1. Elements of a Food Security Assessment (continued)	
Basic Element	Points to Consider
Determine critical components that might be subject to criminal actions.	<p>Where in the production process are criminal actions most likely to occur?</p> <ul style="list-style-type: none"> ▪ Tanker trucks ▪ Storage silos ▪ Water supply ▪ Dry ingredients ▪ Cleaning materials
<p>Evaluate existing preventive measures and need for additional security enhancements.</p> <p>(Depending on current control measures, some critical components may already be sufficiently protected. This step will help to identify areas of greatest concern).</p>	<p>What means does the facility currently employ to deter criminal actions? Identify existing policies and procedures for:</p> <ul style="list-style-type: none"> ▪ Perimeter security ▪ Access control ▪ Operating procedures at critical components ▪ Cleaning crews ▪ Vendor deliveries ▪ Storage security ▪ Water security ▪ Personnel security, including contractor staff
Develop prioritized plan for risk reduction.	<p>Strategies for reducing potential vulnerabilities generally fall into three broad categories:</p> <ul style="list-style-type: none"> ▪ Physical access controls – e.g., locks, tamper-evident seals, guards, cameras ▪ Personnel controls – e.g., awareness training, background checks, employee identification badging ▪ Operational controls – e.g., shipping and receiving procedures, recall plans

Figure A-1. Generic Process Flow Diagram for Egg Processing



Appendix B - Sample Food Security Plan

This Appendix presents an example of a food security plan for an egg processing facility. Section I describes the company operations and how the plan was developed. Section II shows a sample of the plan.

Section I:

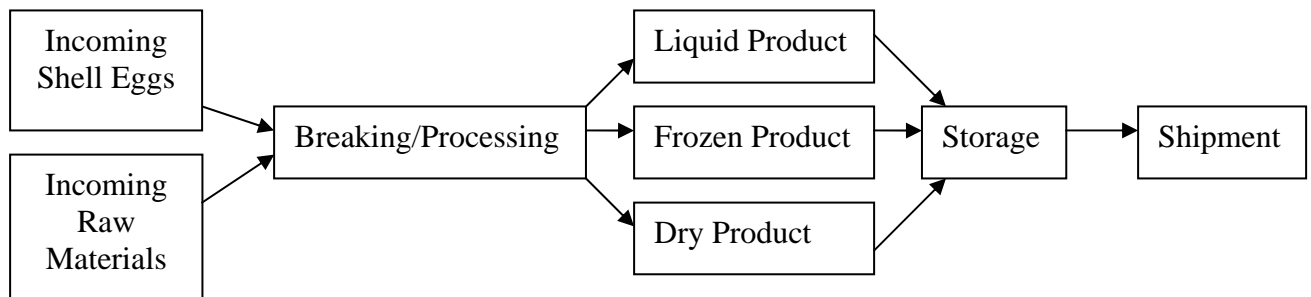
Description of Facility

This liquid egg processing facility, located in a rural area, receives shell eggs delivered by trucks from neighboring farms. After breaking, the liquid egg product is moved to raw product storage silos until pasteurization or processing to make dry or frozen products. Pasteurized liquid product is loaded into tanker trucks periodically during the day or sent to pasteurized product silos for interim storage. Finished dried and frozen egg products are shipped to customers by truck. Since the facility is highly mechanized, there are only 30 relatively well trained employees per shift.

Description of Plan Development

Step 1 – Conduct a Security Assessment

The owner sketches out a simplified flowchart of the operation; e.g.,



Apply the FSIS *Industry Self-Assessment Checklist for Food Security* to identify potential security problems.

Step 2 – Develop the Plan

Based on a review of the operation and the results of the FSIS *Industry Self-Assessment Checklist for Food Security*, the owner identifies the following potential problems or vulnerabilities:

- Inside Security – visitor access during normal business hours not controlled
- Processing Security – no potential problems
- Storage Security – access to dry ingredient and cold storage areas not controlled
- Outside Security – access to storage silos not secure
- Shipping and Receiving Security – incoming truck drivers have access to delivery trucks of processed products

Step 3 – Implement the Plan

Develop contact lists. Review plan with employees. Periodically review security status and update plan.

Section II:

Sample Food Security Plan for ABC Egg Processing Company

Inside Security

Potential Problems: Lax visitor access control during normal business hours

Solutions: Lock entry way from main entrance reception area to plant floor. Install buzzer to alert staff of visitor presence when reception desk is empty.

Processing Security

Potential Problems: None; largely closed system, automated processing

Solutions: None required

Storage Security

Potential Problems: Access to dry ingredient and cold storage areas not controlled

Solutions: Install locks on storage room and refrigerator/freezer doors.
Limit employee access to cold and dry storage areas based on job function.

Outside Security

Potential Problems: Access to storage silos not secured.

Solutions: Fence and lock perimeter of silo. Lock all external silo access points. Install exterior lighting and cameras to monitor area around silo.

Shipping and Receiving Security

Potential Problems:

1. Truck drivers have access to storage silos during delivery of shell eggs.
2. Truck drivers have access to liquid product in tanker trucks in transit.

Solutions:

1. Route delivery trucks of shell eggs and raw materials to delivery docks located away from storage silos, where possible.
2. Use properly sealed tamper-evident seals on tanker trucks. Use shipper that trains and conducts background investigations on drivers.

Contacts List

Local Police Department

City/County Department of Health

State Department of Health

USDA FSIS Office of Food Security and Emergency Preparedness – (800) 333-1284
(staffed 24-hours a day)

USDA National Office of the Inspector General 24-hour Hotline – (800) 424-9121

Customers

- Customer 1
- Customer 2
- Customer 3
- etc.

Suppliers

- Supplier 1
- Supplier 2
- Supplier 3
- etc.

Product Recall Procedures

- Identify who, what, when, where, and how for recalls
- Identify additional relevant points of contact

Date of Last Security Assessment

mm/dd/yr (should be at least annual or as conditions change)

Date of Last Plan Revision

mm/dd/yr (should track security assessment updates or non-routine emergencies)