London Health Sciences Centre

Waste Management Manual

Disposal Compliance

Facilities Management

2019/05/27

Contents

1.0 Introduction

The disposal of waste is governed by local, provincial and federal regulations. LHSC Policies and Procedures compliment these regulations to ensure LHSC has the resources to responsibly handle all waste generated at all associated facilities.

This manual is intended for use by those who produce waste as a result of their work at the London Health Sciences Centre. The material contained in this manual is correct to the best of knowledge of the LHSC, Facilities Management, Environmental (Waste) Specialists.

It is the responsibility of all individuals at LHSC to safely and compliantly handle waste according to the Waste Management Manual. Questions or concerns should be directed to the applicable contact listed under Section 2.2 (Non-Emergency Numbers).

2.0 LHSC - Emergency Contact Information

2.1 Emergency Numbers

Event	Reference	Extension
Fire	CODE RED - Fire	55555
Hazardous Spill	CODE BROWN – In-Facility Hazardous Spill	55555
Medical Emergency - Infant/Child	CODE PINK - Medical Emergency - Infant/Child	55555
Medical Emergency - Adult	CODE BLUE - Medical Emergency - Adult	55555
Off-Campus - Fire, Police, Ambulance		911

2.2 Non-Emergency Numbers

Position	Name	Extension
Environmental (Waste) Specialist	Taylor Maris	52082
Environmental (Waste) Specialist	Danielle Moncion	52614
Radiation Safety Officer	Rob Stodilka	64657
Linen Services Coordinator	Kim McIntyre	52388
Security Dispatch		52281
Sodexo Dispatch		53289

3.0 Biomedical Waste Disposal

All biomedical waste must be packaged and stored according to:

- C4: The Management of Biomedical Waste in Ontario

Biomedical waste must be segregated from all other wastes and handled in accordance with the containment, labeling and storage requirements in Table 1 - Biomedical Waste Handling Procedures, Table 2 - Containment and Labeling for Sharps Waste and Figure 1 - Packaging Procedures Using Stericycle Corrugated Containers. Detailed information can be found in subsequent sections.

For substances that consist of biological and chemical hazards, please reference the Appendix A – Decision Tree for Mixed Biological and Chemical Hazards to identify the proper disposal procedure.

If a bulky item (blood saturated mattress etc.) becomes contaminated and requires disposal according to biomedical waste procedures, but cannot fit into the designated biomedical waste packaging – alternate procedures must be followed. Please contact the Environmental Specialist for instructions.

Table 1 - Biomedical Waste Handling Procedures

Biomedical Waste Handling Procedures (Excluding Sharps Waste)

London Health Sciences Centre

Waste	Primary Collection Method		Over-Pack for Transport		Labeling	Storage
BIOMEDICAL: NON-ANATOMICAL WASTE ◦ Blood and blood products ◦ Live or attenuated vaccines ◦ Any tubing containing blood or bloody body fluids ◦ Items saturated with blood that might release liquid if compressed		Reusable container or cardboard box must be lined with the YELLOW biomedical waste liner.		Container or cardboard box must not exceed 2/3 capacity. Tie bag securely. Tape box flaps closed.	Sodexo, place vendor label on side of container. Do not place on top of container. 	If stored for more than 4 days, refrigerate at or below 4◦C 
		Pails do not require liners. Do not remove tear strip from pail lid.	N/A		Paid lid must be securely snapped shut.	
BIOMEDICAL: ANATOMICAL WASTE ◦ Tissues, organs and body parts (NOT including teeth, hair and nails)		Fibre drum must be lined with the RED biomedical waste liner.		Fibre drum must not exceed 2/3 capacity. Tie bag securely. Tape drum lid closed. Apply Anatomical waste label on side of drum.	<u>Clinical unit must apply waste label.</u> Sodexo, place vendor label on side of container. 	Refrigerate at or below 4◦C immediately upon storage. 
		Pails do not require liners. Do not remove tear strip from pail lid.	N/A		Paid lid must be securely snapped shut. Apply Anatomical waste label on side of pail.	
BIOMEDICAL: CYTOTOXIC WASTE Anti-neoplastic drugs used in the treatment of cancer. Includes: ◦ Leftover or unused cytotoxic drugs, IV bags, tubing, needles, tissues, gloves and other items that have come in contact with a cytotoxic drug NOTE: Sharps used for cytotoxic injections must go into an approved cytotoxic sharps container (red)		Cardboard box must be lined with the RED biomedical waste liner.		Container or cardboard box must not exceed 2/3 capacity. Tie bag securely. Tape box flaps closed. Apply Cytotoxic waste label on side of box.	<u>Clinical unit must apply waste label.</u> Sodexo, place vendor label on side of container. 	Refrigeration not required. 
		Pails do not require liners. Do not remove tear strip from pail lid.	N/A		Paid lid must be securely snapped shut. Apply Cytotoxic waste label on side of pail.	

Table 2 - Containment and Labeling for Sharps Waste

Containment and Labeling for Sharps Waste

London Health Sciences Centre

Waste	Primary Collection Method		Over-Pack for Transport		Labeling	Storage
BIOMEDICAL : SHARPS WASTE (SINGLE-USE CONTAINERS) Blades, needles, syringes, including safety engineered needles, laboratory glass, or other materials capable of causing punctures or cuts and which have come into contact with human blood waste, animal blood waste or other animal or human bodily fluids		Must be YELLOW, sealed, leak-proof and puncture resistant.		Container or cardboard box must not exceed 2/3 capacity. Tie bag securely. Tape box flaps closed.	Sodexo, place vendor label on side of container. Do not place on top of container. 	Refrigeration not required. 
			N/A	Paid lid must be securely snapped shut.		
BIOMEDICAL: CYTOTOXIC WASTE Anti-neoplastic drugs used in the treatment of cancer. Sharps used for cytotoxic injections must go into an approved cytotoxic sharps container (red). Overpack for the sharps containers include the red bag with the cardboard box. Otherwise sharps can be placed directly into a red pail.		Cardboard box must be lined with the RED biomedical waste liner.		Container or cardboard box must not exceed 2/3 capacity. Tie bag securely. Tape box flaps closed. Apply Cytotoxic waste label on side of box.	Clinical unit must apply waste label. Sodexo, place vendor label on side of container. 	Refrigeration not required. 
		Pails do not require liners. Do not remove tear strip from pail lid.	N/A	Paid lid must be securely snapped shut. Apply Cytotoxic waste label on side of pail.		

Figure 1 - Packaging Procedures Using Stericycle Corrugated Containers

STEP 1

SET UP BOX
Turn over and seal bottom flaps with tape

STEP 2

LINE BOX WITH YELLOW LINER

STEP 3

PLACE WASTE INTO LINED BOX

STEP 4

TIE LINER WHEN BOX IS FULL

STEP 5

SEAL TOP OF BOX WITH TAPE

STEP 6

CHECK LABELING
Biomedical waste labeling
Apply bar code label beside

UNACCEPTABLE

REGULATORY REQUIREMENTS

GENERAL

- Generators are responsible for packaging their wastes.
- Each bag must be tied and each container must be securely closed.
- Closed bags must not be visible once secondary container is closed.
- Improperly packaged containers or damaged containers will be denied pick up or returned to the generator.
- Only Biomedical Waste can be placed in Stericycle Biomedical Waste containers.

SHARPS

- Sharp materials ("sharps") must be placed in a puncture resistant leak-proof container designed for sharps waste. "Sharps" include needles, syringes, broken glass, scalpels, culture slides, culture dishes, broken capillary tubes, broken rigid plastic and exposed ends of dental wires.
- All sharps containers shall be properly sealed closed before being placed in secondary containers.
- No loose sharps are permitted outside of sharps containers.

Questions? Please call Stericycle toll free at 1-866-836-6660

3.1 Category A - Infectious Waste

Waste Profile:
For the purposes of transport, infectious substances are defined as substances which are known or are reasonably expected to contain pathogens. Pathogens are defined as microorganisms (including bacteria, viruses, rickettsiae, parasites, fungi) and other agents such as prions, which can cause disease in humans or animals.

Infectious substance, Category A
An infectious substance which is transported in a form that, when exposure to it occurs, is capable of causing permanent disability, life-threatening or fatal disease in otherwise healthy humans or animals. Indicative examples of substances that meet these criteria are given in Appendix B – Category A Infectious Substances.

NOTE: The table in Appendix B – Category A Infectious Substances is not exhaustive. Infectious substances, including new or emerging pathogens, which do not appear in the table but which meet the same criteria shall be assigned to Category A. In addition, if there is doubt as to whether or not a substance meets the criteria it shall be included in Category A.

Containment Requirements:
Please refer to the Infectious Disease Threat – Waste Management Requirements document for more information.

Product Information:

Item Description		HMMS Item #
IDT Waste Kit: - One (1) UN standardized plastic drum (Type 1C) - Six (6) Red (Type 1C) biomedical waste bags (37 x 50) - Two (2) UN2814 Labels - Two (2) Biomedical Waste Labels - Two (2) QUARANTINE Labels - One (1) 1A Equivalency Packaging Label - Two (2) INCINERATE Labels - Two (2) INFECTIOUS Labels - Two (2) Absorbent pads - One (1) ULINE Zip-tie		86755

Transport (Internal):
Please refer to the Infectious Disease Threat – Waste Management Requirements document for more information.

Storage:
Please refer to the Infectious Disease Threat – Waste Management Requirements document for more information.

3.2 Non-Anatomical Waste

Waste Profile:

- Human and animal cultures, stocks or specimens (excluding urine and feces submitted for analysis)
- Live or attenuated vaccines, cell lines, and material that has come into contact with any of the items in this sub-clause;
- Human liquid blood or semi-liquid blood and blood products that would release liquid or semi- liquid blood if compressed, body fluids visibly contaminated with blood, and body fluids removed in the course of surgery, treatment, autopsy, embalming or for diagnosis: (excluding urine and feces)
- Items include:
  - Blood contaminated dialysis coils, pleurovacs, haemovacs, blood product packs, infusion sets and all blood/body fluid filled disposable liners and tubing.

NOTE: Items that have patient identifiers are safe to be disposed of in the biomedical: non-anatomical waste stream.

For sharps, refer to 3.4 Sharps and Contaminated Glass.

Containment Requirements:
Package waste into biomedical waste containers according to Table 1 - Biomedical Waste Handling Procedures. Place containers into designated soiled utility room for Sodexo to remove.

NOTE: Sodexo services soiled utility rooms daily. If the room requires additional service, please contact Sodexo by phone x52389 or pager x15367.

Product information:

Item Description		HMMS Item #	Item Description		HMMS Item #
Yellow, Biohazard Bag (33 x 37 inches)		4977	Reusable Bio-Bin (106 Litre)		Contact Sodexo (x53289) for delivery of lined bins
Biopack Cardboard Box (14 x 14 x 22 inches)		2854	Reusable Bio-Cart (360 Litre)		Contact Sodexo (x53289) for delivery of lined bins
Yellow Biohazard Pail (23 Litre)		60290			

Transport (Internal):
Sodexo removes packaged waste from soiled utility room and transports to central holding area at the waste dock for collection by the vendor.
Vendor bar code label must be applied by Sodexo once the bin is stored at the waste dock.

Storage:
If stored for greater than four days after generation, the container must be stored at or below 4 degrees Celsius.

3.3 Human Anatomical Waste

Waste Profile:

- Waste consisting of human tissues, organs, and body parts
- Does not include hair, teeth or nails.

Containment Requirements:
Package waste into biomedical waste containers according to Table 1 - Biomedical Waste Handling Procedures. Ensure the **Anatomical Label** is placed on the cardboard box or pail.
Place containers into designated soiled utility room for Sodexo to remove.

NOTE: Sodexo services soiled utility rooms daily. If the room requires additional service, please contact Sodexo by phone x52389 or pager x15367.

Product information:

Item Description		HMMS Item #	Item Description		HMMS Item #
Red, Biohazard Bag (30 x 38 inches)		58510	Red Biohazard Pail (23 Litre)		68051
Biopack Cardboard Box (14 x 14 x 22 inches)		2854	Anatomical Waste Label		128579

Transport (Internal):
Sodexo removes packaged waste from soiled utility room and transports to central holding area at the waste dock for collection by the vendor.
Vendor bar code label must be applied by Sodexo once the bin is stored at the waste dock.

Storage:
The container must be stored at or below 4 degrees Celsius.

3.4 Cytotoxic Waste

Waste Profile:

- Drugs that have a deleterious effect on living cells
- Agents commonly used in cancer treatment but may also be used for other disorders
- Items include:
  - Leftover or unused cytotoxic drugs,
  - I.V. bags, tubing, needles, tissues, and any other things which have come into contact with a cytotoxic drug,
  - Items contaminated with patient excreta (for example linens and diapers from patients who have received cytotoxics within the previous 48 hours),
  - Packaging and package inserts of all cytotoxic products, including oral cytotoxic medication,
  - All PPE (Personal Protective Equipment) used in the preparations of a cytotoxic medication (ie. gowns, gloves, hair net, mask, etc).

Patient Excreta

Double gloves shall be worn when handling excreta, vomitus (after oral doses) and other body fluids from patients receiving cytotoxic pharmaceuticals within the previous 48 hours. Cytotoxic contaminated patient excreta must be disposed of in the cytotoxic waste stream.

For sharps, refer to 3.4 Sharps and Contaminated Glass.

Containment Requirements:

Package waste into biomedical waste containers according to Table 1 - Biomedical Waste Handling Procedures. Ensure the **Cytotoxic Label** is placed on the cardboard box or pail. Place containers into designated soiled utility room for Sodexo to remove.

NOTE: Sodexo services soiled utility rooms daily. If the room requires additional service, please contact Sodexo by phone x52389 or pager x15367.

Product information:

Item Description		HMMS Item #	Item Description		HMMS Item #
Red, Biohazard Bag (30 x 38 inches)		58510	Red Biohazard Pail (23 Litre)		68051
Biopack Cardboard Box (14 x 14 x 22 inches)		2854	Cytotoxic Waste Label		68110

Transport (Internal):
Sodexo removes packaged waste from soiled utility room and transports to central holding area at the waste dock for collection by the vendor.
Vendor bar code label must be applied by Sodexo once the bin is stored at the waste dock.

Storage:
Refrigeration is not required.

3.5 Sharps and Contaminated Glass

3.5.1 Sharps and Contaminated Glass - Biomedical Waste

Waste Profile:
Biomedical Sharps Waste

- Blades, needles, syringes, including safety engineered needles, laboratory glass, or other materials capable of causing punctures or cuts and which have come into contact with human blood waste, animal blood waste or other animal or human bodily fluids

Containment Requirements:
Biomedical Sharps Waste

- Place sharps into YELLOW puncture resistant sharps container or YELLOW biohazard 23 L pail for broken, and or contaminated lab glass (pyrex) according to Table 2 - Containment and Labeling for Sharps Waste
- Place containers into designated soiled utility room for Sodexo to remove.

NOTE: Sodexo services soiled utility rooms daily. If the room requires additional service, please contact Sodexo by phone x52389 or pager x15367.

Product Information:
Please reference the HMMS Catalogue for additional information on sharps containers.

Item Description	HMMS Item #	
Yellow, 1 Qt Sharps Container	38868	
Yellow, 11.3 L Sharps Container	160092	
Yellow, 12 Gal Sharps Container	46480	
Yellow, 18 Gal Sharps Container	79450	
Yellow, 2 Gal Gatorguard Sharps Container	78829	
Yellow, 2 Gal Sharps Container	161226	
Yellow, 2 Gal Sharps Container	4760	
Yellow, 22.7 L Sharps Container	76782	
Yellow, 3 Gal Sharps Container	87188	
Yellow, 34 L Sharps Container	160093	
Yellow, 5 Qt Sharps Container	38696	
Yellow, 5 Qt Sharps Container	46476	
Yellow, 5.1 L Sharps Container	160089	
Yellow, 5.1L Sharps Container	160090	
Yellow, 7 Gal Sharps Container	41311	
Yellow, 7.6 L Sharps Container	160091	
Yellow, 7.6 Qt Sharps Container	161276	
Yellow, 72 L Sharps Container	160094	

Item Description		HMMS Item #	Item Description		HMMS Item #
Yellow, Biohazard Bag (33 x 37 inches)		4977	Reusable Bio-Bin (106 Litre)		Contact Sodexo (x53289) for delivery of lined bins
Biopack Cardboard Box (14 x 14 x 22 inches)		2854	Reusable Bio-Cart (360 Litre)		Contact Sodexo (x53289) for delivery of lined bins
Yellow Biohazard Pail (23 Litre)		60290			

Transport (Internal):
Sodexo removes packaged waste from soiled utility room and transports to central holding area at the waste dock for collection by the vendor.
Vendor bar code label must be applied by Sodexo once the bin is stored at the waste dock.

Storage:
Refrigeration is not required.

3.5.2 Sharps and Contaminated Glass: Cytotoxic Waste

Waste Profile:
Cytotoxic Sharps Waste

- Blades, needles, syringes, including safety engineered needles, laboratory glass, or other materials capable of causing punctures or cuts and which have come into contact with cytotoxic human blood waste, cytotoxic animal blood waste or other cytotoxic animal or human bodily fluids.
- Sharps used for cytotoxic injections

Containment Requirements:
Cytotoxic Sharps Waste

- Place sharps into RED puncture resistant sharps container OR RED biohazard 23 L pail for broken, and or contaminated lab glass (pyrex) according to Table 2 - Containment and Labeling for Sharps Waste
- Ensure the **Cytotoxic Label** is placed on the cardboard box or pail.
- Place containers into designated soiled utility room for Sodexo to remove.

NOTE: Sodexo services soiled utility rooms daily. If the room requires additional service, please contact Sodexo by phone x52389 or pager x15367.

Product Information:
Please reference the HMMS Catalogue for additional information on sharps containers.

Item Description	HMMS Item #	
Red, 10.3 L Sharps Container	160088	
Red, 12 Gal Sharps Container	82965	
Red, 18 Gal Sharps Container	82795	
Red, 19 Gal Sharps Container	35275	
Red, 2 Gal Gatorgard Sharps Container	114492	
Red, 2 Gal Sharps Container	75117	
Red, 5 Qt Gatorguard Sharps Container	75116	
Red, 5 Qt Sharps Container	76647	

Item Description		HMMS Item #	Item Description		HMMS Item #
Red, Biohazard Bag (30 x 38 inches)		58510	Red Biohazard Pail (23 Litre)		68051
Biopack Cardboard Box (14 x 14 x 22 inches)		2854	Cytotoxic Waste Label		68110

Transport (Internal):
Sodexo removes packaged waste from soiled utility room and transports to central holding area at the waste dock for collection by the vendor.
Vendor bar code label must be applied by Sodexo once the bin is stored at the waste dock.

Storage:
Refrigeration is not required.

3.6 Animal Waste

3.6.1 Non-Infectious Animal Bedding

Waste Profile:

- Material, usually organic, used by animals to support their bodies when resting or otherwise stationary

Containment Requirements:
Vivarium Services staff collect bedding in a clear plastic bag designated for general waste.

Product Information:
n/a

Transport (Internal):
Sealed clear bags are moved by Vivarium staff to the general waste compactor for disposal.

General Waste Compactor Locations:

- VH: A1-414
- UH: Loading Dock

Storage:
Refrigeration not required.

3.6.2 Infectious/Non-Infectious Animal Anatomical

Waste Profile:

Waste related to an animal

- Includes:
  - Infectious animal bedding
  - Animal carcass, tissues, organs, or other body parts
  - Liquid or semi-liquid animal blood or blood products,
  - Items saturated with liquid or semi-liquid animal blood products,
  - Body fluids visibly containing animal blood, or
  - Body fluids removed in the course of surgery, treatment or necropsy of an animal
- Does not include:
  - Teeth, nails, hair, feathers, hooves or horns
  - Urine, feces or milk unless visibly containing animal blood.

Containment Requirements:

- Vivarium Services staff package contents into a cardboard box lined with a RED biohazard bag
- Ensure the **Anatomical Label** is placed on the cardboard box

Product Information:

Item Description		HMMS Item #	Item Description		HMMS Item #
Red, Biohazard Bag (30 x 38 inches) NOTE: For Biopack Cardboard box only		58510	Anatomical Waste Label		128579
Biopack Cardboard Box		2854			

Transport (Internal):

Vivarium Services staff transports waste to central holding area at the waste dock for collection by the vendor.

Vendor bar code label must be applied by Vivarium Services once the bin is stored at the waste dock.

Storage:

Store at or below 4 degrees Celsius.

4.0 Pharmaceutical Waste Disposal

All pharmaceutical waste must be packaged and stored according to:

- Controlled Drugs and Substances Act (CDSA)
- Narcotic Control Regulations, s. 31, 34, 40 - 43, 64
- Food and Drug Regulations, s. G.03.009 – G.03.013, G.05.002 - G.05.003
- Benzodiazepine and Other Targeted Substances Regulation, s.2, 9, 55, 61, 66
- Safeguarding Our Communities Act (Patch for Patch Return Policy)
- O.Reg. 298/12: Collection of Pharmaceuticals and Sharps - Responsibilities of Producers

Pharmaceutical waste must be segregated from all other wastes and handled in accordance with the containment, labeling and storage requirements in Table 3 - Pharmaceutical Waste Handling Procedures. Detailed information can be found in the subsequent section.

All controlled substances destroyed at LHSC will be denatured to render the product unusable prior to wastage. Please refer to the following internal policy and procedure for additional information through the Policy Manager.

- Destruction of Controlled Substances
- Management of Controlled Drugs

Table 3 - Pharmaceutical Waste Handling Procedures

Pharmaceutical Waste Handling Procedures

London Health Sciences Centre

Waste	Primary Collection Method		Over-Pack for Transport		Labeling	Storage
PHARMACEUTICAL WASTE Pharmaceutical products such as vials, injectables, ampoules, ointment pots, tubes, jars, bottles, ills, oral liquids, eye drops, inhalers or empty Ivs, or medication bags with confidential patient information on them.		Cardboard box must be lined with the RED liner.		Cardboard box must not exceed 2/3 capacity. Tie bag securely. Tape box flaps closed. Apply Pharmaceutical waste label on side of box.	Clinical unit must apply waste label. Sodexo, place vendor label on side of container.	Refrigeration not required.
		Pails do not require liners. Do not remove tear strip from pail lid.	N/A	Pail lid must be securely snapped shut. Apply Pharmaceutical waste label on side of pail.		

4.1 Non-Hazardous Pharmaceutical Waste

Waste Profile:

- Waste consisting of pharmaceutical products such as drugs, medicinal chemicals that are no longer usable in patient treatment and cannot be returned to the manufacturer
- Non-Hazardous: Pills, oral liquids, drugs in IV bags, non-empty or empty patient labeled pill containers (includes inhalers)

All pharmaceutical waste (non-hazardous, narcotics/controlled drugs, non-cytotoxic hazardous) are incinerated. Pharmaceuticals shall not be placed in regular garbage or down the drain.

Containment Requirements:

Package all waste into pharmaceutical waste containers according to Table 3 - Pharmaceutical Waste Handling Procedures. Ensure the **Pharmaceutical Label** is placed on the cardboard box or white pharmaceutical pail.
Place containers into designated soiled utility room for Sodexo to remove.

NOTE: Sodexo services soiled utility rooms daily. If the room requires additional service, please contact Sodexo by phone x52389 or pager x15367.

Product Information:

Item Description		HMMS Item #	Item Description		HMMS Item #
Red, Biohazard Bag (30 x 38 inches) NOTE: For Biopack Cardboard box only		58510	White Pharmaceutical Pail (23 Litre)		81732
Biopack Cardboard Box (14 x 14 x 22 inches)		2854	Pharmaceutical Waste Label		86814
Pail Lid (No Bunghole)		153435	White Pail (No Label)		62878

Transport (Internal):

Sodexo removes packaged waste from soiled utility room and transports to secure storage location at the waste dock for collection by the vendor.
Vendor bar code label must be applied by Sodexo once the bin is stored at the waste dock.

Storage:
Refrigeration is not required although for increased security measures, all pharmaceutical waste shall be stored in the locked biomedical fridge at Victoria Hospital or the locked biomedical cage at University Hospital.

4.2 Narcotics, Controlled Substances and Unknown Drugs

Waste Profile:

- Narcotics, benzodiazepines, controlled drugs, and targeted substances

Please refer to the Controlled Drugs and Substances Act and Narcotic Control Regulations for a list of controlled drugs/substances and narcotics.

All pharmaceutical waste (non-hazardous, narcotics/controlled drugs, non-cytotoxic hazardous) are incinerated. Pharmaceuticals shall not be placed in regular garbage or down the drain.

Containment Requirements:
All narcotics, controlled substances and unknown drugs must be destroyed according to Pharmacy Services Policies.

Once the narcotic, controlled substance and/or unknown drug has been denatured, package all waste into pharmaceutical waste containers according to Table 3 - Pharmaceutical Waste Handling Procedures. Ensure the **Pharmaceutical Label** is placed on the white pharmaceutical pail.

Place containers into designated soiled utility room for Sodexo to remove.

NOTE: Sodexo services soiled utility rooms daily. If the room requires additional service, please contact Sodexo by phone x52389 or pager x15367.

Product Information:
Pail lids with no bunghole are recommended for increased security measures.

Item Description		HMMS Item #	Item Description		HMMS Item #
Pail Lid (No Bunghole)		153435	White Pharmaceutical Pail (23 Litre)		81732
White Pail (No Label)		62878	Cytotoxic Waste Label		86814

Transport (Internal):
Sodexo removes packaged waste from soiled utility room and transports to secure storage location at the waste dock for collection by the vendor.
Vendor bar code label must be applied by Sodexo once the bin is stored at the waste dock.

Storage:
Refrigeration is not required although for increased security measures, all pharmaceutical waste shall be stored in the locked biomedical fridge at Victoria Hospital or the locked biomedical cage at University Hospital.

4.3 Non-Cytotoxic Hazardous Pharmaceutical Waste

Waste Profile:
Drugs which are hazardous, but not cytotoxic

- May affect the reproductive system (e.g. teratogenicity, impaired fertility), endocrine system, immune system, respiratory system or have potential to transmit infection
- Includes biologicals, such as live attenuated vaccines, and pharmaceuticals such as warfarin

All pharmaceutical waste (non-hazardous, narcotics/controlled drugs, non-cytotoxic hazardous) are incinerated. Pharmaceuticals shall not be placed in regular garbage or down the drain.

Containment Requirements:
Package all waste into pharmaceutical waste containers according to Table 3 - Pharmaceutical Waste Handling Procedures. Ensure the **Pharmaceutical Label** is placed on the cardboard box or white pharmaceutical pail.
Place containers into designated soiled utility room for Sodexo to remove.

NOTE: Sodexo services soiled utility rooms daily. If the room requires additional service, please contact Sodexo by phone x52389 or pager x15367.

Product Information:

Item Description		HMMS Item #	Item Description		HMMS Item #
Red, Biohazard Bag (30 x 38 inches) NOTE: For Biopack Cardboard box only		58510	White Pharmaceutical Pail (23 Litre)		81732
Biopack Cardboard Box (14 x 14 x 22 inches)		2854	Pharmaceutical Waste Label		86814
Pail Lid (No Bunghole)		153435	White Pail (No Label)		62878

Transport (Internal):
Sodexo removes packaged waste from soiled utility room and transports to secure storage location at the waste dock for collection by the vendor.
Vendor bar code label must be applied by Sodexo once the bin is stored at the waste dock.

Storage:
Refrigeration is not required although for increased security measures, all pharmaceutical waste shall be stored in the locked biomedical fridge at Victoria Hospital or the locked biomedical cage at University Hospital.

5.0 Radioactive Waste Disposal

The Canadian Nuclear Safety Commission (CNSC) regulates the purchase, possession, use, and disposal of nuclear materials. LHSC ensures full compliance to all CNSC regulations through its Radionuclide Safety Manual. Please reference the following link for information on the requirements surrounding radionuclides: https://intra.lhsc.on.ca/sites/default/files/uploads/Radionuclide%20Safety%20Manual%202015.pdf

For additional questions, please contact the Radiation Safety Officer - 2.2 Non-Emergency Numbers.

6.0 Chemical Waste Disposal

All chemicals must be disposed of according to our Chemical Waste Disposal Procedures as follows.

Occasionally, laboratory waste may contain or be contaminated with a combination or mixture of biological and chemical materials. This type of waste poses a challenge for disposal. Inactivation and disposal will be considered on a case-by-case basis, as required.

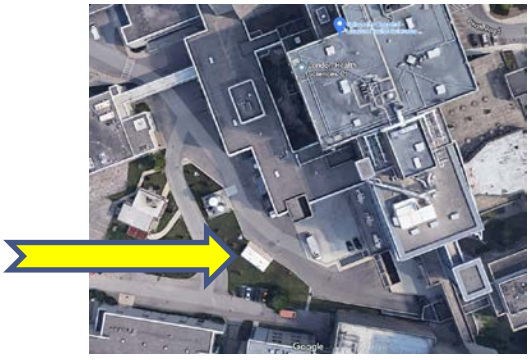
As a general rule for waste containing combinations of hazardous chemical and biological agents, the **biological hazard should be inactivated first.**

For substances that consist of biological and chemical hazards, please reference the Appendix A – Decision Tree for Mixed Biological and Chemical Hazards to identify the proper disposal procedure.

6.1 Chemical Waste Disposal Procedure

Chemical waste can be dropped off at VH or UH:

- Victoria Hospital in E1-C54 on Wednesdays from 9 AM to 9:30 AM
- University Hospital behind the hospital (see below) on the first Wednesday of each month from 1 PM to 2 PM.



Waste Profile:
Chemical waste includes solids, liquids or gases containing or contaminated with any of the following:

- Flammable solvents (e.g., acetone, alcohols, acetonitrile);
- Leachate toxic materials (e.g., heavy metals, pesticides);
- Corrosives (e.g., hydrochloric acid, potassium hydroxide pellets);
- Reactives such as oxidizers, cyanides, sulphides, explosives, unstable materials and Water-reactive materials (e.g., sodium metal, benzoyl peroxide);
- Toxic materials including mutagenic, carcinogenic, acute or chronic toxicity Materials (e.g., chloroform, ethidium bromide);
- Polychlorinated biphenyls (> 50 ppm concentration);
- Non-returnable gas cylinders.

Containment Requirements:
Wastes must be stored in containers compatible with the chemicals stored. For example, hydrofluoric acid waste **must not** be stored in glass containers, corrosive chemicals must not be stored in metal containers, etc .

10L and 20L solvent containers are available at the chemical waste drop-off locations during the designated drop-off times.

All containers of chemicals must be properly and completely labeled. The appropriate packaging and labeling are the responsibility of the individual laboratory or department.

Each item must be labeled, according to the following guidelines:

1. Original Supplier's (manufacturer) Label
2. WHMIS Workplace Label
3. The Full Chemical Name for all containers

Transport (Internal):
Prior to transporting chemicals to the storage locations, an internal manifest must be completed. Chemicals will not be accepted if the form has not been submitted.

All chemical containers must be safely transported in a suitable cart with lips to contain the chemical(s) in the event of a spill. Spill kits must accompany the chemicals during transport. **Only transport compatible chemicals together.**

Incompatible and highly reactive chemicals must be packaged separately during transport to minimize fire and explosion hazards in case of an accidental release. Example: Inorganic salts which liberate poisonous gases in contact with acids, e.g. Potassium Cyanide

Storage:
All chemicals should be stored according to their chemical and physical properties. Overall, chemicals should be separated accordingly:

1. Flammable Liquids
2. Oxidizers
3. Reducers
4. Concentrated Acids
5. Concentrated Bases
6. Water-reactive
7. Toxic
8. Peroxidizables
9. Pyrophorics
10. Compressed Gas Cylinders (Including Aerosol Cans)
11. Inorganic Solids
12. Organic Solids
13. Non Flammable Liquids

Ideally, each group above should be stored on a separate shelf with the most hazardous combinations spaced well apart. Flammable liquids must be stored in an approved flammable storage cabinet or explosion proof refrigerator.

MINERAL ACIDS

Mineral acids are incompatible with bases, flammables and oxidisers. They must be stored separately away from water sources (e.g. under sink) and in some cases from each on plastic trays.
Examples: hydrochloric acid, hydrofluoric acid, phosphoric acid

FLAMMABLE AND COMBUSTIBLE SOLVENTS

Flammable materials have a flash point less than 37.8 °C Combustible materials have a flash point between 37.8 °C and 93.3 °C. They are incompatible with acids, bases and oxidizers.
Examples of flammable solvents include: acetone, ethanol, diethyl ether, benzene, acetonitrile, toluene
Organic acids such as acetic, butyric, and formic acids are combustible materials and should be stored in a flammable storage cabinet.

INORGANIC OXIDIZERS

Oxidizing materials pose potential fire and/or explosion risk when they come in contact with flammable or combustible materials.
Examples: nitrates, nitrites, chlorates, perchlorates, periodates, permanganates, persulfates

BASES (ALKALINE MATERIALS)

Will cause severe eye and skin irritation upon contact, and severe tissue damage with prolonged contact. May be harmful if inhaled. May release poisonous gases upon acidification.
Examples: sodium hydroxide, potassium hydroxide, ammonium hydroxide, organic amines

CYANIDE CONTAINING MATERIALS

While a potentially fatal poison, cyanide compounds will release poisonous hydrogen cyanide gas when acidified.
Examples: sodium cyanide, potassium cyanide, cyanogen bromide

PEROXIDE FORMERS

Peroxide crystals are unstable and can detonate with the friction caused by removing the cap or stopper of a container. This explosion will often be sufficient to ignite the often highly flammable contents of the container. Peroxide forming materials should be dated when opened and disposed of when the recommended time limit has expired.
After three months: isopropyl ether, divinyl acetylene, butadiene, chloroprene, tetrafluorethylene
After twelve months: ethyl ether, tetrahydrofuran, dioxane, vinyl ether, diacetylene, methyl acetylene, cumene, cyclohexene

WATER REACTIVE

Water reactives will produce a toxic or flammable gas when in contact with water. There is often sufficient heat to ignite the generated gas.
Examples: thionyl chloride, aluminum chloride, phosphorus pentoxide, hydrides, sodium, titanium trichloride, potassium.

PICRIC ACID

Inspect monthly and keep wet with distilled water. Dry only the amount required for immediate use. Dry picric acid is shock sensitive.
OTHER SHOCK SENSITIVE MATERIALS: Purchase these materials in small quantities and dispose of them when the research project is finished.
Examples: nitro compounds, organic nitrates, acetylides, azides, diazomethane, fulminates

COMPRESSED GAS (INCLUDING AEROSOLS)

Compressed gases have many hazards associated with them, the most important being that the contents are under pressure. Please ensure that any compressed gas is stored according to the SDS sheet.

ORGANIC PEROXIDES

Organic peroxides have the qualities of inorganic oxidizers in addition to often being unstable and self-reacting. Purchase these materials in small quantities and keep them refrigerated. Date the container when first opened and dispose of them 12 months after opening.
Examples: benzoyl peroxide, peracetic acid

PYROPHORICS (AIR REACTIVE)

Pyrophoric compounds react violently in contact with air. Pyrophorics should be stored in proper containers and only opened by qualified individuals.
Examples: Alkyl lithium compounds, Gringard reagents, white phosphorus.

CHEMICALS THAT DO NOT FALL INTO ABOVE CATEGORIES

All other chemical groups may be stored together. These include elemental materials, inorganic salts, organic liquids and organic solids.

6.2 Unknown Chemicals

Occasionally, material must be disposed of which cannot be identified. It may be unlabeled, found in an unused room, or produced by a mistake in a standard procedure. In any case, it cannot be categorized into any of the above groups. It is essential that this material be clearly identified as UNKNOWN.

Any information on the unknown material must be submitted with the container. This information may greatly reduce the hazards involved in handling and testing the material. Examples of useful information include the name of research group, telephone number, type of research, storage, chemical process in the area, approximate age of the container, and your best guess (e.g. organic, acid, air reactive, pH, oxidizer etc.).

Unknowns are extremely dangerous and expensive to handle. Each unknown must be subjected to a series of analytical tests until appropriate identification is accomplished. This is a costly and lengthy process.

6.3 Chemical Spill Emergencies

Before using any hazardous material, you should carefully read the label and safety data sheet (SDS). Understanding your material will allow you to make any emergency decisions should an accident occur.

Please reference the Corporate CODE BROWN – In-Facility Hazardous Spill procedure for information on how to handle a chemical spill emergency.

Additional information and training can be found through the Occupational Health and Safety Services webpage.

Product Information:
Emergency Universal Spill Kits can be purchased through HMMS #74747 – products within the kit expire so monthly reviews of your kits should be conducted for due diligence (See Appendix D – Chemical Spill Kit Inventory Checklist).

NOTE: Individual products within the spill kits can be replaced if used or expired. Please reference the product numbers below.

Qty.	Item Description	HMMS#
2	3” x 48” HAZWIK Boom	111562
10	15” x 18” Universal Plus Pads	111561
1	Liquid Solidifier Powder in Plastic Container	111549
2	Disposable Shoe covers	71786
2	Nitrile Gloves Large	111560
1	Small Dust Pan w/ Whisk	111550
1	Caution Tape 3” x 100’	111551
1	Duct Tape – 48mm x 7M	111552
2	OTG Clear Safety Specs	111559
1	Red Grease Pencil	111553
1	Red Paint Pencil	111554
1	Red Bio-Hazard Bags 30 x 38	111557
2	Tychem QC Yellow Coveralls – XL	111548
1	Oxivir Tb	111555
1	Nitrile Disposable Gloves Large - 2pr / pkg	111556
1	20 LT Plastic Pail with Lid & Labels	111563

Emergency Universal Spill Kit signs can also be purchased through HMMS#85469 to denote spill kit locations.

7.0 Drain Management

London Health Sciences Centre (LHSC) is committed to ensuring a safe environment for staff, affiliates, patients and visitors. LHSC has an obligation to ensure that unacceptable items are not being discharged down drains and sanitary sewers, where possible. Drain disposal requirements are dictated by the City of London Waste Discharge By-Law (WM-16), the Clean Water Act, and the Environmental Protection Act (EPA) R.S.O. 1990

Unacceptable items can clog or damage LHSC's drainage system causing significant leaks and flooding, and may result in localized or wide-scale infrastructure failure as well as unsanitary conditions for staff and patients. Additionally, fees and surcharges incurred by LHSC from the City of London, when unacceptable items are discharged into sanitary sewers, are a substantial financial burden on the organization. All of the above reduces LHSC's ability to provide optimized patient care.

Unacceptable items for drain disposal:

- Pharmaceuticals
- Wipes (including wipes labeled as flushable or biodegradable);
- Cotton swabs;
- Food scraps;
- Dental floss;
- Feminine hygiene products;
- Sanitary napkins;
- Vegetable and animal fat, oil, and grease (if using a grease interceptor, work with Facilities Management to determine an acceptable threshold that can be disposed of based on maintenance schedule for the grease interceptor)
- Materials greater than 55 degrees Celsius
- Waste with a pH range lower than 6.0 or greater than 10.5
- Blood
- Breast milk
- Chemicals – including but not limited to, toxic, corrosive, radioactive or flammable materials (as per SDS)
- Items outlined in Appendix E – City of London Waste Discharge Concentration Maximums

The unacceptable items must be disposed of in accordance with this manual. It is the responsibility of area leaders to ensure that unacceptable materials are not being disposed of in LHSC's drainage system.

Staff and affiliates are to refrain from disposing of unacceptable materials in our drainage system.

8.0 Confidential Waste Disposal

All LHSC personnel (staff, physicians, volunteers, students, and contracted employees) have a legal and ethical responsibility to comply with Ontario privacy legislation (*Personal Health Information Protection Act, 2004*) to ensure confidentiality is maintained. Adherence to the confidential waste disposal procedures outlined in this document is required to protect the privacy of patients and their families, as well as the privacy of LHSC personnel.

Please direct all questions beyond *how* to dispose of confidential waste to LHSC's Privacy Office at privacy@lhsc.on.ca (extension 32996).

8.1 Confidential Paper Waste and Patient Blue Cards

Waste Profile:

- Patient blue cards (see example below)

- Paper containing confidential information, including
    - Personal information and personal health information regarding patients and their families
    - Personal information and personal health information regarding LHSC personnel
    - Information regarding the organization's operations which is not publicly disclosed by the organization

Definitions of Personal Information and Personal Health Information, as well as other confidentiality terms, can be found on the Privacy Office's intranet page.

Containment Requirements: Confidential paper waste shall be placed into a designated confidential waste console to maintain security prior to being shredded. Confidential waste consoles are equipped with a disposal slot and locking door which prevent document retrieval. Consoles are only unlocked while the service technician is collecting the confidential paper waste for shredding. There is no need to remove staples or paper clips prior to placing documents into the confidential waste bin, but binders and spiral-binding must be removed.

Product Information:

Item Description		
Mini Console	26”H x 20.3”W x 19.6”D	
Standard Console	36”H x 20.5”W x 16”D	
Tote	46"H x 24.5"W x 27.5"D	

Transport (Internal): The confidential shredding service provider visits each department according to a pre-determined service schedule and empties the consoles into a tote. The service provider then brings the totes to the vendor’s truck, where the confidential documents are shredded on-site.

Storage: All confidential paper waste must be stored in a locked confidential waste bin (mini console, standard console, or tote).

To request a new confidential waste console, have a confidential console emptied, or request a temporary tote for a purge, please complete a confidential waste service request form.

Prior to disposing of confidential paper waste for shredding, please ensure it has met LHSC’s corporate retention requirements.

8.2 Confidential Non-Paper Waste

Waste Profile: Non-paper items containing confidential information, including

- Personal information and personal health information regarding patients and their families
- Personal information and personal health information regarding LHSC personnel
- Information regarding the organization's operations which is not publicly disclosed by the organization

Definitions of Personal Information and Personal Health Information, as well as other confidentiality terms, can be found on the Privacy Office's intranet page.

Examples of confidential non-paper waste include:

- VHS tapes
- DVDs
- Film reels
- Paging system tapes
- Cassette tapes
- CDs
- Memory cards
- USBs
- Dictation tapes
- Photographic images and negatives
- Printer carbon ribbons

Containment Requirements: Confidential non-paper waste shall be placed into a cardboard box labeled "Confidential Waste" and stored in a secure area.

Product Information:

Item Description		
Cardboard box	Any size	

Transport (Internal): The confidential shredding service provider collects the boxes of confidential non-paper waste and brings them to the vendor's truck, where the confidential documents are shredded on-site.

Storage: All confidential non-paper waste must be stored in a locked, secure location.

To request a confidential non-paper waste purge pickup, please complete a confidential waste service request form.

9.0 General Waste and Recycling

9.1 General Waste

Waste Profile: General waste consists of garbage that is sent to landfill. This includes items NOT classified as biomedical, chemical, radioactive, pharmaceutical, or confidential that cannot be recycled or composted.

Examples of general waste include:

- Plastic bags/film
- Coffee cups and lids
- Styrofoam
- Clean nitrile gloves
- Clean masks
- Clean tubing

Containment Requirements: General waste shall be segregated from all other waste streams in containers specifically dedicated for general waste (black or gray bin). Garbage bins are to be lined with clear bags.

Disposal Bins:

Bin Description	Bin Location	Acceptable Materials
Garbage Compactor	Accessed through loading dock	**Bags** of garbage **No** furniture, construction material, electronic/ battery waste, hazardous materials, light bulbs/ballasts or any items that could jam or damage the compactor
Open-top Garbage Bin ($2yd^3$, $3yd^3$, $6yd^3$, $8yd^3$, $12yd^3$, $20yd^3$, or $40yd^3$)	Various locations across campus	Bagged or un-bagged garbage **No** electronic/battery waste, hazardous materials, light bulbs/ballasts

Transport (Internal): The contents of individual garbage bins are collected by the area's Sodexo staff and placed into a waste cart in the unit's soiled utility room. These carts are brought to the waste dock by the dedicated Sodexo waste employee.

Storage: General waste is placed into the garbage compactor at the waste dock until the waste hauler brings it to landfill.
More information on General Waste best practices at LHSC can be found here.

9.2 General Recycling

Waste Profile: General recycling consists of materials that can be recovered and used to create new products. This includes items NOT classified as biomedical, chemical, radioactive, pharmaceutical, confidential, or general waste, and items that cannot be composted.

Examples of general recycling include:

- Paper (not including paper towel)
- Cardboard
- Boxboard
- Plastic #1-7
- Steel
- Aluminum

Containment Requirements: Recyclables shall be segregated from all other waste streams in containers specifically dedicated for general recycling (blue bins). Recycling bins are to be lined with blue-tinted bags.

It is very important to properly sort your garbage and recycling. If a recycling bin is contaminated with non-recyclables, its contents cannot be recycled. To avoid sending otherwise divertible materials to landfill, waste must be appropriately source separated.

Disposal Bins:

Bin Description	Bin Location	Acceptable Materials
Recycling Compactor	Accessed through loading dock	Bagged or loose recyclables (flattened cardboard boxes) **No** liquid or food
Open-top Recycling Bin ($2yd^3$, $3yd^3$, $6yd^3$, $8yd^3$, $12yd^3$, $20yd^3$, or $40yd^3$)	Various locations across campus	Bagged or loose recyclables **No** liquid or food

Transport (Internal): The contents of individual recycling bins are collected by the area's Sodexo staff and placed into a waste cart in the unit's soiled utility room. These carts are brought to the waste dock by the dedicated Sodexo waste employee.

Storage: General recycling is placed into the recycling compactor and recycling totes at the waste dock until the hauler brings it to a Materials Recovery Facility.

More information on General Recycling best practices at LHSC can be found here.

9.3 Organics

Waste Profile: Organics consist of biodegradable materials that can be composted. This includes items NOT classified as biomedical, chemical, radioactive, pharmaceutical, confidential, general waste, or recyclable waste. LHSC's organics are run through an anaerobic digester, which generates electricity and fertilizer.

Examples of organics include:

- Food
- Paper towels
- Yard waste

Containment Requirements: Organics shall be segregated from all other waste streams in containers specifically dedicated for organics (green bins). Organics bins are to be lined with clear bags by the vendor.

Organics are currently collected in Patient Food Services, retail food outlets across LHSC, and Building 78 (54 Riverview Avenue).

Product Information:

Item Description		
Organics bin	23"L x 20"W x 39"H	

Transport (Internal): Full organics bins are collected by the dedicated Sodexo waste employee and wheeled to the waste dock area.

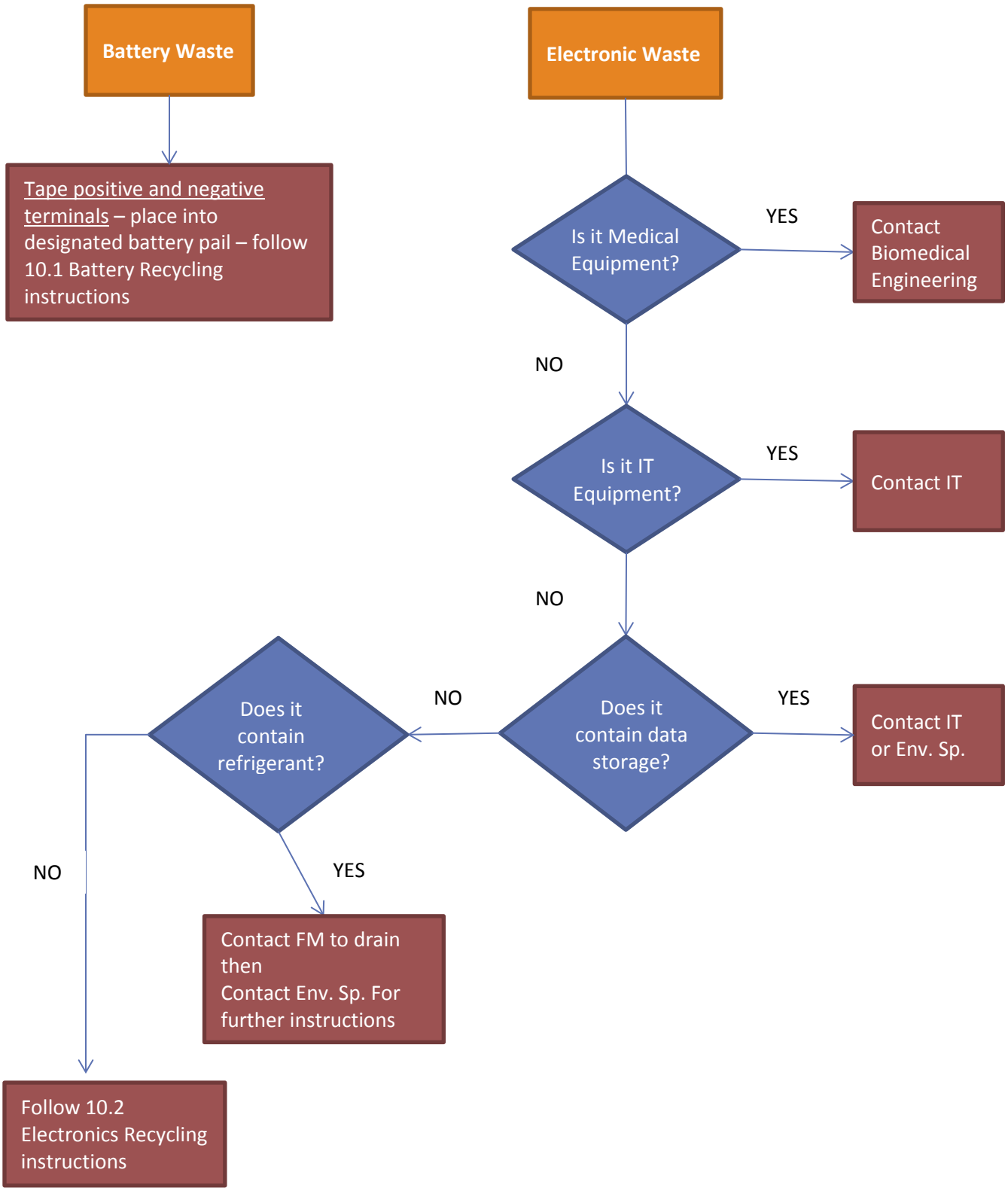
Storage: Full organics bins are stored in a secure outdoor location until the hauler collects them for processing.

More information on LHSC's organics program can be found here.

10.0 Battery and Electronics Recycling

LHSC has an extensive recycling program aimed at reducing our environmental impact. Recycling batteries and electronics is a small, yet important part of the program.

Please reference the following flowchart for disposal information. Additional detail is provided in subsequent sections.


Battery Waste
Tape positive and negative terminals – place into designated battery pail – follow 10.1 Battery Recycling instructions
Electronic Waste
Is it Medical Equipment?
YES
Contact Biomedical Engineering
NO
Is it IT Equipment?
YES
Contact IT
NO
Does it contain data storage?
YES
Contact IT or Env. Sp.
NO
Does it contain refrigerant?
YES
Contact FM to drain then
Contact Env. Sp. For further instructions
NO
Follow 10.2 Electronics Recycling instructions

10.1 Battery Recycling

Waste Profile:
Batteries of various sizes and chemical compositions:

- Alkaline (e.g. flashlight batteries, AA, AAA, AAAA, A23, C, D, 9V cells)
- Nickel Cadmium / Nickel Metal Hydride (e.g. battery packs, rechargeable batteries)
- Lithium Ion (e.g. cell phone, laptop, digital camera batteries)
- Lead-Acid (Biomedical /Emergency Backup equipment)

Containment Requirements:
Battery buckets are provided at the chemical waste sheds at UH and VH. Pickup/drop-off times are consistent with chemical waste drop-off days:

- VH – E1-C54: Wednesdays from 9 AM to 9:30 AM
- UH – Chemical waste bunkers: first Wednesday of each month from 1 PM to 2 PM

All batteries must be taped at the positive and negative terminals (as shown below) to be accepted as waste. Sodexo will not pick up your batteries if they are not taped. This is due to the risk of a battery fire.

Transport (Internal):
Departments are encouraged to bring their own batteries down to the collection sites (per the containment requirements) to retain the battery pail. Otherwise, departments may contact Sodexo at ext.53289 to pick up the batteries, but replacement pails will not be provided.

Storage:
Taped batteries are stored in the 55 gal, lined metal drums at the collection sites (VH -E1-C54 or UH-Loading Dock)

Taped, Lead-Acid batteries are stored separately at VH-E1-C54 and the UH Chemical Sheds.

10.2 Electronics Recycling

Waste Profile:
Electronic waste or e-waste is discarded electrical or electronic devices. This includes, but is not limited to:

- Computers/Monitors
- Keyboards/Mice
- Printers
- Radios
- Stereos
- Cameras
- Televisions
- Cell phones
- Appliances (fridges, microwaves, vacuums etc.)

For medical equipment, please contact Biomedical Engineering.

Transport (Internal):
Contact Sodexo (x53289) for the removal of your e-waste.* If the equipment is too heavy, the internal movers may need to be coordinated. Please contact the Environmental Specialists for additional information.

*NOTE: Certain hardware is leased and must be returned to IT for exchange (computer/monitors, laptops etc.). If you are unsure whether your waste fits into this category, please contact the IT Helpdesk ext. 44357.

Hard drives or any other data storage device that may contain confidential information must be destroyed by a certified service provider before it can be wasted. Please contact the IT Helpdesk or Environmental Specialists for information on how to securely handle such equipment.

Equipment must be cleaned and all chemicals (i.e refrigerant) removed. A certification sticker must be applied by a technician to verify that all refrigerant has been removed or that medical equipment has been disinfected. Please create a service request through Facilities Management to purge refrigerant.

Storage:
There are multiple e-waste bins at the following locations:

Victoria Hospital

- Waste Dock (A1-414)
- Chemical Sheds (E1-C54)
- Warehouse

University Hospital

- Basement of B Zone

11.0 Metal Recycling

Waste Profile: Scrap metal consists of tin, aluminum, steel, copper, brass, lead, and zinc items that are no longer in use. Examples include:

- IV poles
- Filing cabinets
- Carts
- Tables

Transport (Internal): LHSC Internal Movers collect items and bring them to the scrap metal bin.

Storage: Scrap metal is stored in the scrap metal bin until the hauler brings it to a metal recycling facility.

Information on requesting the LHSC Internal Movers to remove surplus metal items for recycling can be found here.

12.0 Furniture Reuse or Disposal

12.1 Furniture and Equipment for Disposal

Waste Profile: Furniture and equipment that can no longer be reused (broken, outdated, etc.).

Transport (Internal): LHSC Internal Movers collect furniture and equipment for disposal and bring it to the waste bin at the Warehouse.

Storage: Broken/unusable furniture and equipment is stored in the waste bin at the Warehouse until the hauler brings it to landfill.

Information on requesting the LHSC Internal Movers to remove furniture or equipment for disposal can be found here.

12.2 Furniture and Equipment for Reuse

Waste Profile: Furniture and equipment that is in a good state of repair and can be reused.

Transport (Internal): LHSC Internal Movers collect furniture and equipment for reuse and bring it to the Warehouse. As furniture and equipment is reassigned to a new location, LHSC Internal Movers will bring it there as well.

Storage: Unclaimed furniture and equipment that is suitable for reuse is stored in the Warehouse. The Warehouse is open to all staff on the first Wednesday of each month from 11am-12pm. Staff are welcome to tag items with their name and set up a move request, after which the LHSC Internal Movers will bring the items to their requested location. Furniture and equipment reuse is an excellent way to keep items out of landfill and reduce purchasing costs.

Information on requesting the LHSC Internal Movers to move furniture or equipment to and from the Warehouse, or within the hospital, can be found here.

13.0 Linen

LHSC launders select items in house and sends all other items externally to the London Hospital Linen Service. This process and associated information is managed by Linen services.

More information on linen can be found here.

14.0 Miscellaneous Wastes

The following section outlines disposal considerations for miscellaneous wastes.

14.1 Light Bulbs

Waste Profile:
Any light bulbs including, but not limited to:

- Fluorescent tubes
- Compact Fluorescent (CFL) Bulbs
- Light Emitting Diode (LED) Bulbs
- Incandescent Light Bulbs

Electricians must handle the disposal of all light bulbs. Please create a service request through Facilities Management if you have spent light bulbs for disposal.

Transport (Internal):
Electricians transport spent bulbs in approved cardboard packaging to the mechanical space as directed by the MRO coordinator.

Containment Requirements:
Electricians package bulbs into cardboard boxes, taped securely and stacked onto a pallet (no more than 4 feet high).

Storage:
Packed bulbs remain stored in approved mechanical space until pallets are wrapped and ready for disposal. Contact Environmental Specialist to coordinate vendor pickup.

14.2 Photocopier/Print Toner and Ink Cartridges

Waste Profile:
Includes but is not limited to:

- Photocopier cartridges
- Laser printer cartridges
- Ink jet cartridges

Containment Requirements:
Place spent cartridges into original packaging if possible.

Transport (internal):
Contact Sodexo (x53289) for the removal of your cartridges. All supplies are mailed back to the vendor for recycling.

Storage:
Recycling stations (see image below) exist at site loading docks managed by HMMS.

14.3 Pallets

Surplus pallets are placed at the Loading Dock, where they are removed by a local contractor for reuse.

14.4 Oil and Solvent Soaked Rags

Waste Profile:
The most common type of Spontaneous Combustion fires are those caused by improperly disposed of oil and stain soaked rags. Examples of these products are oil-based paints and stains, teak and linseed oils, varnishes and polyurethane, paint thinners, etc.

Spontaneous combustion of oily rags occurs when rag or cloth is slowly heated to its ignition point through oxidation. A substance will begin to release heat as it oxidizes. If this heat has no

way to escape, like in a pile, the temperature will raise to a level high enough to ignite the oil and ignite the rag or cloth.

Waste oils, lubricants, greasy and oily rags or other materials subject to spontaneous combustion will be retained in a labeled container used for that purpose exclusively and will be properly disposed of at frequent intervals.

Containment Requirements:
Use a container with a tight fitting lid. A metal can is preferable but a plastic can or zip lock bag can work if nothing else is available. Place soiled and used rags inside and then cover with water, seal the top and do not open it. This will prevent the oils from oxidizing, and thus keeping the rags from heating up and igniting.

Transport (internal):
Contact Environmental Specialist for disposal instructions.

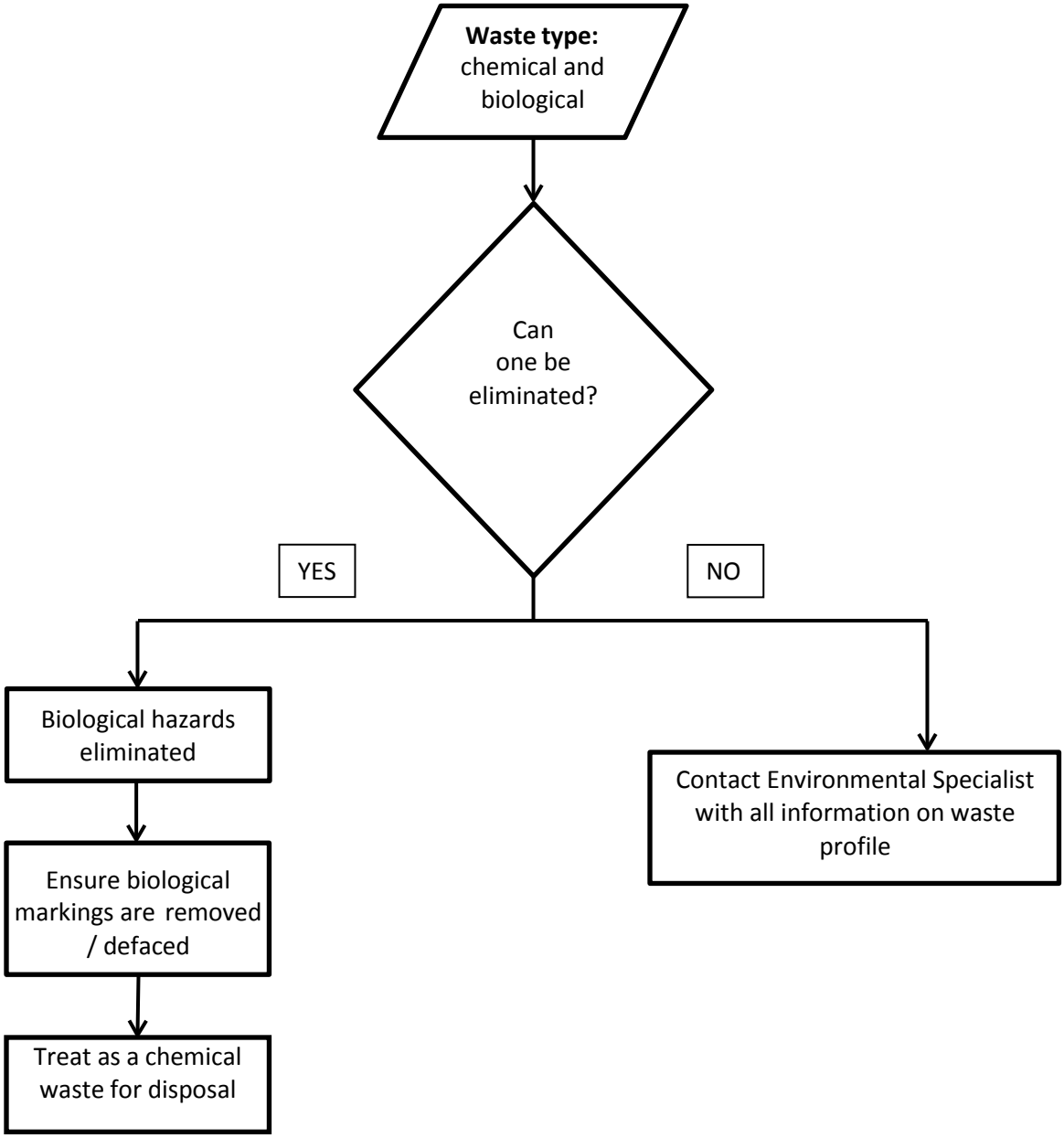
14.5 Items Contaminated with Bed Bugs

Please reference the Bed Bug Removal Procedure for additional information.

15.0 Transportation of Dangerous Goods

Biomedical and Chemical Waste shipments must be manifested as per Ontario Ministry of Environment regulations. These manifests also serve as shipping documents as required under the Transportation of Dangerous Goods Act.
A complete discussion on the manifesting requirements is outside of the scope of this manual. Only persons trained in the completion of waste manifests or under the direct supervision of a person trained are allowed to complete this and sign on behalf of the generating site. For more information, contact an Environmental Specialist as shown in 2.2 Non-Emergency Numbers.

Appendix A – Decision Tree for Mixed Biological and Chemical Hazards



Appendix B – Category A Infectious Substances

The table provided below is an indicative list taken from the 14th edition of the United Nations Model Regulations.

NOTE: The table is not exhaustive. Infectious substances, including new or emerging pathogens, which do not appear in the table but which meet the same criteria shall be assigned to Category A. In addition, if there is doubt as to whether or not a substance meets the criteria it shall be included in Category A.

INDICATIVE EXAMPLES OF INFECTIOUS SUBSTANCES INCLUDED IN CATEGORY A IN ANY FORM UNLESS OTHERWISE INDICATED	
UN Number and Proper Shipping Name	**Microorganism**
UN 2814 Infectious substances affecting humans	*Bacillus anthracis* (cultures only)
	Brucella abortus (cultures only)
	Brucella melitensis (cultures only)
	Brucella suis (cultures only)
	Burkholderia mallei – Pseudomonas mallei – glanders (cultures only)
	Burkholderia pseudomallei – Pseudomonas pseudomallei (cultures only)
	Chlamydia psittaci – avian strains (cultures only)
	Clostridium botulinum (cultures only)
	Coccidioides immitis (cultures only)
	Coxiella burnetii (cultures only)
	Crimean-Congo haemorrhagic fever virus
	Dengue virus (cultures only)
	Eastern equine encephalitis virus (cultures only)
	Escherichia coli, verotoxigenic (cultures only)[1]
	Ebola virus
	Flexal virus
	Francisella tularensis (cultures only)
	Guanarito virus
	Hantaan virus
	Hantaviruses causing haemorrhagic fever with renal syndrome
	Hendra virus
	Hepatitis B virus (cultures only)
	Herpes B virus (cultures only)
	Human immunodeficiency virus (cultures only)
	Highly pathogenic avian influenza virus (cultures only)
	Japanese Encephalitis virus (cultures only)
	Junin virus
	Kyasanur Forest disease virus
	Lassa virus
	Machupo virus
	Marburg virus
	Monkeypox virus
	Mycobacterium tuberculosis (cultures only)[1]
	Nipah virus

INDICATIVE EXAMPLES OF INFECTIOUS SUBSTANCES INCLUDED IN CATEGORY A IN ANY FORM UNLESS OTHERWISE INDICATED	
	Omsk haemorrhagic fever virus
	Poliovirus (cultures only)
	Rabies virus (cultures only)
	Rickettsia prowazekii (cultures only)
	Rickettsia rickettsii (cultures only)
	Rift Valley fever virus (cultures only)
	Russian spring-summer encephalitis virus (cultures only)
	Sabia virus
	Shigella dysenteriae type 1 (cultures only)[1]
	Tick-borne encephalitis virus (cultures only)
	Variola virus
	Venezuelan equine encephalitis virus (cultures only)
	West Nile virus (cultures only)
	Yellow fever virus (cultures only)
	Yersinia pestis (cultures only)

Appendix C – Hazardous Compatibility Chart

Class or Subsidiary Risk		2	2	TOXIC GAS 2	2	3	4	4	4	5.1	5.2	TOXIC 6	CORROSIVE 8
FLAMMABLE GASES	2	OK TO STORE TOGETHER	OK TO STORE TOGETHER	SEGREGATE At least 3m	SEGREGATE At least 3m	SEGREGATE At least 5m	SEGREGATE At least 5m	SEGREGATE At least 5m	SEGREGATE At least 5m	SEGREGATE At least 3m	ISOLATE	SEGREGATE At least 3m	SEGREGATE At least 5m
NON TOXIC NON FLAMMABLE GASES	2	OK TO STORE TOGETHER	OK TO STORE TOGETHER	OK TO STORE TOGETHER	OK TO STORE TOGETHER	SEGREGATE At least 5m	SEGREGATE At least 5m	SEGREGATE At least 5m	SEGREGATE At least 5m	SEGREGATE At least 3m	ISOLATE	SEGREGATE At least 3m	SEGREGATE At least 5m
TOXIC GAS	TOXIC GAS 2	SEGREGATE At least 3m	OK TO STORE TOGETHER	MAY NOT BE COMPATIBLE CHECK MSDS AND NOTES	SEGREGATE At least 3m	SEGREGATE At least 5m	SEGREGATE At least 5m	SEGREGATE At least 5m	SEGREGATE At least 5m	SEGREGATE At least 3m	ISOLATE	SEGREGATE At least 3m	SEGREGATE At least 5m
OXIDIZING GAS	2	SEGREGATE At least 3m	OK TO STORE TOGETHER	SEGREGATE At least 3m	OK TO STORE TOGETHER	SEGREGATE At least 5m	SEGREGATE At least 5m	SEGREGATE At least 5m	SEGREGATE At least 5m	SEGREGATE At least 3m	ISOLATE	SEGREGATE At least 3m	SEGREGATE At least 5m
FLAMMABLE LIQUIDS + COMBUSTIBLE LIQUIDS	3	SEGREGATE At least 5m	SEGREGATE At least 5m	SEGREGATE At least 5m	SEGREGATE At least 5m	OK TO STORE TOGETHER	SEGREGATE At least 3m	SEGREGATE At least 5m	SEGREGATE At least 5m	SEGREGATE At least 5m	ISOLATE	SEGREGATE At least 5m	SEGREGATE At least 3m
FLAMMABLE SOLID		SEGREGATE At least 5m	SEGREGATE At least 5m	SEGREGATE At least 5m	SEGREGATE At least 5m	SEGREGATE At least 3m	OK TO STORE TOGETHER	SEGREGATE At least 3m	SEGREGATE At least 5m	SEGREGATE At least 3m	ISOLATE	SEGREGATE At least 3m	MAY NOT BE COMPATIBLE CHECK MSDS AND NOTES
SPONTANEOUSLY COMBUSTIBLE		SEGREGATE At least 5m	SEGREGATE At least 5m	SEGREGATE At least 5m	SEGREGATE At least 5m	SEGREGATE At least 5m	SEGREGATE At least 3m	OK TO STORE TOGETHER	SEGREGATE At least 5m	SEGREGATE At least 5m	ISOLATE	SEGREGATE At least 3m	SEGREGATE At least 3m
DANGEROUS WHEN WET	4	SEGREGATE At least 5m	SEGREGATE At least 5m	SEGREGATE At least 5m	SEGREGATE At least 5m	SEGREGATE At least 5m	SEGREGATE At least 5m	SEGREGATE At least 5m	OK TO STORE TOGETHER	SEGREGATE At least 5m	ISOLATE	SEGREGATE At least 3m	SEGREGATE At least 5m
OXIDIZING AGENT	5.1	SEGREGATE At least 3m	SEGREGATE At least 3m	SEGREGATE At least 3m	SEGREGATE At least 3m	SEGREGATE At least 5m	KEEP APART	SEGREGATE At least 5m	SEGREGATE At least 5m	MAY NOT BE COMPATIBLE CHECK MSDS AND NOTES	ISOLATE	SEGREGATE At least 3m	SEGREGATE At least 3m
ORGANIC PEROXIDE	5.2	ISOLATE	ISOLATE	ISOLATE	ISOLATE	ISOLATE	ISOLATE	ISOLATE	ISOLATE	ISOLATE	OK TO STORE TOGETHER	ISOLATE	SEGREGATE At least 3m

Appendix D – Chemical Spill Kit Inventory Checklist

Chemical Spill Kit Inventory Checklist													
Year:			**Month**										
Item	**HMMS#**	**Required Quantity**	**January**	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**
3" x 48" HAZWIK Boom	111562	2												
15" x 18" Universal Plus Pads	111561	10												
Disposable Shoe Covers (pairs)	71786	2												
Nitrile Gloves Large (Green) (Pairs)	111560	2												
Small Dust Pan w/ Whisk	111550	1												
Caution Tape 3" by 100'	111551	1												
Duct Tape - 48mm x 7m	111552	1												
OTG Clear Safety Specs	111559	2												
Red Grease Pencil	111553	1												
Red Paint Pen	111554	1												
Red Bio-Hazard Bags 30 x 38	111557	1												
Tychem QC Yellow Coveralls - XL	111548	2												
Virox 1LT - Ready to Use	111555	1												
Nitrile Disposable Gloves Large - 2 pairs per package	111556	1												
20 L Plastic Pail with Lid and Labels	111563	1												
***Ensure that the contents of the Kit are not missing** ***Replace immediately if any of the contents are damaged or missing**		**Initials:**												

Appendix E – City of London Waste Discharge Concentration Maximums

City of London Waste Discharge By-Law (WM-16) Section 3.10
Concentration – Maximums

(a) aluminum, expressed as Al, in excess of 50 milligrams per litre;

(b) ammonia, expressed as NH_3, in excess of 50 milligrams per litre;

(c) arsenic, expressed as As, in excess of 1.0 milligram per litre;

(d) barium, expressed as Ba, in excess of 5 milligrams per litre;

(e) beryllium, expressed as Be, in excess of 5 milligrams per litre;

(f) cadmium, expressed as Cd, in excess of 3 milligrams per litre;

(g) chloride, expressed as Cl, in excess of 1,500 milligrams per litre;

(h) chromium, expressed as Cr, in excess of 5 milligrams per litre;

(i) copper, expressed as Cu, in excess of 5 milligrams per litre;

(j) cyanide, expressed as CN, in excess of 2.0 milligrams per litre;

(k) fluoride, expressed as F, in excess of 10 milligrams per litre;

(l) iron, expressed as Fe, in excess of 50 milligrams per litre;

(m) lead, expressed as Pb, in excess of 5 milligrams per litre;

(n) manganese, expressed as Mn, in excess of 5 milligrams per litre;

(o) mercury, expressed as Hg, in excess of 0.1 milligrams per litre;

(p) molybdenum, expressed as Mo, in excess of 5 milligrams per litre;

(q) nickel, expressed as Ni, in excess of 5 milligrams per litre;

(r) phenolic compounds, in excess of 1.0 milligrams per litre;

(s) phosphorus, expressed as P, in excess of 10 milligrams per litre;

(t) selenium, expressed as Se, in excess of 5 milligrams per litre;

(u) silver, expressed as Ag, in excess of 2 milligrams per litre;

(v) sulphates, expressed as SO_4, in excess of 1,500 milligrams per litre;

(w) sulphides, expressed as S, in excess of 2 milligrams per litre;

(x) tin, expressed as Sn, in excess of 5 milligrams per litre;

(y) zinc, expressed as Zn, in excess of 5 milligrams per litre;

(z) Nonylphenol, in excess of 0.02 milligrams per litre;

(aa) Nonylphenol Ethoxylate, in excess of 0.2 milligrams per litre.

Definitions

For the purpose of the guideline, the following definitions apply:

Animal blood waste
Waste related to an animal treated for an infectious substance (animal).
Includes:

- liquid or semi-liquid animal blood or blood products,
- items saturated with liquid or semi-liquid animal blood products,
- body fluids visibly containing animal blood, or
- body fluids removed in the course of surgery, treatment or necropsy of an animal

Does not include urine, feces or milk unless visibly contains animal blood

Animal anatomical waste
Waste related to an animal that is infected or suspected of being infected with any infectious substance (animal).
Includes:

- animal bedding, animal carcass, tissues, organs, or other body parts

Does not include teeth, nails, hair, feathers, hooves or horns.

Biomedical waste
Includes**:**

a) human anatomical waste,
b) human blood waste,
c) animal anatomical waste,
d) animal blood waste,
e) microbiology laboratory waste,
f) sharps waste,
g) cytotoxic waste,
h) waste that has come into contact with human blood waste that is infected or suspected of being infected with any infectious substance (human), or
i) a waste containing or derived from one or more wastes described in clauses (a) through (h),

Does not include:

- domestic waste,
- animal anatomical waste or animal blood waste disposed of in accordance with,
  - the *Meat Inspection Act* (Canada),
  - the *Health of Animals Act* (Canada),
  - the *Health Protection and Promotion Act*,
  - the *Food Safety and Quality Act*, 2001, or
  - the *Nutrient Management Act*, 2002.
- treated biomedical waste, or
- dialysis waste not saturated with blood or blood products that is tubing, filters, towels or disposable sheets.

Cultures
Cultures are the result of a process by which pathogens are intentionally propagated. This definition does not include human or animal patient specimens.

Cytotoxic drug
A drug that was designed or selected for its capacity to selectively destroy cells of a certain type, including antineoplastic drugs and cancer drugs that selectively kill dividing cells.

Cytotoxic waste
Waste consisting of:

a) a cytotoxic drug
b) a medicinal chemical, or
c) waste containing a waste listed in (a) or (b) including tubing, tissues, needles, gloves, vials, preparation materials, ampoules, cleaning materials and personal protective equipment.

Disinfection
A level of destruction or inactivation of pathogen bacteria.

Genetically modified microorganisms and organisms
Microorganisms and organisms in which genetic material has been purposely altered through genetic engineering in a way that does not occur naturally. Those genetically modified microorganisms and organisms that do not meet the definition of an infectious substance but which are capable of altering animal, plant or microbiological substances in a way not normally the result of natural reproduction shall be assigned to UN 3245 and shipped following Packaging Instruction P904 (ICAO/IATA PI913)

Hazardous pharmaceuticals
Drugs that exhibit one or more of the following characteristics in humans or animals:

a) Carcinogenicity: Capable of causing or promoting the development of cancer or a lesion which could be the starting point of a cancer;
b) Teratogenicity: Capable of causing congenital malformations due to an action on the embryo;
c) Genotoxicity/Mutagenicity: Capable of altering or damaging genetic material (DNA) to cause mutations;
d) Reproductive Toxicity: Capable of affecting fertility (e.g. miscarriages, late fetal death, infertility);
e) Organ Toxicity at Low Doses: Capable of causing serious organ or other toxic effects at a low dose (e.g. liver damage, local necrosis of exposed tissue);
f) Similar drugs: Drugs whose structure and toxicity are similar to those already deemed hazardous.

Human anatomical waste
Waste consisting of human tissues, organs or other body parts
Does not include teeth, hair or nails.

Human blood waste
Waste consisting of:

- liquid or semi-liquid human blood or blood products,
- items saturated with liquid or semi-liquid human blood or blood products,
- body fluids visibly containing human blood, or
- body fluids removed in the course of surgery, treatment or necropsy of a human,

Does not include urine and feces unless visibly contains human blood.

Infectious substance (animal)
A disease listed in:

- Schedule VII of the Health of Animals Regulations made under the *Health of Animals Act* (Canada) as amended, or
- the Reportable Diseases Regulations made under the *Health of Animals Act* (Canada) as amended.

Infectious substance (human)

a) A substance known or reasonably believed to contain viable micro-organisms such as bacteria, viruses, rickettsia, parasites, fungi and other agents such as prions that are known or reasonably believed to cause disease in humans and that are listed in Appendix 3 to Part 2 of the Transportation of Dangerous Goods Regulations made under the *Transportation of Dangerous Goods Act*, 1992 (Canada) as amended
b) A substance that exhibits characteristics similar to a substance described in clause (a).

Microbiology laboratory waste
Waste containing:

a) human or animal cultures,
b) stocks or specimens of micro-organisms,
c) human diagnostic specimens, other than urine and feces,
d) live or attenuated vaccines developed for use in humans, or
e) disposable laboratory material that has come into contact with one or more of items (a) to (d).

Patient specimens
Human or animal materials, collected directly from humans or animals, including, but not limited to, excreta, secreta, blood and its components, tissue and tissue fluid swabs, and body parts being transported for purposes such as research, diagnosis, investigational activities, disease treatment and prevention.

Sharps waste
Blades, needles, syringes, including safety engineered needles, laboratory glass, or other materials capable of causing punctures or cuts and which have come into contact with human blood waste, animal blood waste or other animal or human bodily fluids.