

Work Instruction Title:	Fire Extinguishing Systems Work Instructions		Document #:	WI-ENV-BELL-618
Author:	Mathieu Blackburn	Environmental Specialist	Revision Date:	09-24-2015
Work Instruction Owner:	Simon Forget	Senior Manager, Environmental	Revision #:	2.0

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- 1. Purpose**
This work instruction defines the steps to ensure compliance when managing fire extinguishing systems.
- 2. Scope**
This procedure applies to the Bell strategic client unit of BGIS O&M Solutions Inc. (“**O&M Solutions**”)
- 3. Roles and Responsibilities**
See work instruction below.

4. Work Instruction

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SECTION 1 FEDERAL REGULATORY REQUIREMENTS

All technicians conducting work on fire extinguishing systems in Bell Canada buildings are responsible for complying with the requirements of both the Federal Halocarbon Regulations (FHR) and the Halon Recovery and Equipment Maintenance Standards.

For complete references, refer to [Section 8: Contacts and References](#) of the present document.

Important Points Regarding Work Conducted on a System Containing Halocarbons

- It is strictly forbidden to discharge any amount of halocarbons into the atmosphere, as they are a greenhouse gas and/or an ozone-depleting substance.
- It is strictly forbidden to allow or cause a halocarbon discharge from a fire extinguishing system, except when fighting a fire that was not set for training purposes, or when the discharge took place during halocarbon recovery. In these cases, a maximum of 1% of recoverable halocarbons can be discharged.
- It is strictly forbidden to allow or cause a discharge from equipment or a container used for recycling, reuse, regeneration, or storage of a halocarbon.
- Only a Certified Technician, either a subcontractor or a O&M Solutions Building equipment Technician (or BET), may perform work on fire extinguishing equipment, including installation, maintenance, charging, leak testing, decommissioning, dismantling or any other work that could possibly result in a release of halocarbons.
- As soon as possible, but no later than seven days after detecting a leak, a Certified Technician must complete one of the following:
 - Repair the leak;
 - Isolate the leaking section of the system and recover the halocarbon, in accordance with [Section 7: Halocarbon Recovery and Used Halocarbon Disposal](#);
 - Recover all halocarbons from the equipment, in accordance with [Section 7: Halocarbon Recovery and Used Halocarbon Disposal](#).
- It is strictly forbidden to install a system that operates, is designed to operate, or charge a portable fire extinguisher with any of the following halocarbons:
 - Carbon tetrachloride;
 - 1,1,1-trichloroethane (methyl chloroform), not including 1,1,2 trichloroethane;
 - CFCs (R-11, R-12, etc.);
 - Halon 1011;
 - Halon 1211;
 - Halon 1301;

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- Halon 2402;
- All other BFCs;
- HBFCs.
- A Certified Technician who charges a fire extinguishing cylinder ***that is not a portable system*** with one of the halocarbons in the above-mentioned list must immediately contact O&M Solutions Environmental Services and provide them with the following information:
 - Name and address of the system's owner;
 - Name of the system's operator;
 - Exact location of the system;
 - Description of the system;
 - Type and quantity of charged halocarbon;
 - Charging date;
 - System charging capacity.
- Any technician performing any work that could possibly result in a halocarbon leak from a fire extinguishing system must recover the halocarbon beforehand, as instructed in **Section 7: Halocarbon Recovery and Used Halocarbon Disposal.**
- Any technician performing any work that could possibly result in a halocarbon leak from a fire extinguishing system, including installation, maintenance, charging, or leak test, must conform to the requirements of the Halon Recovery Standard as well as the Equipment Maintenance Standard.
- No person shall perform maintenance on a fire extinguishing cylinder without first completing both of the following:
 - Alerting the owner;
 - Installing a notice on the system control panel to indicate that it will be out of service during the maintenance period (this does not apply to portable systems).
- If a leak is detected in a fire extinguishing cylinder and it is necessary to recharge the leaking system before repairing it (in order to prevent an immediate danger to life or human health), the Certified Technician who charges the system must inform O&M Solutions Environmental Services.
- If a piece of equipment has not been used for more than one year and is not likely to be used within the following three months, the halocarbon must be recovered by a Certified Technician, in accordance with **Section 7: Halocarbon Recovery and Used Halocarbon Disposal.**

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SECTION 2 INSTALLATION, USE AND REMOVAL OF “SERVICE LOG” POUCHES

2.1 “Service Log” Pouch Installation

O&M Solutions BETs and contractors are responsible for the installation and maintenance of the pouches.

Note: A “Service Log” pouch must be installed for every fire extinguishing cylinder.

2.1.1 Materials Required for “Service Log” Pouch Installation

- Plastic pouches;
- “Service Log” labels.

These items can be ordered via telephone or email from O&M Solutions Environmental Services.

2.2 Using the Pouches

Tickets and Dated Lists are the only two types of documents that are to be kept in the pouches. Other maintenance records, such as service reports, technician timesheets, PMRs, invoices, and work orders, must be kept in a file somewhere on the site.

2.3 Removal of Pouches

A pouch must **never** be removed from a cylinder, except:

- To replace it with a new pouch, into which the Tickets and Dated Lists are transferred;
- To dismantle and send the cylinder off site, in which case the pouch and accompanying maintenance records must remain in the building where the cylinder was located for the following five years.

SECTION 3 COMPLETING AND MAINTAINING A TICKET

Tickets are used to document the work performed on equipment containing halocarbons. They are available in booklets of 25 copies from O&M Solutions Environmental Services.

O&M Solutions BETs and contractors are responsible for completing Tickets and for keeping them in their rightful place.

3.1 Actions Requiring a Ticket

Tickets must be completed by O&M Solutions BETs and contractors each time any of the following types of work are performed on a fire extinguishing system:

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- Installation of an equipment;
- Leak test;
- Halocarbon recovery;
- Repair;
- Charging;
- Dismantling and decommissioning of an equipment.

Other verifications may be required for fire extinguishing systems with respect to other regulatory or standard requirements. These actions need to be documented on Tickets only if there is a potential for halocarbon loss.

3.2 Information Required on a Ticket

All of the following information must be written on each Ticket:

Halocarbon Control - Equipment Service Record						250000
Manufacturer: 1	Model #: 2	Serial #: 3	Type of halocarbon: 4	Charging Capacity (Lbs): 5	Nexacor - Work Order #: 6	
Halocarbon recovery	Repair	Leak detection	Halocarbon recharge	Annual Leak detection	Dismantling of the system	
Date: 7	Date: 8	Date: 9	Date: 10	Annual test date: <input type="text"/> /YYMM/DD	Date: <input type="text"/> /YYMM/DD	
Qty (Lbs): 7		Leak detected: 13	Qty (Lbs): 10	Leak detected: 11 NO	Project #: 12	
Comments: 13			Previous Annual leak test date: <input type="text"/> /YYMM/DD	Destination address:		
Owner & equipment information				Information on the company that does the work		
Name: <input type="text"/>				Company: <input type="text"/>		
Address: 14				Address: 15 City: <input type="text"/>		
City: <input type="text"/> Floor: <input type="text"/>				Technician name: <input type="text"/>		
Location code: <input type="text"/>				# HRAI, ODP, ULC: <input type="text"/>		
Equipment #: <input type="text"/>				Signature: <input type="text"/>		
Place white copy in appropriate envelope.						NEX_11052011

1. Manufacturer (e.g., Chubb, Kiddle, Fenwall);
2. Cylinder model number;
3. Cylinder serial number;
4. Type of halocarbon (e.g., FM-200);
5. Halocarbon charging capacity of the cylinder (lbs);
6. Work order number;
7. If the halocarbon is recovered, provide:
 - recovery date (YYYY/MM/DD),
 - recovered amount of halocarbons (lbs);

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8. If a repair is performed, provide the date of repair (YYYY/MM/DD);
9. If a leak test is performed (after a repair or before a recovery), provide:
 - date (YYYY/MM/DD),
 - was a leak detected? (Yes / No);
10. If the system is charged, provide:
 - charging date (YYYY/MM/DD),
 - total amount of halocarbons charged (lbs), including the quantity of halocarbons recovered, if applicable;
11. If an annual leak test is performed, provide:
 - date of the intervention (YYYY/MM/DD),
 - was a leak detected? (Yes / No),
 - date of the last annual leak test (YYYY/MM/DD);
12. If the equipment has been dismantled, provide:
 - dismantling date (YYYY/MM/DD),
 - O&M Solutions project number,
 - final destination address of the dismantled equipment or civic address of the contractor dismantling the equipment;
13. A short description of the nature of the malfunction or of the repair that was performed (e.g., valve leak or valve replacement);
14. Owner's contact and equipment location information. Provide:
 - owner's name (e.g., Bell Canada, Bell Mobility, Nexxia, etc.);
 - exact floor and civic address where the equipment is located, specifying the city and province (e.g., 1149 Goyeau Street, 5th Floor, Toronto, Ontario);
 - location code;
 - equipment serial number;
15. Contact information of the company performing the work. Provide:
 - company's name ("O&M Solutions" in the case of a BGIS O&M Solutions Inc. technician, or the name of the company contracted to do the work),
 - company's address (in the case of a O&M Solutions BET, the address is 87 Ontario West, 6th floor, Montréal, QC, H2X 0A7.),
 - Certified Technician's name (the person performing the work),
 - ULC file number of the technician's company. This file number has the following format: EX, followed by 4 or 5 numbers (for example, EX1234),

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- Certified Technician’s signature.

3.3 Maintenance of Tickets

Each Ticket consists of two copies: a white copy and a yellow copy. The two copies of the Tickets must be kept in the following places:

Ticket Copy	Place for Good Keeping
White	In the “Service Log” pouches
Yellow	Technician’s file

All documents must be kept in the “Service Log” pouches for a period of **five years**. Documents older than five years must be discarded, but only by O&M Solutions personnel.

The figure [Documentation Process](#) found in appendix B can be consulted to visualize the circumstances that require a document to be completed, the type of document to be completed, and the place where the document should be kept.

SECTION 4 COMPLETING AND MAINTAINING DATED LISTS

The Dated Lists show, at a glance, all work that has been performed on a particular piece of equipment.

O&M Solutions BETs and contractors are responsible for completing the Dated Lists and for keeping them in their rightful place.

All equipment must have a Dated List. If an equipment does not have one, O&M Solutions BETs must make one from the model provided by O&M Solutions Environmental Services.

4.1 Actions Requiring that a Dated List be Completed

Whenever work involving the halocarbon circuit is performed (and for which a Ticket is made), one or several lines of the Dated List must be completed.

As a general rule, each type of work should be filled out on a separate line of the Dated List (leak detection, repair, recharge, etc.). Therefore, several lines may correspond to the same Ticket.

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4.2 Completing a Dated List

All of the following information must be written on each Dated List:

Owner name	Owner address	Operator name	Brand	Model number of the equipment	Serial number of the equipment	Type of halocarbon	System charging capacity (lbs)	Location of the system		
1	2	3	4	5	6	7	8	9		
Date (YYYY-MM-DD)	Leak test completed (Yes/No)	Leak detected (Yes/No)	Leak repaired (Yes/No)	Halocarbon recovery (type, lbs)	Recharged halocarbon (type)	Recharged quantity (lbs)	Supplier name	Technician name	Card number (JCU-HW/IGP)	Comments
10	11	12	13	14	15	16	17	18	19	20

4.2.1 Header of a Dated List:

1. Owner's name: Bell Canada or other Bell Company (Bell Mobility, Nexxia, etc);
2. Owner's address: Civic address where the equipment is located and the BU number;
3. Operator's name: BGIS O&M Solutions Inc.
4. Brand: Write the brand name of the cylinder;
5. Equipment's model number: Write the number, carefully distinguishing between letters and numbers. Use capital letters and double-check the entry;
6. Equipment's serial number: Write the number, carefully distinguishing between letters and numbers. Use capital letters and double-check the entry;
7. Type of halocarbon: Be specific, as in FM-200;
8. System charging capacity (lbs): Give the total halocarbon charge of the cylinder ;
9. System's location: Give the physical description of the cylinder location (the name and number of the room, the area in the building, etc.).

4.2.2 Completed Work Log (to be filled out based on completed Tickets):

10. Date (YYYY/MM/DD): Refer to the work dates written in Sections 7 to 12 of the Ticket according to the work;
11. Leak test completed (Yes / No): Write "Yes" or "No" according to the information found in Sections 9 to 11 of the Ticket;
12. Leak detected (Yes / No): Write "Yes" or "No" according to the information found in Sections 9 to 11 of the Ticket;

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13. Leak repaired (Yes / No): Write “Yes” if a date is written in Section 8 of the Ticket. Write “No” if the leak was detected and not repaired. If not applicable, write “N/A”;
14. Halocarbon recovery (type/ lbs): Write the amount, in pounds, of halocarbons recovered according to the information found in Sections 4 to 7 of the Ticket. If not applicable, write “N/A”;
15. Recharged halocarbon (type): Write the type of halocarbon recharged, according to the information found in Section 4 of the Ticket. If not applicable, write “N/A”;
16. Recharged quantity (lbs): Write the amount, in pounds, of halocarbons recharged according to the information found in Section 10 of the Ticket. If not applicable, write “N/A”;
17. Supplier’s name: Write either “BGIS O&M Solutions Inc.” or the name of the subcontractor, according to the information found in Section 15 of the Ticket;
18. Technician’s name: Write the name of the technician found in Section 15 of the Ticket;
19. Card number: Write the ULC certification number found in Section 15 of the Ticket. (e.g., EX1234);
20. Comments: Summarize the work in a few words based on the information found in Sections 7 to 12 of the Ticket and write the corresponding Ticket number(s) (e.g., “Ticket 067551”) as well as the type and number of the corresponding maintenance record (e.g., “Timesheet 895283” / “Work Order 45656”). If an annual leak detection test was performed, write it in the Comments column of the Dated List “Annual Leak Detection Test”.

If the last line of the Dated List was already used, print a new page using the model available on O&M Solutions Environmental Services “SharePoint” and transcribe the information found in the header to the Dated List. Attach the new page to the already completed Dated Listed.

4.3 Maintenance of a Dated List

The Dated List must be kept in the “Service Log” pouch of the cylinders.

Information found on the Dated List must be kept for a period of **five years**. All the lines documenting work older than five years must be removed, but only by O&M Solutions personnel.

The figure [Documentation Process](#), in appendix B can be consulted to visualize the circumstances that require documentation to be filled out, the type of documentation and where to keep this documentation. This figure also indicates the circumstances that would require specific entities be contacted to report various situations such as halocarbon leaks.

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SECTION 5 THE DECISION PROCESS FOR A HALOCARBON LEAK, AND LEAK AND LOSS DOCUMENTATION

5.1 Decision Process for a Halocarbon Leak

See the figure [Decision Process for a Halocarbon Leak](#) found in appendix A for a simplified graphic representation of the following instructions.

Once a halocarbon leak is detected, a technician must complete, in order, the following steps:

Step 1: If it is possible, stop the leak

Step 2 : Determine the cylinder’s charging capacity

- If the cylinder contains 100 kg or more of halocarbons: Immediately notify the Bell Canada Corporate Responsibility and Environment Group at 1-877-235-5368 (1-877-BELL-ENV) and the Client Service Centre at 1-800-363-2921 or 1-866-771-1214.
- If the cylinder contains less than 100 kg of halocarbons: immediately contact the Client Service Centre at 1-800-363-2921 or 1-866-771-1214 and provide them with the following information:
 - Type of halocarbon (e.g. FM-200);
 - Cylinder’s serial number;
 - Cause of the leak;
 - Corrective actions that have been initiated or completed;
 - The amount of halocarbons lost, calculated according to the following table:

Fire Extinguishing System
<p>If there is halocarbon left in the cylinder:</p> <p>the loss = (cylinder’s weight at time of last inspection – cylinder’s current weight)</p>
<p>If the cylinder is empty:</p> <p>the loss = weight of halocarbon indicated on the cylinder</p>

Step 3: Replace the cylinder

- Replace the leaking cylinder according to [Section 7: Halocarbon Recovery and Used Halocarbon Disposal](#).
- Once the cylinder is replaced, conduct a Leak Detection Test. If a leak is detected, restart step 2 completely.

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5.2 Management of cylinders containing 100 kg or more of halocarbons

When an equipment loses 100 kg or more:

- O&M Solutions Environmental Services must transmit a copy of the report sent to Environment Canada by Bell Canada to the Property Manager;
- The Property Manager must ensure that the report is kept in the “Service Log” pouch of the appropriate equipment. This report is available on O&M Solutions Environmental Services “Sharepoint”.

SECTION 6 HALOCARBON LEAK TEST

6.1 General Requirements

- Only a Certified Technician may perform a leak detection test on a fire extinguishing system.
- All Leak Detection Tests must be performed according to the requirements of the Equipment Maintenance Standard.
- When a fire extinguisher system is repaired or following a cylinder replacement, a leak test must always be performed before recharging the cylinder with halocarbons.
- If a leak is detected, follow the instructions given in [Section 5: The Decision Process for a Halocarbon Leak, and Leak and Loss Documentation](#).

6.2 Annual Leak Detection Tests

- They are mandatory for all fire extinguishing systems containing halocarbons.
- Must be performed at least once every 12 months minus one (1) day. For example, if the last test was performed November 1, 2013, the next test must be performed **at the latest** on October 31, 2014.
- All equipment components in contact with halocarbons must be tested.

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SECTION 7 HALOCARBON RECOVERY AND USED HALOCARBON DISPOSAL

7.1 General Requirements

- The halocarbons must be recovered in compliance with the requirements stated in the Halocarbon Recovery Standard.
- Each time halocarbons are recovered in an approved container they must be weighed to determine the amount.
- If the amount of recovered halocarbons is less than the amount normally contained in the system, follow the procedure for a halocarbon leak, and leak and loss documentation, as explained in [Section 5: The Decision Process for a Halocarbon Leak, and Leak and Loss Documentation.](#)
- The halocarbons must be transported, in accordance with the requirements of the federal Transportation of Dangerous Goods Act and Regulations.
- The used halocarbons must be disposed of via the regular halocarbon supplier.

7.2 Approved Containers

All halocarbons must be recovered in an approved container that is:

- Designed to be filled more than once (reusable);
- Designed to contain the recovered halocarbon;
- Labelled with a tag indicating the content and weight, and complying with the requirements of the federal Transportation of Dangerous Goods Act and Regulations;
- Labelled as per WHMIS requirements;
- Stamped with the design specifications and the pressure rating.

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SECTION 8 CONTACTS AND REFERENCES

8.1 Key Contact Persons

Throughout Canada:

- **BGIS O&M Solutions Inc. Environmental Services**
BGIS O&M Solutions Inc..
87 Ontario Street West, 6th floor
Montréal (Quebec) H2X 0A7
enviro@brookfieldgis.com
- **Client Service Centre**
Telephone: 1-800-363-2921 or 1-866-771-1214
- **Bell Canada Corporate Responsibility and Environment Group**
Telephone: 1-877-235-5368 or 1-877-BELL-ENV

8.2 Reference Documents

2003): Federal Halocarbon Regulations DORS/2003-289, 13 August 2003. <http://www.ec.gc.ca/lcpe-cepa/eng/regulations/detailReg.cfm?intReg=75>

Halon Recovery Standard: “Halon and Halocarbon Clean Agent Recovery and Reconditioning Equipment”, Underwriters’ Laboratories of Canada, ULC/ADR-C1058.5-2004.

Equipment Maintenance Standard: “The Servicing of Halon and Clean Agent Extinguishing Systems”, Underwriters’ Laboratories of Canada, ULC/ADR-C1058.18-2004.

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SECTION 9 FHR (GLOSSARY)

Approved Container

Appropriately manufactured and identified container used for the recovery and transport of halocarbons.

ARI

Air-Conditioning and Refrigeration Institute

ASHRAE

American Society of Heating, Refrigeration and Air-Conditioning Engineers

BET

O&M Solutions Building Equipment Technician

BFC

Bromofluorocarbons

BU Number

A business unit (BU) number is a location code, made up of a unique set of numbers and letters, which is specific to each Bell Canada estate.

Certified Technician

A person specifically trained to work on fire extinguishing systems who also works for a ULC-certified company in this capacity.

CFC

Chlorofluorocarbons

Dated List

A O&M Solutions form used to record regulated maintenance on equipment. Each Ticket completed for work performed on equipment must be entered on the Dated List.

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EC Loss Report

Document issued to Environment Canada by Bell Canada every six months (the first semester goes from January 1 to June 30, and the second semester goes from July 1 to December 31). This report summarizes all regulated ODS losses from all systems (that is, refrigerant losses between 10 and 100 kg).

Email Memorandum

Email listing the actions to be taken by the site technician in order to complete the Document Update Procedure.

Equipment

Bell Canada equipment that contains a halocarbon and is subject to the FHR. This includes both operational equipment and on-site decommissioned equipment. With regard to O&M Solutions Fire Extinguishing Systems Procedure, the term equipment refers to a fire extinguishing cylinder, which can also be called a system.

Equipment Number

For fire extinguishing systems, the equipment number is the serial number that is indicated on the cylinder.

First Responder

The worker who first witnesses or is made aware of the occurrence of an environmental incident or emergency.

Halocarbon Leak

Atmospheric release of halocarbon that is caused by a defect, break or accident detected during maintenance or inspection.

Halocarbon Loss

Known quantity of halocarbon released from a system as a direct result of a leak.

Halocarbons

Organic compounds used in air-conditioning, refrigeration and fire extinguishing systems (for example, CFCs such as R-11 and R-12, HCFCs such as R-22 and R-123, HBFCs such as halons, and HFCs such as R-134 and FM-200®).

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Halon

Halocarbons used in a fire extinguishing system.

HBFC

Hydrobromofluorocarbon

HCFC

Hydrochlorofluorocarbon

HFC

Hydrofluorocarbon

HRAI

Heating, Refrigeration, and Air-Conditioning Institute of Canada.

Maintenance Records

Variety of documents, such as service reports, technician timesheets, invoices, and work orders, that show regulated maintenance work has been performed on specific pieces of equipment.

National Equipment Inventory (or Equipment List)

List compiled by O&M Solutions of regulated equipment owned by Bell Canada and its subsidiaries.

ODP

Ozone-Depleting Potential

ODS

Ozone-Depleting Substance, which is any substance that is harmful to the ozone layer. Some halocarbons are ODSs.

Refrigerant

Any halocarbon that is used in an air-conditioning or refrigeration system. Examples include R-22 (or HCFC-22) and R-123 (or HCFC-123).

Work Instruction Title:	Fire Extinguishing Systems Work Instructions		Document #:	WI-ENV-BELL-618
Author:	Mathieu Blackburn	Environmental Specialist	Revision Date:	09-24-2015
Work Instruction Owner:	Simon Forget	Senior Manager, Environmental	Revision #:	2.0

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Summary Report

Report issued to O&M Solutions Environmental Services in order to summarize the results of a Halocarbon Documentation Update performed at a Bell Canada site or one of its subsidiaries.

Ticket

A O&M Solutions form used for recording the maintenance work conducted on equipment.

Trained Technician

A person who has followed the O&M Solutions Halocarbon Environmental Management Program. This online training program is available for all BET via the VuBiz training.

WHMIS

Workplace Hazardous Materials Information System. Refrigerant gases are held in pressurized containers; therefore, they fall under a specific category of the WHMIS's classification of hazardous materials in the workplace.

5. Revision / Review History

Version #	Date	Document Owner/Approver	Summary of Change
1.0	31-03-2013	Forget, Simon	Updates and simplifications
2.0	24-09-2015	Forget, Simon	Transfer to new Work Instruction template