Transportation & Shipment of Dangerous Goods

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3.1 Acronyms:

TDG - Transportation of Dangerous Goods 4

Training is NOT required for regular online waste disposal through the EH&S website unless filling containers of 20L or more including UN certified 200 L drums and 20 L white plastic jugs. No training is required for disposal of 20 L red Solvent safety cans

- Receiving Class-7 radioactive package specific training is included in annual radiation training for all radiation users at Queen's University provided by the RSO.

EH&S will retain all training records and each individual trained will be provided with a "TDG Certified" card that must be carried when shipping or receiving dangerous goods.

The TDG Certification to receive Class-7 shipments is printed on a certified radiation user's annual radiation training certificate. The training record states the individual has, "successfully completed a prescribed written examination and has shown an understanding of the principles of the *Radioisotope Safety in the Laboratory* including the receipt of packages containing radioisotopes in accordance with the Transportation of Dangerous Goods Regulations" and this certificate is signed and dated by the RSO.

Only the RSO is certified to complete TDG-Class 7 shipments (radioactive materials) and does so in accordance with the applicable legislation and internal Radiation Protection Program (RPP) procedure SOP-RADIATION-05.

6.0 Shipping and Receiving

Dangerous goods must be shipped and/or received only by TDG trained employees, or an employee working in the presence and under the direct supervision of an individual who holds a training certificate. Receiving Class-7 radioactive package specific training is included in annual radiation training for all radiation users at Queen's University provided by the RSO.

6.1 Damaged Packages

Damaged packages should be accepted by University receivers. Under the Packaging and Transport of Nuclear Substances Regulation, a consignee cannot refuse a shipment that is damaged, or allow it to be shipped from their possession if the shipment is knowingly not in compliance. This will apply to all shipments of dangerous goods.

If you receive a damaged radioactive shipment (Class-7), safely isolate the shipment, preferably in a fume hood, obtain all the shipping documentation, and notify the RSO immediately. Keep

facilitator of the training, as well as the head of the employee's department. The signed training certificate should be always available.

Shippers of other dangerous goods must keep on file a "proof of classification" for all dangerous goods offered for transport or imported into Canada for a 5 year period from the date on the shipping document.

Proof of classification can include a:

- test report
- lab report or,
- document that explains how dangerous goods were classified. This includes :
    - an SDS specific to the chemical with matching CAS numbers and valid within 3 years, or a
    - Queen's University: Transportation of Dangerous Goods Chemical Classification Profile. See appendix 6. for instructions and form. This form must also be used for all custom made solutions and new compounds.

Further information the proof of classification must have:

- Date of when the dangerous goods were classified,
- Technical name of dangerous goods,
- The classification of dangerous goods.

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direct supervision of an individual who holds a training certificate. Three documents apply to the shipment of dangerous goods depending on the mode of transport and the type of goods being shipped:

- Straight Bill of Lading Form- for shipments by ground under TDG
- Shippers Declaration of Dangerous Goods Form- for shipments by air under IATA
- Waste Manifest- for shipments of hazardous waste Under TDG & Reg. 347/558

See Appendix 2 for sample shipping documentation.

Forms and labels can be obtained from couriers, online or from EH&S. Departments are responsible for maintaining shipping documentation on record for two years after shipping.

9.0 Shipments of Hazardous Waste by Queen's University Employees

For hazardous waste disposal refer to the “Hazardous Waste Disposal Procedures SOP-CHEM-01 document available at the EH&S website. EH&S must be contacted if the disposal of hazardous waste requires a third party contractor and is outside the University’s waste management system. Refer to section 10.0 for a list of documentation required prior to shipment authorization.

No one is authorized to sign a Waste Manifest unless they have received additional training by EH&S.

Waste Manifest documents must be forwarded to EH&S immediately as copy 1 (white) must be mailed to the Ministry of the Environment within three days of shipment.

10.0 Shipments of Hazardous Waste by Independent Contractors & PPS

If contractors are generating hazardous or non-hazardous waste, they are responsible for the disposal and shipment of the waste from Queen’s University, and must comply with all relevant legislative requirements. The contractors are to provide their own *Ontario Waste Generator Number*.

The Queen’s University *Ontario Waste Generator Number* CAN NOT be used unless approved by EH&S. This is absolutely necessary to avoid future liability for the University, and to comply with the current legislative requirements.

To obtain approval, 5 0 Td(,)ppr(r)3 (du.3 (du.3 (d4.6T)-2 17 ƀBDC -2 17 ƀBDC t)-25 (a)4 (pl)-2 (y w)oT)-2 17 ƀı

closed, secured and maintained to avoid any accidental release. Individually, a solid must have a mass expressed in kilograms, a gas or a liquid a volume expressed in litres that is less than or equal to the number shown for them in column 6 of Schedule 1 of the TDG regulations, or must meet the requirements as stated in section 2.8 of the IATA Regulation

When using this exemption, each means of containment (i.e. box, etc.) must have a gross mass of 30 kg or less and display one of the following international marks:

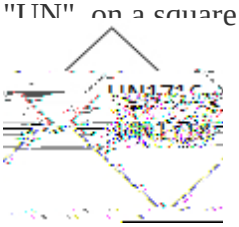
Image A

Image B (in compliance with International Civil Aviation Organization (ICAO) Technical Instructions by Air)

Until December 31, 2020, instead of the international mark shown above, the means of containment may display:

- the words "Limited Quantity" or "quantité limitée";
- the abbreviation "Ltd. Qty." or "quant. ltée";
- the words "Consumer Commodity" or "bien de consommation";

- the UN number of each limited quantity of dangerous goods, preceded by the letters "LIN" on a square on point (*see example below*).



12.3 Test Samples (TDG Ground Only)

TDG Regulations do not apply to samples of goods (except explosives, infectious substances or radioactive materials) if the gross mass is less than or equal to 10 kg and they are dangerous goods in transport for the purposes of classifying, analysing, testing or demonstrating. The samples must be accompanied by a shipping document that includes the name and address of the consignor and the words "test samples". The package must be designed, constructed, filled, closed, secured and maintained to prevent any accidental release. The package must have marked on it the words "test samples". Consult the regulations to determine if your goods fall under this exemption.

12.4 Dangerous Goods in an Instrument or in Equipment (TDG Ground Only)

TDG Regulations do not apply to goods that are contained in, and are not intended to be discharged from instruments or equipment that is designed to perform a function other than to solely contain dangerous goods. The instrument must not be listed as a dangerous good in schedule 1. A solid must have a mass expressed in kilograms, a gas or a liquid, a volume expressed in litres that is less than or equal to the number shown for them in column 6 of Schedule 1 of the TDG regulations.

12.5 Dangerous Goods in Excepted Quantities (IATA by Air)

Excepted Quantities Exemption under IATA (section 1.17.1) apply to goods below certain quantities as listed in the regulations. Packages that qualify for the exemption must be marked with an Excepted Quantities Label (see below). A *Shippers Declaration of Dangerous Goods* form is not required. Consult the regulations to ensure your goods fall under this exemption. http://www.tc.gc.ca/eng/tdg/clear-part1-475.htm#sec1.17.1

13.0 Auditing

EH&S reserves the right to select a department at random to audit their compliance with the TDG requirements under this p -2 (ent0)4eequi. (e)4þ6. Td( )Tj-0.0/P ⁄MCID 2 ⁄DC 0.00-o6. Td5 Td( )TjEMC /

Appendix 1. Classification of Dangerous Goods

NINE CLASSES OF DANGEROUS GOODS (Summary)

Class 1 Explosives

Class 6.1 Toxic substances
Class 6.2 Infectious substances

Class 7 Radioactive Materials

Class 8 Corrosives

Class 9 Miscellaneous Products, Substances or Organisms

CLASS 1 - Explosives

Explosives may be capable, by chemical reaction, of producing gas at a temperature, pressure and speed that would damage the surroundings. Alternatively, they may produce an explosive or pyrotechnic ef0 Tc 04 (y p)-10 (r)3s

Explosives are divided into 13 compatibility groups as described in Appendix 2 of the TDG Regulations. Compatibility groups are used to determine which explosives may be transported together. See table on page 57.

Class 1.1, 1.2, 1.3

Label and Placard

** place for division – to be left blank if explosive is a subsidiary class

* place for the Compatibility Group Letter – to be left blank if explosive is a subsidiary class

PROPANE; ACETYLENE, DISSOLVED

Class 2.2 non-flammable and non-toxic gases
NITROGEN, REFRIGERATED LIQUID;

CLASS 4 - Flammable Solids; Substas;c S-8.2 (t) Ludbla Sdlpor8.3 (l)on-8 (a)4 Sn-4.4 (Ss)-5 1 (

CLASS 6 - Toxic and Infectious Substances

Class 6 has two divisions:

Class 6.1 Toxic Substances (substances which pose a serious threat to human health or life if absorbed through the skin, swallowed, or inhaled) PHENOL; CARBON TETRACHLORIDE/GS0 gs122.39 1

Note: *in determining whether a patient specimen has a minimal likelihood that pathogens are present, an element of professional judgment is required to determine if a substance is exempt under this paragraph. That judgment should be based on the known medical history, symptoms, and individual circumstances of the source human or animal, and endemic local conditions. Examples of specimens which may be transported under this paragraph include the blood or urine tests to monitor cholesterol levels, blood glucose levels, hormone levels, prostate specific antigens (PSA); test required to monitor organ function for humans or animals with non-infectious diseases; biopsies to detect cancer, etc.*

- Packaging for "Exempt human/animal specimens" must meet the following conditions:
- Packaging must consist of three components:
  - leak-proof primary receptacle(s)
  - leak-proof secondary packaging
  - an outer packaging of adequate strength for the capacity, mass and intended us, and with at least one surface having minimum dimensions of 100 mm x 100 mm
- for liquids, absorbent material in sufficient quantity to absorb the entire contents must be placed between the primary receptacle(s) and the secondary packaging so that, during transport, any release or leak of a liquid substance will not reach the outer packaging and will not compromise the integrity of the cushioning material
- when multiple fragile primary receptacles are placed in a single secondary packaging, they must be either individually wrapped or separated to prevent contact between them.

Medical or Clinical Wastes

Medical or clinical wastes containing Category A infectious substances must be assigned to UN 2814 or UN 2900, as appropriate. Medical or clinical wastes containing infectious substances in Category B, must be assigned to UN 3291.

- Proper shipping name for UN3291 is Clinical waste, unspecified, n.o.s. or (Bio) Medical waste, n.o.s. or Regulated medical waste, n.o.s.
- [illegible]

Prohibitions

A live animal that has been intentionally infected and is known or suspected to contain an infectious substance must not be transported by air unless the infectious substance contained cannot be consigned by any other means. Infected animals may only be transported under terms and conditions approved by the appropriate national authority.

Passenger Provisions

Category A or B Infectious Substances are not permitted for transport in carry-on or checked baggage and must not be carried on a person. Packages containing Exempt human or animal specimens may be carried in checked or carry-on baggage provided that they meet the applicable packaging requirements.

CLASS 7 - Radioactive Materials

Substances with a specific activity greater than 70 kBq/kg are included in Class 7, Radioactive Materials. Radioactive materials are represented by categories (activity groups) from I to III, category III being the most dangerous one. The transport index must be calculated and identified on the package using the proper label. Radioactives are also regulated according to the 'Packaging and Transport of Nuclear Substances Regulations."

Class 7 includes:

Category I -White — the contents and activity must be displayed

Category II –Yellow — the contents, activity and transport index must be displayed

Date Issued:

CATEGORY B MARK

SOR/2008-34

PANELS

ORANGE PANEL

Appendix 5: Indicative Examples of Infectious Substances Included in Category A in Any Form Unless Otherwise Indicated

UN Number and Proper Shipping Name	Micro -organism
UN 2814 Infectious substance 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 459 163.08 14.64 reW ni

UN Number and Proper Shipping Name	Micro -organism
UN 2900 Infectious substances affecting animals	African swine fever virus (cultures only) Avian paramyxovirus Type 1 – Velogenic Newcastle disease virus (cultures only) Classical swine fever virus (cultures only) Foot and mouth disease virus (cultures only) Lumpy skin disease virus (cultures only) *Mycoplasma mycoides*– Contagious bovine pleuropneumonia (cultures only) Peste des petits ruminants virus (cultures only) Rinderpest virus (cultures only) Sheep-pox virus (cultures only) Goatpox virus (cultures only) Swine vesicular disease virus (cultures only) Vesicular stomatitis virus (cultures only)

Appendix 6. Queen'sUniversity: Transportation of Dangerous Goods Chemical Classification Profile