



Garvan St Vincent's Campus Cancer Centre

AA002485

GSVCCC Waste Management Plan

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GSVCCC Waste Management Plan

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Appendix A

Dangerous Goods Waste Management Plan (as submitted with 2005 WMP)

1 Introduction

Hyder Consulting have been commissioned to prepare a Waste Management Plan (WMP) to be submitted to the Department of Planning with the Development Application for Garvan St. Vincent's Campus Cancer Centre (GSVCCC), a cancer research and treatment building on a site within the St Vincent's Hospital campus.

The vision of the Garvan St Vincent's Campus Cancer Centre is to "To realise the promise of personalised medicine for cancer patients by creating a world-renowned facility where research findings are moved quickly into clinical care and clinical challenges drive laboratory research."

This WMP has been prepared in accordance with the Council of the City of Sydney's Policy for Waste Minimisation in new Developments¹ and describes the operational phase of the GSVCCC, which in a broader context supports the Department of Environment and Conservation's NSW Waste Avoidance and Resource Recovery Strategy 2003 (recently superseded by the 2007 strategy²), a framework strategy for reducing waste and making better use of resources. Due to the GSVCCC being a medical research institution, all relevant waste management activities should also comply with Australian/ New Zealand Standard 3816:1998, *Management of Clinical and Related Wastes*.

The purpose of the WMP is to ensure an efficient management of solid waste and recyclable material, thereby minimising waste and increasing the potential for recycling through source separation without compromising public health and safety.

Where possible the GSVCCC waste management plan draws from the principles of Ecologically Sustainable Development (ESD). However the packaging of some materials expected to be used within the GSVCCC is often dominated by health and safety issues. It is therefore likely that packaging waste (such as cardboard and polystyrene foam) may be higher at the GSVCCC than packaging waste from less specialist buildings (such as offices or residential complexes).

2 The Proposed Development

The proposed development is stage 3 of the St Vincent's Research precinct on land owned by the Trustees of St Vincent's. The precinct is being developed to form a world class Research Precinct with facilities that will provide first class infrastructure and technology; cultivate employment opportunities; attract world-class research / medical personnel; as well as foster interaction and communication between researchers.

The GSVCCC building will include approximately 5 levels of basement parking and 11 above ground levels in total. This WMP has been prepared based on the projected waste output of the completed building when operating at full capacity.

GSVCCC will be located to the northern end of the precinct occupying the Victoria Street Frontage between the Garvan Institute, Green Park Hotel and Chaplin Lane. Although the majority of the building will be occupied by research and clinical areas and facilities, small scale commercial, retail and/or medical suites operations are envisaged on the Victoria Street level, level 4.

The GSVCCC will be joined to the Victor Chang (VCCRI, also known as the Lowy Packer Building) and Garvan Institute Buildings on level 3. Although general waste, paper & cardboard generated in GSVCCC will be disposed of via the existing compactors and mobile garbage bins (MGBs) will be removed through the existing loading dock, overall waste management at the

existing buildings will not be directly affected as separate waste storage facilities have been provided for in GSVCCC. Therefore this document does not address waste management in the VCCRI or Garvan Institute buildings.

3 Waste management activities

3.1 Overview of Waste Management Activities

Several different waste streams will be generated through the various activities to take place within the GSVCCC. Generally these will be disposed of at or near the point of generation and collected by cleaners to be transferred to level 3. Depending on the waste type, waste may also be transferred directly to level 3 by the relevant members of staff.

The majority of waste management activities within the GSVCCC, i.e. waste storage and removal, delivery of new waste receptacles and bin washing, will take place on Level 3 in an area referred to in this report as the Waste Storage and Transit Area (WSTA). GSVCCC waste management will be fully integrated with the waste management system of Garvan Institute and VCCRI. Therefore parts of the existing WSTA, namely waste compactors, the autoclave, bulk/pallet storage, the loading dock and access routes, will be utilised for management of GSVCCC waste. However GSVCCC will have a separate waste collection system and the commingled and contaminated waste generated will be accommodated in a dedicated waste storage room within level 3 of the GSVCCC. For operational purposes and for the purposes of this report this storage room should be treated as an integral part of a unified WSTA.

3.2 Waste streams

The research activities within the GSVCCC are expected to be similar to those within the VCCRI and Garvan Institute Buildings and it is therefore considered that the GSVCCC will generate almost the same streams of solid waste. For the purpose of clarity in this report, waste streams are classified into two groups as described below. Given the small scale of the commercial activities and space constraints, it is envisaged that all waste generated by tenants will be managed through the WSTA. The following tables provide an indication of the types of waste that can potentially be generated by these commercial activities.

Due to the potential hazardous nature of a number of the expected waste streams waste, segregation should be maintained at all times. However, if waste is mixed or loses identification at any stage of the waste management process it shall be treated as if it has the highest level of contamination.

Main Waste Streams

Main waste streams is that waste expected to be generated in the GSVCCC on a frequent basis, and stored in and collected from the WSTA. Receptacles for each anticipated waste stream will be colour coded and display appropriate signage, as indicated in Table 1.

Waste Stream	Bin Colour Code	Storage / removal point	Non commercial area	Commercial area
Recyclable Paper	Blue bin with blue lid	WSTA (compactor)	Yes	Yes
Recyclable Cardboard	N/A	WSTA (compactor)	Yes	Yes
Co-mingled Recyclables (i.e. drinks containers: glass and plastic bottles, cans, liquid paperboard)	Red	WSTA	Yes	Yes
Contaminated Waste	Yellow bin with yellow liner and yellow lid	WSTA (GSVCCC storage room)	Yes	Yes (medical suites)
Cytotoxic Waste	Purple bin with purple liner and purple lid	WSTA (GSVCCC storage room)	Yes	Not expected
Waste Tissue and Blood Samples	Yellow bin	Autoclaved as required	Yes	Potentially (medical suites)
General Waste	Grey	WSTA (compactor)	Yes	Yes
Confidential paper for destruction	N/A	By contractor- from point of generation	Yes	Potentially

Table 1: Main waste streams anticipated at the GSVCCC building.

Additional Waste Streams

Additional waste streams as shown in Table 2 are wastes expected to be generated on an adhoc basis or wastes which are dealt with under specialist arrangements, e.g. feminine hygiene waste specialists. These wastes may or may not be generated and may or may not be stored in the WSTA depending on particular research projects and type of waste. The existing pallet storage area in the WSTA, included as an additional waste stream for completeness of the waste management plan, can be utilised for storing pallets arising from GSVCCC operations.

Waste Stream	Bin Colour Code	Storage / removal point	Non commercial area	Commercial area
Polystyrene foam packaging	N/A	WSTA (paper compactor)	Periodically	Periodically
Ad hoc waste (eg office refit waste)	N/A	WSTA	Periodically	Periodically
Sharps	Yellow sharps bins	To be arranged with specialist sharps waste contractor	Yes	Yes (medical suites)
Feminine Hygiene waste	N/A	To be arranged with specialist feminine hygiene waste disposal service.	Yes	Yes
Photocopier toner cartridges	N/A	As required (recycle)	Yes	Yes
Dry cell batteries	N/A	As required (recycle)	Yes	Minimal
Empty chemical bottles	N/A	As required	Yes	Potentially
Low level radioactive waste	N/A	Stored in a dedicated bin in radiation store for required period	Potentially	No
Other Hazardous Materials	Disposal and onsite storage to be determined on a per material basis. Appropriately licensed contractors to be employed for the disposal of hazardous waste.		Potentially	Potentially, small quantities (e.g. dentistry amalgams)

Table 2: Additional waste streams that may be generated during the operations of GSVCCC.

3.3 Waste Flows

This section describes the flow of each waste stream within the GSVCCC. Procedures describing how the waste is stored and removed from the WSTA will be addressed in the following section. For each waste stream this section details:

- where and how the waste is produced and initially disposed of
- where and how it is temporarily stored before transferral to the WSTA
- transferral, by either designated lab staff or cleaning staff, to the WSTA.

Several waste and recycling stations will be located throughout the complex. These are generally located on each office floor in kitchen areas and next to printers/photocopiers.

It is recommended that all retail and commercial tenants assume responsibilities for source separation of waste and that each tenant be responsible for temporary in-house storage of all waste and recyclables. It is envisaged that staff from the retail tenancies or the caretaker transport the various waste streams to the appropriate area of the WSTA at the end of the day, or more often when required. Although a number of the processes described below will also apply to commercial and retail tenants, specific waste management details for these areas depend on lease requirements. Nevertheless all arrangements will have to comply with GSVCCC standards and procedures.

All waste and recyclables should be stored in appropriate receptacles situated on each floor. Exact space allocation for MGBs on each floor cannot be specified prior to floor layout finalisation. It is recommended that office employees be educated on simple waste management issues and broadly introduced to the building's waste management plan in order to achieve high participation levels in recycling and promote waste minimisation. Cleaners and/or the waste caretaker(s) are expected to be responsible for transporting waste to the appropriate area of the WSTA, for example residual waste to the compactor and recyclables to the garbage storage room.

Recyclable Paper

Rather than having individual recyclable paper bins, staff will be encouraged to store recyclable paper in a container at their desks and to transfer it when full, to one of several recyclable paper bins. These will be placed at various locations on each floor, particularly in office / admin and write up areas, and will be either 240 litre mobile bins placed in central locations or 80 litre bins placed in areas with common photocopiers, fax machines and printers. There will also be a 240 litre paper recycling bin in the mail room.

Cleaners will transfer recyclable paper from the shared 80 litre bins into the 240 litre bins located on each floor, but will not remove recyclable paper from individual desks. When full or daily (depending on specific arrangements), cleaners will transfer the 240 litre bins to the paper and cardboard compactor within the Waste Storage and Transfer Area and replace the bins when emptied.

Confidential paper for destruction

Receptacles for confidential paper for destruction may be made available, depending on what requirements which may arise once the GSVCCC is operational. Should this be the case, a 240 litre recyclable paper bin from each floor will be replaced with a lockable bin designated for confidential paper.

Should confidential paper be collected, a specialist contractor will be engaged to remove all confidential document bins and replace them with empty ones. Collection frequency will be arranged with contractor depending on generated quantities. Confidential paper bins will only be transferred for removal / destruction by authorised personnel.

Cardboard

Most cardboard waste will be generated in the stores from where it will be taken directly to the paper and cardboard compactor on level 3.

Staff will flatten and cardboard boxes and place in a convenient location to be transferred by cleaners on trolleys via a lift to the paper and cardboard compactor.

Co-mingled Recyclables (recyclable drinks containers)

Red 120 litre bins for co-mingled recyclables will be available in amenity areas. In addition, 30 litre bins for co-mingle recyclables will be placed in conference/meeting rooms.

Any recyclable containers used for laboratory purposes which are not contaminated and are safe from infection will be placed in a 120 litre co-mingled recyclable bin in an amenity area.

Cleaning staff will decant smaller co-mingled recyclables bins into the 120 litre mobile bins and transfer via the lifts to the WSTA and replace the bins when emptied.

General Waste

Typically, employees will not have General waste bins at their desks (with the exception of reception staff, offices occupied by 1 staff member etc). Instead shared bins for General waste will be made available as following:

- 60 litre bins will be placed centrally to approximately every 10 employees
- 30 litre bins will be located in each shared photocopy area
- 60 litre bins will be placed adjacent to each sink
- 30 litre bins will be positioned in conference/meeting rooms
- 60 litre bins will be placed within each amenity area for General waste. Separate provision will be made for feminine hygiene waste
- 60 litre bins will be located by the lifts on the car park floors as appropriate
- In addition 240 litre General bins will be made available in selected locations such as the plant room and stores room.

Cleaners will decant General waste from each bin on a daily basis to a 240 litre mobile bin for transferral to the compactor. These bins will be stored in cleaners' rooms and not left out on floors for general use. Cleaners will be responsible for washing these bins and ensuring they are clearly labelled.

Contaminated Waste

Bins for contaminated waste will be placed either under lab benches if required or shared 120 or 240 litre bins located in laboratories. Lab staff will leave contaminated waste bins in a designated area outside the laboratories for removal by cleaning staff who will transfer them via the lift to the WSTA. Cleaning staff will replace with empty bins.

Human Tissue and Blood Samples

Blood samples plus any small amount of other tissues will be dealt in accordance with:

- Protection of the Environment Operations Act 1997 No 156
- Protection of the Environment Operations Amendment Act 2005
- Waste Avoidance and Resource Recovery Act 2001 No 58
- Waste Recycling and Processing Corporation Act 2001 No 59
- AS/NZS 3816:1998 Management of clinical and related wastes

- AS/NZS 4031 1992 Non reusable containers for the collection of sharp medical items used in health care areas.

Waste consisting of Physical Containment level 2 (PC2) biological samples including blood samples will be autoclaved (existing autoclave) at 121 degrees for 60 minutes and 15 minutes dry time. It will then either join the domestic waste stream or the clinical waste stream for incineration. All other biological waste should enter the same stream as 'contaminated waste' and be incinerated when it leaves the site.

Occasionally tissue samples may be preserved as follows before treatment

- In fridges at 4 degrees Celcius
- In freezers at -20 degrees Celcius
- Liquid nitrogen vessel
- In formaldehyde or other preservative solutions

Cytotoxic Waste

Relatively small levels of cytotoxic waste will be generated within the GSVCCC, however it will be taken directly by laboratory staff to the WSTA.

Additional non laboratory waste

The following waste streams (with the exemption of feminine hygiene waste) are expected to arise in only small quantities therefore they can be accommodated in the existing WSTA facilities. If required, a higher frequency of collection should be arranged.

Reusable pallets will be stored on level 3, to be returned to suppliers along with pallets from the existing buildings.

Packaging polystyrene will be fed into the paper/cardboard compactor and sorted at the waste management contractor's depot as currently arranged.

Large quantities of ad hoc waste may arise during refitting. Arrangements will be made to accommodate this waste when required.

Toner cartridges will be retained in a suitable cupboard and returned to the supplier once sufficient quantities have accumulated. It is suggested that toner cartridges from GSVCCC be stored in the same cupboard as those from the Garvan and VCCRI.

A drum of appropriate size will be provided in a convenient location for the storage of dry cell batteries. Alternatively, the container currently used by the Garvan and VCCRI will also be utilised by GSVCCC staff. This will be removed by a nominated waste contractor every 3-6 months when full.

Feminine hygiene waste will be dealt with by a designated specialist contractor. Spare sanitary disposal containers will be kept on level 3 for use should requirements arise.

Additional laboratory waste

Small quantities of sharps waste generated in some of the labs or medical suites will be disposed of by the relevant staff members to 1 litre designated sharps bins located within the surgery or laboratory. These will be collected directly from the laboratory by a specialist contractor and replaced with empty ones.

Small quantities of low level radio active waste might be generated depending on the exact nature of research work. This will be retained in the existing radiation store for the required length of time to be considered stable and will then be added to the Contaminated waste stream. At this point it will be transferred to the Contaminated waste bin storage area in the WSTA. Any waste with higher levels of radioactivity/long half lives will be dealt with by specialised contractors.

Unused / expired chemicals will be disposed of using separate arrangements relating to approved chemical waste pathways to be determined once the facility is operational.

Very occasionally the GSVCCC may generate dangerous wastes that are not included within this WMP. To address these extraordinary circumstances, a separate Dangerous Goods WMP was submitted with the original WMP for St Vincent's Research and Biotechnology Precinct in Darlinghurst. It has not been revised as part of this WMP but for completeness the original is included as Appendix A to this report.

3.4 Waste Quantities

Main waste streams will require storage in the WSTA. It is therefore important to establish the expected waste quantities to calculate the storage requirements.

Additional waste streams are dealt with by contractors who will enter the GSVCCC building to collect waste from the relevant areas identified in Table 2. Expected quantities are presented for these wastes but are not essential for determining storage capacity. Hyder has been instructed that 400-500 m² of the GSVCCC will be allocated for commercial use. Potential tenants may include a café/bistro, pharmacy, GPs and dentists. To ensure that the waste facilities will be adequate irrespective of type of tenants, Hyder has pursued a "worst case scenario", from a waste generation perspective: 1300m² are sublet commercially with cafés occupying 400m² while the remaining 900m² are occupied by 10 GP clinics.

Main waste streams

The quantities of each main waste stream expected to be generated by the GSVCCC are summarised in Table 3 below. These quantities are based on:

- Advice on expected GSVCCC waste generation rates by the Garvan Institute's operations manager based on waste generated at Garvan Institute.
- The current waste generation data for the Garvan Institute and VCCRI.
- Numbers of permanent staff at the Garvan Institute and VCCRI and the maximum number expected in the GSVCCC.
- Discussions with the Garvan Institute's operational manager and the developer.
- Published waste generation rates for commercial, office and retail (City of Sydney's Policy for Waste Minimisation in New Development).
- Waste generation rates from GP clinics*.

* Trevor Thornton, Deakin University. Personal communication.

Waste type	Removal frequency	Daily waste generation (L)			No. of waste receptacles required
		GSVCCC	Tenants	Total	
Paper and Cardboard	3 times per month [†] or as required	540	320	860	15m ³ compactor
Co-mingled Recyclables	Weekly	140	75	215	7 x 240L bins
Contaminated Wastes (including clinical, sharps [‡] and cytotoxic [§] waste)	Daily	1800	35	1835	8 x 240L bins
General Waste	3 times per month [†] or as required	540	1050	1590	15m ³ compactor
Confidential paper for destruction	Removal frequency will depend on contractual arrangements. Increased quantities will be accommodated via increased collection frequency				MGBs, as required

Table 3 Expected generation of main waste streams in litres per day.

Additional Wastes

The quantities of the additional wastes as shown in Table 4 are indicative only as they generally arise on an ad hoc basis. These quantities were derived through discussions with the stakeholders.

Waste type	Removal frequency	Type of waste receptacles	Quantity
Polystyrene foam packaging	3 times per month [†] or as required	Paper/cardboard compactor	up to 10m ³ per month
Returned chemicals and / or bottles	Monthly	Stores room/ Bulk store	0.5 tonnes
Feminine Hygiene waste	Fortnightly	Special bins in amenity facilities. Collected by specialist contractor	1 bin in each female WC
Low level radioactive waste	Monthly	30 L bin in radiation store	Minimal
Ad hoc waste	As required	Additional skips/ containers/ bulk store	As required
Photocopier toner cartridges	6 month	Retained in suitable cupboard for return to supplier	1.5 m ³

Table 4: Indicative generation of additional waste streams.

[†] Collection frequency is based on combined waste generation of GSVCCC and existing buildings

[‡] Collected by specialist contractor

[§] Although cytotoxic waste is generated as a separate waste stream, under current arrangements it is stored and collected by the same contractor and it is assumed the same will occur in the GSVCCC. For these reasons it is included within the waste generation calculations as contaminated waste.

3.5 Waste Storage and Transfer Area

This section describes additional storage requirements to complement the existing WSTA and the way in which each waste stream is handled, stored and collected.

Access to the WSTA should be restricted to designated cleaning and loading dock staff and to Lab staff designated to perform decontamination/autoclave procedures

3.5.1 Storage Requirements

In addition to waste from the GSVCCC, the WSTA must also accommodate Garvan Institute and VCCRI waste for storage and removal. The total estimated storage requirements for each main waste stream are presented in Table 5 below.

Waste type	Removal frequency	Daily waste generation (L)			Storage space incorporated into WSTA design
		Garvan & VCCRI	GSVCCC	Total	
Paper and Cardboard	3-4 times per month	1100	860	1960	15m ³ compactor
Co-mingled Recyclables	Weekly	275	215	490	15 x 240L bins
Contaminated Wastes	Daily	3600	1835	5435	23 x 240L bins
General Waste	3-4 times per month	1100	1590	2690	15m ³ compactor
Chemicals (incl containers)	Monthly	Variable			Stores room
Large/Bulky waste	Twice per month	Ad hoc. deal with as generated			Truck/skip at dock
Animal Waste	3 times a week	1410	Negligible	1410	5 x 660L bins
Confidential paper for destruction	As required	Variable			Stored in MGBs at point of generation

Table 5: Projected daily waste generation from all three buildings and cumulative storage requirements in the WSTA for each main waste stream.

As described in section 3.1, GSVCCC waste management will be fully integrated in to the existing waste management system. The existing compactors are large enough to accommodate the extra waste and can always be collected more frequently if there is a need. However, extra waste storage is required for commingled and contaminated waste mobile bins. The design of the GSVCC includes a number of waste rooms on level 3 in close proximity to the existing WSTA that accommodates this need. As evident on architectural drawing ARC-DA-D-03, issue A, dated 27.03.09, the building design ensures that GSVCC waste storage rooms (commingled and contaminated waste room, bulk storage, cryo store, freezer rooms) are positioned in a way that facilitates integration with the current waste management facilities.

3.5.2 Waste stored in the existing WSTA

General Waste

General waste will be brought by cleaning staff in 240 litre mobile bins to the existing 15m³ compactor. The compactor should be operated by trained cleaning staff only and includes an emptying device for mobile bins. Collection is by rear loading vehicle.

Paper and Cardboard

Recyclable paper will be brought by cleaning staff in 240 litre mobile bins to the existing 15m³ compactor. Cleaning staff will use trolleys to transfer cardboard from storage areas on each floor to WSTA compactor. The compactor should be operated by trained cleaning staff only and includes an emptying device for mobile bins. Collection is by rear loading vehicle.

Confidential paper for destruction

Arrangements for the destruction of confidential paper will be finalised once the GSVCCC is operational and the requirements for such a service become apparent. Should requirements dictate, it is anticipated that waste will be removed in locked 240 litre mobile bins by a specialist destruction contractor.

Animal waste

Minimal to no animal waste is expected to be generated in GSVCCC. The animal waste bin storage area has capacity for five 660 L bins. This is sufficient to accommodate the quantities of waste expected to be generated in GSVCCC. At any one time, one bin is attached to the vacuum system and rotated for storage when full.

GSVCC animal waste (contained in plastic sacks) will be transferred to the animal bins in the VCCRI.

Additional waste to be kept in the WSTA

Reusable pallets will be stored in a specific storage area for removal.

Where ad hoc waste such as office furniture needs to be removed, additional skips can be stored in a cordoned off section of the loading dock.

3.5.3 GSVCCC waste storage room

A designated waste room is situated in the space labelled "COMINGLED & CONTAM WASTE" on architectural drawing ARC-DA-D-03, issue A, dated 27.03.09. Waste segregation should be maintained at all times. It is therefore advised, as a minimum precaution, that waste storage areas be kept separate or at least segregated by means of a barrier. Appropriate room signage and bin labelling should be maintained at all times.

Commingled Recyclables

Cleaners will transfer full mobile commingled waste bins to the commingled recyclables room. As a minimum this storage room should be 10m² to accommodate the expected recycling bins and allow for some growth in waste generation. At 10m² this garbage room will easily store the expected seven 240L bins to be produced a week and can be used for extra bin storage or in emergencies.

Cleaning staff will also wheel the bins to the loading dock for removal.

Contaminated Waste

The Contaminated waste bin storage area is located alongside the commingled storage area described above. A 15m² room can easily accommodate the eight 240L bins expected daily. Cleaning staff will transfer full contaminated waste bins to the storage room.

The contaminated waste storage area may store treated or untreated contaminated waste. When required (PC2 waste) lab staff will treat the waste prior to removal where necessary through autoclaving in the room adjacent to the VCCRI contaminated waste store.

The treated contaminated waste and cytotoxic waste bins will be transferred by cleaning staff to the loading dock for removal.

3.6 Removal of waste from the WSTA

The Stores & Dock Manager will be responsible for coordinating and optimising dock movements including waste in consultation with the Precinct Management Committee.

All waste should be transferred to the loading dock for removal. Waste removal vehicles can access the loading dock from West Street. There is ample space for vehicles manipulating compactors to reverse to the loading dock and access the compactors. The reversing area should be kept clear to accommodate waste collection.

Commingled Recyclables and animal waste containers should be emptied directly into the respective vehicle and returned to storage areas in the WSTA. Contaminated and cytotoxic waste bins should be loaded on to the vehicle and replaced with empty ones.

3.7 Hygiene and Health Considerations.

All of WSTA

The WSTA is secure as it is inside the building. Vermin control should be carried out on level 3 on a regular basis. Planned storage rooms should be positioned to ensure level paths between them and the loading dock. People working with waste on level 3 should have access to the bathroom on that level.

Compactor Area

The floor drain in the area where the compactors are stored should drain to trade waste. A high pressure hose and hot and cold water outlets should be located in the compactor area to ensure it can be cleaned and to enable bin cleaning.

Bin Storage Rooms

Garbage storage rooms in the GSVCCC part of the WSTA should be ventilated and constructed of concrete. The floors should drain towards the corridor. The walls and ceilings should be impervious and painted light grey. The waste storage rooms and the corridors leading to them should be well lit. Fire extinguishing equipment should be installed in the GSVCCC part of the WSTA.

Waste storage rooms should have doors or roller doors and be lockable and it should be possible to open them from inside without the use of a key. Each of the rooms should be fitted with an audible alarm that can be operated from within as well as having smoke detectors in each room.

4 General waste management recommendations

This section presents recommendations in terms of waste minimisation, and training, and adherence to the Sydney Council's waste handling guide.

4.1 Adherence to the Waste Minimisation Policy

The purpose of the City's *Policy for Waste Minimisation in New Developments 2005* is to encourage waste minimisation and resource recovery and, in addition, to facilitate efficient and safe waste and recycling collection from all premises in the Sydney Local Government Area.

All commercial premises are to be provided with a garbage/recycling storage area for all waste generated from the premises. To avoid subsequent alteration of plans these requirements should form part of the overall design for the new building. Basic requirements for waste facilities are:

- Adequate size
- Integration with building design and site landscaping
- Suitable screening from public areas
- Appropriate access for collection
- Ensuring OH&S requirements for waste contractors are met

For detailed information on construction, ventilation, water supply and lighting of waste storage rooms, refer to the *Policy for Waste Minimisation in New Developments*.

4.2 Education Programme

In order to maximise recycling opportunities, an education programme and on-going monitoring should be implemented for training staff and tenants to correctly sort and transport waste into the right components and destinations. Appropriate disposal is particularly critical where contaminated or hazardous waste is involved, therefore all laboratory and clinical staff need to be thoroughly trained on appropriate disposal procedures.

4.2.1 Standard Recycling Signs and Bins

Appropriate signage is essential to assist staff and patrons with recycling. The Department of Environment and Climate Change provides signage for waste and recycling collection systems and bins and promoting recycling facilities at events, workplaces and home as per Figure 1 below while AS 1319:1994 provides the marking system presented in Figure 2.



Figure 1: Standard recycling signs (Source: NSW DECC)

Waste category	Colour code for container	Marking	Sign	Transport labelling in accordance with AS 1216
Clinical	Yellow	Black biological hazard		Class 6.2, if appropriate
Cytotoxic	Purple	White telophase		(Not specified)
Radioactive	Red	Black ionizing radiation		Class 7
All other wastes	(Not specified)	(Not specified)	As specified by relevant regulations	(Not specified)

Figure 2: Identification of hazardous waste containers (Source: AS 1319:1994).

4.3 Waste caretaker

The employment of at least one full time caretaker is recommended to manage the waste management system of the GSVCCC and the adjoining institutes. Alternatively, the current *Stores & Dock Manager* could perform a number of the following tasks and assign the rest to suitable personnel. Caretaker duties would include:

- Cleaning and maintenance of the level 3 WSTA (including bin lifter cage and the area around the compactor).
- Ensuring recyclables are separated efficiently by staff and tenants.
- Supervising waste disposal by tenant employees using the central waste management facilities.
- Managing and organising mobile bins in the garbage rooms.
- Coordinating and organising for compactor and recyclables collection by waste management contractor.
- Transporting mobile bins from the garbage rooms to the loading dock for collection.
- Compactor operation as required.
- Arranging for maintenance of compactor as/if required.

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www.cityofsydney.nsw.gov.au/Development/documents/PlansAndPolicies/Policies/WasteCodeForNewDevelopments.pdf

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Appendix A

Dangerous Goods Waste Management Plan (as submitted with 2005 WMP)

***PROPOSED DEVELOPMENT:
St Vincent's Research and Biotechnology Precinct Darlinghurst***

Prepared by: Bill Callan, Premier Engineering Services Pty Ltd

Client: CGP Management Pty Ltd

Purpose: For submission to Sydney City Council with DA

Date: May 2005

11. DANGEROUS GOODS WASTES

Waste storage and disposal of dangerous goods are covered in the relevant Australian Standard for each class.

In summary, these requirements cover the following topics:

- Dangerous Goods waste must be stored and handled in accordance with the relevant Standard.
- The same requirements apply to contaminated materials; for example, solvent soaked rags must be treated as flammable.
- The Standards specify requirements for waste containers, labelling and pre-disposal treatment of empty containers.

Note: Storage and Handling of Class 6.2 Infectious Substances and Class 7 Radioactive Substances are covered by Department of Health and EPA regulations respectively.

11.1 Disposal

Disposal and transport of wastes are covered by EPA Regulations. These are set out in the EPA publication “Environmental Guidelines: Assessment, Classification and Management of Liquid and Non-Liquid Wastes”.

11.2 DG Waste Management in this Project

All wastes will be handled according to the relevant Standard. In general, waste volumes will be quite small, with Class 3 flammables being the only materials requiring regular storage and disposal. All Class 3 Flammable Liquids Cabinets have been sized to take into account the need for waste storage.

Class 6.1 Toxics and Class 8 Corrosives will require intermittent disposal of very small quantities. Again, these will be handled according to the Standards.

It is unlikely that any wastes will be generated for Classes 4, 5 or 9, but the disposal system to be implemented will have the capability to deal with these if required.

Class 6.2 Infectious Substances are covered in the BGI Waste Management Plan. Waste biological materials will be handled and disposed of in accordance with the “Guidelines for Certification of Facilities / Physical Containment Requirements”, issued by the Office of the Gene Technology Regulator, Commonwealth Department of Health and Aged Care.

Class 7 Radioactive wastes are all of relatively short half-life. They will therefore be disposed of by degradation in the dedicated Class 7 storage areas. Wastes will be monitored until radiation levels are reduced almost to ambient, then logged and disposed of as non-dangerous. Class 7 disposal will meet the requirements of the EPA’s Radiation Control criteria.

Some used X-ray Developer solutions will be sent to an authorised contractor for silver recovery.

Transport and disposal of all dangerous goods wastes will be carried out by EPA authorised contractors.

It should be noted that the Garvan Institute has well developed waste management systems in place for all of the Classes of dangerous goods contemplated for the new development.