



Select Agents and Toxins Theft, Loss and Release Information Document

7 CFR Part 331.19, 9 CFR Part 121.19, 42 CFR Part 73.19

Prepared by

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Theft, Loss, or Release of Select Agents or Toxins

Purpose

This document describes practices and procedures for submitting an APHIS/CDC Form 3 (Report of Theft, Loss, or Release of Select Agents and Toxins). These practices and procedures are for general information purposes only and do not constitute or establish minimum acceptable standards that would automatically meet the requirements of title 7 of the *Code of Federal Regulations* (7 CFR) 331.11 and 331.19, 9 CFR 121.11 and 121.19, or 42 CFR 73.11 and 73.19.

In general, we view the following terms as:

Contaminated: The presence of blood, infectious materials, potentially infected materials, toxins, or prions on an item or surface.

Decontamination: A process that consists of cleaning combined with disinfection or sterilization.

Loss: A failure to account for select agent or toxin.

Occupational exposure: Any event which results in any person in a registered entity facility or lab not being appropriately protected in the presence of an agent or toxin. This may include reasonably anticipated skin, eye, mucous membrane, or parenteral contact with blood or other potential infectious materials that may result from the performance of a person's duties. For example, a sharps injury from a needle being used in select agent or toxin work would be considered an occupational exposure.

Primary containment barriers: Specialized items designed or engineered for the capture or containment of hazardous biological agents. Examples include biological safety cabinets, trunnion centrifuge cups, and aerosol-containing blenders. For the purposes of assessing a potential select agent release, the laboratory room may be considered a primary containment barrier in facilities meeting the requirements of biosafety level-4 (BSL-4) or BSL-3Ag as described in the 5th edition of the Centers for Disease Control and Prevention/National Institutes of Health (CDC/NIH) Biosafety in Microbiological or Biomedical Laboratories manual.

Release: A discharge of a select agent or toxin outside the primary containment barrier due to a failure in the containment system, an accidental spill, occupational exposure, or a theft. Any incident that results in the activation of a post exposure medical surveillance/prophylaxis protocol should be reported as a release.

Theft: Unauthorized removal of select agent or toxin.

Security, Biosafety, and Incident Response Plans

All registered entities must develop and implement security, biosafety, and incident response plans in accordance with Security, Biosafety, and Incident Response Sections outlined in 7 CFR 331, 9 CFR 121, and 42 CFR 73.

Reporting Incidents

Upon discovery of the theft, loss, or release of a select agent or toxin, entities must report all incidents as specified below.

- First, an individual or entity must immediately notify the lead Agency; i.e., the Animal and Plant Health Inspection Service (APHIS) or the CDC by telephone, fax, or e-mail. (The contact information is provided below.)
 - If the entity is not registered with either APHIS or CDC (such as an unregistered clinical or diagnostic facility), then it may notify either Agency.
 - If a responsible official (RO) has a reasonable suspicion that a theft, loss, or release has occurred, the RO should notify APHIS or CDC to make APHIS or CDC aware of a potential incident. This will help the Agency respond quickly if the incident is confirmed.
 - If the entity is unsure whether a report is required, then it should contact the lead Agency immediately.
- The individual or entity must also notify the appropriate Federal, State, or local law enforcement agencies for the theft or loss of a select agent or toxin. For the release of a select agent or toxin, the entity should notify the appropriate local, state, and federal health agencies.
- Individuals or entities must report thefts or losses even if the select agent or toxin is subsequently recovered and/or the responsible parties are identified.
- The initial report should include as much information as possible about the incident. As required by the regulations, the entity must report the following:
 - Type of incident
 - Date and time
 - Agent and quantity
 - Summary of events that include the location of the incident and list of other agencies notified. If a release occurred, the entity must provide the number of individuals potentially exposed, actions taken to respond to the release such as medical intervention and biocontainment, and hazards posed by the release such as estimate of the severity of the event and the proposed impact to public or agricultural health.
- Information should be submitted as it becomes known, but no later than 24 hours.
- Within seven (7) days, the entity must submit a complete APHIS/CDC Form 3, Report of Theft, Loss or Release to the lead Agency or to either APHIS or CDC if the entity is not registered with either agency. All appropriate data fields should be completed. Supporting documentation, such as access logs, standard operating procedures, and the follow up investigation, should be provided regarding the reported incident. The form and supporting documentation may be submitted by either fax or mail.
- Contact information:

APHIS

Agricultural Select Agent Program
4700 River Road, Unit 2, Mailstop 22, Cubicle 1A07
Riverdale, MD 20737
Telephone: 301-734-5960
Fax: 301-734-3652
Agricultural.Select.Agent.Program@aphis.usda.gov

CDC

Division of Select Agents and Toxins
1600 Clifton Road NE, Mailstop A-46
Atlanta, GA 30333
Telephone: 404-718-2000
Fax: 404-718-2096
Irsat@cdc.gov

Biosafety Release Scenarios

These scenarios represent examples for which a Form 3 report may be required. This list is not all inclusive and should not be used in place of an incident-specific risk assessment.

Scenario 1: In a BSL-2 laboratory, a laboratorian is working with a culture from an anthrax patient inside a biological safety cabinet. The laboratorian's chair unexpectedly shifts causing the glass vial containing the anthrax to slip out of the laboratorian's hand and break on the floor. Is this considered a release?

Yes. The primary containment barrier for this specimen (the biological safety cabinet) was breached and the splash potential could cause a wider area of contamination. The entire area surrounding the spill would require disinfection of the affected area and follow up evaluation. Medical surveillance and prophylaxis may be necessary.

Scenario 2: A specimen containing *Yersinia pestis* is undergoing centrifugation in a BSL-3 laboratory. The centrifuge safety cup malfunctions, and the specimen is released within the centrifuge. Staff members are wearing proper personal protection equipment (PPE), including a powered, air-purifying respirator (PAPR), during all operations associated with this material. Is this reportable as a release?

Yes. Although proper PPE was being worn, the specimen container broke, and the specimen was no longer under containment.

Scenario 3: An animal caretaker in an animal BSL-3 facility opens the door to a cage to remove what was mistakenly thought to be a dead mouse. During the removal process, the mouse bit the caretaker on the finger penetrating the protective gloves being worn. The mouse was confirmed to be infected with *Y. pestis*. Is this reportable?

Yes. An occupational exposure has occurred with a mouse infected with *Y. pestis*. Medical intervention and follow-up will be required.

Scenario 4: On completion of a study, a haemorrhagic fever virus suspension is securely wrapped in a leak-proof container and passed out of a BSL-4 laboratory through a dunk tank for transport to a gamma cell irradiator for inactivation. Although specific written procedures for biosafety and security are followed, a slip occurs during transport, and the leak-proof outer container breaks exposing a broken vial containing the virus. Is this reportable?

Yes. The area between the laboratory and gamma cell irradiator would provide inadequate containment and would be subject to decontamination. Follow up evaluation and medical surveillance of the exposed workers would be indicated.

Scenario 5: A worker is manipulating a haemorrhagic fever virus suspension in a BSL-4 suit laboratory. During transport of the suspension from a biological safety cabinet to an incubator, the suspension is dropped and spills on the floor. The worker reports the incident to the supervisor, and the spill is cleaned up following established protocols. All building containment systems were operating within normal limits, and no breaches of containment suits were reported during the incident and resulting cleanup. Is this reportable?

No. The BSL-4 engineering controls in place prevented the release of the agent to the environment and exposure to the workers. However any event that results in a breach of the positive pressure suit or secondary containment barrier should be reported to DSAT.

Scenario 6: A diagnostic laboratory has received a suspected sample of *Coccidioides immitis*, an overlap select agent. Further testing confirms the original diagnosis, and an APHIS/CDC Form 4 has been completed and submitted to the appropriate Agency. Before the confirmed sample is destroyed, the diagnostician discovers the confirmed sample is missing and may have been stolen. Is this a reportable incident?

Yes. Diagnostic laboratories are required to report the theft, loss, or release of a confirmed select agent.

Scenario 7: During a quarterly inventory review, the RO discovers a discrepancy of one vial of a select agent. The RO immediately verifies the most recent inventory records to validate the missing vial and contacts the principal investigator to determine if the vial was incorrectly removed from the storage freezer. After 6 hours of investigating the problem, the RO has not located the missing vial, but has not completed the investigation. Is this a reportable incident?

Yes. A loss should be reported to the lead Agency even if the investigation has not been completed. Further, appropriate law enforcement officials should be made aware of the situation. Should the vial be subsequently recovered, the lead Agency and law enforcement officials should be informed. Regardless of recovery, a Form 3 is still required within 7 days of the incident.

Scenario 8: A flood occurs at a laboratory causing significant destruction. During the flood, emergency responders enter the laboratory. After the flood, it is noticed that several vials are damaged or compromised, such that inventory reconciliation is not possible. Is this a reportable incident?

Yes. The entity should immediately report the incident. If there is reasonable suspicion that containment was breached, resulting in occupational exposure to responders or the public, the incident should be reported to the lead Agency as a release. Appropriate public health officials should be notified.

Scenario 9: ABC Corporation, a registered entity working with select agents, conducts monthly tests on all autoclaves used to sterilize select agent waste. During a routine test, it is discovered that the autoclave is not reaching the threshold temperatures needed to achieve sterilization. The logbook indicates a load with select agent waste was autoclaved 3 days before and put in the dumpster for removal. Is this a reportable incident?

Yes. The RO should report a release because the autoclave did not reach appropriate temperatures and the select agents may not have been inactivated by the decontamination process. Therefore, there is reason to conclude that an environmental release of the select agent has occurred. Notification should also be made to the waste disposal firm, appropriate law enforcement officials, and appropriate public health officials.

Scenario 10: A vaccine production company has a rupture in a high volume production tank of Botulinum neurotoxin. Is this a reportable incident?

Yes. The primary containment vessel has been compromised.

Scenario 11: A laboratory is doing research with high pathogenicity avian influenza (H5N1) in poultry inside an approved space with negative air pressure. While in the laboratory, the heating, ventilating, and air conditioning system fails, causing a potential backflow of air outside of containment. The redundant system reestablishes directional airflow. Is this a reportable incident?

Possibly. If all select agent materials were maintained in primary containment devices and there was no evidence of a device failure during the ventilation malfunction, then the incident would not be reportable. However, if primary containment devices were not in use and the laboratory became positively pressured during this time, then the incident would be reportable.

Scenario 12: A laboratory is doing research with 54 mice infected with *Bacillus anthracis*. On Monday morning, the animal technician discovers that one cage is missing two mice. Is this a reportable incident?

Possibly. If there are no indications of the fate of the mice, then the incident is reportable as a loss. However, if there is indication of cannibalization, such as a tail or skeletal remains, the incident is not reportable.

Scenario 13: A researcher is working with chickens infected with the velogenic strain of Newcastle disease. The animal technician contracts conjunctivitis, a condition caused by exposure to Newcastle disease. Is this a reportable incident?

Yes. A release should be reported to the lead Agency.

Scenario 14: A laboratorian receives a self-inflicted cut with a scalpel during a necropsy of an animal infected with a select agent. The glove and skin were penetrated. The necropsy took place on a downdraft table that pulled air away from the laboratorian, and there was no contact between the laboratorian's hand and any tissue or fluid from the carcass. Is this a reportable incident?

Possibly. If the scalpel was not sterile and the possibility exists that it was contaminated with tissue or fluids from the animal, then the incident is reportable. However, if the scalpel was sterile at the time of the cut (i.e., prior to use in the necropsy) and there was no likelihood of an occupational exposure, the incident would not be reportable.

Scenario 15: A laboratorian spills an agent on the floor. The agent's route of infection is only via the mucous membrane. The laboratorian, who is wearing PAPR protection, bends over to clean up the spill and notices a rip in the personal protective clothing he or she is wearing. Is this a reportable incident?

Yes. Although the risk of exposure to the laboratorian may be minimal, the incident still resulted in a release of select agent materials from primary containment.

Scenario 16: A laboratorian is working with *Brucella abortus* and has a needle stick from a used syringe. The outside of the needle had been sterilized with alcohol, but the laboratorian thinks there may have been a few drops inside the needle. Is this a reportable incident?

Yes. If there is any possibility that a needle stick might result in infection, the incident must be reported as a release.

Scenario 17: Power to a biosafety cabinet goes down for 30 seconds during a manipulation. The laboratorian, who was not wearing any respiratory protection, was working with an aerosol-transmitted agent. Although the manipulation did not appear to generate an aerosol, the laboratorian was placed on a fever watch as a precaution. Is this a reportable incident?

Yes. The activation of the post exposure medical surveillance protocol is evidence of a significant probability of release of the agent outside of containment.

Scenario 18: A non-registered BSL-2 clinical laboratory performs multiple manipulations with a fastidious gram-negative bacterial isolate from the blood of a febrile patient. The work is performed outside of a biological safety cabinet. The laboratory is unable to identify the isolate and sends it to a reference laboratory for further studies. The reference laboratory identifies the isolate as *Francisella tularensis*. Is this a reportable incident?

Yes. The manipulation of this material outside of a biological safety cabinet in the clinical laboratory represents a non-contained condition.

Scenario 19: A set of 10 "trap" or sentinel plants is located 18 feet outside of a containment greenhouse and within the perimeter of the security fence. Visual monitoring reveals that one plant is showing disease symptoms. Diagnosis tests confirm that the symptomatic plant is infected with a select agent that is being studied in the greenhouse and is now known to be present within the United States. Is this a reportable incident?

Yes. The RO should report this as a release. The only source of the select agent was from the greenhouse through transmission means (e.g., insect vector or mechanical transmission) possible for the select agent. The RO should investigate the event to determine the source and means of pathogen transmission to prevent future incidents.

Scenario 20: Routine serological testing of a worker in a Q-Fever laboratory shows an elevated antibody titer (above the established positive threshold for the assay). Is this reportable as an occupational exposure?

Possibly. The entity must perform a follow-up investigation to determine if the elevated titer is the result of: 1) previous exposure to the organism prior to work at the entity; 2) possible exposure to the organism while doing non-work related activities; or 3) exposure at the workplace. If the investigation shows that the exposure most likely occurred at the workplace, then the incident is reportable.

References

For biosafety and containment procedures, please refer to standard biosafety references. Registered entities should reference and be familiar with the following:

- Principles and Practices of Disinfection, Preservation and Sterilization, 3rd ed. Russell, Hugo, and Ayliffe, 1999.
- Biosafety in Microbiological and Biomedical Laboratories (BMBL) 5th Edition, located at <http://www.cdc.gov/od/ohs/biosfty/bmb15/bmb15toc.htm>

- NIH Guidelines for Research Involving Recombinant DNA Molecules, located at <http://www4.od.nih.gov/oba/rac/guidelines/guidelines.html>
- Material Safety Data Sheets on HHS and Overlap Select Agents, located at <http://www.phac-aspc.gc.ca/msds-ftss/index.html>
- APHIS/CDC Form 3, Report of Theft, Loss or Release.

For further information, contact the CDC Select Agent Program at LRSAT@CDC.gov or the APHIS Agricultural Select Agent Program at Agricultural.Select.Agent.Program@aphis.usda.gov.