Standard Operating Procedures for On-Farm Destruction, Disposal, and Cleaning and Disinfection

British Columbia Poultry Producers

January 2019

Table of Contents

NOTE: Growers are responsible for Stage 3: Cleaning & Disinfection. Those sections are therefore highlighted in red (pages 46-79).

Standard Operating Procedure: Introduction

This document contains generalized Standard Operating Procedures (SOP's) for your use in preparing for destruction and disposal, and for carrying out the cleaning and disinfection (C&D) actions required in the event of an Avian Influenza or other infectious disease event on your farm. You will plan, manage and carry out the C&D activities, following your SOP's for this Stage, with inspections and approvals by CFIA. While the destruction stage is carried out by CFIA representatives and the disposal stage is directed by CFIA representatives, your SOP's will be used as a valuable source of information for CFIA planning and carrying out those activities. The disposal and destruction sections of this guide are likewise included to provide you with information, even if the responsibility for those activities lies with CFIA.

These generalized SOP's align with CFIA requirements for response to a disease event and are provided as a guide to preparation of a set of written SOP's specific to your operations. Select, add, delete, modify and detail the standardized activities provided in the SOP documents to suit the species, production type, equipment and configuration of your farm. The general SOP's provided in this guide are intended to be used in conjunction with an accompanying Excel tool[1] that will enable you to identify and document methods and procedures for C&D that fit with the layout and production practices of your farm.

When completed, your SOP's are to be accessed whenever needed in a disease event, and to be updated regularly as changes are made on your farm, and as regulations, standards and practices in the sector are implemented. Your SOP's are designed to be effective in Avian Influenza or other disease outbreaks, and so will also be fully effective in most disease events where depopulation of your flocks may be necessary.

Should a disease event occur on your farm, your SOP's will be reviewed with CFIA representatives before response activities on your farm begin. Having a plan ready and having a plan that will achieve the majority of requirements of the CFIA, will allow you the best opportunity to return to business as soon as possible following disease detection on your farm.

In each Step through this manual, an introduction is provided that will briefly explain the purpose and scope of the Step. Then the SOP's that need to be undertaken to complete that part of the destruction, disposal, cleaning and disinfection process are presented. Equipment and materials that are required for the full response and for each SOP are listed in an Appendix. When complete, the SOP's are intended to be both a guide to your disease-response activities, and to be a resource for instructing farm employees and specifying requirements for contractors that may be involved.

Information in these SOP's is useful only if you, your farm workers, and any contractors you may hire in a disease response know and understand what is required of them. This applies to biosecurity practices, health and safety requirements, and zone entry and movement protocols during the on-farm response activities as well as to the Destruction, Disposal, and Cleaning and disinfection practices in your SOP's.

[1] A description of the tool is provided in Stage 3, page 45

We recommend that both you and any contractors/service crew chiefs sign the relevant sections of your SOP. These signatures confirm everyone's commitment to follow the SOP's as written. It also assumes that the SOP will be reviewed with all parties involved before, during and after the work is completed.

Date each SOP with its preparation date. Revise SOP's as facilities and/or equipment change, as CFIA and provincial guidance and/or regulations change, and as product Material Safety Data Sheets (MSDS) are updated. Re-sign and re-date the revised versions and keep the most recent versions of all SOP's in a single, easily-accessible binder or book.

Note: This document describes the SOP's for a "potentially-infected room or area". These are represented in the document by the term "barn" or "barns", although the SOP's and the actions within them should be applied to potentially-infected rooms and areas within or adjacent to your barn(s). Using the accompanying tool, make sure that all barns and all other parts of your farm that would need to be cleaned and disinfected if an Avian Influenza infection occurred – e.g. egg room, cooler, anteroom, barn office, washrooms, storage areas, equipment cleaning/disinfection areas, etc. – are all covered by your SOP's.

Important Information for Producers During Preparation of Standard Operating Procedures

Safety: Include measures to ensure the safety and protection of all farm employees and contractors in the SOP's or in an Appendix (including donning and doffing of PPE) and assign responsibility to ensure that they are followed by staff and contractors.

Biosecurity: Obtain and include in the SOP's the biosecurity protocol as set out by the CFIA Biocontainment unit and assign responsibility to ensure that it is followed by staff and contractors.

Environment: Contact provincial or other governing jurisdictions for potential restrictions in areas of environmental concern and include methods in the SOP's to address them.

Site management:

- Identify the number of personnel to be engaged in each activity
- Establish and include in the SOP responsibility for movement of personnel, equipment and vehicles and for moving/removal of bio-hazardous material
- Establish a location for disinfection of tools and equipment used outside of the barn(s) and for tools and equipment used inside the barn(s) that cannot be cleaned and disinfected in the barn(s)

Acronyms

AI	Avian Influenza
BHT	Biological Heat Treatment
CFIA	Canadian Food Inspection Agency
DIN	Drug Identification Number
Barn	Potentially-Infected Room or Area
PPE	Personal Protective Equipment
SOP	Standard Operating Procedure
C & D	Cleaning and Disinfection
MSDS	Material Safety Data Sheet

How to Use this Guide

This guide includes a sequence of general standard operating procedures (SOP's) that were designed to align with CFIA requirements for response to a disease event. They are provided as a guide for your preparation of a set of SOP's specific to your operations. The producer's responsibility during the destruction, disposal and cleaning process lies primarily in Stage 3: Cleaning and Disinfection. CFIA bears primary responsibility for and will lead all activity during Stages 1 and 2. However, the details of those stages are still relevant to the grower so that they can understand the process – it is for that reason that those stages are included in this guide. However, to be very clear – the grower will be expected to produce a farm-specific SOP only for Stage 3 (Cleaning & Disinfection).

Growers are responsible for Stage 3: Cleaning & Disinfection. Those sections are therefore highlighted in red, while the other sections are primarily CFIA responsibility and in blue colour.

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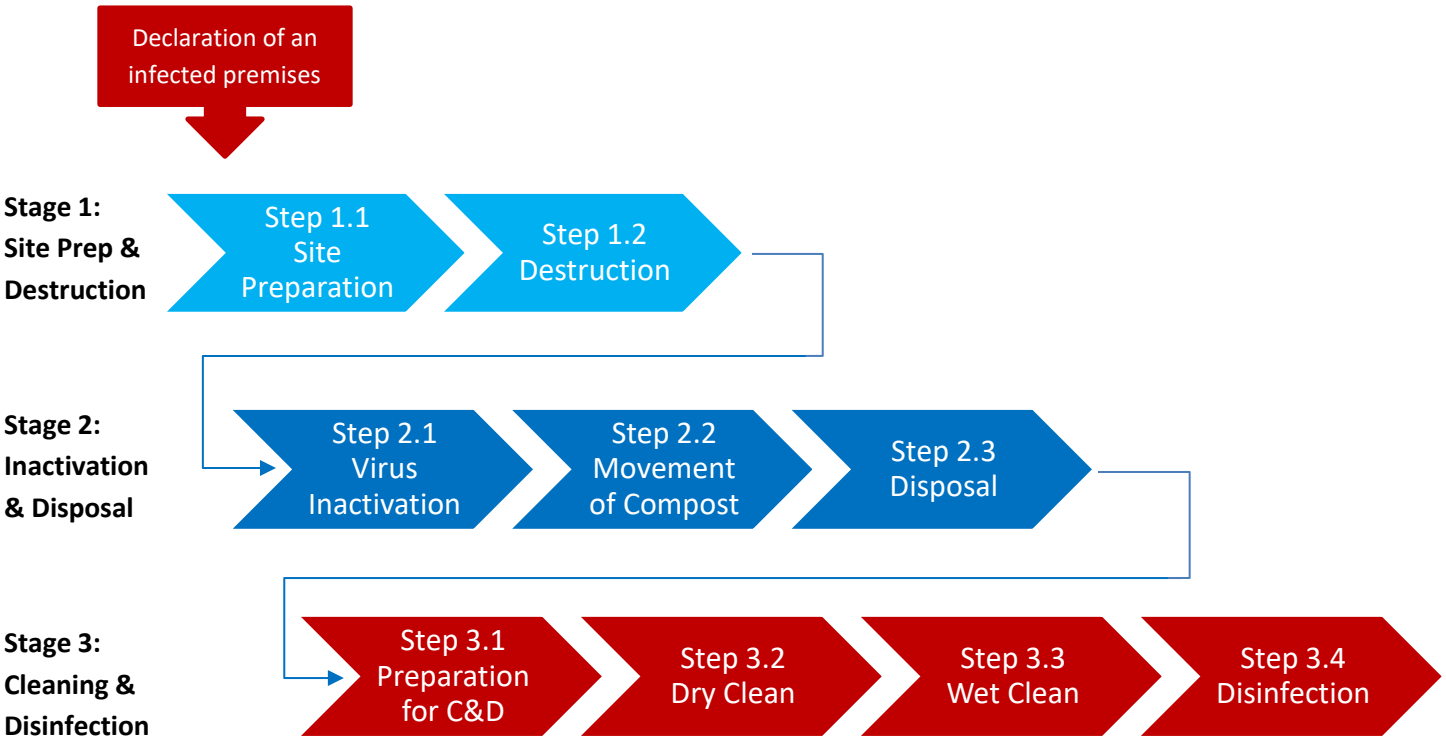
This manual is just a general guide, so for every infected premise, CFIA will require you to develop an SOP that addresses all of the physical and operational details of that specific operation. To help simplify the process of drafting an SOP for your farm, a Microsoft Excel-based **"SOP Planning Tool"** was created and is intended to be used in concert with this document. It is focused exclusively on Stage 3 (Cleaning & Disinfection). Please see details at page 45.

Keep in mind that the Tool facilitates the creation of a draft SOP. You are encouraged to select, add, delete, modify and detail the standardized activities provided in each SOP document to suit the specific configuration of your farm. The information in these SOP's is useful only if you, your farm workers, and any contractors you may plan to use in a disease response know and understand what is required of them. Best practice is for you, as the responsible party, to sign each SOP, and have contractors and service crew chiefs who will carry out the work sign any SOP's that they will use; these signatures confirm everyone's commitment to follow the SOP's as written.

SOP Stages and Structure

Standard Operating Procedures (SOP's) for destruction of infected flocks, disposal of the carcasses and other potentially-infectious organic material, and cleaning and disinfection of the barns and other potentially-infected facilities are presented in this document in three Stages. The structure of the SOP's is illustrated in the graphic below, which forms the basis for the document and for the Excel-based tool that accompanies it.

The three Stages begin when CFIA has issued a Declaration of an Infected Premises.



CFIA takes charge of the process and much of the activity in Stage 1. However, you will be required to provide information on and access to your farm and your flock(s), so that the CFIA response personnel can safely and effectively do their work. In addition, you, and some of your farm workers and contractors who are trained and experienced to carry out certain tasks, may be requested to assist their response team, working under their direction. The SOP's in Stage 1 provide step-by-step direction for producers/farm managers so that CFIA's work can proceed in a timely and efficient manner, and also include tasks that are under CFIA control so that producers/farm managers can be aware of the process that is being followed.

Stage 2 will typically involve the producers/farm managers and contractors who may be hired to carry out these activities, but CFIA has oversight authority and also has knowledge, methods and experience that can be accessed. In British Columbia, the default inactivation and disposal method is Virus Inactivation via composting in-barn; this method is referred to as "biological heat treatment", or BHT. Once inactivation has been confirmed by CFIA, the resulting material can be removed from the barn for disposal. Where space permits, some producers will carry out the disposal step on-farm. However, most producers will plan to move BHT material off-farm to an approved site for disposal, and the SOP's are prepared to address this option.

The SOP's in Stage 3 are the key to getting the farm restocked and back in business.

SOP's that are prepared for the Cleaning and Disinfection (Stage 3) will be requested for review by CFIA during or after their "Site Visit 1". Once they are accepted for use, the cleaning and disinfection stage can be carried out, with oversight by CFIA at important go/no-go points, including a final inspection to approve restocking.

This guide has many details on specific elements of Cleaning & Disinfection, but the three "Self-Check" lists help to outline the overall activities that will be required. Below is a summary of those three checklists – the full details are found later in this section.

Self-Check 1 (CFIA Site Visit #1)

(see page 50 for details)

- ☐ Insect and rodent (vector) control is in place
- ☐ All barn doors, windows, air inlets, intake openings and louvres have remained closed as much as possible throughout all cleaning procedures
- ☐ Air inlets that cannot be completely closed have remained covered and sealed with plastic sheeting and duct tape or staples wherever possible throughout all cleaning procedures
- ☐ All exposed surfaces, including carcasses were covered with a low-pressure spray disinfectant that has been mixed in the correct manner
- ☐ All fans, louvers, doorframes and vents have been sprayed with specified disinfectant that has been mixed in the correct manner
- ☐ All non-cleanable items in barn have been disposed of
- ☐ Determine whether cleaning will be conducted by farm staff or a contractor hired

Self-Check 2 (After Dry Clean)

(*see page 62 for details)*:

- ☐ All necessary manure treatment procedures have been completed.
- ☐ The barn has been dry cleaned and dusted from the ceiling down.
- ☐ A thorough cleaning has been done on all permanent equipment from one end of the barn to the other.

- ☐ Remaining manure, feed, eggs, egg debris, and litter, etc. have been removed and carried to the manure end of the barn, and remaining feed and litter have been collected and disposed of per the Biohazard Disposal Plan.
- ☐ Lighting and ceiling fixtures have been cleaned.
- ☐ All biohazardous material has been contained and disposed of as directed in the biohazardous material disposal plan.
- ☐ All tools used in the dry cleaning process have been cleaned and disinfected; any that were determined to be uncleanable have been disposed of per the Biohazard Disposal Plan.
- ☐ Dirt on electrical panel components has been removed.
- ☐ Any equipment with openings or ventilation louvers has been disassembled and cleaned.
- ☐ Visible organic matter has been removed from all exposed areas of all mechanical and electrical equipment.
- ☐ All fans, louvres and contaminated surfaces outside of the barn have been cleaned.
- ☐ Areas of the fans and air inlets that were covered with plastic sheeting for barn sealing have been cleaned.
- ☐ All manure areas (belt augers, scrapers, egg belts, etc.) are clean.
- ☐ Non-cleanable cleaning tools and equipment, and the tape and plastic used to seal the barn, have been collected into biohazard disposal bags and disposed of per the Biohazard Disposal Plan.
- ☐ All loose debris on the floor has been swept into the manure end of the barn.
- ☐ A second inspection to ensure all loose organic material has been removed has been carried out.

Self-Check 3 (CFIA Site Visit #2 – Cleaning Inspection)

(*see page 70 for details)*:

- ☐ Water lines have been drained
- ☐ All water lines have been rinsed with hydrogen peroxide, chlorine, citric acid or acetic acid to remove scale and biofilm.
- ☐ Water lines have been flushed following rinse (above)
- ☐ Electrical motors, switches, electrical outlets and other sensitive fixtures are clean
- ☐ Cleaned equipment was covered with plastic and duct tape to avoid recontamination and, where required, wetting.
- ☐ All air inlets and fans have been washed, working from the outside-in.
- ☐ All exposed surfaces within the barn have been power washed to rinse detergent to the floor
- ☐ Cleaning solution has been moved from floor to the manure area of the barn
- ☐ Residual water from feeders and waterers has been emptied
- ☐ Air inlets and louvers are open, and the fans and heat have been turned on to allow surfaces to dry
- ☐ Auxiliary fans and/or heaters have been/are being used to dry equipment where necessary.

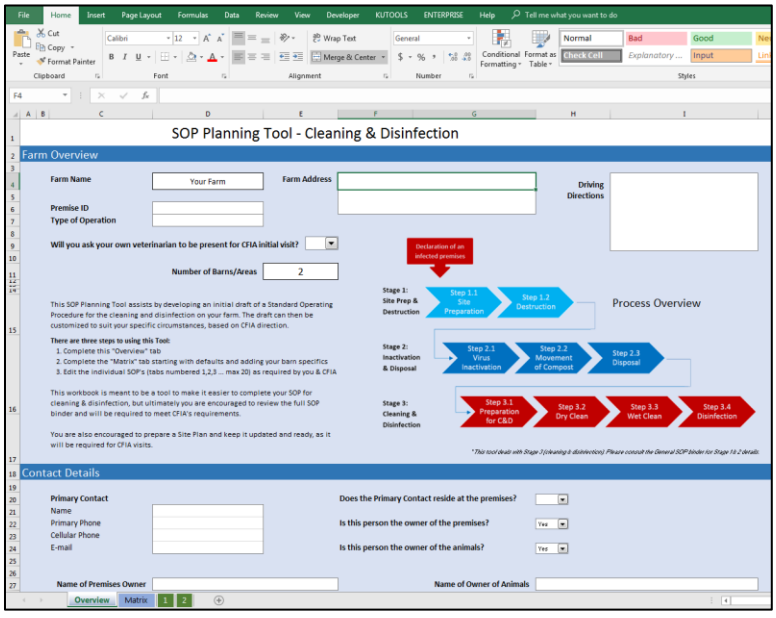
Self-Check 4 (CFIA Site Visit #3 – Disinfection Inspection)

(*see page 78 for details)*:

- ☐ Confirm with cleaning crew that disinfectant was applied to all exposed surfaces of the barn
- ☐ Residual disinfectant has been removed from feeders and bell/open waterers
- ☐ Disinfectant information was recorded and initialed including concentration used, contact time and temperature of area (for example inside barn) at time of use.
- ☐ Difficult to clean and/or sensitive equipment has been fumigated or disinfected using other means
- ☐ Disinfected equipment that was removed from the barn for disinfection has been reinstalled
- ☐ All openings in barn are closed
- ☐ Confirm with cleaning crew that water filters were replaced after disinfectant was pumped through the water lines
- ☐ Proportioners have been cleaned and disinfected
- ☐ Confirm with the cleaning crew that the system has been flushed with fresh water and the nipples or valves have been triggered
- ☐ Confirm that all surfaces have dried.

The SOP Planning Tool

A Microsoft Excel-based tool has been created to accompany these SOP's. It is used primarily to assess and select options for the detailed SOP's you will create for your farm in Stage 3. A description of the tool and directions for its use are included at the beginning of Stage 3, starting at page 46.



Stage 1: Site Preparation and Destruction

The Steps and SOP's in Stage 1 address information requirements and activities needed to prepare for and address destruction of infected or suspected flocks on your farm. They begin following the Declaration of an Infected Premises by CFIA.

CFIA retains authority for initiating and directing the destruction of these flocks; however, CFIA officials will require information, cooperation and availability of knowledgeable personnel to carry out their responsibilities.

- CFIA is responsible for destruction of infected flocks, and so they will oversee the activities in this Stage
- CFIA responses to avian influenza are flexible and processes may vary
- Worker health and safety is each producer's responsibility
- Insect and rodent control must be in place to limit the spread of disease
- Barn doors, windows, air inlets, intake openings and louvres should be closed, except where noted in the SOP's
- Prepare disinfectant according to label instructions
- Keep empty disinfectant containers

Step 1.1: Site Preparation

The purpose of Step 1.1 is to prepare for and participate in an on-site visit by CFIA to establish zones and plan destruction of the infected flock(s), and to assemble personnel and materiel that will be required for the destruction activities.

Note that in the introduction to each Step throughout the SOP's, a summary outline of the SOP's in the Step will be provided, as follows:

SOP 1.1.1 Gather Information and Materials

Information and materials required for a site visit by CFIA are collected in advance and updated in necessary.

SOP 1.1.2: Confirm and Assemble Resources

Following the CFIA site visit, required and available resources are assembled for destruction, which will follow shortly. Specific skills and experience will be required of several of the destruction team members and support workers.

SOP 1.1.1: Gather Information and Materials

Farm Name	
Date	

Purpose

This SOP describes information and materials that will be required in preparation for and during participation in a pre-destruction site visit by CFIA. These procedures are the responsibility of the producer, owner, or farm manager.

Procedures

Before the site visit:

- Locate these SOP's and update them as necessary to reflect current configuration, bird population, and uses of all barns
- Ensure that documents relating to the SOP's are available which provide a detailed map/diagram of the farm site, including other buildings, houses, sheds, kennels and/or barns in close proximity to the barn(s); access points and roads/lanes/driveways; movement records and blueprints or other scaled drawings of all barns

Schedule a CFIA site visit, during which:

- Enable access for CFIA personnel onto the site and to all areas of the infected premises required for their preparatory work
- Provide input as required for CFIA's job hazard analysis and task hazard analysis
- Record responsibilities requested by CFIA for the farm manager and farm personnel and confirm their activities as detailed in the following SOP's
- Assist in determining the location and entry/exit points for the cold, warm and hot zones for each premise
- Assist in calculating the volume of CO2 that will be required for the destruction of all bird populations
- Assist in the analysis of the barns, including identification of confined spaces
    - _____
    - _____
    - _____

Producer's Signature: _____

Contractor's Signature: _____

SOP 1.1.2: Confirm and Assemble Resources

Farm Name	
Date	

Purpose

This SOP follows a site visit by a CFIA representative(s). It describes scheduling people and obtaining materials that will be required during the destruction of an infected flock(s) by the CFIA team under the direction of a Site Manager appointed by CFIA. The following procedures are the responsibility of the producer, owner, or farm manager.

Procedures

Following the CFIA inspection visit, the CFIA will:

- Identify and schedule available skilled/trained personnel for the CFIA destruction team, one of whom can serve as safety officer and one experienced in assessing the effectiveness of the destruction method, and potentially including:
    - 1 team leader
    - 2 monitors/recorders
    - 4 to 6 crew, including the crew chief
- Contact the CO_2 supplier, advise the volume of gas and reserve a delivery date/time[2]
- Locate barn sealing materials and equipment required for destruction activities, based on the number of barns and the required number of team members
- Locate Personal Protective Equipment in numbers required for the activities of all team members for the period of Destruction, Disposal and Cleaning & Disinfection (C&D), as shown in Appendix 3
    - _____
    - _____
    - _____

Producer's Signature: _____

Contractor's Signature: _____

[2] Calculation of CO_2 volumes for each destruction location will be completed by CFIA

Step 1.2: Destruction

The SOP's in Step 1.2 provide details of all actions that are required to be taken, in sequence, using full-barn CO_2 gassing. Destruction is the responsibility of CFIA, and the Farm Manager, farm workers, and contractors *may* be recruited to take on roles as part of the destruction team.

SOP 1.2.1 Site Set-up

The Cold, Warm and Hot Zones are established, and equipment and supplies are delivered to the destruction site.

SOP 1.2.2 Equipment Preparation and Set-up

The CO_2 distribution box, manifolds and hoses are put in place; the ventilation system is pre-set as a manual control to ensure availability during barn-sealing work and off-status during gas delivery; and the monitoring components are positioned in the barn.

SOP 1.2.3 Barn Sealing

Risk areas are identified for review immediately following barn venting; openings in the roof or upper areas are identified for displacement of ambient air during gas delivery; entry doors, windows, fan openings and all other openings or gaps are sealed, using plastic sheeting, fibreglass insulation, duct tape and staples.

SOP 1.2.4 Gas Delivery

Strict protocols are followed for the delivery of CO_2 into the barn, under CFIA leadership and responsibility.

SOP 1.2.5 Gas Monitoring

CO_2 and O_2 levels in the barn are monitored and recorded and determine when critical levels are reached for humane destruction of the birds, under CFIA supervision/leadership.

SOP 1.2.6 Barn Venting

Vents and selected doors are opened from outside the barn to allow clearing of CO_2 and any other noxious gases and return of O_2 to the barn; CO_2 and O_2 levels are monitored to identify when safe entry is available to monitor low areas and check mortality of the flock. ***All-clear/Safe-to-enter*** is declared by CFIA.

SOP 1.2.7 Unseal Barn Interior

All sealing material is removed from the interior surfaces of the barn, are disinfected and placed into hazardous material bags for disposal.

SOP 1.2.1: Site Set-up

Farm Name	
Date	

Purpose

This SOP prepares the infected areas of the premises for destruction of the flock, under direction from the CFIA operative(s) on site.

Procedures

Preparation:

- Review Safety, Biosecurity and Movement protocols relating to the Cold, Warm and Hot zones with all employees and contractors

Set-up:

- Under direction of the CFIA Site Leader, determine the boundaries of the Cold, Warm and Hot zones surrounding the infected barn(s)
- Brief all farm employees and contractors who will be on-farm during the Destruction, Disposal and C&D on the location and boundaries of the zones and access rules pertaining to them
- Identify farm employees and contractors who will be assisting in each Stage and Step of the Destruction activities to the CFIA Site Leader
- Move all equipment and materials available on-farm that are needed for sealing the barn(s) and destroying the flock(s) to a convenient location within the Cold Zone
- Move PPE to a storage area located on the boundary between the Cold and Warm Zones
- Assist CFIA personnel to move equipment required for destruction of the flock(s) to a convenient location within the Cold Zone
    - _____
    - _____
    - _____

Producer's Signature: _____

Contractor's Signature: _____

SOP 1.2.2: Equipment Preparation and Set-up

Farm Name	
Date	

Purpose

This SOP describes the steps taken to enable the CO_2 delivery and controls and required monitoring equipment to the barn(s) for destruction of the flock(s). Assembling the gas delivery equipment will only be done by the gas company technician and placing monitoring hoses will only be done by trained, skilled personnel, identified in advance by the CFIA Site Manager.

Procedures

Before approaching the equipment:

- Review Safety, Biosecurity and Movement protocols with all employees and contractors
- Don appropriate PPE

After entering the zone:

- Work with the CFIA team lead as appropriate, elements of which may include the following
- Determine the access point(s) for CO_2 delivery into the barn(s) and entry points for monitoring tubes
- Place CO_2 distribution box and manifold(s) in place between the delivery truck and the access point for $C0_2$
- Connect hoses (gas company technician is responsible)
- Pre-set the ventilation system:
  - Set control systems, fan starter motors and thermostats in “manual” mode
  - Turn thermostats down or off, to disable crossover with fans and heating system
- Prepare and place monitoring equipment:
  - As required by team leader, assist in activities described in Step 7.3.3 of the CFIA Common Procedures Manual (#2288382) or as described by the team leader
    - _____
    - _____
    - _____

Producer’s Signature: _____

Contractor’s Signature: _____

SOP 1.2.3: Barn Sealing

Farm Name	
Date	

Purpose

This SOP describes the steps taken to seal the barn in preparation for delivery of CO_2 into the barn(s). Under CFIA direction, **risk** areas[3] inside the barn(s) will be identified and recorded. Provision for displacement of ambient air in the barn(s) will be identified and assured, and all doors, windows, fans and other gaps and openings will be sealed to ensure containment of CO_2.

Procedures

Before approaching the barn:

- Review Safety, Biosecurity and Movement protocols with all employees and contractors
- Test and adjust ventilation for the sealing crew
- Leave a minimum number of fans running for the comfort of workers in the barn
- Don appropriate PPE

After entering the barn:

- Work with the CFIA team lead as appropriate, elements of which may include the following
- Identify and record potential hazards (e.g. low areas, manure pit, etc. where CO_2 may remain following ventilation; chemical storage areas) so that they can be checked before an "all clear" following gassing (see SOP 1.2.6)
- Identify an opening(s) high in the barn to allow for displacement of air when CO_2 is introduced; leave ceiling/roof vents open, except for any of the vents that are lower than the tops of cages containing birds, in which case, close and seal these vents
- Seal fans that have been turned off from outside the barn if possible, using plastic sheet and duct tape and/or a stapler[4]; pre-cut plastic sheet for each fan that is operating and staple to the wall below each unit
    - Be sure to feed gas monitoring tubes through fan openings as planned before sealing the openings
- Seal sliding and entry doors and windows on the inside of the barn, using plastic sheet and duct tape and/or a stapler; use duct tape and/or rags or insulation material to seal gaps
    - Seal badly-fitting doors or windows with plastic sheet covering the opening, duct-taped and/or stapled around the frame

[3] Low areas in which CO_2 may pool and resist venting following destruction, chemical storage areas, etc.
[4] Fans that are 2 feet or more above the heads of the highest-positioned birds need not be sealed.

- Seal overhead and roll-up doors on the inside of the barn to a height of 5 feet above the floor for floor birds, and to the top of the door for caged birds. Use plastic sheet duct-taped and/or stapled around the frame and extend it three feet onto the floor on each side of the door; place the insulation under the plastic and place litter, slats, dead birds or other heavy material on top of the plastic to hold it in place
- Seal larger barn openings with fibreglass insulation, garbage bags and/or a plastic sheet, duct-taped or stapled around their perimeter; seal smaller openings with duct tape
- Seal all drains, manure openings and sewers with fibreglass batts and/or a plastic sheet
- If manure belts are used, release their tension
- Drain water lines to avoid freezing (in the CO_2 environment)
- When all other sealing is complete, and immediately before gas is ready to be introduced into the barn, turn off the operating fans. Seal them using the plastic sheet that was pre-cut and positioned in point 3 above, and duct tape and/or staples

    - _____
    - _____
    - _____

Producer's Signature: _____

Contractor's Signature: _____

SOP 1.2.4: Gas Delivery

Farm Name	
Date	

Purpose

Gas delivery is the responsibility of the Destruction Team Leader. The purpose of this SOP is to inform farm workers and contractors who are involved with related activities what steps are taken to effect the destruction of the flock(s). The Destruction Team Leader will be assisted by designated personnel, and farm workers and/or contractors may be asked to assist in one or more of the tasks.

Procedures[5]

Gas delivery is the responsibility of the Destruction Team Leader. When barn sealing is complete and all equipment is in place, the Leader will:

- Send everyone not required for gas monitoring to the Cold Zone
- Conduct a final check inside and outside the barn
- Turn off the lights (this allows the birds to settle before the gas is introduced)
- Seal the exit door from the outside
- Advise the site manager that the team is ready to turn on the gas
- Complete a roll call for all responders on site and final safety check
- Instruct the gas technician to turn on the gas
- Advise the site manager that the gas has been turned on

[5] Taken from CFIA #2288382 Common Procedures Manual Step 10.2, "Whole Barn CO_2 Gassing"

SOP 1.2.5: Gas Monitoring

Farm Name	
Date	

Purpose

This SOP describes the steps required to monitor and record CO_2 and O_2 levels in the barn so that the Destruction Team Leader can manage the destruction process. Familiarity with and understanding of the monitoring tubes and their readings is essential for those assigned to monitoring the CO_2 and O_2 levels.

Procedures

Before approaching the monitoring area(s):

- Review Safety, Biosecurity and Movement protocols with all employees and contractors
- Don appropriate PPE

In the monitoring area(s):

- Gas monitors record the time when CO_2 concentration reaches 20% for all monitoring points. Birds (chickens and turkeys[6]) become insensible at this concentration and gas delivery rate can be increased
- Gas monitors record the time and advise the destruction team leader when CO_2 concentration reaches 45% and O_2 concentration reaches 5% for all monitoring points. Death is achieved (chickens and turkeys) at this CO_2 concentration level, with O_2 at or below this concentration
- The destruction team leader instructs the gas technician to stop the delivery of the gas
- Gas monitors continue to observe concentration levels for a further 30 minutes and advise the Destruction Team Leader when CO_2 concentration drops below 45% and/or O_2 concentration exceeds 6% for all monitoring points
  - _____
  - _____
  - _____

Producer's Signature: _____

Contractor's Signature: _____

[6] Concentrations and practices for destruction of ducks and geese are available in CFIA #2288382 Common Practices Manual Chapter 10.2 Step 8.1.2

SOP 1.2.6: Barn Venting

Farm Name	
Date	

Purpose

This SOP describes the steps required to unseal the exterior of the barn and to vent the barn of CO_2. Before entry of any personnel, CO_2 and O_2 levels in the barn are monitored and recorded until levels are reached that allow safe entry for in-barn confirmation by the Team Leader. The Team Leader will confirm the All-Clear/Safe-to-Enter to the Site Manager.

Procedures

Before approaching the barn:

- Review Safety, Biosecurity and Movement protocols with all employees and contractors
- Review Health and Safety protocols relating to gases and ammonia; advise that no access is to be attempted until directed by the Destruction Team Leader
- Don appropriate PPE

Outside the barn:

- Unseal all doors and vents; remove all sealing materials from the exterior of the barn
- Remove gas-monitoring tubing from the vents, leaving one for monitoring gas levels during venting
- Open doors at both ends of the barn (passive venting) and step away from the opening
- From outside the barn[7], turn on fans (active venting); begin with a few fans at low power/volume and gradually increase to full volume
- Monitor O_2 and CO_2 concentrations; prevent any entry into the barn until:
  - CO_2 level is negligible (0%), and
  - O_2 level is normal (19.5% - 23.0%)

[7] Electrical systems must be configured to allow activation of fans from outside the barn.

- All-Clear/Safe-to-Enter:
  - When concentration levels are confirmed by the monitor(s), the Team Leader and one other experienced team member will enter the barn to monitor gas levels in low areas (e.g. manure pits), and conduct a death assessment of the birds
  - The Team Leader and cohort will exit the barn and confirm the ***all-clear/safe-to-enter*** to the Site Manager and then to the team members

- _____
- _____
- _____

Producer's Signature: _____

Contractor's Signature: _____

SOP 1.2.7: Unseal Barn Interior

Farm Name	
Date	

Purpose

This SOP describes the steps required to fully unseal the interior of the barn(s) and disinfect and dispose of all materials used in barn sealing (SOP 1.2.3). It is enacted only when the ***all-clear/safe-to-enter*** has been given by the Site Manager (SOP 1.2.6).

Procedures

Before entering the barn:

- Review Safety, Biosecurity and Movement protocols with all employees and contractors
- Review Health and Safety protocols relating to gases and ammonia
- Don appropriate PPE

After entering the barn:

- Remove all sealing materials from the doors, windows, vents and other openings in the interior of the barn
- Circulate through the barn and collect all sealing materials thus removing and taking them to an open area in the barn. As sealing materials are brought to the designated area, spray them completely with the disinfectant
- Place the disinfected sealing materials in biohazard disposal bags
- Remove the biohazard disposal bags for disposal as required by the Biohazard Disposal Plan[8]
  - _____
  - _____
  - _____

Producer's Signature: _____

Contractor's Signature: _____

[8] A Biohazard Disposal Plan will be developed with the direction of CFIA during or shortly following the initial Site Visit.

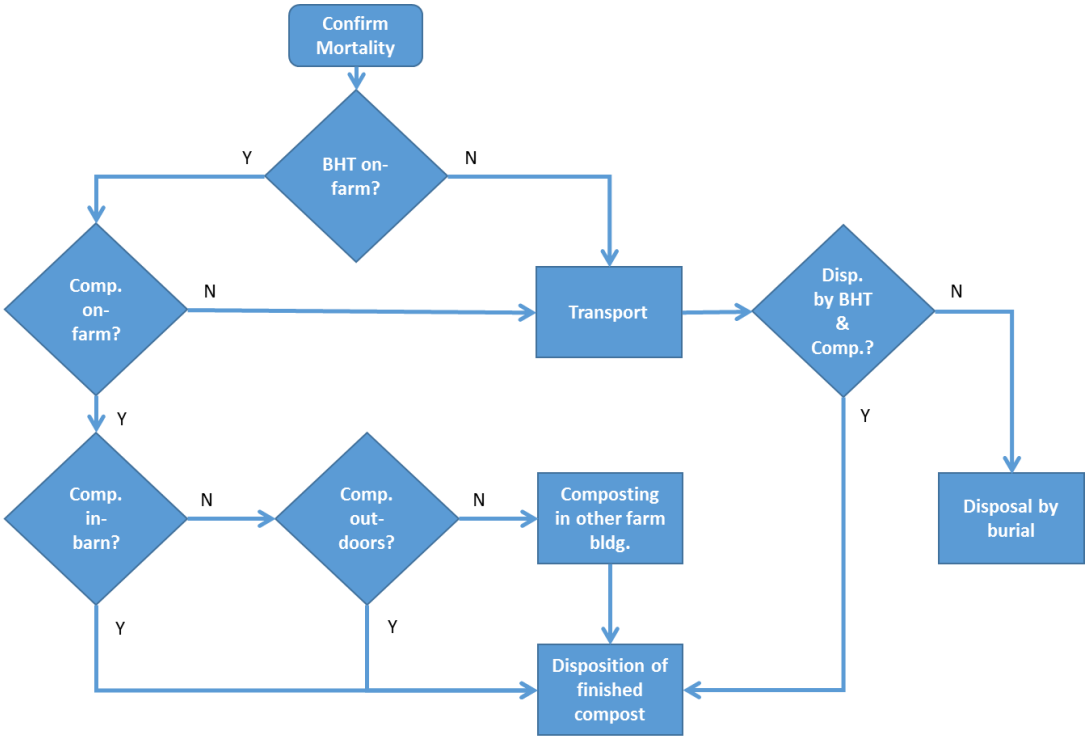
Stage 2: Inactivation and Disposal

The Steps and SOP's in Stage 2 begin as soon as possible following the destruction of the flock. Biological Heat Treatment (BHT) via composting is the standard method of virus inactivation accepted in British Columbia; heat generated by composting the carcasses, eggs, litter and manure, mixed with a carbon source, inactivates the Avian Influenza virus.

The CFIA is responsible for disposal up to the point of inactivation of the virus, in most cases. Advanced planning is needed so producers and/or farm managers can provide input for critical decisions.

During this planning it is important to determine immediately whether facilities are available on-farm both for virus inactivation in-barn and for on-site Disposal. If suitable facilities are not available, alternative plans need to be made for either BHT and composting off-site or disposal by burial in an acceptable location. These alternative approaches will be discussed and agreed in advance with the CFIA and will be governed by specific B.C. regulations.

The graphic below illustrates the possible decisions and options for disposal based on anticipated farm facilities and layouts:



- CFIA is responsible for destruction of infected flocks, and so they will oversee the activities in this Stage
- CFIA responses to avian influenza are flexible and processes may vary
- Worker health and safety is each producer's responsibility
- Insect and rodent control must be in place to limit the spread of disease
- Barn doors, windows, air inlets, intake openings and louvres should be closed, except where noted in the SOP's
- Prepare disinfectant according to label instructions

Step 2.1 Virus Inactivation

Note: Virus inactivation is preferably conducted within a poultry barn, and this option will be the default for purposes of the SOP's detailed below. Where necessary and/or possible, additional options will be identified and/or addressed within the SOP structure, and where applicable, these should be used in preparation of individual farm SOP's.

SOP 2.1.1: Pre-plan/Site Assessment

As soon as possible following destruction of the flock(s), CFIA will carry out an assessment of the barn(s) and the farm itself to determine:

- Will barn configuration accommodate in-barn BHT for virus inactivation?
- Is there adequate and suitable space on-farm to accommodate outdoor composting for disposal of the BHT material?

The site assessment will guide preparation of the BHT area, confirmation of the location for composting, and identification of personnel, materials and equipment needed for the three stages of inactivation and Disposal. Virus inactivation can then be carried out.

SOP 2.1.2: Prepare Barn Area for Virus Inactivation

In preparation for building the compost pile/windrow[9], feeders, waterers and moveable equipment in the selected barn area are moved to accommodate the pile/windrow.

SOP 2.1.3: Build the Compost Pile/Windrow

As required, move all carcasses into the composting area, and add the calculated amount of carbon source (wood shavings or other material) to the existing carcasses. Mix the carcasses, litter, carbon source and other materials together and form the pile/windrow.

SOP 2.1.4: Inspect and Monitor Windrow

Ensure that all carcasses in the pile/windrow are covered and mark the pile with monitoring points. Throughout the BHT process, maintain the pile/windrow and manage/control leachate. CFIA will monitor temperatures in the pile/windrow and release the BHT material after the pile/windrow has met the time and temperature requirements for the inactivation of the virus.

SOP 2.1.5: Alternate Site Preparation

If, during the Site Assessment, it is determined that in-barn BHT is not possible – for example, a layer barn with fixed cages/frames – an alternate location will be identified. Determination of the alternate site for BHT may also impact the location for Composting. Requirements for personnel, materials and equipment may also be affected.

[9] A compost pile and a windrow are constructed similarly with respect to the width of their base and their relative height. The width and height of a pile are approximately equal, while the length of a windrow extends as far as required to accommodate all of the BHT/compost material, within the limits of the barn within which it is built. For the balance of Stage 2, the term "windrow" will be used to include both.

As noted, while not likely it may become necessary under unusual circumstances (if suitable facilities are not available on-farm) that immediate action is required to identify a suitable site off-farm for either composting and/or BHT, or for burial as an alternative disposal method. The use of this off-farm site will need to be approved by CFIA and by British Columbia independently. In addition, movement of the carcasses and accompanying material will need to be planned and authorized (see SOP 2.1.6).

SOP 2.1.6: Movement of Carcasses Off-Farm

When composting/BHT is not possible on the farm, carcasses are moved to a pre-approved off-site location. Removal from the barn and loading for transport, transport to the approved site, and unloading at the off-farm site are planned and approved in advance and are carried out with specific biosecurity practices.

SOP 2.1.1: Pre-plan/Site Assessment

Farm Name	
Date	

Purpose

This SOP enables planning for the BHT and composting locations through participation in a Site Assessment carried out by the CFIA. Personnel, materials and equipment required for BHT, movement of composted material, and composting will be established.

Procedures

Before the Site Assessment:

- Review this SOP and prepare up-to-date information on facilities and bird counts, personnel resources, and available on-farm equipment

During the Site Assessment:

- In cooperation with CFIA, determine if in-barn BHT will work – either on the floor or in the manure pit (or plan an alternative site – see SOP 2.1.5: Alternate Site Preparation, below)
- Identify location for Composting, either on-farm, or in an alternate location off-farm (see SOP 2.1.6: Alternate Site Preparation off-farm, below)
- Record participants for the composting team (lead, contractor, loader operators and farm workers) and confirm their availability
- Calculate carbon requirements and order materials for BHT, including:
  - Wood shavings (or other material) volume for carbon adjustment
  - Wood shavings for compost pile/windrow base and cover

Note: To meet a target carbon-to-nitrogen (C:N) ratio of 25-30, the needed volume of wood shavings can be calculated from the following equation:

_____ kg of culled birds * 0.0023 = _____ m^3 of wood shavings or
_____ lbs of culled birds * 0.0014 = _____yd^3 of wood shavings

Some of the wood shavings (approximately 1/3) can be exchanged for poultry litter if it is accessible on the infected premises. The above equation results in an approximate volume ratio of culled birds to carbon source of 1:1.8 assuming a bulk density of 800 kg/m^3 for culled birds[10].

[10] Note: With the introduction of alternative production methods, for example for raising layers as floor birds, in aviaries or furnished cages, there will need to be an assessment of the impacts of these production systems on mass and volumes.

- Determine which required equipment and materials (see Appendix 1 - Materials and Equipment needed for Disposal) are available on and are to be provided by the farm
  - _____
  - _____
  - _____

Producer's Signature: _____

Contractor's Signature: _____

SOP 2.1.2: Prepare Barn Area for BHT

Farm Name	
Date	

Purpose

This SOP describes the preliminary steps taken to prepare for building a windrow in-barn for BHT.

Procedures

Before entering the zone:

- Review Safety, Biosecurity and Movement protocols with all employees and contractors
- Don appropriate PPE

After entering the zone:

- If not already completed before destruction, raise feeders
- If not already completed before destruction, raise waterers[11]
- Remove any unneeded equipment from the composting area
- Assemble equipment and materials to be provided from farm resources (see SOP 2.1.1 - Pre-plan/Site Assessment)
  - _____
  - _____
  - _____

Producer's Signature: _____

Contractor's Signature: _____

[11] Watering system will have been drained before gassing in the Destruction Stage

SOP 2.1.3: Build compost pile/windrow

Farm Name	
Date	

Purpose

This SOP describes the steps taken to build a windrow for BHT inside the barn.

Procedures

Before entering the zone:

- Review Safety, Biosecurity and Movement protocols with all employees and contractors
- Don appropriate PPE

After entering the zone:

- If required, move carcasses to the composting area
- Move carbon source (wood shavings or other material) into the barn; distribute the volume required to adjust C:N proportion (as calculated in 2.1.1 above) throughout the composting area
- Use a loader(s) to mix carcasses, litter and carbon source as completely as possible, mixing in feed and broken eggs if applicable, while clearing the central composting area and moving the material to the sides
- Check the mix for moisture, and adjust if required to 50-60%:
    - Use a tensiometer or other equipment to measure moisture content:
        - If moisture is too low, sprinkle the material with water and mix until the target is achieved,
        - If moisture is too high, add wood shavings, straw or another buffer until the target is achieved

    OR

    - Use the hand-squeeze method:

      1. Squeeze a handful of compost firmly several times to form a ball.
      2. Evaluate the ball of compost:
          - If the ball is crumbly or breaks into fragments, the moisture content is less than 50%. Add water to the compost pile. If water is not accessible on-site, identify an external source
          - Bounce the ball on your hand 3-4 times. If the ball remains intact, the moisture content is approximately 50%. This is within the desired range
          - If the ball feels slimy and has a musty, soil-like odour, the moisture content is much more than 50%. Add a dry amendment to the compost pile
- Build a base of fresh wood shavings 3.6 m wide by 15 to 30 cm deep, starting at the far end of the barn; to avoid compressing the base:
    - If space is available along the sides of the windrow to allow passage of the skid-steer or other equipment used to add compost mix and to tend the windrow, build the full base

    - If space is not available along the sides of the windrow, build the base as compost mix is added to the windrow, or add compost mix to the windrow by manual means
- Build the windrow by piling the compost mix on the base to a height of 2 m above the floor
    - Arrange carcasses so that legs and wings do not stick out of the windrow; move carcasses that roll out of the pile and incorporate them elsewhere in the windrow
    - Clean up along the base of the windrow on all sides and incorporate collected material into the windrow
- Cover the windrow with a 30 cm layer of fresh shavings, ensuring that all carcasses are covered)
- Clean and disinfect all equipment used in preparing for and building the windrow before it is removed from the barn/zone (see SOP 3.2.3: Dry clean of all mechanical and electrical equipment, and SOP 3.3.2: Cleaning of all mechanical and electrical equipment)
    - _____
    - _____
    - _____

Producer's Signature: _____

Contractor's Signature: _____

SOP 2.1.4: Inspect and monitor windrow

Farm Name	
Date	

Purpose

This SOP confirms that windrow quality meets intended standards upon completion and monitors operating conditions to ensure that it maintains sufficient heat conditions for BHT to inactivate the virus.

Procedures

Before entering the zone:

- Review Safety, Biosecurity and Movement protocols with all employees and contractors
- Don appropriate PPE

After entering the zone:

- Check that all carcasses are covered
- Mark compost pile for a starting point and each temperature monitoring point with marker paint
- Maintain the pile and manage/control leachate as required:
  - If excessive moisture is a problem, use a loader to add a dry amendment
  - Collect and redistribute any runoff onto the pile when moisture is needed. If this is impossible, use alternative systems to manage these contaminated liquids. Spreading dry wood shavings or other absorbent material is appropriate in both cases
- CFIA will continually monitor the windrow for temperatures and will release the compost when adequate time and temperature have been recorded
  - _____
  - _____
  - _____

Producer's Signature: _____

Contractor's Signature: _____

SOP 2.1.5: Alternate Site Preparation On-Farm

Farm Name	
Date	

Purpose

This SOP is for use when in-barn BHT is not possible, for example in a layer barn with fixed cages/frames that does not have sufficient open floor space for a pile/windrow, or in an open-floor production barn with slatted floors, and an alternate site on-farm is sought.

Procedures

Prior to the Site Assessment (see SOP 2.1.1: Pre-plan/Site Assessment):

- Identify possible alternate indoor locations for BHT on-farm. These might include another barn on-site that is configured to allow building a pile/windrow of the required dimensions; or, for smaller flocks, a drive shed or other building, that might be appropriately sized
  - In both cases, consider the pathway(s) and method(s) for movement of carcases and other compostable material from the production barn to the alternate indoor location(s)
- If no alternate indoor locations are available on-site, identify outdoor areas on the farm that might be suitable, based on the following criteria[12]:

Location:

- site has no archeological or historical significance and has no impact on endangered species
- site is away from public view and located downwind of nearby residences to minimize potential odours or dust being carried to neighbouring residences by prevailing wind
- site must be in an area that can be adequately secured
- site has no underground utilities or pipelines, and is an adequate distance from overhead lines
- site has stable ground and will support the equipment used to construct the compost pile
- site is well-drained with year-round access to roads and work areas

Environmental Considerations:

- site is away from areas that are sensitive to groundwater contamination
- site is at least 90 cm above the high-water table level
- site is at least 15 m[13] from sensitive water resources (streams, ponds, etc.)
- site is at least 30.5 m[14] from wells
- site is adequately sloped (1–3%) to allow proper drainage
- site is located at least 600 m from areas that are zoned residential

[12] Taken from CFIA 2916450 Common Procedures Manual Chapter 11.2, Disposal: Composting
[13] B.C. provincial legislation requires 15 m from water courses and 30.5 m from wells
[14] ibid

Note: These standards may be superseded by provincial or regional standards. Consult the local regulatory authorities.

Size:

- The total area and volume required for the facility depends on the size of the operation, the number of carcasses for composting, and the equipment used
- Estimation for the sizing of compost piles is provided in SOP 2.1.3: Build Compost Pile/Windrow

- If an outdoor location is to be considered:
  - Document any additional materials that would be needed for Disposal in Step 2.3
  - Consider the pathways and methods for movement of carcasses and other compostable material from the production barn to the alternate outdoor location
- If no alternate locations can be identified on-site, document potential locations away from the farm that might be considered (see SOP 2.1.6: Alternate Site Preparation off-farm)

During the Site Assessment:

- Provide information on alternate sites as needed
- Decide on the pathway and the method of transport for movement of carcasses and other material for BHT. Consider:
  - A pathway(s) that does not cross/is not crossed by other access pathways within the zone
  - Use of garbage bins with lids or other closable containers for transport of carcasses
  - BHT of litter and other remaining matter inside the barn to minimize potential for aerosol release and handling concerns during transport

- _____
- _____
- _____

Producer's Signature: _____

Contractor's Signature: _____

SOP 2.1.6: Alternate Site Preparation off-farm

Farm Name	
Date	

Purpose

This SOP is for use only when a suitable on-farm disposal site for Virus Inactivation and final disposition of compost is not available, and an alternate site off-farm is sought. This would only be required in unusual circumstances and is very unlikely. Use of any off-Date requires prior approval by CFIA, with respect to containment of viral contaminants, and compliance with B.C. regulations regarding use of land and transportation of materials.

Procedures

Prior to the Site Assessment (see SOP 2.1.1: Pre-plan/Site Assessment):

- Identify possible alternate locations for Composting, ideally within the Infected Zone. These will largely be a nearby farm that is configured to allow building a pile/windrow of the required dimensions and that is not threatened by the poultry contaminant(s)
  - Consider the pathway(s) and method(s) for movement of carcasses and other compostable material from the production barn to the alternate locations
- Identify outdoor areas on the farm that might be suitable, based on the following criteria[15]:

Location:

- Site has no archeological or historical significance and has no impact on endangered species
- Site is away from public view and located downwind of nearby residences to minimize potential odours or dust being carried to neighbouring residences by prevailing wind
- Site must be in an area that can be adequately secured
- Site has no underground utilities or pipelines, and is an adequate distance from overhead lines
- Site has stable ground and will support the equipment used to construct the compost pile
- Site is well-drained with year-round access to roads and work areas

Environmental Considerations:

- Site is away from areas that are sensitive to groundwater contamination
- Site is at least 90 cm above the high-water table level
- Site is at least 15 m[16] from sensitive water resources (streams, ponds, etc.)
- Site is at least 30.5[17] m from wells
- Site is adequately sloped (1–3%) to allow proper drainage
- Site is located at least 600 m from residential zone

Note: These standards may be superseded by provincial or regional standards. Consult the local regulatory authorities.

[15] Taken from CFIA 2916450 Common Procedures Manual Chapter 11.2, Disposal: Composting
[16] See footnote 14
[17] ibid

Size:
  - The total area and volume required for the facility depends on the size of the operation, the number of carcasses for composting, and the equipment used
  - Estimation for the sizing of compost piles is provided in SOP 2.1.3: Build compost pile/windrow
- Document the additional materials that would be needed, based on materials required for disposal in Step 2.3, following
- Consider the pathway(s) and method(s) for movement of carcasses and other compostable material from the production barn to the alternate location
- Consider the use of garbage bins with lids or other closable containers for transport of carcasses
- Consider composting litter and other remaining matter inside the barn to minimize potential for aerosol release and handling concerns during transport

During the Site Assessment:

- Provide information on alternate sites as needed
- Decide on the location to be used for the disposal of the mortalities
- Decide on the pathway and the method of transport for movement of carcasses and other material for composting/BHT
- Decide on the means of disposal of litter, waste feed, remaining manure and other contaminated material in the barn
- Confirm Transport Protocols with drivers and loaders/unloaders:
  - Clean and disinfect all trucks prior to entry onto the site and upon departure
  - Issue a PPE kit to each driver that includes coveralls, boots, gloves and mask in the event of the need to exit the cab for an emergency
  - Move BHT direct from the Infected Premises to the disposal location using the most direct route with no stopping
  - Move the load only with a Permit
  - Secure the load on the truck and tarp open boxes containing the material to be composted/BHT-ed
  - Locate a person(s) at the disposal site to open the truck/trailer and unload the contents onto the disposal/BHT area
  - The driver remains in the cab throughout loading, travel and unloading, and does not have contact with the material to be composted/BHT-ed; windows remain closed and A/C/heater fan is off when loading or unloading
  - After each delivery, use a water hose to wash off any residue before a truck leaves the disposal site; after the final delivery, clean and disinfect all trucks before they leave the disposal site
- Confirm required approvals, procedures and permits to move and to compost/BHT the carcasses and other contaminated materials at the selected site
  - _____
  - _____

Producer's Signature: _____

Contractor's Signature: _____

SOP 2.1.7: Movement of carcasses off-farm

Farm Name	
Date	

Purpose

There should not be any movement of carcasses off farm, unless directed to do so by CFIA under unusual circumstances. When BHT is not possible on the farm, carcasses may be moved under CFIA direction to a pre-approved off-site location for BHT and for final disposition. Removal from the barn and loading for transport, transport to the approved site, and unloading at the off-farm site are planned and approved in advance and are carried out with suitable, specific biosecurity practices.

Procedures

Prior to entry into the zone and movement of carcasses:

- Review Safety, Biosecurity and Movement protocols with all employees and contractors
- Communicate to the operators the pathway and methods for movement of carcasses and other compostable material from the production barn to suitable transport
- Obtain required approvals, procedures and permits to move and to compost/BHT the carcasses and other contaminated materials at the selected site
- Obtain the additional equipment and materials that will be needed, based on those required for (outdoor) Composting in *SOP 2.3.1: Build the compost windrow*, following, and transport them to the selected location
- Obtain garbage bins with lids or other closable containers for transport of carcasses, if needed
- Review Safety, Biosecurity, Movement and Transport protocols with all employees and contractors
- Don appropriate PPE

During loading/movement of carcasses:

- Spray the undercarriage and wheels of each truck as it enters the farm and as it leaves the infected zone
- Ensure that every truck has a permit for the movement of the carcasses
- Ensure that all trucks remain on the proscribed road(s)/lane(s)/driveway(s) for entry into and exit from the infected zone and the farm
- Ensure that loaders remain on the established pathway throughout the loading steps
- If containers are used to move carcasses, load each container in the barn, close and secure the lid, if available, and roll or carry containers to the truck; load and secure the containers on the truck and tarp the box of any open truck securely before departure
- If a conveyor or bucket-loader is used to move carcasses, for example into a dump truck:
    - Line the box of the truck with heavy-duty plastic sheet, and ensure it is in place for each load;
    - Take care to limit spillage around the loading location;
    - Tarp the box of the truck securely before departure;
    - Wash the outside of the box, and other areas of the truck that may have come in contact with mortalities or other spillage, with detergent and water, before departure;

- Before the truck leaves the Warm Zone, clean the exterior and spray wheels, wheel wells and other suspected contact areas with disinfectant; wait required contact time before departing
- Obtain a release document from the CFIA on-site representative for each load leaving the farm
- Keep a log recording the movement of each load, including the identification of the IP and of the disposal location. Record times of pickup and delivery in the log
- When movement of carcasses is complete:
    - Wash with detergent and water and disinfect all the BHT trucks, trailers and related equipment, at the disposal location;
    - Dispose, as planned, of all other potentially-infective material in the barn, including litter, waste/spilled feed, uncollected manure, etc. by BHT in-barn or in the manure pit, or in Biohazard Disposal bags;
    - Clean and disinfect the conveyor/bucket loader before it leaves the Zone

    - _____
    - _____
    - _____

Producer's Signature: _____

Contractor's Signature: _____

Step 2.2 Movement of Compost

The purpose of Step 2.2 is to describe the methods used in and the controls applied to the movement of material following its release by CFIA upon completion of BHT. Movement of the material will occur when composting is planned in an outdoor location on-farm, or in an off-farm location; in both cases, the location will have been previously confirmed to meet required conditions for such use.

SOP 2.2.1: Approval of Composting Site

A separate site used for composting must follow the Agriculture Waste Control Regulation (B.C.) and the specific requirements included therein. In some circumstances where composting is not possible on the farm, BHT material may be moved to a pre-approved off-site location.

SOP 2.2.2: Movement/Relocation of BHT Material

The composted material to be relocated must have been released by CFIA for movement, by deeming the virus in the compost to have been deactivated by BHT.

Removal from the barn and loading for transport, transport to the approved site and unloading at the off-farm site are planned and approved in advance and are carried out with specific biosecurity practices. Conditions for movement, including preparation of the Composting site (see SOP 2.3.1: Preparation of the Composting site), biosecurity of movement/transport passages, the compost material, and the conveyances/containers/vehicles used to transport it, must be in place before movement can begin.

SOP 2.2.1: Approval of Composting site

Farm Name	
Date	

Purpose

This SOP identifies the requirements for CFIA and provincial/regional government approval of the Composting site for use.

Procedures

- Identify an area or areas large enough to sustain the windrow(s) and document its/their status with respect to the following required conditions:

Location:

- site use will comply with the Agriculture Waste Control Regulation (B.C.)
- site has no archeological or historical significance and has no impact on endangered species
- site is away from public view and located downwind of nearby residences to minimize potential odours or dust being carried to neighbouring residences by prevailing wind
- site must be in an area that can be adequately secured
- site has no underground utilities or pipelines, and is a safe distance from overhead lines
- site has stable ground and will support the equipment used to construct the compost pile
- site is well-drained with year-round access to roads and work areas

Environmental Considerations:

- site is away from areas that are sensitive to groundwater contamination
- site is at least 90 cm above the high-water table level
- site is at least 15 m[18] from sensitive water resources (streams, ponds, etc.)
- site is at least 30.5[19] m from wells
- site is adequately sloped (1–3%) to allow proper drainage
- site is located at least 600 m from areas that are zoned residential

NOTE: These standards may be superseded by provincial or regional standards. Consult the local regulatory authorities.

[18] See footnote 14
[19] ibid

Size:
  - The total area and volume required for the facility depends on the size of the operation, the number of carcasses for composting, and the equipment used

- Composting must be carried out in compliance with the Agricultural Waste Control Regulation, and the compost must remain on-site
- Review the status of the site(s) with CFIA's BHT monitor; the availability of a suitable site(s) is a condition for release of the compost for composting
  - _____
  - _____

Producer's Signature: _____

Contractor's Signature: _____

SOP 2.2.2: Movement/relocation of BHT material

Farm Name	
Date	

Purpose

Movement of composted material is managed under provincial jurisdiction, although composting on-site after BHT at the infected premises is the preferred option. This SOP describes the methods and use of equipment for movement of the material released from BHT (SOP 2.1.5: Inspect and Monitor Windrow) to the on- or off-site location selected and prepared for Composting. Biosecurity conditions for movement of personnel, material and equipment between the two sites are important.

Note: Movement cannot commence until the secondary site is prepared as described in SOP 2.3.1: Preparation of the Composting Site.

Procedures

Prior to entry into the zone and movement of BHT material:

- Review safety, biosecurity and movement protocols with all employees and contractors
- Communicate to the operators the pathway and methods for movement of BHT material from the production barn to suitable transport
- Obtain required approvals, procedures and permits to move and to compost the BHT material at the selected site
- Obtain the additional equipment and materials that will be needed, based on those required for (outdoor) composting in *SOP 2.3.1: Build the compost windrow*, following, and transport them to the selected location
- Review safety, biosecurity, movement and transport protocols with all employees and contractors
- Don appropriate PPE

During loading/movement of BHT material:

- Spray the undercarriage and wheels of each truck as it enters the farm and as it leaves the infected zone
- Ensure that every truck has a permit for the movement of the BHT material
- Ensure that all trucks remain on the proscribed road(s)/lane(s)/driveway(s) for entry into and exit from the infected zone and the farm
- Ensure that loaders remain on the established pathway throughout the loading steps
- If a conveyor or bucket-loader is used to move BHT material, for example into a dump truck:
    - Line the box of the truck with heavy-duty plastic sheet, and ensure it is in place for each load;
    - Take care to limit spillage around the loading location;

    - Tarp the box of the truck securely before departure;
    - Wash the outside of the box, and other areas of the truck that may have come in contact with BHT material or other spillage, with detergent and water, before departure;
- Before the truck leaves the Warm Zone, clean the exterior and spray wheels, wheel wells and other suspected contact areas with disinfectant; observe required contact times for the disinfectant before departing with the truck
- Obtain a release document from the CFIA on-site representative for each load leaving the farm
- Keep a log recording the movement of each load, including the identification of the IP and of the disposal location. Record times of pickup and delivery in the log
- When movement of BHT material is complete:
    - Wash with detergent and water and disinfect all the BHT trucks, trailers and related equipment, at the disposal location;
    - Clean and disinfect the conveyor/bucket loader before it leaves the Zone

    - _____
    - _____
    - _____

Producer's Signature: _____

Contractor's Signature: _____

Step 2.3 Disposal

The purpose of Step 2.3 is to describe the actions required to prepare the Composting site, complete the BHT/composting cycle, and develop finished compost ready for storage and/or application. Location and preparation of the disposal site should proceed as soon as possible in the Stage 2 cycle, so that material can be accepted at the site as soon as it has been released by CFIA (see SOP 2.1.5: Inspect and monitor windrow).

SOP 2.3.1: Build the compost windrow

Place a layer of clean wood shavings over the impervious base, build the windrow in the same dimensions as used in the BHT location, and completely cover with a layer of wood shavings. The windrow material is covered with a plastic sheet, suitably secured against the wind and seepage of moisture/rain under the pile.

SOP 2.3.2: Inspect and monitor the windrow

Ensure that the cover remains secure and monitor the pile for incursion by wildlife and birds. Throughout the composting/BHT process, monitor temperatures in the pile/windrow to determine when the composting process has been completed.

SOP 2.3.1: Build the compost windrow

Farm Name	
Date	

Purpose

This SOP identifies the procedures for building the windrow during composting and maturing of the compost.

Procedures

- If the site does not have a concrete or asphalt pad large enough to contain the windrow(s), lay and secure in place an impermeable plastic sheet(s) or tarp(s) on which the windrow(s) will be built
- Lay two lines of perforated vinyl pipe, equally spaced, along the length of the pad or sheet/tarp, to provide for aeration of the windrow
- Build a base of fresh wood shavings 3.6 m wide by 15 to 30 cm deep over the pipe on the pad or sheet/tarp
- Build the windrow by piling the BHT material on the base to a height of 2 m above the pad or ground
- Check the mix for moisture, and adjust if required to 50-60%:
    - Use a tensiometer or other equipment to measure moisture content:
        - If moisture is too low, sprinkle the material with water and mix until the target is achieved,
        - If moisture is too high, add wood shavings, straw or another buffer until the target is achieved

    OR

    - Use the hand-squeeze method:

      1. Squeeze a handful of compost firmly several times to form a ball.
      2. Evaluate the ball of compost:
          - If the ball is crumbly or breaks into fragments, the moisture content is much less than 50%. Add water to the compost pile. If water is not accessible on-site, identify an external source
          - Bounce the ball on your hand 3-4 times. If the ball remains intact, the moisture content is approximately 50%. This is within the desired range
          - If the ball feels slimy and has a musty, soil-like odour, the moisture content is much more than 50%. Add a dry amendment to the compost pile
- Clean up along the base of the windrow on all sides and incorporate collected material into the windrow
- Cover the windrow with a 30 cm thick layer of shavings as a biofilter on the composting pile(s)
- Completely cover the windrow material with a semi-permeable (“non-woven”) plastic sheet, suitably secured against the wind and seepage of moisture/rain under the pile:
    - If the windrow is built on a concrete or asphalt pad, secure the complete edge of the sheet with 4”x4” wooden beams, positioned inside/under the edge of the sheet; secure the cover with used car tires, tied in pairs with a rope and positioned over the windrow with one tire on each side of the pile

    - If the windrow is built on a plastic sheet, tuck the edge of the cover sheet under the base sheet and secure the cover with used car tires, tied in pairs with a rope and positioned over the windrow with one tire on each side of the pile
- Construct a 30 cm soil berm between the pile(s) and any existing drainage ditches
- Clean and disinfect all equipment used in building the windrow before it is removed from the zone
    - _____
    - _____
    - _____

Producer's Signature: _____

Contractor's Signature: _____

SOP 2.3.2: Inspect and monitor the windrow

Farm Name	
Date	

Purpose

This SOP identifies the procedures for monitoring the status of the windrow during composting and maturing of the compost.

Procedures

- Monitor the windrow daily for incursion by wildlife and birds:
  - Repair any holes/gaps/damage in the cover
  - If bird incursion is persistent, build a frame covered with netting over the affected windrow(s)
- Monitor the windrow for temperatures and record daily
- After the composting is complete, as described below, the compost may be stored for maturation

To evaluate compost maturity:

1. Place two handfuls of compost into a re-sealable plastic bag. Close the bag.
2. Allow the compost in the bag to remain undisturbed for approximately 1 hour, or 5- 10 minutes in direct sunlight.
3. Open the bag and smell the contents – if the compost has:
   - a musty soil odour (like a dirt cellar), the compost has matured
   - a sweet odour (like slightly burned cookies), the compost is almost mature, but requires 2-3 more weeks
   - a strong unpleasant odour (like rotting meat/flesh, manure, ammonia), the compost is not mature

- Once the maturation process is complete, consider the compost a finished product and dispose of it in accordance with provincial legislation
  - _____
  - _____
  - _____

Producer's Signature: _____

Contractor's Signature: _____

Stage 3: Cleaning and Disinfection

The steps and SOP's in Stage 3 assume that the birds have been disposed of by composting in-barn and removed either following virus inactivation or after Disposal, as described in Stage 2.

Disinfection of barns and structures should be completed in a logical order to reduce the transfer of potential pathogens. Work and move from buildings and structures that are cleaner and less likely to be heavily contaminated to those that are dirtier and more likely to be heavily contaminated; for example, moving from storage areas for dry materials to barns and manure pits.

Note: A table to assist in determining which C&D methods are used for different areas and equipment is included in Appendix 3: C&D Planning Checklists.

- Cleaning and disinfection is the responsibility of the producer/farm owner
- Re-stocking of a barn or other production area will not be permitted until CFIA has determined that C&D has been successfully completed
- Worker health and safety is your responsibility
- Insect and rodent control must be in place to limit the spread of disease agents
- All non-cleanable items in the barn must be disposed of in
- before cleaning and disinfection of the premises begins
- Prepare disinfectant according to label instructions

Step 3.1 Preparation for Cleaning and Disinfection

The purposes of Step 3.1 are to review and to modify as required the SOP's in Stage 3 to ensure they are current and complete; to limit further release of particulate matter[20] and to remove any material that cannot be properly cleaned. These steps precede the cleaning and disinfection processes.

SOP 3.1.1: Minimize Further Release of Particulate Matter

Interior surfaces of the barn are lightly wetted down with a solution of water and detergent to limit further release of particulate matter. Fans and air inlets are closed off to limit the spread of particulate matter to the outside environment. However, the health and safety of workers on premises is of the utmost importance, and therefore limited use of ventilation fans at lower speeds to reduce particulate dispersal is therefore permitted for worker comfort.

SOP 3.1.2: Decontamination and Removal of Non-Cleanable Items

Any items deemed to be non-cleanable, such as papers, cartons, skids and other disposables, must be disinfected, minimized, and disposed of in accordance with CFIA direction.

[20] Particulate matter refers to all minute particles that could drift in the air or be otherwise transported throughout and between the barns and to the exterior.

The SOP Planning Tool

These General SOP's were designed to align with CFIA requirements for response to a disease event and are provided as a guide for your preparation of a set of SOP's specific to your operations. But they are just a general guide, so for every infected premise, CFIA will require you to develop an SOP that addresses all of the physical and operational details of that specific operation. To help simplify the process of drafting an SOP for your farm, a Microsoft Excel-based
"SOP Planning Tool" was created and is intended to be used in concert with this document.

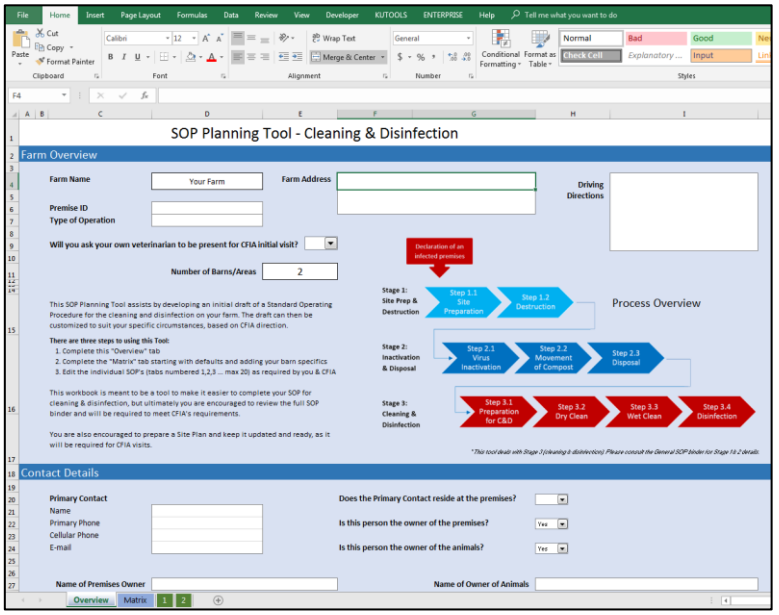
"There's an App for That"

A Microsoft Excel™ workbook called the "SOP Planning Tool" is available to make it easier for producers to develop customized SOP's for Stage 3: Cleaning & Disinfection.

Keep in mind that the Tool facilitates the creation of a draft SOP. You are encouraged to select, add, delete, modify and detail the standardized activities provided in each SOP document to suit the specific configuration of your farm. The information in these SOP's is useful only if you, your farm workers, and any contractors you may plan to use in a disease response know and understand what is required of them. Best practice is for you, as the responsible party, to sign each SOP, and have contractors and service crew chiefs who will carry out the work sign any SOP's that they will use; these signatures confirm everyone's commitment to follow the SOP's as written.

The Tool is designed to be used in three steps:

1. **Complete the "Overview" tab**
2. **Complete the "Matrix" tab**
   Enter the details of each subpremise[21]
   (*double-click for easy selection of what you propose to clean or dispose of*)



Edit the individual draft SOP tabs

These are numbered 1 to 20, depending on the number of subpremises. After filling out the "Matrix", these will have default values prepared by formulas. To make any changes to the text, just select a customizable cell (gray background) and hit the "Edit" button. The text can then be edited with any additional information. Note that it is possible to revert to the more automated entries by hitting the "Reset" button next to a cell, if that becomes necessary.

[21] A subpremise is a building, area or section of a farm which is separated from other production areas, and may be enclosed, like a barn or other building, or an outdoor area designated by fencing or other means.

SOP 3.1.1: Minimize Further Release of Particulate Matter

Farm Name	
Date	

Purpose

This SOP describes the appropriate measures for minimizing the spread of the avian influenza virus from a barn by resealing openings and wetting all surfaces, following removal of BHT material.

Procedures

Before entering the barn:

- Review Safety, Biosecurity and Movement protocols with all employees and contractors
- Don appropriate PPE

After entering the barn:

- Determine which fans and/or air inlets are needed to remain open for the safety and comfort of personnel working in the barn
- Close all doors, windows, air inlets, intake openings and louvres except those required for personnel safety
- Where it is not possible to close an air inlet, cover and seal with plastic and duct tape or staples. Where the design of the barn includes larger openings or partial walls, for example an open-sided turkey production facility, provide covers that can be used to minimize wind disturbance in the barn
- Turn off power to electrical connections and fixtures within the barn, egg collection and/or storage rooms, equipment and material storage rooms, etc. that are not moisture-proof
- Lightly wet all interior surfaces with a solution of water and detergent, using a low-pressure sprayer, to reduce disturbance and spread of particulate matter
- Constantly monitor the comfort of the crew and limit the use of fans to only the areas where the crew is working
  - _____
  - _____
  - _____

Producer's Signature: _____

Contractor's Signature: _____

SOP 3.1.2: Decontamination and Removal of Non-Cleanable Items

Farm Name	
Date	

Purpose

This SOP describes the appropriate measures for applying a suitable disinfectant[22] to non-cleanable items prior to their removal from the barn/production area in preparation for transport to a disposal site.

Procedures

Before entering the barn

- Review Safety, Biosecurity and Movement protocols with all employees and contractors
- Read disinfectant label instructions and prepare solution accordingly
- Adjust ventilation for the cleaning/disposal crew
- Don appropriate PPE

After entering the barn:

- Walk through all areas of the barn and subpremise to identify and record items that cannot be cleaned and disinfected
- Determine what is to be done with each listed item and where/how each will be disposed of – by burning on-farm, by burial, by disposal on the manure pile[23], or by bagging in Biohazard Disposal bags for transport in accordance with local regulations
- Using a low-pressure sprayer, thoroughly wet all exposed surfaces of any non-cleanable items including cardboard, egg cartons, pallets, paper, etc. with a suitable disinfectant. Allow the disinfectant to sit for a period of time as directed on the product MSDS[24]
- Disassemble or break down any items as required for them to be transported
- Coordinate removal of bio-hazardous waste as specified in the Biohazard Disposal Plan
- Put vector control in place including both rodent and insect controls
  - _____
  - _____
  - _____

Producer's Signature: _____

Contractor's Signature: _____

[22] Disinfectants are effective for specific viruses and contaminants; see Appendix 3

[23] Biosecurity for equipment and pathways must be maintained during transport and disposal on-farm.

[24] Manufacturer's Product Safety Data Sheet(s)

Self-Check 1 (CFIA Site Visit #1)

☐	Insect and rodent (vector) control is in place Variance or concern: _____ Addressed: _____
☐	All barn doors, windows, air inlets, intake openings and louvres have remained closed as much as possible throughout all cleaning procedures Variance or concern: _____ Addressed: _____
☐	Air inlets that cannot be completely closed have remained covered and sealed with plastic sheeting and duct tape or staples wherever possible throughout all cleaning procedures Variance or concern: _____ Addressed: _____
☐	All exposed surfaces, including carcasses were covered with a low-pressure spray disinfectant that has been mixed in the correct manner Variance or concern: _____ Addressed: _____
☐	All fans, louvers, doorframes and vents have been sprayed with specified disinfectant that has been mixed in the correct manner Variance or concern: _____ Addressed: _____
☐	All non-cleanable items in barn have been disposed of Variance or concern: _____ Addressed: _____
☐	Determine whether cleaning will be conducted by farm staff or a contractor hired Variance or concern: _____ Addressed: _____

Notes:_____

_____

_____

_____

_____

_____

CFIA Site Visit #1: C&D Infected Place Assessment

1) Once the carcasses have been removed from the barn, CFIA will administer Site Visit #1: C&D Infected Place Assessment.
2) The CFIA inspector conducts a thorough walk-around of the barns, out-buildings and manure storage areas for assessment before moving inside the poultry barn to inspect it. This ensures that all necessary manure treatment procedures have been successfully completed.
3) The CFIA inspector will identify any potential problem areas, identifying the extent of the areas to be disinfected. These areas include feed storage, other storage, the ground, feed lines, equipment, water and power supplies, and will describe the schedule for cleaning and disinfection. The material type (wood, plastic, metal etc.); method of construction (as it pertains to ease of cleaning); and the condition (good versus scratched, pitted, broken etc.) will be identified for items that may pose issues for cleaning and disinfection.
4) The CFIA inspector will inquire about the use of biocontainment procedures to ensure that all procedures are being followed at all times regarding clothing and equipment used in an infected area.
5) Following the inspection, the CFIA inspector will discuss in detail their findings of the area(s) to be cleaned and disinfected with the owner/manager of the premises. A copy of the Order to C&D and any relevant and useful directions will be given to the owner/manager. The extent of the cleaning and disinfection procedure of the premises and equipment will be reviewed with the owner/manager.
6) A list of registered disinfectants will be given to the owner/manager upon request; information and MSDSs for three accepted disinfectants are included in Appendix 5.
7) A report will be generated from the information gathered and a copy will be provided to the owner/manager.

Step 3.2 Dry Clean

Step 3.2 describes the necessary steps to complete the dry clean[25]. A dry clean requires the removal of all visible organic material. The use of compressed air to blow down the barn is discouraged. A thorough dry clean, although time consuming, makes the remaining cleaning and disinfections steps easier. An alphabetic list and descriptions of cleaning methods is inserted below the following thumbnails.

Note: Before beginning Dry Clean complete any instructions given by CFIA during Site Visit 1.

SOP 3.2.1: Initial Dry Clean of Barn

The initial dry clean of the barn involves removing feed from the barn that might not have been collected in the composting steps and knocking down/removing large debris. By removing the large debris as a first priority, the detailed dry clean (SOP 3.2.2) will be much easier to accomplish.

SOP 3.2.2: Detailed Dry Clean of Barn

Detailed dry cleaning involves removing all remaining visible organic matter including but not limited to feathers, manure, litter, feed, dust, dirt and cobwebs. The detailed dry cleaning requires using a number of methods described below the SOP and working in a pattern to cover all areas and remove all of the organic matter present.

SOP 3.2.3: Dry Clean all Mechanical and Electrical Equipment

The inside of equipment and machinery is difficult to clean. In some cases, equipment may need to be disassembled in order to be dry-cleaned properly.

SOP 3.2.4: Dry Clean Air Intakes, Fans and Louvers

Fans and air inlets must be cleaned from the outside-in. The purpose of cleaning them in this order is to reduce the chance of forcing organic debris out of the barn.

SOP 3.2.5: Remove Debris from In-Barn Management Systems

After a detailed dry clean is complete, the manure belts or scrapers and feed lines should be re-run to remove the debris from the barn. Debris collected in this way is contaminated and needs to be handled as such.

SOP 3.2.6: Final Removal of all Organic Matter

After the loose debris is removed from the barn, the final step in the dry clean is to clean all of the manure areas including belts and scrapers. These areas are cleaned last as they are (generally) nearest to the floor.

[25] The term “dry clean” is used for this stage of the process despite the fact that the interior surfaces of the barn have been wetted down in the previous Step to control articulate dispersal, and indicates that power spraying or other forms of washing are not used in this Step.

SOP 3.2.1: Initial Dry Clean of Barn

Farm Name	
Date	

Purpose

This SOP describes the appropriate measures for the initial removal of visible organic matter from the barn.

Procedures

Before entering the barn:

- Review Safety, Biosecurity and Movement protocols with all employees and contractors
- Review SOP procedures, and specific cleaning methods inserted below the signature lines on this SOP, with all employees and contractors
- Review Biohazard Disposal Plan with CFIA Site Supervisor
- Prohibit use of any blowers
- Adjust ventilation for the cleaning crew
- Supply ladders if necessary to allow crews to reach high areas without climbing on in-barn equipment
- Don appropriate PPE

After entering the barn:

- Before beginning Dry Clean complete any disposal instructions given by CFIA during Site Visit 1
- Begin at one end of the barn/room (moving from cleaner to dirtier areas if present) and at the highest point and work from the ceiling down and across all walls, supports, fixed equipment, attachments (such as lighting), and wall ledges, paying close attention to areas around ventilation openings/fans and equipment mountings. Use a long-handled brush or broom to remove all loose debris. Move in a pattern that will ensure complete coverage
- If cages and stationary equipment were not moved during Stage 2, raise them now to enable cleaning; use a long-handled brush to loosen caked-on manure and dirt and to remove loose material in and around cages and stationary equipment
- If water lines were not moved during Stage 2, raise them now to enable cleaning; loosen all caked-on material on and brush away all dry material from the water lines and related equipment
- Knock debris to the floor for easy removal
- If feed lines were not moved during Stage 2: Disposal, raise all feed lines and remove feed line covers
- Clear feeders and feed lines and covers of any remaining feed. Loosen all caked-on material and brush away all dry material on and under all feeders, feed lines and related equipment
- If heating equipment was not moved during Stage 2: Disposal, raise all heating equipment (avoid damaging electrical cords or gas lines that may be present); loosen any caked-on material and brush away all dry material on and under all heaters and other related equipment
- Dry clean all other equipment in the barn by wiping, scraping or brushing (see list of specific methods, below)
-

- Sweep all loose debris on the floor into the manure collection area(s) in the barn
- Remove bio-hazardous waste from the barn per the Biohazard Disposal Plan
  - _____
  - _____
  - _____

Producer's Signature: _____

Contractor's Signature: _____

Specific Methods of Cleaning

DAMP CLOTH ABSORPTION (DCA): Organic matter is removed with a cloth that has been moistened with a detergent solution. The detergent used will be recorded in the ***Detergent Record.*** Pieces of cloth used during the dry clean process will be disposed of by burning.

DISPOSE WITH MANURE (DM): Organic matter is added to the manure removal system for disposal. Manure will be piled in a restricted area and disposed of (as advised by CFIA). Some methods include adding material to existing compost piles, burying it, burning it or covering it with straw and leaving it undisturbed for a minimum of 120 days.

DISPOSE IN SEPTIC TANK (DS) – Organic matter is added to the septic tank for disposal and left undisturbed for a minimum of 120 days.

FOAM-DUST ABSORPTION (FDA): A foaming agent is mixed according to manufacturer's directions and applied to barn equipment using a pressure washer (low pressure spray) with a top-bottom approach. The foaming agent should produce enough foam to settle on surfaces to which it is applied, loosen encrusted matter and then collect any remaining organic matter before it runs down that surface. The foaming-agent used will be recorded in ***Detergent Record***. Applying the foaming agent is part of the dry clean process, whereas, washing away the foaming detergent is part of the wet clean process.

LAGOON DISPOSAL (LD): Organic matter is added to the lagoon for disposal and left undisturbed for a minimum of 120 days.

SCRAPING (SC): Organic matter is removed by scraping it off surfaces with a hand scraper or long-handled hoe and will be disposed of through the manure disposal system. Tractors or front-end loaders may be used for large and even surfaces.

SOAKING (SO): Equipment is soaked in an appropriately sized container with a detergent solution to remove organic material. The detergent used will be recorded in the ***Detergent Record.*** The contaminated water and organic material will be disposed of through the manure disposal system.

SUCTION (SUC): Organic matter is removed with a vacuum. The organic material will be disposed of through the manure disposal system, and vacuum bags and/or filters will be disposed of by burning.

SWEEPING (SW): Organic matter is swept with a broom and disposed of through the manure disposal system. Sweeping will be minimized to prevent aerosol transmission of the virus.

SOP 3.2.2: Detailed Dry Clean of Barn

Farm Name	
Date	

Purpose

This SOP describes the appropriate measures for a detailed dry cleaning of exposed surfaces in all areas within the barn.

Procedures

Before entering the barn:

- Review Safety, Biosecurity and Movement protocols with all employees and contractors
- Review specific practices with all employees and contractors
- Review Biohazard Disposal Plan with CFIA Site Supervisor
- Prohibit use of any blowers
- Adjust ventilation for the cleaning crew
- Supply ladders if necessary to allow crews to reach high areas without climbing on in-barn equipment
- Don appropriate PPE

After entering the barn:

- Apply a minimal amount of diluted disinfectant to aid in the reduction of dust and small particles (aerosolized particulate matter) where necessary
- Beginning at one end of the barn away from the manure collection area, scrape, scrub and clean all permanent equipment, including cages, feeders, feed lines, water lines, egg collectors, augers, and floor slats and floor slat supports, and work to the manure end of the barn
- Note: equipment and floor slats, where used, will have been raised for ease of cleaning under and around this equipment during Stage 2 and/or in SOP 3.2.1
- Clean lights and any other ceiling fixtures
- Clean and disinfect any tools used in the dry cleaning of the barn flock housing area before moving to non-flock housing areas
- Dry clean the service area, anteroom, storage room and all tools, equipment, furniture, and other items stored in these areas using methods listed below SOP 3.2.1, above
- Remove bio-hazardous waste from the barn per the Biohazard Disposal Plan
- Arrange for the removal of biohazardous equipment and waste with CFIA Site Supervisor
    - _____
    - _____
    - _____

Producer's Signature: _____

Contractor's Signature: _____

SOP 3.2.3: Dry Clean all Mechanical and Electrical Equipment

Farm Name	
Date	

Purpose

This SOP describes the appropriate measures for a detailed dry cleaning of mechanical and electrical equipment in the barn.

Procedures

Before entering the barn:

- Review Safety, Biosecurity and Movement protocols with all employees and contractors
- Review specific practices with all employees and contractors
- Review Biohazard Disposal Plan with CFIA Site Supervisor
- Prohibit use of any blowers
- Adjust ventilation for the cleaning crew
- Supply ladders if necessary to allow crews to reach equipment installed overhead without climbing on in-barn equipment
- Don appropriate PPE
- Disconnect power supply from all components being cleaned[26]

After entering the barn:

- Dismantle and open equipment (e.g. auger covers; feed bin boots; exterior cowls/housings, covering belts, pulleys and chains), following manufacturers' recommendations where possible, and use a small brush to remove all visible organic material, dust and dirt by brushing, scraping and scrubbing

  Note: The intent is to remove organic material and debris that has accumulated in difficult-to-access areas of equipment that could harbour pathogens. Therefore, the cover of a large electrical breaker box or panel inside a flock housing area may need to be removed and wiped down, while individual electrical outlet covers would not generally need to be removed.

- Disassemble any equipment with openings or ventilation louvers to ensure that organic material, dust and dirt that might otherwise fall through them can be removed by brushing, scraping, wiping and scrubbing

[26] Best practice is for all electrical sources in the barn to be separated and controlled at a panel located outside of the barn and preferably outside of the "hot zone"

- Clean and disinfect any tools used in the dry cleaning process
- Remove bio-hazardous waste from the barn per the Biohazard Disposal Plan
  - _____
  - _____
  - _____

Producer's Signature: _____

Contractor's Signature: _____

SOP 3.2.4: Dry Clean Air Intakes, Fans and Louvers

Farm Name	
Date	

Purpose

This SOP describes the appropriate measures for a detailed dry cleaning of air intakes, fans and louvers.

Procedures

Before commencing work on the exterior of the barn and before entering the barn:

- Review Safety, Biosecurity and Movement protocols with all employees and contractors
- Review specific practices with all employees and contractors
- Review Biohazard Disposal Plan with CFIA Site Supervisor
- Adjust ventilation for the cleaning crew
- Disconnect power supply where required
- Prohibit use of any blowers

When commencing work:

- From the outside of the barn, use a small brush to clean the fans and louvers and contaminated exterior surfaces (i.e. any area into/onto which the air from inside the barn was blown)
- From inside the barn, remove the plastic film used to seal the barn from the inside of the fans and air inlets, and clean these areas using a brush and water where necessary
- Clean and disinfect any tools used in the dry cleaning process
- Dispose of bio-hazardous waste from the barn per the Biohazard Disposal Plan
    - _____
    - _____
    - _____

Producer's Signature: _____

Contractor's Signature: _____

SOP 3.2.5: Remove Debris from In-barn Management Systems

Farm Name	
Date	

Purpose

This SOP describes the appropriate measures for removing manure, feed, litter, eggs, egg debris, etc. that may remain in the barn (e.g. may have been scraped out from under equipment, waterers, feed lines, etc.) following the dry clean.

Procedures

Before entering the barn**:**

- Review Safety, Biosecurity and Movement protocols with all employees and contractors
- Review specific practices with all employees and contractors
- Review Biohazard Disposal Plan with CFIA Site Supervisor, including plan for disinfection of contaminated manure
- Adjust ventilation for the cleaning crew
- Don appropriate PPE

After entering the barn:

- Re-run manure belts or scraper, feed lines, egg belts, etc. to carry all remaining material to the manure end of the barn
- Collect manure, feed, litter, eggs, egg debris, etc. thus collected into the manure pit (or other manure containment device)
- Remove bio-hazardous waste from the barn per the Biohazard Disposal Plan
  - _____
  - _____
  - _____

Producer's Signature: _____

Contractor's Signature: _____

SOP 3.2.6: Final Removal of all Organic Matter

Farm Name	
Date	

Purpose

This SOP describes the appropriate measures for the final dry clean of manure-contact areas including belts, augers and scrapers.

Procedures

Before entering the barn**:**

- Review safety, biosecurity and movement protocols with all employees and contractors
- Review specific practices with all employees and contractors
- Review Biohazard Disposal Plan with CFIA Site Supervisor
- Adjust ventilation for the cleaning crew
- Don appropriate PPE

After entering the barn:

- Use a small brush, scraper and water dispenser to clean all manure contact areas (including belts, augers, scrapers, etc.)
- Using a broom and scraper, start at the side of the barn farthest away from the manure storage area and work towards the manure storage area, pushing collected manure and debris
- Deposit collected manure and debris in the manure storage area
- Commence manure disinfection process (in-barn)
- Collect any remaining garbage and waste in biohazard disposal bags or other secure container for disposal as directed in the Biohazard Disposal Plan
- Clean and disinfect any tools used in the dry clean of manure contact areas
- Dispose of non-cleanable tools and materials such as brushes and brooms along with any remaining plastic sheeting and tape used for sealing the barn in biohazard disposal bags
- Remove biohazardous tools, materials and equipment and waste per the Biohazard Disposal Plan
- Complete *Self Check 2* and conduct any necessary remedial action
    - _____
    - _____
    - _____

Producer's Signature: _____

Contractor's Signature: _____

Self Check 2 (After Dry Cleaning)

☐	All necessary manure treatment procedures have been completed. Variance or concern: _____ Addressed: _____
☐	The barn has been dry cleaned and dusted from the ceiling down. Variance or concern: _____ Addressed: _____
☐	A thorough cleaning has been done on all permanent equipment from one end of the barn to the other. Variance or concern: _____ Addressed: _____
☐	Remaining manure, feed, eggs, egg debris, and litter, etc. have been removed and carried to the manure end of the barn, and remaining feed and litter have been collected and disposed of per the Biohazard Disposal Plan. Variance or concern: _____ Addressed: _____
☐	Lighting and ceiling fixtures have been cleaned. Variance or concern: _____ Addressed: _____
☐	All biohazardous material has been contained and disposed of as directed in the biohazardous material disposal plan. Variance or concern: _____ Addressed: _____
☐	All tools used in the dry cleaning process have been cleaned and disinfected; any that were determined to be uncleanable have been disposed of per the Biohazard Disposal Plan. Variance or concern: _____ Addressed: _____
☐	Dirt on electrical panel components has been removed. Variance or concern: _____ Addressed: _____
☐	Any equipment with openings or ventilation louvers has been disassembled and cleaned. Variance or concern: _____ Addressed: _____
☐	Visible organic matter has been removed from all exposed areas of all mechanical and electrical equipment. Variance or concern: _____ Addressed: _____

☐	All fans, louvres and contaminated surfaces outside of the barn have been cleaned. Variance or concern: _____ Addressed: _____
☐	Areas of the fans and air inlets that were covered with plastic sheeting for barn sealing have been cleaned. Variance or concern: _____ Addressed: _____
☐	All manure areas (belt augers, scrapers, egg belts, etc.) are clean. Variance or concern: _____ Addressed: _____
☐	Non-cleanable cleaning tools and equipment, and the tape and plastic used to seal the barn, have been collected into biohazard disposal bags and disposed of per the Biohazard Disposal Plan. Variance or concern: _____ Addressed: _____
☐	All loose debris on the floor has been swept into the manure end of the barn. Variance or concern: _____ Addressed: _____
☐	A second inspection to ensure all loose organic material has been removed has been carried out. Variance or concern: _____ Addressed: _____

Notes:_____

_____

_____

_____

_____

_____

_____

Step 3.3 Wet Clean

The purpose of Step 3.3 is to clean the barn and remove any remaining organic material or biofilm. Note that the efficacy of some liquid disinfectants can be reduced by incompatible cleaners; read the cleaning agent and disinfectant labels carefully to make sure that no incompatibilities exist. Protect electrical and sensitive equipment from water and cleaners/disinfectant solutions and apply alternative cleaning/disinfection methods following.

SOP 3.3.1: Rinse Water System

The water system can harbour the avian influenza virus. CFIA will go over the cleaning procedure for the water line in their site assessment. Follow the steps carefully because a contaminated water supply could quickly infect a new flock.

SOP 3.3.2: Clean Mechanical and Electrical Equipment

Cleaning and disinfecting equipment must be done with care. Covering cleaned equipment with plastic will help to prevent potential damage from the wet clean.

SOP 3.3.3: Wet Clean - Detergent Application and Rinse

The application of detergent helps to remove organic material and biofilm. Allowing the detergent to soak for a period of time makes surfaces much easier to clean.

SOP 3.3.4: Barn and Equipment Drying

The barn and equipment must be dry before CFIA Site Visit #2. Air inlets may be opened and auxiliary heat may be used to speed up this process.

SOP 3.3.1: Rinse Water System

Farm Name	
Date	

Purpose

This SOP describes the appropriate measures for rinsing the barn water system.

Procedures

Before entering the barn**:**

- Review Safety, Biosecurity and Movement protocols with all employees and contractors
- Review specific practices with all employees and contractors
- Review Biohazard Disposal Plan with CFIA Site Supervisor
- Determine correct concentration/dilution rate and exposure time for removal of scale and biofilm from within the water lines
- Don appropriate PPE
- Adjust ventilation for the cleaning crew

After entering the barn:

- Purge water lines

  Note: Water lines will have been drained in Stage 1, prior to depopulation, to avoid freezing due to contact with CO_2

- Fill the water lines with hydrogen peroxide, chlorine, citric acid or acetic acid to remove scale and biofilm. Leave the solution in the system for the contact time specified for the product
- Empty the water lines, bell drinkers, medicators, proportioners, etc.

  Note: Remember to rinse these systems and components with clear potable water before repopulating the barn, especially if disinfectant is added.

  - _____
  - _____
  - _____

Producer's Signature: _____

Contractor's Signature: _____

SOP 3.3.2: Clean Mechanical and Electrical Equipment

Farm Name	
Date	

Purpose

This SOP describes the appropriate measures for wet cleaning mechanical and electrical equipment and preparing for high pressure spray.

Procedures

Before entering the barn**:**

- Review Safety, Biosecurity and Movement protocols with all employees and contractors
- Review specific practices with all employees and contractors
- Review Biohazard Disposal Plan with CFIA Site Supervisor
- Adjust ventilation for the cleaning crew
- Disconnect power supply to all mechanical and electrical equipment and related connections
- Don appropriate PPE

After entering the barn:

- Bag or cover any water-sensitive electrical or mechanical equipment which cannot get wet
- Remove any equipment that cannot be dismantled and/or properly cleaned from the barn to a prearranged location for alternate treatment – e.g. fumigation or heat (See SOP 3.4.2)
- Clean electrical motors, switches, electrical outlets and other sensitive fixtures by hand using a disinfectant-soaked sponge or rag
- Cover all previously cleaned equipment and electrical components with plastic film sealed with duct tape in preparation for the wet clean and to ensure that they do not become re-contaminated
    - _____
    - _____
    - _____

Producer's Signature: _____

Contractor's Signature: _____

SOP 3.3.3: Wet Clean – Detergent Application and Rinse

Farm Name	
Date	

Purpose

This SOP describes the appropriate measures for wet cleaning.

Procedures

Before entering the barn:

- Review Safety, Biosecurity and Movement protocols with all employees and contractors
- Review specific practices with all employees and contractors
- Adjust ventilation for the cleaning crew
- Don appropriate PPE

When working on air inlets and fans, begin outside the barn:

- Use a low-pressure spray to wet all air inlets and fans beginning with the outside and continuing with the inside
- Using a low-pressure spray, apply cleaning solution to all air inlets and fans beginning with the outside and continuing with the inside
- Allow detergent to soak in accordance with label directions
- Power wash, at low to medium pressure, all exposed surfaces of the vents on the outside; thoroughly wash all exposed surfaces to rinse the detergent off the vents and adjacent wall areas

After entering the barn:

- Power wash, at low to medium pressure, all remaining exposed surfaces inside the barn with water
- Using a low-pressure spray, apply cleaning solution to thoroughly cover all remaining exposed surfaces
- Allow detergent to soak in accordance with label directions
- Record detergent use and concentration information on Form 1 which follows this SOP
- Use low to medium pressure and water to power wash the barn; thoroughly wash all exposed surfaces to rinse the detergent to the floor and then into the manure area of the barn
    - _____
    - _____
    - _____

Producer's Signature: _____

Contractor's Signature: _____

Form 1: Cleaning Solution

Date	.....
Name of Cleaning Solution	.....
Concentration	.....
Manufacturer	.....
DIN#	_____
Initials	.....

SOP 3.3.4: Barn and Equipment Drying

Farm Name	
Date	

Purpose

This SOP describes the appropriate measures for drying the barn and the equipment within it following the wet clean.

Procedures

Before entering the barn:

- Review Safety, Biosecurity and Movement protocols with all employees and contractors
- Review specific practices with all employees and contractors
- Adjust ventilation for the cleaning crew
- Don appropriate PPE

After entering the barn:

- Open the air inlets and louvers
- Turn the fans on to dry the motors and to help dry the barn (if needed)
- Use auxiliary fans and focus them on the equipment that needs to be dried
- Turn on barn heat and/or use auxiliary heaters to achieve drying
- Complete *Self Check 3* and conduct any necessary remedial action to prepare for CFIA Inspection #2: Clean Inspection
  - _____
  - _____
  - _____

Producer's Signature: _____

Contractor's Signature: _____

Self-Check 3 (CFIA Site Visit #2 – Clean Inspection)

☐	Water lines have been drained Variance or concern: _____ Addressed: _____
☐	All water lines have been rinsed with hydrogen peroxide, chlorine, citric acid or acetic acid to remove scale and biofilm. Variance or concern: _____ Addressed: _____
☐	Water lines have been flushed following rinse (above) Variance or concern: _____ Addressed: _____
☐	Electrical motors, switches, electrical outlets and other sensitive fixtures are clean Variance or concern: _____ Addressed: _____
☐	Cleaned equipment was covered with plastic and duct tape to avoid recontamination and, where required, wetting. Variance or concern: _____ Addressed: _____
☐	All air inlets and fans have been washed, working from the outside-in. Variance or concern: _____ Addressed: _____
☐	All exposed surfaces within the barn have been power washed to rinse detergent to the floor Variance or concern: _____ Addressed: _____
☐	Cleaning solution has been moved from floor to the manure area of the barn Variance or concern: _____ Addressed: _____
☐	Residual water from feeders and waterers has been emptied Variance or concern: _____ Addressed: _____
☐	Air inlets and louvers are open, and the fans and heat have been turned on to allow surfaces to dry Variance or concern: _____ Addressed: _____
☐	Auxiliary fans and/or heaters have been/are being used to dry equipment where necessary. Variance or concern: _____ Addressed: _____

CFIA Site Visit #2: Clean Inspection

1) Once cleaning has been completed, a CFIA inspector will conduct a second inspection that involves a thorough walk-through of the infected place. CFIA inspector should follow Biosecurity procedures before entering the barn to prevent tracking organic material and potential pathogens into cleaned areas.

2) CFIA inspector will ensure that all equipment is cleaned, all mash, litter and organic matter is collected and disposed of safely and all materials are appropriately disposed of if they cannot be properly cleaned and disinfected. An emphasis will be put on materials, equipment and areas identified during the assessment as potentially difficult to C&D[27].

3) If the CFIA inspector approves the completion of the cleaning process, he/she will provide written approval to proceed with disinfection. If the process is not approved, another inspection must be conducted before disinfection is allowed to proceed.

[27] When possible, these potentially-difficult-to-C&D areas should be described in appropriate sections of the farm's SOP's, along with methods that will address them.

Step 3.4 Disinfection

The purpose of Step 3.4 is to disinfect all surfaces in the barn and any equipment inside the barn, in preparation for the repopulation of the barn. Following the complete disinfection and drying of the barn and its contents, CFIA will complete Site Visit 3 (Inspection) and determine if the premises can be deemed ready for repopulation.

SOP 3.4.1: Disinfect Barn

A registered disinfectant must be used for disinfecting the barn[28]. A registered disinfectant contains a Drug Identification Number (DIN). Use the disinfectant according to label directions.

SOP 3.4.2: Disinfect Removed Mechanical and Electrical Equipment

The equipment deemed to be too difficult to clean within the barn and (previously) removed to a disinfection station outside the barn must be disinfected. Use an enclosed container to fumigate, fog, or heat-treat the equipment. The equipment must then be reinstalled back in the barn.

SOP 3.4.3: Disinfect Water System

Follow steps for the disinfection of the water system carefully.

- Worker health and safety is your responsibility
- Follow the steps for the water system disinfection carefully
- Read and follow disinfectant label instructions carefully
- Save disinfectant containers for future reference and complete Form 2: Disinfectant
- Fans and air inlets must be disinfected from the outside-in
- The barn and its contents must be dry before CFIA Site

[28] See Appendix 5 for information on four selected disinfectant products

SOP 3.4.1: Disinfect Barn

Farm Name	
Date	

Purpose

This SOP describes the appropriate measures for disinfecting a barn, using liquid disinfectant.

Procedures

Notify CFIA of the start date for disinfection.

Before entering the barn:

- Review Safety, Biosecurity and Movement protocols with all employees and contractors
- Review specific practices with all employees and contractors
- Read disinfectant label instructions and prepare solution accordingly. Ensure that the disinfectant is compatible with the cleaning solution used in wet cleaning steps
- Adjust ventilation for the cleaning crew
- Don appropriate PPE

After entering the barn:

- Apply disinfectant according to label instructions, with particular attention to concentration and contact time and thoroughly cover all exposed surfaces starting at the apex of the roof or ceiling and working down

  Note: Concentration and contact time can be affected by ambient moisture and temperature, and by the cleanliness of the surface; ensure that these variables are addressed in preparation and application of the disinfectant.
  Note: Apply the liquid disinfectant to the point of run-off.

- Empty pooled disinfectant from feeder trays, bell waterers, etc.
- Inspect the barn and all other production areas to ensure all surfaces have been treated with the disinfectant
- Ensure all surfaces have sufficient contact time with disinfectant as per label instructions
- Record date, name of disinfectant, DIN#, dilution (ml/L), method of application, approximate air temperature of area being cleaned, contact time and initials of applicator on Form 2 (following)
  - _____
  - _____

Producer's Signature: _____

Contractor's Signature: _____

Form 2: Disinfectant

Date	.....
Name of Disinfectant	.....
DIN#	.....
Dilution (ml/L)	.....
Contact Time	_____
Initials	.....

SOP 3.4.2: Disinfect Removed Mechanical and Electrical Equipment

Farm Name	
Date	

Purpose

This SOP describes the appropriate measures for using disinfectant, fumigation, fogging or heat treatment to disinfect mechanical and electrical equipment removed from the barn in SOP 3.3.2.

Procedures

Before approaching the disinfection area(s)[29]**:**

- Review Safety, Biosecurity and Movement protocols with all employees and contractors, especially for the use of fumigation
- Decide method(s) to be used for difficult or sensitive equipment to be disinfected: application of disinfectant, fumigation, fogging, or heat treating
- Obtain a container(s) that is sized to suit the equipment and that can be enclosed during fumigation, fogging or heat treating
- Read instructions for all methods to be used and prepare materials accordingly
- Review specific practices with all employees and contractors
- Don appropriate PPE

In the area used for application of disinfectant:

- Disassemble the equipment and apply disinfectant to all surfaces; ensure that complete surface coverage and required contact time are achieved
- Rinse or wipe parts with a damp cloth to remove the disinfectant; allow parts to dry
- Reassemble the equipment and, when the barn C&D has been completed, return the equipment to the barn and reinstall it

In the fumigation area:

- Disassemble the equipment and dry clean all parts to remove any contaminated material.
- Place the equipment to be fumigated in an enclosed container
- Infuse the fumigation product and close the container; leave the container closed for the infusion time recommended by its manufacturer
- Remove the equipment from the container and reassemble it; when the barn C&D has been completed, return the equipment to the barn and reinstall it

[29] "Disinfection area" is any area set aside for application of disinfectant, fumigation, fogging or heat treatment

In the fogging area:

- Disassemble the equipment and dry clean all parts to remove any contaminated material.
- Place the equipment on a suitable surface
- Following manufacturer's directions, fog all parts of the equipment, ensuring recommended coverage and contact time
- Reassemble the equipment; when the barn C&D has been completed, return the equipment to the barn and reinstall it
    - _____
    - _____
    - _____

Producer's Signature: _____

Contractor's Signature: _____

SOP 3.4.3: Disinfect Water System

Farm Name	
Date	

Purpose

This SOP describes the appropriate measures for disinfecting the barn water system.

Procedures

Before entering the barn:

- Review Safety, Biosecurity and Movement protocols with all employees and contractors
- Review specific practices with all employees and contractors
- Read disinfectant label instructions and prepare solution accordingly
- Don appropriate PPE

After entering the barn:

- Pump the disinfectant through the water lines until it can be seen at the other end of the system
- Ensure that the system is full and pressurized and close the system
- Trigger nipples or drinkers to allow the solution to flow into all areas of the system
- Let the solution remain in the system for the contact time required on the disinfectant label
- Remove, wet-clean and disinfect, and replace water filters
- Clean and disinfect the proportioners
- Flush the system thoroughly with fresh water, making sure again to trigger nipples or drinkers to flush residue from those areas
- Allow all surfaces to dry completely
- Complete *Self Check 4* (Blank form following) and conduct any necessary remedial action to prepare for CFIA Inspection #3: Final Inspection and Approval
    - _____
    - _____
    - _____

Producer's Signature: _____

Contractor's Signature: _____

Self Check 4

☐	Confirm with cleaning crew that disinfectant was applied to all exposed surfaces of the barn Variance or concern: _____ Addressed: _____
☐	Residual disinfectant has been removed from feeders and bell/open waterers Variance or concern: _____ Addressed: _____
☐	Disinfectant information was recorded and initialed including concentration used, contact time and temperature of area (for example inside barn) at time of use. Variance or concern: _____ Addressed: _____
☐	Difficult to clean and/or sensitive equipment has been fumigated or disinfected using other means Variance or concern: _____ Addressed: _____
☐	Disinfected equipment that was removed from the barn for disinfection has been reinstalled Variance or concern: _____ Addressed: _____
☐	All openings in barn are closed Variance or concern: _____ Addressed: _____
☐	Confirm with cleaning crew that water filters were replaced after disinfectant was pumped through the water lines Variance or concern: _____ Addressed: _____
☐	Proportioners have been cleaned and disinfected Variance or concern: _____ Addressed: _____
☐	Confirm with the cleaning crew that the system has been flushed with fresh water and the nipples or valves have been triggered Variance or concern: _____ Addressed: _____
☐	Confirm that all surfaces have dried. Variance or concern: _____ Addressed: _____

CFIA Site Visit #3: Disinfection Inspection

1) The purpose of this inspection is to confirm that disinfection has been completed and may involve the observation of the disinfection process and/or identification of further steps needed to be taken for disinfection of the building, structure(s) and equipment. The disinfectant will be identified, and the process may be monitored to ensure that the proper dilution rate, application and contact time is used.

2) The cleaning and disinfection of an infected place is approved only once the CFIA inspector is satisfied that all requirements have been met.

3) Once approved, the CFIA inspector will sign the disinfection inspection checklist, and the inspector's Declaration of Completion of Cleaning and Disinfection and provide a final copy to the owner/manager.

Appendices

Appendix 1: Materials and Equipment needed for Disposal in Stage 2

Appendix 2: Materials and Equipment needed in each C&D SOP in Stage 3

Appendix 3: Personal Protective Equipment (PPE)

Appendix 4: C&D Planning Checklists

Appendix 5: Selected Disinfectants with Efficacy against Avian Influenza

Appendix 1:
Materials and Equipment needed for Disposal in Stage 2

The equipment and supplies required for a crew to conduct the in- and out-of-barn BHT and composting are as follows. While the disposal stage is the responsibility of the CFIA, you may be asked by CFIA for access to some of these items as appropriate:

- Two skidsteer loaders (large)
- Two small tractors with scrapers
- One large lawn tractor with scraper to operate on upper floor of two storey barns
- Shovels and scrapers (snow shovels or equivalent)
- Pressure Washer for cleaning equipment, and supply hose
- Source of substantial quantity of water such as a large water tanker, large water bladder (fire service) or reservoir
- Pump and fire hose for delivery of water to the compost location
- All biosecurity gear and support including high volume disinfectant delivery for equipment and decontamination shower units
- Portable toilets
- Plastic ground liner (6 mil) if no other impermeable surface such as a concrete slab exists on the premises
- Air permeable, yet water shedding cover liner such as the materials used for construction wrap to protect buildings from rain and wind
- PVC pipe for aeration
- Fans and fittings in case active aeration is needed
- Tires and rope
- Wood shavings to act as a base pad and cover layer as well as a carbon source to meet a target C/N ratio of 25-30. The needed volume of wood shavings can be calculated from the following equation:

  _____ kg of culled birds * 0.0023 = _____ m3 of wood shavings or

  _____ lbs of culled birds * 0.0014 = _____ yd3 of wood shavings

Some of the wood shavings (approximately 1/3) can be exchanged for poultry litter if it is accessible on the infected premises. These equations result in an approximate volume ratio of culled birds to carbon source of 1:1.8 assuming a bulk density of 800 kg/m3 for culled birds.

Appendix 2:
Materials and Equipment needed in each C&D SOP in Stage 3

Stage 3: Required Supplies and Equipment	Use in SOPs:														
	3.1.1	3.1.2	3.2.1	3.2.2	3.2.3	3.2.4	3.2.5	3.2.6	3.3.1	3.3.2	3.3.3	3.3.4	3.4.1	3.4.2	3.4.3
Auxiliary fans												√			
Bio-hazard disposal bags		√		√	√	√	√	√							
Brooms			√	√			√	√							
Buckets						√									
Cleaning pads				√	√	√									
Containers for feed collection			√												
Cordless drill and screws	√														
Detergent											√				
Duct tape	√									√					
Fumigation and/or fogging equipment														√	
Hydrogen peroxide, Chlorine, Citric Acid or Acetic Acid									√						
Ladders			√	√											
Long-handled brushes			√	√											
Low pressure sprayer or Backpack sprayer	√	√									√		√		
Personal protective equipment (see Appendix 3)	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Portable heaters												√		√	
Power washer											√				
Rags or cloths										√					
Rolls of plastic film	√									√					
Scrapers				√	√			√							
Short handled brushes				√		√		√							
Small brushes					√			√							
Staple gun and staples	√									√					
Tools to lift and dismantle equipment			√	√	√										
Tools to remove feed line covers			√												
Virucidal disinfectant (see Appendix 5)		√								√			√	√	
Water		√				√				√			√	√	
Water dispensers								√							
Water system disinfectant															√
Wheelbarrows or similar devices		√													

Appendix 3: Personal Protective Equipment (PPE)

(Appendix 3 developed by Chicken Farmers of Ontario)

A PPE Kit Includes:

- Ideally, disposable undergarments or undergarments that can be washed
- A personal-effects bag
- A white Tyvek-type over-suit
- Boots or shoes with soles that can be dipped in a disinfectant boot wash
- Nitrile under-gloves
- Work capable over-gloves
- Hair net
- Face mask
- Eye goggles

Donning PPE: A Checklist

- It is important that you follow this sequence exactly
- The sequence in which you don PPE relates directly to the disrobing sequence described in the following Step

1. Start by thinking, "Have I got anything on, or do I have anything in my pockets that I do not want to put though a disinfectant bath?"
    - if yes, take it off now and put it in your personal effects bag – e.g. watches, wallets, jewelry, money clips, credit cards, paper of any kind, and so on
    - if it gets contaminated (exposed in any way) it will go through the disinfectant bath, no matter what impact that has on it

2. Put on the white coveralls over your clothing
    - start with the legs, one at a time, sit down if this is easier
    - pull up the zipper
    - use duct tape to adjust the size – make a belt – if the suit is too large for you – remember to make a "tab" for easier removal

3. Put on the over boots – Double Boot method
    - tuck the inner boot inside the pant leg of the coverall
    - position the outer boot over the pant leg of the coverall
    - use duct tape to seal the outer boot to your coverall – make a "tab"
    - your supervisor can help do this if this makes it easier

4. Put your hair net on
    - make sure to tuck in all of your hair

5. Pull up your coverall suit hood
    - settle it comfortably around your face

6. Pull your coverall zipper all the way up
    - fold the flap over the zipper

7. Put on your N95 face mask/respirator
    - place it on your face so that it is comfortable and seals on your face
    - avoid the temptation to pinch the seal
        - pinching can destroy the seal
        - mold the mask gently across the bridge of your nose to create a good seal

8. Put on your goggles
    - settle the straps over your coverall hood

9. Put on your nitrile gloves

10. Put on your over or work gloves
    - use duct tape to seal them to your suit - make a “tab”

You are ready to go into the Hot Zone

Disrobing PPE: A Checklist

- You disrobe from PPE when you come out of the Hot Zone
- You must do it carefully
    - the whole point is to leave all the contaminated particles that have settled on the various outside parts of the PPE in the Hot Zone
    - there is no room for improvising or “doing things better”
    - the following sequence works – follow it exactly

1. Remove the duct tape belt you used to re-size the coverall if you have one
    - place it gently into the contaminated waste bin

2. Remove the duct tape you used to seal your over boots to your coverall (sit down if this helps)
    - place it gently into the contaminated waste bin

3. Remove your over boots one at a time
    - place them gently into the contaminated waste bin

4. Remove the duct tape that seals your over or work gloves to your body suit
    - use the ”tab” to do it
    - do it gently
    - place the duct tape gently into the contaminated waste bin

5. Remove your work gloves one at a time

- pull them off gently by the fingers
- place them gently into the contaminated waste bin
    - your nitrile gloves are clean but by the time you have finished the rest of this sequence they will also be dirty or contaminated

6. Remove your goggles carefully
    - don't pull them off – guide them off
    - place them carefully in the Equipment Disinfectant Bath
        - they can be reused once disinfected
    - your face mask is one of the places with the most contamination because of your breathing
        - be careful not to agitate it as you take off your goggles

7. Remove your N95 face mask carefully
    - don't shake it or jog it while taking it off
    - place it gently into the contaminated waste bin

8. Pull down your coverall zipper enough to remove your hood

9. Pull your coverall hood down
    - Fold it down so that the inside becomes the outside

10. Remove your hair net gently
    - ensure that long hair does not come in contact with any contaminated surface on the outside of your coverall
    - place it gently into the contaminated waste bin
    - fold open the flap that covers your coverall zipper

11. Pull the coverall zipper all the way down
    - this is easiest if you stand up – once you do, do NOT sit back down in the chair

12. Carefully take off your coverall
    - take it off the way a child would – by turning it inside out
    - the outside is the contaminated side – you want to avoid contact with it
    - place it gently into the contaminated waste bin

13. Remove inner boots
    - take care NOT to sit in the Contaminated Chair
    - be careful to touch only the outside of the boot
    - place it gently into the contaminated waste bin

14. Remove one nitrile glove by the fingers
    - use your gloved hand to do it
    - place it gently into the contaminated waste bin

15. Reach INSIDE the second nitrile glove with your bare hand and remove it gently
    - do not touch the outside

- place it gently into the contaminated waste bin

16. Step forward away from the chair (and the Hot Zone)

17. Step into the foot bath, one foot at a time
    - make sure your shoe bottoms are fully rinsed in the foot bath
    - it will be an inch or so deep, so the tops of most running shoes and boots will not be made wet by doing this

18. Walk away from the Hot Zone

It is all about leaving the contamination behind you.

DO NOT IMPROVISE

Follow this sequence exactly.

Appendix 4: C&D Planning Checklists

a) Barns and Facilities (see legend below the table for code descriptions)

AREA: _____	QUANTITY	PREP	√	DRY CLEAN	√	WET CLEAN	√	DISINFECTION	√
CEILINGS, WALLS & FLOORS									
ceiling height				FDA		LPW		LPW	
wall height				FDA		LPW		LPW	
floor area				SW,FDA		LPW		LPW	
barn volume									
CAGES									
rows				FDA		LPW		LPW	
tiers/row				FDA		LPW		LPW	
cages/tier				FDA		LPW		LPW	
total cages				FDA		LPW		LPW	
FREE RUN OPERATIONS – SLATTING									
slats		D,R		FDA		LPW		LPW	
slat supports				SC,FDA		LPW		LPW	

NOTES:

_____

_____

_____

_____

LEGEND		
Preparation	***Dry and Wet Clean***	***Disinfection***
D: dismantle **DE:** detach **O:** open **R:** remove	**DB:** dispose by burning **DCA:** damp cloth absorption **DM:** dispose with manure **DS:** dispose in septic tank **FDA:** foam dust absorption **LD:** lagoon disposal **LPW:** low pressure wash **SC:** scraping **SO:** soaking **SUC:** suction **SW:** sweeping	**DCD:** damp cloth disinfection **FOG:** fogging **FUM:** fumigation **LPW:** low pressure wash **HDT:** heat, dryness, time **HPW:** high pressure wash

AREA: _____	QUANTITY	PREP	√	DRY CLEAN	√	WET CLEAN	√	DISINFECTION	√
MECHANICAL EGG COLLECTION SYSTEM									
egg collection belt		R,DB							
egg collection table				FDA		LPW		LPW	
egg savers on cages				FDA		LPW		LPW	
collection motor/gearbox		DE		FDA		LPW		LPW	
egg elevators				FDA		LPW		LPW	
egg elevator motor/gearbox				FDA		LPW		LPW	
egg conveyor				FDA		LPW		LPW	
elevator debris trays				SC,FDA		LPW		LPW	
debris trays				SC,FDA		LPW		LPW	
egg packer				FDA		LPW		LPW	
FREE RUN OPERATIONS									
nest boxes				SC		LPW		LPW	
nest pads		DE				SO		SO	
wire baskets		DE				SO		SO	
ELECTRONIC MANAGEMENT, COMPUTER SYSTEMS									
control panels in egg room				SUC		DCA		DCA	

NOTES:

_____

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_____

b) Egg Production Equipment (see legend below the table for code descriptions)

LEGEND		
Preparation	***Dry and Wet Clean***	***Disinfection***
D: dismantle **DE:** detach **O:** open **R:** remove	**DB:** dispose by burning **DCA:** damp cloth absorption **DM:** dispose with manure **DS:** dispose in septic tank **FDA:** foam dust absorption **LD:** lagoon disposal **LPW:** low pressure wash **SC:** scraping **SO:** soaking **SUC:** suction **SW:** sweeping	**DCD:** damp cloth disinfection **FOG:** fogging **FUM:** fumigation **LPW:** low pressure wash **HDT:** heat, dryness, time **HPW:** high pressure wash

Appendix 5: Selected Disinfectants with Efficacy against Avian Influenza

The infected premise will be disinfected using a virucidal disinfectant with a Drug Identification Number (DIN) that has been approved by CFIA.

The efficacy of some liquid disinfectants may be reduced by incompatible cleaners, so read the label or MSDS to determine if incompatibilities exist. Efficacy can also be affected by dilution, application method, contact time and storage and handling conditions prior to use. Disinfectants often work more effectively at warmer temperatures.

The disinfecting methods that will be used on the premise include:

- **DAMP CLOTH DISINFECTION (DCD):** Surfaces and equipment will be disinfected with a cloth that has been moistened with a disinfectant solution.
- **FOGGING (FOG):** The disinfecting solution will be applied through a mechanical fogger, thermal fogger, pressure washer or misting system. Fogging is recommended for inaccessible areas that are not heavily soiled, such as attics, corners, cracks, seams and feed bins.
- **FUMIGATION (FUM):** Surfaces and equipment will be subject to fumes for disinfection. Fumigation is recommended for inaccessible areas that are not heavily soiled, such as attics, corners, cracks, seams and feed bins.
- **LOW PRESSURE WASH (LPW):** The disinfecting solution will be applied to surfaces and equipment with a pressure washer set to low-pressure.
- **HEAT, DRYNESS, TIME (HDT):** Surfaces and equipment that are inaccessible may be considered disinfected after they have been dried and exposed to a particular temperature for a certain period of time as specified by CFIA.

The labels of the following disinfectants claim efficacy against avian influenza when used according to their label directions. Most products require pre-cleaning of organic debris prior to application. Testing standards vary by product; however, most disinfectants are evaluated under laboratory conditions in clean environments. These products are approved for use in animal facilities and veterinary hospitals according to the label.
Material Safety Data Sheets for the following products are included in this appendix beginning in the next page.

Manufacturers' recommended solution and contact time for disinfectants claimed to be effective against Avian Influenza:			
Product	**Solution**	**Manufacturer's recommended formulae**	**Contact time**
Virkon® Disinfectant/Cleaner P.W.S.	1% Solution	• *Add one 5 g tablet to 500 ml water (DIN 02253917)* • *Add one 50 g pouch to 5 litres of water (DIN 02125021)* • *Add one 500 g bottle to 50 litres of water (DIN 02125021)* • *Add one 5 kg pail to 500 litres of water (DIN 02125021)* • *Add one 20 kg pail to 2000 litres of water (DIN 02125021)*	**10 minutes**
Profilm®	1:128 dilution	*Add 40 ml to 5 litres of cold water (DIN 02245634)*	**10 minutes**
LpH ag®	1:250 solution	*Add 1 stroke of pump (32 ml) to 7.968 litres of water to yield 8 litres of soluti (DIN 02230496)*	**10 minutes**
PREvail®	1:40 solution	*Add 25 ml to 1 litre of water*	**5 minutes**
	Refer to manufacturers' MSDS, following, for full detail.		

VIRKON MSDS

Material Safety Data Sheet

Virkon™ S

Version 2.4
Revision Date 12/17/2015[30] Ref. 130000014173
This SDS adheres to the standards and regulatory requirements of Canada and may not meet the regulatory requirements in other countries.

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION
Product name: Virkon™ S
MSDS Number: 130000014173
Product Use: Disinfectant
Manufacturer: THE CHEMOURS CANADA COMPANY
PO BOX 118
STREETSVILLE ON L5M 2B7
Product Information: 1-844-773-CHEM
Medical Emergency: 1-866-595-1473 (24 hours)
Other information: professional use

SECTION 2. HAZARDS IDENTIFICATION
Potential Health Effects
Skin: Irritating to skin.
Eyes: Risk of serious damage to eyes.
Inhalation: May cause irritation of respiratory tract.
Ingestion: May be: Harmful if swallowed.
Carcinogenicity
None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, or OSHA, as a carcinogen.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No.	Concentration
Pentapotassium bis(peroxymonosulphate) bis(sulphate)	70693-62-8 40	55 %
Sulphamidic acid	5329-14-6 4	6 %
Sodium chloride	7647-14-5 1	5 %

SECTION 4. FIRST AID MEASURES
Skin contact: Wash off immediately with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing before re-use. Consult a physician.
Eye contact: Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Call a physician immediately.
Inhalation: Remove from exposure, lie down. If victim has stopped breathing: Artificial respiration and/or oxygen may be necessary. Consult a physician.
Ingestion: Do NOT induce vomiting. If a person vomits when lying on his back, place him in the recovery position. Drink 1 or 2 glasses of water. Never give anything by mouth to an unconscious person. Call a physician immediately.
General advice: Never give anything by mouth to an unconscious person. When symptoms persist or in all cases of doubt seek medical advice.

[30] Material Safety Data Sheets (MSDS) are required to be revised by the provider every three years. Note that Premises SOP's will need to be reviewed and revised whenever these and other specifications/regulations change.

SECTION 5. FIREFIGHTING MEASURES
Flammable Properties
Flash point: Not applicable
Lower explosion limit/ lower flammability limit: no data available
Upper explosion limit/ upper flammability limit: no data available
Thermal decomposition: > 50 °C (122 °F)
Fire and Explosion Hazard: Do not allow run-off from fire-fighting to enter drains or water courses.
Hazardous decomposition products (see also section 10)
Suitable extinguishing media: The product itself does not burn, Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable extinguishing media: Carbon dioxide (CO2)
Firefighting Instructions: Wear self-contained breathing apparatus and protective suit.
The product itself does not burn.

SECTION 6. ACCIDENTAL RELEASE MEASURES
NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up.
Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.
Safeguards (Personnel): Evacuate personnel to safe areas. Use personal protective equipment.
Spill Cleanup: Sweep up and shovel into suitable containers for disposal. Avoid dust formation. Avoid moisture. After cleaning, flush away traces with water.
Accidental Release Measures: Do not flush into surface water.
Dispose of in accordance with local regulations.

SECTION 7. HANDLING AND STORAGE
Handling (Personnel): Avoid dust formation in confined areas. Do not breathe dust or spray mist.
Provide adequate ventilation. Avoid contact with skin and eyes. For personal protection see section 8.
Wash hands before breaks and immediately after handling the product.
Regular cleaning of equipment, work area and clothing.
Storage: Protect from contamination. Keep containers dry and tightly closed to avoid moisture absorption and contamination. Store in original container.
Keep away from:
Combustible material
Strong bases
Stable at normal ambient temperature and pressure.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION
Engineering controls: Ensure adequate ventilation.
Personal protective equipment
Respiratory protection: Provide adequate ventilation. Use NIOSH approved respiratory protection.
Hand protection: Additional protection: Rubber gloves
Eye protection: Wear coverall chemical splash goggles and face shield when the possibility exists for eye and face contact due to splashing or spraying of material.
Skin and body protection: Where there is potential for skin contact, have available and wear as appropriate, impervious gloves, apron, pants, jacket, hood and boots.
Exposure Guidelines
Exposure Limit Values
None established.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES
Form: powder
Color: pink
Odor: pleasant, sweet
pH: 2.35 - 2.65 (1% solution in water)

Melting point/freezing point: no data available
Boiling point/boiling range: Not applicable
Oxidizing Substance: The substance or mixture is not classified as oxidizing.
Vapour Pressure: no data available
Specific gravity: 1.07
Water solubility: 65 g/l at 20 °C (68 °F)
Partition coefficient: noctanol/water: no data available
Viscosity: no data available
Viscosity, kinematic: no data available
Evaporation rate: no data available

SECTION 10. STABILITY AND REACTIVITY
Conditions to avoid: Exposure to moisture
Incompatibility: Strong bases Combustible material, Halogenated compounds, Heavy metal salts
Hazardous decomposition products: Oxygen, Chlorine, Sulphur oxides, Sulphur dioxide, Hypochlorite
Hazardous reactions: No dangerous reaction known under conditions of normal use.

SECTION 11. TOXICOLOGICAL INFORMATION
Virkon™ S
Skin irritation: Irritating to skin. (Data on the product itself)
Sensitisation: Does not cause skin sensitisation. Guinea pig (Data on the product itself) Does not cause respiratory sensitisation.
Reproductive toxicity: No toxicity to reproduction Pentapotassium bis(peroxymonosulphate) bis(sulphate)
Dermal LD50: > 2,000 mg/kg, Rat
Oral LD50: 500 mg/kg, Rat
Inhalation 4 h LC50: > 5 mg/l, Rat
Eye irritation: Corrosive, Rabbit
Mutagenicity: Animal testing did not show any mutagenic effects.Did not cause genetic damage in cultured bacterial cells. Tests on mammalian cell cultures showed mutagenic effects. Evidence suggests this substance does not cause genetic damage in animals.
Teratogenicity: Animal testing showed no developmental toxicity.
Sulphamidic acid
Dermal LD50: > 2,000 mg/kg, Rat
Oral LD50: > 2,000 mg/kg, Rat
Eye irritation: Eye irritation, Rabbit
Repeated dose toxicity: Oral Rat No toxicologically significant effects were found.
Mutagenicity: Animal testing did not show any mutagenic effects. Tests on bacterial or mammalian cell cultures did not show mutagenic effects.
Sodium chloride
Dermal LD50: > 10,000 mg/kg, Rabbit
Oral LD50: 3,550 mg/kg, Rat
Inhalation 4 h LC50: > 10.5 mg/l , Rat
Eye irritation: No eye irritation, Rabbit Slight irritation observed but insufficient to warrant classification
Repeated dose toxicity: Oral Rat
Due to its physical properties, there is no potential for adverse effects.
Carcinogenicity: Not classifiable as a human carcinogen. Animal testing did not show any carcinogenic effects.
Mutagenicity: Tests on bacterial or mammalian cell cultures did not show mutagenic effects.
Teratogenicity: Animal testing showed no developmental toxicity.

SECTION 12. ECOLOGICAL INFORMATION
Aquatic Toxicity
Virkon™ S
96 h LC50: Salmo salar (Atlantic salmon) 24.6 mg/l (Data on the product itself)

72 h EC50: Algae 20 mg/l (Data on the product itself)
NOEC: Algae 6.25 mg/l (Data on the product itself)
72 h EC50: Dunaliella tertiolecta (marine algae) 5.54 mg/l
48 h EC50: Daphnia magna (Water flea) 6.5 mg/l (Data on the product itself)
Pentapotassium bis(peroxymonosulphate) bis(sulphate)
37 d: NOEC Cyprinodon variegatus (sheepshead minnow) 0.222 mg/l
28 d: NOEC Americamysis bahia (mysid shrimp) 0.267 mg/l
Sodium chloride
7 d: NOEC Pimephales promelas (fathead minnow) 4,000 mg/l
33 d: NOEC Pimephales promelas (fathead minnow) 252 mg/l
21 d: NOEC Daphnia magna (Water flea) 314 mg/l
7 d: NOEC Ceriodaphnia dubia (water flea) 354 mg/l
Toxicity to other organisms
Virkon™ S
LD50: Rat 4,123 mg/kg
Environmental Fate
Virkon™ S
Biodegradability: Expected to be biodegradable
Sodium chloride
Bioaccumulation: Bioaccumulation is unlikely.

SECTION 13. DISPOSAL CONSIDERATIONS
Waste Disposal: Dispose of as special waste in compliance with local and national regulations. The product should not be allowed to enter drains, water courses or the soil.
Environmental Hazards: If recycling is not practicable, dispose of in compliance with local regulations.

SECTION 14. TRANSPORT INFORMATION
Not classified as dangerous in the meaning of transport regulations.

SECTION 15. REGULATORY INFORMATION
D.I.N. Number: 02125021
Remarks: Regulated under the Food and Drugs Act – WHMIS exempt.

SECTION 16. OTHER INFORMATION
MSDS preparation date: 12/17/2015
Virkon™ and any associated logos are trademarks or copyrights of The Chemours Company FC, LLC.
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. Significant change from previous version is denoted with a double bar.

PROFILM® DISINFECTANT MSDS

110 Hopkins Drive
Randolph, WI 53956
(920) 326-2477
(Registration Office)
(920) 326-5141
(Manufacturing Location)

In Case of Emergency, Call
1-800-498-5743 (for medical emergencies)
1-800-424-9300 (CHEMTREC)

1. PRODUCT IDENTIFICATION

Product Name: **Profilm® Disinfectant**
EPA Signal Word: **DANGER**
Chemical Name: 2-Hydroxymethyl-2-nitro-1,3-propanediol (Tris-hydroxy-methyl-nitromethane)
Chemical Class: Disinfectant.
Canadian Drug Identification Number: 02245634 **Step(s) Revised: All**

2. COMPOSITION/INFORMATION ON INGREDIENTS

Material	OSHA PEL	ACGIH TLV	Other	NTP/IARC/OSHA Carcinogen	Percentage By Weight
2-Hydroxymethyl-2-nitro-1,3-propanediol (CAS No. 126-11-4)	Not Established	Not Established	Not Established	No	19.20
Alkyl (C_{12}-67%, C_{14}-25%, C_{16}-7%, C_8, C_{10}, C_{18}-1%) dimethyl benzyl ammonium chloride (CAS No. 68391-01-5)	Not Established	Not Established	Not Established	No	3.08
Formaldehyde (CAS No. 50-00-0)	0.75 ppm (8-hr TWA) 2.00 ppm (STEL)	0.37 mg/m^3 (TLV)	Not Established	Yes (IARC Group 1)	2.28
Inert Ingredients (non-hazardous)	Not Established	Not Established	Not Established	No	75.44

Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.

3. HAZARDS IDENTIFICATION

DANGER: Primary Routes of Entry of Concern are Eye Contact, Skin Contact, and Inhalation
Hazardous Combustion Products
Formaldehyde and/or nitrogen oxides.
Physical Properties
Appearance: Pink Liquid.
Odor: Faint formaldehyde odor.
Unusual Fire, Explosion, and Reactivity Hazards
None known.

4. FIRST AID MEASURES

Have the product container, label or product name, DIN number, and Material Safety Data Sheet with you when calling a poison control center or doctor, or going for treatment. **FOR A MEDICAL EMERGENCY INVOLVING THIS PRODUCT CALL 1-800-498-5743.**

Ingestion: Call a poison control center or doctor immediately for treatment advice. Induce vomiting. Do not give anything by mouth to an unconscious person. Eye Contact: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

Skin Contact: Remove all contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for further treatment advice.

Inhalation: Move person to fresh air. If person is not breathing, call **911** or an ambulance, and then give artificial respiration, preferably mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice.

Medical Conditions Likely to be Aggravated by Exposure

None known.

5. FIRE FIGHTING MEASURES

Fire and Explosion

Flash Point (Test Method): > 200°F (aqueous mixture)

Flammable Limits (% in Air): Lower: % Not Available Upper: % Not Available

Autoignition Temperature: Not Available

Extinguishing Media: Dry chemical, carbon dioxide, alcohol foam, water spray or fog.

Hazardous Combustion Products:

Formaldehyde and/or nitrogen oxides.

Unusual Fire, Explosion, and Reactivity Hazards

None known.

In Case of Fire

Use water spray to cool containers exposed to fire. Remain upwind. Avoid breathing smoke. Wear self-contained breathing apparatus and full protective gear. Avoid using heavy streams of water.

6. ACCIDENTAL RELEASE MEASURES

Emergency Action

Isolate spill or leak area immediately. Keep unauthorized personnel away. Stay upwind. Keep out of low areas. Ventilate closed spaces before entering.

Do not touch or walk through spilled material. Wear appropriate personal protective equipment during cleanup.

Small Spills: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal.

Large Spills: Dike ahead of liquid spill for later disposal.

Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance, contact your State Water Board or Regional Office of the EPA.

7. HANDLING AND STORAGE

Handling Procedures: Avoid contact with skin and eyes. Avoid breathing vapors or mists of this product. Wash thoroughly after handling. As with all chemicals, good industrial hygiene practices should be followed when handling this material.

Storage precautions: **KEEP UPRIGHT WHILE MOVING AND IN STORAGE. KEEP FROM FREEZING.** Store in a safe manner in original container only. Do not store under conditions which might adversely affect the container or its ability to function properly. Reduce stacking height where local conditions can affect package strength. Open container in a well-ventilated area, avoid breathing vapour. Keep container tightly closed when not in use.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Ventilation: Local ventilation is recommended to keep employee exposures below the Airborne Exposure Limits. Work in well-ventilated areas.
Eye Contact: Chemical goggles or shielded safety glasses. Skin Contact: Wear protective clothing: long-sleeved shirts and pants, hat, rubber boots with socks. Wear chemical resistant gloves (i.e. nitrile or butyl – **gloves must be chemically resistant to formaldehyde**).
Inhalation: Wear a NIOSH approved respirator with a Formaldehyde cartridge if Airborne Exposure Limits are exceeded.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Pink liquid
Odor:	Faint formaldehyde odor
Boiling Point:	220°F
Specific Gravity:	1.075 g/ml (water=1)
Bulk Density:	8.97 lbs/gallon
pH:	approximately 7.5
Solubility in $H_2 0$:	Soluble
Vapor Pressure:	Not Established
Percent Volatile:	83.14% (by volume)
Evaporation Rate:	Not Established

Note: The physical data presented here are typical values based on material tested, but may vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specification items.

10. STABILTY AND REACTIVITY

Stability:	Stable under normal use and storage conditions.
Hazardous Polymerization:	Will not occur.
Conditions to Avoid:	Excessive heat will release formaldehyde and/or nitrogen oxides.
Materials to Avoid:	Acids, bases, and oxidizing materials.
Hazardous Decomposition Products:	Formaldehyde.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity/Irritation Studies (Finished Product)

Ingestion: Acute Oral (LD_{50} Rat):	8,000 mg/kg body weight
	May cause stomach distress, nausea, or vomiting.
Dermal: Acute Dermal (LD_{50} Rabbit):	> 2,000 mg/kg body weight
Inhalation:	May cause respiratory tract irritation; probable mucosal damage.
Eye Contact:	(Rabbit) Corrosive; causes irreversible eye damage.
Skin Contact:	(Rabbit) Moderate Skin Irritation

Carcinogenicity
The component Formaldehyde is listed as a known carcinogen by NTP and IARC.

12. ECOLOGICAL INFORMATION

Do not discharge effluent containing this product directly to water. Do not contaminate water when disposing of equipment wash water.

13. DISPOSAL CONSIDERATIONS

1. Do not reuse empty container.
2. Rinse the emptied container thoroughly and add the rinsings to treatment site.
3. Follow provincial instructions for any required additional cleaning of the container prior to its disposal or reconditioning.
4. Dispose of the container in accordance with provincial requirements.
5. For information on the disposal of unused, unwanted product and the cleanup of spills contact the regional office of Environment Canada.
6. For small spills, recover free liquid. Soak up residue with a solid absorbent such as dry clay. Sweep up spill, and put into disposal container and dispose as per point 5.

DO NOT FLUSH INTO SURFACE STREAMS.
INFORM ENVIRONMENT CANADA AS IN POINT 5

14. TRANSPORT INFORMATION

DOT Classification
Not regulated when transporting quantities less than 4386 pounds by highway.
U.S. Surface Freight Classification
Deodorant or Disinfectant, NOI (NMFC 57100, SUB 3; CLASS: 60)

15. REGULATORY INFORMATION

EPA SARA Title III Hazard Classification
Immediate Y Fire N Sudden Release of Pressure N
Delayed Y Reactive N
Step 313 Toxic Chemicals
Formaldehyde (CAS No. 50-00-0) 2.28%
California Proposition 65
This product contains Formaldehyde, a chemical known to the state of California to cause cancer.
Reportable Quantity (RQ) CERCLA/SARA 302/DOT
4386 pounds of the formulation, which contains 100 pounds of Formaldehyde.
RCRA Hazardous Waste Classification (40 CFR 261)
Not Listed

16. OTHER INFORMATION

NFPA Hazard Ratings HMIS Hazard Ratings 0 - Minimal
Health: 3 Health: 3 1 - Slight
Flammability: 1 Flammability: 1 2 - Moderate
Instability: 0 Reactivity: 0 3 - Serious
PPE: H 4 - Extreme

For Non-Emergency Questions about This Product Call:
1-800-621-8829
Neogen Corporation
Lexington, KY

Original Issue Date: December 7th, 2005
Revision Date: February 14th, 2006

Replaces: December 7th, 2005
Profilm® is a registered trademark of Pharmacia and Upjohn Company
Used under license by Pfizer Canada, Inc.:

NOTICE TO USER
THIS PRODUCT IS TO BE USED ONLY IN ACCORDANCE WITH THE DIRECTIONS ON THIS LABEL.
NOTICE TO BUYER
SELLER'S GUARANTEE SHALL BE LIMITED TO THE TERMS SET OUT ON THE LABEL AND, SUBJECT THERETO, THE BUYER ASSUMES THE RISK
TO PERSONS OR PROPERTY ARISING FROM THE USE OR HANDLING OF THIS PRODUCT AND ACCEPTS THE PRODUCT ON THAT CONDITION.
REFER TO MATERIAL SAFETY DATA SHEET (MSDS) FOR FURTHER INFORMATION.

PREvail

Manufactured by:
Virox Technologies Inc.
2770 Coventry Road
Oakville, ON Canada L6H 6R1
1-800-387-7578 | virox.com
viroxanimalhealth.com

Reference Sheet

ANIMAL PREMISES DISINFECTANT CLEANER & DEODORIZER *CONCENTRATE*

For Use in Animal Health, Barn Premises, Farm Premises and Animal Housing Facilities and Areas and Food Processing Establishments.

For disinfection and cleaning of hard non-porous surfaces found in animal premises facilities such as animal life science laboratories, agricultural farms and barns, animal shelters and kennels, pet housing facilities, treatment facilities, transportation vehicles and veterinary clinics and offices. For disinfection of hard, non-porous surfaces in food processing establishments.

A powerful disinfectant effective against:

TUBERCULOCIDAL: 5 MIN at 1:40.

Mycobacterium terrae (ATCC 15755)

VIRUCIDAL: 5 MIN at 1:40.

Proven effectiveness against the Poliovirus Type 1, Sabin strain type 1 (ATCC VR-192) which allows for Broad-Spectrum Virucide claim against most enveloped and non-enveloped viruses.

HIV-1 Human Immunodeficiency virus (HIV), Strain HTLV-IIIB (HIV-1)
Rhinovirus Serotype 14 (ATCC VR-2018)
Canine Parvovirus (CPV), the Cornell strain (ATCC VR-2017)
Feline Calicivirus, F9 Strain (ATCC VR-782), as a surrogate for Norwalk and Norwalk-like viruses
Murine Norovirus type 1 (MNV-1) strain S99
Human Coronavirus 229E (ATCC VR-740)
Human Parainfluenza Virus 3 (ATCC VR-92)
Influenza Virus PR8 strain (ATCC VR-95)
Rotavirus Wa strain (ATCC VR-2018)

This product has demonstrated effectiveness against Poliovirus and is expected to inactivate all Influenza A viruses including 2009 (H1N1) Pandemic Influenza A virus.

BACTERICIDAL: 5 MIN at 1:40.

FUNGICIDAL: 5 MIN at 1:40.

BROAD-SPECTRUM SANITIZING: 30 SEC @ 1:128

Staphylococcus aureus (ATCC 6538)
Pseudomonas aeruginosa (ATCC 15442)
Salmonella enterica (ATCC 10708)
Methicillin-resistant Staphylococcus aureus (MRSA) (ATCC 29247)
Vancomycin-resistant Enterococcus faecalis (VRE) (ATCC 51299)
Escherichia coli O157:H7 (ATCC 43888)
Enterobacter aerogenes (ATCC BAA-2356)
Klebsiella pneumoniae (ATCC 13882)
Acinetobacter baumannii (ATCC 43888)
Trichophyton mentagrophytes (ATCC 9533)
Candida albicans (ATCC 10231)
Staphylococcus aureus (ATCC 6538)
Pseudomonas aeruginosa (ATCC 15442)
Salmonella enterica (ATCC 10708)
Klebsiella pneumoniae (ATCC 13882)
Acinetobacter baumanii (ATCC 19606)
Methicillin-resistant Staphylococcus aureus (MRSA) (ATCC 29247)
Vancomycin-resistant Enterococcus faecalis (VRE) (ATCC 51299)
Escherichia coli O157:H7 (ATCC 43888)
Campylobacter jejuni (ATCC 33560)
Germicidal activity of this product was determined in accordance with theCanadian General Standards Board's standard CAN/CGSB-2.161-97.

PRECAUTIONARY STATEMENTS

KEEP OUT OF REACH OF CHILDREN. Corrosive to eyes. Causes skin irritation. Avoid contact with eyes and skin. Wear suitable protective clothing. Avoid storage at elevated temperatures. Do not mix with other cleaning or disinfecting products. Avoid contamination of food in the application and storage of this product.

FIRST AID:

If in contact with eyes, flush immediately and thoroughly with water for 15 minutes. Call a physician. If in contact with skin, flush immediately with water. Wash thoroughly with soap and water. Obtain medical attention if irritation persists or develops. If ingested, do not induce vomiting. Call a physician or a poison control center immediately. TAKE CONTAINER, LABEL OR PRODUCT NAME AND DIN WITH YOU WHEN SEEKING MEDICAL ATTENTION.

TOXICOLOGICAL INFORMATION:

Probable mucosal damage may contraindicate the use of gastric lavage. Measures against circulatory shock, respiratory depression and convulsion may be needed.

DISPOSAL:

For information on the disposal of unused, unwanted product and the cleanup of spills, contact the Provincial Regulatory Agency or the Manufacturer. Triple rinse the container with water. Dispose of container in accordance with municipal, provincial and federal regulations. Do not reuse container.

DIRECTIONS TO MIX:

1. Fill empty container with cold water based on the amount required for desired dilution.
2. Carefully add the concentrate into filled container.
3. Gently shake or mix the concentrate and water in the container prior to use.
   Do not use undiluted.

USE DILUTION MADE EASY:

Ratio	Per Litre of Water	Per 4 Litres of Water
1:40	25 ml	100 ml
1:128	8 ml	32 ml

CLEANING, DISINFECTION AND DEODORIZING OF EQUIPMENT AND NON-POROUS HARD SURFACES:

Pre-clean heavily soiled areas. Dilute 1:40. Apply solution to surface until thoroughly wet. Ensure surface remains wet for 5 minutes and let air dry.

DIRECTIONS FOR USE IN ANIMAL HOUSING AREAS:

1. Remove all animals and their feed from premises, vehicles, and enclosures prior to disinfection.
2. Remove heavy soil such as urine and manure from the surfaces of facilities and fixtures occupied or traversed by animals.
3. Empty all troughs, racks, and other feeding and watering appliances.
4. Thoroughly clean all surfaces with detergent or 1:128 dilution of PREvail concentrate and rinse with potable water.
5. Apply 1:40 diluted PREvail concentrate to all surfaces for a period of 5 minutes.
6. All surfaces and equipment used in the handling and restraining of animals, and for removing litter and manure, should be immersed in 1:40 diluted solution of PREvail concentrate for 5 minutes. Allow items to dry before re-using.
7. Ventilate closed spaces. Do not house livestock or employ equipment until the product has been absorbed, set, or dried.

8. Thoroughly scrub all treated surfaces or objects that come in contact with feed and drinking water such as feed racks, mangers, troughs, automatic feeders, fountains, and waterers with soap or detergent, and rinse with potable water before reuse.

DIRECTIONS FOR USE IN FOOD PROCESSING ESTABLISHMENTS:

Dilute 1:40. Apply solution to surface with cloth or disposable wipe. Ensure surface remains wet for 5 minutes. For surfaces and/or equipment that may come in contact with food, a rinse with potable water is required.

BROAD-SPECTRUM SANITIZING ON ENVIRONMENTAL SURFACES:

Dilute 1:128. Apply to surface, allow to remain wet for 30 seconds. Wipe dry. No rinsing is required. Food contact surfaces require rinsing with potable water. PREvail Animal Premises Disinfectant Cleaner & Deodorizer Concentrate meets stability testing for up to 30 days after dilution with tap water.