

YOUNGSTOWN STATE UNIVERSITY INFECTIOUS WASTE CONTINGENCY PLAN

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I. FACILITY IDENTIFICATION

Youngstown State University
One University Plaza
Youngstown, Ohio 44555
330-941-3000
Generator Registration Number: 50-G-00047

Mailing Address:
Youngstown State University
One University Plaza
Youngstown, Ohio 44555
Attn: Dan Sahli
Environmental and Occupational Health and Safety
330-941-1538

II. PURPOSE STATEMENT

Youngstown State University (YSU) has declared itself a large quantity generator (fifty pounds or more per month) of infectious waste. Therefore, according to regulations stated in the Ohio Administrative Code (OAC), the University must have an Infectious Waste Contingency Plan. The University will not treat any waste other than that generated at the University; therefore, it is exempt from licensing and permitting requirements. YSU has an infectious waste area located in room 2119 Cushwa Hall. The Cushwa Hall facility will be used for all infectious waste generated on campus. All animals infected with an etiologic agent will be sent off campus through a licensed infectious waste hauler and will be manifested and disposed of through a licensed infectious waste treatment facility.

The purpose of this contingency plan is to address areas of concern involving infectious waste, should an incident occur. This plan will explain procedures that must be followed should

there be an interruption of normal operating procedures. Section III of this plan will cover such instances that may occur and the procedures which will be implemented.

III. CONTENTS OF THE PLAN

A. Power and Steam Outages

If an incident occurs in which power is inadequate or interrupted to operate the existing autoclaves, the contents of the autoclave will be held in storage until power can be restored and the infectious material can be re-autoclaved to render it sterile. Autoclave 1 is on the building emergency generator which will supply power to the unit in the event of a power outage. If there is a power failure, this will allow any load in the autoclave to complete its cycle without interruption. The steam source for the autoclaves is independent of the unit (i.e., building steam).

If for any reason Autoclave 1 is not operational for an extended period of time, the double bagged infectious waste will be placed in storage. If for any reason steam or power to the autoclave will be shut down for an extended period of time, the University will contact an infectious waste hauler and make the necessary arrangements for the infectious waste to be transported off campus until the autoclave is functional. If this is necessary, the County Board of Health will be notified. We will explain the problem and inform the health department of the name of the infectious waste company that will be used.

B. Exceeding Storage Capacity

The autoclave is in operation from 8:00am to 5:00pm week days. We have the ability to sterilize waste on a daily basis; therefore, the probability that the area would exceed storage capacity is slight. If the storage capacity is still exceeded or is anticipated to be exceeded (14 days or no more than 7 times the facility's daily throughput capacity), the University will contact the infectious waste transporter and arrange for the waste to be shipped off campus. The County Board of Health will be notified if this section of the contingency plan is implemented.

C. Accidents/Spills

All accidents and spills that occur during collection, transportation, storage and processing will be reported to the Department of Environmental and Occupational Health and Safety. The Emergency Coordinator will evaluate the incident and take necessary precautions to contain the spill. The type of infectious material will be determined and proper disinfectants will be used. Employees who are containing and cleaning the spill will wear all necessary protective clothing to

prevent infecting themselves. The spilled material will be placed in either a double bagged autoclave bag or a sharps container if the situation warrants such a container. During cleaning, the area will be sealed off to all non-emergency personnel. The waste, along with all contaminated articles, will be transported via proper containment to the autoclaving area for proper sterilization. Should an individual become contaminated, this individual will be instructed in proper decontamination procedures or will be transported to the local hospital if penetration of the infectious agent occurred. All spills occurring at the treatment facility site that exceed an amount of more than one cubic foot of waste or more than one half the contents of a container with a maximum capacity of two cubic feet will be reported to the Director of the Environmental Protection Agency within 48 hours. Spill kits which include procedures for the cleaning of a spill can be found in room 2120 Cushwa Hall and in the Chemical Management Center, 124 Lincoln Avenue.

D. Fires And Explosions

Should a fire or explosion occur in which infectious waste is involved, the heat of the fire will incinerate the waste, thus rendering it harmless. If a fire should only partially destroy the infectious waste, the remainder will be handled in the same manner as if a spill occurred. The local fire department is aware of the infectious material on campus and has instructions to only contain, not extinguish, fires that may spread infectious waste. It is understood that the Fire Chief, once on site, will assume the responsibility of managing control of the fire.

E. Acts of Nature

1. Floods

Since Cushwa Hall is well above the flood plane of the local area there is little chance that the area will be affected by flooding. Also, the infectious waste site is located on the second floor of the building, which is about 25 feet above ground level.

2. High Winds and/or Tornadoes

In the event that the infectious waste site suffers structural damage from high winds and/or tornadoes to the extent there is a danger that infectious waste would be disseminated to the environment, the following action will be taken. The Emergency Coordinator will instruct all personnel who are trained in the handling of infectious material to relocate the material to a site in the building where it would be more secure. Barricades will be set up around the area and placards indicating the presence of biohazardous material will be placed at strategic spots around the barriers assuring that no individuals would inadvertently become exposed. It should be mentioned that the sterilizers are located in an inside room in Cushwa Hall and are not vulnerable to most high wind events. It is understood that the Emergency Coordinator will handle each situation as it occurs, since it is very difficult to predict what measures will have to be taken. All available means will be used to protect the general public and the community from exposure. Power outages which occur as a result of high winds and/or tornadoes will be handled as outlined in III.A of this plan.

IV. EMERGENCY AUTHORITIES

A. Emergency Coordinator:

Daniel Sahli
1028 Old Furnace Road
Youngstown, OH 44511
Work Phone: 330-941-1538
Home Phone: 330-792-7820
Cellular Phone: 330-727-2782

Alternate Emergency Coordinator

Joseph Bielecki
2456 Northview Dr.
Cortland, OH 44410
Work Phone: 330-941-1537
Home Phone: 330-637-6495
Cellular: 330-727-2553

C. Local Police Department

Youngstown Police Department
116 W. Boardman Street
Youngstown, OH 44503
Phone: 330-747-7911

D. Local Fire Department:

Youngstown Fire Department
420 Martin Luther King Jr. Blvd.
Youngstown, OH 44502
Phone: 330-743-2141

E. Local Health Departments:

Youngstown City Health Department
345 Oak Hill Avenue
Youngstown, OH 44502
Phone: 330-743-3333

District Board of Health of Mahoning County
50 Westchester Drive
Youngstown, Ohio 44515
Phone: 330-270-2855

F. Ohio Environmental Protection Agency:

OEPA
50 West Town St. Suite 700, Columbus, OH 43216-1049
Phone: 614-644-3020
Twenty four (24) hour Emergency Number: 1-800-282-9378

OEPA Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087
Phone: 1-800-686-6330
1-330-425-9171

G. Local Hospital:

St. Elizabeth Health Center
1044 Belmont Avenue
Youngstown, OH 44504
Phone: 330-746-7211

V. EMERGENCY RESPONSE EQUIPMENT

The University in accordance with OAC 3745-27-32(E) has the following emergency response equipment:

- A. A quantity of spill pillows designed to absorb a minimum of ten gallons.
- B. A quantity of concentrated disinfectant to make one gallon of approved diluted disinfectant contained in a spray bottle capable of dispensing a mist or stream at a distance.
- C. A minimum of ten biohazard bags that meet the ASTM 165 gallon dropped dart test and the 75 pound carry test.
- D. A minimum of one set of liquid impermeable and disposable overalls, gloves, boots, caps, protective eyewear and tape.
- E. A first aid kit.
- F. Boundary tape.
- G. Fire extinguisher.

VI. EVACUATION PLAN

A. Means of Evacuating Premise

The building in which the autoclaves are located is equipped with a fire alarm system. Should the building need to be evacuated because of a spill, the area will be cordoned off and the fire alarm will be sounded. Traffic will be directed away from the spill and led outside to safety. The Department of Environmental and Occupational Health and Safety will then implement the University Emergency Evacuation Plan. The building is also equipped with severe weather warning systems (different tone than fire alarms) which would alert occupants of approaching severe weather.

B. Facility Floor Plan

A copy of the Cushwa Hall floor plan is included in the Infectious Waste Management Plan.

VIII. RESPONSIBILITIES OF EMERGENCY COORDINATOR

A. Availability

The Emergency Coordinator and the Alternate Emergency Coordinator are available twenty four (24) hours a day, seven (7) days a week. The coordinators are required to be available by work phone, home phone or cellular phones unless out of the receiving area.

B. Responsibilities

1. Notification

a. Facility Personnel

It is the Emergency Coordinators responsibility to notify the appropriate University personnel should circumstances warrant the evacuation of a building or of a spill that restricts passage throughout the building. If such a circumstance occurs, the Emergency Coordinator will notify the University Police Department to lend assistance in restricting passage. Facilities Maintenance will be notified if a utility needs to be disconnected or interrupted. It will also be the coordinator's responsibility to notify the administration if the situation warrants the closing of a building for a lengthy time. The administration will then decide where the occupants of the building will be directed or if classes will be canceled in that building.

b. Emergency Personnel

The Emergency Coordinator will be responsible for verifying that an emergency involving infectious waste warrants the assistance of other emergency authorities such as the fire department or the health department. The Emergency Coordinator will contact the Ohio EPA should a spill or accident occur which might contaminate surrounding natural resources or the environment.

C. Quantitative and Qualitative Determination

1. ID of Type of Waste

Identification of the types of waste will be determined by the following:

All waste which is used as an etiologic agent in the process will be classified as infectious waste. Blood and blood products will also be classified as infectious waste. The above products will be disposed of in one of the following containers:

- A. Double bagged autoclave bags will be used for such items as petri dishes, rubber gloves, contaminated paper towels, swabs.
- B. Sharps containers labeled as such will be used for needles, capillary tubes, syringes, razor blades, contaminated broken glass.
- C. Cardboard boxes labeled for infectious waste will be used for contaminated slides, pipettes.

Hazardous waste is addressed in the University Hazardous Waste Contingency Plan as required by the Resource Conservation and Recovery Act (RCRA) and will be distinguished from infectious waste, in that liquid waste is disposed of in five (5) gallon polypropylene containers labeled as Hazardous Waste. Waste which is disposed of in these containers is logged in as to the amount and type of chemical being placed into this container. The hazardous waste is separated into two classifications; halogenated and non-halogenated waste. Containers are located throughout the University in the various departments which utilize chemicals. The five gallon containers are picked up by members of the Department of Environmental and Occupational Health and Safety and are transported to the Chemical Management Center (CMC) where they are segregated. Hazardous solid waste is labeled as to its contents and transported to the CMC to await disposal every eighty-five days. Disposal is conducted by a licensed hazardous waste transporter and is manifested as required by law.

Solid residential waste is disposed of in normal waste receptacles and is disposed of on a daily basis by a licensed waste hauler at a licensed solid waste facility.

2. Quantity of Waste

YSU has designated itself as a large quantity generator of both infectious waste (50 pounds or more a month) and hazardous waste (1000 kilograms or more a month). It is estimated that YSU generates 300 pounds of infectious waste per month. Conservatively, 3500 pounds of infectious waste can be treated in a month.

D. Assessment of Threat to Public Health and Safety

The infectious waste site is located in a building which houses mostly health related departments. There are no classrooms present in the immediate area of the infectious waste facility.

Those laboratories located in the area are ones which generate infectious waste and therefore, are cognizant of the hazards present. Proper signage is in place on the doors to the infectious waste area to notify both students and visitors of the hazards present. In the event of a major incident, which in the opinion of the Emergency Coordinator, would constitute a danger to the general public, the Youngstown City and the Mahoning County Board of Health would be notified. The Ohio EPA Northeast District Office would be notified if there was a danger of contamination to the environment.

1. Notification of Appropriate Emergency Authorities

Notification of appropriate emergency authorities will be the responsibility of the Emergency Coordinator. In the case of a spill, the Emergency Coordinator will evaluate the incident and determine if the spill can be handled by the employees of the Department of Environmental and Occupational Health and Safety or whether further assistance is needed from support agencies. In the case of a fire involving infectious waste, the Fire Department will be notified as per normal operating procedures established by the University. The Emergency Coordinator will be available to the Fire Department to lend assistance. If the fire is too large to safely be extinguished without causing a threat of spread of an infectious agent, then the Fire Department has been instructed to contain the fire and not attempt to extinguish it.

2. If Threat is Widespread - Notification of Media

If an incident should occur in which the threat to the public is widespread, the Emergency Coordinator will notify the Marketing and Communications Office of the situation. The Marketing and Communications Office will relay any information of the incident to the local news media. It will be the responsibility of the YSU Marketing and Communications Office to assure that the information being distributed to the local press is current and accurate.

E. Designation of Alternate Treatment Facility

1. Conditions Necessitating Designation

Should circumstances occur in that the autoclave is not capable of sterilizing the infectious waste, YSU will contract out with a local licensed infectious waste hauler for disposal.

2. Transportation

If an alternate facility is needed to handle infectious waste from YSU, it will be the responsibility of the contracted company to transport the infectious waste.

3. Re-Packaging

Re-packaging is the responsibility of the Department of Environmental and Occupational Health and Safety. The proper containers that are needed to ship the infectious waste off site will be provided by the contracted waste hauler.

F. Determining When to Implement Clean-up

Clean-up procedures will be implemented after the Emergency Coordinator assesses the situation to determine what hazards exist. It will be his/her determination as to who will clean the spill and what procedures will be followed. Proper protective procedures will be implemented to assure that no danger will occur to those individuals cleaning the spill. Only those persons trained and familiar with microbiological hazards will attempt to contain and clean a spill and they will be assigned by the Emergency Coordinator.

VIII. STORAGE, REFRIGERATION, FREEZING

Infectious waste will be autoclaved daily during peak periods of generation and as needed during times of minimal generation. Autoclaving on a daily basis will alleviate the need for excess storage. Refrigeration and freezing should not be needed since the waste is autoclaved daily during peak periods of generation. If circumstances occur in which waste cannot be autoclaved, it will be stored in the refrigerator if it begins to cause odors.

IX. ARRANGEMENTS WITH OTHER CONTRACTORS

A. Hazardous Waste

Hazardous waste is contracted out with a licensed hazardous waste company. A waste pickup is scheduled approximately every eighty-five days by the Department of Environmental and Occupational Health and Safety.

B. Solid Waste

Solid waste disposal is contracted out with a licensed solid waste transporter. The contracted solid waste transporter picks up solid waste at the dumpster of Cushwa Hall. All sterilized infectious waste is transported to the dumpster once daily or as needed. The proper shipping disposal papers accompany each load of sterilized waste.

C. Radioactive Waste

Radioactive waste is handled through the University Radiation Safety Officer. The University contracts with a licensed facility to dispose of radioactive waste. Incidents involving radioactive waste will be handled according to the University Radiation Contingency Plan.

X. IMPLEMENTATION OF RESPONSE

A. Chain of Command

The chain of command begins with the Emergency Coordinator. It will be his/her responsibility to call upon University-trained employees to assist in the event of a spill or accident. It will also be his/her responsibility to call on other University personnel to assist with an emergency situation. The Alternate Emergency Coordinator can assign clean-up tasks to those in the department who are capable of such tasks. In the absence of the Emergency Coordinator, the Alternate Emergency Coordinator will assume the responsibilities of the Emergency Coordinator. The Emergency Coordinator will be responsible for issuing statements to the press via the YSU Marketing and Communications Office if the situation should become widespread and affect the health of the general public.

B. Assessment of Problem (Severity)

Assessment of the problem will be conducted by the Emergency Coordinator. Assistance will be given by those involved and those with knowledge of the hazard. The Emergency Coordinator will determine the severity of the circumstance and will notify the appropriate agencies if a threat to public health should occur. The coordinator will determine if the building should be evacuated or if an injured person should be treated at a medical facility.

C. Minor Incidents

1. Steps to Follow

The following steps will be followed for minor incidents:

- a. the Emergency Coordinator will be notified;
- b. personnel from the Department of Environmental and Occupational Health and Safety will go to the site of the spill and will determine the extent of the spill and the infectious agent present;
- c. personnel will don proper personal protective clothing and will contain the spill with paper absorbent or spill pillows;
- d. disinfectant will be placed on the spill and allowed to penetrate the material (see Decontamination);
- e. the paper absorbent or spill pillows will be placed in the proper disposal

- container and transported to the infectious waste autoclaving site;
- f. the spill site will be disinfected a second time and the area will be cleaned again.

2. Persons to Notify

The following persons will be notified in case of a minor incident:

- a. Emergency Coordinator
- b. Department Head

D. Imminent Danger

1. Steps to Follow

The following steps will be followed in case of a major incident:

- a. the Emergency Coordinator will be notified;
- b. the Emergency Coordinator will go to the site of the spill and assess the situation;
- c. proper University personnel will be notified to assist in the emergency;
- d. the building will be evacuated if deemed necessary;
- e. proper agencies will be notified for assistance if deemed necessary;
- f. any injured person will be transported to the local acute care facility;
- g. clean up personnel will don proper protective equipment and seal off the area;
- h. clean up personnel will contain the spill with the absorbent material;
- i. disinfectant will be placed on the contaminated area, being careful not to create aerosols (see Decontamination);
- j. disinfectant will be allowed to penetrate and remain on the contaminated area for a period of time;
- k. spill pillows will be placed in double bagged autoclave bags and transported to the autoclaving area;
- l. the area will be re-disinfected;
- m. cultures of the area will be taken if deemed necessary;
- n. the Director of the EPA will be notified if required;
- o. containment supplies will be replenished.

2. Persons to Notify

a. Emergency Coordinator

Emergency Coordinator will notify the following:

1. Department Head
2. Maintenance Personnel (if needed)
3. Local Authorities (if needed)
4. University Administration
5. YSU Marketing and Communications Office

XI. INTERNAL NOTIFICATION

Internal notification will be conducted by the Emergency Coordinator. Those to be notified will be contacted by university phone, hand-held radio, or cellular phone.

XII. CONTAINMENT AND CONTROL

A. Spill From a Single Container

Spills from a single container will be handled as described in section X.C.

B. Large Spill in Processing Area

Spills from a large container or involving more than one container will be handled as described in section X.D.

C. Spill in Vehicle

The University does not transport its infectious waste by vehicle.

D. Decontamination

The Emergency Coordinator will supervise the decontamination of all areas affected by infectious waste spills. In general, all items that cannot be autoclaved will be liberally flooded with a ten percent bleach solution. This solution will be allowed to remain in contact with the contaminated area for a minimum of thirty minutes. The liquid will then be removed using absorbent pillows or paper and the process will then be repeated. All articles used in the decontamination process (i.e., spill pillows, absorbent paper, protective clothing, etc.) will be autoclaved and disposed of in the same manner as infectious waste.

E. Clean Up of Residues and Disposal

The clean-up of residues will occur in the same manner as spills. Non-disposable items will be properly disinfected (see Decontamination). Disposable items will be autoclaved and

disposed of in the same manner as the infectious waste.

XIII. POST EMERGENCY PROCEDURE

Post emergency procedures will include an evaluation of the incident. It will identify factors that caused the incident, such as if the accident occurred due to personal neglect or through unsafe circumstances present in the work environment. A log of all accidents will be kept in the Department of Environmental and Occupational Health and Safety and a yearly evaluation will be conducted to pinpoint any similarities which may be occurring. If such similarities occur, appropriate training will be provided to eliminate those circumstances which are causing the accidents.

YOUNGSTOWN STATE UNIVERSITY DEPARTMENT OF ENVIRONMENTAL & OCCUPATIONAL HEALTH & SAFETY INFECTIOUS WASTE STERILIZATION PROCEDURE

STANDARD OPERATING PROCEDURE

Standard operating procedures, quality assurance of autoclave performance, and safety measures are outlined as follows:

I. OPERATING PROCEDURES

- A. All infectious and biohazardous waste will be collected in suitable containers. Needles, scalpels, broken glass and other sharp objects will be autoclaved in puncture proof containers. Pipettes and slides may be placed in cardboard boxes lined with a biohazard bag. All other materials will be collected in double bagged polypropylene biohazard bags. Closures on sharps containers will be closed after sterilization and bags will be secured with rubber bands to permit entry of steam, but not loss of contents.
- B. Labels will be affixed to each container providing information regarding its origin, contents, date and person responsible. (See appendix for sample labels.)
- C. Items will be placed on stainless steel trays to minimize the spread of leakage.
- D. The autoclave will be filled to no more than seventy-five (75) percent of capacity and adjustable racks will be employed to insure proper circulation of steam.
- E. All wastes will be sterilized at 121 degrees Centigrade, at fifteen(15) pounds of pressure for ninety (90) minutes.
- F. Sterilization indicator strips will be placed in each load and checked after each cycle is complete. These indicator strips will not turn color unless proper sterilization conditions (i.e., time and temperature) are met.
- G. A maximum registering thermometer immersed in a test tube of water will be used to insure that the autoclave has reached proper temperature.
- H. Each cycle will be recorded on an autoclave sterilization form. This will be a form which includes the date, time and duration of cycle, temperature, type of cycle (liquid or gravity), personnel, and sterilization monitor check.

- I. After sterilization, each container will be tagged with a label stating that it has been rendered sterile.
- J. Each batch of discards will be manifested with a special non-hazardous waste form.
- K. Shipping disposal papers will accompany all discarded sterilized waste.

II. QUALITY ASSURANCE

- A. Autoclave 1 is equipped with a roll printer which records the time and temperature at all stages of the cycle. The printout provides a permanent record of all cycles run. This tape will be kept on file.
- B. Spore strips (Bacillus stearothermophilus) tests will be conducted on autoclave #1 once each month. Tubes of tryptic soy broth are inoculated with the autoclaved strips and incubated seven days. The results along with the lot number and expiration date of the spore strips will be recorded and filed.
- C. The maximum registering thermometer and sterilization indicator strips will keep continual check on performance of the autoclave.

III. SAFETY MEASURES

- A. Materials for the safe handling of spills will be kept close at hand in the autoclave area. These will include:
 - 1. Infectious materials clothing, including a bonnet, goggles, mask, coveralls, gloves, and foot covers;
 - 2. Sufficient amount of absorbent to contain at least ten (10) gallons of liquid;
 - 3. Spray bottles of bactericidal compounds;
- B. Employees will be trained in the safe handling of infectious materials and will be made aware of the hazards involved. They will be instructed to report any accident or injury that occurs.

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