

Sewer Use Guideline



1.0 INTRODUCTION

These guidelines have been prepared to assist staff and students in determining whether certain liquid wastes may be discharged into drain systems on University premises.

The University's Environmental Policy (No. 72) and the Environmental Management Policy (No. 91) require us to comply with all applicable laws, regulations, codes, by-laws and guidelines.

The discharge of liquids is regulated under the City of Ottawa Sewer Use By-Law. The By-Law specifies concentration limits for certain chemicals and wastes, and prohibits the disposal of others. The intent of the By-Law is three-fold:

1. to protect receiving waters such as the Ottawa River from discharges of harmful contaminants that the sewage treatment plant is incapable of handling;
2. to protect sewer and sewage treatment plant workers from substances that may affect their health and safety; and
3. to protect the sewer system infrastructure from damage as a result of disposal of certain substances into the system.

The By-Law is enforced through a sewer sampling and analysis program conducted by the City of Ottawa. Where analysis demonstrates that By-Law limits are being exceeded, or prohibited materials are being detected, the University will be asked to investigate the causes and institute corrective actions and practices. Charges can be laid by the municipality if the University fails to reduce discharges to acceptable levels. The University would consider disciplinary measures, including recovery of fines paid from the faculty, service, department, or research unit involved in cases where there was deliberate contravention of the Sewer Use By-Law or University policies.

It should be noted as well that these limits apply to the University as if it was an industrial operation, as distinguished from domestic or residential use of sewers. Normal residential practices may not be considered acceptable at the University. City of Ottawa closely monitors discharges from large operations such as the University.

The University has its own sewer sampling program that is managed by the Office of Risk Management, Environmental Health and Safety.

The Ministry of the Environment also requires building constructed or modified after 1987 to comply to the Ontario Water Resources Act if the building will emit industrial type wastewater.

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2.0 POLICY APPLICATION

In support of the University's environmental management policies, all staff and students are discouraged from discharging non-household type wastes into drains and sewers. It is recognized, however, that low concentration wastes can be discharged as long as they do not negatively impact the environment, or affect the University's compliance with the Sewer Use By-Law.

The following section, entitled "Permissible Discharges", lists which materials, wastes or groups of materials and wastes that can be discharged into the sewer. The section is not exhaustive; rather, it focuses upon discharges normally encountered throughout the University. Given that thousands of substances are in use at the University, it would be impractical to provide long lists of materials, stating which ones can and cannot be disposed to the sewer. The decision to dispose of a material or waste into the sewer should therefore be based on permissible discharges.

By default, substances not covered under permissible discharges should be regarded as prohibited. Substances falling in this category should be collected and disposed through appropriate off-site disposal. Staff and students are encouraged to contact the Office of Risk Management, Environmental Health and Safety to obtain guidance on disposal options for their particular situation.

3.0 PERMISSIBLE DISCHARGES

The following materials and wastes can be discharged subject to any stated limitations:

Liquid wastes containing hazardous ingredients: Aqueous solutions containing hazardous contaminants at micrograms per millilitre concentrations.

Physiological salt and buffer solutions: At concentrations up to 1%, and in volumes not exceeding 10 litres.

Nutrient medias: This would include for example, non-infectious cell culture liquids.

Acids and bases: At concentrations less than 0.1 molar.

Javex solutions: Hypochlorite at concentrations not exceeding 1%.

Radioactive materials: Discharged in accordance with the Canadian Nuclear Safety Commission licence conditions and University Internal Radioisotope Permit conditions.

Pharmaceutical agents: In aqueous media used in research at normal pharmacologic concentrations.

Phenolic compounds: Not exceeding a concentration of 10 milligrams/litre and a volume not exceeding 10 litres.

Sterilized biomedical wastes:

Sterilized blood - Not exceeding a volume of one litre.

Ethanol solutions: At concentrations less than 23%.

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Anions and cations - As listed below in volumes not exceeding 10 litres.

Anion or Cation	Concentration Limit	Anion or Cation	Concentration Limit
Chlorides (Cl) Sulphates (SO ₄)	15 g/l	Cyanide (CN) Sulphide (S)	20 mg/l
Aluminum (Al) Iron (Fe)	500 mg/l	Arsenic (As) Cadmium (Cd)	10 mg/l
Fluorides (F)	100 mg/l	Mercury (Hg)	1 mg/l
Antimony (Sb) Bismuth (Bi) Chromium (Cr) Cobalt (Co) Lead (Pb) Manganese (Mn) Molybdenum (Mo) Selenium (Se) Silver (Ag) Tin (Sn) Titanium (Ti) Vanadium (V)	50 mg/l	Phosphorus (P) (e.g. phosphates)	100 mg/l
Copper (Cu) Nickel (Ni) Zinc (Zn)	30 mg/l	Nitrogen (N) (e.g. nitrates and nitrites)	1 g/l

Please note that permissible discharges are also subject to the following limitations:

Chemical odours

All discharges should not contain chemicals with offensive odours, in quantities sufficient to give rise to odour complaints by members of the general public, e.g., hydrogen sulphide is detectable at 0.001 ppm. Other examples of chemicals with offensive odours include: reduced sulphur compounds, amines or ammonia, pyridine, mercaptans, or short chain fatty acids.

Obstructive wastes

All discharges should not contain solid or viscous matter to such an extent as capable of causing obstruction of sewer flow. Examples of such materials include sand, cement, ashes, bones, cinders, mud, straw, shavings, metal, glass, rags, feathers, tar, plastics, wood, unground garbage, grease, oils, animal guts or tissues, paunch manure, or clotted whole blood.

High-temperature discharges

Discharges should not be at temperatures and volumes capable of raising the final sewer outflow in excess 65E Celsius. Large process equipment, such as institutional sized dishwashers, for example, are capable of producing these effects. Contact the Environmental Health and Safety Service for further information.

Coloured wastes

All discharges should not contain dyes or coloured materials, in solid or liquid form, to such extent that they cause the sewer treatment plant outflow to become discoloured. Histologic dyes and latex paints, for example, discharged in high volume could give rise to this situation.

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4.0 PROHIBITED DISCHARGES

Discharges of the classes of materials or wastes listed below are prohibited in any quantity or concentration, and must be collected for disposal off-site.

Polychlorinated Biphenyls (PCBs)

Fuels: This would include for example, gasoline, diesel fuel.

Pesticides

Cytotoxic agents

Drugs used in cancer therapy such as 5-fluorouracil, cyclophosphamide.

Hazardous Chemical Wastes

Untreated Biomedical Wastes

Biomedical wastes are defined as any untreated liquids of human or animal origin (e.g. blood or blood products), or microbiological liquids, such as live or attenuated vaccines or cell lines, which contain infectious agents classified at Risk Level 3, as listed in the Laboratory Biosafety Guidelines, 2nd edition, 1996, issued by Health Canada.

Ignitable Wastes

Ignitable wastes are defined as:

1. a liquid having a flash point less than 61°C (e.g. include ethanol at concentrations greater than 24%, varsol, gasoline, or petroleum distillates); or
2. an oxidizing substance which yields oxygen to stimulate or contribute to the combustion of other materials (e.g. permanganates, perchloric and nitric acids).

Reactive Wastes

Reactive wastes are susceptible to violent/vigorous reactions or are likely to generate toxic fumes. The waste is considered reactive if it meets any of the following criteria:

1. the waste is normally unstable and readily undergoes violent change without detonation (e.g. diazomethane on contact with ground glass joints);
2. the waste reacts violently with water (e.g. sodium metal) or forms potentially explosive mixtures;
3. when mixed with water, the waste generates toxic gases, vapours or fumes in a quantity sufficient to present danger to human health or the environment (e.g. cyanide or sulphide);
4. it is capable of detonation or explosive reaction either :
 - under standard temperature and pressure (e.g. 1,3-butadiene);
 - if it is subjected to a strong initiating source such as vibration
 - (e.g. carbon disulphide); or
 - heated under confinement.
5. it is an explosive (e.g. 2,4-dinitrophenylhydrazine).

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5.0 DISCHARGES INTO STORM SEWERS

Storm sewers are primarily intended to collect water from rainfall from roadways and parking lots. Whereas all discharges are normally into sanitary sewers and are therefore treated at the sewage treatment plant, storm sewage is conveyed without treatment directly into receiving waters such as the Ottawa River. Consequently, the Sewer Use By-Law imposes more severe restrictions upon their use. For this reason, storm sewers should not be used for any kind of disposal.

6.0 ACCIDENTAL RELEASES INTO STORM OR SANITARY SEWERS

If a spill occurs, action should immediately be taken to (further) prevent the entry of the spilled liquid into drains, if this can be performed safely. All running water should be closed to prevent further movement of the spill, unless its continued use is essential to avert serious damage or injury.

Should the spill be large enough that staff cannot safely deal with it, contact Protection Services at 5411 to activate a response team.
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Please note that the University, through the Office of Risk Management, Environmental Health and Safety, is legally required to notify the City of Ottawa of the occurrence if the discharge is sufficiently serious to create possible health, safety or environmental effects further down the sewer system.

7.0 FOR MORE INFORMATION

There are different ways to contact the Office of Risk Management, Environmental Health and Safety:

- at 562-5892,
- through the web page <http://www.uottawa.ca/services/ehss>,
- e-mail at safety@uottawa.ca, or
- by fax at 562-5112

The City of Ottawa has more information on the Sewer use by-law on their web page http://www.city.ottawa.on.ca/city_services/waterwaste/env_pro_en.shtml.