

Supplement 2: Cleaning and Disinfection Guidelines

CONTENTS

| | |
|--|-------|
| S2.1 EMPLOYEE PROTECTION PROCEDURE | S2-4 |
| S2.1.1 Recommended Resources | S2-4 |
| S2.2 MOVING LAYER HATCHING EGGS OUT OF AN AI CONTROL AREA | S2-5 |
| S2.2.1 Procedures | S2-5 |
| S2.3 MOVING LAYER DAY-OLD CHICKS OUT OF AN AI CONTROL AREA | S2-6 |
| S2.3.1 Procedures | S2-6 |
| S2.4 CART AND PULLET TRUCK..... | S2-7 |
| S2.4.1 Truck Sanitation Protocol | S2-7 |
| S2.4.2 Cart Sanitation Protocol | S2-7 |
| S2.4.3 Sanitation Report and Review | S2-8 |
| S2.5 SPENT HEN TRUCK AND TRAILER | S2-9 |
| S2.5.1 Truck Driver..... | S2-9 |
| S2.5.2 Spent Hen Cart Sanitation..... | S2-9 |
| S2.5.3 Trailer Interior Sanitation Protocol..... | S2-9 |
| S2.6 MANURE TRUCK AND DRIVER | S2-10 |
| S2.6.1 Manure Truck Drivers..... | S2-10 |
| S2.6.2 Manure Vehicle (Truck Driver, Farm Manager, or Designee)..... | S2-10 |
| S2.7 SHELL EGG TRUCK EXTERIOR/INTERIOR WASH PROCEDURE | S2-11 |
| S2.7.1 Truck Sanitation Procedure..... | S2-11 |
| S2.8 SHELL EGG WASH PROCEDURE | S2-12 |
| S2.8.1 Pre-Operation..... | S2-12 |
| S2.8.2 Operation | S2-12 |
| S2.8.3 Additional Procedures | S2-12 |
| S2.9 EGG PACKING MATERIALS: FLATS, PALLETS, DIVIDERS, AND TIC-TACS, CONSTRUCTED OF EITHER PLASTIC OR WOOD | S2-13 |
| S2.9.1 Disinfectants..... | S2-13 |

| | |
|---|-------|
| S2.9.2 Mechanical Washing and Sanitation of Plastic (Impervious Surface) Egg-Handling Materials..... | S2-13 |
| S2.9.3 Manual C&D of Plastic (Impervious Surface) Egg-Handling Materials | S2-14 |
| S2.9.4 Manual C&D of Wood-Based (Porous Surface) Egg-Handling Materials | S2-15 |
| S2.9.5 Additional Procedures and Documentation Required when Operating in Control Area or Receiving Eggs from Flocks in a Control Area defined by either State Veterinarian Office and/or APHIS veterinary representative..... | S2-15 |
| S2.9.6 Paper Flats and Corrugated Cases | S2-16 |
| S2.10 EGGSHELLS..... | S2-17 |
| S2.10.1 Procedures | S2-17 |
| S2.10.2 Documentation | S2-17 |
| S2.11 CIP REQUIREMENTS—TANKERS, LINES AND SILOS | S2-18 |
| S2.11.1 Purpose..... | S2-18 |
| S2.11.2 Procedure..... | S2-18 |
| S2.11.3 Responsibility | S2-19 |
| S2.11.4 Documentation | S2-19 |
| S2.12 EGG PRODUCTS CIP LOG..... | S2-20 |
| S2.13 TANKER EXTERIOR WASH PROCEDURE..... | S2-22 |
| S2.13.1 Tanker Wash Procedure | S2-22 |
| WWW S2.13.2 TANKER EXTERIOR CLEANING CERTIFICATE | S2-23 |
| S2.14 INEDIBLE EGG | S2-24 |
| S2.14.1 Procedures..... | S2-24 |
| S2.14.2 Documentation | S2-24 |
| S2.15 FOR ALL TRUCK DRIVERS | S2-25 |
| S2.15.1 General | S2-25 |
| S2.16 LOADING DOCKS RECEIVING SHELL EGGS FROM CONTROL AREAS | S2-26 |
| S2.16.1 General | S2-26 |
| S2.16.2 Procedure..... | S2-26 |

This supplement of the *Secure Egg Supply (SES) Plan* contains model cleaning and disinfection (C&D) procedures that are intended to facilitate implementation of the *SES Plan* measures in the event of a highly pathogenic avian influenza (HPAI) outbreak. These procedures demonstrate how minimum biosecurity requirements can be met. However to provide flexibility, individual companies or locations may adapt equivalent procedures to fit their particular needs while still meeting or exceeding the minimum criteria.

S2.1 EMPLOYEE PROTECTION PROCEDURE

These procedures recommend minimum steps for employee protection while working with at-risk or potentially infected poultry. Alternative procedures achieving this objective may be used as required under specific circumstances.

All employees must follow good manufacturing practices, good agricultural practices, and the company-established personnel hygiene and safety program as they relate to personal protective equipment (PPE), biosecurity, and C&D protocols.

S2.1.1 Recommended Resources

Please see the Occupational Safety and Health Administration (OSHA) Quick Card, *Protect Yourself—Avian Flu—Poultry Employees*, at the OSHA website: www.osha.gov/OshDoc/data_AvianFlu/poultry_employees.pdf,

Or

The Centers for Disease Control and Prevention (CDC) *Interim Guidance for Protection of Persons Involved in U.S. Avian Influenza Outbreak Disease Control and Eradication Activities* at the CDC website: www.cdc.gov/flu/avian/professional/protect-guid.htm.

S2.2 MOVING LAYER HATCHING EGGS OUT OF AN AI CONTROL AREA

S2.2.1 Procedures

1. *Farm personnel:* Sanitize layer hatching eggs with an Environmental Protection Agency (EPA)-registered disinfectant approved for avian influenza (AI) and appropriate for layer hatching eggs, according to the manufacturer directions, or by formaldehyde fumigation immediately after collection. Please see http://www.epa.gov/pesticides/factsheets/avian_flu_products.htm.
2. *Farm personnel:* Use disposable footwear covers or take similar biosecurity measure before entering trailer to load eggs.
3. *Truck driver:* Follow all company driver biosecurity procedures and policies.
4. *Truck driver:* Clean and disinfect the truck inside and outside the cargo area. Use cleaners and disinfectants according to manufacturer directions. Document the truck cleaning on the sanitation report.
5. *Truck driver:* Drive to the breeder farm by the shortest possible distance in the AI Control Area and avoid known Infected Premises by the most distance possible.
6. *Truck driver:* At the breeder farm, stay in the cab while the farm personnel load the eggs. If you must load the truck, wear protective coveralls, boots, and head cover while outside the cab and remove them immediately before reentering the cab.
7. *Truck driver:* Clean and disinfect tires and wheel wells at the farm entrance before departure. The vehicle exterior should be disinfected again at an official station upon exiting the Control Area, or as the Incident Command System (ICS) requires.
8. *Truck driver:* Drive directly back to the hatchery by the same route without stopping at other breeder houses. The truck will be unloaded, cleaned, and disinfected before proceeding to another breeder house.
9. *Truck driver:* If delivering layer hatching eggs on a day on which hatching or chick processing operations are performed, only enter the hatchery after these operations have been completed.
10. *Hatchery personnel:* A minimum time period of three days is required between placing different batches of layer hatching eggs into a multistage setter.
11. *Hatchery personnel:* The oldest aged eggs should be removed before placing a new batch of layer hatching eggs into a multistage setter.

S2.3 MOVING LAYER DAY-OLD CHICKS OUT OF AN AI CONTROL AREA

S2.3.1 Procedures

1. *Truck driver:* Clean and disinfect the truck inside and outside the cab and cargo area with products approved for that purpose and according to the manufacturer directions. (See http://www.epa.gov/pesticides/factsheets/avian_flu_products.htm.)
2. *Truck driver:* Drive the truck from the Control Area with no stops inside the Control Area, and avoid known Infected Premises by the most distance possible.
3. *Truck driver:* The outside of the truck should be disinfected at an official station upon exiting the Control Area or per ICS requirements.
4. *Truck driver:* At the farm manager's discretion, the truck may be re-disinfected upon arrival at the brooder house.
5. *Truck driver:* Wear protective coveralls, boots, and head cover when outside the cab, and remove them immediately before reentering the cab. Do not enter the brooder house.
6. *Truck driver:* Return the truck directly to the hatchery by the same route through the Control Area, avoiding known Infected Premises by the most distance possible.
7. *Truck driver:* Clean and disinfect the truck (step 1) upon return to the hatchery and after the chick boxes have been removed.
8. *Hatchery personnel:* Remove plastic chick boxes before cleaning the truck and immediately clean and disinfect them in the hatchery wash room.

S2.4 CART AND PULLET TRUCK

S2.4.1 Truck Sanitation Protocol

1. Remove trash from tractor cab and sweep out dry soil and debris. Clean the entire interior of the tractor cab using an appropriate detergent.
2. Remove all racks from the truck.
3. Pre-rinse all areas of the truck and remove visible organic matter. A pressurized water source may work best for this task. (Remove accumulated ice if operating in winter weather conditions.)
4. Thoroughly clean all truck surfaces, paying particular attention to the truck bed, undercarriage, and wheels. Application of detergent foam followed by a high-pressure rinse may be most effective.
5. Apply an approved disinfectant to all truck surfaces following the safety precautions of the disinfectant manufacturer.¹
6. Return vehicle to a clean area or site for next use.
7. Document all actions taken on the sanitation report.

S2.4.2 Cart Sanitation Protocol

1. Remove all racks from the truck.
2. Pre-rinse all areas of the truck and remove visible organic matter. A pressurized water source may work best for this task.
3. Thoroughly clean all cart surfaces, paying particular attention to the cages, cartwheels, and undercarriage of the carts. Application of detergent foam followed by a high-pressure rinse may be most effective.
4. Wet down all surfaces of carts with an approved disinfectant following the safety precautions of the disinfectant manufacturer.²
5. If possible, allow the interior of the trailer to dry before returning cleaned and disinfected carts.
6. Document all actions taken on the sanitation report.

¹ EPA, *Registered Antimicrobial Products with Label Claims for Avian (Bird) Flu Disinfectants*, March 13, 2008, www.epa.gov/pesticides/factsheets/avian_flu_products.htm.

² EPA, *Registered Antimicrobial Products with Label Claims for Avian (Bird) Flu Disinfectants*, March 13, 2008, www.epa.gov/pesticides/factsheets/avian_flu_products.htm.

S2.4.3 Sanitation Report and Review

1. *Truck driver*: Review the sanitation report for accuracy and completeness and inspect the sanitary conditions of all truck components before returning to pullet farm.
2. *Truck driver*: Take a copy of the completed sanitation report with the truck when returning to the pullet farm.
3. *Supervisor or designee*: When the truck arrives at the pullet or layer farm, review the sanitation report and inspect the truck, noting any details on form.
4. *Supervisor or designee*: If areas are found unacceptable, take corrective actions to make them acceptable. Note any corrective action taken on the form.
5. *Supervisor or designee*: Sign the form, verifying that everything was acceptable before the truck is allowed to be used at the farm.
6. *Supervisor or designee*: File completed and signed forms at the pullet farm.

S2.5 SPENT HEN TRUCK AND TRAILER

S2.5.1 Truck Driver

Any driver involved with the cleaning procedures must wear protective coveralls, boots and head covering which must be removed before entering cab.

S2.5.2 Spent Hen Cart Sanitation

1. Remove all carts from the trailer.
2. Pre-rinse all areas of the carts and remove all visible organic matter. A pressurized water source may work best for this task.
3. Thoroughly clean all cart surfaces, paying particular attention to the cages, cart wheels, and undercarriages. Application of detergent foam followed by a high-pressure rinse may be most effective.
4. Wet down all surfaces of carts with an approved disinfectant following the safety precautions of the disinfectant manufacturer.³
5. Return carts to cleaned trailer.
6. Document all actions taken on sanitation report.

S2.5.3 Trailer Interior Sanitation Protocol

1. After all carts have been removed from the trailer, remove all manure, eggs, feathers, and other debris from the interior of the trailer.
2. Wash the entire trailer floor, walls, and decking using a detergent solution or foam according to manufacturer recommendation, followed by a clean water rinse.
3. Wet down all surfaces of the trailer interior with an approved disinfectant following the safety precautions of the disinfectant manufacturer.⁴
4. Allow the interior of the trailer to dry; place the cleaned, disinfected carts back into it.
5. Document all actions taken on the sanitation report.
6. Make a copy of the sanitation report (documenting both cart and trailer sanitation) available to the next location that will utilize this equipment.

³ EPA, *Registered Antimicrobial Products with Label Claims for Avian (Bird) Flu Disinfectants*, March 13, 2008, www.epa.gov/pesticides/factsheets/avian_flu_products.htm.

⁴ EPA, *Registered Antimicrobial Products with Label Claims for Avian (Bird) Flu Disinfectants*, March 13, 2008, www.epa.gov/pesticides/factsheets/avian_flu_products.htm.

S2.6 MANURE TRUCK AND DRIVER

S2.6.1 Manure Truck Drivers

1. Remain in the truck or tractor at the pullet or layer farm. Remain in the truck cab during manure loading, removal, and vehicle C&D when at the farm or site.
2. During a site dump, a designated unloading person at the site should allow the driver to remain in the cab.
3. Wear dedicated clothing and equipment if involved in the loading, collection, removal, or vehicle cleaning. Record these activities with the date, time, and your name.
4. If spreading manure, wear disposable plastic boots (at a minimum) and leave them outside the vehicle.
5. Before entering your personal vehicle and leaving the farm, shower (if possible), change clothes and shoes, and clean the interior of your personal vehicle.

S2.6.2 Manure Vehicle (Truck Driver, Farm Manager, or Designee)

1. Adapt the following steps depending on whether the manure is dry, wet, point dumping, or spreading.
2. Clean and disinfect the manure hauling vehicle before arriving at the designated location for the first time.
3. At the farm or site entrance and exit, clean and disinfect the undercarriage and tires using a portable sprayer or similar suitable equipment.
4. Unload the manure at the designated dump point.
5. At the end of the work day, if the truck will not be returning to the same farm or site, clean it (steps 6–8).
6. Remove all visible organic matter. A pressurized wash may work best.
7. Thoroughly clean the inside and outside of the vehicle and spreader or trailer with foam or spray detergent and a designated brush.
8. Rinse with water.

S2.7 SHELL EGG TRUCK EXTERIOR/INTERIOR WASH PROCEDURE

S2.7.1 Truck Sanitation Procedure

1. Clean the interior of the trailer to remove organic material.
2. Apply an appropriate disinfectant selected from EPA-registered materials to the interior of the trailer, being sure to cover all surfaces. A portable mister may work well for this purpose.
3. Allow surfaces to air dry for 20 minutes.
4. If the driver leaves the cab, disinfect all surfaces in the cab, including the steering wheel, dash, floorboards, and seats. Apply an appropriate disinfectant selected from EPA-registered materials using a clean rag or sponge.⁵
5. *Truck driver:* Proceed to the nearest preapproved truck wash to clean the exterior and undercarriage of the truck and trailer.
6. *Truck driver:* Identify the truck wash and sign the cleaning certificate.

⁵ EPA, *Registered Antimicrobial Products with Label Claims for Avian (Bird) Flu Disinfectants*, March 13, 2008, www.epa.gov/pesticides/factsheets/avian_flu_products.htm.

S2.8 SHELL EGG WASH PROCEDURE

S2.8.1 Pre-Operation

1. Confirm the equipment is clean and ready for operation.
2. Ensure that the water levels are correct, wash water is at the target temperature (above 90 °F), chemical supply lines for detergents and sanitizers are connected, concentrations are at supplier recommendations, and the fresh water supply line is open.
3. Sign the operation log, noting the date and time, temperature of wash and rinse, detergent concentration, and chlorine concentration in rinse.

S2.8.2 Operation

1. After completing all pre-operation checks, introduce eggs into the washing system.
2. Maintain the operating log, noting the temperature of wash and rinse waters; detergent, chlorine, or other disinfectant concentrations; and condition of wash water for excessive foaming and egg buildup. **Note: systems where detergent is manually added require more frequent monitoring of detergent or chemical strengths than those featuring online monitoring of concentration. Chlorine in the rinse must be at or above 100 parts per million (ppm) and less than 200 ppm.**
3. Make corrections as required to operate the system in established ranges for temperature and chemical concentrations. Note corrective actions in the operating log.
4. At mid-shift, drain the wash water tank and perform mid-shift cleaning.
5. Repeat pre-operational checks before starting operations.
6. See also: 7 *Code of Federal Regulations* (CFR) 56.77(f) (1–15) or 9 CFR 590.515 and 516.

Additional procedures and documentation may be required when operating or receiving flocks in a Control Area defined by the State Veterinarian's office or APHIS veterinary representative.

S2.8.3 Additional Procedures

1. Segregate eggs from the Control Area.
2. Schedule washing of eggs from the Control Area for the end of the shift or day.
3. Dispose of any disposable egg-handling materials used to convey the eggs from the Control Area.
4. Wash and disinfect plastic flats, pallets, and reusable egg-handling materials and segregate them for return to the farm of origin.

S2.9 EGG PACKING MATERIALS: FLATS, PALLETS, DIVIDERS, AND TIC-TACS, CONSTRUCTED OF EITHER PLASTIC OR WOOD

These procedures recommend minimum steps for C&D of plastic, washable, egg-handling materials. Alternative procedures achieving the C&D objectives may be used as required under specific circumstances.

S2.9.1 Disinfectants

Follow the manufacturer directions for concentration and contact time of disinfectants.⁶ Apply them to clean surfaces. Evaluate drying time after disinfectant application to ensure prescribed contact time is achieved.

S2.9.2 Mechanical Washing and Sanitation of Plastic (Impervious Surface) Egg-Handling Materials

S2.9.2.1 PRE-OPERATION

1. Confirm equipment is clean and ready for operation.
2. Ensure that water levels are correct, wash water is at target temperature (above 90 °F), chemical supply lines for detergents and sanitizers are connected, concentrations are at (equipment) supplier recommendations, and the fresh water supply line is open.
3. Sign the operation log, noting the date and time, temperature of wash and rinse, detergent concentration, and chlorine concentration in rinse.

S2.9.2.2 OPERATION

1. After completing all pre-operation checks, introduce washable flats, pallets, and dividers (tic-tacs) into the washing system.
2. Maintain the operating log, noting the temperature of wash and rinse waters, detergent and chlorine concentrations, and condition of wash water for excessive foaming and egg buildup. **Note: systems where detergent is manually added require more frequent monitoring of detergent or chemical strengths than those featuring online monitoring of concentration. Chlorine in rinse must be at or above 50 ppm and less than 100 ppm.**

⁶ EPA, *Registered Antimicrobial Products with Label Claims for Avian (Bird) Flu Disinfectants*, March 13, 2008, www.epa.gov/pesticides/factsheets/avian_flu_products.htm.

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3. Visually inspect the egg-handling materials after C&D to confirm they are free of egg or other organic soiling. If not clean, use a brush on observed areas and repeat cleaning and sanitation cycle to completely remove observed organic matter.
 4. Make corrections as required to operate the system in established ranges for temperature and chemical concentrations. Note corrective actions in the operating log.
 5. At mid-shift, drain wash water tank and perform mid-shift cleaning.
 6. Repeat pre-operational checks before starting operations.

S2.9.3 Manual C&D of Plastic (Impervious Surface) Egg-Handling Materials

S2.9.3.1 PRE-OPERATION

1. Assemble appropriate equipment (PPE, brushes, high-pressure washer, and low-pressure spray or foaming equipment for sanitizer application) and prepare detergent and sanitizer solutions following manufacturer directions.⁷
2. Maintain the operating log, noting the temperature of wash and rinse waters and detergent and sanitizer concentrations.

S2.9.3.2 OPERATION

1. Dry clean by brushing or scraping to remove accumulated organic matter and soil.
2. Wash with a detergent solution, using brushes or high-pressure washer, and rinse with clean water.
3. Inspect for cleanliness and repeat the wash procedure if not clean.
4. Apply sanitizing solution and allow sanitized surfaces to dry.

⁷ EPA, *Registered Antimicrobial Products with Label Claims for Avian (Bird) Flu Disinfectants*, March 13, 2008, www.epa.gov/pesticides/factsheets/avian_flu_products.htm.

S2.9.4 Manual C&D of Wood-Based (Porous Surface) Egg-Handling Materials

S2.9.4.1 PRE-OPERATION

1. Assemble appropriate equipment (PPE, brushes, high-pressure washer, and low-pressure spray or foaming equipment for sanitizer application) and prepare detergent and sanitizer solutions following manufacturer directions.⁸
2. Maintain operating log, noting the temperature of wash and rinse waters and detergent and sanitizer concentrations.

S2.9.4.2 OPERATION

1. Dry clean by brushing or scraping to remove accumulated organic matter and soil.
2. Wash with detergent solution using brushes or high-pressure washer and rinse with clean water.
3. Inspect for cleanliness and repeat wash procedure if not clean.
4. Apply sanitizing solution and allow sanitized surfaces to dry.

S2.9.4.3 POST-OPERATION HANDLING OF CLEANED AND DISINFECTED EGG-HANDLING MATERIALS

1. Place cleaned and disinfected egg-handling materials on a clean pallet. Clearly label them and as cleaned and disinfected, including the date and time. Additional labeling may be required when the materials are to be returned to the farm of origin.
2. Store cleaned and disinfected materials in a dry area, separate from those used for incoming shell eggs and unwashed egg-handling materials.

S2.9.5 Additional Procedures and Documentation Required when Operating in Control Area or Receiving Eggs from Flocks in a Control Area defined by either State Veterinarian Office and/or APHIS veterinary representative.

1. Procedures for maintaining materials by flock of origin.
2. Documentation confirming segregation of materials and return to origin if used.

⁸ Lombardi and others report that citric acid (1 percent), calcium hypochlorite (750 ppm), acetic acid (5 percent), and iodine/acid-based disinfectants are effective on wood surfaces. See M.E. Lombardi et al., *Inactivation of Avian Influenza Virus Using Common Detergents and Chemicals*, Avian Diseases, No. 52, 2008, pp. 118–123.

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3. Every location or company will provide C&D procedures for non-washable materials in case of a disease outbreak, such as AI or Newcastle disease virus.
 4. Each company will develop their own copy-able C&D report form, including a checklist.

S2.9.6 Paper Flats and Corrugated Cases

At the receiving plant, segregate all paper flats and corrugated egg-handling materials moving from Control Areas under permit, and dispose of them by incineration or other approved methods suitable for local circumstances.

S2.10 EGGSHELLS

S2.10.1 Procedures

1. Produce, collect, and handle shells consistent with good manufacturing practices.
2. Clean and maintain all transport vehicles following protocols for C&D of exteriors and interiors (and cab interior if drivers are allowed outside of the cab during loading or unloading of the wet shells).
3. Remove all debris and organic material through physical cleaning and high-pressure washing.
4. Wash with an approved detergent and rinse with potable water.
5. Apply an approved disinfectant, following label instructions.⁹
6. Clean the cab interior with approved disinfectants.

S2.10.2 Documentation

Dryer log and supporting information needed.

⁹ EPA, *Registered Antimicrobial Products with Label Claims for Avian (Bird) Flu Disinfectants*, March 13, 2008, www.epa.gov/pesticides/factsheets/avian_flu_products.htm.

S2.11 CIP REQUIREMENTS—TANKERS, LINES AND SILOS

These procedures recommend minimum steps for C&D of plastic, washable, egg-handling materials. Alternative procedures achieving the C&D objectives may be used as required under specific circumstances.

S2.11.1 Purpose

To establish minimal requirements to clean egg tankers, lines, and silos in relation to time, temperature, concentration, and flow. Procedures require appropriate system design to wet all surfaces and maintain design velocity, temperature, and chemical strengths.

S2.11.2 Procedure

1. Prepare the clean-in-place (CIP) system as defined for the plant.
2. Execute the CIP, meeting the minimal time, temperature, concentration, and flow requirements outlined in the tables below.

| Tankers | | | | |
|----------------|-------------|--------------------|----------------------|-------------|
| Process | Time | Temperature | Concentration | Flow |
| Pre-rinse | 5.0 minutes | Ambient | | |
| Caustic wash | 7.0 minutes | 150° F | 1.5–2.5% | 70 gal/min |
| Rinse | 3.0 minutes | Ambient | | |
| Sanitizer | 2.0 minutes | Ambient | 1500–2500 ppm | |

| Lines | | | | |
|----------------|--------------|--------------------|----------------------|-------------|
| Process | Time | Temperature | Concentration | Flow |
| Pre-rinse | 5.0 minutes | Ambient | | |
| Caustic wash | 10.0 minutes | 150° F | 1.5–2.5% | ≥ 5 ft/sec |
| Rinse* | 5.0 minutes | Ambient | | |
| Sanitizer | 2.0 minutes | Ambient | 1500–2500 ppm | |

* Apply an acid rinse as needed to remove mineral buildup (minimum 5,000 ppm).

| Silos | | | | |
|----------------|--------------|--------------------|----------------------|-------------|
| Process | Time | Temperature | Concentration | Flow |
| Pre-rinse | 5.0 minutes | Ambient | | |
| Caustic wash | 15.0 minutes | 150° F | 1.5–2.5% | 70 gal/min |
| Rinse* | 5.0 minutes | Ambient | | |
| Sanitizer | 2.0 minutes | Ambient | 1500–2500 ppm | |

* Apply an acid rinse as needed to remove mineral build-up (minimum 5,000ppm).

3. Visually inspect the vessel at the completion of CIP.
4. Document the steps of the CIP on the egg products CIP log (see below).

S2.11.3 Responsibility

| Employee title | Responsibility |
|-----------------------|--|
| Processing Employee | Perform the CIP and complete the documentation as defined. |
| Processing Supervisor | Review documentation to ensure all parameters are met. |

S2.11.4 Documentation

1. Egg products CIP log.
2. CIP charts.

S2.12 EGG PRODUCTS CIP LOG

Plant: _____

Date: _____

| Vessel ID | Time CIP (start) | Time CIP (end) | Inspection | Initial |
|-----------|------------------|----------------|------------|---------|
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Perform a concentration check once per shift on the (1) silo, (2) tanker, and (3) line.

Shift 1

| Vessel | Caustic concentration | Sanitizer concentration | Initial |
|--------|-----------------------|-------------------------|---------|
| Tanker | | | |
| Line | | | |
| Silo | | | |

Shift 2

| Vessel | Caustic concentration | Sanitizer concentration | Initial |
|--------|-----------------------|-------------------------|---------|
| Tanker | | | |
| Line | | | |
| Silo | | | |

Shift 3

| Vessel | Caustic concentration | Sanitizer concentration | Initial |
|---------------|------------------------------|--------------------------------|----------------|
| Tanker | | | |
| Line | | | |
| Silo | | | |

Supervisor Review: _____

S2.13 TANKER EXTERIOR WASH PROCEDURE

These procedures recommend minimum steps for C&D of plastic, washable egg-handling materials. Alternative procedures achieving the C&D objectives may be used as required under specific circumstances.

S2.13.1 Tanker Wash Procedure

1. Make sure that all openings on the tanker are closed tightly.
2. Clean the undercarriage and tires with a high-pressure washer and appropriate detergent to remove dirt or ice.
3. Foam the entire exterior of the tanker, undercarriage of the trailer, and tires with a soft, metal-type, general purpose foaming cleaner. Follow the manufacturer recommended procedures for this product.
4. Let foam sit on all areas for 5 to 10 minutes.
5. Rinse with a quaternary ammonium or chlorine sanitizer after foam.¹⁰
 - a. Minimum sanitizer concentration for quaternary sanitizer is 200 ppm (or per manufacturers recommendation).
 - b. Minimum sanitizer concentration for chlorine 50 ppm.
6. Check the concentration of the sanitizer on every tanker and record the results on the exterior wash certificate.
7. After all areas are rinsed with sanitizer, complete the exterior wash certificate.
8. Give one copy of the exterior wash certificate to the driver and file the other copy with the tanker unloading paperwork.

¹⁰ EPA, *Registered Antimicrobial Products with Label Claims for Avian (Bird) Flu Disinfectants*, March 13, 2008, www.epa.gov/pesticides/factsheets/avian_flu_products.htm.

S2.13.2 TANKER EXTERIOR CLEANING CERTIFICATE

TANKER EXTERIOR CLEANING CERTIFICATE

Must be used during elevated or highest biosecurity conditions

Date: _____ Company Location: _____

Time: _____ Supplier: _____

Truck Line: _____

Trailer number or license plate number of trailer: _____

Exterior and undercarriage foamed using: _____

Exterior and undercarriage sanitized using: _____ at _____ ppm

Exterior was foamed and sanitized by: _____ (signature)

One copy to go with the driver—One copy to stay with company paperwork

S2.14 INEDIBLE EGG

S2.14.1 Procedures

1. Produce, collect, and handle inedible liquid egg consistent with good manufacturing practices.
2. Maintain inedible egg at temperatures less than 45 °F until pasteurized and dried or otherwise heat-treated.
3. Clean and maintain all process lines, centrifuges, bins, trucks, and dryers following protocols for CIP of liquid process systems, including the interior and exterior of tankers, hand-cleaning where applicable. Clean and disinfect the interiors of trucks transporting inedible eggs in barrels or similar containers following procedures for cleaning interiors of trucks transporting nest run shell eggs.
4. At the drying facility, pasteurize the inedible liquid egg.¹¹
5. For inedible liquid egg with solids less than 25 percent, process with a minimum hold time of 188 seconds at 60 °C (140 °F).¹²
6. Maintain pasteurized inedible egg under refrigeration until dried and packaged.
7. Maintain dried, inedible egg following good manufacturing process.
8. Applications of inedible egg may include a thermal heating or cooking preparation procedure for feeding to animals. Thermal treatments exceeding 70 °C (158 °F) should be acceptable.¹³

S2.14.2 Documentation

Pasteurization log and supporting information.

¹¹ For additional information, see World Organisation for Animal Health (OIE), “Procedures for the inactivation of the AI virus in eggs and egg products” (Article 10.4.25), *Terrestrial Animal Health Code*, 2011, <http://www.oie.int/>.

¹² OIE standards for inactivation of AI virus in egg products are generally less severe than the minimum pasteurization times at temperature for inactivation of *Salmonella sp.* That relationship suggests that alternative pasteurization processes for inedible egg would be adequate if those processes are documented as rendering the product free of *Salmonella sp.*

¹³ For additional information, see OIE, “Procedures for the inactivation of the AI virus in eggs and egg products” (Article 10.4.25), *Terrestrial Animal Health Code*, 2011, <http://www.oie.int/>.

S2.15 FOR ALL TRUCK DRIVERS

S2.15.1 General

1. Do not leave the cab, or the cab interior must be cleaned and disinfected.
2. If leaving the cab, wear protective coveralls, boots, and head cover while outside the cab and remove them immediately before reentering the cab.

S2.16 LOADING DOCKS RECEIVING SHELL EGGS FROM CONTROL AREAS

These procedures are recommended for managing and C&D of loading docks receiving shell eggs moving under permit from an AI Control Area.

S2.16.1 General

This recommendation assumes that the following C&D procedures are incorporated into the loading dock management and C&D procedure:

1. Egg Packing Materials: Plastic Flats, Pallets, Dividers, and Materials Constructed of Wood (Pallets, Divider Board, Tic-Tacs).
2. Shell Egg Truck Exterior/Interior Wash Procedure.
3. Moving Hatching Eggs Out of an AI Control Area.

This recommended procedure may be used for loading docks that may have dual use for receiving eggs for processing or hatching and shipping processed product from the premises. The procedure is also recommended for loading docks dedicated to raw materials (shell eggs for processing or eggs for hatching).

S2.16.2 Procedure

1. During an emergency where an AI Control Area has been established, do not accept deliveries of eggs from a Control Area unless the shipment is conducted as allowed by permit by relevant veterinary authorities.
2. *Originating farm or facility*: do not load the eggs for shipment until a permit to move is obtained and a scheduled receiving time is provided by the receiving premises.
3. *Receiving premises*: schedule arrival of eggs under permit for the end of a processing day so that they may be processed as the “last eggs” handled that day before full C&D of the processing premises and equipment.
4. *Receiving premises*: receive the eggs at the scheduled delivery time:
 - a. Leave the eggs arriving at the premises on the unopened truck until authorized by the receiving premises to approach the loading dock.
 - b. Before unloading, review and verify the documentation of the origin and quantity of eggs contained in the permit for movement.
 - c. Off load the eggs and move them to segregated storage or, preferably, immediately process them (convert to liquid egg for pasteurization, wash, and sanitize or cook).

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5. Clean and disinfect the shell egg truck following the procedure cited above before leaving the premises.
 6. Clean and disinfect the egg-handling materials following the procedure cited above.
 7. Clean the loading dock area, receiving storage areas, and connecting passages.
 - a. Assemble appropriate equipment (PPE, brushes, high-pressure washer, and low-pressure spray or foaming equipment for sanitizer application) and prepare detergent and sanitizer solutions following manufacturer directions.¹⁴
 - b. Maintain the operating log, noting the temperature of the wash and rinse waters and detergent and sanitizer concentrations.
 - c. Dry clean by brushing or scraping to remove accumulated organic matter and soil.
 - d. Wash with detergent solution using brushes or high-pressure washer and rinse with clean water.
 - e. Inspect for cleanliness and repeat wash procedure if not clean.
 - f. Apply sanitizing solution and allow sanitized surfaces to dry.

¹⁴ EPA, *Registered Antimicrobial Products with Label Claims for Avian (Bird) Flu Disinfectants*, March 13, 2008, www.epa.gov/pesticides/factsheets/avian_flu_products.htm.