

ROSEHILL RECYCLED WATER SCHEME

RECYCLED WATER MANAGEMENT PLAN



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Incident and Emergency Management Manual

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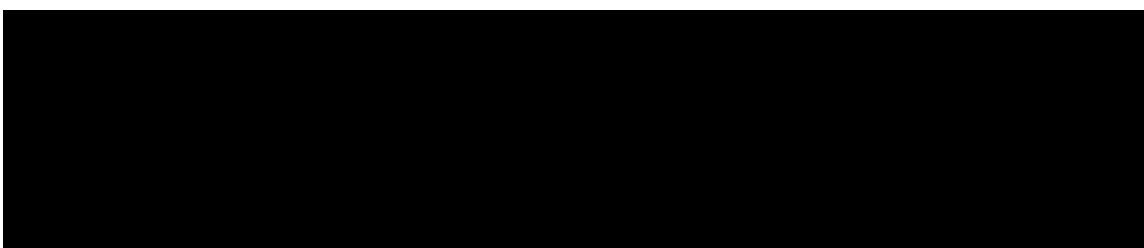
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0.1 Document Control Sheet

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Additional section to be added for new network/reservoir site

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ESIP Cover Page

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Rosehill Network Pty Ltd

ACN 131 213 691

**RRWS-IMS-DOC-002
Infrastructure Operating Plan**

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1. Background

Rosehill Network Pty Ltd ('Rosehill Network') holds Network Operator's Licence number 09_002 issued under the Water Industry Competition Act 2006 (NSW) ('WICA') under which it owns water infrastructure that forms part of the Rosehill Recycled Water Scheme ('Rosehill Scheme'). This document, Rosehill Network's *Infrastructure Operating Plan*, has been developed to satisfy the requirements of the Water Industry Competition (General) Regulation 2021 (NSW) (as amended from time to time).

1.1 Rosehill Scheme overview

The Rosehill Scheme involves:

- Extracting secondary treated effluent from Sydney Water's Liverpool to Ashfield Pipeline ('LAP')
- Treating the effluent to produce high quality recycled water at the Fairfield Advanced Water Treatment Plant ('Plant')
- Transporting recycled water from the Plant, through a distribution network ('Network') to customers in the Fairfield, Cumberland and Parramatta local government areas ('Customers').

The scope of the Rosehill Scheme is shown in Appendix 1.

The Rosehill Scheme is underpinned by a 20-year Project Agreement between AquaNet Sydney Pty Ltd ('AquaNet') and Sydney Water and is capable of delivering up to 25 million litres of recycled water per day to Customers.

Under the Project Agreement, AquaNet delivers recycled water to Sydney Water for sale to its own customers ('Foundation Customers'). Sydney Water has retail contracts with the Foundation Customers. Sydney Water supplies up to 32ML/d of treated effluent (according to an effluent specification in the Project Agreement) to the Plant from the LAP. AquaNet may sell any water in excess of that required to supply the Foundation Customers directly to its own customers ('Non-Foundation Customers').

AquaNet owns the Plant and has entered into an Operation and Maintenance Agreement with Veolia Water Australia Pty Ltd ('Veolia' or 'VWA') who is responsible for maintaining and operating the Plant.

Rosehill Network and its sister company, AquaNet, have entered into a Pipelines Agreement whereby Rosehill Network constructed and owns the Network. Rosehill Network has entered into an Operation and Maintenance Agreement with Veolia who is responsible for maintaining and operating the Network.

Both Rosehill Network and Veolia hold Network Operator Licences under WICA.

The contractual structure of the Rosehill Scheme is depicted in Appendix 2.

AquaNet and Rosehill Network are both part of the coNEXA Infrastructure Partners group of companies ('coNEXA') and through its various subsidiaries, coNEXA provides the resources, skills and expertise required for AquaNet and Rosehill Network to deliver the Rosehill Scheme.

2. Executive summary

This plan explains how Veolia manage the infrastructure assets to best satisfy the contractual and relevant regulatory requirements for the Rosehill Scheme.

This plan complements Rosehill Network's *Water Quality Management Plan* as well as the VWA Infrastructure Operating Plan for the Plant and the VWA Water Quality Management Plan for the

Plant by providing details regarding all key asset management activities. The plan is further supported by Veolia Document *MAN-3954 Operations Management Plan – Rosehill Recycled Water Scheme*, which provides an overview of the way Veolia addresses the requirements for Quality, Safety, Environment, Asset and Risk Management as required by the Veolia Business Management Manual and relevant standards.

The key features of Veolia's Asset Management Plan are:

- Establishment of an advanced Asset Management System with the potential to be linked to the SCADA system to ensure accurate and appropriate data capture from day one
- Early and rigorous attention paid by the Asset Management team to develop a comprehensive maintenance program
- Integration of condition monitoring, renewal and whole of life cost planning processes to promote high availability and durability of assets
- A focus on providing a competent, well trained and well supported operations team, with a view to establishing an 'asset management culture' on the RRWS
- Development of effective maintenance and renewal schedules with an emphasis on condition monitoring to minimise risks
- Implementation of special information systems to manage UF and RO membranes, as well as capital renewal
- Selective use of RCM through the operations phase to address reliability issues

3. Abbreviations

The following abbreviations are used in this Plan:

AquaNet	AquaNet Sydney Pty Ltd
CIP	Clean in Place
CMMS	Computerised Maintenance Management System
EIS	Environmental Impact Statement
Fairfield AWTP	Fairfield Advance Water Treatment Plant
FARWP	Fairfield Advanced Recycled Water Plant
FMEA	Failure Mode and Effects Analysis
VAMS	Veolia Asset Management System
IBMS	Integrated Business Management System
KPI	Key Performance Indicator
LOS	Level of Service
MTBF	Mean Time Between Failure
O&M	Operations and Maintenance
Plant	The Fairfield Recycled Water Plant
PM	Preventive Maintenance
RCA	Root Cause Analysis
RCM	Reliability Centred Maintenance
RO	Reverse Osmosis
Rosehill Network	Rosehill Network Pty Ltd
RRWS	Rosehill Recycled Water Scheme
SCADA	Supervisory Control and Data Acquisition

UF	Ultrafiltration
VWA	Veolia Water Australia
WHS	Work Health and Safety

4. Introduction

4.1 Context

This *Infrastructure Operating Plan* has been prepared as an outline plan in order to assist with the management of assets at Fairfield AWTP.

4.2 Scope

The *Infrastructure Operating Plan* has been developed to provide the following information:

- An overview of the asset management strategy and how the *Infrastructure Operating Plan* is developed in accordance with this
- Descriptions of the staff organisational structure and processes to be put in place to implement the asset management aspects of the Water Quality Plans and monitor compliance with all requirements
- Explanation of the process for developing, reviewing and updating the maintenance program
- An outline of the asset management information systems to be used
- Details of how preventive, corrective and breakdown maintenance is to be conducted on site
- An overview of the process and value of assessing criticality for all assets
- An overview of the process for performing condition and risk assessment and how this information is used for future planning
- An outline of the capital investment strategy and the processes involved in making decisions regarding asset refurbishment and replacement
- Details of the asset renewal program, which consists of major periodic maintenance items, including overhauls and replacement
- A summary of how RO and UF membranes are to be managed

4.3 Objectives

The *Infrastructure Operating Plan* is designed to ensure that the Rosehill Scheme assets are managed to the principles of Veolia's Asset Management Strategy. This strategy is an integrated and flexible approach, encompassing whole of life cycle costs.

The primary objectives of the *Infrastructure Operating Plan* are to enable the physical assets of the scheme to be maintained, repaired, rehabilitated and replaced in such a way as to ensure the following outcomes:

- No drop in level of service delivered over the duration of the contract
- Optimum equipment performance, reliability and availability
- Minimum total cost of ownership of each asset over its life cycle
- Minimum business risks to all stakeholders
- Compliance with all statutory and contractual requirements

5. Asset management strategy

5.1 Strategy overview

Veolia's strategy for asset management uses an integrated approach which considers all aspects of the asset's life cycle including safety, operational performance, levels of service, contractual requirements, maintenance requirements and the asset's whole of life costs.

A flexible approach accommodates the continuing change in external factors associated with economic influences, customer expectations and business needs. Veolia's strategy enables ready reassessment and reiteration of inputs and outputs via periodic reviews and appraisals of all areas contained in an asset's life cycle.

Veolia's asset management strategy and is designed to:

- Reflect industry best practice
- Produce an integrated structure that supports all the activities of the business
- Ensure that the owner, operator and customers are not exposed to undue risk
- Ensure sustainability of the environment
- Create an objective, transparent management tool for monitoring asset performance against the relevant statutory obligations, policies, standards, levels of service and operational targets, and for reporting to authorities, customers and community
- Minimise the cost of the managed assets over their useful life by balancing investment needs within economic and operational guidelines to ensure maximum efficiency in terms of capital investment and operational costs
- Ensure that the Plant maintains the minimum flows for which it was designed
- To manage and operate the Plant as an efficient business enterprise, it is essential to maintain the quality and performance of the assets at their optimum level. Detailed in this *Infrastructure Operating Plan* is the processes, which provide:
 - An effective mechanism for compiling a comprehensive asset register of all plant assets linked with quality, physical parameters, condition, criticality and performance of the assets
 - Procedures for determining and recording asset condition and criticality
 - Evaluating whole of life options
 - Techniques for determining asset short- and long-term investment priorities and balance against the availability of funds
 - A program for asset management, maintenance, upgrading and replacement of assets that can cater for dynamic conditions

5.2 Planning framework

Veolia utilises an integrated approach to asset management planning which considers the impact of all internal and external influences on the systems assets – technical, financial, social, political and economic.

Veolia establishes maintenance regimes, maintenance standards, operating procedures and investment and replacement strategies that are linked to ensure ongoing service delivery in the most cost-effective manner.

The asset management planning process consists of an annual review and refinement to allow for changing internal and external factors such as:

- The asset management principles, strategy and objectives of the asset owner
- Industry-wide guidelines and standards for assessment management (including the International Infrastructure Management Manual)

- Environmental legislation
- Funding and investment priority philosophies
- WHS regulations
- Changing technology
- Industrial relations legislation
- Community expectations

The asset management framework that is to be used for developing and revising the integrated Asset Management Plan is shown in the following table:

Step		Details
Step 1	Define performance criteria and service levels	These are defined using contract requirements and KPIs, EIS requirements, licence requirements, Environmental Plan and statutory obligations and performance standards
Step 2	Establish policies and procedures	The policies and procedures required to deliver Veolia's asset management strategy reside in the Operations Management Plan (On Tap)
Step 3	Define asset register and data standard	The Plant's assets are defined and categorised into specific areas and asset types using an asset register and data standard The asset register is created and maintained in Veolia's CMMS software
Step 4	Define maintenance requirements	Maintenance requirements for assets are determined and managed in Veolia's CMMS Preventive maintenance implemented based on manufacturers recommendations and asset condition and risk assessment
Step 5	Asset condition grading and assessment	Assets have regular condition assessments conducted with defined standards and policies An overall asset assessment is performed to identify any areas of potential concern
Step 6	Analysis and review of asset assessment	From the information collected in Step 5, an asset assessment identifies any shortfalls in asset condition and performance A decision is then made either to continue to maintain or renew assets Assets may be operated to failure based on whole of life costing evaluation options
Step 7	Review maintenance requirements	Based on decisions made in Step 6, the options to increase or decrease maintenance expenditure is determined, reviewed and evaluated
Step 8	Asset replacement program	Based on the assessments made in Step 6, the options available for asset replacement or refurbishment can be determined, reviewed and evaluated
Step 9	Review / revise investment needs	To assess the implications of changing inputs, business parameters, outputs, standards and targets, the results of outputs and total expenditure needs will be reviewed

6. Asset management organisation

6.1 Veolia staffing structure and responsibilities

An organisational structure showing key Veolia positions relevant to asset management is shown in Appendix 3.

The asset management responsibilities of the key site-based staff are as follows:

- Operations Manager
 - Jointly review and approve the O&M Plan
- Level 6 Operator
 - Key site point of contact for all maintenance issues
 - Organise material resources and supervise operator-maintainers, electrical and mechanical tradesmen and subcontractors engaged in corrective maintenance and technical or vendor specific preventive maintenance activities
 - Manage the supply and transfer of spare parts and other and other inventory to and from the onsite store
 - Responsible for maintenance program planning
 - Develop and coordinate major preventative maintenance activities, including condition monitoring
 - Maintain the asset register
 - Develop the maintenance strategy and asset replacement program
 - Manage client reports and communications

The asset management responsibilities of the key members of Veolia's asset management team, based in the VWA head office, are as follows:

- Corporate Asset Manager
 - Manage the provision of IT systems and engineering services support to enable assets to be managed in accordance with the asset management requirements of the O&M Plan, the asset renewal program, and the reporting requirements of The Client
- Asset Performance Engineer
 - Assist in data collection and CMMS establishment activities and perform systems administration for VAMS
 - Facilitate workshops and provide technical and systems support for RCM
 - Jointly review and implement the asset management component of the O&M Plan
 - Oversee development of the maintenance plan to align with best practice for Plant operations and maintenance
 - Review all aspects of the asset management framework, including the maintenance strategy and asset replacement program
 - Assist in the development of the asset renewal program, as well as ongoing monitoring and reporting
 - Track performance of asset renewals and provide IT support for the capital planning system
- Asset Project Engineer
 - Conduct serviceability and reliability investigations

- Provide engineering and project management assistance for major asset renewal and improvement projects
- Provide engineering support to plant staff
- Perform analysis of CMMS and carry out root-cause-analysis (RCA) and reliability investigations as required
- Ensure that information is appropriately captured and stored in the CMMS VAMS, and monitor and report on Plant asset management performance
- Electrical / Controls Engineer
 - Administer, develop and arrange for training for the site SCADA system
 - Provide project management and engineering assistance for key electrical and controls projects

6.2 Labour resourcing

To achieve the maintenance objectives of the Plant, the following staff are allocated:

- Veolia operator-maintainers
 - In addition to operating the Scheme, five operators carry out routine asset maintenance; the following tradespeople are available on dayshift to carry out preventive and breakdown maintenance tasks
 - Instrument technicians
 - Electrical and mechanical fitters
- Network Coordinator
 - Available to coordinate and carry out operations and works on the Network
- General subcontractors
 - Resourcing requirements vary depending on the work scheduled, but subcontractor tradesmen are engaged on an ad-hoc basis to carry out basic maintenance routines (as required)
- Specialist subcontractors
 - Separate commercial agreements are established for the carrying out of specialist maintenance activities such as servicing of chemical instrumentation, large pump systems, lifting equipment etc

Key service suppliers, including subcontractors, were identified during the procurement phase of the project. A continuing review process is to take place to ensure that service and supply is optimised.

6.3 Equipment resourcing

The following facilities are available, including mobile plant and equipment to ensure maintenance at the plant is properly carried out:

- Maintenance workshop
- Electrical workshop
- Spares storeroom
- Workshop gantry
- Workshop storage for consumables and tools
- Workshop bench tools (bench grinder, drill etc)
- Workshop welding bay and equipment

- Operator vehicles (utilities etc)
- Operator laptops
- Tools (mechanical fitting, electrical etc)
- Instrument calibration equipment
- Condition monitoring equipment (non-contact thermometer etc)
- Lifting equipment (block and tackle etc)
- Access equipment (ladders, davits etc)
- PPE and safety equipment (gas detectors, chemical suits, masks etc)

Equipment required for major overhauls / repairs or specialised maintenance is generally provided by service contractors.

6.4 Culture and training

In line with Veolia Document *POL-7-3 Learning and Development Policy* Veolia fosters an 'asset management culture' through communication, leadership and training. Culture is a key element that ensures that the objectives of the O&M Plan are realised. Veolia facilitates this by first appointing highly motivated, skilled and experienced staff to key positions. In addition, the following support is provided:

- General systems training of all staff to enable them to:
 - Use the CMMS to manage assets, maintenance activities, condition assessment and spare parts
 - Understand the specific CMMS data collection and reporting needs of asset management, and how this is used by the business to reduce risk, generate efficiencies and savings, and improve performance
- Specialised asset management staff are available to assist key staff to enable them to:
 - Perform criticality analysis of assets and condition grading and use this information to manage risk and prioritise renewals
 - Perform 'whole of life' analysis to understand and justify capital projects involving renewal or modifications
 - Use and analyse the results of condition monitoring technologies and analysis techniques (such as vibration, oil analysis and thermography) to promote 'predictive' maintenance
 - Perform root-cause-analysis to fault-find complex or repeated failures
- Communication and involvement of key staff in asset management developments within the company through:
 - Regular site-based meetings with the asset management staff
 - Attendance at periodic maintenance and CMMS user-group conferences
 - Participation in workshops to plan specific asset management improvements
 - Dissemination of maintenance systems updates via electronic means

In accordance with Veolia Document *PRO-15-1 Contractor Management Procedure* Veolia use its Contractor Management System to ensure that all subcontractors who carry out maintenance activities are suitably qualified and trained and have appropriate insurances.

Similarly, Veolia staff who carry out maintenance are to have a suitable trade and / or other qualifications and must be aware of all appropriate legislation and standards. In this way, the Plant Operator will ensure that all activities are performed in a safe and competent manner.

6.5 Policies and procedures

The policies and procedures required to implement the asset management strategy form part of Veolia's IBMS. The system's documentation is stored within the IBMS and is controlled and maintained in accordance with Veolia Document *PRO-129 Documented Information Procedure*.

The IBMS is used to manage all aspects of the operation and maintenance of the RRWS. This includes the following Veolia Documents:

- *STA-311-2 Asset Management Strategy*
- *PRO-3825-2 CMMS Operations and Maintenance Procedure*
- *PRO-3826-2 Conducting Preventative Maintenance Procedure*
- *PRO-3827-2 Conducting Breakdown Maintenance Procedure*
- *PRO-3821-2 Membrane Maintenance and Replacement Procedure*
- *PRO-327-1 Criticality and Condition Grading Procedure*
- *PRO-3822-2 Asset Condition and Risk Assessment Procedure*
- *PRO-326-1 Developing and Maintaining an Asset Replacement Plan Procedure*
- *PRO-3828-2 Spares Parts Management Procedure*
- *POL-12-2 Asset Management Policy*
- *PRO-3829-2 Asset Reporting and Analysis of Maintenance Procedure*
- *TEM-38-1 VAMS Static Data Recording Procedure*
- *PRO-331-2 Asset Location Numbering and Data Procedure*

A complete list of Veolia documents pertaining to the RRWS can be generated at any time from the IBMS. Reports can show complete listings of recently updated documents.

6.6 Establishment of systems

Veolia manage data in multiple information systems to make asset management effective for the RRWS. The most important of these systems is the CMMS. The process of setting up these systems prior to commissioning has been critical to asset management, as shown below.

6.7 Documentation and records

Veolia capture and store, within its CMMS historical information relating to maintenance, repair and replacement activities conducted on infrastructure assets. Overall, the CMMS records the following:

- Comprehensive asset register reflecting an up-to-date configuration of the RRWS equipment
- History of all preventive, corrective and breakdown asset maintenance conducted on all assets
- Instrument calibration history
- Meter information and condition monitoring results
- Inventory of spare parts holdings

In addition, the CMMS records the financial details of all purchases of materials and labour carried out in the course of conducting maintenance.

6.8 Compliance and management review

As part of the IBMS, this *Infrastructure Operating Plan* is subject to internal audits and review to ensure that activities on site comply with the requirements of the plan.

Revision of this information takes place for the life of the operating contract to allow for changing internal and external factors such as changing technology, funding and investment priority philosophies, Environmental, WHS and IR regulations and other factors.

7. Performance management

7.1 Levels of service targets

The mandatory performance criteria for the RRWS are defined in the Contract Requirements.

These operational performance requirements define the minimum level of service (LOS) in terms of water quality, water volume and general performance that is to be delivered by the Plant Operator.

The LOS is defined in the reference specification in Veolia Document *TEM-3898-1 Recycled Water Specification*.

The successful commissioning of the Plant was a milestone for demonstrating that the initial as-constructed equipment configuration is able to deliver the required LOS.

LOS is a key driver of asset management, particularly in setting targets for:

- Plant and equipment availability
- Maintenance productivity and effectiveness
- Equipment operational efficiency

7.2 Performance monitoring and review

Veolia monitor performance and reports to the client on a monthly basis, performance against the agreed standards in accordance with the Contract Requirements.

The supervisory control and data acquisition (SCADA) system is the key source of online equipment performance monitoring for the RRWS. This SCADA performance data is used in three ways:

- Key flow, process and quality information will be stored in a data historian for trending analysis, monitoring and fault finding
- Those items that contribute to a General Failure or Water Quality Failure is captured in the Performance Management System, which can be used for client reporting
- Performance indicators based on meters that fall below, or rise above, a predefined level (such as motor currents and log reduction values for UF cells) have the potential to trigger corrective maintenance activities in the CMMS

In addition to process monitoring and optimisation of energy consumption Veolia perform condition monitoring and periodic efficiency reviews of major machinery. This review entails analysing the operating efficiency of high-energy-consuming equipment, specifically the RO pumps.

The purpose of performing this analysis is two-fold. The first is to promote energy savings – inefficient pumps require more energy to meet the same output. Where a significant drop in efficiency is detected, a maintenance activity is to be raised in the CMMS to investigate and

identify the root cause of the problem. The second is to identify early indications of deterioration in condition.

7.3 Changes to service levels

If future changes in demand or other requirements (such as recycled water quality) necessitate modifications to the LOS, then it will be necessary for Veolia to carefully consider how the delivery of the new LOS will impact the performance and management of its assets.

8. Asset inventory

8.1 General

Veolia maintains an up-to-date inventory of infrastructure assets, known as the 'asset register', reflecting the as-built configuration of the plant.

The asset register database is carefully structured with an appropriate resolution to ensure that:

- Site staff, managers and engineers are able to find items easily and unambiguously
- Data capture is properly matched to analysis and reporting requirements
- Maintenance history and cost information are captured at the right level (identified in a risk assessment process)

8.2 Asset register

The scope of the asset register is to identify all infrastructure assets associated with the Plant, including machinery, structures, and electrical installations.

The asset register has been created, using data from numerous sources including:

- Asset list
 - Grouped in major system and equipment areas
- As-built equipment lists (mechanical, electrical, valve and instrumentation)
 - Potential for make, model, serial number, size, capacity, warranty, asset type
- As-built drawings
 - Primarily the process and instrumentation drawings (P&IDs) as a checklist for asset that have been included
- Financial
 - Purchase date and price where know

Once collected, asset data is collated into an asset register using the agreed structure for the asset hierarchy as defined in Veolia guidelines. Veolia then developed a full asset inventory in the CMMS and integrates this information, along with the O&M manuals and spare parts lists as part of the Business Management Plan.

8.3 Asset interface points (boundaries)

The limits of the agreement for the Asset Management and the Operations of the RRWS are defined in Veolia Document *TEM-3942-1 Definition of Interface Points*.

9. Asset management system

9.1 Computerised maintenance management system (CMMS)

9.1.1 General

- A CMMS forms the basis of Veolia's asset management and maintenance plans and will be used for scheduling, recording and analysing all maintenance activities
- Veolia uses a new generation CMMS, called VAMS; the system utilises a web interface and is an important tool for the day-to-day management of asset maintenance and repairs, as well as spares inventory
- Based on the leading asset management software platform Infor EAM, VAMS has been specially developed by Veolia to suit the needs of managing water and wastewater treatment infrastructure assets; it includes many features, including modules for managing asset details and configuration, preventive maintenance planning and scheduling, purchasing, management of spares, workflow and analysis

9.1.2 Establishment and use of asset management system

- Veolia has developed an asset register and preventive maintenance work order data in the CMMS.
- The CMMS comprises an inventory of all managed assets; it includes criticality and condition grading of all asset components, and other relevant data such as capacity, size and age
Information is archived to allow trending of asset condition over the operating period
- Most importantly, the system is used to capture data relating to all inspection and maintenance activities conducted at the Plant
- All required preventive, corrective and breakdown maintenance information is entered into the VAMS database, properly linked to the assets that work is to be carried out on
Upon completion of tasks, maintenance personnel record the task as completed in VAMS with the following information:
 - Date completed
 - Personnel undertaking the work
 - Labour hours for task
 - Materials used
 - Asset condition and performance data as observed during maintenance activities, including a brief description of work and important notes
- A high-quality preventive maintenance program is critical to prevent inadequate equipment performance that can result in environmental or process incidents
- Adherence to the preventive maintenance program must be assessed on a frequent basis, using maintenance performance indicators
- VAMS is used to monitor preventive and corrective maintenance ratios with the objective of minimising breakdowns and failures
- Regular reviews of maintenance performance will lead to progressive refinement and optimisation of the overall maintenance program
- Equally important is the issue of breakdown maintenance, which must be undertaken in a timely, reliable manner
- A KPI dashboard can be individually configured to monitor performance against certain contractual measures, compliance with statutory requirements as well as benchmarking and monitoring of internal KPIs

10. Maintenance planning and execution

10.1 Work instructions

Work orders and associated task instructions are planned for and generated prior to their required start date. They are issued by the Level 6 Operator to a trade group who are responsible for:

- Preparation – review of work to be undertaken and ensuring that all materials, spares and tools are available for the timing of the work
- Safety and Environmental constraints – permits to work, entry permits etc to be completed as required in high-risk areas such as confined spaces
- Operational constraints – avoid incidents leading to water quality or quantity problems
- Completion of all maintenance tasks
- Closing of work instructions in the CMMS with all required data completed – hours worked, spares used, external resources etc

If something unexpected is noted while undertaking the work, the person responsible for the maintenance is required to raise a breakdown maintenance order. Work instructions for each asset are regularly reviewed by all maintenance staff.

For efficiency, work instructions are not raised for minor housekeeping items, such as keeping plant clean and tidy, and operational running checks that must be done on a daily basis. These items are managed using Veolia Documents *TEM-3778-2 Daily SCADA Checks* and *TEM-3777-2 Operator Rounds*.

10.2 Maintenance program optimisation

Initially, the preventive maintenance program has been developed on the basis of vendor recommendations and Veolia Maintenance Standards. This program is reviewed regularly and in the event of reliability issues occurring. To this end, Veolia will apply an initial maintenance review and optimisation process, as well as ongoing selective application of analysis in accordance with the principles of RCM. For more detail refer to Veolia Document *PRO-327-2 Criticality and Condition Grading Procedure*.

RCM provides a rigorous analysis framework for ensuring that the most cost-effective maintenance activities are employed to manage an asset's failure modes. There are a number of different versions of RCM, but the key elements of any RCM process are defined in SAE Standard JA1011 Evaluation Criteria for Reliability Centered Maintenance. Consistent with this standard is the 'RCM-2' framework, which Veolia has successfully used in a number of applications, particularly in North America.

When properly applied, RCM typically results in a reduced amount of routine maintenance work, while introducing more inspections and diagnostic activities to identify hidden failures and enable a greater degree of maintenance that is condition-based.

Application of RCM is most effective when a 'review group' approach is employed. To achieve this, a well-trained facilitator will conduct workshops with relevant plant-based technical experts. Software is used to document the steps taken and the resulting actions.

Although it can be time-consuming to perform, the outcome of RCM will usually be not only improved reliability and cost, but also an audit trail for maintenance changes, and a much deeper understanding of the assets by all participants. This last point contributes very positively to developing a proactive asset management culture within the operations team.

On the RRWS, Veolia will apply selective use of the comprehensive RCM framework for critical assets where there are major reliability issues or excessive maintenance costs.

10.3 Preventive maintenance

10.3.1 General preventive maintenance

Maintenance of the RRWS is predominantly a planned activity, with the emphasis on regular inspection, routine servicing and timely replacement or repair of asset components. Excessive maintenance is to be avoided, but each asset and asset component should be capable of reaching its economic life.

The preventive maintenance requirements of the RRWS are initially dictated by vendor recommendations and Veolia Maintenance standards. These in turn will be designed to ensure maximum reliability of plant items and developed on the basis of information provided from a variety of sources, including manufacturer's recommendations, equipment operation and maintenance manuals and operational experience from other plants. In general they fall into two groups:

1. Time-based preventive maintenance – this is applied where the operation of equipment is fairly consistent over time and is scheduled in the CMMS on the basis of fixed intervals of time (such as monthly, quarterly or annually). This includes regular inspections and checks of all process equipment
2. Running hours-based preventive maintenance – this is applied where operation of equipment is highly variable, for which maintenance investigations and / or actions are triggered by running hours

For more detail refer to Veolia Document *PRO-3826-2 Conducting Preventive Maintenance Procedure*.

10.4 Corrective maintenance

In addition to planned preventive maintenance, there is a need to perform on-condition, or 'corrective', maintenance. This is essentially maintenance conducted on the basis of sub-optimal condition, with the aim of preventing further loss of performance or running to failure.

Corrective maintenance may come about as a result of a discovery from a condition inspection or test, or during the conduct of a preventative maintenance routine. Alternatively it may be triggered by online condition or performance monitoring parameters, which give early indication of deterioration.

10.5 Condition monitoring

While many corrective maintenance activities cannot themselves be easily planned, the inspections, diagnostic checks and condition monitoring activities that trigger them can be. In this way, Veolia employ a number of 'predictive' maintenance activities as part of the preventative maintenance plan for the RRWS.

Condition monitoring and inspections are planned to be an integral part of the maintenance strategy for the RRWS. These include:

- Online monitoring of efficiency, performance and condition indicators
- Vibration analysis
- Oil analysis
- Thermographic imaging, (where possible)
- Corrosion monitoring
- Visual inspection and condition grading

10.6 Breakdown maintenance

In contrast to the more organised structure of preventive maintenance, emergency and breakdown maintenance is unpredictable and requires operations and maintenance personnel to be reactive.

Since one of the primary objectives of maintenance is to ensure that equipment is able to meet the required performance standard at all times, then all breakdowns must be attended to.

Breakdowns that constitute an 'incident' are to be addressed as outlined in Veolia Document *MAN-3935-4 Incident and Emergency Management Manual*.

When a breakdown is discovered, operator-maintainer personnel identify the item and a decision is made as to how the item is addressed. This decision takes into account a number of different factors, including: the risks and consequences of not rectifying the problem; the costs and complexity of rectifying the problem; the criticality of the item that failed and its impact on operations; and the overall priorities of the client and operations team.

Information about the breakdown maintenance activity is then entered into the CMMS at the earliest opportunity, and this includes the type / mode of failure, as well as details about the suspected cause, the results of follow-up investigations and the impact on operations, personnel and equipment safety and / or the environment. In the process, the item will be automatically added to the outstanding work list with an appropriate response time along with any tools or spares required.

If the breakdown maintenance item is an emergency, maintenance staff may repair the selected asset on the spot, ensuring all WHS procedures are undertaken and input into the CMMS at the completion of the works.

In addition to providing historical information, capture of the failure information also provides input into planning activities. Where, for example, equipment is identified with unusually low mean time between failures (MTBF) and / or is incurring unexpectedly high maintenance costs, the whole of life costs of the asset will be reviewed with a view to revising the preventative maintenance and routine checks associated with that item.

For more detail refer to Veolia Document *PRO-3827-2 Conducting Breakdown Maintenance Procedure*.

10.7 Outage planning

Veolia plan carefully for maintenance that requires taking plant out of service. At all times, the operations and maintenance team act to ensure a balance between servicing equipment without compromising availability of plant.

As much as possible outages are scheduled to ensure minimum impact or risk to operations. An understanding of the criticality of the assets is essential to ensure that if maintenance is performed on equipment that is normally in standby, then there is still sufficient system redundancy to mitigate against the key risks.

For this reason, it is expected that outages for major preventive items and repairs as much as practical are planned to coincide with periods of reduced output.

10.8 Spare parts

10.8.1 Management of spare inventory

Initially spare parts have been purchased in accordance with Veolia's process for identification of critical spares as well as suppliers' recommendations. The spare parts inventory is established in the CMMS.

Spare parts are linked to assets and maintenance activities and be identified as used when they are removed from the store. This in turn automatically adjusts stock levels left in the CMMS.

Minimum stock levels are be allocated for each spare part. Once reached reorder reports can be produced for maintenance personnel. The minimum stock level are be based on lead time of replacement, frequency of used, price and criticality of the spare part. Each spare is linked to a preferred supplier to assist in purchasing of new stock.

The CMMS is capable of producing the following reports:

- Monthly reports with average spare part values to determine:
 - Volume and value of spare parts on shelf
 - Volume and value of spare parts used during the month
 - Volume and value of spare parts purchased during the month
- Stocktake audits are conducted yearly to determine the accuracy of the system

10.8.2 Critical spares identification

The criticality of the spare parts is an indication on how important it is to have a spare part on site. Having the right spare parts at the right time can save the plant from a long-term loss of production. However, having expensive and poorly chosen spare parts on site can be considered as unutilised capital and a waste of space in the plant's storeroom.

The criticality assessment for spares is a decision-making tool to help decide, according to the suppliers' recommendations and the team's experience, whether a spare should be purchased or not.

The spare parts criticality is assessed on a figure calculated from asset criticality and lead time. The result of the assessment is the spare criticality and can be used to assist with the decision to hold an item.

For more detail refer to Veolia Document *PRO-3828-2 Spare Parts Management Procedure*.

11. Criticality assessment

11.1 Priorities

Evaluating asset criticality is one of the most important asset management activities that Veolia conduct on the RRWS.

As an indicator of the 'consequence' of asset failure, criticality grading enables assets and associated management activities to be prioritised based on risk. At the Fairfield Recycled Water Plant, Veolia use criticality for the following:

- Monitoring asset risk levels; performing asset assessment, based on combining the results of criticality with the latest condition grade (see condition assessment below)
Asset risk levels are then used to set priorities for renewals
- Listing critical spares; identifying critical spares required to be held on site, based on asset criticality and lead time
- Prioritising reliability analysis; setting priorities for analysing assets to improve maintenance costs or reliability, including analysis for RCM

11.2 Criticality grading

Veolia defines an asset as critical if a significant adverse impact is expected in the event of total failure. When determining the criticality grade, the assessor must understand how the asset fits into the larger process, and how its failure will impact overall operational performance, operator and customer safety, and the environment.

The grading is conducted in accordance with Veolia Document *PRO-327-2 Criticality and Condition Assessment Procedure*.

Criticality grading of assets in the Plant has been conducted following commissioning of the Plant. Since criticality is determined by plant configuration, future criticality assessment will be performed as required by the asset team and involve site staff or when modifications are undertaken or if high risk events occur.

12. Condition grading and asset assessment

12.1 Purpose

The purpose of the condition grading and asset assessments is to provide a structured and consistent approach to review the condition and expected life of the asset, maintenance and renewal requirements, and the management of risk which feeds into the asset renewal plan.

A risk-based approach represents best practice in determining the method of assessment, and the frequency of monitoring activities. Asset condition rating and criticality factor are determined to produce an asset risk level assessment.

12.2 Condition grading

The condition grade for an asset is an indicator of the likelihood of total asset failure within 12 months of the assessment.

Operational staff are required to perform the assessment in groups of two as a minimum to reduce the level of error from subjectivity. The assessment is based on factoring in multiple criteria, taking into account the dominant failure modes of each asset and the signs of deterioration in condition that best predict where the asset lies in its life cycle as per Veolia Document *PRO-327-2 Criticality and Condition Grading Procedure*.

12.3 Inspection frequency and records

Asset condition inspections are programmed on an annual basis as a minimum and opportunistically carried out with repairs and scheduled works.

12.4 Asset assessment

The asset assessment is conducted using the condition and criticality gradings in accordance with Veolia Document *PRO-327-2 Criticality and Condition Grading Procedure*.

12.4.1 Low asset risk level

For assets with a 'low' score (1-4) the assessment has determined that given the criticality and the condition, they are of minimum current risk to the treatment plant operation.

If it turns out that renewals are planned for a given period, then a low score suggests that the renewal is not required if the main justification is on the basis of condition. Therefore, such activities, in the right circumstances can be delayed.

12.4.2 Moderate asset risk level

For assets with a 'moderate' score (5-6), the criticality and condition are such that there is not high enough risk to clearly justify a renewal (although it could be considered), but sufficient risk to warrant closer monitoring of the asset's performance and condition. If the condition deteriorates further, then it is incumbent of Veolia to then address the 'high' risk level.

12.4.3 High asset risk level

For assets with a 'high' score (8-10), the asset risk must be immediately and actively managed. The Operator must investigate the asset more thoroughly then determine whether to plan a renewal for the earliest opportunity or put in place a failure contingency strategy. The latter may involve purchasing a spare part or arrange for a work-around in the event of asset failure.

12.4.4 Extreme asset risk level

Only critical assets can have an 'extreme' score (12-15), which is designed to set the priority of action above assets with a 'high' level. In reality having an extreme score means that failure of the asset will result in adverse consequences and the likelihood is possible or expected. Immediate intervention or a failure management plan is required to be in place.

12.5 Asset assessment reporting

Gradings for criticality and condition will be recorded in time-series data in the CMMS to enable trending and review of historical indicators.

13. Asset renewal and durability

13.1 Forecasting challenges

The main asset management system at the Plant will be the CMMS. However, it should be noted that a CMMS is primarily designed as a maintenance transaction system, to schedule and record details of maintenance as it is carried out.

Such systems are not suitable for long term forecasting of capital renewal requirements since these items will depend heavily on individual failure patterns and deterioration curves that apply for different assets. At any plant, the number of different failure patterns is as varied as the number of assets themselves, and to deal with this complexity, it is necessary to use a separate planning system.

13.2 Planning and managing renewals

To manage the expenditure on asset replacement and refurbishment and ensure that they are planned in such a way as to minimise operational risks while remaining cost-effective, Veolia will implement its Contract Asset Renewal Management System (Sinapse).

Employed at a number of sites, Sinapse is a decision support system (DSS) that combines a structured process with a simple user interface for developing and managing the asset renewal program.

At its heart is a methodology for combining the results of the asset risk level assessment, as well as a historical renewal summary and a future renewal strategy, consisting each of a renewal 'profile' based on the following parameters:

- Renewal intervention frequency
- Number of refurbishments per life cycle of the asset
- Replacement cost

- Refurbishment cost

Key information is presented in a structured format to enable the maintenance team to make decisions about how to best manage risk and renewal. This information includes:

- Risk level; the results of the last criticality, condition and asset assessments
If the risk level is high or extreme, the manager is required to make comments about what is being done to address this, including a failure contingency strategy if applicable
- Historical summary; a list of historical renewals carried out on the asset, as well as a summary of the actual past renewal profile, determined by averaging the data in the list
The more renewals that are carried out the more accurate this data becomes
- Renewal strategy; a strategy for managing renewals moving forward is based on Veolia's projection of the above four renewal profile parameters
This strategy may be altered at any time based on review of the historical summary as well as the current asset risk level
- Future renewals; the planned renewal strategy will automatically produce a list of all upcoming renewals based on the renewal strategy and the date and type of the last renewal carried out

Veolia use Sinapse not only to determine whether renewals for low risk-level assets should be delayed and for high risk-levels brought forward, but also to track and report past expenditure, as well as prepare future budgets and long-term models.

13.3 Handover and residual life

Sinapse has been designed in such a way as to accommodate plants in which the assets are handed over at the end of the contract term.

Where assets have a stipulated handover life requirement. Where the system identifies that the normal program could lead to the asset not meeting this requirement, it will automatically program an extra intervention at the end of the contract to ensure this requirement is met. The Operations Manager may then bring this extra intervention to the second last or third last years of the contract to ensure that the workload is manageable.

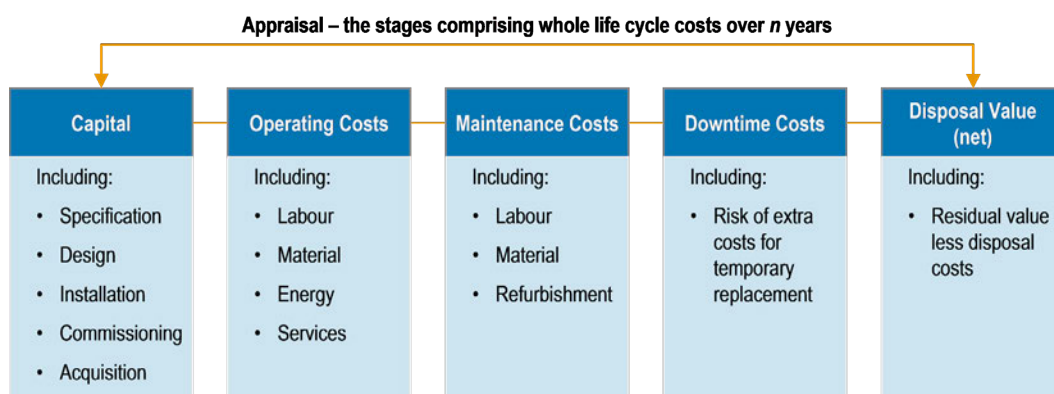
This value will be used in Sinapse to assist the Operations Manager in determining whether planned replacement of the asset needs to be brought forward to avoid unplanned failure.

13.4 Analysis of whole life costs

Sinapse is a planning system based on combining simplified predictive modelling of failure with assessment of the asset risk level. It can be used to generate both short-term budgets and long-term forecasts. However, when it comes time to perform major interventions, more investigation is required.

The methodology to be adopted by the Operations Team in the decision to create, renew or dispose of an asset will be based on the 'whole of the life' costs associated with the asset, using discounted cash flows and economic evaluation.

Whole of life costing analysis brings together all the costs of ownership and operation over the whole life of an asset. An example of the type of costs involved with whole life cycle costing is shown in the following table:



When planning to renew assets, Veolia will consult as required all relevant contract and technical documents, in particular as-built drawings, manufacturer-supplied information and the durability plan. This will ensure that material selection, and other factors that influence asset durability, are properly addressed during the Operations phase.

The outcomes of the condition grading and asset assessment are to identify critical and non-critical areas of operation and review the type of future asset maintenance or replacement that is required.

The analysis of the assessment score is linked to a whole life cycle cost analysis. Each asset is evaluated for risk and whole of life cost for its specific future maintenance needs.

Part of the analysis and review is to determine the actions required to be undertaken. The options available include:

- Current preventive maintenance activities are reviewed and increased or decreased
- Pre-emptive asset replacement or refurbishment is employed
- Increased condition monitoring
- Purchasing of critical spares to mitigate this risk
- Run to failure (for assets that are not critical)

A continuing emphasis is to be placed on utilising information collected and analysed to review the breakdown maintenance expenditure, preventative maintenance expenditure and asset renewal program.

Properly organised maintenance takes into account economic aspects and operating constraints. Increasingly, non-repairable components are used for basic equipment. The cost of repairing these components is often very high, and therefore a cost-benefit analysis must be undertaken to justify whether such a repair is economically viable compared with replacement of the component.

As a general rule, replacement of small items of equipment is preferred with the faulty item being removed and repaired in specialised workshops. Certain repairs are more economically performed by specialists who have advanced training and specialised tools at their disposal and are able to complete the work faster and cheaper. This brings about the need to subcontract selected maintenance work. This practice takes account of experience acquired in other applications and increases operational security.

13.5 Asset disposal

In instances where a decision is made to dispose of an asset, then the disposal activity will be conducted in accordance with Veolia Document *PRO-3823-2 Asset Creation and Renewal Procedure*.

For the infrastructure assets within the RRWS, the owner will be AquaNet. Disposal will necessitate that the Operations Manager takes responsibility, obtains the appropriate approvals and conducts, as required, a risk assessment to ensure that the means of disposal is not only cost-effective, but also safe and environmentally friendly.

If the asset includes any data stored within it, then it will be the Operations Manager's responsibility to ensure that the information is properly erased prior to, or in conjunction with the disposal.

14. Asset review and planning

14.1 General

Following a review of preventive maintenance tasks or an asset assessment, maintenance may be increased to reduce risk and prolong asset lives and ultimately reduce expenditure. The decrease in maintenance on a specific asset is only undertaken if there is no increase in risk to plant operation.

Maintenance may also be decreased or ceased, and the asset may be run to failure if it does not affect plant operation.

Any decisions made on changes to maintenance requirements on a specific asset initiate a review of maintenance requirements of assets of similar type across the plant. All assets of similar types will be re-evaluated with specific emphasis on the effect of the changes on risk to operations.

14.2 Asset review and reporting program

A tapered review process is utilised to minimise plant resources and to implement a process that accurately reflects the rate of change in condition of the asset and associated risk of failure.

Where practical ongoing condition-based monitoring and review will be undertaken. Veolia Document *PRO-3829-2 Asset Reporting and Analysis of Maintenance Procedure* details the reporting and asset review process that will be undertaken.

Over time, the review period for individual assets, or groups of assets, is optimised based on asset history data, and appropriate techniques for decay and risk analysis.

15. Capital investment strategy

15.1 Asset renewal

Veolia has developed schedules for asset renewal. In the process it has identified the estimated costs associated with all asset overhaul and replacement activities through the life of the Contract.

15.2 Initial planning

Planning for future capital investment needs and options aim to focus on the objectives and investment categories shown in the following table:

Objective	Capital investment category
Estimate the investment needed over time to maintain the serviceability of existing assets	Renewal: Capital – Maintenance investment for assets
Meet higher water quality and environmental standards	Water Quality: Capital – Water quality investment

Objective	Capital investment category
	Environment: Capital – Environmental investment
Meet higher service levels and performance standards	Improvements: Capital – Service levels investment
Meet growth in demand	Growth and New Demand: Capital – growth and demand investment

Adopting an integrated approach to asset management planning establishes the appropriate links between investment needs and outputs to:

- Identify the current level of service, performance, condition and serviceability of the assets
- Establish appropriate targets, standards and forecasts of service levels
- Establish planned and justified investments by priorities
- Balance investment, operational and maintenance needs with outputs

The outcome of the iteration process is to identify the preferred investment needs and options.

15.3 Project appraisal and investment studies

When needs have been identified, the resulting capital investment needs are evaluated, justified and prioritised as part of the project appraisal process.

Investment studies should be undertaken to deal with strategic options, while project appraisals focus on individual schemes and projects. Investment studies will cover:

- Investment strategy
- Investment justification
- Unit costs
- Investment compilation by asset type / investment category
- Assessment of outputs
- Assessment of total investment

Project study and appraisal reports will cover:

- Justification of need
- Statement of facts (including current situation and forecasts)
- Design criteria (including planning horizon)
- Options consideration
- Investment costs
- Operating costs / operating method
- Whole of life cycle cost / net present value options – summary of all options and costs
- Investment type, allocation and priority ranking
- Investment program and profiling

15.4 Capital program – compilation and priority raking

The capital investment proposals and options derived from the asset management planning studies have to be expressed in varied formats to assist the priority ranking of projects. Using an integrated format to collate the Asset Renewal Plan allows sensitivity analyses to be undertaken to determine the effects of varying and re profiling investment needs with outputs.

The effect of sensitivity tests on the various investment categories could include the following.

- Maintenance of assets: changes in asset maintenance and replacement policies could be assessed and linked to service levels, standards and asset lives; performance criteria could be reviewed
- Growth development: forecast rates of growth and new development could be reassessed

Compilation of projects into a Capital Investment Program would begin at the project appraisal stage, where project need, justification and benefits (both technical and financial) would all be subject to scrutiny. Within each investment category (ie, Renewal, Water Quality, Environment, Improvement, Growth and New Demand and Other), projects would be graded by priority. This would involve various techniques including whole of life cycle analysis and timed targets.

Investment category is prioritised by analysing investment levels by category and asset type to a capital investment expenditure ceiling. Scenarios examined would include least cost options, economic appraisal, maintenance options and establishing hurdle grades to supplement the serviceability and actual performance criteria.

The final preferred Capital Investment Program derived from the investment review and iteration process leads into the Asset Renewal Plan.

The systematic structured approach to asset management planning integrates key aspects into an overall strategy to operate the system effectively and economically.

By introducing an integrated process to justify the investment needs, economic optimisation comes from ensuring that resources are effectively directed at assets to achieve their maintenance, operation and service outputs.

The Asset Renewal Plan is an integral part of the asset management system and ensures that the performance of assets provide the service level objectives in the longer term.

By establishing the condition and performance of existing assets, a benchmark can be established to justify asset investment needs in conjunction with funding threshold and priorities.

Asset management planning is an important part of Veolia's management strategy to support the efficient and effective operation and maintenance of the Plant.

16. Membrane management

16.1 General

Having effective management and maintenance of the membrane system will ensure that the water quality objectives are met and the most cost-effective operation of system from an energy, chemical consumption and membrane replacement perspective is achieved.

A clearly defined membrane maintenance program involves a number of clearly defined processes. These include performance monitoring and process testing.

Another key component of monitoring fouling rates is the ability to autopsy the membrane modules. In addition to using the resources of the membrane supplier, or a third-party provider, the membrane modules can be sent to Veolia Water's Research centre in Paris, Centre de Recherche Maison Laffitte (CRML).

Autopsy diagnostics allow identification of the cause of potential membrane degradation and fouling problems as well as optimisation of the CIP solutions depending on the fouling characteristics.

16.2 Membrane types

Two types of membranes are used in the FRWP's process:

- Ultrafiltration – UF Membranes, Memcor / Evoqua S10N
- Reverse Osmosis – RO Membranes, Hydranautics ESPA 2LD

16.3 Membrane management

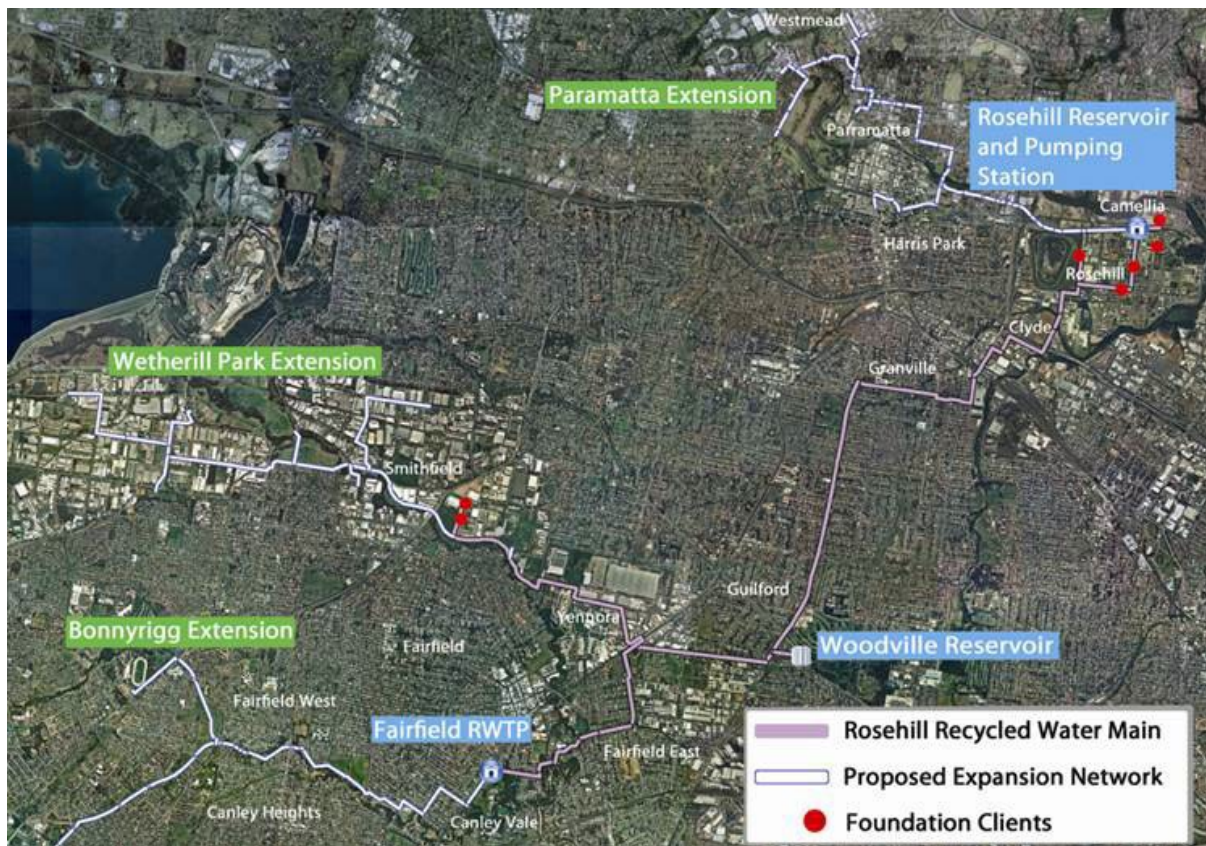
A key aspect of optimising the asset lives is the effective management of the Plant's membrane inventory.

In Australia, Veolia successfully manages ultrafiltration (UF) and reverse osmosis (RO) membranes in several plants the largest being:

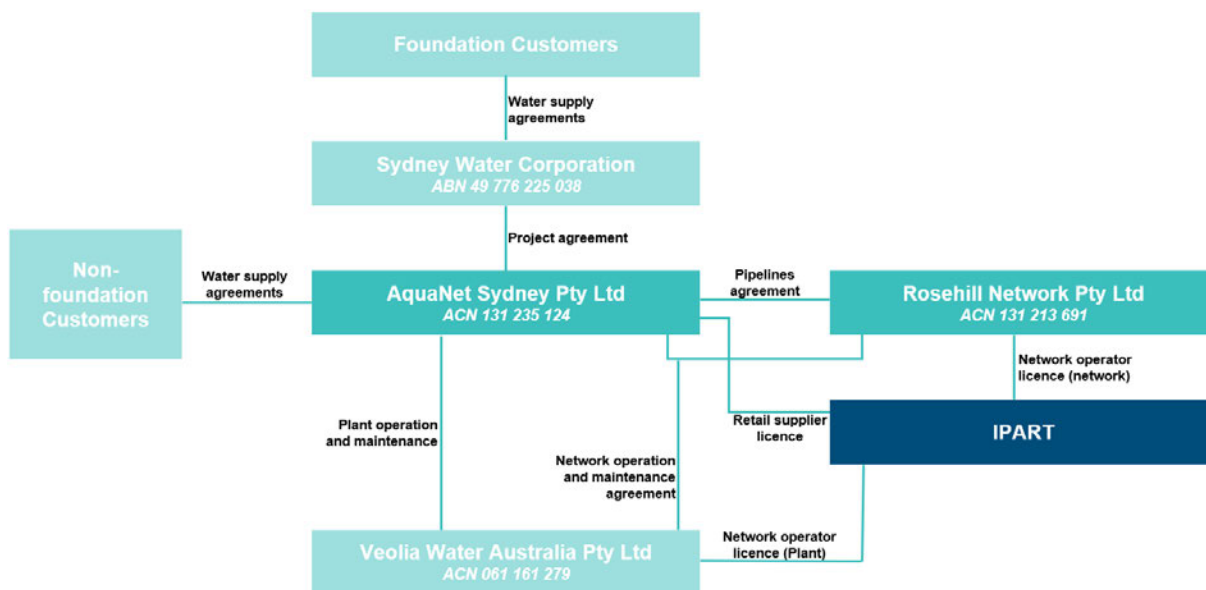
- For UF membranes – Bendigo plant with average output capacity 126 ML/day
- For RO membranes – Sydney Desalination Plant with average output capacity 250 ML/day

For detailed information regarding membrane management refer to Veolia Document *PRO-3821-2 Membrane Maintenance and Replacement Procedure*.

Appendix 1: Overview of the Rosehill scheme



Appendix 2: Rosehill scheme contractual framework

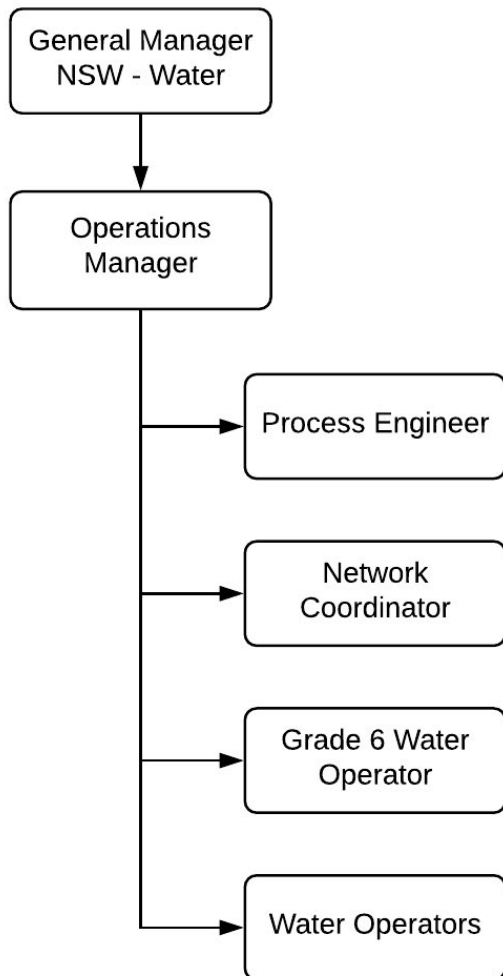


 conEXA Infrastructure Partners group member

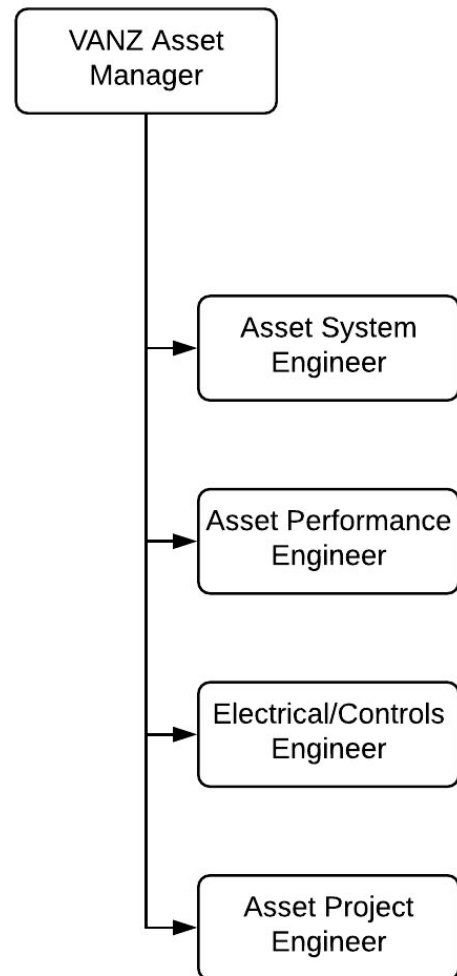
 Regulator

Appendix 3: Key Veolia personnel

Site Personnel



Support Personnel



Rosehill Network Pty Ltd

ACN 131 213 691

**RRWS-IMS-DOC-003
Water Quality Management Plan**

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1. Introduction

Rosehill Network Pty Ltd ('Rosehill Network') holds Network Operator's Licence number 09_002 issued under the *Water Industry Competition Act 2006* (NSW) ('WICA') under which it owns water infrastructure that forms part of the Rosehill Recycled Water Scheme ('Rosehill Scheme'). This document, Rosehill Network's Water Quality Management Plan ('WQMP'), has been developed to satisfy the requirements of the *Water Industry Competition (General) Regulation 2021* (NSW) (as amended from time to time).

1.1 Rosehill Scheme overview

The Rosehill Scheme involves:

- Extracting secondary treated effluent from Sydney Water's Liverpool to Ashfield Pipeline ('LAP')
- Treating the effluent to produce high quality recycled at the Fairfield Advanced Water Treatment Plant ('Plant')
- Transporting recycled water from the Plant, through a distribution network ('Network') to customers in the Fairfield, Cumberland, and Parramatta local government areas ('Customers')

The scope of the Rosehill Scheme is shown in Appendix 1.

The Rosehill Scheme is underpinned by a 20-year Project Agreement between AquaNet Sydney Pty Ltd ('AquaNet') and Sydney Water and is capable of delivering up to 25 million litres of recycled water per day to Customers.

Under the Project Agreement, AquaNet delivers recycled water to Sydney Water for sale to its own customers ('Foundation Customers'). Sydney Water has retail contracts with the Foundation Customers. Sydney Water supplies up to 32ML/d of treated effluent (according to an effluent specification in the Project Agreement) to the Plant from the LAP. AquaNet may sell any water in excess of that required to supply the Foundation Customers directly to its own customers ('Non-Foundation Customers').

AquaNet owns the Plant and has entered into an Operation and Maintenance Agreement with Veolia Water Australia Pty Ltd ('Veolia' or 'VWA') who is responsible for maintaining and operating the Plant.

Rosehill Network and its sister company, AquaNet, have entered into a Pipelines Agreement whereby Rosehill Network constructed and owns the Network. Rosehill Network has entered into an Operation and Maintenance Agreement with Veolia who is responsible for maintaining and operating the Network.

Both Rosehill Network and Veolia hold Network Operator Licences under WICA.

The contractual structure of the Rosehill Scheme is depicted in Appendix 2.

AquaNet and Rosehill Network are both part of the coNEXA Infrastructure Partners group of companies ('coNEXA') and through its various subsidiaries, coNEXA provides the resources, skills and expertise required for AquaNet and Rosehill Network to deliver the Rosehill Scheme.

2. Executive summary

2.1 Purpose

This WQMP has been developed for the Rosehill Scheme and is to be read in conjunction with Veolia Document *MAN-3954-4 Operations Management Plan – Rosehill Recycled Water Scheme* (OMP), which provides an overview of the plant's Integrated Business Management System (IBMS).

This WQMP together with the OMP address the twelve elements of the framework for the management of recycled water quality and use, as detailed in the Australian Guidelines for Water Recycling.

Throughout both of the documents specific references are provided to relevant procedures, work instructions and other documents that all together form the FAWTP Management System.

Detailed references are provided in Veolia Document *TEM-3978-1 WICA Requirements Reference Table*.

2.2 Expertise in producing and maintaining recycled water quality

2.2.1 Design, management and regulation

At the commencement of the scheme AquaNet oversaw the RRWS through two major subcontracts for the Plant and Network as follows:

- Plant Agreement: Veolia was responsible for owning, designing, constructing, maintaining and operating the Plant under a 20-year (2011) agreement with AquaNet Sydney Pty Ltd (AquaNet)
- Pipelines Agreement: Rosehill Network Pty Limited (Rosehill Network) was responsible for owning, designing, constructing, maintaining and operating the Network under a 20 year (2011) agreement with AquaNet

In 2019 the ownership of AquaNet and Rosehill Network was transferred to coNEXA (formerly Water Utilities Australia (WUA)), and consequently the scheme management changed, whereby:

- AquaNet and Rosehill Network, subsidiaries of coNEXA, wholly owns and is responsible for the overall delivery of the RRWS

Rosehill Network holds the WICA Network Operator's Licence number 09_002 for the operation of the RRWN and AquaNet holds the WICA Retail Supplier's Licence 10_01R for the operation of the RRWS

- Veolia Water is responsible for the Operation and Maintenance of the Scheme, including both the Plant and Network

Veolia holds the WICA Network Operator's Licence number 09_001 for the operation of the Plant

Veolia Water is a world leader in water reuse, with over forty water reuse projects worldwide, recycling over 600 megalitres a day, producing high quality treated water. Veolia Water has extensive experience in creating alternative water resources that will be used for:

- Irrigation for agriculture
- Irrigation of recreational areas, including golf courses and sports fields
- Toilet flushing
- Car washing
- Increasing environmental and river flows
- Industrial reuse: make up water for boilers and cooling towers, process water, cleaning and manufacturing

2.2.2 Design and construction

AquaNet engaged Parsons Brinkerhoff (PB), a highly experienced water industry design consultant, to complete the detailed Network design and associated hydraulic modelling. Highly experienced contractors were utilised for construction such as CLM Infrastructure Pty Ltd to install the Network, Tasman Tanks to install the reservoirs and KSB to supply the pumps.

Veolia Water Australia utilised the resources of Veolia Water Solutions and Technologies, to manage the design and construction of the Plant.

Veolia Water Solutions and Technologies has unique technologies that can treat wastewater, bore water, sea water, contaminated water or process water to produce high quality water essential for industrial reuse applications. Veolia Water Solutions and Technologies has designed and built water recycling plants to meet customers' site requirements in the oil and gas, mining, power, food and beverage, municipal and pharmaceutical market sectors.

2.2.3 Operation

Across Australia, Veolia has over twenty long term water operations contracts, involving more than 60 water and wastewater treatment plants. Veolia has more than 865 employees providing water and wastewater services to up to four million people in Australia and New Zealand.

2.2.4 Independent verifier

Sydney Water and AquaNet engaged an independent verifier, Kellogg Brown and Root Pty Limited (KBR), to ensure that the design and construction of the RRWS was delivered according to the specifications that form part of the Project Agreement.

3. Abbreviations

The following abbreviations are used in this Plan:

AGWR	Australian Guidelines for Water Recycling
AquaNet	AquaNet Sydney Pty Ltd
FAWTP	Fairfield Advanced Water Treatment Plant
HACCP	Hazard analysis and critical control point
IBMS	Integrated Business Management System
LAP	Liverpool to Ashfield Pipeline
PLC	Programmable logic controller
RO	Reverse osmosis
Rosehill Network	Rosehill Network Pty Ltd
RRWS	Rosehill Recycled Water Scheme
RRWN	Rosehill Recycled Water Network
SCADA	Supervisory Control and Data Acquisition
SLRA	Screening Level Risk Assessment
STP	Sewerage Treatment Plant
SWC	Sydney Water Corporation
VWA	Veolia Water Australia
VWS	Veolia Water Technologies and Solutions

4. Terms and definitions

Term	Definition
Consequence	The outcome of an event expressed qualitatively or quantitatively, being a loss, injury, disadvantage or gain There may be a range of possible outcomes associated with an event
Codes	Mandatory industry codes, and voluntary industry codes with which the organisation chooses to comply
Compliance	Ensuring that the requirements of laws, regulations, industry codes and organisational standards are met
Organisational standards	Any code of ethics, codes of conduct, good practices and charters that an organisation may deem to be appropriate standards for its day-to-day operations
Project	The complete project
Hazard	A source of potential harm or a situation with a potential to cause loss
Likelihood	A qualitative description of probability or frequency
Risk	The chance of something happening that will have an impact upon objectives It is measured in terms of consequence and likelihood
Risk assessment	The overall process of risk analysis and risk evaluation
Risk management	The culture, processes and structures that are directed towards the effective management of potential opportunities and adverse effects

5. Analysis of the recycled water

5.1 Recycled water quality

5.1.1 Source of water

The RRWS sources secondary effluent from the Sydney Water Liverpool to Ashfield Pipeline (LAP) as described in Veolia Document *TEM-3819 FAWTP Source Water Characterisation*.

5.1.2 Recycled water quality

The Plant treats the secondary effluent from the LAP to produce high quality recycled water to meet the Recycled Water Specification before it is stored in the recycled water storage tank on the Plant site.

Refer to Veolia Document *TEM-3898-1 Recycled Water Specification* for the parameters that are measured and their targets. The specification also identifies which parameters are monitored on-line and which parameters are tested in the laboratory.

On-line parameters are measured on a continuous basis. All other parameters are measured by the internal and / or external laboratory on a daily, weekly, or monthly basis as specified in Veolia Document *TEM-3799-4 Laboratory Analysis Schedule*.

The recycled water must meet the target parameters 95% of the time as measured on an annual basis. The recycled water must never exceed the limit to trigger product failure.

5.1.3 End uses

The RRWS supplies Recycled Water for industrial and commercial uses as described in Veolia Document *PRO-3820-3 Rosehill Recycled Water Scheme Overview*.

5.1.4 Routes of exposure

Routes of exposure include airborne spray from cooling towers, firefighting spray, physical contact with water during manufacturing, inadvertent drinking and contact with finished products.

The routes of exposure for each of these customers have been assessed and are documented in Veolia Document *EXT-3877-1 Customer Exposure Assessment and Health Performance Targets*.

5.1.5 Receiving environment

The receiving environments of the RRWS include:

- Recycled water customer sites and processes
- The natural environment through irrigation or mains break
- The Sydney Water sewer system through Plant waste stream
- Scour points along the Network that are used to drain or flush the Network during an emergency or a water quality event

Other end points include air valves and reservoir overflows.

5.2 Recycled water system

5.2.1 Key characteristics

The RRWS has the following key components and is depicted in the general diagram below:

- Effluent collection and treatment by Sydney Water and supply to the LAP
- Effluent extraction at the LAP
- Plant (including treatment by reverse osmosis, ultrafiltration, chlorination and other processes)
- Trade waste pumped to the Sydney Water sewerage system
- Network (consisting of pipes, reservoirs and pump stations)
- Potable water connection points
- Customers

A detailed description of the RRWS is provided in Veolia Document *PRO-3820-3 Rosehill Recycled Water Scheme Overview* and shown in the images below.

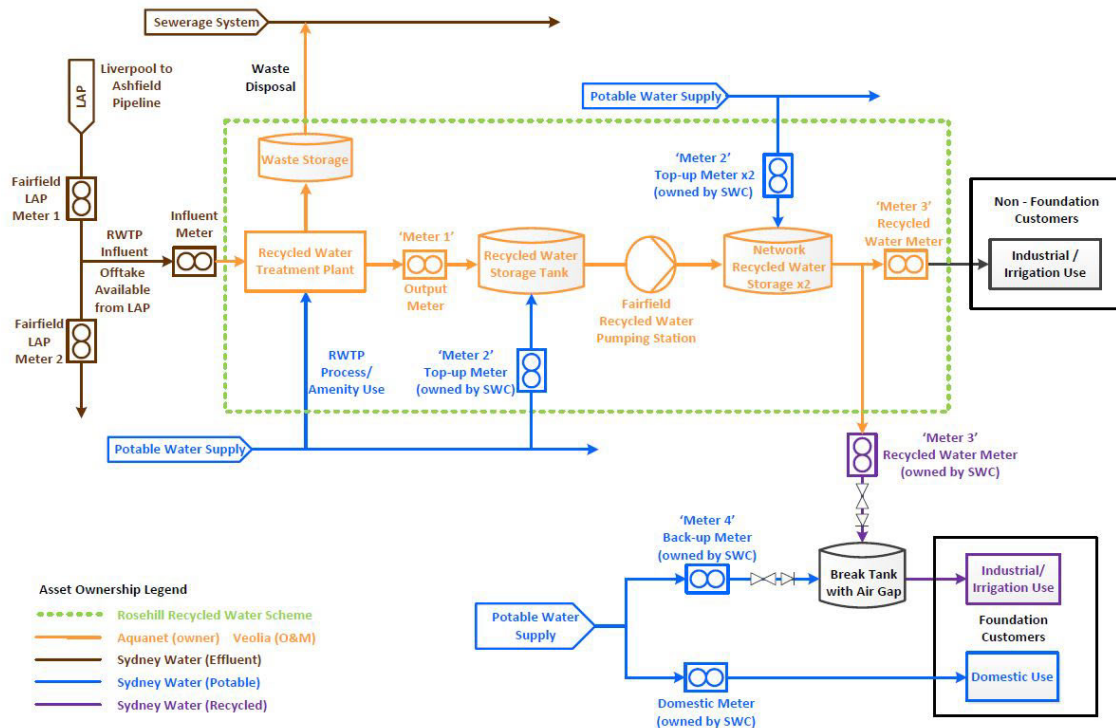


Image 2.1 – RRWS Schematic

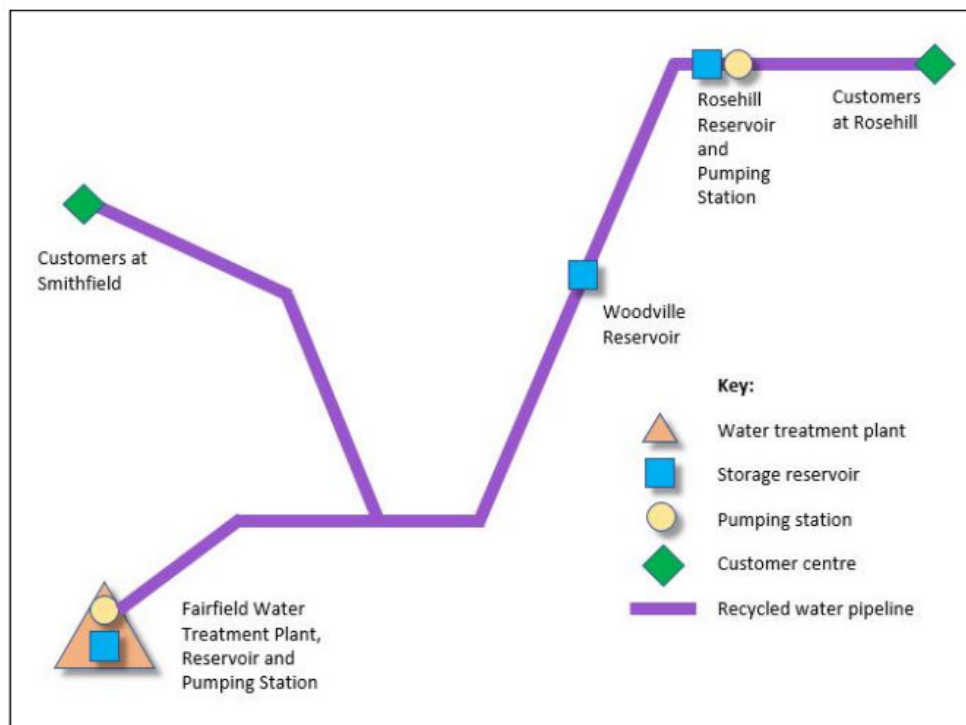


Image 2.2 – RRWN Schematic

Key components of the Network include:

- Pipelines (PVC, PE, ductile iron and stainless steel)
- Pump stations (Fairfield and Rosehill)
- Reservoirs (Fairfield, Woodville and Rosehill)
- Online Water Quality monitoring units (Fairfield, Woodville and Smithfield)

- Isolation valves at approximately 1km intervals
- Air valves at high points in the pipeline
- SCADA monitoring and control system
- Communication systems
- Potable Water connections
- Scours at low points approximately every 1km along the pipeline
- Customer meter sets including back flow protection

5.2.2 System analysis

Screening level risk assessment

In 2008, in partial fulfilment of the requirements of the 2006 Australian Guidelines for Water Recycling (AGWR) a screening-level (microbial) risk assessment (SLRA) was undertaken by Sydney Water to quantify potential health risks associated with recycled water for the proposed recycled water uses of the RRWS.

The risk assessment did not identify any human health risks that exceeded the acceptable annual risk benchmark of 10^{-4} (one additional infection per 10,000 persons per annum), either by the gastrointestinal (ingestion) or respiratory (inhalation) route.

As part of this study a desktop assessment of the required log reductions of microbial pathogens was also undertaken. It was found the predicted log reductions based on the proposed design exceeded those required in the 2006 Australian Guidelines for Water Recycling for industrial, municipal and fire-fighting use, in most cases by many orders of magnitude.

Values of 14 log reduction were estimated for bacteria (target 5.3), 10.55 log for viruses (target 6.5) and greater than 7.25 log reduction for protozoa (target 5.1), ensuring that recycled water was treated fit for its intended application in industry and irrigation as well as firefighting.

The SLRA study was undertaken by Dr Michael Storey of Sydney Water, Science and Technology.

Preliminary risk assessment and critical control point identification

Following the SLRA, a preliminary risk assessment was held on 19 September 2008. Attendees included:

- [REDACTED] – IPART
- [REDACTED] – Veolia
- [REDACTED] – Veolia (Western Corridor)
- [REDACTED] – Jemena
- [REDACTED] – Sydney Water
- [REDACTED] – AquaNet
- [REDACTED] – Veolia Water Solutions and Technologies (VWS)

A preliminary risk assessment TEM-3830 was developed as an outcome of this workshop.

As part of the workshop held on 19 September 2008 preliminary Critical Control Points (CCPs) were also identified.

The preliminary risk assessment and CCP identification were used to engineer controls into the RRWS.

A second series of risk assessment and CCP workshops were held in September / October 2010. The purpose of these workshops was to confirm the CCPs within the whole RRWS and to identify residuals health and environmental risks that have not been eliminated through Plant design.

The first of the workshops was to confirm the CCPs within the scheme.

Attendees included:

- [REDACTED] – IPART
- [REDACTED] – Veolia
- [REDACTED] – VWS
- [REDACTED] – Jemena
- [REDACTED] – AquaNet
- [REDACTED] – South West Health

The purpose of the second of the two workshops was to undertake a risk assessment to identify any outstanding health and environmental risks.

Attendees included:

- [REDACTED] – IPART
- [REDACTED] – South West Health
- [REDACTED] – Veolia
- [REDACTED] – VWS
- [REDACTED] – Jemena Operations
- [REDACTED] – AquaNet
- [REDACTED] – Sydney Water

Results of the workshops were recorded in Veolia Document *CRA-VW-ROS-2000-D1 Risk Assessment and Confirmation of CCP*.

5.2.3 Review of system analysis

The recycled water system analysis will be reviewed annually in conjunction with AquaNet in order to identify and incorporate any changes.

The analysis will also be reviewed following any major scheme expansion or change in end user requirements.

5.3 Recycled water quality data

5.3.1 Historical data

The source water for the RRWS comes from the catchments of Liverpool and Glenfield STPs, which form part of the Malabar Wastewater System. The two STPs receive both domestic and industrial waste (trade waste).

The design of the plant was based on the analysis of historical operational data from these two catchments.

5.3.2 Assessment of data

The database generated using the historical data of the raw water sources has been supplemented by the implementation of an onsite data historian. This historian is linked to the plant SCADA system and provides long term storage of plant process data.

6. Preventative measures for water quality management

6.1 Preventative measures

6.1.1 Multiple barrier approach

In accordance with the AGWR, the RRWS uses a multiple barrier approach to manage hazards in recycled water. Under this approach, a number of sequential processes are used, each of which provides a barrier to one or more hazardous parameters. The multiple barrier approach has a number of advantages:

- Reduced performance of one barrier does not result in a total loss of management
- It may be possible to temporarily increase the performance of the remaining barriers while remedial action is taken to restore function of the faulty barrier
- As a combination, multiple barriers produce less variability in performance than single barriers (AGWR)

There are several barriers in the RRWS to ensure that recycled water that does not meet the Quality Specification is not supplied to customers. They are:

- Trade Waste Agreements – Sydney Water effluent collections are covered by trade waste agreements (Sydney Water responsibility)
- Secondary Effluent Feed – Sydney Water treats the effluent to secondary treated effluent standard (Sydney Water responsibility)
- Monitoring of Feed Quality – Effluent is not to be allowed into the Plant if the quality falls outside the effluent specification (Veolia responsibility)
- Plant Unit Processes – Unit process barriers within the Plant are such that contaminants are removed in order to meet the Quality Specification (Veolia responsibility)

Unit process barriers are summarised in Table 4.1 below; full details are given in Table 4.2

	Ultrafiltration	Reverse osmosis	Ion exchange	Chlorination
Bacteria	☑	☑	☑	☑
Viruses	☑	☑	☑	☑
Parasites	☑	☑	☑	☑

Table 4.1 – Summary of Unit Process Barriers

- Quality at Plant Outlet – Recycled water that does not meet the Quality Specification is not allowed to transfer from the Plant into the Recycled Water tank (Veolia responsibility)
- Network Monitoring – Quality is re-tested as it enters the Network to ensure that it still meets the Quality Specification (Veolia Responsibility)

Recycled water that does not meet the Quality Specification is not delivered to the Customers. (Veolia Responsibility)

In all cases SCADA systems are used to monitor water quality and alarms are triggered when quality parameters are drifting towards the limits. This provides operators with time to take corrective action prior to the recycled water falling outside the Quality Specification.

Critical Process	Hazard Controlled	Virus	Bacteria	Protozoa	Validation Information Source	Expected Performance
1. SWC STPs	Virus, Bacteria, Protozoa	0	0	0	Awaiting correlation from SWC of STP performance vs log removals achieved Will not claim credit for log removals until data is received.	Raw water quality within Table A of contract specification
2. UF	Virus, Bacteria, Protozoa	1.5	4	4	Memcor studies, GAP scheme trail (SA) Memcor studies Memcor studies	Target PDT to be set based on commissioning parameters at a level which equates to Bacteria / Protozoa log removal of 4 across the process
3. RO	Virus, Bacteria, Protozoa	1.1	1.1	1.1	Membrane supplier, Western Corridor Scheme	Gives 1.1 log credit for bacteria, viruses and protozoa based on 1.1 log reduction in conductivity
4. pH adjustment	Suitable pH for industry. Incorrect pH for disinfection	0	0	0	Process modelling software Published information on disinfectant chlorine vs. pH. pH range setpoint from contract	The pH of the recycled water contractually must be between 6 and 9 The target for pH is 6.6-8.5
5. Chlorine dosing	Virus, Bacteria, Protozoa	4	4	0	Published information (GC White, 2004) on log reduction vs CT* Residual chlorine setpoint set by the Contract	Log removal for bacteria is 4 log for CT = 50mins Residual chlorine setpoint target of 1.0mg/L Limits to product failure are <0.7mg/L and >5.0mg/L
Total		7.6	9.1	5.1	*CT = concentration * contact time	
Required		6.5	5.3	5.1		

Table 4.2 – Summary of CCP Targets and Validation Information Sources, and Expected Performance for the FAWTP

6.1.2 Additional preventative measures

A risk assessment workshop was held in September / October 2010. The purpose of the workshop was to confirm the preventive measures and barriers within the plant and to identify any residual health and environmental risks that were not eliminated through plant design.

The first step of the risk assessment process was to identify hazards and their existing controls in accordance with Veolia Document *PRO-263-5 Risk Management Procedure*.

Following identification, the hazard was assessed with existing controls in place. Based on this, a risk score was generated which was used to assess the adequacy of existing controls.

This procedure was undertaken for each process step in the RRWS.

Results were recorded in Veolia Document *CRA-VW-ROS-2000-D1 Risk Assessment and Confirmation of CCP*.

6.1.3 Document preventative measures and strategies

The definition of process limits for the process barriers is defined in Veolia Document *TEM-3836 HACCP Register*. This document details the alarm and alert limits for each barrier and the corrective actions to be taken if these limits are reached.

6.2 Critical control points

6.2.1 Identification of critical control points

A CCP workshop was held in September / October 2010. The purpose of the workshop was to confirm the CCPs within the plant, create critical limits and to develop response plans if these limits are breached.

After completion of the hazard assessment, each treatment step was assessed for its criticality in controlling a specific health or other hazard.

Three types of control points were adopted:

- Critical Control Points (CCP): process points identified to control water quality health hazards
- Critical Operational Points (COP): points identified to control hazards affecting continuity of supply
- Quality Control Points (QCP): points identified as impacting on the process train but cannot be monitored online or monitoring point for final product quality where the control may be to dispose of or reprocess non-conforming product

CCPs and COPs are managed using the same protocol except for reporting of exceedances. CCPs and COPs monitor and identify failures of the barriers that would result in the residual risk of a hazard increasing above the level identified in the risk assessment.

Each barrier that was identified as a control in the risk assessment was assessed for its criticality in controlling the specific hazard.

A full description of critical control points for the plant is given in Veolia Document *TEM-3836 HACCP Register*.

For more details refer to Veolia Document *MAN-3941-2 Process Operations Plan – Fairfield Recycled Water Plant*.

6.2.2 Establish mechanisms for operational control

Following the identification of CCPs, alert and alarm levels were developed.

The purpose of an alert level is to advise the plant operator that a critical limit is being approached and that corrective action needs to be undertaken to ensure that the critical limit is not breached. Corrective procedures have been developed for alert levels for each CCP identified.

The purpose of an alarm level is to advise the plant operator that a critical limit has been reached and that corrective actions will immediately be undertaken. Corrective procedures have been developed for alarm levels for each CCP identified. These procedures will typically include automatic shutdown of plant equipment to minimise the impact of the CCP breach.

Summary screens on SCADA allow the plant operator to readily review the status and set points of CCP alert and alarm limits.

Details of the critical controls points along with their alert and alarm limits are given in Veolia Document *TEM-3836 HACCP Register*.

7. Verification of recycled water quality

7.1 Recycled water quality monitoring

7.1.1 Characteristics to be monitored

The characteristics to be monitored throughout the Plant have been identified and defined by several documents and studies. These include:

- Project Agreement
- O&M Agreement
- Water Quality Risk Assessment
- HACCP analysis

7.1.2 Operational plan

Based on the requirements of the documents listed in Section 7.1.1 an overarching Veolia Document has been developed *MAN-3941-2 Process Operations Plan – Fairfield Recycled Water Plant*.

Veolia Document *TEM-3799-4 Laboratory Analysis Schedule* details the location and frequency of sampling to be undertaken on site. The Process Operations Plan also details how analysis results will be managed to ensure that it is representative and reliable.

IPART will be notified in the event of any significant changes being made to this sampling plan.

7.1.3 Documentation and training

A number of procedures and work instructions have been developed to support the implementation of the Process Operations Plan, and to ensure consistency in sampling and reporting.

All VWA Operators have been trained in these procedures.

7.2 Recycled water users

7.2.1 Enquiry and response for customers

Customer enquiries are handled in accordance with Veolia Document *PRO-3915-3 Stakeholder Engagement and Evaluation Procedure*.

Veolia customer complaints are handled in accordance with Veolia Document *PRO-3916-2 Handling Complaints Procedure*.

7.2.2 Customer satisfaction and communication

A quarterly report covering water quality is provided to Customers. Customer participation in the RRWS is optional. The RRWS is dependent on Customers continuing to use Recycled Water as the sole source of revenue for the Scheme.

Regular communication with Customers is undertaken by AquaNet in accordance with the agreed terms of the recycled water supply agreement.

Any feedback from individual Customers is considered seriously by Veolia and AquaNet and improvements implemented to the extent that they are commercially viable and fit in with requirements of the other Customers.

7.3 Recycled water quality reporting

Internal and External Reporting takes place on a regular basis in accordance with Veolia Document *PRO-3816-2 Internal and External Reporting Procedure*.

8. Validation, research and development

8.1 Validation processes

Validation of the FAWTP was undertaken in accordance with Veolia Document *PL-FAI-20-2924-1 Validation Plan for Rosehill Recycled Water Treatment Plant*.

The objective of the validation was to ensure that hazards originally identified by the HACCP team were complete and correct and that they were being effectively controlled under the proposed HACCP plan.

The following HACCP principles were validated:

Hazard Analysis	Validate that all major risks have been identified Validate that the risks have been correctly rated and ranked Validate the efficiency of the process barriers as control measures
Identification of Control Points	Validate that there are CCPs for all significant hazards Validate that the CCPs are at appropriate stages of the process
Critical limits	Validate that the critical limits control the hazards
Monitoring of Control Points	Validate that the monitoring system will ensure that the control measure at the CCP is efficient
Corrective Actions	Validate that the Corrective Action procedures will prevent non-conforming water from reaching the consumer.

8.2 Change in conditions and new equipment

Processes are revalidated when changes to conditions, process equipment or operating protocol occur in accordance with Veolia Document *PRO-3807-1 NSW Water – Change Management Procedure*.

In the event of significant changes, a new process validation plan will need to be developed if it has any effect on the integrity and reliability of the process.

8.3 Design of equipment

Validation of the FAWTP was undertaken in accordance with Veolia Document *PL-FAI-20-2924-1 Validation Plan for Rosehill Recycled Water Treatment Plant*.

8.3.1 Validation of equipment and infrastructure

This procedure outlines a four-step approach to the validation of new equipment and infrastructure:

1. Desktop validation

The FAWTP process was validated at the desk top level to quantify its ability to achieve the required water quality objectives.

2. Validation of the process by pilot plant testing

A pilot plant representative of the FAWTP was built prior to the plant design and construction to validate the choice of process technologies.

The pilot plant studies allowed confirmation that the FAWTP process could achieve the required recycled water quality based on the design basis feed effluent quality.

3. Validation of the process efficiency from the literature

Further supporting the pilot plant results, sources of information available from literature and manufacturers were compiled in order to validate the efficiency of each treatment barrier and CCP at the FAWTP. This information was submitted to the Validation team during the validation workshop for review.

4. Design review

The FAWTP design was also reviewed by an independent reviewer with experience in water treatment. The consulting company selected for the independent review was KBR.

8.3.2 Validation of processes

The validation of the efficiency of the barriers for the FAWTP was undertaken using a two part process:

1. Process proving

The first part consisted of the individual Process Unit Proving Tests which was conducted during the commissioning phase of the FAWTP during April to June 2011.

The Process proving was conducted between 14 August and 25 August 2011. During the performance trial, the plant was required to operate under normal operating conditions to produce 20 ML/d or a lower pro-rata volume if insufficient feed was available to the plant to produce 20 ML/d. The performance trial was scheduled to take place over ten consecutive days.

The Product water quality was monitored during these periods to validate the efficiency of the process steps to remove satisfactorily contaminants and hazards identified in the risk assessment.

2. Validation workshop

A validation workshop was held on Wednesday 14 September 2011 at the FAWTP and was facilitated by the AWTP plant manager, Andrew Richardson. The purpose of the workshop was to review the HACCP process and to validate the effectiveness of the HACCP system in place.

The members of the validation team were Anne Caillon (Design and Construction Process Engineer), Kate Simpson (Operations Process Engineer), Andrew Richardson (Operations Manager), Colin Thompson (AquaNet Representative), Paul Cousins (Design and Construction Control Systems Engineer) and Troy Walker (Technical Manager).

After the workshop, it was concluded that:

- All major risks to human health and / or the environment posed by the recycled water have been identified, rated and ranked and that control measures have been put in place to control these
- A system of critical control points has been put in place to control recycled water quality and ensure that it is of a quality that does not pose a hazard to human health and / or the environment
- The critical limits selected are appropriate to the hazards and will ensure control of recycled water quality
- The plant, operating normally, will not breach the critical limits, as demonstrated during the plant performance trial
- Systems are in place to ensure that if the plant operating conditions approach the critical limits, automated corrective actions will take place to ensure that no water produced with any critical limit breached will reach the recycled water network

8.4 Investigation studies and research monitoring

Following commissioning of the plant, process data from the SCADA is being recorded to a plant historian database.

This data is analysed to identify any emerging trends, and to develop improved operating protocols to treat the LAP secondary effluent.

A dedicated process engineer is a member of the plant team. A key part of that role is process optimisation based on process data review. The site process engineer is supported by the Engineering department at VWAs corporate offices in Pymont and more broadly by the extensive technical knowledge of recycling available within VWA and in Veolia Water worldwide.

VWA implements a variety of knowledge transfer techniques to ensure that the staff at each of its operations can benefit from pertinent knowledge from other sites and from research and development projects. In 2010, for example, a 'lessons learned' workshop in water recycling was conducted at the Bundamba Advanced Water Treatment Plant in Brisbane, gathering technical staff from eight reuse and membrane plants to share lessons in water recycling.

Technical staff from Veolia's operations worldwide also frequently visit Australia and present technical information from other sites. Technical information sharing is also available through an on-line knowledge transfer network.

Veolia Water also has an extensive research and development program worldwide, with Australia being a key hub for research in recycling and membrane processes. This includes the co-funding of a Chair of Water Recycling at the University of Queensland.

9. Operator, contractor and user awareness

9.1 Recycled water quality awareness

9.1.1 Operator and contractor awareness

Base level process and operations training provides new operators with a minimum level of training required to understand and operate the Fairfield plant.

All contractors are required to undertake a site-specific induction providing awareness and outlining the requirements for water quality. The contractors are engaged with the Fairfield site in accordance with Veolia Document *MAN-3954-4 Operations Management Plan – Rosehill Recycled Water Scheme*.

9.1.2 End user awareness

Sydney Water conducted a training and awareness forum for foundation customers in September 2010. The forum included Jemena, Veolia Water and specialists in implementation of recycled water guidelines.

AquaNet also held a breakfast for potential customers that included a detailed description of the RRWS, and overview of the recycled water treatment process and case studies from the foundation customers.

Further one on one enquiry and response meetings were conducted between AquaNet and potential customers during the process of negotiating recycled water supply agreements.

During the process of finalising the recycled water supply agreements, customers were provided with the following information:

- Recycled water quality specification
- Approved end uses list
- RO Water Briefing paper (technical paper on RO recycled water), it's uses and precautions needed in relation to materials being used

9.2 User consultation strategy

AquaNet, ensures that customers are actively involved in water quality issues through the initial water quality education process that forms part of the recycled water supply agreement negotiation process and through the regular quarterly reporting that forms part of the recycled water supply agreements.

Individual customers have limited ability to influence a change in the Quality Specification, however constructive suggestions are taken on board and all customers will be consulted before any proposed change to the Quality Specification by the RRWS proponents. Customers confirmed agreement with the Quality Specification and the terms of supply through execution of their recycled water supply agreement.

Ongoing communication with customers is in accordance with Communication Protocol that forms part of the recycled water supply agreements and in accordance with Veolia Document *PRO-3915-3 Stakeholder Engagement and Evaluation Procedure*.

9.3 Promotion of benefits of recycled water use

The RRWS is an innovative project in which both AquaNet and Veolia are actively marketing in public forums, seminars, and through brochures and company websites. Any opportunity to promote the RRWS is welcomed by AquaNet and Veolia.

Listing of the benefits of recycled water use forms part of all promotional opportunities.

9.4 Unintended use

All recycled water equipment in the RRWS and on customer sites is clearly and permanently labelled with safety signs that follow the current version of the Safety Signs for the Occupational Environment Standard (AS1319).

Recycled water pipe work has colour coding that conforms to the guidelines for recycled water in the Plumbing Code of Australia. Signs advising of the use of recycled water on site and induction training help prevent unauthorised use. These measures ensure that customer employees, site visitors and other stakeholders are aware that the recycled water is 'not for drinking'.

9.5 Unauthorised uses

The recycled water supply agreements clearly state authorised specific end uses for each customer. It is a condition of the agreements that customers take responsibility for ensuring that:

- They restrict recycled water use to these specific uses
- Take the backflow and cross connection precautions as defined by the Water Supply Code of Australia (WSA)

Unintended and unauthorised end uses are most likely to be as a result of accidental cross connection of the Network or Customer recycled water systems with the potable water network. This risk is mitigated through measures such as:

- Before You Dig Australia (formerly DBYD) providing advice to workers working in the vicinity of the Network
- Customer site inductions and signs at the entrance to Customer Sites informing visitors (including plumbers) that recycled water is in use
- A requirement in the recycled water supply agreements for installation of recycled water systems by customers to comply with the Plumbing Code of Australia.

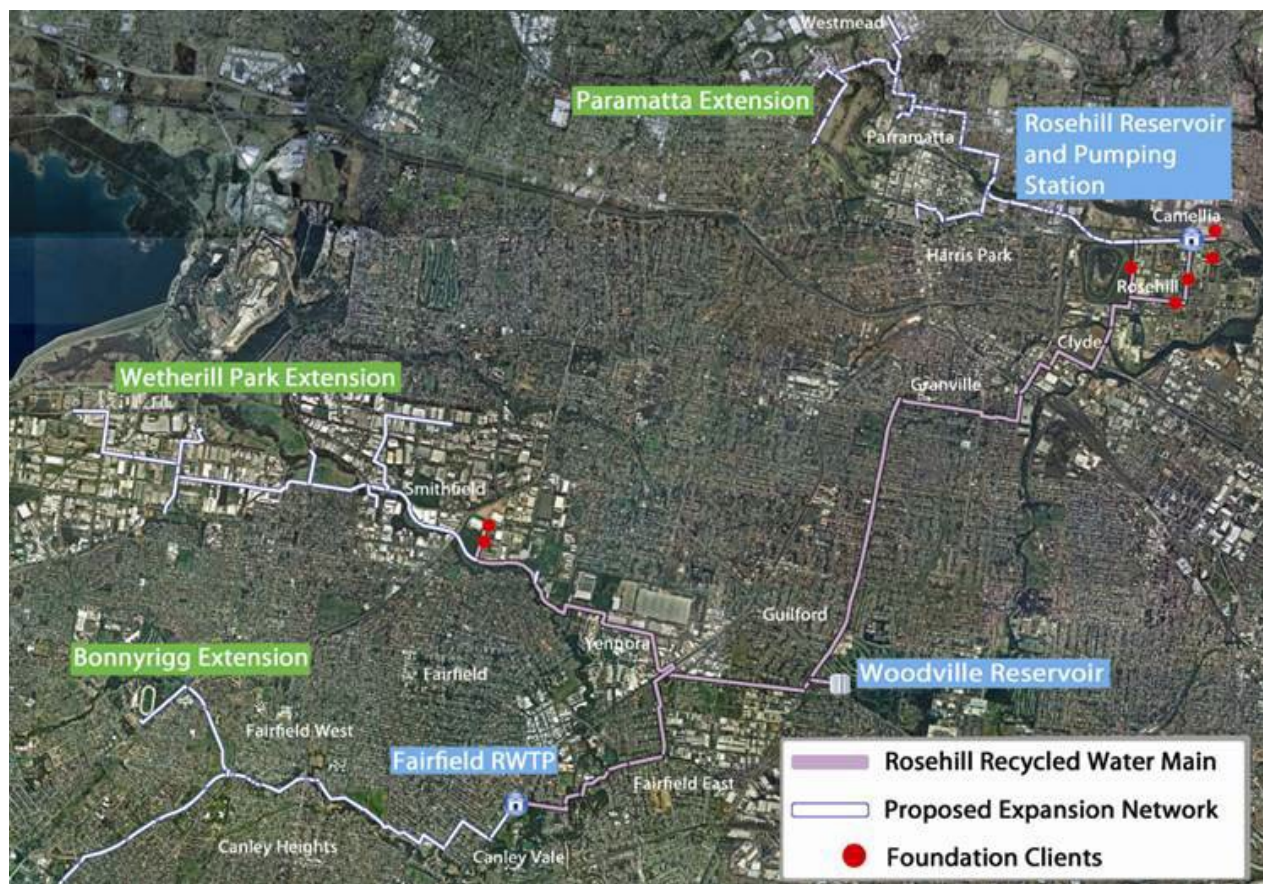
Licensed plumbers are used for all new connections to ensure that cross contamination does not occur in the Network.

10. Veolia reference documents

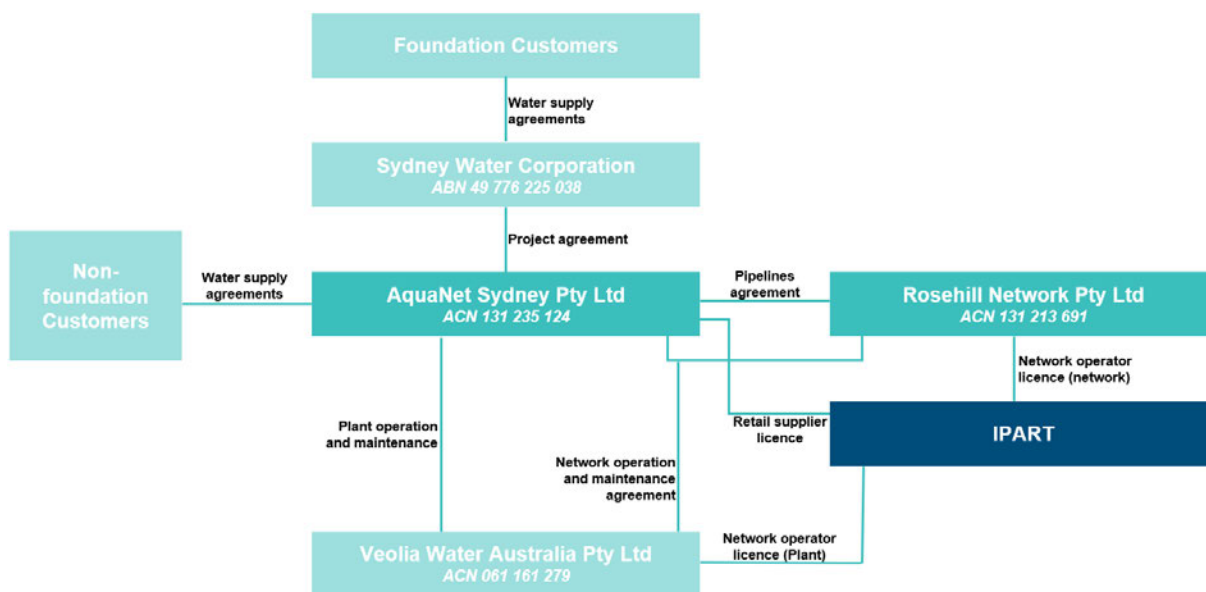
Document code / reference	Document name
TEM-3978	WICA Requirements Reference Table
PRO-3819	FRWP Source Water Characterisation
TEM-3899	Feed Water Specification
TEM-3898	Recycled Water Specification
TEM-3799	Laboratory Analysis Schedule
PRO-3820	Rosehill Scheme Overview

Document code / reference	Document name
TEM-3830	Preliminary Risk Assessment and Critical Control Point Identification
MAN-3954	Operations Management Plan
PRO-263	Risk Management
TEM-3836	HACCP Register
MAN-3941	Process Operations
MAN-3935	I & E Management Manual
PRO-3915	Stakeholder Engagement and Evaluation
PRO-3916	Handling Complaints
PRO-3816	Internal and External Reporting
MAN-3813	Validation
PRO-3817	Change Management

Appendix 1: Overview of the Rosehill scheme



Appendix 2: Rosehill scheme contractual framework

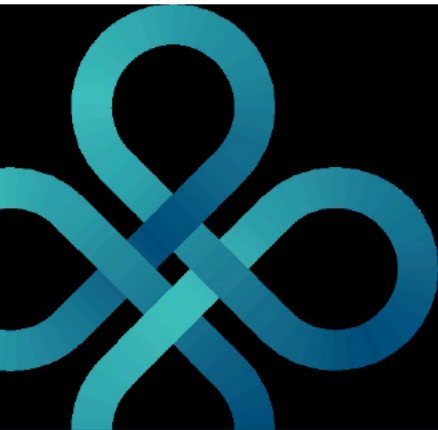


 coNEXA Infrastructure Partners group member

 Regulator

Use of Motor Vehicles Procedure				CIP-IMS-DOC-030
Version number	Version date	Approved by	Status	Next revision date
1.0	21 November 2024	Chief Financial Officer	Superseded	21 November 2027
2.0	5 January 2026	Chief Financial Officer	Released	5 January 2029

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Group Financial Controller	QHSE Manager	Chief Financial Officer



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1. Purpose

The purpose of this procedure is to outline the requirements for provision and use of motor vehicles by coNEXA Infrastructure Partners (coNEXA) employees.

2. Who does this procedure apply to?

This procedure applies to all coNEXA employees who drive a motor vehicle (company or private) during the normal course of undertaking coNEXA business.

Certain sections of this procedure are applicable to employees who use their private motor vehicle for undertaking coNEXA business.

3. Motor vehicle principles

coNEXA have a duty of care to provide and maintain a safe workplace and safe systems of work whilst workers are at work including when using a motor vehicle for coNEXA business use.

Motor vehicles are a key asset and any decision regarding provision and use will always be balanced between motor vehicles being an:

- Important tool of trade for delivery of coNEXA services, ie fit for purpose
- Asset with significant opportunity to use modern technology to enhance safety outcomes
- Opportunity to contribute to lowering our carbon footprint to protect and enhance natural environments

4. Provision of motor vehicles

Motor vehicles will be made available to employees required to travel between operational sites or where required to transport tools or equipment as part of their role. Provision of a motor vehicle to an employee will be requested by the relevant line manager and approved by the Chief Executive Officer. Provision to a new employee who is replacing a departing employee, where the departing employee had a motor vehicle provided, does not require re-approval by the Chief Executive Officer.

Upon termination of employment or upon request by coNEXA, the employee must return the company motor vehicle and any associated equipment or documents promptly.

Use of hire vehicles should be in accordance with this policy but arrangements for hiring a vehicle must be in accordance with *CIP-IMS-DOC-029 Travel policy*.

5. Standard type of motor vehicles

All company provisioned motor vehicles must comply with a minimum 5-star safety rating. The standard type of motor vehicle to be provided will be a Ford Ranger 4x2 Double Cab Pick Up unless otherwise approved by the Chief Executive Officer.

Where employees are required to traverse rough terrain at operational sites or where travel requires it, a 4x4 equivalent may be provided at the discretion of the Chief Executive Officer.

6. Replacement motor vehicles

Motor vehicles provided by coNEXA for use by employees will be replaced around four years after delivery of the vehicle to coNEXA. Where the vehicle remains fit for purpose it may be retained for a further 12 month period. No vehicles will be retained longer than five years from delivery.

7. Motor vehicle signage

All motor vehicles provided by coNEXA will have mandatory coNEXA signage on the vehicle. This will be arranged at the time of delivery by the Fleet Manager and should not be removed under any circumstances.

8. Vehicle accessories

All vehicles provided by coNEXA will be fitted with a 2.3kg fire extinguisher and standard first aid kit. Employees are responsible for inspecting these during routine vehicle inspections.

Where staff require additional accessories fitted to the vehicle, a request is to be made to the Fleet Manager who will obtain the necessary approvals.

Under no circumstances are additional accessories to be fitted without the approval of the Fleet Manager. Fitting additional accessories may damage the vehicle and incur additional costs from our fleet management provider.

9. General conditions of driving

All coNEXA employees who drive a motor vehicle (company or private) during the normal course of business whilst engaged by coNEXA must adhere to the following conditions of driving:

9.1 Licence

All coNEXA employees who drive a motor vehicle (company or private) on company business whilst engaged by coNEXA must hold a valid driver's licence for the class of vehicle they operate.

A copy of the licence must be provided to the Human Resources Department prior to driving a motor vehicle (company or private) during the normal course of business whilst engaged by coNEXA.

Once a licence has expired a copy of the replacement licence must be presented to coNEXA. coNEXA may request a copy of a valid licence at any time.

If a coNEXA employee drives a motor vehicle (company or private) during the normal course of business whilst engaged by coNEXA and loses their licence, it is the responsibility of the employee to inform coNEXA.

9.2 Road rules

Whilst driving a motor vehicle (company or private) during the normal course of business, employees must:

- Adhere to all road rules for the jurisdiction being driven in
- Ensure the vehicle is registered and roadworthy
- Not use the vehicle for any illegal activities
- When entering a premises where a traffic management plan is in place, adhere to the traffic management plan

9.3 Speed

Speed limits must be adhered to at all times. Employees should drive at speeds that are safe for the conditions, recognising that, in some circumstances (such as rain or fog) this may be below the posted speed limit.

When considering what a 'safe' speed is, consideration should be given not only to weather and road conditions, but also to the potential impact of a collision on road-users who are inherently vulnerable, such as pedestrians, motorcyclists and cyclists.

In addition, speed limits in unenforced areas such as car parks and sites where a traffic management plan is in place must be adhered to.

9.4 Log books

All employees driving a coNEXA provided motor vehicle (except for pool vehicles) must have a valid log book that reflects their current driving circumstances and is no older than five years at the end of the relevant FBT Year (1 April to 31 March).

The log book must be completed in accordance with Australian Tax Office Guidelines and submitted to the Group Financial Controller for filing.

9.5 Fuel cards

Fuel cards provided to coNEXA employees must only be used for fueling the relevant motor vehicle provided by coNEXA. Employees must advise the vehicle odometer reading to the service station attendant at the time of purchasing fuel on all occasions.

Where a fuel card is not provided or unable to be used for any reason, employees should use their company issued credit card to pay for fuel and must retain receipt for the purchase.

9.6 Maintenance, parking and cleaning

Employees with a coNEXA provided vehicle must satisfactorily maintain the vehicle, inside and out, in a clean and tidy condition at all times. Any servicing or repairs required should be notified to the Fleet Manager immediately.

All costs associated with maintenance and operation of motor vehicles provided by coNEXA will be borne by coNEXA.

Parking fees (but for the avoidance of doubt, not parking fines) incurred by coNEXA employees on coNEXA business will be reimbursed by coNEXA.

Reasonable cleaning of the motor vehicle including car washes, but not including detailing services, will be reimbursed by coNEXA, this should not exceed once per month unless the vehicle has excessive soiling from a site visit.

9.7 Storage of vehicle

Employees with a vehicle provided by coNEXA must:

- Provide appropriate safe and secure parking of the vehicle
- Ensure the vehicle is locked when not in use
- Avoid leaving valuable personal or company items in the vehicle when unattended

9.8 Fines

The driver of a coNEXA provided motor vehicle and / or hire motor vehicle is responsible for any fines incurred arising from operation of the motor vehicle in an unlawful manner.

Parking fines incurred by coNEXA employees are the responsibility of each employee.

9.9 Drugs and alcohol

Employees should avoid the use of alcohol prior to driving on company business and under no circumstances be over the legal blood limit for the class of licence.

Employees should never drive under the influence of medications or other drugs that are likely to affect alertness or driving performance. Employees must not drive if they are unfit to do so.

If an employee is unsure about their fitness to drive, they should contact their immediate manager.

Further information regarding drugs, alcohol and fitness to work are contained in *CIP-IMS-DOC-HR-014 Employee expectations*.

9.10 Smoking

Smoking is not permitted in any coNEXA provided vehicle. Note this is a legislated practice, smoking is prohibited by law in all enclosed workplaces and shared work areas, including work vehicles.

9.11 Fatigue

Realistic driving schedules should be planned which include stops for appropriate rest breaks, including taking a 'powernap' if feeling tired and avoiding driving during normal sleep hours. Jobs should be planned in order to minimise the amount of driving required.

A general rule to remember is to not drive more than two hours' duration without taking a 15 minute break. Drivers should endeavour to minimise the amount of driving in a single day to the extent reasonably practical. Where the driving time in a single day is expected to exceed six hours, a discussion and risk assessment with your manager is required to ensure appropriate safeguards are in place. Under no circumstances are employees expected to drive in a single day for longer than their own personal limits, acknowledging that these vary between individuals.

Alternatives such as flying, taxis and / or public transport should be considered where practical.

Further information regarding fatigue can be found in *CIP-IMS-DOC-HR-014 Employee expectations*.

9.12 Mobile phones

The use of hand-held mobile phones is illegal and **must never** be used when driving.

The use of hands-free mobile phones should be kept to an absolute minimum when driving.

9.13 Distractions

Distractions should be minimised whilst driving by:

- Not eating or drinking while driving
- Securing any loose objects in the vehicle
- Using a GPS with voice prompts when driving in an unfamiliar location
- Pulling over to adjust equipment, check maps or attend to personal grooming
- Asking passengers to help with tasks, ie checking map for directions

9.14 Seatbelts

Employees must wear seatbelts at all times and ensure any passengers are also wearing seatbelts.

9.15 Vehicle condition

Employees should check that a vehicle is in a safe condition to drive before starting a trip. The check should include the following:

- Tyres are fully inflated and have adequate tread
- Front and rear windscreens are clean and free of damage
- Side mirrors and interior rear vision mirror are clean and adjusted to the right angle and height for optimum view
- Vehicle is free from damage
- Headlights, taillights and indicator lights are operational

Additional items which can be considered before starting a trip can be found in the monthly vehicle safety check inspection in Skytrust. This can be completed in Skytrust, or if being completed outside of the monthly check, a blank inspection form can be downloaded and completed manually.

Any damage to the vehicle should be reported to the Fleet Manager immediately including the provision of photos of the relevant damage.

9.16 Vehicle inspections

WHS legislation considers vehicles as both plant and a workplace. As such regular safety inspections are to be undertaken by employees who are provided with a vehicle by coNEXA.

Employees are responsible for completing the safety inspections via Skytrust. Failure to complete these safety inspections may result in disciplinary action.

9.17 Loads

When travelling with loads, either internal or external, employees should ensure:

- The vehicle remains within its specified load limits
- All loads are secure and do not present a risk to passengers or other road users
- Loads remain within the legal length if overhanging from the vehicle

9.18 Country driving

Whilst driving in non-urban areas, the vehicle's daytime running lights (where available), or headlights should remain on at all times.

9.19 Driving conduct

Use of a coNEXA motor vehicle reflects upon the Company. The employee must not use the vehicle in any way that may be reasonably expected to cause reputational damage to coNEXA.

9.20 Limited private use

Employees may use a coNEXA provisioned motor vehicle for limited private use which includes:

- Travel between home and work
- Travel that is incidental to travel in the course of employment duties
- Non-work-related use that is minor, infrequent and irregular

Use of the coNEXA provisioned motor vehicle for any additional private use will be at the discretion of the relevant employee's line manager or in accordance with any employment agreement in relation to the relevant employee.

10. Reimbursement for use of private motor vehicles

Where an employee utilises their own motor vehicle for coNEXA business purposes, a rate per kilometre will be reimbursed.

Employees must keep track of the kilometres travelled and multiply this by the allowance (as advised by the Australian Taxation Office at the beginning of each financial year). The total amount is to be claimed via the company's expense claim process.

11. Accident reporting

All accidents involving the use of a motor vehicle for coNEXA purposes must be reported in accordance with *CIP-IMS-DOC-012 Incident reporting, investigation and actions*.

In the event of an accident, the driver must immediately contact the coNEXA Fleet Manager and the relevant Vehicle Providers Crash Management Service and the following must be adhered to:

- Obtain all necessary details from the other driver, ie:
 - Name
 - Address
 - Telephone

- Licence number
- Names of witnesses, if any
- Location details (street, town, suburb)
- Insurance details
- The police must be called to the scene of the accident in the following circumstances:
 - If any person is injured and an ambulance has been called
 - If any damage has been sustained to third party property, eg house, fence etc
 - If there is a conflict over which driver was a fault
- Under no circumstances should the driver admit responsibility of the accident or sign any acknowledgement in this regard
- Under no circumstances are repairs to be authorised by coNEXA employees
- Repairs are to be authorised by the Fleet Manager or directly by the insurer
- If any injury has been sustained by a coNEXA employee, it must be reported to the employee's manager immediately and logged in Skytrust as soon as practicable, but within 24 hours
- If a vehicle requires towing, a contractor authorised by the state's roadside assist provider is to be used, ie RAA, NRMA, RACV

A replacement vehicle may be made available to the coNEXA employee.

12. Breach of this procedure

Any breach of this procedure will be investigated and disciplinary actions may be taken including removal of the employee's entitlement to use a coNEXA provisioned motor vehicle.

13. Internal document references

- *CIP-IMS-DOC-012 Incident reporting, investigation and actions*
- *CIP-IMS-DOC-HR-014 Employee expectations*
- *CIP-IMS-DOC-029 Travel procedure*

14. Legislative references

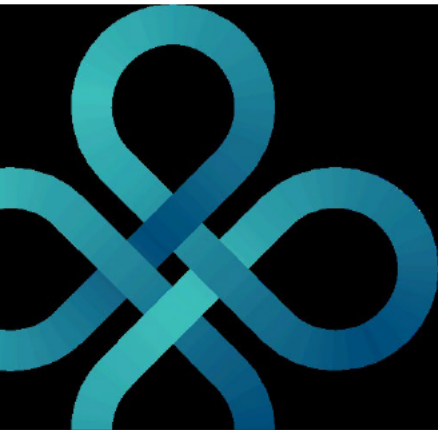
- National guide: Vehicles as a workplace – WHS guide, September 2022

15. External document references

- *Fleetcare Driver Guide (FC-DRIVERGUIDE-1023)*

Exposure to Biological Hazards				CIP-IMS-DOC-HS-016
Version number	Version date	Approved by	Status	Next revision date
0.1	23 August 2020	n/a	Draft	n/a
1.0	23 August 220	Risk and Compliance Officer	Superseded	23 August 2023
2.0	17 April 2023	Risk and Compliance Officer	Superseded	17 April 2026
3.0	29 July 2025	Legal Counsel	Released	29 July 2028

Document owner	Document reviewer	Document approver
QHSE Manager	P&O Management Group	Legal Counsel



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1. Purpose

The purpose of this procedure is to ensure that risks associated with exposure to biological hazards are adequately managed in order to minimise the risk of harm to workers. This includes ensuring that appropriate hygiene practices are adopted by all workers across all coNEXA business units.

2. Definitions

coNEXA	coNEXA Infrastructure Partners
PPE	Personal protective equipment
SOP	Standard operating procedure
SWMS	Safe work method statement
WHS	Work health and safety

3. Who does this procedure apply to?

This procedure applies to **all** coNEXA employees, contractors, sub-contractors and visitors who may be exposed to recycled water whilst undertaking work at coNEXA.

4. What are biological hazards?

Biological hazards are organic substances that pose a threat to the health of humans and other living organisms. Biological hazards include pathogenic micro-organisms, viruses (ie hepatitis), toxins (from biological sources), spores, fungi and bio-active substances. Workers may be exposed to biological hazards at coNEXA workplaces due to the presence of recycled water and in some instances, raw sewage.

5. Exposure to micro-organisms

Workers may come into contact with micro-organisms whilst performing duties at coNEXA workplaces. The potential for exposure to micro-organisms in the workplace may include:

- Direct contact with blood or bodily fluids where there is broken skin or splashes to the eyes, nose or mouth
- An infected person spreading germs by means of airborne droplets (eg influenza virus)
- Direct penetration of the skin by sharps, which have the potential to transmit tetanus or blood borne diseases

6. Health hazards of exposure

Health hazards associated with exposure to micro-organisms are related to three groups of diseases:

- Diseases caused by direct contact with pathogens
- Allergies caused by micro-organisms that may cause allergic reactions
- Poisoning or harmful effects caused by hazardous chemicals that may be used when working around micro-organisms

Conditions associated with exposure to micro-organisms include:

- Gastroenteritis
- Skin and eye infections
- Tetanus
- Polio
- Hepatitis A and / or B
- Respiratory illnesses (eg occupational asthma)

7. Managing the risks

To ensure we are managing the risks from biological hazards, the following process must be followed:

7.1 Identify, analyse and evaluate the risks

The first step in managing the risks of exposure to biological hazards is to identify the sources of exposure.

The process outlined in *CIP-IMS-DOC-027 Operational risk management* (section 4) is to be followed to assist with identification, analysis and evaluation of the risks of working around biological hazards.

7.2 Treat (control) the risks

Once hazards have been identified and the risks assessed, appropriate control measures must be put in place.

The ways of controlling risks are ranked from the highest level of protection and reliability to the lowest. This ranking is known as the hierarchy of risk control (refer figure 1). This hierarchy must be worked through, choosing the control that most effectively eliminates or minimises the risk in the circumstances, so far as is reasonably practicable. This may involve a single control measure or a combination of two or more different controls.

Any activity undertaken within a coNEXA workplace that involves a risk associated with exposure to biological hazards **must** have an SOP or SWMS that outlines the controls required to be implemented to mitigate the risk.

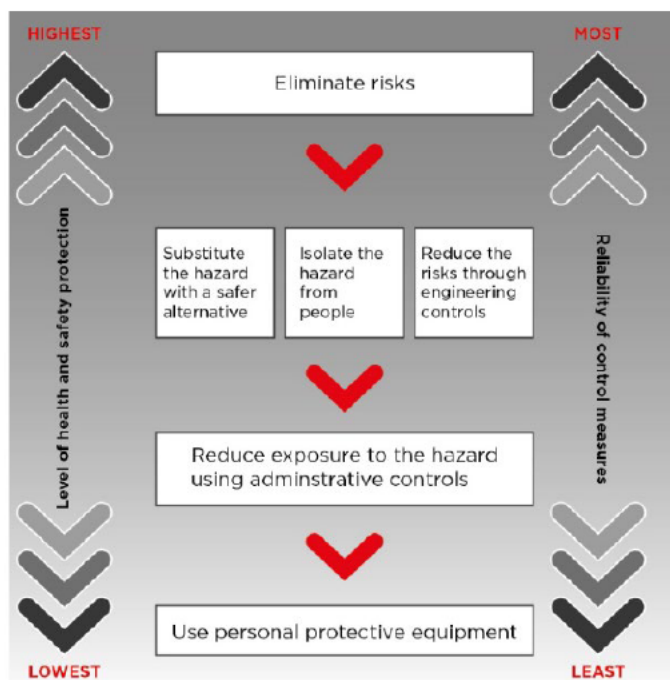


Figure 1: The hierarchy of control measures (Source: SafeWork SA, Code of Practice, How to Manage Work Health and Safety Risks, June 2020)

Elimination	This means removing the hazard from a workplace. This is the most effective control measure and must always be considered before other control measures.	Examples: Automated systems, ie samples, sludge transfer, screening chutes
Substitution, isolation or engineering controls	Reducing the risk via substituting for a safer alternative, isolating workers from the risk or engineering controls (changes to systems of work).	Examples: - Use mechanical aids to move sludge receptacles - Place bunding around screening bins / geobags

Administrative controls	Administrative controls should only be considered when other higher order control measures are not practicable, or to supplement other control measures. Administrative controls should also be considered for emergencies when other control measures fail.	Examples: • Written procedures for working around biological hazards • Restricted areas • Work method statements • Washing facilities near work areas • Prohibiting eating, drinking in areas where workers may be exposed to biological hazards • Pre-start risk assessments 'Take 5'
PPE	In most circumstances, PPE should not be relied on to control risks. It should be used only as a last resort when all other reasonably practicable control measures have been used and the risk has not been eliminated, or as interim protection until higher level controls are implemented. There may also be situations when the use of other controls is not practicable. PPE to be used in this instance may include • Long pants, long sleeves and task appropriate gloves to protect skin and reduce the risk of penetrating injuries • Safety glasses and / or face shield if there is a risk of splashes to the eyes, nose and mouth • Enclosed footwear / boots, to reduce skin exposure to recycled water	Note: Administrative controls and PPE do nothing to change the hazard itself. They rely on people behaving as expected and require a high level of supervision. Exclusive reliance on administrative controls and PPE must only occur where other measures are not reasonably practicable or as an interim control whilst the preferred control measure is being implemented.

7.3 Monitor and review

Controls will be monitored and reviewed, as a minimum, on a yearly basis to ensure the control measures remain effective and are:

- Fit for purpose
- Suitable for the nature and duration of the work
- Implemented
- Adopted, followed and used correctly

Risks and controls may also be reviewed:

- When it is identified that a control measure is no longer effective in controlling the risk
- Before a change at a workplace is instigated that may affect the risk or controls
- If a new hazard or risk is identified

7.4 Communicate and consult

Results of monitoring and review will be communicated to relevant workers.

8. Vaccinations

The Australian Government Department of Health and Aged Care recommend vaccinations for people at occupational risk, this includes plumbers and other people working with untreated sewage.

For these occupations it is recommended workers receive the following vaccinations:

- Hepatitis A; and
- Tetanus (dt or dTpa (diphtheria +/- pertussis))

In some instances, hepatitis B vaccination may also be recommended.

Whilst vaccinations are not mandatory, due to the nature of work undertaken by coNEXA, we recommend that all staff who are exposed to biological hazards are vaccinated against hepatitis A, hepatitis B and tetanus.

coNEXA will reimburse the cost of the vaccinations, including boosters, for engineering staff, operators and service technicians, where required.

Note: Employees are responsible for consulting their GP or medical professional to make sure the vaccinations are appropriate for their circumstances.

9. Hygiene

9.1 coNEXA responsibilities

coNEXA will take action to manage our facilities, plant, work environment, work procedures and tasks so as to reduce the risk of exposure so far as is reasonably practicable.

coNEXA will provide the following to reduce the risk of illness to workers:

- Washing facilities, eg wash points, safety showers
- Anti-bacterial soaps / hand sanitisers
- Disposable paper towels
- Suitable PPE
- Disinfectant
- Education on hygiene practices

9.2 Worker responsibilities

All workers have an obligation to take reasonable care of their own health and safety and ensure that their acts or omissions do not adversely affect the health and safety of other persons.

Workers must:

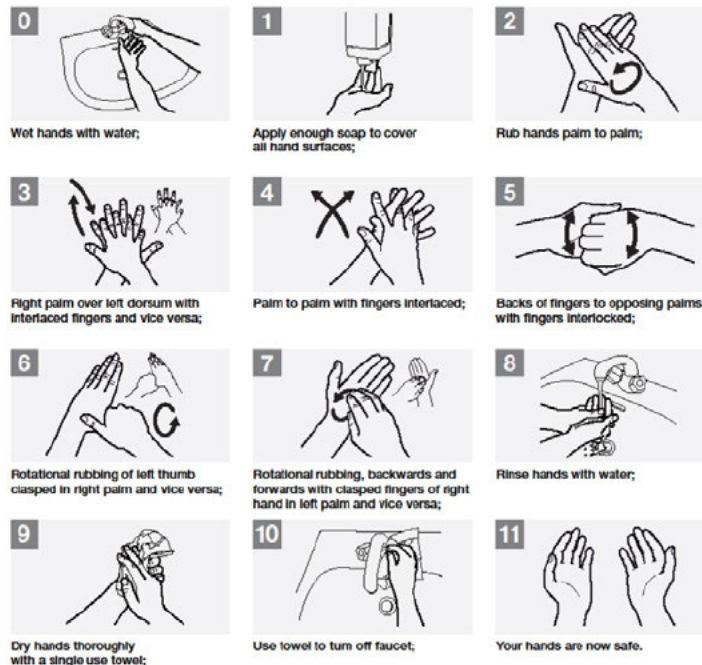
- Ensure that any open wounds, cuts, abrasions or skin irritations etc are protected from contact with recycled water, either by wearing / using the appropriate PPE or using dressings and / or barrier creams
- Maintain acceptable personal hygiene standards
- Wash hands when leaving a workplace and before eating
- Wash hands after using the bathroom
- Not place fingers or hands in, or around, mouth, nose, eyes or ears when working near or around biological hazards
- Keep fingernails short and not bite nails
- Wash hands and clean shoes before entering coNEXA facilities, including offices, stores, control rooms, pump stations etc
- Where plant, tools and / or equipment have been used around biological hazards, any soil or coarse matter should be removed
- Assume that anything touched by recycled water is contaminated
- Maintain adequate supplies of detergent / disinfectant in vehicles (note: products only to be used within their use by date and in accordance with SDS and / or manufacturer instructions)

Hand washing procedure – soap and water

How to Handwash?

WASH HANDS WHEN VISIBLY SOILED! OTHERWISE, USE HANDRUB

 Duration of the entire procedure: 40-60 seconds



Hand washing procedure – alcohol-based hand product

How to Handrub?

RUB HANDS FOR HAND HYGIENE! WASH HANDS WHEN VISIBLY SOILED

 Duration of the entire procedure: 20-30 seconds



10. Health monitoring

Records of vaccinations will be maintained by the QHSE Manager (or delegate).

11. Induction, training and supervision

All workers who may be exposed to biological hazards whilst undertaking work at coNEXA will receive sufficient information and training to work safely with biological hazards. Training records will be maintained via Skytrust.

12. coNEXA safety rules

Identify all sites where exposure to biological hazards exist

Develop task specific SWMS or SOP listing all hazards, risks and controls of working around biological hazards

Always use appropriate PPE

Maintain appropriate personal hygiene standards

13. Internal document references

- CIP-IMS-DOC-HS-002 *Personal protective equipment use*
- CIP-IMS-DOC-027 *Operational risk management*

14. Legislative and other references

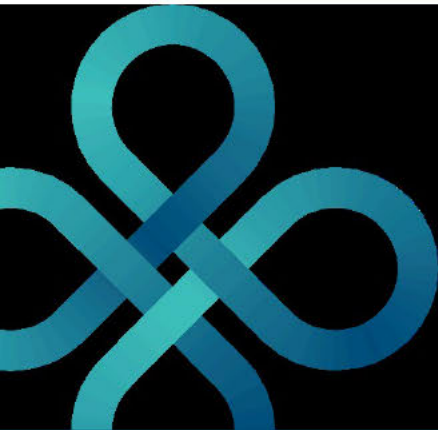
- The Australian Immunisation Handbook, Department for Health and Aged Care, <https://immunisationhandbook.health.gov.au/>
- WHS Codes of Practice
 - New South Wales Government Code of Practice: How to manage WHS risks, August 2019
 - NT WorkSafe Code of Practice: How to manage WHS risks, January 2020
 - Safework SA Code of Practice: How to manage WHS risks, June 2020
 - Workplace Health and Safety Queensland Code of Practice: How to manage WHS risks, 2021
 - WorkSafe Western Australia Code of Practice: How to manage WHS risks, 2022 (updated November 2024)

Working With Hazardous Chemicals and Dangerous Goods

CIP-IMS-DOC-HS-010

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Document owner	Document reviewer	Document approver
QHSE Manager	P&O Management Group	Legal Counsel



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1. Purpose

The purpose of this procedure is to:

- Provide information about the risks of hazardous chemicals and / or dangerous goods
- Give examples of how to control the risks
- Outline the coNEXA safety rules that must be adhered to whilst working for, or on behalf of, coNEXA.

2. Definitions

ADG Code	Australian Code for the Transport of Dangerous Goods by Road and Rail
coNEXA	coNEXA Infrastructure Partners
Dangerous Goods	Substances or articles that have explosive, flammable, toxic, infectious or corrosive properties which pose a risk to public safety, property or the environment
DGHS	Dangerous goods and hazardous substances
DGHS Manifest	A written summary, primarily for emergency services, for specific types of hazardous chemicals with physical hazards, acute toxicity or skin corrosion that are used, handled or stored at a workplace
DGHS Register	A list of all hazardous chemicals used, handled or stored at a workplace accompanied by a current SDS for each hazardous chemical listed (note this register is maintained for each business unit via Skytrust)
GHS	Globally harmonised system of classification and labelling of chemicals
Hazardous chemicals	Substances, mixtures and articles that can be a health or physical hazard if not handled or stored correctly
HAZCHEM	The name given to the group of chemicals classified as hazardous for use at workplaces according to the GHS
PCBU	Person conducting a business or undertaking
Placard	A sign or notice containing information about hazardous chemicals which is displayed in a prominent place where hazardous chemicals are used or stored
Placard quantities	The quantities referred to in WHS Regulations (Schedule 11)
PPE	Personal protective equipment
SDS	Safety data sheet
SOP	Standard operating procedure
SWMS	Safe work method statement
WHS	Work health and safety

3. Who does this procedure apply to?

This procedure applies to all coNEXA employees, contractors, sub-contractors and visitors working with, and around, hazardous chemicals and / or dangerous goods.

4. What are hazardous chemicals and dangerous goods?

Hazardous chemicals and dangerous goods have slightly different meanings and are treated in different ways dependent on the context. However, both hazardous chemicals and dangerous goods can pose a risk to a person's health or safety and the environment.

Hazardous chemicals are regulated under each state and / or territory's WHS Regulations, whilst dangerous goods are regulated by the Australian Code for the Transport of Dangerous Goods by Road and Rail 'the ADG Code' that has been adopted by each Australian jurisdiction.

Most substances and mixtures that are dangerous goods under the ADG Code are also hazardous chemicals under WHS Regulations.

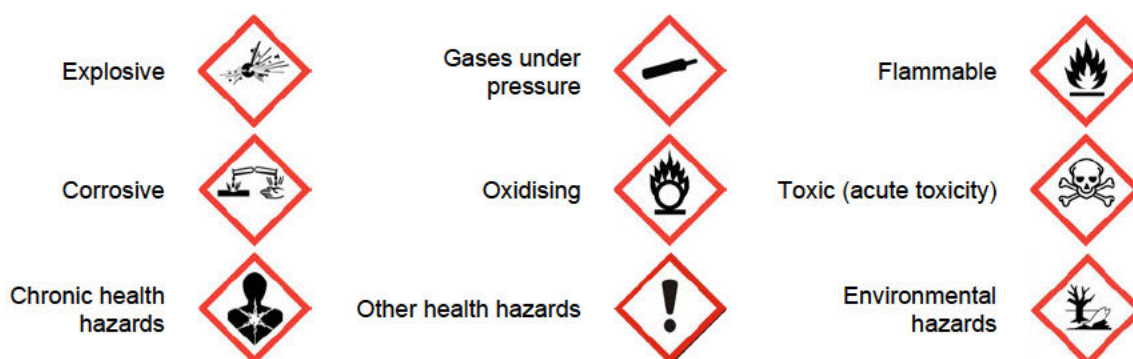
4.1 Hazardous chemicals

In relation to chemicals, a hazard is a set of inherent properties of the substance, mixture, article or process that may cause adverse effects to organisms or the environment. There are two broad types of hazards associated with hazardous chemicals which may present an immediate or long-term injury or illness to people. These are:

- **Health hazards:** These are properties of a chemical that have the potential to cause adverse health effects. Exposure usually occurs through inhalation, skin contact or ingestion. Adverse health effects can be acute (short term) or chronic (long term). Typical acute health effects include headaches, nausea or vomiting and skin corrosion, while chronic health effects include asthma, dermatitis, nerve damage or cancer. Examples of chemicals with health hazards include toxic chemicals (poisons), carcinogens (cancer-causing chemicals) and reproductive toxins (chemicals which may cause infertility or birth defects).
- **Physical hazards:** These are properties of a chemical that can result in immediate injury to people or damage to property. They arise through inappropriate handling or use and can often result in injury to people and / or damage to property as a result of the intrinsic physical hazard. Examples of physical hazards include flammable, corrosive, explosive, chemically reactive and oxidising chemicals.

Many chemicals have both health and physical hazards.

The GHS pictograms below are representative of the physical, health and / or environmental hazards of hazardous substances.



Notes:

- Chronic health hazards include carcinogens, reproductive toxins, mutagens, specific target organ toxicants, and aspiration toxicants
- Other health hazards include skin, eye and respiratory irritation, allergic skin reactions, drowsiness and dizziness

4.2 Dangerous goods

Dangerous goods are defined by the ADG Code, as enacted in each Australian jurisdiction.

Dangerous goods are categorised into nine classes (or multiple classes) depending upon the properties of the dangerous good. A number of sub-divisions also exist.

- Class 1: explosives
- Class 2: gases
- Class 3: flammable liquids
- Class 4: flammable solids
- Class 5: oxidising substances and organic peroxides
- Class 6: toxic and infection substances
- Class 7: radioactive material
- Class 8: corrosive substances
- Class 9: miscellaneous dangerous substances and articles

A comparison of the hazard pictograms as specified in the GHS and the corresponding ADG class labels is provided in Appendix A.

4.3 Non-hazardous chemicals

Not all chemicals are classified as hazardous or dangerous. These products should still be used in accordance with manufacturer instructions, and where possible, documented within the coNEXA SDS register. Risks associated with use of these products still need to be managed in accordance with *CIP-IMS-DOC-011 Enterprise risk management framework*.

5. Managing the risks

To ensure we are managing the risks from hazardous chemicals and / or dangerous goods, the following process must be followed.

5.1 Identify the risks



5.2 Analyse and evaluate the risks

WHS Regulations include a number of specific duties for a PCBU to manage the risks to health and safety associated with using, handling, generating and storing hazardous chemicals at a workplace. These duties include:

- Correct labelling of containers and pipework, using warning placards and outer warning placards and displaying of safety signs
- Maintaining a register and manifest (where relevant) of hazardous chemicals and providing notification to the regulator of manifest quantities if required
- Identifying risk of physical or chemical reaction of hazardous chemicals and ensuring the stability of hazardous chemicals
- Ensuring that exposure standards are not exceeded
- Provision of health monitoring to workers
- Provision of information, training, instruction and supervision to workers
- Provision of spill containment system for hazardous chemicals if necessary
- Obtaining the current SDS from the manufacturer, importer or supplier of the chemical and making the SDS readily available to workers
- Controlling ignition sources and accumulation of flammable and combustible substances
- Provision and availability of fire protection, firefighting equipment, emergency equipment and safety equipment
- Preparing an emergency plan, and if the quantity of a class of hazardous chemical at a workplace exceeds the manifest quantity for that hazardous chemical, providing a copy of the emergency plan to the primary service organisation
- Stability and support of containers for bulk hazardous chemicals including pipework and attachments
- Decommissioning of underground storage and handling systems
- Notifying the regulator as soon as practicable of abandoned tanks in certain circumstances

All hazards identified **will** be *analysed* and *evaluated* in accordance with *CIP-IMS-DOC-011 Enterprise risk management framework, clause 7.2*. Where required, each hazard will be transferred to the appropriate risk register by the relevant manager in conjunction with Legal Counsel.

5.3 Treat (control) the risks

Once hazards have been identified and the risks assessed, appropriate control measures must be put in place.

The ways of controlling risks are ranked from the highest level of protection and reliability to the lowest. This ranking is known as the hierarchy of risk control (refer figure 1). This hierarchy must be worked through, choosing the control that most effectively eliminates or minimises the risk in the circumstances, so far as is reasonably practicable. This may involve a single control measure or a combination of two or more different controls.

Any activity undertaken within a coNEXA workplace that involves a risk associated with hazardous chemicals and / or dangerous goods **must** have an SOP or SWMS that outlines the controls required to be implemented to mitigate the risk.

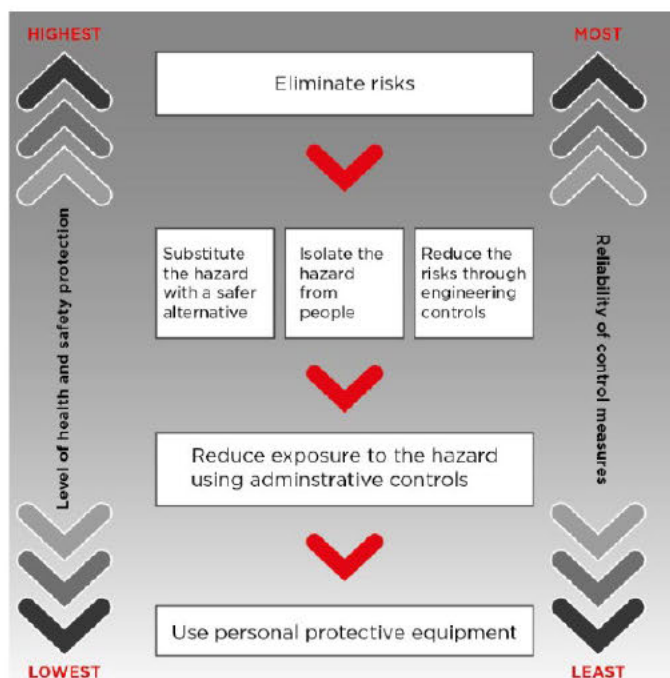


Figure 1: The hierarchy of control measures (Source: SafeWork SA, Code of Practice, How to Manage Work Health and Safety Risks, June 2020)

Elimination	This means removing the hazard or hazardous work practice from a workplace. This is the most effective control measure and must always be considered before other control measures.	Examples: - Eliminate the product, for instance use a non-hazardous / non-dangerous product as opposed to the hazardous / dangerous product - Eliminate exposure, for instance eliminate the handling activity by purchasing pre-mixed or diluted chemicals instead of manually mixing or diluting chemicals at a workplace
Substitution	Substitution is the replacement of a hazardous chemical or dangerous good with a chemical / substance that is less hazardous and / or dangerous and presents lower risks.	Examples: - Substituting a highly flammable liquid with one that is less flammable or combustible - Using hazardous chemicals or dangerous goods with a single hazard class rather than those with multiple hazards - Substituting high hazard chemicals like carcinogens, mutagens, reproductive toxicants and sensitisers, with less hazardous chemicals - Using diluted acids and alkalis rather than concentrates - Using a product in either paste or pellet form rather than as dust or powder
Isolation	Isolation involves separating people from the chemicals or hazards by distance or barriers to prevent or minimise exposure. Hazardous chemicals and dangerous goods should be physically separated from any other chemicals, substances or things that may be incompatible. This is achieved by distance, barriers, or a combination of both barriers and distance.	Examples: - Isolate workers from chemicals / substances - Isolate (segregate) chemicals / substances from other chemicals / substances (refer Appendix B for segregation chart)

Engineering controls	Engineering controls are physical in nature, including mechanical devices or processes that eliminate or minimise the generation of chemicals, suppress or contain chemicals, or limit the area of contamination in the event of spills and leaks. They often involve partial enclosure, use of exhaust ventilation or automation of processes.	Examples: • Using intrinsically safe electrical equipment in hazardous areas • Local exhaust ventilation to capture airborne contaminants close to their point of release
Administrative controls	Administrative controls should only be considered when other higher order control measures are not practicable, or to supplement other control measures. For carcinogens, administrative controls should only be used to provide additional protection. Administrative controls should also be considered for emergencies when other control measures fail. These are particularly important for cleaning spills or conducting cleaning and maintenance tasks.	Examples: • Written policies for using, handling and storing chemicals / substances • Restricted area policies • Work method statements • Housekeeping schedules • Prohibiting eating, drinking in areas where hazardous chemicals are used, stored or handled
PPE	In most circumstances, PPE should not be relied on to control risks. It should be used only as a last resort when all other reasonably practicable control measures have been used and the risk has not been eliminated, or as interim protection until higher level controls are implemented. There may also be situations when the use of other controls is not practicable. PPE includes overalls, aprons, footwear, gloves, chemical resistant glasses, face shields and respirators. The SDS for a hazardous chemical and / or dangerous good will detail the required PPE to be worn when handling that chemical / substance.	Note: Administrative controls and PPE do nothing to change the hazard itself. They rely on people behaving as expected and require a high level of supervision. Exclusive reliance on administrative controls and PPE must only occur where other measures are not reasonably practicable or as an interim control whilst the preferred control measure is being implemented.

5.4 Monitor and review

Controls will be monitored and reviewed, as a minimum, on a yearly basis to ensure the control measures remain effective and are:

- Fit for purpose
- Suitable for the nature and duration of the work
- Implemented
- Adopted, followed and used correctly

Risks and controls may also be reviewed:

- When it is identified that a control measure is no longer effective in controlling the risk
- Before a change at a workplace is instigated that may affect the risk or controls
- If a new hazard or risk is identified
- When an SDS is amended

5.5 Communicate and consult

Results of monitoring and review will be communicated to relevant workers.

6. Hazardous chemicals register

coNEXA must ensure that a register of hazardous chemicals at each workplace is prepared and kept up to date. To ensure this is readily accessible to all workers involved in using, handling and storing hazardous chemicals, this will be maintained via Skytrust.

7. Hazardous chemical manifests and notifying WHS regulator(s)

In some instances, a hazardous chemicals manifest may also need to be developed where the type and quantity of the hazardous chemicals stored at a workplace exceed the prescribed threshold amounts as documented in WHS legislation.

A manifest is different to a hazardous chemicals register; the manifest is a written summary of specific types of hazardous chemicals with physical hazards, acute toxicity or skin corrosion that are used, handled or stored at a workplace. The manifest contains more detailed information and its primary purpose is to provide emergency services organisations with information on the quantity, classification and location of hazardous chemicals at a workplace. It also contains information such as site plans and emergency contact details.

Where a manifest is required, notification to WHS regulators of manifest quantities may be required. Refer each state's / territory's Code of Practice for managing risks of hazardous chemicals in the workplace for further information regarding manifests and notification.

8. Chemicals with security concerns

High risk chemicals with security concerns must be identified in a workplace, for example explosive or toxic substances that can be used by unauthorised persons to cause a security incident.

These products will be stored with appropriate security measures in place to prevent any unauthorised access.

Below is a list of chemicals with high-risk security concerns currently used by coNEXA:

- Hydrochloric acid
- Sulfuric acid

To determine other products which are considered a security concern, visit the Australian National Security website [List of chemicals of security concern](#).

9. Storage and handling of hazardous chemicals and dangerous goods

All hazardous chemicals and dangerous goods stored on coNEXA sites must be:

- Appropriately labelled
- Stored in accordance with applicable state or territory legislation
- Stored in accordance with the SDS
- Routinely inspected to ensure integrity of product and containers
- Stored safely away from incompatible products (refer Appendix B)
- Stored in accordance with the relevant Australian Standard (ie AS 3780: The storage and handling of corrosive substances), if required
- Correctly signed or have placards, if required
- Listed in SDS register
- Listed in DGHS register, where required
- Stored in quantities as low as reasonably possible and not exceed quantities allowed for by legislative requirements
- Stored in a manner that physically separates incompatible goods so that a loss of containment cannot cause a serious incident
- Stored so as not to impede access or egress
- Stored in a locked area with access restricted to authorised workers only
- Chemicals with time / temperature sensitivities must be stored in a manner to ensure they remain stable and procedures must be in place to regularly confirm stability

- Flammable or combustible materials must be stored away from ignition sources

9.1 Labelling

Hazardous chemicals must be correctly labelled in accordance with WHS legislation.

When decanting hazardous chemicals, a label must be affixed to the container to identify the contents. An example of a hazardous chemical label is shown below, further examples can be found in each state's Codes of Practice for labelling of workplace hazardous chemicals.

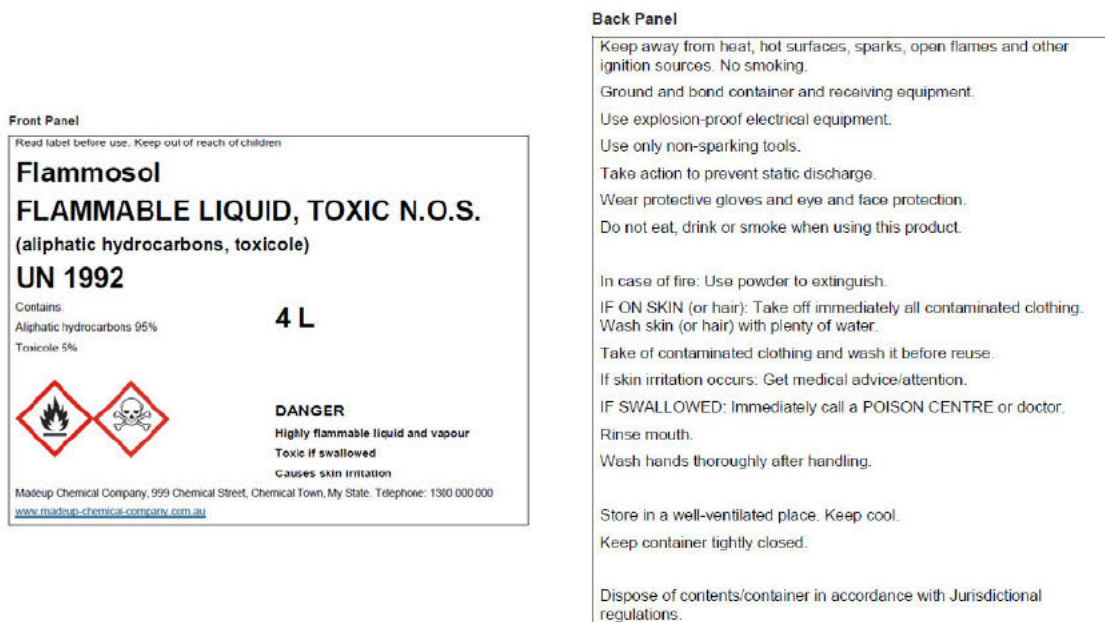


Figure 2: Example labels (Source: SafeWork NSW, Code of Practice, Labelling of workplace hazardous chemicals, December 2022)

Containers with a hazardous chemical label are to only be used for the use, handling and storage of the hazardous chemical detailed on the label.

Under no circumstances are containers to be unlabelled.

9.2 Flammable and / or combustible liquids

Flammable and / or combustible liquids which may be stored at coNEXA workplaces include fuels, solvents and greases.

Where practicable, these should be stored in dangerous goods storage cabinets, in accordance with AS 1940: The storage and handling of flammable and combustible liquids and take into consideration the segregation requirements shown at Appendix B.

Where it is not practicable to store these items in a dangerous goods storage cabinet:

- Choose a chemical storage location that is away from any ignition sources that cannot easily be removed (such as pilot lights)
- Eliminate any ignition sources near the chemical storage (for example, install non-sparking lights)
- Do not allow ignition sources to be introduced to the flammable liquid storage area
- Do not allow hot work (grinding, heating, welding etc) near the flammable liquid storage areas

9.3 Decanting

Where possible, chemicals should be kept in the original container with the original label from the manufacturer / supplier.

Where chemicals must be decanted, the SDS should be referred to, to ensure the correct procedures are followed and only suitable containers are used. Decanting must only be undertaken within a bunded area to contain any spills or discharge into the environment.

Hazardous chemicals must never be decanted into food or drink containers.

9.4 Mixing, handling and using

When mixing, handling and using hazardous chemicals, the SDS must be followed as should the steps as documented in a SWMS or SOP.

Before commencing a task that involves mixing, handling or using hazardous chemicals workers should:

- Conduct a visual inspection of emergency and safety equipment
- Ensure a copy of the SDS is available in the vicinity
- Ensure PPE is being worn / used as documented in the SDS and SWMS or SOP
- Conduct a Take 5 to ensure all risks are adequately controlled

9.5 Signage

Hazardous chemical signage will be installed so workers are aware of the presence and location of hazardous chemicals in each workplace.

Hazardous chemicals signs will:

- Warn of hazards associated with the hazardous chemical
- Be located next to the hazard
- Be clearly visible to anyone approaching the hazard

All hazardous chemical signs will comply with AS 1319:1994 Safety signs for the occupational environment.

Signage will be routinely inspected for adequacy.

9.6 Emergency and safety equipment

Equipment will be available at each workplace for use in an emergency. The equipment will vary depending on the type and quantity of hazardous chemicals at a workplace. Equipment will be available to:

- Respond to an emergency
- Contain and clean-up spills
- Assist workers in conducting emergency procedures safely

Equipment may consist of:

- Firefighting equipment
- Potable water hose reels
- Spill kit
- Emergency shower

- Eye wash station or kit

Equipment will be:

- Located so it is readily available for all workers in emergencies
- Maintained
- Compatible with the hazardous chemicals it may come into contact with

9.7 Housekeeping

To minimise hazards and prevent accidents / incidents, it is imperative that good housekeeping is maintained in and around chemical storage areas.

- Always wash hands after handling chemicals and associated equipment
- Undertake regular inspections of the area to check for leaks or spills, out of date chemicals and to ensure items are correctly stored
- Regularly clean storage areas to remove any chemical residue or build-up
- Return chemicals and associated equipment to their designated storage areas
- Clean spills / debris as soon as they are identified to prevent slip, trip and fall hazards

9.8 Emergency response

Emergency response plans have been developed for each business unit. Emergency response will be in accordance with the following:

- CIP-IMS-DOC-028 Corporate offices emergency response plan
- KWPL-IMS-DOC-008 KIWS emergency response plan
- LRSC-IMS-DOC-001 LRS emergency response plan
- WBWC-IMS-DOC-001 WBW emergency response plan

10. Bulk storage of chemicals

Where chemicals are stored in bulk storage tanks routine inspections must be conducted to ensure:

- Tanks, associated pipework and transfer systems are in good condition and protected from any potential damage
- Tanks are secure
- Bunds are in good condition, leak proof and free from debris and rainwater

Site specific operational procedures and plant registers should be referred to when determining the procedure and frequency at which chemical storage areas should be inspected.

Bulk chemicals must be stored in a dedicated storage tank designed for the purpose and compatible with the chemical to be stored. Access to the area must be restricted, with the relevant warnings and GHS pictograms clearly displayed in accordance with applicable regulations and codes of practice.

10.1 Pipework

All pipework used for transferring hazardous chemicals must be appropriately designed and manufactured. All pipework must be labelled in accordance with AS1345:1995 Identification of the contents of pipes, conduits and ducts.

10.2 Decommissioning of storage and handling systems

Hazardous chemical storage and dosing systems must be free of hazardous chemicals when the system is decommissioned. If it is not reasonably practicable to remove the hazardous chemicals from the system, the system must be correctly labelled.

Where an underground handling or storage system is no longer required or is to be disposed of, so far as is reasonably practicable, the system must be removed. If removal of the underground system is not reasonably practicable, the system must be made safe so that it does not pose any threat to health, safety or the environment.

11. Transporting

Only small quantities of hazardous chemicals (under 50 litres) are to be transported by coNEXA employees. Before transporting the employee should check:

- The chemicals are in appropriate containers with the correct label
- The containers are secured to prevent movement
- Weather conditions, ie extreme heat
- Bunding is available in vehicle to contain any leaks
- Appropriate PPE, spill kit and first aid kit is available
- Any hazardous manual tasks which may be required
- The compatibility of products being transported

12. Disposal of hazardous chemicals

Business unit managers (or delegates) should routinely conduct an inspection of workplaces to identify any out of date hazardous chemicals.

Out of date chemicals should be disposed of in accordance with the requirements of the SDS.

Where required, the SDS and / or DGHS register is to be amended.

13. Health monitoring

coNEXA have reviewed the requirements for health monitoring and confirm none of chemicals listed in Schedule 14 of WHS Regulations are used by workers of coNEXA.

As such, health monitoring is not required. Should this change, this procedure and health monitoring will be revised.

14. Induction, training and supervision

All workers working with hazardous chemicals and / or dangerous goods will receive sufficient information and training to work safely with hazardous chemicals and / or dangerous goods. Training records will be maintained via Skytrust.

15. coNEXA safety rules

Identify all hazardous chemicals and / or dangerous goods used, handled or stored at each workplace

Always obtain current, Australian, SDS for all hazardous chemicals / dangerous goods used, handled or stored at each workplace

Maintain SDS / DGHS register via Skytrust as required

Develop task specific SWMS or SOP listing all hazards, risks and controls of working with hazardous chemicals / dangerous goods

Always use PPE as identified in the product SDS when using and handling hazardous chemicals / dangerous goods

Always store hazardous chemicals / dangerous goods in accordance with the requirements of the SDS
Where required, create a manifest

16. Internal document references

- *CIP-IMS-DOC-011 Enterprise risk management framework*
- *CIP-IMS-DOC-028 Corporate offices emergency response plan*
- *KWPL-IMS-DOC-008 KIWS emergency response plan*
- *LRSC-IMS-DOC-001 LRS emergency response plan*
- *WBWC-IMS-DOC-001 WBW emergency response plan*

17. Australian Standards references

- AS 1319:1994 Safety signs for the occupational environment
- AS 1345:1995 Identification of the contents of pipes, conduits and ducts
- AS 1940:2017 The storage and handling of flammable and combustible liquids
- AS 3780:2023 The storing and handling of corrosive substances
- AS / NZS 4452:1997 The storage and handling of toxic substances

18. Legislative references

- Australian Code for the Transport of Dangerous Goods by Road and Rail, 2024
- Storage and Handling of Workplace Dangerous Goods National Standard [NOHSC: 1015 (2001)]
- Storage and Handling of Workplace Dangerous Goods National Code of Practice [NOHSC: 2017 (2001)]
- National Code of Practice for Chemicals of Security Concern, 2016
- SafeWork Australia guidance material, Managing risks of storing chemicals in the workplace
- WHS Codes of Practice
 - Safework SA Code of Practice: Managing risks of hazardous chemicals in the workplace, February 2024
 - New South Wales Government Code of Practice: Managing risks of hazardous chemicals in the workplace, December 2022
 - NT WorkSafe Code of Practice: Managing risks of hazardous chemicals in the workplace, January 2020 (updated September 2023)
 - Workplace Health and Safety Queensland Code of Practice: Managing risks of hazardous chemicals in the workplace, 2021
 - WorkSafe Western Australia Code of Practice: Managing risks of hazardous chemicals in the workplace, 2022 (updated November 2024)
 - WorkSafe Victoria Compliance Code: Hazardous substances, December 2019

Appendix A: Comparison of GHS hazard pictograms and corresponding ADG class labels

Hazard pictogram	GHS Hazard classes	Dangerous Goods class label (pictogram)	Dangerous Goods classes
	Explosives Self-reactives Organic peroxides	   	Explosive
	Flammables Self-reactives Pyrophorics Desensitised explosives Self-heating Substances and mixtures which, in contact with water, emit flammable gases Organic peroxides	     	Flammability (Liquid, Solid or Gas) Pyrophorics Desensitised explosives Emits Flammable Gas Organic Peroxide
	Oxidisers	 	Oxidiser Oxidising gas
	Gases under pressure		Non-toxic non-flammable gas, flammable gas, oxidising gas, toxic gas

Hazard pictogram	GHS Hazard classes	Dangerous Goods class label (pictogram)	Dangerous Goods classes
	Acute toxicity – categories 1, 2 and 3		Acute toxicity Acute toxic gas
	Acute toxicity - category 4 Skin irritants Eye irritants Skin sensitisers	No equivalent	
	Carcinogens Respiratory sensitisers Reproductive toxicants Target organ toxicants Germ cell mutagens	No equivalent	
	Eye corrosion Skin corrosion Corrosive to metal		Corrosive to metals
	Aquatic toxicity Not covered within the scope of workplace hazardous chemicals requirements		Environmental hazard
No equivalent hazard pictogram	No equivalent hazard		Miscellaneous dangerous goods

Hazard pictogram	GHS Hazard classes	Dangerous Goods class label (pictogram)	Dangerous Goods classes
No equivalent hazard pictogram	Not covered within the scope of workplace hazardous chemicals requirements		Infectious
No equivalent hazard pictogram	Not covered within the scope of workplace hazardous chemicals requirements		Radioactive

Appendix B: Recommended segregation of hazardous chemicals

Description of chemicals in segregation chart	
Dangerous goods class	GHS hazard class
Class 2.1	- Flammable gases - Flammable aerosols
Class 2.2	Gases under pressure
Class 3	Flammable liquids
Class 4.1	Flammable solids
Class 4.2	- Pyrophoric solids, liquids and gases - Self-heating substances and mixtures
Class 4.3	Substances and mixtures which, in contact with water, emit flammable gases
Class 5.1	Oxidising solids, liquids and gases
Class 5.2	- Self-reactive substances and mixtures - Organic peroxides
Class 6	All health hazards
Class 8	- Corrosive to metals - Skin corrosion category 1 - Serious eye damage category 1

Class	2.1	2.2	3	4.1	4.2	4.3	5.1	5.2	6	8
2.1	Compatible	Compatible	Refer to SDS	Segregate	Segregate	Segregate	Segregate	Isolate	Segregate	Segregate
2.2	Compatible	Compatible	Refer to SDS	Segregate	Segregate	Segregate	Segregate	Segregate	Segregate	Segregate
3	Refer to SDS	Compatible	Compatible	Segregate	Segregate	Segregate	Segregate	Isolate	Segregate	Segregate
4.1	Refer to SDS	Segregate	Refer to SDS	Compatible	Segregate	Segregate	Segregate	Segregate	Segregate	Segregate
4.2	Refer to SDS	Segregate	Refer to SDS	Segregate	Compatible	Segregate	Segregate	Isolate	Segregate	Segregate
4.3	Refer to SDS	Segregate	Refer to SDS	Segregate	Segregate	Compatible	Segregate	Segregate	Segregate	Segregate
5.1	Refer to SDS	Segregate	Refer to SDS	Segregate	Segregate	Segregate	Refer to SDS	Segregate	Segregate	Segregate
5.2	Isolate	Segregate	Isolate	Segregate	Isolate	Segregate	Segregate	Compatible	Segregate	Segregate
6	Segregate	Segregate	Segregate	Segregate	Segregate	Segregate	Segregate	Segregate	Compatible	Segregate
8	Segregate	Segregate	Segregate	Segregate	Segregate	Segregate	Segregate	Segregate	Segregate	Segregate

Key	
Compatible	Chemicals with similar hazards are usually compatible, however, chemicals may have more than one hazard and you should still check the SDS
Refer to SDS	Separation of these chemicals may be necessary; consult the SDS for further guidance
Separate	Minimum three metre separation These chemicals may react dangerously if stored together and should be kept at least three metres apart
Segregate	Minimum five metre separation Storing these chemicals together will significantly increase the likelihood or severity of an incident; they should be kept at least five metres apart or in separate storage areas
Isolate	Dedicated storage areas or storage cabinets are recommended for self-reactive chemicals and organic peroxides, as is separation from other buildings and property boundaries

Source: *Managing risks of storing chemicals in the workplace, SafeWork Australia*

Appendix C: Reading an SDS

Why read an SDS?

Product labels may not contain enough information about the hazards of a product, or instructions for safe handling, use and storage. A compliant SDS will contain all the information about a hazardous chemical / dangerous good.

An SDS is a key resource in managing the risks of hazardous chemicals / dangerous goods in a workplace. It is important that an SDS is carefully read and understood before working with a hazardous chemical / dangerous good so the product can be safely stored, handled and used in a workplace.

An SDS can be used to assist in assessing risks associated with chemicals and in training workers how to safely use a product.

Where do I get an SDS?

In Australia, the supplier of a hazardous chemical **must** provide, free of charge, a copy of the manufacturer or importer's SDS with the chemical when it is first supplied to a workplace or when asked to do so.

If a supplier does not provide an SDS for a product being used, they should be asked for it before the product is used. If a supplier does not provide an SDS after being asked for it, contact can be made with local WHS regulators.

How do I know the SDS is compliant with WHS legislation?

Before using a product, the SDS should be reviewed to see if it complies with WHS Regulations:

- Is it written in English?
- Does it contain 16 separate headings (see below)?
- Does it provide the name, address and business telephone number of the Australian importer or manufacturer?
- Does it provide an Australian business telephone number from which further information about the chemical can be obtained in an emergency?
- Was it prepared within the last five years?

If the answer to all questions above is not 'yes', the SDS **does not** comply with WHS Regulations.

In this instance, the supplier, importer or manufacturer should be contacted for an up-to-date and compliant SDS and you should not use the chemical until the correct SDS is obtained.

As above, if a supplier cannot or will not provide a compliant SDS, contact can be made with local WHS regulators.

Keeping SDS in the workplace

A register of hazardous chemicals used, handled or stored at a workplace **must** be prepared and kept up-to-date at the workplace and must also include the current SDS for each of these chemicals.

This register must be readily available to all workers who use or may be affected by the chemicals at a workplace.

Breaking down an SDS

An SDS which complies with WHS Regulations contains the following 16 separate sections each with specific information relating to the chemical being used, handled, stored, transported or disposed.

Note: You should always check that the SDS relates to the chemical that you have received or are using. This can be done by checking the product or chemical name on the SDS is the same as on the product label.

Section 1: Identification

Contains product identifier or tradename, contact details of the manufacturer or importer responsible for supplying the chemical and telephone number in case of an emergency

The information in this section should be consistent with the label

SECTION 1 Identification of the substance / mixture and of the company / undertaking

Product Identifier

Product name: Diggers Mineral Turpentine
Synonyms:
Petroleum, Thinners, Turps
Proper shipping name: TURPENTINE SUBSTITUTE
Other means of identification: Not Available

Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses:
Paint solvent, paint thinner, solvent

Details of the supplier of the safety data sheet

Registered company name	Recochem Inc.
Address	1801 Lytton Road QLD 4178 Australia
Telephone	+61 7 3308 5200
Fax	+61 7 3308 5201
Website	www.recochem.com.au
Email	recoaus@recochem.com

Emergency telephone number

Association / Organisation	Poisons Information
Emergency telephone numbers	Australia: 13 11 26
Other emergency telephone numbers	New Zealand: 0800 754 766

Section 2: Hazard(s) identification

Provides details on the potential health and physical hazards of the chemical

This information can be used to help assess the risks to the health and safety of workers, others and the environment

This section should be consistent with information on the product label

In some instances, there may be more information on the SDS than on the label

2. HAZARDS IDENTIFICATION

This material is hazardous according to criteria of Safe Work Australia; HAZARDOUS SUBSTANCE.

Classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code (ADG Code) for Transport by Road and Rail: DANGEROUS GOODS.

Signal Word (s):	WARNING.
Classification of the substance or Mixture:	Flammable Liquid - Category 2 Serious Eye Damage / Irritation - Category 2A
Hazard Statement (s):	H226 Flammable liquid and vapour. H302 Harmful if swallowed. H317 May cause an allergic skin reaction. H319 Causes serious eye irritation. H332 Harmful if inhaled.
Pictograms:	
Precautionary Statement Prevention:	P210 Keep away from heat/sparks/open flames/hot surfaces. No Smoking. P233 Keep container tightly closed. P240 Ground/Bond container and receiving equipment. P241 Use explosion-proof electrical/ventilating/lighting/...equipment. P242 Use only non-sparking tools. P243 Take precautionary measures against static discharge. P281 Use personal protective equipment as required.
Precautionary Statement Response:	P303+P361+P353 If on skin (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. P370+P378 In case of fire: Use Foam, dry agent (carbon dioxide, dry chemical powder) for extinction.
Precautionary Statement Storage:	P403+P235 Store in a well-ventilated place. Keep cool.
Precautionary Statement Disposal:	P501 Dispose of contents / container in according to local regulations.

Poisons Schedule: S5

Section 3: Composition and information on ingredients

If the chemical is a mixture this section should provide the information on the identity and proportions of hazardous ingredients in the mixture

3. COMPOSITION INFORMATION

CHEMICAL ENTITY	CAS NO	PROPORTION
1,2-Benzisothiazol-3(2H)-one (BIT)	2634-33-5	<0.05 % (w/w)
5-Chloro-2-methyl-4-isothiazolin-3-one (CMIT)	26172-55-4	<0.05 % (w/w)
2-Methyl-2H-isothiazol-3-one (MIT)	2682-20-4	<0.05 % (w/w)
2-Octyl-2H-isothiazol-3-one (OIT)	26530-20-1	<0.05 % (w/w)
Ingredients determined to be non-hazardous or below reporting limits		Balance
		100%

Section 4: First aid measures

Describes the necessary first aid measures to be taken in case of an accident

4. FIRST AID MEASURES

For advice, contact a Poisons Information Centre 131 126 or a doctor.

Inhalation: Remove affected person from contaminated area and seek medical advice. If not breathing apply artificial respiration and seek urgent medical advice.

Skin Contact: Remove contaminated clothing. Wash affected areas with copious amounts of soap and water. Ensure contaminated clothing is washed before re-use or discard. Seek medical attention.

Eye Contact: If contact with the eye(s) occur, wash with copious amounts of water, holding eyelid(s) open. If irritation develops, seek medical attention.

Ingestion: DO NOT induce vomiting. Give a glass of water. Seek immediate medical attention.

Further Medical Treatment: Symptomatic treatment and supportive therapy as indicated.

Section 5: Firefighting measures

Details specific information on fighting a fire involving the chemical, including the most suitable extinguishing media and other protective measures

5. FIRE FIGHTING MEASURES

General Measures	Alert Fire Brigade and tell them location and nature of hazard. Move containers from fire area if you can do it without risk. Cool containers with water spray until well after fire is out. Do not get water inside containers.
Flammability Conditions	Non-combustible; substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes.
Extinguishing Media	If material is involved in a fire, use dry chemical, Carbon dioxide (CO2), foam or water spray for extinction. Dike fire-control water for later disposal; do not scatter the material.
Fire and Explosion Hazard	Contact with metals may evolve flammable hydrogen gas. Containers may explode when heated.
Hazardous Products of Combustion	Fire may produce irritating, corrosive and/or toxic gases.
Special Fire Fighting Instructions	Contain runoff from fire control or dilution water - Runoff may be corrosive and/or toxic and cause pollution.
Personal Protective Equipment	Wear positive pressure self-contained breathing apparatus (SCBA). Wear chemical protective clothing - It may provide little or no thermal protection. Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible.
Flash Point	No Data Available
Lower Explosion Limit	No Data Available
Upper Explosion Limit	No Data Available
Auto Ignition Temperature	No Data Available
Hazchem Code	ZR

Section 6: Accidental release measures

Describes what actions need to be taken if there is an accidental release or spill of the chemical to minimise adverse effects on people, property and the environment

SECTION 6 Accidental release measures

Personal precautions, protective equipment and emergency procedures

See section 8

Environmental precautions

See section 12

Methods and material for containment and cleaning up

Minor Spills	Drains for storage or use areas should have retention basins for pH adjustments and dilution of spills before discharge or disposal of material.
	Check regularly for spills and leaks.
	Clean up all spills immediately.
Major Spills	Avoid breathing vapours and contact with skin and eyes.
	Clear area of personnel and move upwind.
	Alert Fire Brigade and tell them location and nature of hazard.

Personal Protective Equipment advice is contained in Section 8 of the SDS.

Section 7: Handling and storage

Contains details on how to handle and store the chemical safely to minimise potential risks to people, property and the environment

7. HANDLING AND STORAGE

Handling: Avoid eye contact and skin contact. Avoid inhalation of vapour, mist or aerosols.

Storage: Store in a cool, dry, well-ventilated place and out of direct sunlight. Store away from foodstuffs. Store away from incompatible materials described in Section 10. Store away from sources of heat and/or ignition. Keep container standing upright. Keep containers closed when not in use - check regularly for leaks.

Section 8: Exposure controls and personal protection

Provides information on control measures that can be used to reduce exposure, for example, engineering controls, information on exposure standards and guidance on required PPE

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits: None established for this product. No exposure standards have been established for this material by the National Occupational Health and Safety Commission (NOHSC). However, all exposure should be kept to the least possible levels as over-exposure to any chemical may result in enhancement of pre-existing adverse medical conditions and/or allergic reactions. Exposure standards for individual constituents are listed above.

Engineering controls: Ensure ventilation is adequate and that air concentrations of components are controlled below quoted Exposure Standards. Keep containers closed when not in use. Vapour heavier than air – prevent concentration in hollows or sumps. DO NOT enter confined spaces where vapour may have collected. Where vapours or mists are generated, particularly in enclosed areas, and natural ventilation is inadequate, a flameproof exhaust ventilation system is recommended. Use only with adequate ventilation. Local exhaust ventilation or flameproof fume cupboards may be necessary for some operations. Use of closed or semi-closed processes e.g., lidded tanks can reduce exposure.

Personal Protective Equipment: Respiratory Protection: Avoid breathing of vapours/mists. Where ventilation is inadequate and vapours/mists are generated, the use of an approved respirator with filter complying with AS/NZS 1715 and AS/NZS 1716 is recommended; however final choice of appropriate breathing protection is dependent upon actual airborne concentrations and the type of breathing protection required will vary according to individual circumstances. Expert advice may be required to make this decision. Reference should be made to Australian Standards AS/NZS 1715-Selection, Use and Maintenance of Respiratory Protective Devices; and AS/NZS 1716-Respiratory Protective Devices.

Eye Protection: Chemical safety glasses or face shield recommended as appropriate. Final choice of appropriate eye/face protection will vary according to individual circumstances including methods of handling or engineering controls as determined by appropriate risk assessments. Eye protection should conform to Australian/New Zealand Standard AS/NZS 1337-Eye Protectors for Industrial Applications.

Hand Protection: Impervious gloves recommended as appropriate. Final choice of appropriate glove type will vary according to individual circumstances, including methods of handling or engineering controls as determined by appropriate risk assessments. Refer to AS/NZS 2161 Occupational protective gloves- Selection, use and maintenance.

Section 9: Physical and chemical properties

Provides detailed information on the physical and chemical properties of the chemical, for example, appearance, odour, pH, flash point, melting / boiling point or any other relevant physical data

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Paint - White & Colours	Volatile Component	Not available
Decomposition Temperature	Not available	Melting Point	Not available
Flammability	Flammable. Keep away from heat, sparks, or naked flames.	Solubility in Water	Soluble in most organic solvents. Practically insoluble in water.
Specific Gravity	1.08	Flash Point	33°C
Boiling Point	Not available	Ignition Temperature	Not available
Vapour Pressure	Not available	Flammable Limits LEL	1.1% v/v
		Flammable Limits UEL	7.70% v/v

Section 10: Stability and reactivity

Contains details of any hazardous reactions that may occur if the chemical is used under certain conditions and details of any incompatible materials

10. STABILITY AND REACTIVITY

Chemical stability: This material is thermally stable when stored and used as directed.

Conditions to avoid: Elevated temperatures and sources of ignition.

Incompatible materials: Oxidising agents.

Hazardous decomposition products: Oxides of carbon and nitrogen, smoke and other toxic fumes.

Hazardous reactions: No known hazardous reactions.

Section 11: Toxicological information

Provides detailed information on the toxicological properties of the chemical

This section is used primarily by medical professionals, toxicologists and WHS professionals

11. TOXICOLOGICAL INFORMATION

No adverse health effects expected if the product is handled in accordance with this Safety Data Sheet and the product label. Symptoms or effects that may arise if the product is mishandled and overexposure occurs are:

Ingestion: Harmful if swallowed. May cause irritation to the gastrointestinal system. Systems may include nausea, vomiting, diarrhoea, headache, abdominal pain, CNS depression, seizures, loss of coordination.

Eye contact: Will cause irritation to eye which can result in redness, swelling, itching, stinging and excessive tearing.

Skin contact: Harmful in contact with skin. Absorption through the skin, with symptoms paralleling those following ingestion exposures. Will cause irritation to skin, which can result in redness and itching.

Inhalation: Harmful by inhalation. Will cause irritation to the mucous membrane and upper airways, especially where vapours or mists are generated. Symptoms included sneezing, coughing, wheezing, shortness of breath, headache, drowsiness, dizziness, nausea, and vomiting.

Long Term Effects: Prolonged and repeated exposure through skin contact, inhalation of this material will result in harmful effects including central nervous system effects, possibly leading to unconsciousness or death. Repeated or prolonged exposure may also cause skin dryness and cracking, leading to skin irritation and possible dermatitis. Possible risk or irreversible effects. May cause harm to the unborn child. Possible risk of impaired fertility. Danger of cumulative effects.

Toxicological Data: No toxicology data is available for this product.

Section 12: Ecological information

Provides detailed information on the ecological hazard properties of the chemical

12. ECOLOGICAL INFORMATION

Ecotoxicity	Aquatic toxicity: COMPONENT: Sodium hydroxide (CAS No. 1310-73-2): -LC50, fish (<i>Oncorhynchus mykiss</i>): 45.4 mg/L (96 h) [Supplier's SDS]
Persistence/Degradability	Biodegradation is not an applicable endpoint since the product is an inorganic chemical.
Mobility	No information available.
Environmental Fate	Prevent entry into drains and waterways.
Bioaccumulation Potential	No information available.
Environmental Impact	No Data Available

Section 13: Disposal considerations

Explains how the chemical should be disposed of correctly or recycled or reclaimed

SECTION 13 Disposal considerations

Waste treatment methods

- Product / Packaging disposal
- Recycle wherever possible or consult manufacturer for recycling options.
 - Consult State Land Waste Management Authority for disposal.

Section 14: Transport information

Contains basic classification information like UN number, transport hazard classes and packing groups that relate to the transport of the chemical by road, rail, sea or air

14. TRANSPORT INFORMATION

Road and Rail Transport Classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code (ADG Code) for Transport by Road and Rail; DANGEROUS GOODS.
This material is a Class 3 - Flammable Liquid according to The Australian Code for the Transport of Dangerous Goods by Road and Rail. Class 3 - Flammable Liquids are incompatible in a placard load with any of the following:

- Class 1, Explosives
- Class 2.1, Flammable Gases, if both the Class 3 and Class 2.1 dangerous goods are in bulk
- Class 2.3, Toxic Gases
- Class 4.2 Spontaneously Combustible Substances
- Class 5.1 Oxidising Agents and Class 5.2, Organic Peroxides
- Class 6 Toxic Substances (where the flammable liquid is nitromethane)
- Class 7 Radioactive Substances.

UN No:	1263	ADG Packaging Method:	5.9.3RT1
Class-primary:	3	ADG EPG Number:	3C1
Packing Group:	III	ADG IERG Number:	16
Proper Shipping Name:	PAINT		
Hazchem Code:	3Y		

Section 15: Regulatory information

Provides advice on other international or national regulatory information specific to the chemical, such as the Montreal protocol (ozone depleting substances), the Stockholm Convention (persistent organic pollutants), poisons scheduling or any other applicable Australian prohibition, notification or licensing requirements

15. REGULATORY INFORMATION

Classification: This material is hazardous according to criteria of Safe Work Australia; HAZARDOUS SUBSTANCE.

Poisons Schedule: S5

Packaging & Labelling: Labelling requirements of the Standard for Uniform Scheduling of Drugs and Poisons do not apply to a poison that is packed and sold solely for industrial, laboratory or manufacturing purposes; however, it is labelled in accordance with the National Occupational Health and Safety Commission's "National Code of Practice for the Labelling of Workplace Substances".

All the constituents of this material are listed on the Australian Inventory of Chemical Substances (AICS).

Section 16: Any other relevant information

Provides any other information relevant to the preparation of the SDS, including the date of its preparation, a key or legend to abbreviations, acronyms and references used

SECTION 16 Other information

Revision Date	10/03/2023
Initial Date	16/07/2014

SDS Version Summary

Version	Date of Update	Sections Updated
11.1	15/09/2022	Hazards identification - Classification, Ecological Information - Environmental, Accidental release measures - Spills (major), Accidental release measures - Spills (minor), Transport information - Transport, Transport information
12.1	10/03/2023	Classification change due to full database hazard calculation/update.

Other information

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings.

Definitions and abbreviations

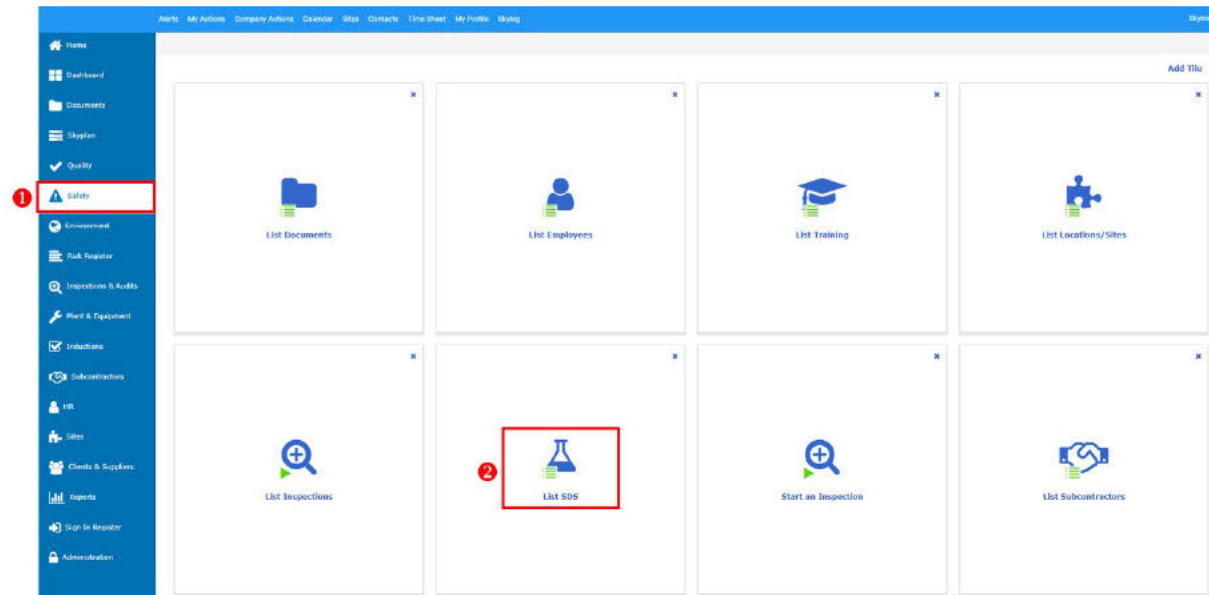
- PC - TWIA: Permissible Concentration-Time Weighted Average
- PC-STEL: Permissible Concentration-Short Term Exposure Limit
- IARC: International Agency for Research on Cancer
- ACGIH: American Conference of Governmental Industrial Hygienists
- STEL: Short Term Exposure Limit
- TEEL: Temporary Emergency Exposure Limit
- IDLH: Immediately Dangerous to Life or Health Concentrations
- ES: Exposure Standard
- OSF: Odour Safety Factor
- NOAEL: No Observed Adverse Effect Level
- LOAEL: Lowest Observed Adverse Effect Level
- TLV: Threshold Limit Value
- LOD: Limit Of Detection
- OTV: Odour Threshold Value
- BCF: BioConcentration Factors
- BEI: Biological Exposure Index
- DNEL: Derived No-Effect Level
- PNEC: Predicted no-effect concentration

Note: images in this appendix have been taken from a range of SDS to show the required information will be presented differently across suppliers

Appendix D: Creating SDS / DGHS registers

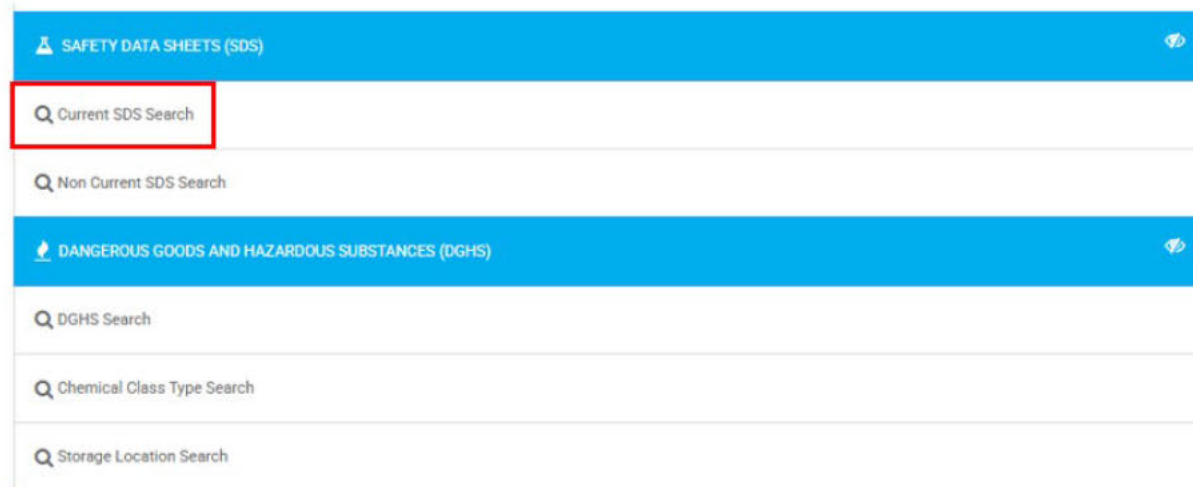
Uploading SDS and creating register

From Skytrust home screen select either 'safety' from the left hand side menu, or if tiles are enabled 'list SDS'



If accessing from the 'safety' menu this will be the next screen

Select 'current SDS search' (the seventh heading down)



The master SDS screen is now visible

Before entering a new SDS it is a good idea to check if it has already been entered

Type a few letters of the name of the product into the search bar, it's better to provide less information than more to widen the search

If the SDS is not found, select 'add SDS'

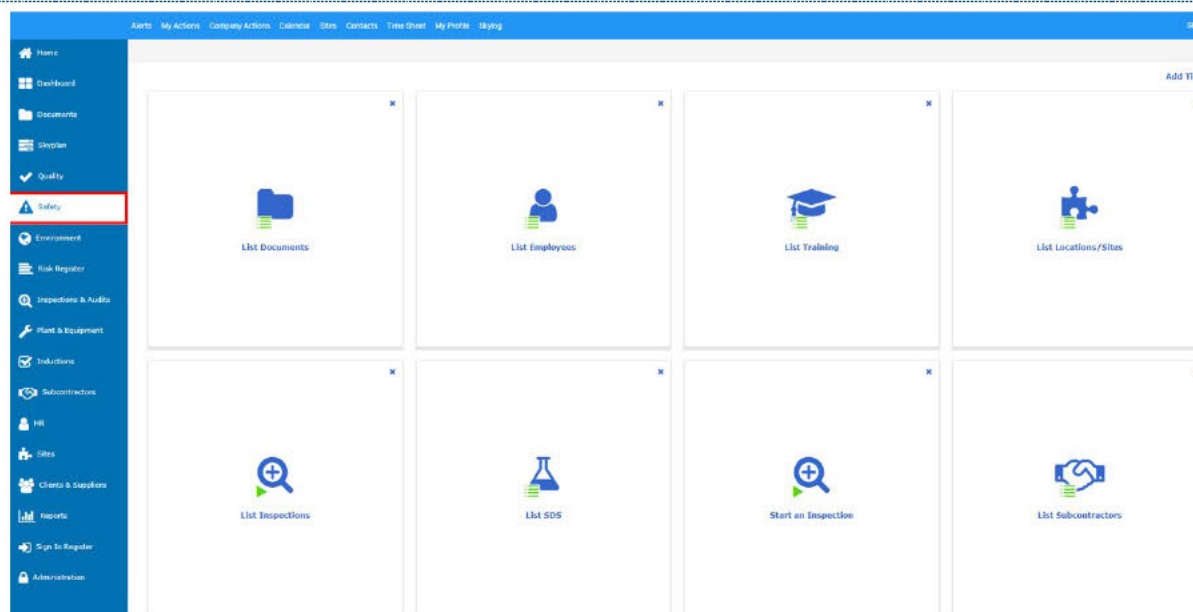
Add the information required

1. Product name; to make SDS for your business unit easier to locate it's suggested after the product name type the business unit, ie **resin hardener (Ops SA)**
2. Drop down box for suppliers listed in Skytrust (if the name isn't available you can add supplier from the suppliers' menu)
3. Attach file
4. Insert SDS date – this will automatically create a reminder when the SDS expires (five years from SDS date)
5. Enter any key words, ie product name, generic name
6. Select if SDS is GHS compliance (by now all SDS should be GHS compliance as this was introduced in 2017)
7. Select 'add SDS'

The SDS has now been added to the SDS register

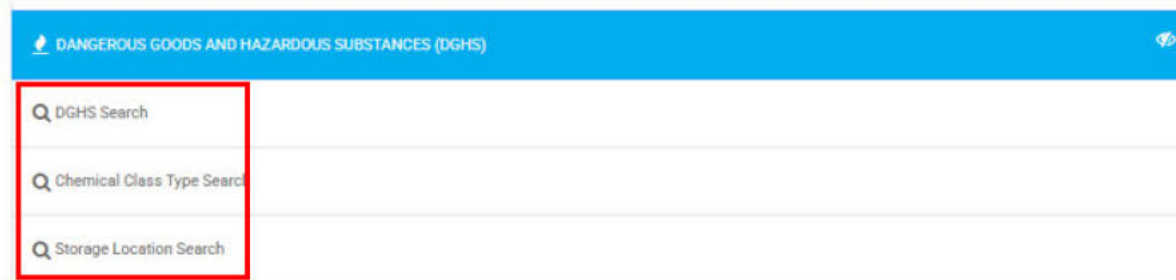
Creating DGHS register

From Skytrust home screen select 'safety'
from the left hand side menu



Select 'DGHS search' (the eighth heading
down)

If you know the chemical class type or storage
location you can also use these categories to
search



As with SDS, before adding a new DGHS it's a good idea to search for the product rather than adding duplicates; you can search by:

1. Site location
2. Product name
3. Storage location
4. Class type
5. Packing group

Once you have confirmed the product has not already been included:

6. 'Add' new product

1. Before a product can be added to the DGHS register it must first be entered in the SDS register; this box will auto populate from the list of SDS or you will need to 'create new SDS'
2. Enter classification of the product (refer SDS, sections 2 and 14)
3. This information pertains to where and how much product will be stored
4. Provide any other relevant information, ie segregation
5. Upload any other documents, ie TDS, manufacturer instructions
6. 'Add DGHS'

The more information included when the product is first uploaded the easier it will be to locate when needed

coNEXA TopCo Pty Ltd

ACN 616 144 471

**CIP-IMS-DOC-HS-001
Hazardous Manual Tasks Procedure**

Version Number	Version Date	Approved By	Status	Next Revision Date
0.1	3 April 2017	N/A	Draft	N/A
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Document Approver: Risk and Compliance Officer

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1. Purpose

The purpose of this procedure is to provide information about hazardous manual tasks, give examples of controlling the risks of hazardous manual tasks, and to outline the coNEXA safety rules that must be adhered to whilst working for, or on behalf of, coNEXA Infrastructure Partners (coNEXA).

2. Who does this procedure apply to?

This procedure applies to **all** coNEXA employees, contractors, sub-contractors and visitors.

3. What is a hazardous manual task?

Work Health and Safety Regulations state:

‘Hazardous manual task means a task that requires a person to lift, lower, push, pull, carry or otherwise move, hold or restrain any person, animal or thing that involves one or more of the following:

- A. Repetitive or sustained force
- B. High or sudden force
- C. Repetitive movement
- D. Sustained or awkward posture
- E. Exposure to vibration’

Examples:

- 1. Operating a manual valve in an awkward position
- 2. Using a power tool that vibrates
- 3. Lifting a heavy object off the back of a utility vehicle

4. Controlling the risks

The risks associated with hazardous manual tasks must be controlled using the hierarchy of risk controls (refer figure 1) and the controls documented in a Standard Operating Procedure (SOP), Job Safety and Environmental Analysis (JSEA) or Safe Work Method Statement (SWMS). Refer IMS document, *CIP-IMS-DOC-011 Enterprise Risk Management Framework*, for further details on the ISO31000 risk management process.

The most effective control measure involves eliminating the hazardous manual task and its associated risk. If it is not reasonably practicable to eliminate the risk, then you must minimise the risks so far as is reasonably practicable by:

- Substituting the hazard with something that gives rise to a lesser risk
- Isolating the hazard from any person exposed to it
- Implementing engineering controls

If there is a remaining risk, it must be minimised so far as is reasonably practicable by implementing administrative controls. If a risk still remains, then suitable personal protective equipment must be provided and used.

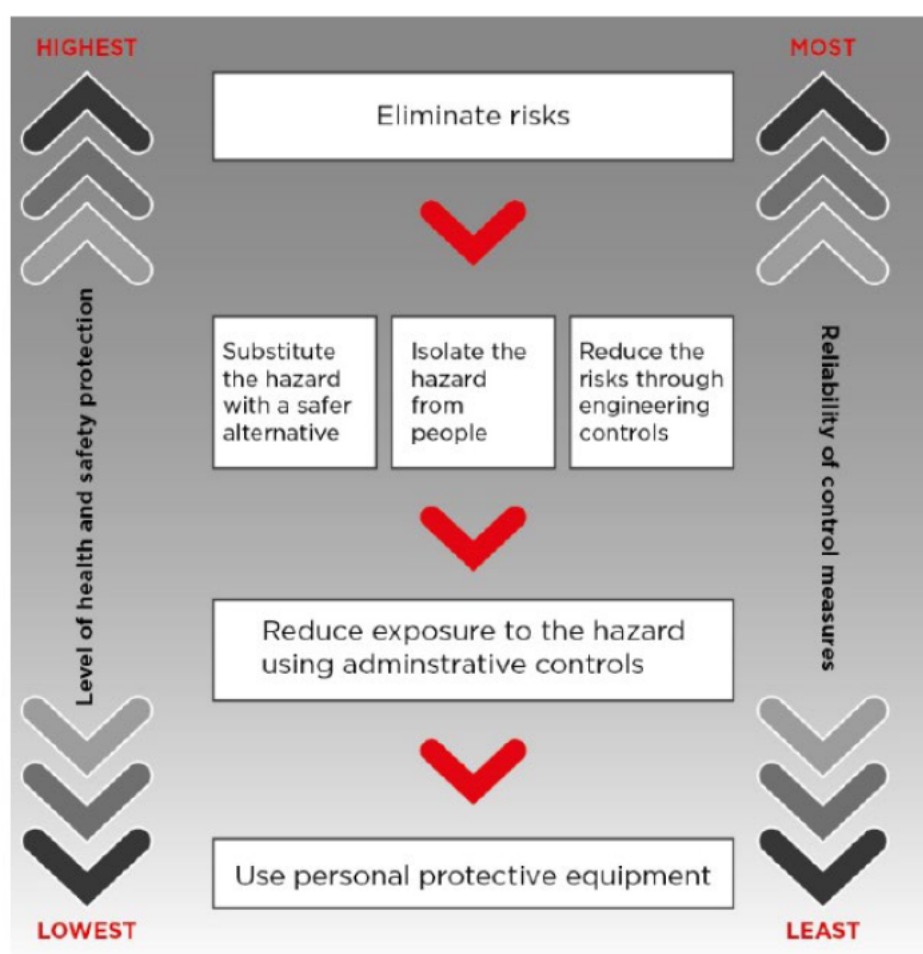


Figure 1: the hierarchy of control measures (Source: SafeWork SA, Code of Practice, How to Manage Work Health and Safety Risks, June 2020)

Examples of controls are given in the following table:

Hierarchy of Control		Examples of Control Measures
Level 1	Elimination	- Automate the manual task (such as using remote controls) - Deliver goods directly to the point of use to eliminate multiple handling
Level 2	Substitution	- Replace heavy items with those that are lighter, smaller and / or easier to handle - Replace hand tools with power tools to reduce the level of force required to do the task
	Isolation	Isolate vibrating machinery from the user, for example by providing fully independent seating on mobile plant
	Engineering	- Use mechanical lifting aids - Provide workstations that are height adjustable

Hierarchy of Control		Examples of Control Measures
Level 3	Administrative	• Rotate workers between different tasks • Train workers to use control measures implemented when carrying out normal tasks
	Personal protective equipment	• Heat resistant gloves for handling hot items • Shock absorbent shoes for work on hard concrete floors

5. coNEXA safety rules

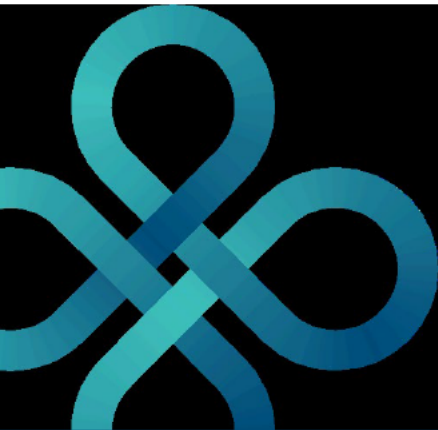
- Never lift, move, pull or carry an object without first assessing the task
- Always use mechanical aids to lift, move, pull or carry a heavy or awkward object if available
- Always plan tasks so objects do not need to be 'double-handled'
- Always stretch before undertaking manual tasks
- Plan tasks to avoid repetitive work whenever possible
- Always ensure the workplace is set-up in such a manner to minimise the risks of musculoskeletal disorders
- Always cease work and report any discomfort or pain sustained while performing any manual task
- Always use control measures identified in SOPs, JSEAs or SWMS
- Seek assistance when task requires use of excess force that presents a risk of injury
- Only lift an object (either individually or as a team lift) if you have assessed the risk and it is safe to proceed (note – in some circumstances utilising a multiple person lift can increase the risk of injury)
- If you have any doubts or questions, or if you are unsure how to undertake a manual handling task bring it up with your manager immediately

6. Additional resources

- WHS Codes of Practice
 - Safework SA Code of Practice: Managing the work environment and facilities, June 2020
 - NSW Government Code of Practice: Hazardous manual tasks, August 2019
 - WorkSafe WA Code of Practice: Hazardous manual tasks, 2022
 - NT WorkSafe Code of Practice: Hazardous manual tasks, January 2020
 - WorkSafe Victoria Compliance Code: Hazardous manual handling, December 2019

Employee Expectations				CIP-IMS-DOC-HR-014
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1.0	26 September 2024	Chief Financial Officer	Superseded	26 September 2027
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Group Financial Controller	QHSE Manager	Chief Financial Officer



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1. What is the purpose of these expectations?

coNEXA Infrastructure Partners (coNEXA) is committed to providing a safe, healthy and productive workplace for all its employees, contractors and visitors.

These expectations are to be read in conjunction with:

- *CIP-IMS-DOC-HR-002 Employee code of conduct*
- *CIP-IMS-DOC-HR-005 Workplace discrimination and harassment policy*
- *CIP-IMS-DOC-HR-013 coNEXA values*

2. Who do these expectations apply to?

These expectations apply to all coNEXA employees, contractors, subcontractors and, where applicable, visitors.

3. What are the expectations of employees and contractors?

3.1 Respect, Fairness and Dignity

coNEXA is an equal opportunity employer
We are committed to promoting respectful workplace behaviours and ensuring that there is no unlawful discrimination at work
We expect our employees to ensure that individuals are shown respect, fairness, and dignity

All employees, members of the public, customers and suppliers are entitled to fair treatment, courtesy and consideration. coNEXA expects all employees to apply these principles in all aspects of their work, including when employees are assisting customers, driving vehicles or representing coNEXA, regardless of the time of day or whether the employee is attending a work function, work related social gatherings or performing work related duties outside the regular workplace, for example at conferences, work related overnight trips or meetings at other workplaces.

Discrimination is not accepted within coNEXA. Bullying and harassment where a person's comfort or work environment is adversely affected by the actions of others is unacceptable. All forms of bullying and harassment, which may be sexual (direct or indirect), verbal, physical, or psychological should be reported to your immediate manager or the Chief Financial Officer for investigation.

CIP-IMS-DOC-HR-005 Workplace discrimination and harassment policy provides further information on how coNEXA handles discrimination, bullying and / or harassment.

3.2 Honesty and Integrity

We expect our employees to act with honesty and integrity in all aspects of their work

Employees must not engage in fraudulent or corrupt behaviour or assist others in such behaviour. Examples of such behaviour could include:

- Receipt of an illegal benefit or payment
- Unauthorised release of confidential information
- Unauthorised use of equipment, vehicles, tools, plant or other corporate assets for private purposes
- False claims for expenses, travel, or hours worked
- Improper use of an employee's position with the business for personal gain

3.3 No Conflicts of Interest

We expect our employees to avoid engaging in any activity or having any interest in any business or company that could conflict with their duties or the interests of coNEXA without disclosing it to their immediate manager or the Chief Financial Officer

A conflict of interest may arise where personal, financial, business or other interests might affect the way an employee performs their workplace duties. A conflict of interest may be through direct or indirect action and could relate to paid or unpaid activities.

Employees are to observe proper standards of conduct in all business transactions. Employees are not to act in any way that will conflict with the interest of coNEXA and immediately upon becoming aware of a conflict arising, notify their immediate manager of the nature of the perceived conflict.

Employees should not accept gifts which could be seen as a past, present or future conflict of interest in carrying out their duties.

3.4 Limited Corporate Hospitality and Gifts

We expect our employees to limit any corporate hospitality or gift they receive to under \$500 and ensure it does not influence, or be perceived to influence, their decision making in the conduct of coNEXA business without the prior approval of the Chief Financial Officer

Employees should provide written notification to their manager prior to the acceptance of a gift or any other offer of corporate hospitality valued at \$250 or greater. Any acceptance of a gift or any other offer of corporate hospitality valued over \$500 must first be approved by the Chief Financial Officer.

Employees must not request any gifts, favours or any form of hospitality or entertainment in return for, or in exchange for, business services or information. Under no circumstances may employees accept money or other forms of payment for goods, services or information provided.

Employees involved in any stage of an active tendering process must not accept any gifts, favours or any form of hospitality or entertainment from any organisation involved in that bid or tender without the prior approval of the Chief Financial Officer.

3.5 Confidentiality

We expect employees to treat the business affairs of coNEXA and all information relating to customers, suppliers and employees as confidential and restricted

Employees cannot use confidential information for personal gain or release such information to unauthorised persons. Unauthorised access or disclosure of information to a third party, including to another coNEXA employee who may misuse the information is considered serious misconduct.

Employees should not discuss with outside parties, including former employees and competitor organisations the prices, nature and extent of services or any other competitive policies or practices unless specifically authorised by their manager.

3.6 No Media or Public Comment

We expect employees not to communicate to the media, nor supply them with information concerning coNEXA's business activities

Employees are not to give interviews or make public comment to any media outlets on the operations, activities or any aspect of the business unless approved by the Chief Executive Officer.

All requests for comment from the media on the activities, operations or conduct of the business are to be referred to the Chief Executive Officer in the first instance.

3.7 Work Health and Safety

We expect employees to perform their duties in accordance with relevant government legislation and regulations as well as established company policies and operating procedures

coNEXA are committed to providing and maintaining a safe, healthy, injury free and environmentally responsible workplace. Consistent with this, all employees are responsible for minimising or preventing injuries or accidents. Employees are expected to perform their duties in accordance with relevant government legislation and regulations as well as established company policies and operating procedures. This includes driving a coNEXA provided vehicle or a private vehicle used for coNEXA business purposes.

We recognise the importance of placing emphasis on improving and adopting work practices to create a safe and healthy working environment, this includes stopping any other employee or contractor from undertaking work where they are placing themselves or others at risk or injury. No job is so important that it cannot be done safely; the personal safety of our employees, and those around them, is our first priority. Raising safety concerns or issues at any time is encouraged.

Managers are required to develop and implement safety initiatives, mentor and coach employees and 'lead by example'.

3.8 Environment and Sustainability

We expect employees to comply with all environmental legislation, systems and procedures applicable to their workplace

All employees are responsible for:

- Being involved in, and committed to, sound environmental management practices in the workplace
- Undertaking their duties in a manner that prevents or minimises environmental damage or impact
- Reporting any incident, or threatened incident, of environmental impact to their manager as soon as possible

3.9 Following Lawful and Reasonable Directions

We expect employees to adhere to all coNEXA policies, directives, guidelines, procedures and instructions including the terms and conditions contained in individual employment contracts

Employees are required to comply with all state and federal statutory and regulatory requirements.

Employees are required to carry out any lawful and reasonable directions they are given.

Employees should seek clarification and advice from their manager if unclear of their obligations or work requirements.

3.10 Smoke-free Environment

Smoking is prohibited at all coNEXA locations at all times

Smoking (incorporating all forms of tobacco products and all forms of e-cigarettes / vaping) is prohibited at all coNEXA locations (both enclosed and open) at all times. The workplace extends to all areas owned or leased by coNEXA, all locations where coNEXA maintains infrastructure such as customer outlets and pipeline routes, as well as work vehicles.

This also extends to any events or activities organised by coNEXA such as off-site functions, lunches, dinners, etc.

Note: In all states and territories it is illegal to smoke (including e-cigarettes) in enclosed public places, including, but not limited to: office buildings, enclosed workplaces, shared work areas, shops, factories and work vehicles.

coNEXA employees are only permitted to smoke whilst on duty during designated break times and only at designated smoking areas or locations away from the workplace.

3.11 Fitness for Work

We expect employees to only attend work when they are fit for work

When a person is 'fit for work', they are in a state (physically and psychologically) to perform tasks assigned to them competently and in a manner that does not compromise the health and safety of themselves or others.

Employees have a duty to take reasonable care for their own health and safety and to ensure their acts or omissions do not adversely affect the health or safety of others. Employees should take reasonable measures to ensure they are fit for work.

Employees may be required to perform work outside of usual business hours (including, but not limited to, overtime, remote support or on-call activities) from time to time. Employees must assess their fatigue levels before their next shift and advise their immediate manager where they consider themselves to be not fit for work prior to the commencing that shift.

Employees also have an obligation under work health and safety laws to report any incidence where the employee becomes concerned about another employee's ability to safely perform their work.

Where an employee is not fit for work they must advise their immediate manager and not attend the workplace. Absences due to being unfit for work may require the worker to submit a leave application in accordance with *CIP-IMS-DOC-HR-004 Leave policy*.

Any employee who is found not fit for work will be stood down from duties whilst the matter is investigated. This does not limit or replace any other obligations, responsibilities or disciplinary action imposed by any other coNEXA policy, procedure, employment contract, enterprise agreement or workplace law.

Please refer to Appendix A for further information.

3.12 Alcohol and Other Drugs

We expect employees not to perform any duties under the control of coNEXA, or our clients, whilst under the influence of alcohol or other drugs that impairs judgement or performance during work hours (including any after hours call outs) at, or on, any coNEXA or client workplace

Alcohol and other drug abuse places a safe working environment at risk and can adversely affect performance. It may also result in damage to property and potentially affect the rights and enjoyment of other persons.

In the interest of all employees, contractors, and other visitors to the workplace, coNEXA has a zero tolerance to any person being under the influence of alcohol or other drugs that impairs judgement or performance whilst performing work under the control of coNEXA.

Employees who are taking prescribed medication, or using over-the-counter medication, should obtain medical advice as to its effects. If the medication impairs an employee's ability to operate equipment, the employee should immediately bring it to the attention of their manager. Appropriate duties, if available, will be allocated.

The sale, supply, manufacture or consumption of alcoholic beverages by any employee in any workplace (including company vehicles) is prohibited. An exception to the consumption of alcohol may be made on designated special occasions at work functions, in accordance with the directions of management; however, on such occasions employees are still expected to behave responsibly.

The purchase, consumption, use, possession, sale, supply, manufacture or cultivation of any of the following substances by any employee in any workplace is prohibited:

- Any illegal drug
- Any prescription drug which is a benzodiazepine, amphetamine, barbiturate or methadone without prior notification to the employee's direct manager
- Any other prescription drug of any kind for which no prescription has been issued to the employee

Employees must not:

- Consume drugs on work premises at any time other than medications prescribed by a medical professional or over-the-counter medications which do not adversely impair their ability to work safely (excluding those noted above)
- Operate any plant or equipment, including a motor vehicle for work business, whilst under the influence of alcohol or illegal drugs or if adversely affected by prescribed or over-the-counter medication (examples of prescribed or over-the-counter medication which can cause impairment might include strong pain relief, cough and cold preparations, antihistamines or sleep aids)
- Commence work if affected or impaired by alcohol or illegal drugs

From time to time, responsible social events may be held by coNEXA, either in the workplace or an external venue. All employees are expected to act safely and responsibly. Non-alcoholic drinks will be provided at all company functions, as will the provision of alternative transport arrangements if required. No alcohol will be served to, or consumed by, anyone under the age of 18.

coNEXA recognises alcohol and other drug dependency as a treatable condition and encourages employees with personal or other problems to seek appropriate treatment. coNEXA's procedures focus on rehabilitation where appropriate but reserves the right to discipline any employee found to be in breach of these expectations. If necessary, in the case of persistent or serious breaches, such as being intoxicated at work, coNEXA may terminate the employment of any employee who breaches these expectations.

If required, employees can access external counselling via our employee assistance program (convergeinternational.com.au).

To ensure the maintenance of these expectations and compliance with work health and safety requirements, any employee may be subject to alcohol and other drug testing. Any program of testing will be introduced following consultation with coNEXA employees.

The introduction of a testing program is not intended to create a work environment that is harsh, unjust or unfair. However, as coNEXA places high importance on safety in the workplace, employees who breach these expectations will be disciplined.

Any alcohol and other drug testing program will be implemented to respect an employee's right to

privacy under the applicable privacy legislation. Any manager who acts without reasonable cause in the implementation of a testing program may be subject to disciplinary action.

Alcohol or other drug testing may be required following an accident or incident where it is reasonably believed that impairment due to abuse of alcohol or other drugs may have been a contributing factor. It may also be required where, by way of observation or other reasonable method, including disclosure that an employee's behaviour or work performance indicates that the person is under the influence of alcohol or other drugs.

Random alcohol and other drug testing may also be conducted on a periodic basis. The introduction of random testing of workers may be implemented following consultation with employees and will form part of coNEXA's ongoing commitment to providing a healthy and safe workplace.

3.13 Behaviour at Work Functions

We expect employees to act safely and responsibly at work functions

From time to time, coNEXA may hold responsible social events or employees may be requested to attend events hosted by others as a representative of coNEXA.

After attending a function where an employee has consumed more than two standard alcoholic drinks, they are not to return to work.

At no time shall an employee return to physical work in the field / on-site or attend customer workplaces after consuming alcohol.

3.14 Psychosocial Hazards

We ask employees to talk to their manager if they are impacted by psychosocial hazards

Psychosocial hazards can create stress, which is the body's reaction when a person perceives the demands placed on them exceed their ability or resources to cope. These hazards can be related to a person's work, other external factors or a combination of both.

Up to a point, stress can be a positive contributor to achievement and success; however negative stress can create immediate and long term problems. Negative stress may affect how you cope with day to day life and can impact upon your ability to work safely at the workplace.

To help manage stress it may be helpful to talk to somebody about what is upsetting you. This may include discussing the issue with a work colleague, a mental first aider, your manager, a family member or friend or making contact with our EAP provider (convergeinternational.com.au).

It is not always possible to remove stress from your life, however managing stress may help with physical injuries, emotional control and corresponding behavioural responses.

3.15 Mental Health Conditions

We ask employees to talk to their manager if they feel a mental health condition is impacting their work, or if work conditions are exacerbating a pre-existing mental health condition

Mental health condition is a term used to describe a range of clinically diagnosable disorders that significantly interfere with an individual's thinking, emotional or social ability. This condition may arise from, but is not limited to, depression, eating disorders, alcohol and drug abuse, sleep problems, panic disorder, obsessive compulsive activities, anxiety and other unexplained complaints.

If you believe you suffer from any of the above symptoms, please seek medical advice.

If you have been diagnosed with any illness that may impact upon your ability to work safely, you should advise your manager of the nature of the illness and discuss any alternative or change in work conditions if required. All discussions will be handled with the utmost dignity and privacy.

If you or someone you know is experiencing an immediate mental health issue, we encourage you / them to seek help and support as soon as possible. Services such as Lifeline and Beyond Blue offer free and confidential support to those experiencing mental health issues, and we recommend that employees reach out to these services if they require assistance. Details of these organisations are provided below:

- **Lifeline:** Lifeline provides confidential crisis support that is accessible 24 hours a day. Lifeline encourages any person in Australia who is contemplating suicide, experiencing emotional distress, or caring for someone in crisis to call, text or chat with Lifeline.

Ph: 13 11 14

Text: 0477 13 11 14

Chat: <https://www.lifeline.org.au/crisis-chat/>

- **Beyond Blue:** Beyond Blue is focused on supporting people affected by anxiety, depression and suicide. Beyond Blue offers free and anonymous support 24/7.

Call a counsellor: 1300 224 636

Chat: <https://www.beyondblue.org.au/support-service/chat>

Alternatively, our EAP provider 'Converge' can be contacted:

- For immediate support call: 1300 687 327; or
- To book an online appointment visit the converge portal (convergeinternational.com.au) and provide coNEXA's organisation code (CONEWXYZ)

4. What happens if employees don't meet coNEXA's expectations?

Every employee can always, in confidence, seek advice from their manager or the Chief Financial Officer if they are unsure if their actions or decisions, or those of a colleague, breach these expectations.

coNEXA will, where appropriate, take disciplinary action if warranted, against employees who have breached these employee expectations. Penalties, if appropriate, will vary from minor disciplinary action through to possible termination of employment and even criminal prosecution, depending on the extent of the breach.

Flagrant or persistent breaches of these expectations are to be reported to your immediate manager or the Chief Financial Officer.

Appendix A – Fitness for Work

1. What is fitness for work?

When an individual is 'fit for work', they are in a state (physically and psychologically) to perform tasks assigned to them competently and in a manner that does not compromise the safety and health of themselves or others. Factors that can impair a person's ability to perform tasks in a safe and healthy manner include:

- Being in a state of fatigue
- Being under the influence of alcohol or other drugs
- Stress and other mental health conditions

2. What is fatigue?

Fatigue is more than feeling tired and drowsy. In a work context, fatigue is a state of mental and / or physical exhaustion that reduces a person's ability to perform work safely and effectively.

Fatigue can occur because of prolonged or intense mental or physical activity, sleep loss and / or disruption of the internal body clock.

Signs of fatigue include:

- Excessive yawning or falling asleep
- Tiredness even after sleep
- Reduced hand-eye coordination or slow reflexes
- Short term memory problems and an inability to concentrate
- Reduced capacity to engage in communication
- Impaired performance, decision making or judgement
- Blurred vision or impaired visual perception
- A need for extended sleep during days off work
- Increased rates of unplanned absence or arriving late to work

3. What causes fatigue?

Fatigue can be caused by work related or non-work related factors or a combination of both.

Work related causes of fatigue include excessively long shifts, job demands (especially tasks that are physically or mentally demanding over extended periods of time), not enough time to recover between shifts, blocks of shifts and travel (especially to different time zones).

Examples of non-work related fatigue would be poor quality sleep due to street noise or family demands, excessive alcohol consumption or physical fitness.

4. The body clock

Most people are day-orientated meaning they are most alert and productive in the daytime and sleep at night. The circadian rhythms (the body clock) cause regular variations in individual body and mental functions repeated approximately every 24 hours. These rhythms regulate sleeping patterns, body temperature, heart rate, hormone levels, digestion and many other functions.

These rhythms influence job performance and quality of sleep. Most of the body's basic functions show maximum activity by day and minimum activity by night. The body rhythms affect the behaviour, alertness, reaction times and mental capacity of people to varying degrees.

5. Why is fatigue a problem in the workplace?

Fatigue may increase the risk of incidents because of a lack of alertness. Fatigue may result in a slower reaction to signals or situations and affect the ability to make good decisions, particularly when:

- Operating fixed or mobile plant, including driving vehicles
- Undertaking critical tasks that require a high level of concentration
- Undertaking night or shift work when a person would ordinarily be sleeping

6. Employee responsibilities

Employees have a duty to take reasonable care for their own health and safety and to ensure their acts or omissions do not adversely affect the health or safety of others.

To reduce the risk of being involved in a work incident caused by fatigue, employees should:

- Understand their sleep, rest and recovery needs and obtain adequate rest and sleep away from work
- Seek medical advice and assistance if they have or are concerned about a health condition that affects sleep and / or causes fatigue
- Assess their own fitness for work before commencing work
- Monitor their level of alertness and concentration whilst at work
- Look out for signs of fatigue in the people they work with
- Talk to their immediate manager if they foresee or experience being impaired by fatigue which is likely to create a health and safety risk, eg because of a health condition, excessive work demands or personal circumstances
- Assess fatigue levels after work and take suitable commuting and accommodation options (eg avoid driving if fatigued)

7. Manager's obligations

If an immediate manager becomes concerned about a worker's ability to safely perform their work, either through direct observation or report, they must take prompt action.

If a worker presents to work and the manager deems that the worker is not fit to be at work then the manager should deal with this immediately after they become aware of the issue. The matter should be dealt with sensitively and as a matter of safety rather than discipline.

The worker should be stood down from duties and a private discussion should take place to determine the cause of the problem. The formality of this meeting will be dependent on the individual circumstances, ie if the illness or injury is obvious then a simple direction to take a break or go home on sick leave will suffice but if the manager has reason to believe that the worker is unfit due to reasons which breach these expectations (eg intoxication) then a disciplinary investigation should be initiated.

There may be some warning signs including:

- Lethargy
- Obvious struggle to complete tasks
- Out of character behaviour, eg irritability, aggression, vagueness
- Apparent lack of attention or concentration
- Smell of alcohol / drugs on an employee
- Obvious illness or injury (eg flu symptoms, limping)

If a worker attends work when they are unwell or fatigued, generally they do so because they are

conscientious, not because they are trying to put anyone else at risk. The manager needs to make a judgement call as to the correct response in the individual circumstances.

Appropriate actions may include:

- Having the employee take a short break
- Sending (or driving) the employee home on approved sick leave
- Driving the employee to a doctor or to the hospital (if they are not fit to drive themselves)
- Calling an ambulance if the severity of their condition warrants this

8. Company responsibilities

To reduce the risk of coNEXA employees being affected by fatigue, some common controls which may be put in place to manage the risks are:

- Work scheduling
 - Ensure adequate breaks between shifts
 - Ensure adequate and regular work breaks
 - Manage overtime and on-call duties
- Minimise travel
 - Consider online meetings / teleconferences as opposed to face to face meetings, especially with attendees in different states or territories
 - All driving journeys to be planned to enable sufficient rest breaks
 - Consider notifying someone of your expected arrival time and let them know when you arrive safely at your destination for journeys undertaken solo with a duration of greater than two hours
 - Aligning site visits and meetings to better utilise trips
 - Ensure sufficient rest is achieved prior to taking overnight or 'red-eye' flights
- Job demands
 - Plan work to limit periods of excessive mental or physical demand
 - Plan resources to ensure that work load is evenly spread
 - Plan in place for unexpected peaks or additional hours
- Environmental conditions
 - Avoid physical work during extreme temperatures
 - Design of work space to ensure an ergonomic and comfortable working environment
 - Facilities for breaks, meals etc including planning accommodation during travel
- Non-work related factors
 - Education and consultation

Appendix B – Reference Materials

- *CIP-IMS-DOC-HR-002 Employee code of conduct*
- *CIP-IMS-DOC-HR-004 Leave policy*
- *CIP-IMS-DOC-HR-005 Workplace discrimination and harassment policy*
- *CIP-IMS-DOC-HR-013 coNEXA values*
- WHS Codes of Practice
 - NSW Government Code of Practice: How to manage work health and safety risks, August 2019
 - NSW Government Code of Practice: Managing psychosocial hazards at work, May 2021
 - NT WorkSafe Code of Practice: How to manage work health and safety risks, January 2020
 - NT WorkSafe Code of Practice: Managing psychosocial hazards at work, May 2023
 - Workplace Health and Safety Queensland Code of Practice: How to manage work health and safety risks, 2021
 - SafeWork SA Code of Practice: How to manage work health and safety risks, June 2020
 - WorkSafe Victoria: A guide for employers, work-related fatigue, August 2020
 - WorkSafe Victoria: Psychosocial hazard fact sheet, work-related fatigue, August 2021
 - WorkSafe Victoria Compliance Code: Psychological health, September 2025
 - WorkSafe WA Code of Practice: How to manage work health and safety risks, 2022
 - WorkSafe WA Code of Practice: Psychosocial hazards in the workplace, 2022
- National
 - SafeWork Australia: Guide for managing the risk of fatigue at work, November 2013
 - SafeWork Australia: Work-related psychological health and safety, a systematic approach to meeting your duties, national guidance material, January 2019
 - Safework Australia Code of Practice: Managing psychosocial hazards at work, July 2022

coNEXA TopCo Pty Ltd

ACN 616 144 471

CIP-IMS-DOC-HS-04
Preventing the Risk of Falls Procedure

Version Number	Version Date	Approved By	Status	Next Revision Date
0.1	3 April 2017	N/A	Draft	N/A
1.0	3 April 2017	Risk and Compliance Officer	Superseded	3 April 2020
2.0	14 June 2012	Risk and Compliance Officer	Superseded	14 June 2025
3.0	19 April 2023	Risk and Compliance Officer	Released	19 April 2026

Document Owner: Risk and Compliance Officer

Document Reviewer: SA Asset Manager

Document Approver: Risk and Compliance Officer

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1. Purpose

The purpose of this procedure is to provide information about preventing falls in the workplace, give examples of controlling the risks of falls, and to outline the coNEXA safety rules that must be adhered to whilst working for, or on behalf of, coNEXA Infrastructure Partners (coNEXA).

2. Who does this procedure apply to?

This procedure applies to **all** coNEXA employees, contractors, sub-contractors and visitors.

3. What is a risk of a fall?

A risk of a fall means a circumstance that exposes a worker whilst at work, or other person whilst at, or in the vicinity of a workplace, to a risk of a fall that is reasonably likely to cause injury to the worker or other person. This includes circumstances in which the worker or other person is:

- In or on plant or a structure that is at an elevated level
- In or on plant that is being used to gain access to an elevated level
- In the vicinity of an opening through which a person could fall
- In the vicinity of an edge over which a person could fall
- On or in the vicinity of a surface through which a person could fall
- On or near the vicinity of a slippery, sloping or unstable surface

4. Identifying fall hazards

Potential fall hazards should be identified at the workplace. Tasks that need particular attention are those carried out:

- On any structure or plant being constructed or installed, demolished or dismantled, inspected, tested, repaired or cleaned
- On a fragile surface (for example, cement sheeting roofs, rusty metal roofs, fibreglass sheeting roofs and skylights)
- On a potentially unstable surface (for example, areas where there is potential for ground collapse)
- Using equipment to work at the elevated level (for example, when using elevating work platforms or portable ladders)
- On a sloping or slippery surface where it is difficult for people to maintain their balance (for example, on glazed tiles)
- Near an unprotected open edge (for example, near storage tank roofs)
- Near a hole, shaft or pit into which a worker could fall (for example, trenches, lift shafts or service pits).

5. Controlling the risks

The risks associated with falls must be controlled using the hierarchy of risk controls (refer figure 1). The controls must be documented in a Standard Operating Procedure (SOP), Job Safety and Environmental Analysis (JSEA) or a Safe Work Method Statement (SWMS). The most effective control measure involves eliminating the risk of a fall. If it is not reasonably practicable to eliminate the risk, then you must minimise the risks so far as is reasonably practicable by:

- Substituting the risk with something that gives rise to a lesser risk
- Isolating the risk from any person exposed to it
- Implementing engineering controls

If there is a remaining risk, it must be minimised so far as is reasonably practicable by implementing administrative controls, and if a risk still remains, then suitable personal protective equipment must be provided and used.

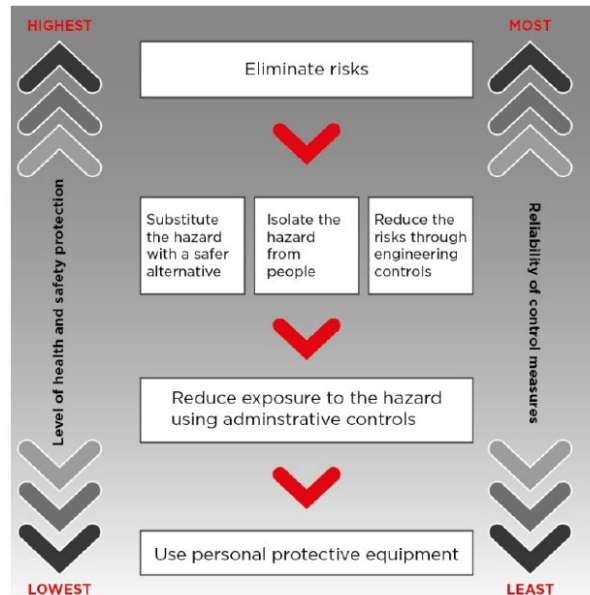


Figure 1: the hierarchy of control measures (Source: SafeWork SA, Code of Practice, How to Manage Work Health and Safety Risks, June 2020)

Examples of control measures that may be introduced to control the risk of falls are:

Working from the ground (elimination)

Eliminating the need to work at height by rearranging a task that enables work to be conducted from ground level.

Erecting barricades (isolation)

Erecting barricades to isolate people from an open edge protects a person from falling.

Barriers (or edge protection) to prevent a person falling over edges and into holes should be provided on relevant parts of a solid construction. These include:

- The perimeters of buildings or other structures
- Mezzanine floors (refer figure 2)
- Openings in floors
- The open edge of a stair, landing, platform or shaft opening

Note: Barricades must comply with relevant Australian Standards and be designed and installed by a competent person

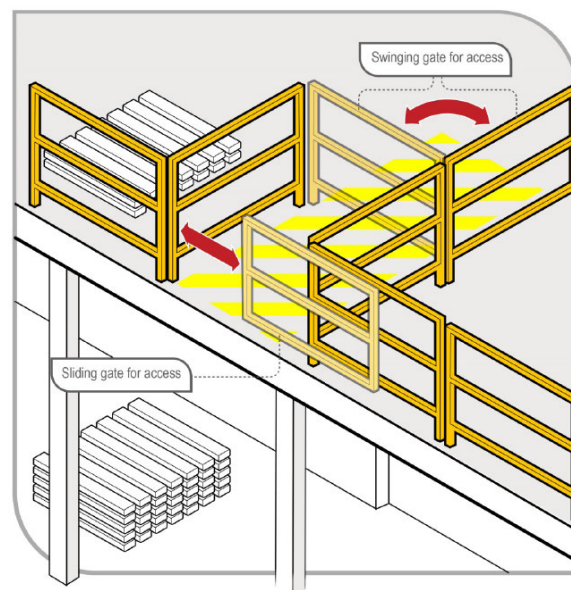


Figure 2: example of barriers (edge protection) (Source: SafeWork SA, Code of Practice, How to Manage Work Health and Safety Risks, June 2020)

Scaffolding (engineering)

Using temporary work platforms such as a scaffold can reduce the risk of a fall by providing a worker with a safe means of working at height.

Scaffolding work platforms are generally rated as light, medium or heavy duty. Safety considerations include:

- Scaffolding conforms to AS 4576:2020 Guidelines for scaffolding and the AS / NZS 1576 Scaffolding series
- All scaffolding is erected, altered and dismantled by competent persons. Any scaffold from which a person or object could fall more than four metres must **only** be erected, altered and dismantled by or under the direct supervision of a **licensed scaffolder**
- Prefabricated scaffolds are of the same type and not mixed components, unless the mixing of components has been approved by the manufacturer
- Safe access to and egress from the scaffold is provided
- Edge protection (handrails, mid-rails and toe boards) is provided at every open edge of a work platform

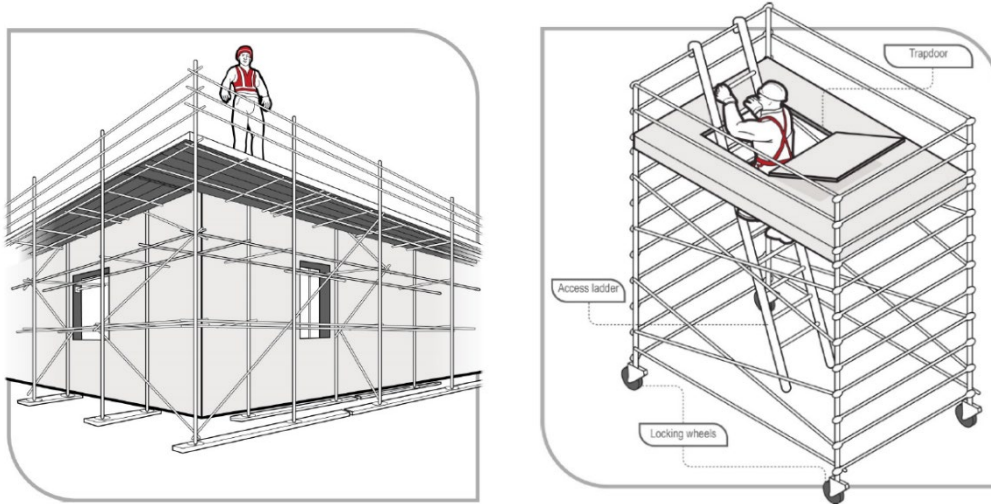
Where work is performed from a scaffold, you must ensure that the relevant workers understand:

- What loads the scaffold can safely take
- Not to make any unauthorised alterations to the scaffold (such as removing guard rails, planks, ties, toe boards and braces)
- That working platforms need to be kept clear of debris and obstructions along their length, and
- That incomplete or defective scaffolds must never be accessed

Where work is performed using mobile scaffolds, workers should be trained to ensure the scaffold:

- Remains level and plumb at all times
- Is kept well clear of powerlines, open floor edges and penetrations
- Is not accessed until the castors are locked to prevent movement

- Is never moved whilst anyone is on it
- Is only accessed using internal ladders



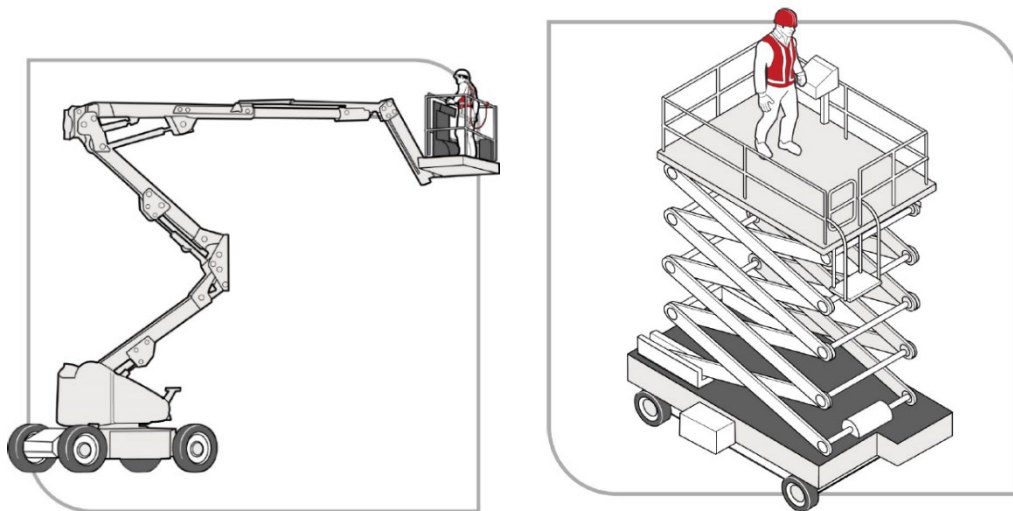
Figures 3A / 3B: example of fixed and mobile scaffolds (Source: SafeWork SA, Code of Practice, How to Manage Work Health and Safety Risks, June 2020)

Elevated work platforms (engineering)

Utilising elevated work platforms (EWPs) such as boom lifts or scissor lifts to access heights.

Safety considerations include:

- Workers operating the platform must be trained and competent in safe operating procedures for the particular brand and type of equipment, as well as the safe use of fall-arrest equipment and emergency rescue procedures
- Workers have undertaken 'yellow card' training in accordance with the Elevating Work Platform Association (boom length under 11.0 metres)
- The platforms are only used as working platforms and not as a means of entering and exiting a work area unless the conditions set out in AS / NZS 2550.10:2006 Cranes, hoists and winches – Safe use, part 10: Mobile elevating work platforms are met
- Unless designed for rough terrain, the platforms are used only on a solid level surface
- The surface area is checked to make sure that there are no penetrations or obstructions that could cause uncontrolled movement or overturning of the platform
- The manufacturer's or supplier's instructions are consulted for information on safe operation
- Persons working in travel towers, boom lifts or cherry pickers wear a properly anchored safety harness which has been inspected for integrity before use
- Workers are licensed (high risk work licence) when operating boom-type elevating work platforms with a boom length of 11 metres or more



Figures 4A / 4B: example of a boom type WPE and a scissor lift WPE (Source: SafeWork SA, Code of Practice, How to Manage Work Health and Safety Risks, June 2020)

Ladders (engineering)

Extension or single ladders should only be used as a means of access to, or egress from, a work area. They should only be used as a working platform for light work of short duration that can be carried out safely on the ladder. Ladders should comply with AS / NZS 1892 Portable ladders series.

When a ladder is used, you should check that:

- The ladder is in good condition; the ladder should be inspected for faults, such as broken rungs, stiles and footing before it is used
- Damaged ladders are removed from service (danger tag fitted)
- The ladder is set up on firm, stable and level ground
- The ladder is the correct height for the task to avoid reaching or stretching
- The ladder is not too close or too far from the support structure; the distance between the ladder base and the supporting structure should be about one metre for every four metres of working ladder height (4:1 ratio)
- The ladder is secured against displacement (ie slipping or sliding) and / or there is another person holding the base of the ladder
- The ladder is not placed so that the weight of the ladder and any person using the ladder is supported by the rungs
- All the locking devices on the ladder are secure
- Materials or tools are not carried while climbing the ladder; use a tool belt or side pouch
- Only light duty work is undertaken whilst on the ladder, where **three points of contact** can always be maintained and tools can be operated safely with one hand
- Slip resistant base, rungs or steps are provided
- Slip resistant shoes are worn

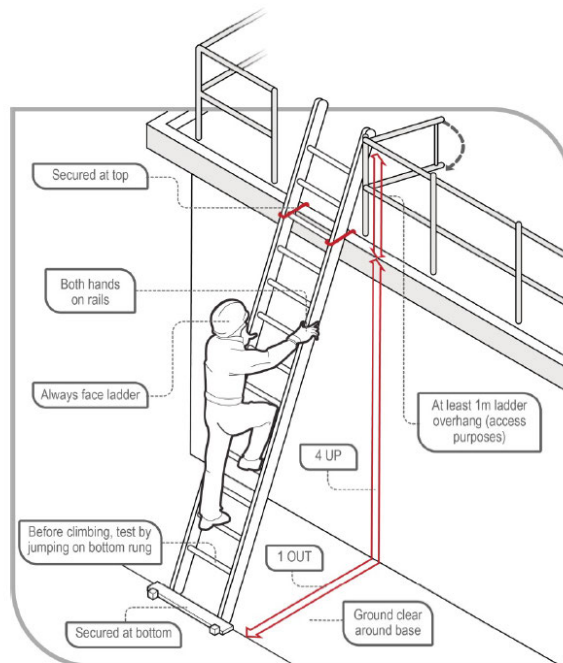


Figure 5: example of a acceptable ladder use (Source: SafeWork SA, Code of Practice, How to Manage Work Health and Safety Risks, June 2020)

Fall-arrest systems (PPE)

A fall-arrest system is intended to safely stop a worker falling an uncontrolled distance and reduce the impact of the fall. This system must only be used if it is not reasonably practicable to use higher level controls or if higher level controls might not be fully effective in preventing a fall on their own.

Individual fall-arrest systems consist of some or all of the following components:

- Anchorages
- Lifelines
- Inertia reel
- Lanyard of fixed length
- Retractable lifelines
- Rope grabs
- Wire grabs
- Rail system
- Shock absorbers, both personal and industrial
- Harness
- Snap hooks (double or triple action to prevent rollout)
- Karabiners (double or triple action to prevent rollout)
- Rescue equipment

Individual fall-arrest systems rely on workers wearing and using them correctly, and therefore workers who will use such a system must be trained in its safe use. Fall-arrest systems should only be used where it is not reasonably practicable to use higher level control measures or as a secondary control measure.

Relevant Australian / New Zealand Standards for personal fall-arrest equipment require that they be permanently marked or labelled to indicate their purpose, correct use, limitations and other relevant information aimed at reducing misuse of the equipment.

Each anchorage point should comply with the requirements in AS / NZS 1891:4:2009 Industrial fall-arrest systems and devices, part 4 : selection, use and maintenance.

All anchorages should be tested and approved by a competent person before use; a visual inspection may not reveal the structural integrity of the anchor point (ie the bolt may have failed below the concrete surface). Each anchorage point should be located so that a lanyard of the system can be attached to it before the person using the system moves into a position where the person could fall.

Each component of the system and its attachment to an anchorage must be inspected by a competent person:

- After it is installed but before it is used
- At regular intervals
- Immediately after it has been used to arrest a fall

Inspection of all components should be conducted in accordance with the manufacturer's specifications and the relevant standards. If any signs of wear or weakness are found during the inspection, the components or means of attachment should be withdrawn from use until they are replaced with properly functioning components.

Fall-arrest systems, incorporating a lanyard, should be installed so that the maximum distance a person would free fall before the fall-arrest system takes effect is two metres. There should be sufficient distance between the work surface and any surface below to enable the system, including the action of any shock absorber to fully deploy. To work out whether there is enough distance available, you should take into account:

- The worker's height
- The height and position of the anchorage point
- The length of the lanyard
- Any slack in the horizontal life line
- Any stretching of the lanyard or horizontal life line when extended by a fall
- The length of the energy absorber when extended by a fall

Note: Extended periods of suspension in a fall-arrest system can lead to restricted blood flow to the legs and cause severe injury.

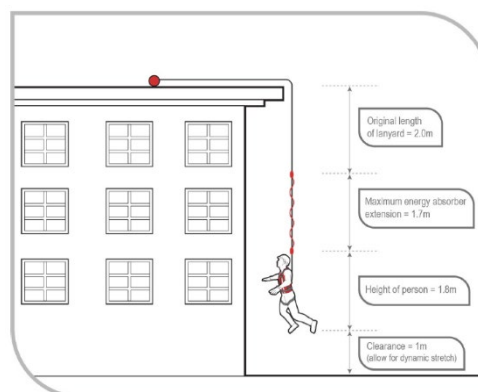


Figure 6: total fall distance before this particular configuration would be effective in arresting a fall is 6.5 metres
(Source: SafeWork SA, Code of Practice, How to Manage Work Health and Safety Risks, June 2020)

6. coNEXA safety rules

- Always perform tasks from ground level if reasonable and practicable to do so
- Always implement isolation or engineering controls before administrative controls or PPE
- Ensure scaffolding is installed by a licensed and competent scaffolder
- Ensure that scaffolding is tagged and in date when being accessed
- Check all equipment for damage prior to use
- Ensure ladders comply with AS / NZS 1892 Portable ladders series
- Ensure ladders meet the required weight rating prior to use
- Only use a fall-arrest system if trained and competent to do so
- Only operate an EWP if trained and competent to do so
- All workers working at height must have undertaken work safely at heights training
- All workers operating a boom with a length of 11.0 metres or more must have the relevant high risk work licence
- All workers using booms with a length under 11.0 metres must have undertaken appropriate training in the use of the plant being used

7. Additional resources

- WHS Codes of Practice
 - Safework SA Code of Practice: Managing the risk of falls at Workplaces, June 2020
 - NSW Government Code of Practice: Managing the risk of falls at workplaces, August 2019
 - WorkSafe WA Code of Practice: Managing the risk of falls at workplaces, 2022
 - NT WorkSafe Code of Practice: Managing the risk of falls at workplaces, January 2020
 - WorkSafe Victoria Compliance Code: A guide to falls prevention, June 2017

coNEXA TopCo Pty Ltd

ACN 616 144 471

**CIP-IMS-DOC-HS-011
Remote or Isolated Work (Working Alone) Procedure**

Version Number	Version Date	Approved By	Status	Next Revision Date
0.1	7 May 2019	N/A	Draft	N/A
1.0	24 March 2020	Regional Manager - SA	Superseded	24 March 2021
2.0	14 June 2022	Regional Manager - SA	Superseded	14 June 2025
3.0	22 June 2023	Risk and Compliance Officer	Released	22 June 2023

Document Owner: Risk and Compliance Officer

Document Reviewer: Chief Operations Officer

Document Approver: Risk and Compliance Officer

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1. Purpose

coNEXA Infrastructure Partners (coNEXA) is committed to the health and safety of all personnel in the workplace. The purpose of this procedure is to define systems and processes to be utilised to control the risks associated with remote or isolated work.

The nature of remote or isolated work is such that workers may be isolated from the assistance of other people, due to location, time or the nature of the work being done. Assistance from other people includes medical attention, and the availability of rescue and emergency services.

Common instances of remote or isolated work include:

- Call-outs, ie attending to faults and alarms, possible leaks and customer queries
- Certain work tasks, ie working around dams, customer outlets, plant or machinery
- Carrying out weekly station inspections
- Work-related travel, ie, driving to meet with customers and contractors
- Working alone, ie in the office alone, after or before normal working hours
- Other field-based work, ie isolating an outlet

2. Definitions

WSG WorkSafe Guardian

3. Scope

This procedure applies to all coNEXA employees. Any contractors working for coNEXA must establish their own working alone procedures to mitigate any risks of working alone (if applicable).

4. Roles and responsibilities

Managers	• Managers and those in supervisory positions must understand and comply with the requirements of this procedure • They must also ensure their personnel comply with the requirements of this procedure • Once alerted that a staff member is uncontactable, decide whether to contact emergency services or initiate other measures to ensure staff safety
Employees	• Download the WSG app and complete set up • Use the WSG app appropriately and effectively • Perform WSG alert test weekly • Provide your voice code to WSG and identify yourself with this code in a response call situation • Acknowledge the WSG app alert within two minutes • Respond to WSG phone calls to prevent unnecessary call out charges to emergency services
Contractors must	• Ensure that systems are in place to eliminate or minimise WHS risks to workers engaged in remote or isolated work

5. Hazard and risk assessment

All workers must only perform tasks for which a Standard Operating Procedure (SOP), Job Safety and Environmental Analysis (JSEA), or Safe Work Method Statement (SWMS) has been developed and approved in accordance with the hazard management procedure outlined in *CIP-IMS-DOC-011 Enterprise Risk Management Framework*. The SOP, JSEA or SWMS must list the job steps, identify the risks of each job step, assess the risk level of each risk and list the controls necessary to control each risk. Factors such as work location, anticipated duration of the working alone task and type of task performed shall be included in the risk assessment.

WSG

WSG must be used at all times (where possible*) when working alone on tasks that have a medium or high residual risk as identified in a SOP / JSEA and / or where the employee may be working alone for more than four hours without being likely to have contact with another person

*If it is not possible to use WSG due to site or task constraints an alternate form of working alone procedure should be developed for the site or task.

Where an employee has concerns when working alone in any other circumstance they may elect to use WSG or notify another coNEXA employee when they start and finish the specific task.

Access to WSG will be supplied to any coNEXA employee that this procedure relates to. Once a coNEXA employee has been added as a user of WSG, they are to be added to the WSG User List by the QHSE Coordinator, *CIP-IMS-FORM-HS-004 WSG User List*.

WSG is a professionally monitored safety app that provides employees with a tool that enables them to proactively set-up a welfare timer, send a medical alert and send a safety alert if feeling threatened. The WSG welfare timer must be set with a one hour maximum duration, which can be reduced as required dependent on the task and / or assessed risk.

When the welfare timer expires, it will send through a text message notification to check-in. If you do not check-in promptly (within two minutes), an alert will be raised to the WSG Operations Centre, who will, in the first instance, try and call your mobile phone. If unable to contact you, the WSG Operations Centre will escalate to personnel identified in the WSG User List (refer *CIP-IMS-FORM-HS-004 WSG User List*).

Leave your phone on and within easy reach when working alone. Be aware of noisy locations and potential difficulties hearing the phone, consider making sure the phone is on its highest volume setting.

For an overview on how to use the WSG app please watch the training video (this should take about twenty minutes): <https://youtu.be/KFhxqRYqxfk>.

Other resources which can be utilised to help navigate WSG are:

- Online training videos - https://worksafeguardian.com.au/training_videos/ these can be found on the WSG website and are attached to the completed signup email for WSG app profiles
- Testing the WSG app (all the available methods) - <https://youtu.be/1TzmQykUS7w>
- Using the safety shake feature - <https://youtu.be/fQqpgXBdqR8>
- Welfare timer favourite locations - <https://youtu.be/oujASZaOH4k>
- Using Siri shortcuts for the WSG app - https://youtu.be/X9uLM_lzSs

6. Working alone – out of hours call out

If a situation arises that requires a coNEXA operator to attend a site to rectify / investigate an issue out of hours, the operator **must** set the WSG welfare timer on the WSG app by inputting the location of the callout and adjusting the timer.

When the welfare timer expires, it will notify the user to check-in via text message. If you do not check-in promptly (within two minutes), an alert will be raised to the WSG Operations Centre, who will, in the first instance, try and call the user's mobile phone. If unable to contact the user the WSG Operations Centre will escalate to personnel identified in the 'WSG User List' (refer Appendix 1).

Leave your phone on and within easy reach during the call-out. Be aware of noisy locations and the difficulty of hearing the phone, consider making sure the phone is on its highest volume setting.

If the call-out is expected to continue past the welfare timer finish time continue to reset the timer as required through to the completion of the call-out. When the call-out has finished ensure to reset the welfare timer for the travel time to your next destination. Ensure your car's hands-free feature is connected in case you receive a call from the WSG Operations Centre. Once the call-out is complete and you have arrived home, cancel the welfare timer on the WSG app.

7. Reporting

WSG provides weekly reports to coNEXA. These reports are saved in the coNEXA SharePoint directory and are to be reviewed by the Risk and Compliance Officer and relevant business unit manager, or delegates.

8. Additional resources

- *CIP-IMS-FORM-HS-004 WSG User List*
- WSG website <http://worksafeguardian.com.au/>
- [WSG account profile set-up \(v2.0\)](#)
- [WSG app – device activation process \(v2.0\)](#)
- [WSG portal – how to set a password \(v2.0\)](#)
- [WSG – account profile set-up \(v2.0\)](#)
- WHS Codes of Practice
 - Safework SA Code of Practice: Managing the environment and facilities, June 2020
 - NSW Government Code of Practice: Managing the work environment and facilities, August 2019
 - WorkSafe WA Code of Practice: Managing the work environment and facilities, 2022
 - NT WorkSafe Code of Practice: Managing the work environment and facilities, January 2020
 - WorkSafe Victoria Compliance Code: Workplace amenities and work environment, September 2008

coNEXA TopCo Pty Ltd

ACN 616 144 471

CIP-IMS-DOC-HS-008
Electrical Safety Procedure

Version Number	Version Date	Approved By	Status	Next Revision Date
0.1	3 April 2017	N/A	Draft	N/A
1.0	3 April 2017	Risk and Compliance Officer	Released	3 April 2020
2.0	6 April 2020	Operations Manager	Superseded	6 April 2023
3.0	24 April 2023	Risk and Compliance Officer	Released	24 April 2026

Document Owner: Risk and Compliance Officer

Document Reviewer: Manager – Contract Operations

Document Approver: Risk and Compliance Officer

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1. Purpose

The purpose of this procedure is to provide information about the risks of electricity in the workplace, give examples of controlling the risks, and to outline the coNEXA safety rules that must be adhered to whilst working for, or on behalf of, coNEXA Infrastructure Partners (coNEXA).

2. Definitions

RCD	Residual current device
PPE	Personal protective equipment
AC	Alternating current
DC	Direct current

3. Who does this procedure apply to?

This procedure applies to **all** coNEXA employees, contractors, sub-contractors and visitors.

4. What are electrical risks?

Electrical risks include possible death, electric shock or other injury caused directly or indirectly by electricity. The most common electrical risks and causes of injury are:

- Electric shock causing injury or death. The electric shock may be received by direct or indirect contact, tracking through or across a medium, or by arcing. For example, electric shock may result from indirect contact where a conductive part that is not normally energised becomes energised due to a fault (eg metal toaster body, fence)
- Arcing, explosion or fire causing burns. The injuries are often suffered because arcing or explosion or both occur when high fault currents are present
- Fire resulting from an electrical fault

Even the briefest contact with electricity at 50 volts for alternating current or 120 volts for direct current can have serious consequences to a person's health and safety. High voltage shocks involving more than 1,000 volts AC or 1,500 volts DC can cause contact burns and damage to internal organs.

Electric shocks from faulty electrical equipment may also lead to related injuries, including falls from ladders, scaffolds or other elevated work platforms. Other injuries or illnesses may include muscle spasms, palpitations, nausea, vomiting, collapse and unconsciousness.

5. Identifying electrical risks

Hazards arising from electrical equipment or installations may arise from:

- The design, construction, installation, maintenance and testing of electrical equipment or electrical installations
- Design change or modification
- Inadequate or inactive electrical protection
- Where and how electrical equipment is used. Electrical equipment may be subject to operating conditions that are likely to result in damage to the equipment or a reduction in its expected life span. For example, equipment may be at greater risk of damage if used outdoors or in a factory or workshop environment
- Type of electrical equipment. For example, 'plug in' electrical equipment that may be moved around from site to site, including extension leads, are particularly liable to damage
- The age of electrical equipment and electrical installations

Potential electrical hazards may be identified in a number of different ways including regularly inspecting and testing electrical equipment and electrical installations as appropriate, and reading product labels and manufacturers' instruction manuals

6. Controlling the risks

Once hazards have been identified and the risks assessed, appropriate control measures must be put in place.

The ways of controlling risks are ranked from the highest level of protection and reliability to the lowest. This ranking is known as the hierarchy of risk control (refer figure 1). You must work through this hierarchy to choose the control that most effectively eliminates or minimises the risk in the circumstances, so far as is reasonably practicable. This may involve a single control measure or a combination of two or more different controls.

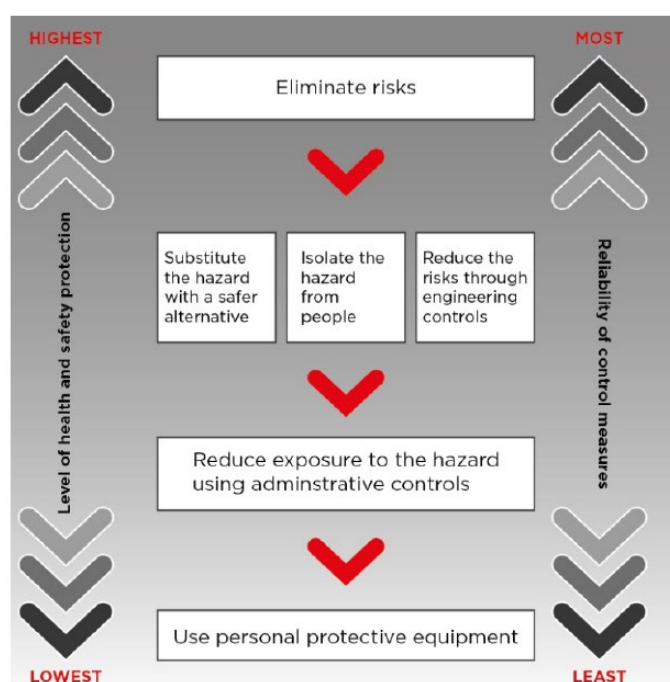


Figure 1: the hierarchy of control measures (Source: SafeWork SA, Code of Practice, How to Manage Work Health and Safety Risks, June 2020)

Elimination

The most effective control measure is to remove the hazard or hazardous work practice. By designing-in or designing-out certain features, hazards may be eliminated.

Substitution

Replacing a hazardous process or material with one that is less hazardous will reduce the hazard, and hence the risk. For example, it may be reasonably practicable to use extra-low voltage electrical equipment such as a battery-operated tool rather than a tool that is plugged into mains electricity.

Isolation

Preventing workers from coming into contact with the source of an electrical hazard will reduce the relevant risks.

Engineering controls

Use engineering control measures to minimise the risk, for example installing RCDs to reduce the risk of receiving a fatal electric shock.

Administrative controls

Administrative controls involve the use of safe work practices to control the risk, for example establishing exclusion zones, use of permits or warning signs.

PPE

PPE includes protective eyewear, insulated gloves, hard hats, aprons and breathing protection. Most forms of PPE are not relevant to minimising electrical risks in workplaces.

Administrative controls and PPE do nothing to change the hazard itself. They rely on people behaving as expected and require a high level of supervision. Exclusive reliance on administrative controls and PPE must only occur where other measures are not reasonably practicable or as an interim control while the preferred control measure is being implemented.

6.1 Inspecting electrical equipment

Inspecting and testing electrical equipment will assist in determining whether it is electrically safe.

Regular visual inspection can identify obvious damage, wear or other conditions that might make electrical equipment unsafe. Many electrical defects are detectable by visual inspection.

Regular testing can detect electrical faults and deterioration that cannot be detected by visual inspection. The nature and frequency of inspection and testing will vary depending on the nature of the workplace and the risks associated with the electrical equipment.

6.1.1 Lower-risk workplaces

Lower-risk workplaces include those workplaces that are dry, clean, well-organised and free of conditions that are likely to result in damage to electrical equipment, for example an office. Electrical equipment commonly used in these types of lower-risk workplaces includes computers, photocopiers, stationary or fixed electrical equipment. A key source of information on dealing with the inspection and testing of electrical equipment is the manufacturer's recommendations.

Portable electrical equipment used in a lower-risk workplace must be inspected and tested at twelve monthly intervals.

New electrical equipment used in lower-risk operating environments does not require testing or 'tagging' other than visual inspection prior to use. Electrical equipment used in lower-risk operating environments will be test and tagged at the next scheduled testing interval.

coNEXA office locations are to be considered as lower-risk workplaces for the purpose of this procedure.

6.1.2 Higher-risk workplaces

Higher-risk workplaces include those workplaces in which the normal use of electrical equipment exposes the equipment to operating conditions that are likely to result in damage to the equipment or a reduction in its expected life span. This includes conditions that involve exposing the electrical equipment to moisture, heat, vibration, mechanical damage, corrosive chemicals or dust.

Portable electrical equipment used in a higher-risk workplace must be inspected and tested in accordance with any site-specific requirements (ie client requirements) or if there is no specific site requirements, at least at twelve monthly intervals.

Inspection and testing of electrical equipment must be carried out by a person who has acquired, through training, qualification or experience, the knowledge and skills to carry out the task (ie be a 'competent person'). Inspection and testing of electrical equipment must be carried out by a competent person who has the relevant knowledge, skills and test instruments to carry out the relevant inspection and testing. This person does not necessarily need to be an electrician.

Operational sites (including temporary on-site offices) and client sites are to be considered as higher-risk workplaces for the purpose of this procedure.

Recording of inspection and testing

The record of testing may take the form of a logbook, database, register or a similar kind of record, or a tag. Logbooks and similar records have the advantage of:

- Ensuring there is a permanent record of inspection and testing (for example, as a backup if tags are damaged or removed)
- Facilitating internal audit
- Allowing more detailed information to be recorded

Tagging

If the record of testing is a tag, it should be durable, water resistant, non-metallic, self-adhesive and / or well-secured, incapable of re-use and have a bright, distinctive surface.

A tag may not include all of the required information. In that case, the rest of the required information must be recorded elsewhere and kept for the relevant period of time.

If a tag is not used, you should ensure that tested electrical equipment is marked or labelled so that records of testing can clearly identify the relevant equipment.

6.2 RCDs

An RCD is an electrical safety device designed to immediately switch off the supply of electricity when electricity 'leaking' to earth is detected at harmful levels. RCDs offer high levels of personal protection from electric shock.

RCDs work by continuously comparing the current flow in both the active (supply) and neutral (return) conductors of an electrical circuit. If the current flow becomes sufficiently unbalanced, some of the current in the active conductor is not returning through the neutral conductor and is leaking to earth. RCDs are designed to quickly disconnect the electricity supply when they sense harmful leakage, typically thirty milliamps or less. This ensures an electrical leak is detected and the electricity supply is disconnected before it can cause serious injury or damage.

While RCDs significantly reduce the risk of electric shock, they do not provide protection in all circumstances. For example, an RCD will not trigger off electricity supply if a person contacts both active and neutral conductors whilst handling faulty plugs or electrical equipment and electricity flows through the person's body, unless there is also a current flow to earth.

An RCD is required at higher-risk workplaces where electrical equipment supplied with electricity through a socket outlet (plug-in electrical equipment) is used or may be used.

Types of RCD

RCDs can be either non-portable (fixed) or portable.

Non-portable (or 'fixed') RCDs are RCDs that are installed at either the switchboard (refer figure 2) or a fixed socket outlet (refer figure 3).

Non-portable RCDs installed at the main switchboard protect the wiring connected to the RCD and electrical equipment plugged into the protected circuit.

Non-portable RCDs installed at a fixed socket outlet provide protection to electrical equipment plugged into the outlet.

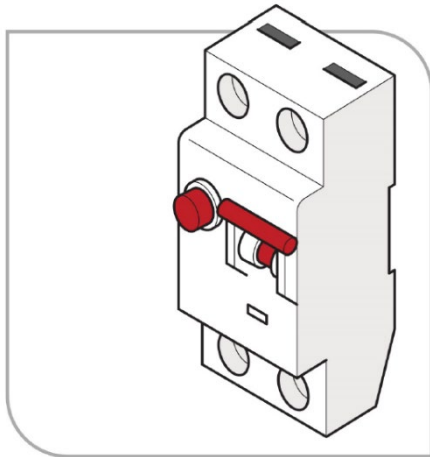


Figure 2: Switchboard RCD Unit
(Source: SafeWork SA, Code of Practice, Managing Electrical Risks in the Workplace, June 2020)

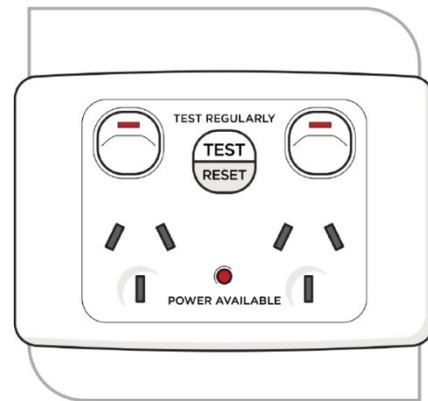


Figure 3 fixed socket outlet RCD unit

Portable RCDs are generally plugged into a socket outlet and, depending on design, may protect one or more items of electrical equipment.

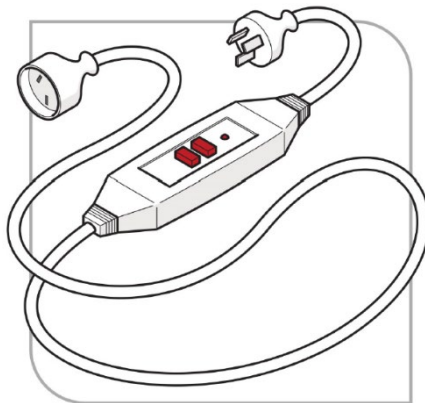


Figure 4: Portable RCD fitted directly to power cable

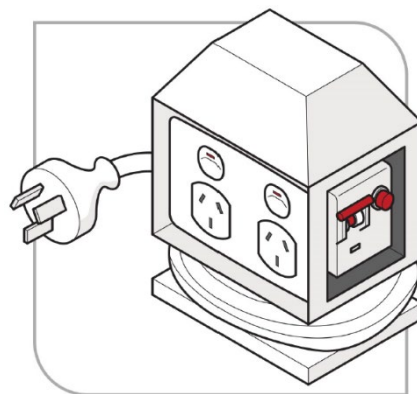


Figure 5: portable RCD protected power board
(Source: SafeWork SA, Code of Practice, Managing Electrical Risks in the Workplace, June 2020)

Inspecting and testing RCDs

Both non-portable and portable RCDs used at coNEXA workplaces must be inspected and tested by a competent person on the following timeframes:

- Non-portable RCDs – Twelve monthly
- Portable RCDs – Twelve monthly

The record of testing may take the form of a logbook, database, register or a similar kind of record, or a tag. Logbooks and similar records have the advantage of:

- Ensuring there is a permanent record of inspection and testing (for example, as a backup if tags are damaged or removed)
- Facilitating internal audit
- Allowing more detailed information to be recorded.

Tagging

If the record of testing is a tag, it should be durable, water resistant, non-metallic, self-adhesive and / or well-secured, incapable of re-use and have a bright, distinctive surface.

A tag may not include all the required information. In that case, the rest of the required information must be recorded elsewhere and kept for the relevant period of time.

If a tag is not used, you should ensure that tested RCDs are marked or labelled so that records of testing can clearly identify the relevant RCD.

6.3 Undertaking electrical work

Electrical work must only be undertaken by a licensed electrician at any coNEXA worksite.

Electrical work means:

- Connecting electricity supply wiring to electrical equipment or disconnecting electricity supply wiring from electrical equipment
- Installing, removing, adding, replacing, repairing, altering or maintaining electrical equipment or an electrical installation.

Electrical work does **not** include:

- Work that involves connecting electrical equipment to an electricity supply by means of a flexible cord plug and socket outlet
- Work on a non-electrical component of electrical equipment if the person carrying out the work is not exposed to an electrical risk
- Replacing electrical equipment or a component of electrical equipment if that task can be safely performed by a person who does not have expertise in carrying out electrical work (eg replacing light bulbs)
- Building or repairing ducts, conduits or troughs where electrical wiring is, or will be, installed if the ducts, conduits or troughs are not intended to be earthed, the wiring is not energised, and the work is supervised by a licensed or registered electrical worker
- Locating or mounting electrical equipment, or fixing electrical equipment in place, if this task is not performed in relation to the connection of electrical equipment to an electricity supply
- Fault finding, ie using a multimeter to determine the location of a fault

Isolation

Any electrical work must only be performed on equipment that has been proven to be not live (test for dead). At no time, will 'live' electrical work be undertaken at a coNEXA workplace, except for the commissioning of electrical installations.

Isolation procedures must be followed whilst work is undertaken on any electrical equipment or installation. If the licensed electrician performing the work does not have an isolation procedure, the coNEXA IMS document, *CIP-IMS-DOC-HS-006 Energy Isolation Procedure* must be followed.

6.4 Faulty equipment

Any electrical equipment that is found to be faulty either through visual inspection or testing must be immediately taken out of service. An 'out of service' tag like the examples given in figures 6A / 6B must be completed and attached to the equipment.

The faulty equipment may only be returned to service once a competent person has inspected and / or repaired the equipment and is satisfied that the equipment no longer poses a hazard.



Figures 6A / 6B: example of 'personal danger tags' (Source: SafeWork SA, Code of Practice, Managing Electrical Risks in the Workplace, June 2020)

7. coNEXA safety rules

- Always visually inspect electrical equipment before use
- Portable electrical equipment used at higher-risk workplaces must be inspected and tested by a competent person at twelve-monthly intervals
- Always ensure the electric circuit is protected by an RCD when using plug-in electrical equipment at a higher-risk workplace
- RCDs must be inspected and tested by a competent person
- Electrical work is only to be performed by licenced electricians
- Always test for dead before undertaking electrical work
- Never perform 'live' electrical work
- Always follow isolation procedures whilst undertaking electrical work
- Always tag faulty electrical equipment as 'out of service'

8. Additional resources

- *CIP-IMS-DOC-HS-006 Energy Isolation Procedure*
- WHS Codes of Practice
 - Safework SA Code of Practice: Managing the risks of plant in the workplace, June 2020
 - Safework SA Code of Practice: Managing electrical risks in the workplace, June 2020
 - NSW Government Code of Practice: Managing the risks of plant in the workplace, August 2019
 - NSW Government Code of Practice: Managing electrical risks in the workplace, August 2019
 - Government of Western Australia, Department of Mines, Industry Regulation and Safety, Building and Energy: Code of Practice for persons working on or near energised electrical installations, November 2017
 - WorkSafe WA Code of Practice: Managing risks of plant in the workplace, 2022
 - NT WorkSafe Code of Practice: Managing electrical risks in the workplace, January 2020
 - NT WorkSafe Code of Practice: Managing risks of plant in the workplace, January 2020
 - WorkSafe Victoria Compliance Code: Plant, December 2019

coNEXA TopCo Pty Ltd

ACN 616 144 471

CIP-IMS-DOC-HS-012
Managing Noise in the Workplace Procedure

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1. Purpose

The purpose of this procedure is to provide information about the risks of noise in the workplace, give examples of controlling the risks, and to outline the coNEXA safety rules that must be adhered to whilst working for, or on behalf of, coNEXA Infrastructure Partners (coNEXA).

2. Definitions

PPE	Personal protective equipment
dB	Decibels

3. Who does this procedure apply to?

This procedure applies to **all** coNEXA employees, contractors, sub-contractors and visitors.

4. What are the risks of noise?

Hazardous noise affects the functioning of the inner ear, which may cause temporary hearing loss. After a period of time away from noise, hearing may be restored. With further exposure to hazardous noise, the ear will gradually lose its ability to recover and the hearing loss will become permanent.

Permanent hearing loss can also occur suddenly if a person is exposed to very loud impact or explosive sounds. This type of damage is known as acoustic trauma.

Permanent hearing loss results from the destruction of hair cells in the inner ear. These cells cannot be replaced or repaired by any presently known medical treatments or technology.

Usually, hazardous noise first affects the ability to hear high-frequency (high-pitched) sounds. This means that even though a person can still hear some sounds, conversation will start to sound 'muffled' and a person may find it difficult to understand what is being said.

Communication difficulties occur especially when there are competing background noises. Modern hearing aids may improve the ability to hear speech but they are unable to completely restore the clarity of the full hearing function.

Workers exposed to hazardous noise may also experience tinnitus, which could become permanent. When severe, it may disrupt sleep, reduce concentration, make people extremely irritable and lead to depression.

The degree of hearing loss that occurs is dependent on how loud the noise is, how long someone is exposed to it and, to some extent, individual susceptibility. The frequency or pitch can also have some effect on hearing loss since high-pitched sounds are more damaging than low-pitched ones.

5. Exposure standards

Work Health and Safety Regulations set the exposure standard for noise, in relation to a person, at:

- A. $LA_{eq,8h}$ of 85dB(A), or
- B. LC_{peak} of 140dB(C)

In this regulation:

$LA_{eq,8h}$ means the eight hour equivalent continuous A-weighted sound pressure level in decibels (db(A)), referenced to 20 micropascals, determined in accordance with AS / NZS 1269.1:2005 (Occupational noise management, part 1: measurement and assessment of noise emission and

exposure);

This is related to the total amount of noise energy a person is exposed to in the course of their working day. It takes account of both the noise level and the length of time the person is exposed to it.

LC_{peak} means the C-weighted peak sound pressure level in decibels (db(C)), referenced to 20 micropascals, determined in accordance with AS / NZS 1269.1:2005 (Occupational noise management, part 1: measurement and assessment of noise immission and exposure).

This usually relates to loud, sudden noises such as a gunshot or hammering. LC_{peak} values above 140dB(C) can cause immediate damage to hearing.

Decibels are not like normal numbers. They can't be added or subtracted in the normal way. The decibel scale is logarithmic. On this scale, an increase of 3dB represents a doubling of sound energy. This means that the length of time a worker could be exposed to the noise is reduced by half for every 3dB increase in noise level if the same noise energy is to be received. This is expressed in the following chart (Figure 1).

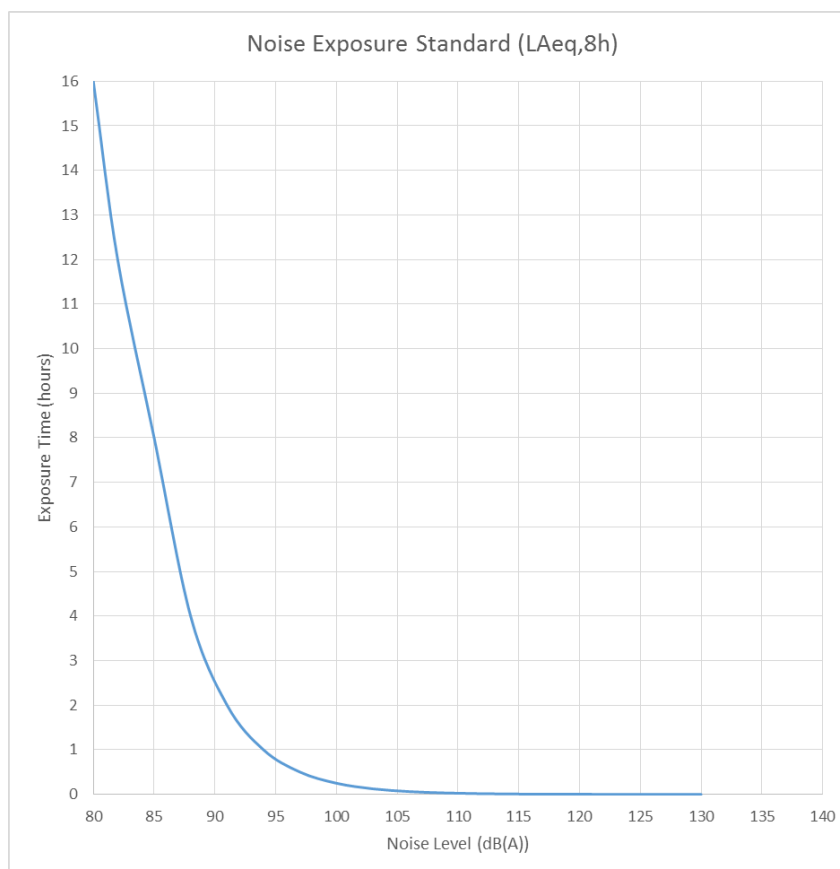


Figure 1: Noise exposure standard

Essentially, a worker who is exposed to 85dB(A) for eight hours receives the same noise energy as someone exposed to 88dB(A) for four hours, with the balance of the day in a very quiet environment. In both cases the exposure standard is not being exceeded. However, being exposed to 88dB(A) for more than four hours would mean that the standard is exceeded. Similarly, if a worker is using a machine that generates 121dB(A) then the exposure standard would be exceeded after only 7.2 seconds.

6. Identifying risks of noise

The noise level of certain tools or machinery used in the workplace can often be determined by consulting the user manual or other technical documents supplied by the manufacturer.

If the noise level of the workplace cannot be determined and there is a real risk that the noise level may be higher than the exposure standards, a noise assessment will need to be undertaken. This assessment must be undertaken by a competent person using calibrated noise level monitors in accordance with AS / NZS 1269.1:2005 Occupational Noise Management, part 1: Measurement and assessment of noise emission and exposure.

If the noise level is identified to be greater than the exposure standards, controls need to be determined to either eliminate the hazard from the workplace or to protect workers from the hazard. These controls shall be detailed in a Standard Operating Procedure (SOP), Job Safety and Environmental Analysis (JSEA) or Safe Work Method Statement (SWMS). Additional consideration shall be given to erecting warning signs if the control measure involves the compulsory wearing of personal hearing protection.

7. Controlling the risks

Once hazards have been identified and the risks assessed, appropriate control measures must be put in place.

The ways of controlling risks are ranked from the highest level of protection and reliability to the lowest. This ranking is known as the hierarchy of risk control (refer figure 2). You must work through this hierarchy to choose the control that most effectively eliminates or minimises the risk in the circumstances, so far as is reasonably practicable. This may involve a single control measure or a combination of two or more different controls.

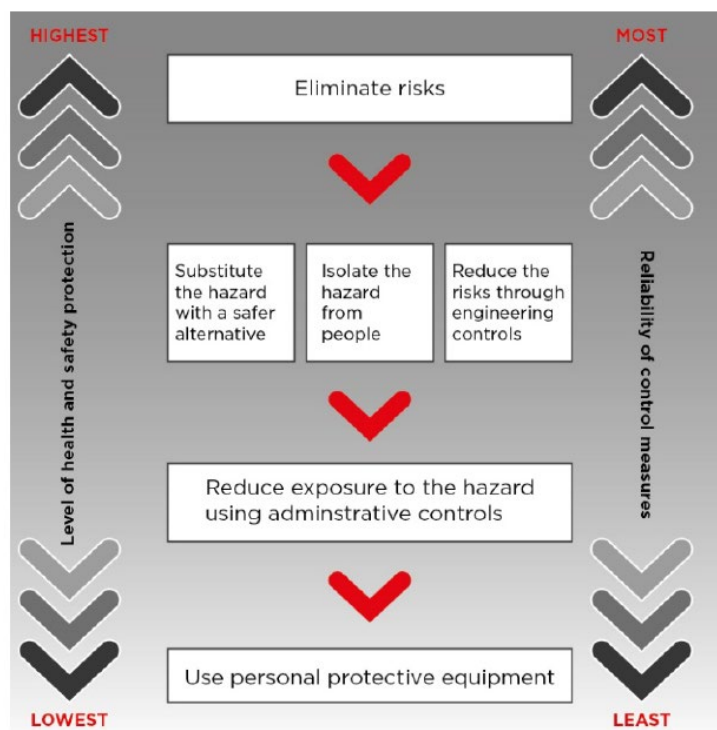


Figure 2: The hierarchy of control measures (Source: SafeWork SA, Code of Practice, How to Manage Work Health and Safety Risks, June 2020)

Elimination

The most effective control measure is to eliminate the source of noise completely, for example by ceasing to use a noisy machine, changing the way work is carried out so hazardous noise is not produced or by not introducing the hazard into the workplace.

Substitution

Replacing a hazardous process or material with one that is less hazardous will reduce the hazard, and hence the risk. For example, it may be reasonably practicable to substitute a loud power tool with a quieter designed power tool.

Isolation

Preventing workers from coming into contact with the source of a noise hazard will reduce the relevant risks.

Examples of isolating the source of noise from workers include:

- Building enclosures or sound proof covers around noise sources
- Using barriers or screens to block the direct path of sound
- Locating noise sources further away from workers

Engineering controls

A good understanding of the operation of the plant or process is necessary when considering ways of minimising noise at its source.

Examples of engineering control measures include:

- Eliminating impacts between hard objects or surfaces
- Fitting silencers to compressed air exhausts and blowing nozzles
- Isolating a vibrating noise source to separate it from the surface on which it is mounted using rubber mounts and flexible connections
- Fixing damping materials (such as rubber) or stiffening to panels to reduce vibration
- Fitting sound-absorbing materials to hard reflective surfaces
- Changing fan speeds or the speeds of particular components

Administrative controls

Administrative controls involve the use of safe work practices to control the risk, for example establishing procedures and erecting warning signs.

PPE

PPE includes protective hearing protection such as ear muffs and disposable ear plugs. If the use of personal hearing protectors is necessary, it is important that the hearing protectors are worn throughout the period of exposure to noise. Removing personal hearing protectors for even short periods significantly reduces the effective attenuation (noise reduction) and might provide inadequate protection. For example, a worker wearing a hearing protector for a full 8-hour day will receive the 30dB maximum protection level. However, one hour without wearing the hearing protector causes the maximum protection level to fall to 9dB.

Administrative controls and PPE do nothing to change the hazard itself. They rely on people

behaving as expected and require a high level of supervision. Exclusive reliance on administrative controls and PPE must only occur where other measures are not reasonably practicable or as an interim control whilst the preferred control measure is being implemented.

8. coNEXA safety rules

- Always eliminate excessive noise wherever practicable
- Always wear personal hearing protection if the continuous daily noise level is expected to exceed 85 dB(A) or periodic noise level is expected to exceed 88dB(A)

9. Additional resources

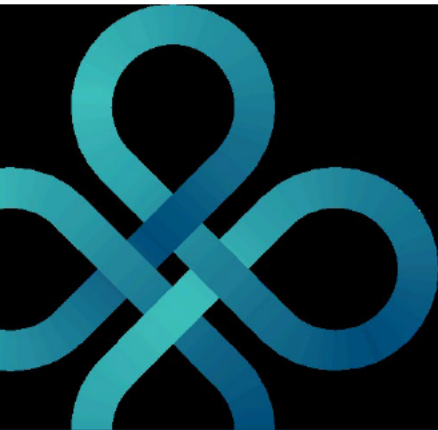
- AS / NZS 1269.1:2005 Occupational Noise Management, part 1: Measurement and assessment of noise immission and exposure
- WHS Codes of Practice
 - Safework SA Code of Practice: Managing noise and preventing hearing loss at work, June 2020
 - NSW Government Code of Practice: Managing noise and preventing hearing loss at work, August 2019
 - WorkSafe WA Code of Practice: Managing noise and preventing hearing loss at work, 2022
 - NT WorkSafe Code of Practice: Managing noise and preventing hearing loss at work, January 2020
 - WorkSafe Victoria Compliance Code: Noise, December 2019

Working Around Bodies of Water (or other liquids)

CIP-IMS-DOC-HS-017

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0.1	31 August 2021	n/a	Draft	n/a
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1. Purpose

The purpose of this procedure is to ensure that risks associated with working in, on, or around unguarded / unfenced bodies of water or other liquids are adequately managed in order to minimise the risk of harm to workers.

2. Definitions

Body of water	Any human made or natural collection of water that presents a potential hazard, including dams, lagoons, reservoirs, rivers, lakes and water storage tanks
coNEXA	coNEXA Infrastructure Partners
ELCB	Earth leakage circuit breaker
Guardrail	A structure which prevents a person from falling off platforms, walkways or landings (note: the height of a guardrail measured vertically above the surface shall be not less than 900 mm)
Other liquids	Any other liquid stored in the process of wastewater treatment, ie sewage, mixed liquor at workplaces attended by coNEXA workers
Personal flotation device	A garment or device which, when correctly worn and used in water, provides the wearer with a specific amount of buoyancy to support the wearer whilst in the water
PPE	Personal protective equipment
PFD	Personal floatation device
RCD	Residual current device
SOP	Standard operating procedure
SWMS	Safe work method statement

3. Who does this procedure apply to?

This procedure applies to **all** coNEXA employees, contractors, sub-contractors and visitors who are required to work in, on, or around unguarded / unfenced bodies of water or other liquids whilst undertaking work at coNEXA.

4. Primary risks

Managing the following risks associated with working in, on, or around bodies of water or other liquids is the primary focus of this procedure, including, but not limited to:

- Worker falling into water or other liquid and suffering serious injury or drowning
- Worker falling into water or other liquid with electrical equipment and suffering electric shock
- Worker being trapped under water or other liquid by equipment or objects and suffering serious injury or drowning
- Worker falling into water or other liquid and being hit, or hitting, objects
- Exposure to contaminants, flora or fauna in the water

5. Managing the risks

The risks associated with working in, on, or around bodies of water or other liquids should be eliminated wherever reasonably practicable. Where the risks cannot be eliminated, they must be minimised so far as is reasonably practicable. To ensure we are managing the risks from working in, on, or around bodies of water or other liquids, the following process must be followed:

5.1 Identify, analyse and evaluate the risks

The first step in managing the risks is to identify workplaces where activities that involve working in, on, or around bodies of water or other liquids exist.

The process outlined in *CIP-IMS-DOC-027 Operational risk management* (section 4) is to be followed to assist with identification, analysis and evaluation of the risks of working in, on, or around bodies of water or other liquids.

5.2 Treat (control) the risks

Once hazards have been identified and the risks assessed, appropriate control measures must be put in place.

The ways of controlling risks are ranked from the highest level of protection and reliability to the lowest. This ranking is known as the hierarchy of risk control (refer figure 1 below). This hierarchy must be worked through, choosing the control that most effectively eliminates or minimises the risk in the circumstances, so far as is reasonably practicable. This may involve a single control measure or a combination of two or more different controls.

Any activity undertaken within a coNEXA workplace that involves the risk of working in, on, or around bodies of water or other liquids **must** have an SOP or SWMS that outlines the controls required to be implemented to mitigate the risk.

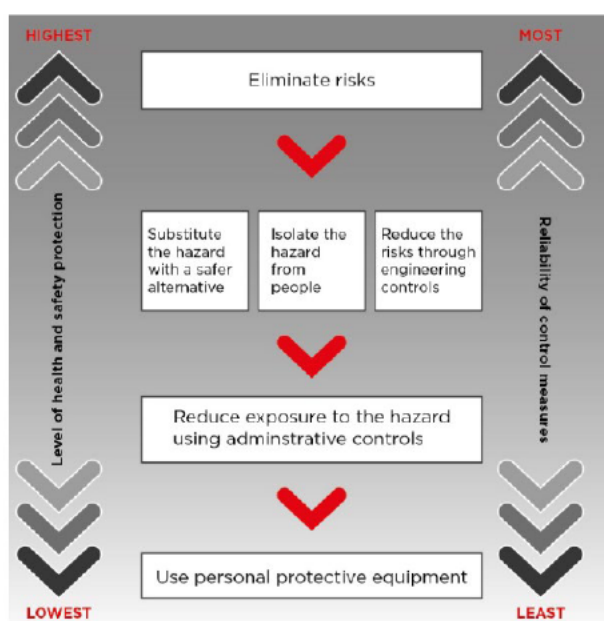


Figure 1: the hierarchy of control measures (Source: SafeWork SA, Code of Practice, How to Manage Work Health and Safety Risks, June 2020)

Elimination	This means removing the hazard from a workplace. This is the most effective control measure and must always be considered before other control measures.	Examples: Eliminate the potential to fall into bodies of water or other liquids through work planning and process / workplace design, ie remote monitoring / reading devices or installation of pipes, tubes and pumps to collect water samples without needing to physically access the body of water or other liquid
Substitution, isolation or engineering controls	Reducing the risk via substituting for a safer alternative, isolating workers from the risk or engineering controls (changes to systems of work).	Examples: - Substitute the process or equipment with an alternative, ie the use of drones or boats etc - Isolate workers from the water's edge by installing guardrails or barriers - Design or redesign the process, ie install temporary barriers, provide fixed access / egress

Administrative controls	Administrative controls should only be considered when other higher order control measures are not practicable, or to supplement other control measures. Administrative controls should also be considered for emergencies when other control measures fail.	Examples: • Written procedures for working around bodies of water or other liquids • Installation of warning signs • Rescue equipment • Restricted access to the area • Work method statements • Pre-start risk assessments 'Take 5'
PPE	In most circumstances, PPE should not be relied on to control risks. It should be used only as a last resort when all other reasonably practicable control measures have been used and the risk has not been eliminated, or as interim protection until higher level controls are implemented. There may also be situations when the use of other controls is not practicable. PPE to be used in this instance may include • PFD • Harnesses • Appropriate footwear • Hard hat	Note: Administrative controls and PPE do nothing to change the hazard itself. They rely on people behaving as expected and require a high level of supervision. Exclusive reliance on administrative controls and PPE must only occur where other measures are not reasonably practicable or as an interim control whilst the preferred control measure is being implemented.

5.3 Monitor and review

Controls will be monitored and reviewed, as a minimum, on a yearly basis to ensure the control measures remain effective and are:

- Fit for purpose
- Suitable for the nature and duration of the work
- Implemented
- Adopted, followed and used correctly

Risks and controls may also be reviewed:

- When it is identified that a control measure is no longer effective in controlling the risk
- Before a change at a workplace is instigated that may affect the risk or controls
- If a new hazard or risk is identified

5.4 Communicate and consult

Results of monitoring and review will be communicated to relevant workers.

6. Maintaining a safe working environment

To ensure a safe working environment, a site specific risk assessment must be undertaken before any workers conduct tasks in, on, or around bodies of water or other liquids in accordance with section 5 above. Factors to be considered when completing the risk assessment may include:

- Access / egress
- Frequency / duration of exposure
- Characteristics of the body of water or other liquid, ie depth and physical properties of the liquid
- Contaminants / pathogens
- Type of equipment required to complete the task
- Knowledge, experience and competency of workers
- Environmental conditions, ie weather, location of workplace
- Rescue equipment

Consideration should be given to the following:

6.1 Dams and lagoons

6.1.1 Security

Appropriate signage, fencing and security measures must be in place to prevent unauthorised access to any bodies of water or other liquids at coNEXA workplaces.

6.1.2 Access / egress

Where reasonably practicable, appropriate access and egress must be provided and maintained to workplaces where workers are working in, on, or around bodies of water or other liquids.

Where reasonably practicable, appropriate edge protection, ie handrails and / or guardrails which prevent a worker from falling into a water body must be provided, installed and maintained. If required, these must comply with AS 1657 Fixed platforms, walkways, stairways and ladders – Design, construction and installation.

Where the provision of permanent protection is not reasonably practicable, consideration should be given to temporary edge protection and barriers. Temporary edge protection and barriers must comply with AS / NZS 4994 Temporary Edge Protection parts 1 and 3.

Where the body of water is contained via a poly liner or similar that may reasonably restrict egress from the body of water, a safety ladder(s) or exit net(s) should be installed. A risk assessment is to be undertaken to determine the appropriate equipment to be installed and the required locations.

Ground conditions and housekeeping should be maintained and monitored to minimise the risk of falling into bodies of water or other liquids.

6.1.3 Emergency equipment

Emergency equipment required at each location will be dependent on a site specific risk assessment. All emergency equipment must be stored, maintained, inspected and serviced in accordance with any applicable legislation, Australian Standards and / or manufacturer instructions. Where required, service tags must be affixed to the equipment.

6.1.4 Rescue buoys

The installation of rescue buoys must take into account:

- The geometric configuration of the water body
- The results of site specific risk assessments
- The risk of drowning at the workplace
- Accessibility in the event of an emergency
- The distance between rescue buoys
- Maximum response times
- Any other hazards

6.1.5 PFDs

PFDs must be worn:

- When working within two metres of an unguarded / unfenced body of water into which a person could fall
- In water where both self-rescue or rescue by others is difficult without a PFD
- Where there is a high likelihood of a worker becoming unconscious should they fall into a body of water

- When on board a coNEXA vessel (SRWRA dam)
- If a worker does not consider themselves to be a competent swimmer
- Any other situation as identified through a risk assessment

Where a risk assessment identifies PFDs as a requirement for working in, on, or around bodies of water or other liquids the following must be adhered to:

PFDs must:

- Comply with AS 4758.1 Personal flotation devices – general requirements
- Be adequate for the work, kept in sufficient quantities and in a suitable location to enable easy access when required by workers
- Be worn for the duration of the task; workers found not wearing appropriate PPE are in breach of this procedure
- Be stored in clean, dry areas, free from oils, greases, chemicals and other substances that might otherwise damage the materials
- Be inspected before each use
- Be regularly serviced (refer Appendix 1)

Workers must ensure that all PFDs are clean and returned to storage after use in a clean, dry area, free from oils, greases, chemicals and other substances that might damage the materials the PFDs are made from. If defects are found, PFDs must be taken out of service immediately and arrangements made for repair or disposal and replacement.

Workers must notify their manager should PFDs become defective and ensure that the defective PFD is taken out of service for action by the business unit manager.

Business unit managers must ensure all workers are aware of the correct ways to use PFDs and rescue equipment.

6.1.6 Working on water

Where work is required on water:

- A risk assessment must be conducted
- The vessel must be fit for purpose
- All workers in the vessel must wear appropriate PFD
- A spotter must be in place

6.1.7 Rescue plans

Where a risk assessment identifies a rescue plan to be in place these will be developed and documented as part of each business unit's emergency response plans.

6.2 Water storage tanks

Where workers are required to access the top of water storage tanks, they must:

- Only use the installed access routes, ie steps, handrails, ladders provided etc
- Where there is no installed access and a risk assessment has identified access is required via working at height equipment, ie scaffolding, elevating work platform or portable ladder, refer to *CIP-IMS-DOC-HS-004 Preventing the risks of falls* to ensure all work is conducted safely and as required
- Maintain three points of contact
- Walk only on designated walkways
- Remain behind guardrails
- Ensure an observer is present at all times

- Where a risk assessment identifies it, wear PFD whilst on top of tank covers
- If required, use appropriate fall protection (restraint / arrest) systems (refer *CIP-IMS-DOC-HS-004 Preventing the risks of falls*)
- Ensure a communication system is available in case emergency response is required
- Be aware of how to raise an emergency alarm

6.3 Open tanks

Work must not be undertaken within two metres of any open tanks, ie aeration, bio-reactors, without appropriate barriers or other forms of fall protection in place (refer *CIP-IMS-DOC-HS-004 Preventing the risk of falls*).

7. Additional requirements for working in, on, or around bodies of water or other liquids

7.1 Electrical equipment

To minimise the risk of contact with electricity, where practicable, use pneumatic tools, battery powered tools or extra low voltage powered tools when working in, on, or around bodies of water or other liquids.

Where it is necessary to use electrical equipment and leads:

- Develop task specific risk assessment
- Connect equipment / leads through an ELCB or RCD
- Where possible, take steps to prevent the tools from falling in the water such as use of lanyards and drop sheets
- Protect from exposure to water (unless specifically rated for that purpose)
- If required, waterproof
- Conduct visual inspection before use to check for damage, ensure tested / tagged etc

7.2 Mobile plant

Where mobile plant is to be operated near a body of water, a risk assessment must be developed and all identified controls implemented before commencing work.

Consideration should be given to:

- Site conditions
- Type of equipment
- Exclusion zones
- Spotter requirements
- Use of PFDs

7.3 Working alone

Any works around bodies of water or other liquids which are considered to be high risk are to be carried out by a minimum of two workers.

No working alone is permitted unless a supervision and communication system is established and maintained (refer *CIP-IMS-DOC-HS-011 Remote or isolated work (working alone)*). The relevant business unit manager (or delegate) is to make regular and frequent checks of personnel working around bodies of water or other liquids, using appropriate forms of communication.

7.4 Inclement weather

Workers should not undertake high risk work involving working over bodies of water or other liquids during inclement weather conditions (refer *CIP-IMS-DOC-HS-009 Working in inclement weather*).

7.5 Lighting

Where activities that involve working in, on, or around bodies water or other liquids are being carried out at a workplace where natural light is not sufficient, additional lighting that is appropriate to the work being undertaken, should be provided and maintained.

7.6 Biological hazards

Where the body of water or other liquid may contain biological hazards, refer to *CIP-IMS-DOC-HS-016 Exposure to biological hazards* for further information.

7.7 Fitness for work

All workers working in, on, or around bodies of water or other liquids must have a blood concentration of 0.00% for alcohol and illicit drugs at all times.

8. PPE

PPE required when working in, on, or around bodies of water or other liquids will be determined by a site specific risk assessment and used / worn in accordance with *CIP-IMS-DOC-HS-002 Personal protective use*.

9. Induction, training and supervision

All workers who may work in, on, or around bodies of water or other liquids whilst undertaking work at coNEXA will receive sufficient information and training to safely conduct this work. Training records will be maintained via Skytrust.

10. coNEXA safety rules

Identify all sites where bodies of water or other liquids are present

Develop task specific SWMS or SOP listing all hazards, risks and controls of working in, on, or around bodies of water or other liquids

Workers working within two metres of unguarded / unfenced bodies of water or other liquids must wear a PFD

Trained standby person(s) to ensure adequate communication, support, first aid and rescue services are available

Maintain conditions and good housekeeping around bodies of water to prevent slip, trip and fall hazards

Blood concentration of 0.00% for alcohol and illicit drugs for all workers working in, on, or around bodies of water or other liquids

11. Internal document references

- *CIP-IMS-DOC-HS-002 Personal protective equipment use*
- *CIP-IMS-DOC-HS-004 Preventing the risk of falls*
- *CIP-IMS-DOC-HS-011 Remote or isolated work (working alone)*
- *CIP-IMS-DOC-HS-016 Exposure to biological hazards*
- *CIP-IMS-DOC-027 Operational risk management*

12. Legislative and other references

- Manufacturer's guidelines for the safe use and maintenance of PFDs
- AS 4758.1:2022 Lifejackets, part 1 – general requirements
- AS 1657 Fixed platforms, walkways, stairways and ladders – Design, construction and installation
- AS / NZS 4994 Temporary Edge Protection parts 1 and 3

Appendix 1: Guidelines for PFD selection, use and service

Selection

To ensure a PFD is fit for purpose and reduces the risk of drowning, the following is to be taken into consideration:

- The location of where the PFD will be used
- Conditions of the work environment, ie weather
- Conditions of body of water, ie depth
- Activities being undertaken
- Swimming skill of worker
- Type of clothing worn
- Type of equipment being used

To select the most appropriate PFD, the following is to be considered:

- Buoyancy level (per table below)
- Buoyancy media, ie foam, inflatable
- Activating the PFD
- Size
- Any other features needed, ie whistle, harness, buddy line

A risk assessment is to be conducted to determine the type of PFD required, however in the first instance, coNEXA recommends workers use a PFD with a level of 100 or above which is constructed of foam and is either automatically or manually inflated.

Level 275	This level is intended primarily for offshore use and by people who are carrying significant additional weights (such as tools and equipment) and thus require extra buoyancy. It is also of value to those who are wearing clothing which traps air and which may adversely affect the self-righting capacity of the lifejacket. It is designed to assist the wearer to float in a face-up position with the mouth and nose clear of the surface.
Level 150	This level is intended for general and offshore use. It is designed to assist in turning an unconscious person into a face-up position.
Level 100	This level is the minimum requirement for coastal use and is intended for general use on water where the shore is in view. It is designed to assist in turning a person into a face-up position.
Level 50	This level is intended for use by those who are able swimmers and who are near to a bank or shore, or who have help and a means of rescue close at hand. They are not designed to assist in turning the wearer into a face-up position. They require active participation by the wearer.
Level 50S	This level is intended for use by those who are able swimmers and who are near to a bank or shore, or who have help and a means of rescue close at hand. They are not designed to assist in turning the wearer into a face-up position. They require active participation by the wearer. This lifejacket may be of any colour.
Level 25	This level is designed for use by competent swimmers for specific specialist activities such as sporting and competitive situations and who are near to a bank or shore, or who have help and a means of rescue close at hand. They are not designed to assist in turning the wearer into a face-up position. They require active participation by the wearer.
Restricted use	These are special purpose devices manufactured for groups such as the military, police, rescue and emergency services and the like for specific needs that go beyond the requirements of the recreational wearer. These rely on the specialised skills, knowledge, training and participation of the wearer

Source: AS 4758.1:2022

Store, use and care

Once a PFD is issued to a worker, the relevant manager (or delegate) is to ensure the PFD is properly stored and cared for as per the manufacturer's instructions.

The PFD must only be used for its designed purpose, as per the manufacturer's instructions.

Appropriate instruction and training on how to check, use and care for the PFD will be provided to workers who are issued with a PFD.

Pre-wear check

A visual inspection of PFDs must be conducted before each use:

- Check for damage
- Check stitching, buckles, straps, and retroreflective tape
- Additional checks are required for inflatable PFDs (refer AS 4758.1:2022, section 11.3).

Service and inspection

PFDs must be regularly inspected and serviced by a competent person. Inflatable PFDs must have an annual inspection undertaken.

Records are to be maintained via Skytrust.