



Natural Resources  
Canada

Ressources naturelles  
Canada

*Great Lakes Forestry Centre  
Insect Production Services*

# **STANDARD OPERATING PROCEDURE**

**Number: IPS/034/002**

## ***Maintenance Personnel Responsibilities***



***Effective Date: 15 October 2013***

**Canada**



## STANDARD OPERATING PROCEDURE

Maintenance Personnel Responsibilities

SOP Number: IPS/034/002/

Effective Date: 15 October 2013

---

**TITLE: Maintenance Personnel Responsibilities**

**APPROVING OFFICIAL:**

DD / MM / YY

Manager, Insect Production Services (IPS) \_\_\_\_\_ / \_\_\_\_ / \_\_\_\_

**SIGNIFICANT CHANGES FROM PREVIOUS VERSION:**

- Procedures to enter and exit the Insect Quarantine (IQ) Facility, Insectary and Methods Development labs have been revised for applicability to our new facilities.
- We now have separate requirements for the type of lab wear to be worn in each part of the IQ facility; areas requiring heightened bio-safety measures (e.g., bunny suits, etc.) are posted in the change room and on the door of select modules.
- Maintenance personnel are now required to document maintenance activities performed in the IQ Facility, Insectary and/or Methods Development labs on a new log (IPS Form Number 0141/001, Appendix 1).
- the title “Insect Quarantine Officer (IQO)” has been revised to “Bio-Safety Officer (BSO)” to match terminology use of the regulatory authority (i.e., Canadian Food Inspection Agency - CFIA).
- Maintenance personnel are not permitted to open mechanical access panels within the IQ facility without prior approval by the BSO and in the presence of the BSO.

## 1.0 INTRODUCTION

### 1.1 Purpose

This Standard Operating Procedure (SOP) has been established to identify responsibilities of Great Lakes Forestry Centre (GLFC) facility maintenance personnel for assuring bio-safety within Insect Production Services (IPS) facilities/labs and to reduce the incidence/spread of pathogens/microbial contaminants.

### 1.2 Scope

This SOP shall be followed by all GLFC facility maintenance personnel performing maintenance/repair activities within IPS facilities including IQ, Insectary, Methods Development Lab and Quality Control (QC) Lab.

### 1.3 Definitions

*Bio-Safety Manual* – A manual containing only those IPS SOPs that relate specifically to the IQ facility.



## STANDARD OPERATING PROCEDURE

*Maintenance Personnel Responsibilities*

*SOP Number: IPS/034/002/*

*Effective Date: 15 October 2013*

---

*Bio-Safety Officer (BSO)* – A member of IPS who has supervisory authority over the daily operation of the IQ facility and who provides technical/research support to users of the facility.

*Controlled Copy* – A copy of an SOP distributed to select GLFC personnel having a unique copy number and dated signature of the IPS manager. Controlled copies are intended to ensure that GLFC personnel follow the most recent version of the SOP.

*Delta System* – Hardware/software system used by GLFC engineering personnel to program, monitor and track environmental conditions within the facility and to provide an alarm when tolerance limits are exceeded.

*Effective Date* – The date from which the procedures given in an SOP are to be implemented.

*Great Lakes Forestry Centre (GLFC)* – One of five Canadian Forest Service (CFS) research facilities in Canada.

*Insect Production Services (IPS)* – A GLFC work team consisting of the Insect Production Unit (IPU), the Quality Control Unit (QCU) and IQ personnel who perform insect rearing, quality control and quarantine activities in support of forest pest research activities internal and external to the CFS.

*Insect Production Services Manager* – The individual who has overall responsibility for activities of the IPS team.

*Insect Production Supervisor* – A member of IPS having supervisory authority over the daily operation of the insectary.

*Insect Production Unit (IPU)* – A work unit of IPS consisting of personnel who perform insect rearing, diet making and methods development activities at GLFC.

*Insect Quarantine (IQ)* – A general-use facility under the control of IPS used for rearing exotic forest insects and conducting associated research activities.

*Insectary* – A multi-species rearing facility under the control of IPS used exclusively by the IPU for maintaining insect colonies and preparing artificial diets.

*Methods Development (MD) Lab* – A research facility under the control of IPS used exclusively by the IPU for developing new rearing methods and for establishing new insect colonies.



## STANDARD OPERATING PROCEDURE

*Maintenance Personnel Responsibilities*

*SOP Number: IPS/034/002/*

*Effective Date: 15 October 2013*

---

*NIST Traceable Thermometer/Hygrometer* – A thermometer/hygrometer with a manufacturer's certificate of accuracy verifying that it was calibrated and tested against standards traceable to the National Institute of Standards and Technology (NIST).

*Quality Control Lab* – An analytical laboratory under the control of IPS used by the QC Unit for monitoring production, process and product control for all IPU insect colonies, and for developing new QC methods and procedures.

*Quality Control Unit (QCU)* – A work unit of IPS consisting of personnel who conduct routine production, process and product control testing and develop new QC methodology in support of IPU activities.

*Standard Operating Procedures (SOPs)* – Directives describing routine administrative or technical procedures conducted by IPS personnel or users of the IQ facility.

### **1.4 Safety**

1.4.1 Personnel must exercise health precautions (e.g., proper lifting procedures) to minimize risk to themselves and to their co-workers.

### **1.5 Materials**

NA

## **2.0 PROCEDURES**

### **2.1 Access Authorization**

2.1.1 Facility maintenance personnel must be trained/approved by the BSO or IPS manager in the use of this SOP before being allowed to work in IQ, Insectary, or MD lab.

2.1.2 Maintenance personnel shall not allow entry of external contractors into IQ, Insectary, or MD lab without prior approval by applicable IPS personnel. External contractors shall be instructed by maintenance personnel on entry/exit procedures and shall be escorted during the entire time that they are present in the facility. When maintenance personnel can't always be present, they shall arrange for applicable IPS personnel to monitor the contractors.

2.1.3 Maintenance personnel shall not allow entry of visitors or research staff into IQ, Insectary, or MD lab. GLFC cleaning staff are not permitted to enter the IQ facility at any time.

2.1.4 Access authorization is not required for the QC lab.

### **2.2 Procedure to Enter IPS Facilities**



## STANDARD OPERATING PROCEDURE

*Maintenance Personnel Responsibilities*

*SOP Number: IPS/034/002/*

*Effective Date: 15 October 2013*

- 
- 2.2.1 There are no restrictions or special access procedures for entering/exiting the QC lab.
- 2.2.2 When possible, maintenance personnel shall endeavor to schedule their work in the IQ facility, Insectary or MD lab for the start of the day prior to entering any other laboratory, thereby reducing the incidence and spread of pathogens and microbial contaminants from other parts of the building.
- 2.2.3 Personal belongings, including boots and coats, shall not be brought into the IQ facility, Insectary or MD lab. Personnel shall limit the tools entering the facilities to only those required to perform the required task.
- 2.2.4 Materials and supplies shall be removed (where feasible) from their original packaging boxes outside of the facility access door for IQ, Insectary or MD lab.
- 2.2.5 Paperwork entering these facilities from other administrative areas in the building shall be kept to a minimum.
- 2.2.6 Maintenance personnel shall limit the tools, equipment and parts to those items necessary for the task at hand. Limited supplies of tools, equipment and parts may be stored in the IQ facility in the location designated by the BSO.
- 2.2.7 Entering the IQ Facility:
- a) Maintenance personnel shall normally enter the IQ facility using the first floor anteroom; BSO approval must be obtained prior to entry via the second floor anteroom.
  - b) Prior to entering the anteroom, personnel shall document their entry on the *Insect Quarantine Access Log* (IPS Form Number 0106/002, Appendix 2), including printed name (contractors shall also include the name of their organization), initials, purpose of the visit, current date and time of entry. Personnel entering the IQ facility to perform maintenance activities shall also sign in using the Insect Production Services Sign-in Form (IPS Form Number 0141/001, Appendix 1).
  - c) Personnel entering the anteroom shall allow the door to close and the air pressure to stabilize before opening the change room door. Personnel are not to enter the containment zone in the event of an air pressure alarm. Doors shall never be propped open, nor opened with a grand master key i.e., anteroom doors are never to be opened simultaneously. In an emergency, contact the BSO manager of IPS, or facilities manager. When time does not permit, any other emergency exit door may be used.
  - d) Upon entering the change room, check the posted notice identifying part(s) of the facility having heightened bio-safety requirements. When intending to enter areas without heightened bio-safety requirements, only lab coats need to be worn. Disposable shoe covers shall also be applied when the floor in the proposed work



## STANDARD OPERATING PROCEDURE

*Maintenance Personnel Responsibilities*

*SOP Number: IPS/034/002/*

*Effective Date: 15 October 2013*

area may become contaminated with infested plant material or soil (upon exit, these shoe covers shall be doffed in the work area/module where they were worn). Lab wear shall be selected from the applicable lockers and shall be worn over street clothing. Wearers shall ensure that they are fully buttoned and/or zipped. Contractors/visitors shall select lab wear from the locker labeled as “visitors”.

When heightened bio-safety measures have been identified by the BSO on the posted notice in the change room (and/or at the required location) additional lab wear shall be applied upon entry to the work area specified. At the door to the applicable module/work area, maintenance personnel shall remove their lab coats, hang them on the wall hook, then enter the module and apply the supplied lab wear (e.g., bunny suit, shoe covers, head cover, and beard cover, if applicable).

- e) Long hair is to be tied back so that it cannot come into contact with potentially contaminated material. Personnel may then enter the inner rooms of the facility. Do not pass through door AA129 at the same time someone is entering the change room via the anteroom (i.e., doors AA129 and AA122C shall never be opened at the same time).

### 2.2.8 Entering the Insectary and/or MD lab:

- a) Prior to entering the facility, maintenance personnel shall apply booties over their street shoes. Alternatively, street shoes may be left in the locker room and personnel may apply dedicated lab shoes.
- b) Upon entering the facility, ensure that both feet make contact with the anti-microbial mat. Hands shall be disinfected with the supplied anti-microbial cleaner.
- c) Upon entering the facility to perform maintenance activities, personnel shall also sign in using the Insect Production Services Sign-in Form (IPS Form Number 0141/001; Appendix 1).

## 2.3 Procedure to Exit IPS Facilities

2.3.1 There are no restrictions on the removal of materials from the Insectary, MD Lab or QC Lab, however removal of materials from the IQ facility shall be strictly controlled as specified in section 2.4.

### 2.3.2 Exiting the IQ Facility:

- a) Maintenance personnel shall exit the IQ facility using the same door by which they entered, normally the first floor locker room and anteroom (except for emergency egress).
- b) Upon exiting an area of heightened bio-safety, personnel shall examine themselves for hitch-hiking insects, then remove their lab wear and hang it on the wall hook; immediately upon exiting the



## STANDARD OPERATING PROCEDURE

*Maintenance Personnel Responsibilities*

*SOP Number: IPS/034/002/*

*Effective Date: 15 October 2013*

module, personnel shall apply a lab coat before proceeding through the facility.

- c) Prior to entering the change room, peer through the viewing window on the door (i.e., door AA129 or door AA244) to ensure that the door to the anteroom is closed (i.e., both doors shall never be opened at the same time).
- d) Prior to removing lab wear, personnel shall use the mirror to examine themselves to ensure that there are no hitch-hiking insects on the garments. When more than one individual is present, they shall examine each other. Personnel shall remove their lab wear and return it to the applicable locker; damaged or soiled garments shall be placed in the hamper and replacement garments may be obtained from the supply locker; gloves and booties (if applicable) shall be placed in the hamper for decontamination before disposal.
- e) Hands must be washed using the sink in the change room.
- f) Upon entering the anteroom, personnel shall use the mirrors to examine themselves again for hitch-hiking insects, and also to allow the door to close and the air pressure to stabilize before exiting.
- g) Upon exit from the facility, personnel shall document their departure time on the *Insect Quarantine Access Log* (IPS Form Number 0106/002; Appendix 2). Personnel exiting the IQ facility after performing maintenance activities shall also sign out using the Insect Production Services Sign-in Form (IPS Form Number 0141/001; Appendix 1) ensuring that actions performed are sufficiently detailed for historical maintenance records.

### 2.3.3 Exiting the Insectary and/or MD lab:

- a) Personnel shall exit the facility through the main door on the second floor (i.e., Door AA225A), except for emergency egress.
- b) Footwear (i.e., dedicated lab shoes or disposable booties) shall be removed every time personnel leave the Insectary.
- c) Personnel exiting the facility after performing maintenance activities shall also sign out using the Insect Production Services Sign-in Form (IPS Form Number 0141/001, Appendix 1) ensuring that actions performed are sufficiently detailed for historical maintenance records.

## 2.4 Materials Exiting the IQ Facility

- 2.4.1 Materials (e.g., worn out parts or equipment) shall not be removed from the IQ facility without approval and inspection/sterilization by the BSO. Tools may be removed from the facility on the day of entry after meticulous inspection by maintenance personnel to ensure that there are no hitch-hiking insects.



- 2.4.2 Materials for discard shall be placed in garbage containers within the IQ facility and left for autoclaving and discard by the BSO. The BSO shall be notified whenever larger items or large quantities of items need to be discarded. Materials originating in areas of heightened bio-safety shall be left in garbage containers in those areas.

### **2.5 Facility Maintenance and Repair**

- 2.5.1 Maintenance personnel shall strive to repair IPS environmental chambers/rooms as soon as possible after notification of malfunction.
- 2.5.2 Upon notification of malfunction of environmental chambers/rooms via the Delta alarm system, maintenance personnel shall notify the contact person specified on the door of the unit. When breakdown occurs outside of normal work hours, maintenance personnel shall temporarily move chamber contents to alternate environmental conditions described on the door of the unit (the contact person shall be notified immediately if the alternate conditions cannot be met or if assistance is required).
- 2.5.3 The memory function of *NIST Traceable Thermometer/Hygrometers* is not to be reset by maintenance personnel.
- 2.5.4 Maintenance personnel shall notify applicable IPS personnel each time a maintenance, repair or calibration operation is performed on any piece of equipment in IPS facilities by completion of the “actions performed” section of the Insect Production Services Sign-In Form (IPS Form, Number 0141/001, Appendix 1). This will facilitate IPS personnel in documenting the activity in equipment logs, performing required cleaning, and making applicable notations on experimental and/or rearing records.
- 2.5.5 Maintenance personnel shall label defective/malfunctioning equipment as “out of service” until such time that it is repaired, replaced or discarded.
- 2.5.6 Requests for Work Orders relating to the IQ facility shall only be accepted from the BSO or IPS manager (i.e., not from users of the IQ facility). Requests for Work Orders relating to the Insectary, MD lab or QC lab may be accepted from any member of IPS.

### **2.6 Sanitation**

- 2.6.1 Facility sanitation is the responsibility of IPS personnel. Maintenance personnel shall inform applicable IPS personnel whenever equipment/facilities are repaired/serviced (as specified in 2.5.4) so that appropriate sanitation measures may be taken.
- 2.6.2 Materials for discard from the IQ facility shall be handled as specified in 2.4.2. There are no restrictions on materials being removed from the Insectary, MD lab or QC lab.





- 2.6.3 GLFC cleaning staff are not permitted to enter IQ or IPU facilities at any time.

## **2.7 Environmental Chambers and Rooms**

- 2.7.1 Maintenance personnel are not permitted to change environmental settings for chambers/rooms without an explicit request from IPS personnel (i.e., requests shall not be accepted from IQ facility users).
- 2.7.2 Maintenance personnel shall assist IPS personnel with environmental chamber/room programming, historical tracking records and/or calibration when requested.
- 2.7.3 Maintenance personnel shall ensure that environmental chambers/rooms in IPS facilities are connected to the GLFC Building Management System (i.e., Delta Control System) so that environmental conditions are monitored on a continuous basis.
- 2.7.4 Maintenance personnel shall ensure that the alarm system is activated at the engineer's station, main security desk and workstations of IPS personnel whenever environmental tolerance limits are exceeded.
- 2.7.5 Maintenance personnel may contact IPS staff at any time to view historical maintenance records for all equipment within the IPS facility.

## **2.8 Insect Containment Envelope for IQ Facility**

- 2.8.1 Maintenance personnel who become aware of any breach in the security/access of the IQ facility shall immediately notify the BSO.
- 2.8.2 Maintenance personnel who become aware of any break in the insect containment envelope (e.g., broken door seals) of the IQ facility shall immediately notify the BSO.
- 2.8.3 Maintenance personnel who are required to penetrate the containment envelope of the IQ facility (e.g., drill hole through wall) during maintenance/repair actions shall first notify the BSO and comply with her/his instructions.
- 2.8.4 Maintenance personnel shall not open mechanical access panels within the IQ facility without prior approval by the BSO. These panels form part of the insect containment envelope, therefore special safety measures must first be implemented by the BSO. The panels shall not be opened unless the BSO is present to monitor activities.
- 2.8.5 Each time an electrical cord is removed from a wall outlet, a plastic outlet cap shall immediately be inserted.

## **2.9 Contingency for Fire or Chemical Spill Alarm**

- 2.9.1 Upon hearing the fire or chemical spill alarm, maintenance personnel shall follow routine exit procedures and vacate IPS facilities immediately. When danger is imminent (e.g., visible smoke or



chemical odor), routine exit procedures shall be omitted (i.e., use any door to exit, do not change clothing, do not sign out).

## **2.10 Power Outage**

2.10.1 Upon the restoration of power after an outage of sufficient duration to trigger an alarm, maintenance personnel shall check the Delta System to ensure that all essential systems and environmental chambers/rooms are functioning correctly and shall take corrective action when required.

## **2.11 Calculations**

NA

## **2.12 Documentation and Reporting**

2.12.1 Compliance to this SOP shall include completion of the *Insect Quarantine Access Log* (IPS Form Number 0106/002, Appendix 2) and the *Insect Production Services Sign-In Log* (IPS Form Number 0141/001, Appendix 1).

## **3.0 DISTRIBUTION AND ARCHIVING**

### **3.1 Distribution**

This SOP shall be distributed by the IPS manager to GLFC facility maintenance personnel who are required to work in IPS facilities, to the BSO and to any other IPS personnel who request a controlled copy. Controlled copies are monitored for chain of custody to ensure that current versions are distributed timely and that outdated versions are destroyed. A current version of this SOP may be viewed in the *Bio-Safety Manual* maintained within the IQ facility or through the GLFC intranet.

### **3.2 Archiving**

3.2.1 The IPS manager shall maintain a historical file of this SOP when it is replaced by a new version.

### **3.3 Destruction of Outdated SOPs**

When new versions of this SOP are available for distribution, all persons in possession of a controlled copy shall ensure that the retired version is returned to the IPS manager.

## **4.0 ASSURING SOP VALIDATION AND COMPLIANCE**

### **4.1 Responsible Individual**



## STANDARD OPERATING PROCEDURE

*Maintenance Personnel Responsibilities*

*SOP Number: IPS/034/002/*

*Effective Date: 15 October 2013*

- 4.1.1 The BSO and the IPU supervisor are responsible for assuring that this SOP is valid for the portion of IPS facilities for which they are responsible.
- 4.1.2 The BSO and the IPU supervisor are responsible for assuring that this SOP is followed by maintenance personnel working in the portion of IPS facilities for which they are responsible.
- 4.1.3 Maintenance personnel are responsible for complying with procedures specified on a *Controlled Copy* of this SOP and shall never use non-controlled copies (which could be outdated).

### **5.0 REVISION OF THE SOP**

#### **5.1 Responsible Individual**

The BSO and the IPU supervisor are responsible for assuring that this SOP is current. If necessary, either person shall initiate the revision process.

#### **5.2 Revision Schedule**

This SOP shall be revised when its provisions no longer agree with current practices or GLFC policies, and shall be approved by the IPS manager and the CFIA Office of Biohazard Containment and Safety.

### **6.0 CONTINGENCIES**

When maintenance personnel find circumstances that do not permit compliance with this SOP, the BSO or IPU supervisor shall be consulted.

### **7.0 CONFIDENTIALITY**

IPS SOPs are not considered to be confidential documents and may be distributed to outside parties. *Controlled Copies* shall not be reproduced.

### **8.0 REFERENCES**

NA

### **9.0 APPENDICES**

Appendix 1: IPS Form Number 0141/001 (Insect Production Services Sign-in Form).

Appendix 2: IPS Form Number 0106/002 (Insect Quarantine Access Log).



Appendix 1

## **Insect Production Services Sign-in Form**

Date: \_\_\_\_\_

Name: \_\_\_\_\_

Department/Company: \_\_\_\_\_

Time Entered (am or pm): \_\_\_\_\_

Time Exited (am or pm): \_\_\_\_\_

Actions Performed (please be specific):

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Signature: \_\_\_\_\_



**STANDARD OPERATING PROCEDURE**

Maintenance Personnel Responsibilities

SOP Number: IPS/034/002/

Effective Date: 15 October 2013

Appendix 2 (Level 1)

Insect Quarantine Access Log (Level 1)

Printed Name (Visitors shall include organization name)	Initials	Purpose	Date (DD/MM/YY)	Time In	Time Out

IPS Form Number 0106/002



**STANDARD OPERATING PROCEDURE**

Appendix 2 (Level 2)

Insect Quarantine Access Log (Level 2)

Printed Name (Visitors shall include organization name)	Initials	Purpose	Date (DD/MM/YY)	Time In	Time Out



Great Lakes Forestry Centre  
Insect Production Services

## **STANDARD OPERATING PROCEDURE**

*Maintenance Personnel Responsibilities*

*SOP Number: IPS/034/002/*

*Effective Date: 15 October 2013*

---

[Blank Page]

For information regarding reproduction rights, contact Natural Resources Canada at [copyright.droitdauteur@nrcan-rncan.gc.ca](mailto:copyright.droitdauteur@nrcan-rncan.gc.ca).

© Her Majesty the Queen in Right of Canada, as represented by the Minister of Natural Resources Canada, 2014.  
ISSN 2368-4658