

Sustainability Project Fund Application

Applicant/Project Leader:

Dac Hien Vuong, Project Management Office & Environmental Health and Safety

Contact Information:

Name: Dac Hien Vuong

Email: dac.vuong@mcgill.ca

Telephone: 514-398-5934

Project Title:

Hazardous Chemicals Disposal Campaign

Budget Requested:

46,700\$

Project Group:

Dac Hien Vuong, Functional Lead – Hazardous Materials Management Project

Project Management Office & Environmental Health and Safety

514-398-5934

dac.vuong@mcgill.ca

Christian Bouchard, Manager – Waste Management Program & Hazardous Materials Management Project

Waste Management Program

514-398-5066

christian.bouchard@mcgill.ca

Kostya Dykukha, Project Manager – Hazardous Materials Management Project

Project Management Office

514-398-2084

kostya.dykukha@mcgill.ca

Please find in attachment the Hazardous Chemicals Disposal Campaign project summary and relevant documentation.

I. Project Overview

Project Summary

At McGill, thousands of hazardous materials (chemicals, biohazards and radioisotopes) are used by over 800 laboratories for teaching and research purposes. Under federal and provincial legislation, the University has the obligation to account for all of its hazardous materials and maintain up-to-date material safety data sheets (MSDS) for each one of them. Currently, this responsibility is delegated to individual laboratories, which has resulted in de-centralize inventories and the multiplication of identical MSDS documents.

It is within this context that a Hazardous Materials Management Project (HMMS) was launch in late 2009 with sponsorship from Dr. Rima Rozen (Interim Vice-Principal Research & International Relations) and Prof. Jim Nicell (Associate Vice-Principal University Services). The goal of this IT project is to facilitate the management of hazardous materials at the University. Phase 1 of the project, which targets radioisotopes, is currently being rolled out to laboratories. Phase 2, which will focus on hazardous chemicals such as solvents, heavy metals, etc., is in the development and has for objectives:

1. To centralize the management of 50,000 MSDS by using electronic copies instead of paper copies;
2. To create electronic hazardous materials inventories, thus enabling participating laboratories to share their inventories with other authorized laboratories. This will effectively:
 - a. Promote the reuse of unwanted hazardous materials;
 - b. Reduce the ordering of hazardous materials;
 - c. Reduce hazardous materials waste generation;
 - d. Promote of greener and/or safer alternatives to commonly used chemical reagents.

In order to streamline this inventorying process, unwanted hazardous chemicals stored in laboratories should be discarded beforehand. The HMMS project team is proposing that a one-time Hazardous Chemicals Disposal Campaign be organized with funding from the Sustainability Projects Fund. This campaign will be held before the roll-out of Phase 2 of the HMMS project.

More specifically, we are proposing that hazardous chemicals disposal events be scheduled in buildings housing laboratories. On the scheduled date, McGill Waste Management Program (WMP) will set-up a chemicals collection site in the building and laboratories will be asked to transport their unwanted chemicals there. WMP technicians will then package the chemicals for subsequent transport and disposal. Laboratories will be asked submit a list of chemicals to be discarded prior to their building disposal date. This will allow WMP to effectively allocate resources and materials for each event, thus minimizing the disposal costs.

We are also proposing that a test pilot be first held, this will allow for implementation of modifications to the campaign if required before roll-in out to the rest of the University. Dr. Audrey Moores, Chair of the Chemistry and Pulp and Paper Institute Safety Committee, has graciously accepted that her department be the test pilot department.

Project eligibility

The Hazardous Chemicals Disposal Campaign will contribute to the sustainability culture at McGill by:

1. Reducing the number of unwanted hazardous chemicals on our campuses;
2. Ensuring the proper and safe disposal of these chemicals;
3. Providing a safer environment for our students and staff;

4. Freeing valuable laboratory space in our buildings.

In addition, the Hazardous Materials Disposal Campaign will fast-track the completion of the HMMS project by reducing the amount of hazardous chemicals that need to be inventoried. The combination of both projects will significantly and positively impact the University goal of achieving the highest possible standards of sustainability on its campuses.

The Hazardous Chemicals Disposal Campaign will not be possible without funding from the Sustainability Fund since the WMP's operating budget cannot absorb the cost of this university-wide campaign. In 2006, a similar large-scale hazardous materials disposal was funded via the Clean+Green project.

Timeframe/Milestones:

Both the Hazardous Chemicals Disposal Campaign and the HMMS project timelines are inter-dependant; this is reflected in the dates listed below. Also based on the last Clean+Green project, WMP is estimating that a total 20 hazardous chemical disposal events will be required to cover both campuses.

Start Date: August 2nd, 2010 **End Date:** December 17th, 2010

Milestones	Target Date(s)
<i>Test pilot (Department of Chemistry)</i>	
Communication to laboratories	August 2010
Hazardous chemicals disposal form submission deadline	End of August 2010
Hazardous chemicals disposal	Mid-September 2010
<i>Gradual roll-out</i>	
Communication to laboratories	September to October 2010
Hazardous chemicals disposal form submission deadline	Early October and November 2010
Hazardous chemicals disposal	End of October to December 17, 2010

We plan to gauge the effectiveness of our campaign against the previous Clean+Green hazardous waste collection project by comparing key indicators such as number of participating laboratories, total weight/volume collected, disposal cost per weight/volume, etc. Once the campaign is completed, we are planning to submit a report to the Sustainability Office and Sub-Committee on the Environment detailing statistics, potential problems and recommendations.

Stakeholders:

Academic laboratories at McGill University

All laboratories handling hazardous chemicals will be affected by the campaign. These will be asked to submit a list of their unwanted chemicals to the Project Management Office and transport them to the disposal site on the scheduled date.

Professors appointed to the HMMS Advisory Committee and our test pilot labs were very favourable to the campaign agreeing with the campaign direct impacts and long term benefits when combined with the HMMS project. They also noted that it is common sense to lower the inventory of hazardous chemicals before inventorying them. Please see the attached support letter from Dr. Dieter Reinhardt, Associate Professor, Department of Anatomy and Cell Biology.

Project Management Office (HMMS project team) - McGill University
688 Sherbrooke W., Suite 1450

Montreal, Quebec, H3A 3R1
Telephone: 514-398-5934

The HMMS project team will work *pro bono* to ensure the management of the campaign, develop the required documents and handle communication with stakeholders. The Project Management Office will also provide their expertise to the management of the campaign.

The Project Management Office is also very favourable to the campaign. In addition, to all the sustainability and safety impacts of the campaign, it will facilitate the completion of the HMMS project. Please see the attached support letter from Mrs. Joan Soares, Acting Director of the Project Management Office.

Waste Management Program (WMP) - McGill University

3655 Promenade Sir William Osler, Suite 219
Montreal, Quebec, H3G 1Y6
Telephone: 514-398-5066

WMP technical expertise is essential to handle the logistic behind each waste disposal event. Staff members, vehicles and supplies from WMP will be used to conduct the actual waste disposal operation. WMP staff will take on this campaign in addition to their current workload.

With representation on the Sub-Committee on the Environment, WMP understands the impacts of this campaign and of the HMMS project on the culture of sustainability at McGill. Since WMP serves also as the University hazardous materials spill response team, they are favourable to any initiative that will lower the quantity of hazardous chemicals on our campuses. Please see the attached support letter from Mr. Christian Bouchard, Manager of the Waste Management Program.

Environmental Health and Safety - McGill University

3610 McTavish, 4th Floor
Montreal, Quebec, H3A 1Y2
Telephone: 514-398-4563

The Environmental Health and Safety will provide a list of laboratories handling hazardous chemicals at McGill and their contact information.

Mrs. Louise Savard, Director of University Safety, fully support this campaign both from a sustainability point of view but also from a health and safety point of view since removing unwanted chemicals provides a safer environment to the McGill community.

II. Project Implementation

Type of Activity – Task	Estimated Time Required	Group Member in Charge
Design of hazardous chemical disposal form	1 day	Project Management Office
Development of communication plan	5 day	Project Management Office
Preparations for the hazardous chemicals disposal event*	40 days (2 days X 20)	Waste Management Program
On-site stabilization of hazardous chemicals and transport*	20 days (1 day X 20)	Waste Management Program
Final processing and disposal of hazardous chemicals collected*	20 days (1 days X 20)	Waste Management Program
Preparation and submission of campaign report	5 days	Project Management Office

*: We are proposing that 20 hazardous chemical disposal events be held.

V. Financials

Based on numbers available from the Clean+Green project provided by Ms. Kathleen Ng, Environmental Officer at McGill and the last hazardous waste disposal held in the Department of Chemistry in 2004 (see attached documents), WMP has estimated the expenses of the campaign.

Detailed expenses:

Expense Description	Estimated Cost
<i>Campaign Management (paid by HMMS project)</i>	
Staff wages	0\$
Documents preparation	0\$
Communication Plan	0\$
<i>Hazardous chemicals disposal</i>	
Cylinders	8,000\$
Lab packs	7,000\$
Reactives	14,000\$
Equipment expenses	5,000\$
WMP staff wages	8,400\$
<i>Miscellaneous</i>	
Contingency	4,300\$
TOTAL	46,700\$

Detailed revenues:

Revenue Source	Amount Requested	Confirmed?
Sustainability Projects Fund	45,000\$	No

VI. Additional information:

Qualifications and/or related experience of the project leader

Dac Hien Vuong is health and safety professional employed by McGill. For the past year, he was assigned to the HMMS project as functional lead and is involved in that project management on a daily basis. He also organized several waste disposal projects in previous positions at other academic facilities.

Relevant experience of the other project members

Christian Bouchard is the current manager of WMP and previously worked as a processing technician in WMP and at a hazardous disposal company. He has extensive knowledge in hazardous chemicals disposal and was the processing technician during the Clean+Green project.

Kostya Dykhuka the project manager responsible for the HMMS project. He has being involved with many information technology projects while working in the Information System Resources department and the Project Management Office.



McGill

Dieter P. Reinhardt, PhD, Associate Professor
Canada Research Chair in Extracellular Matrix Biology
Department of Anatomy and Cell Biology
McGill University
3640 University Street, Room 1/14
Montreal, Quebec H3A 2B2, Canada
Tel.: +1 514 398 4243
Fax: +1 514 398 5047
E-Mail: dieter.reinhardt@mcgill.ca

Office of Sustainability
Ferrier Building
840 Dr Penfield Avenue, Room 216
Montreal, Quebec H3A 1A4

April 13, 2010

Dear Madam/Sir,

I would like to express my support for the Hazardous Chemicals Disposal Campaign project submitted by Mr. Dac Hien Vuong on behalf of the Hazardous Material Management Project team.

This project is in alignment with the University goal to achieve the highest possible standards of sustainability on its campuses and in its day-to-day activities through its academic practices. This project will support a culture of sustainability at McGill by:

- Reducing the number of unwanted hazardous chemicals on our campuses;
- Ensuring the proper and safe disposal of these chemicals;
- Providing a safer environment for our students and staff;
- Freeing valuable laboratory space in our buildings;
- Contributing with the Hazardous Materials Management Project to reduce the amount of hazardous materials ordered and the quantity of hazardous waste generated at the University.

Sincerely,

Dr. Dieter P. Reinhardt
Chair, Faculty of Medicine Safety Committee
Chair, Joint Anatomy, Dentistry & Polypeptide Laboratory Safety Committee
Member, University Laboratory Safety Committee



April 9, 2010

Office of Sustainability
Ferrier Building
840 Dr Penfield Avenue, Room 216
Montreal, Quebec H3A 1A4

Dear Madam/Sir,

I would like to express my support for the Hazardous Chemicals Disposal Campaign project which is being submitted by Mr. Dac Hien Vuong on behalf of the Hazardous Material Management Project team.

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- Contributing with the Hazardous Materials Management Project to reduce the amount of hazardous materials ordered and the quantity of hazardous waste generated at the University.

Sincerely,

A handwritten signature in blue ink that reads "Joan Soares".

Joan Soares, PMP
Acting Director
Project Management Office
McGill University
688 Sherbrooke St. W., Suite 1450
Montreal, Quebec

Tel: 514-398-4614
Email: joan.soares@mcgill.ca



McGill

Waste Management Program

McGill University
McIntyre Medical Sciences Building
3655 Prom. Sir William Osler, suite 129
Montreal, Quebec H3G 1Y6

Gestion des matières dangereuses

Université McGill
Édifice des Sciences Médicales McIntyre
3655 Prom. Sir William Osler, suite 129
Montréal, Québec H3G 1Y6

Tel : (514) 398-5066
Fax: (514) 398-4633

April 9, 2010

Office of Sustainability
Ferrier Building
840 Dr Penfield Avenue, Room 216
Montreal, Quebec H3A 1A4

Dear Madam/Sir,

I would like to express my support for the Hazardous Chemicals Disposal Campaign project which is being submitted by Mr. Dac Hien Vuong on behalf of the Hazardous Material Management Project team.

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- Freeing valuable laboratory space in our buildings;
- Contributing with the Hazardous Materials Management Project to reduce the amount of hazardous materials ordered and the quantity of hazardous waste generated at the University.

Sincerely,

Christian Bouchard
Manager

Waste Management Program
3655 Promenade Sir William Osler, Room 129
Montreal, Quebec
H3G 1Y6

Tel: 514-398-5066

Email: christian.bouchard@mcgill.ca



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c/o Environmental Officer
New Chancellor Day Hall
615-3644 Peel
Montreal (Quebec) H3A 1W9

sub-committee on environment

clean
+green

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Clean+Green Project Report

What worked, what didn't, what should be improved

Summary

This year's campus clean-up of bulky, superfluous equipment and furniture extended throughout the entire month of May (May 2-24 for downtown campus; May 31 for Macdonald Campus). Instead of at a designated area (loading dock) as done in 2003, building occupants were requested to simply identify items for pick-up and place these outside their offices. Material picked up was brought to the Eco-Centre, weighed, unloaded and sorted in a designated area. Material sorted was subsequently diverted for reuse, recycling or landfill. [See appendix for detailed instructions]

Promotional strategy

- Print media.
 - Half-page ad in McGill Reporter in week preceding event, and another during event. Target: general McGill community
 - Posters in public areas in targeted building week prior to scheduled pick-up date
- E-mail.
 - Memo from Vice-Principal (Administration and Finance) to LISTSERVS:
 - the Principal and Vice-Principals (and assistants); Deans/Chairs/Directors; non-academic directors; managers, administrative assistants, building directors (via Rosalia Felice, Communications Assistant, Office of the VPAF – April 18, 2005)
 - Deans & Director of Libraries, Assoc Deans & Assoc Directors of Libraries, Chairs, and Academic Directors (and their secretaries/administrative assistants¹) (Gerald Jojic, Academic Personnel)
 - departmental safety committee chairs² and the University Lab Safety Committee³ (Josee Sansoucy, EHS, April 18 and 19 respectively, 2005)

¹ ACADADMIN@LISTS.MCGILL.CA

- Macdonald Campus-all⁴ (John Henning, April 21, 2005)

Also:

- Reminders sent to building directors week prior to scheduled pick-up (K. Ng)
- reminders from some building directors (e.g. Brian Karasick for James Administration Building)
- Word of mouth
 - Voice mail reminders to building directors from K. Ng week prior to scheduled pick-up
 - Direct contact with building directors from Michel Ducharme and district supervisors (Building Services) to arrange walkthroughs.
- On-site visibility: T-shirts were provided to staff performing the pick-ups to identify them to Security as well as to advertise the project to building occupants.

Problems encountered.

Limited awareness. Despite the notices, it became apparent soon after the project began that building directors and occupants were still not aware of the campaign. This continued despite reminder e-mails and voicemails to the former prior to their scheduled pick-up date. Possible reasons include the timing of the event (vacation period for many – “use it or lose it”), e-mail and visual saturation (desensitization to notices), or simple apathy (“I didn’t think I was supposed to do anything”- one building director – name withheld).

E-mail reminders			
Sector	Sent	Read*	% read*
SW	10	2	20.00%
SE	Data not available		
NE	15	6	40.00%
NW	23	5	21.74%

*Table. Proportion of e-mail reminders read *based on number of read receipts received [recipient has option to disable this feature]*

The idea of using T-shirts as means of promotion was also not as successful as planned. The T-shirts requested were entirely size “L” (large); however, organizers later found that they were too small for many of those for whom they were intended. Also, because of the cold weather the T-shirts could not be seen even if worn given that they were covered by jackets worn on top.

Other issues:

² DSC@LISTS.MCGILL.CA
³ ULSC@LISTS.MCGILL.CA
⁴ Allusers-Macdonald@campus.mcgill.ca

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Missing posters. Some porters were overly enthusiastic in removing posters from their buildings, to the extent that the poster would disappear between the time posted and the time the person posting turned to exit the building. Some were even taken and re-posted as decoration (??) in some offices (!). This was mitigated by directives from M. Ducharme when this became apparent. Nonetheless, out of the thirty reusable posters printed for the event, only one was recuperated by the end, the others having gradually disappeared as the event proceeded.

Possible improvements for the future:

Sandwich boards advertising the event (instead of posters) in major entrance areas. [Sandwich boards to be supplied by Facilities Management, posters to be supplied by the environmental office]

Word of mouth advertising – seen to be most effective. Directly involve the building directors.

Procedural problems.

- Building occupants did not always put out their material for pickup 24 hours prior to the scheduled pick-up date. Some put out their material in the morning after the movers had passed by, resulting in them expecting pickup in the afternoon after the movers had long gone.
- It was thought that knocking on doors would elucidate more material for pick-up. However, many remained unprepared to immediately part with the material, if any.
- **E-waste.**
 - Many (11/38=29% of requests) submitted their requests after the stated deadline of April 22, 2005. The resultant crunch was extremely time-consuming, especially given the mail float that would be required if issuer/recipient were unable to make the exchange directly (drop off/pick up at predetermined location).
 - The stickers used for e-waste were labeled “Garbage/vidange”, thus were removed by cleaning staff or scavengers.

Possible improvements for the future:

Use automated system for generating stickers (online form).

It is anticipated that MOARDS will alleviate some of the load for the future by allowing the redistribution of assets within the McGill community.

The numbers:

1. **WEIGHT.** A total of 55.11 metric tones (MT) of materials were collected from both campuses, of which only 7.22 MT were landfilled⁵ and the remainder re-used or recycled (86.91% recuperated).

⁵ Matières non-triés

- Sample re-use: artisans (found art – e.g. Dawson student to make wall of PC towers with central wire unit), drafting tables from School of Architecture)

- Computer monitors sent to Noranda for materials recuperation vs. landfill. More than five hundred stickers were issued to users for a electronic waste, including used monitors, printers, peripherals (keyboards, mice, etc.) and some laboratory equipment (refrigerators, etc.)

[See *Rapport des opérations et des résultats du project : Clean and Green* by Kadisal Canada Inc. for full details]

2. **VOLUME.** The total volume collected was 977 m³. As of June 9, 2005, the amount of material remaining at the Eco-Centre would fill Environmental Health and Safety's conference room.

Visualize: one container of garbage out of approximately 35 containers' worth collected.

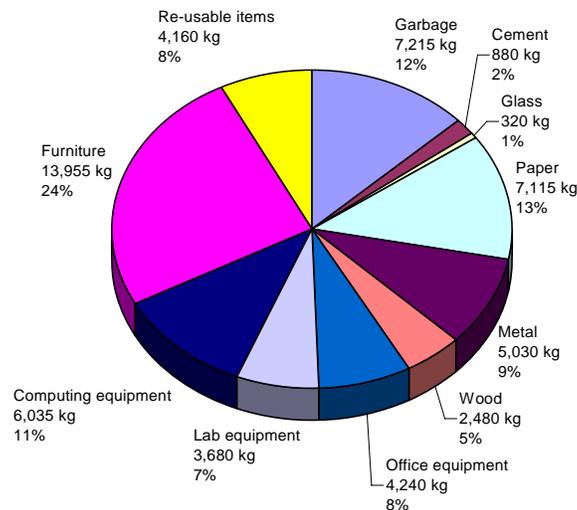
3. **LABOUR.** The project took 43 trips (8 of which there were no loads collected).

- The number of movers from Kenwood-Allied varied daily because coordinators were unable to properly assess the volume that would be picked. Total cost: approximately \$16,000 (taxes included)

- The Eco-Centre had five (5) employees working on the project, including two drivers (project specific) and 3 doing the sorting (as part of regular duties at the Eco-Centre).

[See *Rapport des opérations et des résultats du project : Clean and Green* by Kadisal Canada Inc. for full details]

Items collected during Clean and Green campaign June 2005 (in kg, %)



	2004	2005
	kg	kg
Ceiling panels	2	
Garbage		7,215 kg
Cement		880 kg
Glass		320 kg
Paper		7,115 kg
Metal	105	5,030 kg
Wood	40	2,480 kg
Office equipment	3	4,240 kg
Lab equipment		3,680 kg
Computing equipment	1,070	6,035 kg
Furniture	160	13,955 kg
Re-usable items	200	4,160 kg
	1,580	55,110 kg
	Cost (taxes incl.)	Cost (taxes incl.)
Advertising (Reporter)		1,290.00
T-shirts for movers		920.20
Moving		16,055.67
Eco-Centre	575.13	39,511.09
Printing (posters)		82.19
Printing (stickers)		72.23
	575.13	57,931.38
Cost/kg	0.36	1.05

Recommendations

Macdonald Campus

During the planning stages, no Facilities staff who would be working on site for the project were directly involved. As such, there were scheduling difficulties with the date originally selected due to convocation, the launch of the new Poultry Complex and the end of the budget year.

Labour requirements

One building services supervisor should be removed from regular duties to work on the project full-time as a logistics manager to supervise the work to ensure that operations run smoothly.

- Early in the project, movers from Allied-Kenwood were caught moving items for disposal by McGill but with potential monetary value (computing equipment, etc.) into their own truck instead of that of the Eco-Centre. This was stopped immediately when discovered, and a warning was given to the Allied-Kenwood supervisor.

- M. Ducharme will also speak to Gary [last name?], as some of the workers took time off the project to do regular jobs around campus, since the company was the official mover for the University. As such, the University should not be doubly charged for movers working on both projects.

To reduce costs in the future, the pick-ups would take place on a per-request basis: building occupants would be required to submit an inventory list for the material to be picked up, and the logistics manager would provide a scheduled pick-up date/time. By the foreknowledge, the amount of resources required (labour and freight) required would be better anticipated instead of guesstimating based on recent experience or building size. Moreover, building occupants preferred to be present when the movers came; however, the exact time of arrival could not be estimated if the pick-ups were conducted on an *ad hoc* basis.

Timing

Although M. Ducharme already informed many building directors that another cleanup was anticipated for the fall, the exact time would always be awkward for some given the staggered nature of work at the University – some stated that spring was better, others the fall. Therefore, it was proposed that the campaign take place over two weeks, with two sectors done per week. This would also allow for cost savings, since the movers and truckers would have work throughout the day rather than beginning pickups in the mornings and having no more material to pick up in the scheduled building by early afternoon. As aforementioned, those who have material must forward their inventory to project coordinators to arrange for a date and time of pick-up.

Promotion

There must be incentives for building directors to participate in the programme – their involvement would be key to ensuring that their building occupants are aware, on board and prepared when the Clean+Green team arrive for each pick-up. There was a visible difference in the amounts of material for pick-up in areas under building directors who were involved compared to those who were not.

Wine and Cheese? A luncheon has tentatively been scheduled on September 16 from 11:30-1:30 p.m. to present briefly about the Clean+Green campaign this past spring and the chemical clean-up upcoming. The support of senior administration is needed to ensure that building directors, deans/chairs and chairs of safety committees are similarly committed and involved so that things proceed smoothly (vs. apathy experienced during the spring cleanup).

Tentative agenda:

- Welcome – VPAF/VPR (5-10 minutes) [*VPR availability to be confirmed*]
- Presentation re. Clean+Green spring 2005: experiences and results
- Importance of hazardous materials clean-up - ULSC Chair [*availability to be confirmed*]
- A hazmat management leader - Dept. of Chemistry Chair [*availability to be confirmed*]
- Logistical details re. upcoming hazmat cleanup – Claude Lahaie, Waste Management/Pietro Gasparrini, Environmental Health and Safety

Building directors should be requested to submit their communication plans to their building occupants, and designate at least one contact person per building that would be available to work with the project coordinating team in preparation and for the actual pick-up. There could also be awards given to building directors with the best performance e.g. based on the readiness of the building for the clean-up. The amount recuperated could not be used as a

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measure of performance given that this does not fall within the control of the building director.

Direct communication to building occupants. Previously, University Relations apparently did not feel that it was necessary to send the notice regarding the event to the entire community (using ALNOTE or the voicemail system). However, from our experience this is the only way to ensure that all members of the McGill community on campus are aware of the campaign. In the upcoming chemical cleanup, this would be especially critical in the areas where those closest to logistical operations of laboratories (technicians) are aware of what needs to be done in preparation for the pick-up.

Keep it simple. Although complete instructions were already provided to the community, it would be useful to compact the information into an easier-to-read format, such as a flowchart. From this spring's experience, it does not appear that people take the time to read carefully. Directions should be included on how to properly delete hard drives; alternatively, McGill could offer secure hard-drive shredding services prior to the event.

MOARDs will alleviate some of the load once launched.

Appendices:

Letter from VPAF to community

Web page – notice to McGill community

Contact list persons per building ← Anthony

E-waste inventory list

Breakdown of materials collected – downtown campus (by sector)

End use of material collected ← Anthony

Rapport des opérations et des résultats du projet : Clean and Green by Kadisal Canada Inc.

