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Going Further in Managing Risk

Level 2 / 11-17 Khartoum Road
North Ryde NSW 2113
Australia

HAZARDOUS CHEMICAL REGISTER AND RISK ASSESSMENT

May 2019
J160529-02

Mirvac Retail
Greenwood Plaza / 103 Miller Street, North Sydney NSW

C107721: NB

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Hazardous Chemicals Register and Risk Assessment

Mirvac Retail

Greenwood Plaza / 103 Miller Street, North Sydney NSW

EXECUTIVE SUMMARY

Purpose

This report presents the findings of a hazardous chemical risk assessment conducted at Greenwood Plaza / 103 Miller Street, North Sydney NSW. The assessment was undertaken to develop a Hazardous Chemical Register and assess risks associated with the storage and handling of chemicals on site. Nick Blyth (Senior Consultant) of Greencap carried out the assessment on Monday 29th April 2019 at the request of Trent Middleton (Senior Facility Manager) of Mirvac Retail.

Scope

The Hazardous Chemicals Register and Risk Assessment were undertaken within base building areas. This included the following:

- Preparation of a register of chemicals stored on site;
- Identification of hazards associated with the chemicals;
- Identification of hazards associated with storage and handling;
- Assessment of risk based on site inspection and review of documentation; and
- Preparation of a risk assessment with prioritised recommendations for action.

Findings

The following potential hazards were identified on site that were evaluated as **high risk.**

- Level 7, Cooling Tower Plant Room – Incompatible hazardous chemicals, (e.g. Class 5.1 Oxidising and Class 8 Corrosive) were stored without adequate chemical separation.
- Level 7, Cooling Tower Plant Room – Delayed first aid/emergency response due to lack of emergency eyewash/shower facilities.
- Throughout, Various Storage Locations – Delayed first aid/ emergency response due to poorly maintained or no first aid equipment (e.g. out of date items within First Aid Kit).

The following potential hazards were identified on site and were evaluated as **medium risk**:

- Level B3, Plant Room 3.10 & Level B5, Cleaners Room – Gas cylinders were found to be stored without appropriate impact protection and not chained in an upright position.
- Throughout, Various Storage Locations – Inappropriate use of chemical due to inadequately labelled chemical containers or damaged labels to chemical containers.
- Throughout, Various Storage Locations – Chemicals not stored within secondary containment, not provided with adequate spill containment or containment observed to be damaged.
- Level B5, Cleaners Room – Injury to personnel and the environment due to inadequate provisions to contain and manage spills.
- Throughout, All Storage Locations – Injury to personnel due to delayed response to chemical hazards from out of date/missing Safety Data Sheets (SDS).

Detailed potential hazards and the subsequent potential consequences of the hazard are provided in **Appendix B**, and are illustrated by the photographs in **Appendix C**.

Recommendations

The following recommendtions are made based on **high risk.**

- Level 7, Cooling Tower Plant Room – Where stated in the chemicals SDS, incompatible chemicals (Class 5.1 and Class 8) are to be kept apart by a minimum of three (3) metres in accordance with *AS/NZS 3833:2007 The storage and handling of mixed classes of dangerous goods in packages and intermediate bulk containers and WHS Regulation (NSW) 2017, Clause 356.*
- Level 7, Cooling Tower Plant Room – Consider installing an emergency eyewash/shower facility connected to the building water supply adjacent the chemical storage area. Emergency eyewash/shower is to be installed in accordance with *AS4775:2007 Emergency eyewash and shower equipment.*
- Throughout, All Storage Locations – Replace expired first aid equipment and consider conducting regular inspection of First Aid kits and supplier to ensure they are adequately stocked and all items are within date in accordance with *WHS Regulation (NSW) 2017, Clause 42.*

The following recommendations are made based on **medium risk**:

- Level B3, Plant Room 3.10 & Level B5, Cleaners Room – Review gas cylinder storage on site. Ensure that gas cylinders are stored in an upright position, chained and afforded appropriate impact protection.
- Throughout, Various Storage Locations – All containers that hold a hazardous chemical, including containers in which substances are decanted, must be appropriately labelled in accordance with the *WHS Regulation 2017 (NSW), Clauses 341 and 342.* As a minimum labels should clearly identify the substance and provide basic health and safety information about the substance, including any relevant risk phrases and safety phrases. Alternatively, dispose of unlabelled chemicals.
- Throughout, Various Storage Locations – Provide adequate spill containment (e.g. secondary containment) for all chemicals stored on site in accordance with *WHS Regulation (NSW) 2017, Clause 357.*
- Level B5, Cleaners Room – Provide adequate spill containment provisions (e.g. spill kit) for all chemicals stored on site and ensure the spill kit is suitably stocked at all times in accordance with *WHS Regulation (NSW) 2017, Clause 357.*
- Throughout, All Storage Locations – Obtain current (i.e. within 5 years from date of issue) SDS for all hazardous chemicals on site. Ensure copies of the relevant SDS are placed at the point of use/storage of hazardous chemicals to ensure that they are 'readily accessible' in accordance with *WHS Regulation 2017 (NSW), Clause 344.*

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Table of Contents

1. Introduction

This report presents the findings of a hazardous chemical risk assessment conducted at Greenwood Plaza / 103 Miller Street, North Sydney NSW. The assessment was undertaken to develop a Hazardous Chemical Register and assess risks associated with the storage and handling of chemicals on site. Nick Blyth (Senior Consultant) of Greencap carried out the assessment on Monday 29th April 2019 at the request of Trent Middleton (Senior Facility Manager) of Mirvac Retail.

2. Scope

The Hazardous Chemicals Register and Risk Assessment was undertaken within base building areas only. This included the following:

- Preparation of a register of chemicals stored on site;
- Identification of hazards associated with the chemicals;
- Identification of hazards associated with storage and handling;
- Assessment of risk based on site inspection, review of documentation; and
- Preparation of a risk assessment with prioritised recommendations for action.

3. Methodology

3.1. Hazard Identification - Substances

Hazardous properties of each substance stored on site were collated from the Safety Data Sheet (SDS). Where the SDS was unavailable for a substance, generic hazardous properties for the class of hazardous chemical were used. For each hazardous property identified, an assessment was made to determine whether this hazardous property resulted in a hazard for the storage area.

Notable storage requirements are presented in the Hazardous Chemical Register in **Appendix A**.

3.2. Hazard Identification – Legislative Requirements

A visual inspection of hazardous chemicals on site was undertaken during the site inspection to determine the relevant legislative controls.

The site inspection included an assessment of the storage facilities for spill retention, emergency access/egress, fire-fighting equipment, Personal Protective Equipment (PPE), water supply and identification of incompatible storage substances and materials.

The findings of the site inspection were linked to the assessment of compliance with legislative requirements. Legislative documents used throughout the assessment included:

- *NSW Work Health and Safety (WHS) Act 2011 and Work Health and Safety (WHS) Regulation 2017, Chapter 7 – Hazardous Chemicals;*
- *Code of Practice – Managing Risks of Hazardous Chemicals in the Workplace (WorkCover NSW, 2014);*
- *Code of Practice – Labelling of Workplace Hazardous Chemicals (SafeWork NSW, 2016);*
- *AS1940:2017 – The storage and handling of flammable and combustible liquids;*
- *AS3780:2008 – The storage and handling of corrosive substances;*
- *AS4332:2004 – The storage and handling of gases in cylinders; and*
- *AS/NZS3833:2007 – The storage and handling of mixed classes of dangerous goods, in packages and intermediate bulk containers.*

Each legislative requirement was assessed for potential hazards associated with non-compliance. Where potential hazards were identified they were recorded in the Risk Register in **Appendix B**.

3.3. Risk Assessment

Hazards identified through the above process were assessed for the potential consequence(s) and in the likelihood that the hazard is realised. The risk assessment approach is detailed in **Appendix D** of this report.

3.4. Recommended Actions

The results of the risk assessment are tabulated in **Appendix B** of this report.

4. Summary of Findings

The following potential hazards were identified on site that were evaluated as **high risk.**

- Level 7, Cooling Tower Plant Room – Incompatible hazardous chemicals, (e.g. Class 5.1 Oxidising and Class 8 Corrosive) were stored without adequate chemical separation.
- Level 7, Cooling Tower Plant Room – Delayed first aid/emergency response due to lack of emergency eyewash/shower facilities.
- Throughout, Various Storage Locations – Delayed first aid/ emergency response due to poorly maintained or no first aid equipment (e.g. out of date items within First Aid Kit).

The following potential hazards were identified on site and were evaluated as **medium risk**:

- Level B3, Plant Room 3.10 & Level B5, Cleaners Room – Gas cylinders were found to be stored without appropriate impact protection and not chained in an upright position.
- Throughout, Various Storage Locations – Inappropriate use of chemical due to inadequately labelled chemical containers or damaged labels to chemical containers.
- Throughout, Various Storage Locations – Chemicals not stored within secondary containment, not provided with adequate spill containment or containment observed to be damaged.
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- Throughout, All Storage Locations – Injury to personnel due to delayed response to chemical hazards from out of date/missing Safety Data Sheets (SDS).

Detailed potential hazards and the subsequent potential consequences of the hazard are provided in **Appendix B**, and are illustrated by the photographs in **Appendix C**.

5. Recommendations

The following recommendtions are made based on **high risk.**

- Level 7, Cooling Tower Plant Room – Where stated in the chemicals SDS, incompatible chemicals (Class 5.1 and Class 8) are to be kept apart by a minimum of three (3) metres in accordance with *AS/NZS 3833:2007 The storage and handling of mixed classes of dangerous goods in packages and intermediate bulk containers and WHS Regulation (NSW) 2017, Clause 356.*
- Level 7, Cooling Tower Plant Room – Consider installing an emergency eyewash/shower facility connected to the building water supply adjacent the chemical storage area. Emergency eyewash/shower is to be installed in accordance with *AS4775:2007 Emergency eyewash and shower equipment.*
- Throughout, All Storage Locations – Replace expired first aid equipment and consider conducting regular inspection of First Aid kits and supplier to ensure they are adequately stocked and all items are within date in accordance with *WHS Regulation (NSW) 2017, Clause 42.*

The following recommendations are made based on **medium risk**:

- Level B3, Plant Room 3.10 & Level B5, Cleaners Room – Review gas cylinder storage on site. Ensure that gas cylinders are stored in an upright position, chained and afforded appropriate impact protection.
- Throughout, Various Storage Locations – All containers that hold a hazardous chemical, including containers in which substances are decanted, must be appropriately labelled in accordance with the *WHS Regulation 2017 (NSW), Clauses 341 and 342.* As a minimum labels should clearly identify the substance and provide basic health and safety information about the substance, including any relevant risk phrases and safety phrases. Alternatively, dispose of unlabelled chemicals.
- Throughout, Various Storage Locations – Provide adequate spill containment (e.g. secondary containment) for all chemicals stored on site in accordance with *WHS Regulation (NSW) 2017, Clause 357.*
- Level B5, Cleaners Room – Provide adequate spill containment provisions (e.g. spill kit) for all chemicals stored on site and ensure the spill kit is suitably stocked at all times in accordance with *WHS Regulation (NSW) 2017, Clause 357.*
- Throughout, All Storage Locations – Obtain current (i.e. within 5 years from date of issue) SDS for all hazardous chemicals on site. Ensure copies of the relevant SDS are placed at the point of use/storage of hazardous chemicals to ensure that they are 'readily accessible' in accordance with *WHS Regulation 2017 (NSW), Clause 344.*

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Appendix A: Hazardous Chemical Register

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Hazardous Chemical Register

Site: Greenwood Plaza / 103 Miller Street, North Sydney NSW

Date: **29th April 2019**

Assessed by: **Nick Blyth**

Trade Name	Active Chemical Ingredient	Hazardous	DG Class/Sub-risk	Hazchem Code	Poison Schedule	SDS Expiry Date	Max Quantity on Site	Storage Location	Approved Use	Special Storage Requirements	Signature	Next Review Date
Level B1												
Diesel	Diesel	Haz	-	3Z	-	**No SDS**	80L	Diesel Sprinkler Booster Pump Room	Fuel for diesel powered engines	Incompatible with oxidising agents, strong acids and ignition sources	GC	May 2020
Level B2												
BP Bartran 15	Unknown	Unk	Unk	Unk	Unk	**No SDS**	1L	Lift Motor Room (L17)	Premium hydraulic oil	Unknown	GC	May 2020
BP GR-XP 460	Unknown	Unk	Unk	Unk	Unk	**No SDS**	2L	Lift Motor Room (L17)	Lubricant	Unknown	GC	May 2020
Glendale White Spirit Dry Cleaning Fluid	Unknown	Unk	Unk	Unk	Unk	**No SDS**	2L	Lift Motor Room (L17)	Unknown	Unknown	GC	May 2020
Unlabelled Container	Unknown	Unk	Unk	Unk	Unk	**No SDS**	2L	Lift Motor Room (L17)	Unknown	Unknown	GC	May 2020
Various Paints (redundant)	Unknown	Unk	Unk	Unk	Unk	**No SDS**	~50L	Air Plenum	Unknown	Unknown	GC	May 2020

Trade Name	Active Chemical Ingredient	Hazardous	DG Class/Sub-risk	Hazchem Code	Poison Schedule	SDS Expiry Date	Max Quantity on Site	Storage Location	Approved Use	Special Storage Requirements	Signature	Next Review Date
Various Paints	Unknown	Unk	Unk	Unk	Unk	**No SDS**	~500L	Store Room	Unknown	Unknown	GC	May 2020
Level B3												
Compressed Nitrogen	Nitrogen	Haz	2.2	2T	-	**No SDS**	52L	Plant Room 3.10	Inert gas	Avoid heating cylinders and ignition sources	GC	May 2020
Recovered Refrigerant	Mixture of chloro-fluorocarbons and chlorodifluoro-methane	Haz	2.2	2TE	-	**No SDS**	17kg	Plant Room 3.10	-	Incompatible with strong oxidising agents	GC	May 2020
Hydro Balance Coil Kleen	Unknown	Unk	8	Unk	Unk	**No SDS**	2L	Plant Room 3.10	Unknown	Unknown	GC	May 2020
Hi-Tec Oils Syn Moly Chain Oil 145	Unknown	Unk	Unk	Unk	Unk	**No SDS**	20L	Lift Motor Room (L15)	Unknown	Unknown	GC	May 2020
WD-40	Naphtha (petroleum), hydrodesulfurized heavy	Haz	2.1	2YE	-	**No SDS**	350g	Lift Motor Room (L15)	Lubricant, Penetrant	Incompatible with strong oxidisers	GC	May 2020
Unlabelled Container	Unknown	Unk	Unk	Unk	Unk	**No SDS**	60L	Loading Dock - Cleaner	Unknown	Unknown	GC	May 2020

Trade Name	Active Chemical Ingredient	Hazardous	DG Class/Sub-risk	Hazchem Code	Poison Schedule	SDS Expiry Date	Max Quantity on Site	Storage Location	Approved Use	Special Storage Requirements	Signature	Next Review Date
Level B4												
Nalco Stabrex ST70	Sodium hypochlorite	Haz	8	2X	-	**No SDS**	36kg	Plenum (North)	Microorganism control chemical	Incompatible with strong oxidisers and acids	GC	May 2020
Level B5												
Xylol Xylene	Xylene	Haz	3	3Y	-	**No SDS**	20L	Plenum (North)	Thinner/ General Purpose Solvent	Incompatible with strong oxidising agents	GC	May 2020
Omikron Vision	Unknown	Unk	Unk	Unk	Unk	**No SDS**	40L	Kitchen Exhaust EF36 & EF47	Unknown	Unknown	GC	May 2020
Omikron Terminator	Unknown	Unk	Unk	Unk	Unk	**No SDS**	40L	Kitchen Exhaust EF36 & EF47	Unknown	Unknown	GC	May 2020
Omikron Truck'n'Wax	Unknown	Unk	Unk	Unk	Unk	**No SDS**	20L	Kitchen Exhaust EF36 & EF47	Unknown	Unknown	GC	May 2020
Omikron H20 Gloss	Unknown	Unk	Unk	Unk	Unk	**No SDS**	20L	Kitchen Exhaust EF36 & EF47	Unknown	Unknown	GC	May 2020

Trade Name	Active Chemical Ingredient	Hazardous	DG Class/Sub-risk	Hazchem Code	Poison Schedule	SDS Expiry Date	Max Quantity on Site	Storage Location	Approved Use	Special Storage Requirements	Signature	Next Review Date
Cleera Liquid Hand and Body Wash	Sodium lauryl ether sulfates	Non-Haz	-	-	-	**No SDS**	20L	Cleaners Room	Unknown	Unknown	GC	May 2020
AGAR Shower Star	Organic acids	Haz	Unk	Unk	Unk	Aug 2021	20L	Cleaners Room	Foaming cleaner for bathrooms	Unknown	GC	May 2020
AGAR Wipe Away	Non-ionic surfactants	Haz	Unk	Unk	Unk	Aug 2021	20L	Cleaners Room	Detergent for hard surfaces	Unknown	GC	May 2020
AGAR pH-7	Non-ionic detergents	Haz	Unk	Unk	Unk	Aug 2021	20L	Cleaners Room	General purpose detergent	Unknown	GC	May 2020
AGAR Fast Glass	Ethyl alcohol	Haz	Unk	Unk	Unk	Aug 2021	20L	Cleaners Room	Spray and wipe for glass	Unknown	GC	May 2020
AGAR Lemon	Benzalkonium chloride	Haz	Unk	Unk	Unk	Aug 2021	20L	Cleaners Room	Commercial grade disinfectant	Unknown	GC	May 2020
LPG	Propane	Non-Haz	2.1	2YE	-	**Jan 2018**	85kg	Cleaners Room	Energy source	Incompatible with oxidising agents, acids, heat and ignition sources	GC	May 2020

Trade Name	Active Chemical Ingredient	Hazardous	DG Class/Sub-risk	Hazchem Code	Poison Schedule	SDS Expiry Date	Max Quantity on Site	Storage Location	Approved Use	Special Storage Requirements	Signature	Next Review Date
Petrol	Gasoline	Haz	3	3YE	S5	Sept 2021	20L	Cleaners Room	Fuel	Incompatible with halogens, strong acids and strong oxidising agents	GC	May 2020
Unlabelled Container	Unknown	Unk	Unk	Unk	Unk	**No SDS**	30L	Kitchen / Cleaners Lunch Room	Unknown	Unknown	GC	May 2020
AGAR Tango	Unknown	Unk	Unk	Unk	Unk	**No SDS**	5L	Kitchen / Cleaners Lunch Room	Unknown	Unknown	GC	May 2020
Pioneer Eclipse Equinox	Unknown	Unk	Unk	Unk	Unk	**No SDS**	10L	Kitchen / Cleaners Lunch Room	Unknown	Unknown	GC	May 2020
AGAR Graffiti Remover	Unknown	Unk	Unk	Unk	Unk	**No SDS**	5L	Kitchen / Cleaners Lunch Room	Unknown	Unknown	GC	May 2020
AGAR Stainless Steel Oil	Unknown	Unk	Unk	Unk	Unk	**No SDS**	1L	Kitchen / Cleaners Lunch Room	Unknown	Unknown	GC	May 2020
AGAR Dirt Off	Unknown	Unk	Unk	Unk	Unk	**No SDS**	1L	Kitchen / Cleaners Lunch Room	Unknown	Unknown	GC	May 2020

Trade Name	Active Chemical Ingredient	Hazardous	DG Class/Sub-risk	Hazchem Code	Poison Schedule	SDS Expiry Date	Max Quantity on Site	Storage Location	Approved Use	Special Storage Requirements	Signature	Next Review Date
Caltex 4-Stroke Engine Oil	Unknown	Unk	Unk	Unk	Unk	**No SDS**	1L	Kitchen / Cleaners Lunch Room	Unknown	Unknown	GC	May 2020
Level 7												
Castrol Hyspin AWS32	Unknown	Unk	Unk	Unk	Unk	**No SDS**	20L	Lift Motor Room (L16)	Unknown	Unknown	GC	May 2020
Nalco 3D Trasar 3DT222	Phosphoric acid	Haz	8/5.1	2X	S6	Jun 2021	78kg	Cooling Tower Plant Room	Cooling water treatment	Incompatible with bases	GC	May 2020
Nalco 7330	5-chloro-2-methyl-2H-isothiazol-3-one	Haz	8	2X	S6	Jun 2021	60kg	Cooling Tower Plant Room	Biocide	Incompatible with strong oxidisers	GC	May 2020
Unlabelled Container	Unknown	Unk	Unk	Unk	Unk	**No SDS**	65L	Cooling Tower Plant Room	Unknown	Unknown	GC	May 2020
HydroChem Hydro 256	1,5 Pentanedial	Haz	8	2X	S6	**No SDS**	45L	Cooling Tower Plant Room	Water treatment biocide	Keep away from direct sunlight and heat	GC	May 2020
HydroChem Hydro 260	Phosphonobutane Tricarboxylic acid	Haz	8	2X	S6	**No SDS**	30L	Cooling Tower Plant Room	Corrosion and scale inhibitor	Incompatible with strong alkalis	GC	May 2020

Trade Name	Active Chemical Ingredient	Hazardous	DG Class/Sub-risk	Hazchem Code	Poison Schedule	SDS Expiry Date	Max Quantity on Site	Storage Location	Approved Use	Special Storage Requirements	Signature	Next Review Date
HydroChem Hydro 360	Sodium Hypochlorite	Haz	8	2X	S5	**No SDS**	90L	Cooling Tower Plant Room	Biocide for disinfection	Reacts violently with acids	GC	May 2020
EcoLab ProChlor	Sodium Hypochlorite	Haz	8	2X	S5	Jun 2021	50L	Cooling Tower Plant Room	Micro-organism control chemical	Incompatible with strong acids	GC	May 2020
Mobil Synthetic Lubricant SHC 629	Unknown	Unk	Unk	Unk	Unk	**No SDS**	20L	Cooling Tower Plant Room	Unknown	Unknown	GC	May 2020
Shell Oil	Unknown	Unk	Unk	Unk	Unk	**No SDS**	120L	Cooling Tower Plant Room	Unknown	Unknown	GC	May 2020

* SDS Expiry Date: No SDS – Indicates that an SDS was not available on site at the time of the inspection. If the SDS expiry date is bolded this indicates that the SDS has expired.

** Unk/Unknown – Information pertaining to chemical unknown.

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Appendix B: Risk Assessment

RISK MATRIX

Risk: Risk is the combination of the probability (likelihood) of a specific unwanted event and the potential consequences should it occur.

RISK RANKING TABLE – Guide

Likelihood	1	2	3	4	5
A	Extreme	Extreme	Extreme	High	High
B	Extreme	Extreme	High	Medium	Medium
C	Extreme	High	Medium	Medium	Low
D	High	High	Medium	Low	Low
E	High	High	Medium	Low	Low

LIKELIHOOD

Level	Descriptor	Description
A	Almost certain	Will occur in most circumstances
B	Likely	Expected to occur occasionally
C	Moderate	May be experienced sometime in a working life
D	Unlikely	Would only occur in unlikely circumstances
E	Rare	Not expected to occur but could

CONSEQUENCES

Level	Descriptor	People	Cost/ Productivity
1	Catastrophic	Fatality	Loss of operation and huge financial loss
2	Major	Extensive injuries or long-term serious illness and loss of time	Loss of some operation time and productivity and major financial loss
3	Moderate	Medical treatment required and up to a few days lost from workplace	Loss of productivity and high financial loss
4	Minor	First Aid required. No lost time from workplace	Medical treatment costs only
5	Insignificant	No injury but may impact on working productivity	Productivity not optimal, low or no financial loss

Extreme Risk: Plan controls for immediate intervention
High Risk: High priority for action
Medium Risk: Responsibility to be allocated and timeframe set for action
Low Risk: Implement appropriate management plans

The following table provides a list of risks identified during the assessment, ranked from highest to lowest. Please refer to **Appendix C** for photographs and **Appendix D** risk assessment factors and recommended action priorities.

RISK REGISTER

				Inherent Risk			Controls	Residual Risk		
ID	**Risk Title**	**Risk Description**	**Contributing factors/ scenarios**	**Consequence**	**Likelihood**	**Risk Rating**	**Key Controls/Mitigation Strategies**	**Consequence**	**Likelihood**	**Risk Rating**
1	Chemical Segregation	Incompatible hazardous chemicals, (e.g. Class 5.1 Oxidising and Class 8 Corrosive) were stored without adequate chemical separation. **Location**: Level 7 Cooling Tower Plant Room. **Photo:** 1	Property damage due to potential fire/explosion hazard from incompatible chemicals. Serious injury due to potential fire/explosion hazard from incompatible chemicals. Serious injury due to hazardous fumes.	Moderate	Likely	High (B3)	**Current Controls** Inspected chemicals were stored in original containers. The majority of the chemicals throughout the site were appropriately segregated. **Recommendation** Where stated in the chemicals SDS, incompatible chemicals Class 5.1 Oxidising and Class 8 Corrosive are to be kept apart by a minimum of three (3) metres in accordance with *AS/NZS 3833:2007 The storage and handling of mixed classes of dangerous goods in packages and intermediate bulk containers* and *WHS Regulation (NSW) 2017, Clause 356.*	Insignificant	Unlikely	Low (D5)
2	Delayed First Aid	Delayed first aid/emergency response due to lack of emergency eyewash/shower facilities. **Location**: Level 7, Cooling Tower Plant Room.	Serious injury due to delayed access to adequate first aid facilities.	Moderate	Likely	High (B3)	**Current Controls** Nil. **Recommendation** Consider installing an emergency eyewash/shower facility connected to the building water supply adjacent the chemical storage area. Emergency eyewash/shower is to be installed in accordance with *AS4775:2007 Emergency eyewash and shower equipment.*	Minor	Unlikely	Low (D4)

				Inherent Risk			Controls	Residual Risk		
ID	Risk Title	Risk Description	Contributing factors/ scenarios	Consequence	Likelihood	Risk Rating	Key Controls/Mitigation Strategies	Consequence	Likelihood	Risk Rating
3	Delayed First Aid	Delayed first aid/ emergency response due to poorly maintained or no first aid equipment (e.g. out of date items within First Aid Kit). **Location** Throughout, Various Storage Locations. **Photo**: 2	Serious injury due to delayed access to adequate first aid facilities.	Moderate	Likely	High (B3)	**Current Controls** The majority of first aid equipment available at the site appeared to be well maintained and easily accessible. **Recommendation** Replace expired first aid equipment and consider conducting regular inspection of First Aid kits and supplier to ensure they are adequately stocked and all items are within date in accordance with *WHS Regulation (NSW) 2017, Clause 42.*	Minor	Unlikely	Low (D4)
4	Gas Cylinder Storage	Gas cylinders were found to be stored without appropriate impact protection and not chained in an upright position. **Location**: Level B3, Plant Room 3.10 & Level B5, Cleaners Room. **Photo**:3, 4 & 5	Potential non-compliance with legislation Serious injury due falling or damaged / degraded gas cylinders.	Moderate	Moderate	Medium (C3)	**Current Controls** Gas cylinders stored within well ventilated areas. Gas cylinders generally stored away from ignition sources and combustible materials Class placards installed gas cylinders. **Recommendation** Review gas cylinder storage on site. Ensure that gas cylinders are stored in an upright position, chanied and afforded appropriate impact protection.	Minor	Unlikely	Low (D4)

				Inherent Risk			Controls	Residual Risk		
ID	Risk Title	Risk Description	Contributing factors/ scenarios	Consequence	Likelihood	Risk Rating	Key Controls/Mitigation Strategies	Consequence	Likelihood	Risk Rating
5	Labelling	Inappropriate use of chemical due to inadequately labelled chemical containers or damaged labels to chemical containers. **Location** Throughout, Various Storage Locations. **Photo**: 6, 7, 8 & 9	Serious injury due to inappropriate use of chemicals Potential non-compliance with legislation Serious injury due to delayed access to emergency information.	Moderate	Unlikely	Medium (D3)	**Current Controls** The majority of the chemicals stored at the site were appropriately labelled. **Recommendation** All containers that hold a hazardous chemical, including containers in which substances are decanted, must be appropriately labelled in accordance with the *WHS Regulation 2017 (NSW), Clauses 341 and 342*. As a minimum, labels should clearly identify the substance and provide basic health and safety information about the substance, including any relevant risk phrases and safety phrases. Alternatively, dispose of unlabeled chemicals.	Moderate	Rare	Medium (E3)
6	Spill Containment	Chemicals not stored within secondary containment, not provided with adequate spill containment or containment observed to be damaged. **Location** Throughout, Various Storage Locations. **Photo**: 10, 11, 12 & 13	Potential environmental contamination due to no secondary containment. Potential property damage and serious injury due to mixing of incompatible chemicals. Potential personal injury due to slips.	Moderate	Unlikely	Medium (D3)	**Current Controls** The majority of the chemicals at the site were appropriately stored within secondary containment or provided with spill containment. Majority of inspected chemicals were stored in original containers. **Recommendation** Provide adequate spill containment (e.g. secondary containment) for all chemicals stored on site in accordance with *WHS Regulation (NSW) 2017, Clause 357.*	Insignificant	Unlikely	Low (D5)

				Inherent Risk			Controls	Residual Risk		
ID	Risk Title	Risk Description	Contributing factors/ scenarios	Consequence	Likelihood	Risk Rating	Key Controls/Mitigation Strategies	Consequence	Likelihood	Risk Rating
7	Spill Kits	Injury to personnel and the environment due to inadequate provisions to contain and manage spills. **Location**: Level B5, Cleaners Room.	Potential environmental contamination due to no inadequate spill containment. Potential property damage and serious injury due to mixing of incompatible chemicals. Potential personal injury due to slips, trips and falls.	Moderate	Unlikely	Medium (D3)	**Current Controls** The majority of chemical storage locations were observed to have a spill kit or provisions to contain and manage a spill. Spill kits were generally adequately stocked and signposted. **Recommendation** Provide adequate spill containment provisions (e.g. spill kit) for all chemicals stored on site and ensure the spill kit is suitably stocked at all times in accordance with *WHS Regulation (NSW) 2017, Clause 357.*	Insignificant	Unlikely	Low (D5)
8	Safety Data Sheets	Injury to personnel due to delayed response to chemical hazards from out of date/missing Safety Data Sheets (SDS). **Location** Throughout, Various Storage Locations. **Photo**: -	Serious injury due to delayed access to emergency information.	Moderate	Unlikely	Medium (D3)	**Current Controls** The majority of chemicals at the site had current SDS available at the point of use/storage. **Recommendation** Obtain current (i.e. within 5 years from date of issue) SDS for all hazardous chemicals on site. Ensure copies of the relevant SDS are placed at the point of use/storage of hazardous chemicals to ensure that they are 'readily accessible' and contain an Australian address and telephone number in accordance with *WHS Regulation 2017 (NSW), Clause 344 and Schedule 7.*	Minor	Unlikely	Low (D4)

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Greenwood Plaza / 103 Miller Street, North Sydney NSW

Appendix C: Photographs

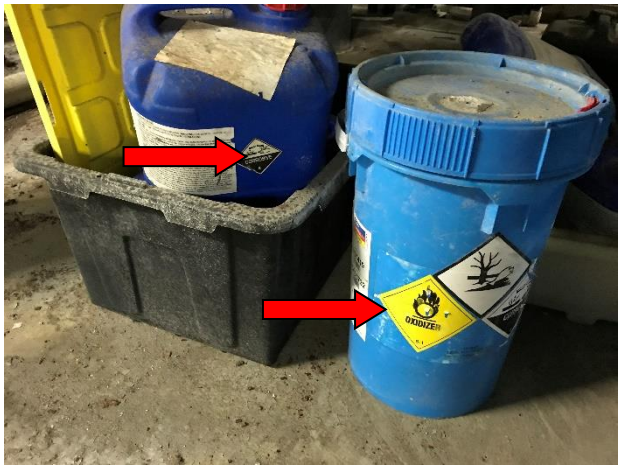	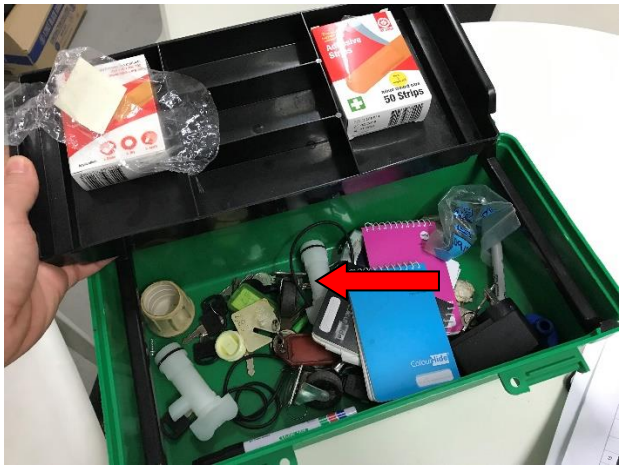
Photo 1. Level 7, Cooling Tower Plant Room – Inadequate chemical segregation.	**Photo 2.** Level B5, Kitchen / Cleaners Lunch Room – First Aid Kit not fully stocked.
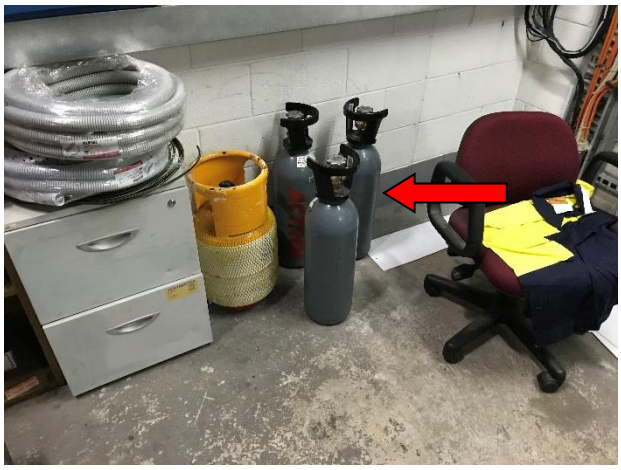	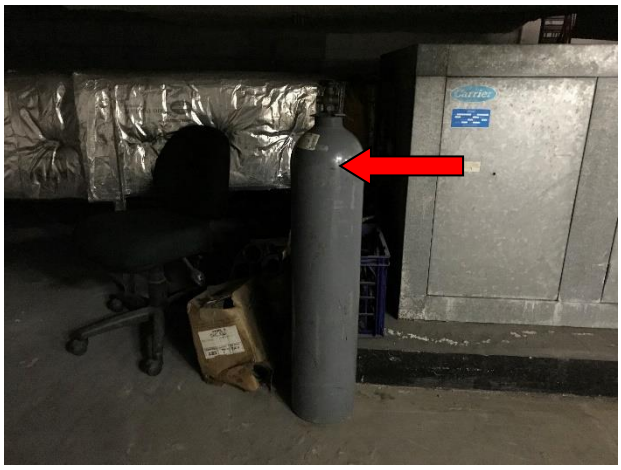
Photo 3. Level B3, Plant Room 3.10 – Gas cylinders not appropriately stored.	**Photo 4.** Level B3, Plant Room 3.10 – Gas cylinders not appropriately stored.
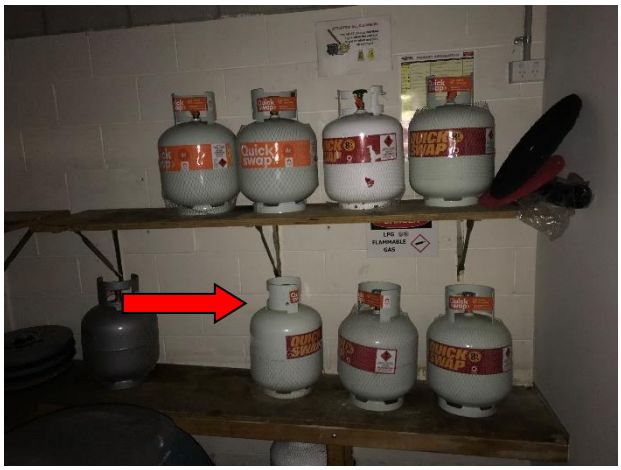	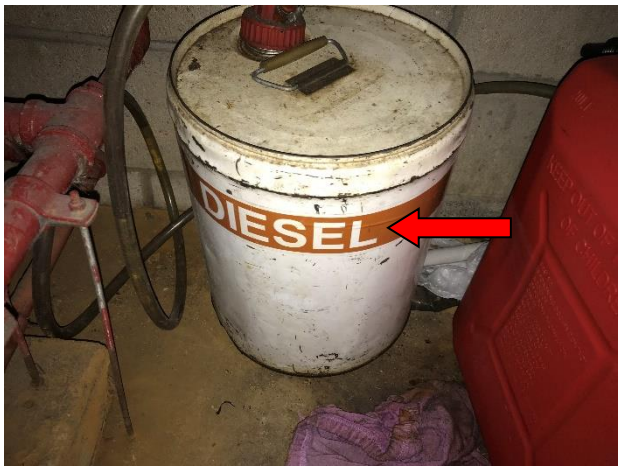
Photo 5. Level B5, Cleaners Room – Gas cylinders not appropriately stored.	**Photo 6.** Level B1, Diesel Sprinkler Booster Pump Room – Inadequately labelled chemical containers.

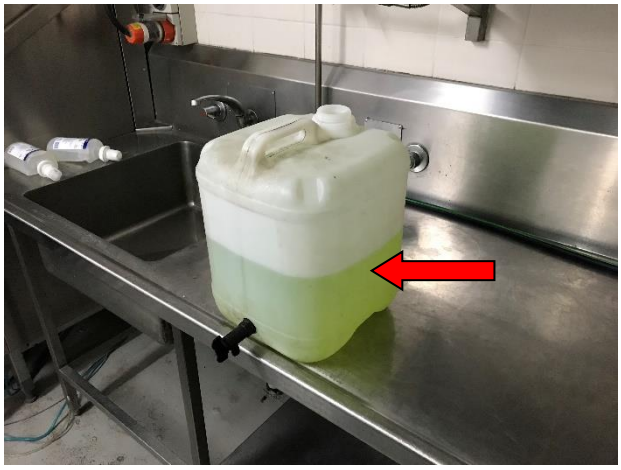

Photo 7. Level B5, Kitchen / Cleaners Lunch Room – Inadequately labelled chemical containers.

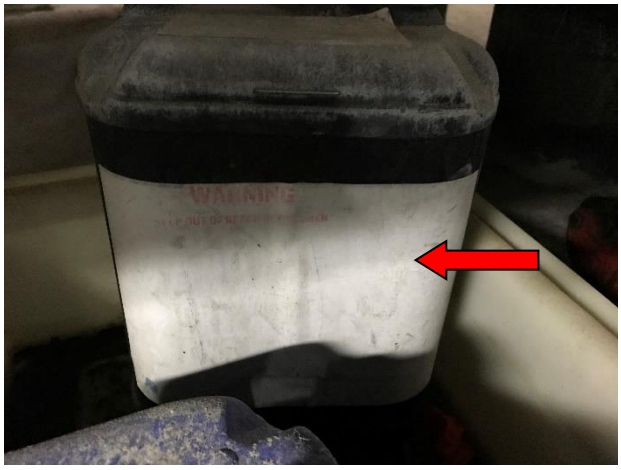

Photo 8. Level 7, Cooling Tower Plant Room - Faded label to chemical containers.

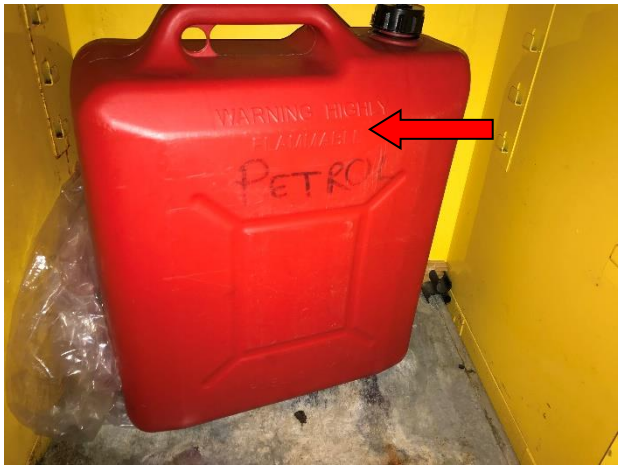

Photo 9. Level B5, Cleaners Room, Flammable Cabinet – Inadequately labelled chemical containers.

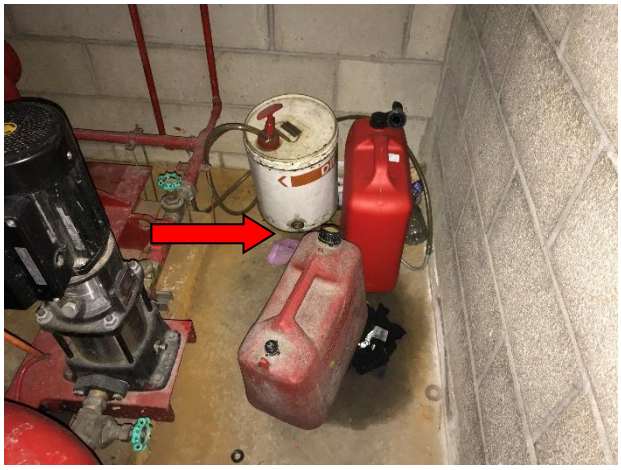

Photo 10. Level B1, Diesel Sprinkler Booster Pump Room – No spill containment.

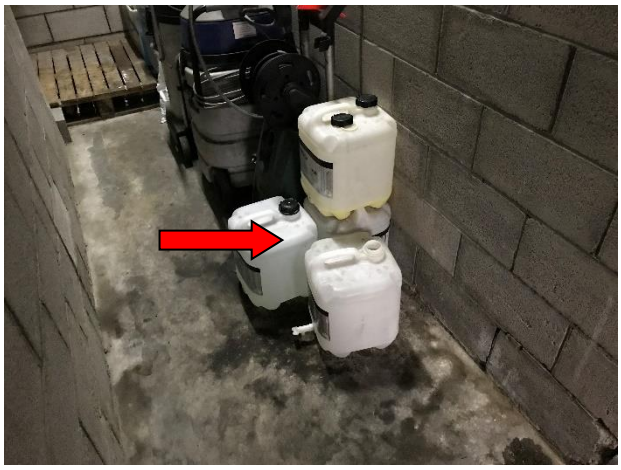

Photo 11. Level B1, Kitchen Exhaust EF36 & EF47 – No spill containment.

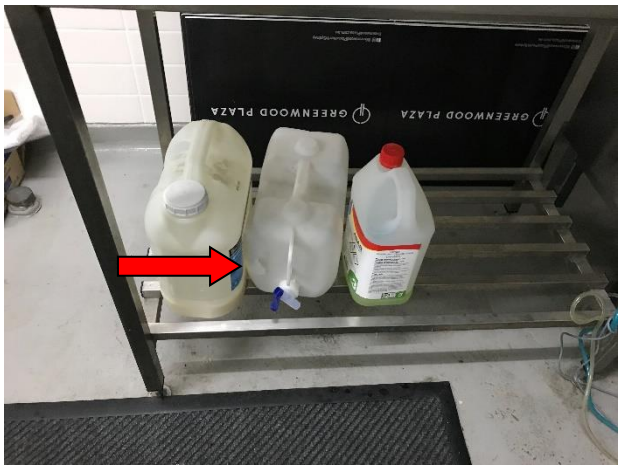

Photo 12. Level B5, Kitchen / Cleaners Lunch Room – No spill containment.

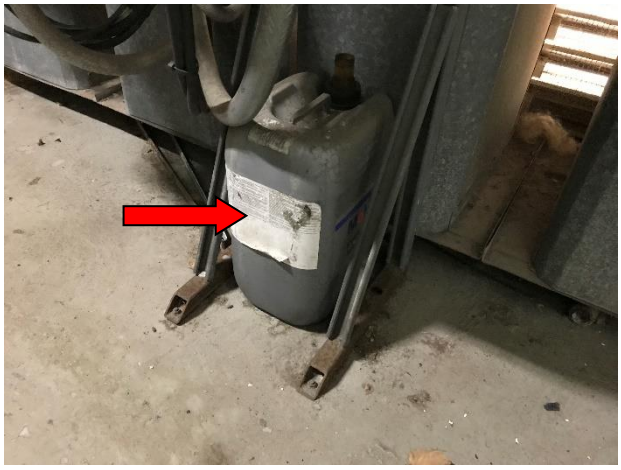

Photo 13. Level 7, Cooling Tower Plant Room – No spill containment.

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Appendix D: Risk Assessment Factors – Chemical Management

IDENTIFICATION OF HAZARDS

Hazardous Chemicals

Under the WHS legislation, Hazardous Chemical means a substance, mixture or article that satisfies the criteria for a hazard class in the Globally Harmonized System (GHS). Hazardous Chemicals include both Dangerous Goods and Hazardous Substances.

Dangerous Goods

The identification of hazards associated with dangerous goods looks at how they are stored and handled. Factors considered are the inherent hazards such as fire, explosion, corrosion, toxic emissions and the potential for incidents. Dangerous goods classes are as follows:

- Class 1 – Explosives;
- Class 2 – Gases;
- Class 3 – Flammable Liquids;
- Class 4 – Flammable Solids;
- Class 5 – Oxidising Agents and Organic Peroxides;
- Class 6 – Toxic and Infectious Substances;
- Class 7 – Radioactive Substances;
- Class 8 – Corrosive Substances; and
- Class 9 – Miscellaneous Dangerous Substances.

There are many sub-classes within these classes that further classify dangerous goods according to their properties e.g. Class 2.1 – Flammable Gas, Class 2.2 – Non-Flammable Gas, Class 2.3 Poisonous Gas, etc.

Hazardous Substances

The identification of hazards associated with hazardous substances reviews how they are used as well as the health effects associated with the substances. Factors considered are the routes of exposure, work practices and the circumstances under which exposure to hazardous substances could occur.

Hazardous substances are defined in terms of their direct health effects on people whereas dangerous goods are defined by their physical and chemical properties. For example, a chemical that is only flammable and has no toxic, corrosive, sensitising or cancer causing properties would be a dangerous good but not necessarily a hazardous substance. There is a large overlap (about 95%) between the two groups.

RISK CONTROL MEASURES

Risk control measures should be considered where identified hazards have a risk rating where it may be possible to further reduce risk. The following hierarchy of controls should be observed when determining control measures. The list below sets out the order of control measures to be taken if it is not reasonably practicable to eliminate a risk.

Elimination

The most effective method of risk reduction is the elimination of risk at the source. This includes eliminating either the dangerous good/hazardous substance or the activity which gives rise to the risk.

Substitution

Substituting the dangerous good or hazardous substance with another product, that has a lower risk associated with the storage and handling.

Reducing Quantities Stored and Handled

Where possible, the quantities of dangerous goods and hazardous substances should be kept at a minimum. This includes the removal of chemicals that are no longer required on site.

Isolation

Isolation involves separating people from the substance by distance or barriers. Australian and New Zealand Standards provide guidance on appropriate separation distances for dangerous goods.

Engineering Controls

Engineering controls are controls which use engineering measures to reduce the risk associated with the storage and handling of dangerous goods or hazardous substances (i.e. ventilation).

Administrative Controls

Administrative controls are systems of work or safe work practices that help to reduce risks associated with the storage and handling of dangerous goods and hazardous substances.

Personal Protective Equipment (PPE)

The use of PPE in conjunction with other control measures may provide additional risk control. PPE should be the last resort for controlling risk and employees should be trained to fit and use any required PPE properly.