



Safety, Reliability, Maintenance and Technical Management Plan

Revision History –Revision due May every twelve months

Revision	Date	Comment	Signatures Required		
			Originated by	Checked by	Approved by
	14/09/2016	ORIGINAL	Chris Bridgeson	Grant Smith	
	9/05/2018	Revision	Grant Smith		
	10/07/2019	Revision	Grant Smith		

Safety, Reliability, Maintenance & Technical Management Plan

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This document has been prepared according to guidelines issued by the Office of the Technical Regulator in the administration of the *Water Industry Act 2012*.

Yorke Peninsula Council

**PO Box 57
Maitland SA 5573**

Date
September 2016

1 Introduction

1.1 Purpose of the Plan

This document constitutes the Safety, Reliability, Maintenance and Technical Management Plan (SRMTMP) associated with the collection, treatment and disposal of wastewater, and the supply of potable water undertaken by the Yorke Peninsula Council, its employees and contractors.

This SRMTMP has been developed to meet the requirements of the *Water Industry Act 2012* and associated Water Industry Regulations 2012 as required by the Technical Regulator.

1.2 Scope and Objectives

This SRMTMP has been prepared to describe how the Yorke Peninsula Council's employees and contractors ensure the safe and reliable operation of Council's collection networks, wastewater and desalinated water treatment facilities and desalinated water use.

The Yorke Peninsula Council is committed to the safe and efficient operation of all systems through compliance with all statutory legislation, which is demonstrated by adherence to the elements described in this Plan.

1.3 Organisational Background

The Yorke Peninsula Council is the owner and organisation responsible for Community Wastewater Management Schemes (CWMS) comprising Septic Tank Effluent Drainage (STEDS) and full sewer systems at eighteen (18) towns and locations across the Council area. The Council's responsibility involves effluent collection, transportation and disposal.

Three locations (Balgowan, Black Point and Hardwick Bay) have potable water supplies drawn from the SA Water mains, but the storage, distribution and rating are managed by the Council.

In addition, the Council owns and operates a sea water desalination plant at Marion Bay, which provides potable water to the local community and several commercial premises.

1.4 Relationships with Stakeholders

The collection and transfer by Yorke Peninsula Council of effluent for treatment and disposal, and operation of a sea water desalination plant producing a potable water supply requires a clear focus on safety towards the community.

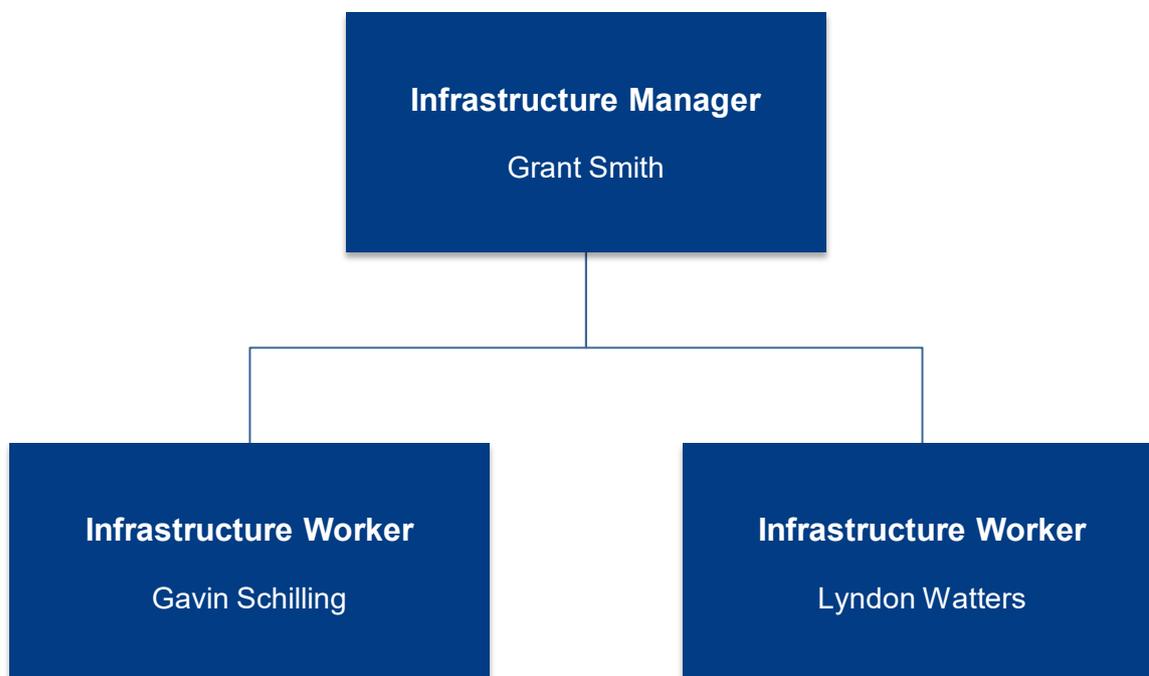
Key stakeholders in the operation and maintenance of the Yorke Peninsula Council's systems include:

- Customers of the services provided.
- Property owners in locations where desalination infrastructure or effluent collection and treatment are located in public places or private landholdings.
- Employees of Yorke Peninsula Council.
- Specialised contractors and their employees.
- Relevant regulatory authorities including the Essential Services Commission of South Australia (ESCOSA), the Technical Regulator (TR), Department for Health and Ageing (DHA), Development Assessment Commission (DAC), Local Government Association (LGA) and the Environment Protection Authority (EPA).

The Yorke Peninsula Council strives to maintain an effective line of communication with all stakeholders in relation to its operation and any events which may in any way affect one, some or all stakeholders. An outline of specific stakeholder communication is provided in Section 7.

1.5 Organisational Chart

As per the Organisational Chart provided in Appendix A the following Yorke Peninsula Council employees are responsible for the day-to-day operations of Council's collection networks, wastewater and desalinated water treatment facilities and desalinated water use:



1.6 SRMTMP and its Responsibilities

1.6.1 Responsible Person

The Council Officer responsible for this Plan and any future revisions is Grant Smith, Infrastructure Manager. He can be contacted at the Council's Maitland Office:

Address: 8 Elizabeth Street, Maitland

Phone: 08 8832 0000

E-mail: admin@yorke.sa.gov.au

Post: PO Box 57, Maitland SA 5573

1.6.2 Communicating the Plan

Following initial preparation of the Plan it will be reviewed by the Technical Regulator and any comments or feedback discussed with Council Staff and incorporated into the document as appropriate. Copies of the final document as endorsed by the Technical Regulator will be provided to relevant Council personnel and the Technical Regulator.

Communication of the Plan will be through existing Department line communication responsibilities. An initial presentation will be held for key personnel so that the overall Plan can be understood and discussed. Department Managers are responsible for ensuring appropriate Departmental or Toolbox meetings are held for presentation and discussion of the Plan.

The Plan will be published on the Council's website, and a copy will also be available at the Council Office for public inspection.

1.7 Legislation, Codes and Standards

Yorke Peninsula Council complies with the requirements of all applicable legislation, including:

- *Water Industry Act 2012* and Regulations 2012.
- *Work Health and Safety Act 2012* and Regulations 2012.
- *Return to Work Act 2014*.
- *South Australian Public Health Act 2011* and Regulations (Wastewater) 2013.
- *Water Resources Act 1997*.
- *Natural Resources Management Act 2004* and associated Regulations.
- *Local Government Act 1999*.
- *Environment Protection Act 1993*.
- Environment Protection (Water Quality) Policy 2003.
- *Dangerous Substances Act 1979* and associated Regulations 2008.

Yorke Peninsula Council operations and associated installations also comply with the following codes, standards, criteria and guidelines:

- Guidelines, Design Criteria and Standards for Community Wastewater Management Schemes (Local Government Association of South Australia).
- Sewerage Code of Australia (WSA 02) and any SA Water supplementary documentation.
- Sewage Pumping Station Code of Australia (WSA 04).
- AS/NZS 3500: Plumbing and drainage.
- AS/NZS 2031: Water quality - Sampling for microbiological analysis (ISO 19458:2006, MOD).
- AS/NZS ISO 3100: Risk management - Principles and Guidelines.
- The National Construction Code (NCC) Volume 3 Plumbing Code of Australia (PCA) including South Australian Variations and/or Additional Provisions as listed in Appendix A.
- Standard Form: Technical Specification-Construction of Septic Tank Effluent Drainage Schemes (DH, LGA).
- Septic Tank Effluent Drainage Scheme Design Criteria (DH, LGA).
- South Australian Bio-solids Guidelines for the Safe Handling, Reuse or Disposal of Bio-solids (EPA).

1.8 Approvals and Licences

Yorke Peninsula Council has valid approvals and licences from the relevant regulatory authority as shown by examples in Table 1.1 below.

Copies of all approvals and licences are held on Council's central filing system located under the township or location.

Organisation	Licence Number	Description
EPA	EPA 13972 (<i>example</i>) Various EPA 05/17597	Ardrossan - Sewage Treatment Works or Septic Tank Effluent Disposal Schemes Relevant WWTP approvals Desalination Plant licence threshold
DHA	WCS00942 (<i>example</i>) WCS1989 (<i>example</i>) Various	Yorketown STEDS, including wastewater reuse Stansbury WWTP Relevant STEDS or 'waste control' approvals
ESCOSA	Issued 7/2/13	<u>Water Industry Retail Licence</u> Class - Water + Sewerage Services, Intermediate (1) Retailer

Table 1.1: Existing regulatory approvals – examples - Appendix C

2 Description of the Operation

2.1 Introduction

The assets covered by this SRMTMP include:

2.1.1 Community Wastewater Management Schemes

The Yorke Peninsula Council owns and operates CWMS at eighteen (18) towns and locations across the Council area, providing wastewater drainage connections to 2,627 properties.

All effluent undergoes treatment at one of the seventeen (17) local wastewater treatment plants before the treated wastewater is then disposed of either by sporting ground reuse (golf courses and oval), agriculture (Lucerne), viticulture (grapevines) reuse or irrigation of numerous Council owned woodlots. See Table 2.1 for disposal details.

2.1.2 Potable Water Supply

At each of the three locations (Balgowan, Black Point and Hardwicke Bay) potable water is supplied from the SA Water mains into a Council operated distribution scheme. All supplies to consumers are metered and charged at the current SA Water usage rate. An annual service charge is also applied to each assessment of rateable or non-rateable land to which the Council provides or makes available a water supply service.

For the 2019-20 Financial Year this service charge is \$205.

2.1.3 Desalinated Water Supply - Marion Bay

The Council owns and operates a sea water desalination plant at Marion Bay, which provides potable water to the local community and several commercial premises, with the Council owned Caravan Park being the major user.

Sea water is drawn via submersible pumps in the Beach Well Bore and transferred to a Reverse Osmosis Plant for desalination. The treated water is then stored in four lined 133kL storage tanks.

A reticulated non-guaranteed supply is provided to commercial property owners at \$13.30 per kilolitre, and water is also available for general use from a standpipe at \$13.30 per kilolitre.

All of the assets covered by this SRMTMP are operated and maintained by Council's highly trained employees, with specialised contractors engaged on an as needs basis.

2.2 Asset Description

The below details have been compiled and validated as part of the development of Council's CWMS Asset Register.

2.2.1 Community Wastewater Management Schemes

Location	Connections	Gravity Drains (m)	Rising Mains (m)	Pump Stations	Disposal
Ardrossan	565	17,685	4,360	Jetty Car Park Hogarth St Bridge Rd	WWTP - Golf Course Reuse
Balgowan	18	249	786	Esplanade	WWTP - Council Woodlot

Black Point	211	3,650	1,053	Black Point Dve (x2) Outlook Rd	WWTP - Council Woodlot
Bluff Beach	34	283	623	Edwards St	WWTP - Council Woodlot
Chinamans Well	38	716	536	Chinaman Wells Rd (x2)	WWTP - Council Woodlot
Edithburgh	73	903	1,739	Sultana Point Rd	Sultana Point WWTP
Foul Bay	23	Houses pump to common main	551	N/A	WWTP - Council Woodlot
Hardwicke Bay	71	1,264	1,387	Cutline Rd Southshore Rd Foreshore Rd Northshore Rd (x2)	WWTP - Council Woodlot
Maitland	423	12,817	125	South Terrace Clinton Rd WWTP	WWTP - Golf Course Reuse
Point Turton x2	137	2,459	2,470	WWTP Bayview rd	WWTP - Council Woodlot x2
Port Julia	11	134	1,050	Jetty Rd	WWTP - Council Woodlot
Port Victoria	95	2,202	2,655	Jetty Car Park Davies Rd Songvaar Rd	WWTP - Town Oval Reuse
Port Vincent	167	3,217	3,374	Caravan Pk (x2) Marina Drive Ventnor St	WWTP - Lucerne crop reuse
Rogues Point	27	Houses pump to common main	1,249	N/A	WWTP - Council Woodlot
Stansbury	94	3,372	4,205	Pitt St Oyster Court Oyster Point Dve (x2)	WWTP - Lucerne crop reuse
Sultana Point	37	Houses pump to common main	1,320	N/A	WWTP - Grapevine reuse
Tiddy Widdy Beach	180	3,714	1,753	Hoskin Rd	Ardrossan WWTP
Yorketown	422	10,200	2,614	Warooka Rd Minlaton Rd David St Waterloo Bay Rd Jacobs St Memorial Dve	WWTP - Golf Course Reuse

Table 2.1: Details of Community Wastewater Management Schemes

See Asset Management System for the following additional information:

- Gravity Mains - specific drain sizes, lengths and locations
- Rising Mains - specific pipe sizes, lengths and locations
- Pumps - details of pumps at each Pump Station

Copies of Plant Operating and Maintenance Manuals kept on-site and with the Infrastructure Manager.

2.2.2 Potable Water Supply

Location	Metered Connections	Distribution Mains (m)	Pumps	Storage
Balgowan	261	6,055	N/A	Breaker Tanks 4 x 150kL concrete
Black Point	219	10,243	N/A	Balance Tanks 2 x 159kL concrete
Hardwicke Bay	329	10,029	Transfer Pumps 3 x Grundfos 3kw	Storage Tanks 2 x 200kL concrete

Table 2.2: Details of Potable Water Supply Schemes

See Asset Management System for the following additional information:

- Metered Connections - location, meter size and total available services
- Mains - specific pipe sizes, lengths and locations
- Pumps - details of pumps at each Pump Station

Copies of Plant Operating and Maintenance Manuals kept on-site and with the Infrastructure Manager.

2.2.3 Desalinated Water Supply - Marion Bay

System Components	Details
Source	Seawater via a 15 metre beach well in sand dunes. Grundfos SP17-9R submersible bore pump
Treatment	Dow SW 30HRLE-400 Reverse Osmosis desalination plant. Currently set to deliver 48,000 litres per day if required
Pumps	Transfer pump - main: Lowara dual pump system 2x15 SVN
Storage	Surface tanks: 1 x 133kl lined steel storage tanks 4 X Poly 50kl tanks 2 X concrete 70 Kl tank – emergency backup
Distribution Network	Potable water main of 1,345 metres / standpipe / 5 metered services

Table 2.3: Details of Marion Bay Desalination Scheme

See Asset Management System for the following additional information:

- Treatment - more detailed specification of treatment and pipework layout

REF: PO145 – Desalination Plant Policy
(Reviewed every sixty (60) months)

Copies of Plant Operating and Maintenance Manuals kept on-site and with the Infrastructure Manager.

3 Organisational Safety and Reliability

3.1 Leadership and Commitment

3.1.1 Policy, Procedures and Guidelines

REF: PO001 - Work Health Safety (WHS) & Injury Management Policy

(Reviewed every six (6) months)

Yorke Peninsula Council demonstrates its commitment to the health and safety of its workers contractors, other stakeholders and the public through a Work Health and Safety Policy (WHS Policy). The WHS Policy is complemented by a range of supporting policies, procedures and systems.

The WHS Policy and its supporting policies, procedures and systems observe the requirements of the relevant legislation and other obligations of Yorke Peninsula Council's operating licences, and extend the WHS to include safety of physical plant, assets and the environment.

The Risk Management Officer has functional responsibility for safety and risk related matters. This responsibility includes ensuring that the WHS Policy is implemented, supported, reviewed and revised as necessary, and for reporting relevant safety matters as required by the Chief Executive Officer and relevant legislation.

Responsibility for the day-to-day observation of all aspects of the WHS policies, procedures and systems rests with the relevant line managers, supervisors and leading workers.

Water infrastructure safety responsibility rests with Council's Infrastructure Manager, the Director Assets and Infrastructure Services, the Risk Management Officer and Infrastructure Workers.

WHS policies and procedures are reviewed by the officer responsible for the document, in line with the expiry / review date stated on the document. When policies / procedures are amended they are first submitted to the WHS Committee for consideration and then made available to all staff for consideration and comment. The WHS Committee will make any necessary amendments following consideration of staff comments, after which the Policy / Procedure is forwarded to the Corporate Management Team for adoption.

All policies / procedures show the date it was adopted and also include an expiry / review date.

Section 3 describes the Yorke Peninsula Council systems and procedures, which ensure that risks to the safety of plant, workers and contractors are identified and mitigated to a level that is in accordance with the relevant legislation, codes and standards.

3.1.2 Organisational Procedures and Competence

REF: PR078 - Recruitment & Selection of Employees Procedure

(Reviewed every twelve (12) months)

REF: PO133 - Training Needs Analysis Policy

(Reviewed every twenty-four (24) months)

Employee Selection and Competency

Human Resources within Yorke Peninsula Council are managed according to policies and practices, which serve to ensure that workers, contractors and other persons satisfy personal, practical and professional requirements of the corresponding operations being undertaken.

Regular reviews of competency and skill levels are undertaken to identify where deficiencies may exist, including those introduced by new technologies. Where a deficiency or a supplementary training need is identified, the appropriate training is provided and the HR Training System is updated for both the worker's and position files.

Operator and Contractor Training

Operators

REF: PO011 - Training and Professional Development Policy

(Reviewed every twenty-four (24) months)

- Relevant Yorke Peninsula Council employees are trained in procedures for the operation and maintenance of the CWMS systems and Reverse Osmosis Desalination Plant.
- Operator training covers relevant aspects of the operations manuals for the systems.
- Yorke Peninsula Council has standard training available and incorporates other training requirements as needs demand.
- All training completed is recorded in a Training Records Register (elementStaff – Training needs management system), incorporated in the Staff Development file.
- Yorke Peninsula Council is committed to providing every opportunity for employee involvement in continuous improvement as part of the safety culture. Employees are actively encouraged to identify opportunities for improvements in work methodologies to increase the safety of operations, and to improve practices with respect to implementing an improved hierarchy of hazard controls.

Contractors

REF: PO006 - Contractor Management Policy

(Reviewed every thirty-six (36) months)

Contractors employed by Yorke Peninsula Council undergo a site-specific induction and are required to demonstrate compliance with all Council WHS policies and procedures. Records of any such training are maintained in a Contractor Induction File.

Wherever possible, established and experienced contractors are engaged on the CWMS and potable water systems to ensure that they have appropriate knowledge of risks associated with those systems.

Contractors are required to provide copies of all relevant WHS documentation prior to commencing on site.

3.2 Effective Planning

3.2.1 Design

The engineering and technical design (including operating specifications) of any wastewater system or water supply system is outsourced to qualified, competent and reputable professional consultants. As such, plant and facilities are designed, constructed and commissioned, operated and maintained to meet the requirements of the schedules of legislation, standards and codes in Section 1.7.

Yorke Peninsula Council does not have the resources available, nor systems and processes established, to ensure that any design commissioned by others will be validated as conforming to current legislative requirements and appropriate standards. Independent external advice and assistance is sought as required for this activity.

The design of all infrastructure (new or upgrades) involving wastewater and potable water is submitted to the DHA and EPA for approval as required in accordance with the current Public Health and Environment legislation.

Yorke Peninsula Council employees will facilitate the progress of designs as required, and assist in the identification of potential hazards, risks and other safety and operational concerns in relation to any design activities.

The establishment of scopes of work and the procurement of such services is managed by the Director Assets and Infrastructure Services.

As a minimum, the person responsible for administration of the Yorke Peninsula Council Licence under the *Water Industry Act* will undertake a review of any proposed works to ensure that they comply with the terms of the Licence.

In the case of any developments that would increase demand significantly on one of Council's existing systems, it is more than likely that a developer would be required to provide or fund an appropriate system upgrade.

3.2.2 Design Life of Plant

The service life of new infrastructure is approved with consideration for the deterioration of equipment during operation and any mitigating effects of maintenance, replacement and redundancy.

Operating conditions such as pressure, fluid velocity, temperature, and service factor are considered in design and any excursions from the design envelope are addressed to review the remaining life of equipment.

Deterioration caused by corrosion or other mechanisms is monitored according to the selected design codes, to confirm the effectiveness of mitigating measures or to detail specific service conditions for the remaining life.

3.2.3 Safety in Design Requirements

REF: PR015 - Safe Plant and Systems of Work Procedure
(Reviewed every thirty-six (36) months)

Yorke Peninsula Council is committed to compliance with all relevant legislation affecting its business operations. This includes compliance with the safe design requirements as specified in the *Work Health and Safety Act 2012*. The Council adheres to safety standards and codes of practice and has implemented processes and procedures for the design of new assets, or modification of existing assets that include safety in design principles and practices.

The core components in Yorke Peninsula Council's Plant Procedure aim to:

- Outline Council's systems for identifying hazards relating to plant in the workplace and eliminate, or, where elimination is not reasonably practicable, minimise risks to health or safety so far as is reasonably practicable.
- Assist Council to comply with the legislative requirements relating to testing, maintenance, installation, commissioning, use, repair, alteration, dismantling, storage and disposal of plant.
- Outline Council's systems for providing information and training relating to plant, necessary to protect all persons from risks to their health and safety arising from work.
- Ensure that reasonably foreseeable hazards associated with plant are identified prior to the introduction of plant / equipment into the workplace.
- Ensure that there is a system for assessing and recording risks (on a prioritised basis).
- Ensure that appropriate controls are identified and implemented.
- Ensure that core competencies are identified for persons working with plant, and appropriate training is undertaken prior to activities associated with plant occurring.

- Ensure that items of plant are registered as required.
- Ensure that appropriate inspection and certification requirements are identified and carried out and that appropriate records are maintained, including pre-operational checks, periodic maintenance checks, safety inspections, regulatory inspections etc.
- Ensure that appropriate auditing processes are identified and carried out for plant management.

3.2.4 Procurement

REF: PO058 - Purchasing and Procurement Policy

(Reviewed every forty-eight (48) months)

Procurement Systems and Processes

Yorke Peninsula Council has in place procurement processes, which address the need to ensure correct specification and purchasing of materials and components. Any procurement of goods with significant business risk is undertaken with clear evaluation criteria and understanding of the implications associated with the supply contracts. However, commonly used items will be catalogued as approved stock items, supplied by recognised vendors.

Apart from the commercial and contracting aspects of the overall procurement processes, it is important to ensure that all the relevant technical requirements are transmitted from the design stage into the procurement process. Procurement documentation is generated by technical or specific end user employees to ensure correct and relevant requirements are included.

Responsibility for the procurement systems and processes within Yorke Peninsula Council rests with the Governance Officer.

Materials and Components Selection

Design processes used by Yorke Peninsula Council address the specification of appropriate materials and components to ensure that they are selected to comply with particular design and other requirements such as:

- Compliance with specified codes and standards.
- Appropriate to the design life of the asset.
- Ability to withstand high or low pressure and high or low temperature.
- Where applicable, ability to resist corrosive environments.
- Ability to resist bacterial or microbiologic attack or degradation.

Once specified, these requirements become part of the tendering and purchasing process.

Inspection and Testing of Procured Materials and Components

The overall procurement system includes systems and processes for inspection and testing of procured materials and components to ensure they comply with specifications and to assess their condition on arrival into Yorke Peninsula Council control. This inspection and testing is also supported by procedures outlined in the Safe Plant and Systems of Work Procedure.

These inspections are carried out by competent and experienced professionals and/or employees using documentation developed for the process, such as Inspection and Test Plans and appropriate checklists. As a general example they would be expected to consider matters like the following, prior to the acceptance and commissioning of a piece of plant or equipment:

- Have all legislative requirements, AS/NZS Standards, Codes of Practice and industry guidance material that apply to this item been identified?
- Has the supplier been requested in writing to provide instruction / operator / user manuals?

- Are there licensing / registration requirements for the item and are permits to operate and / or operator certification required?
- Are chemicals required as part of the operational requirements of the item?
- What training or competency standard is required for employees or others to safely use this item?
- Will the item require regular inspection, maintenance, calibration or testing?
- Are spare parts readily available?
- If the item breaks down, will the supplier provide an emergency breakdown service?
- How long is the warranty period for this item?
- Is the item used or second hand?
- Does this item require specialised emergency procedures?
- Has consultation occurred with employees and others required to use the item?

Inspection, Testing, Maintenance, Alteration and Repair

A maintenance schedule should be developed that details the inspection, testing and/or maintenance requirements for each item of plant (including any registration or certification requirements).

- The maintenance schedule should include the testing and maintenance requirements for all safety features and/or warning devices.
- Inspections, maintenance and cleaning should be conducted in accordance with procedures recommended by the designer or manufacturer, or those developed by a competent person.
- If access is required to plant with moving parts for the purpose of maintenance, cleaning or repair, the plant is to be stopped, and one or more of the following should be used to minimise any risk to health or safety:
 - a. Lockout or isolation devices.
 - b. Danger tags.
 - c. Permit to work systems.
 - d. Other control measures: or
 - e. If it is not reasonably practicable to carry out cleaning, maintenance or repair while the plant is stopped, the operator's controls must allow the safe operation of the plant while the person is undertaking the maintenance or cleaning.
 - f. If plant is altered, it should be altered, inspected and tested by a competent person, having regard to any relevant design specification (taking into account any alteration to the design), and prior to the plant being returned to service.
- Only competent persons should undertake inspection, testing, maintenance and repair activities.
- Repairs should be carried out so as to retain the plant within its design limits.
- Records of repair, inspection, testing and maintenance activities should be retained.

3.3 Controlled Implementation

3.3.1 Construction and Commissioning

Construction Safety

Construction and installation activities are performed in accordance with processes and practices defined within the various Yorke Peninsula Council WHS policies and procedures. These measures are aimed at providing a safe environment for construction activities, and the procedures include the use of various tools, such as:

- Daily pre-start tool box meetings
- Safe Work Method Statements
- WHS Management Plan
- Risk Assessments and Safe Work Instructions

The efficiency and effectiveness of safety management during construction activities is monitored, evaluated, reviewed and, where appropriate, updated to promote continuous improvement. Contractors undertaking work are inducted to the worksite and monitored throughout the construction phase.

Construction Project Management

The Yorke Peninsula Council does not maintain any permanent specialised construction project management resources and, if required, would engage them on a consulting or contract basis.

Any such resources would be required to provide processes and procedures during the construction phase to monitor construction contractors and work against the time, quality and cost parameters nominated in execution plans and construction contracts.

Regular project progress updating is required, as part of these procedures particularly for construction, and the project control elements included in this updating would include:

- Project deliverability – issues that arise or are foreseeable that may affect the project or may add pressure to the performance or outcome.
- Project safety and incident reports – a summary of indicators such as Lost and Medical Time Incidents (LTI / MTI), along with number of hours worked and a summary of site incidents for each reporting period.
- Project schedule – a detailed schedule of all construction activities is maintained and updated on a regular basis for each project, and reviewed against the baseline schedule established at construction commencement. Schedule reports are issued to various levels of project and senior management, including summary level for management and two (2) week construction look ahead for onsite construction management.
- Project cost reports – reports are issued following the update process, which include progress to date, updated cost forecasts of work in the future, and summarised into a forecast cost at completion.

Execution plans developed in feasibility stage (contracting strategy, procurement etc.) are monitored during construction to ensure that delays are not introduced into the construction schedule by poor implementation, or scope creep, thus resulting in additional costs or unacceptable delays.

The interface between Yorke Peninsula Council's project management resource and a construction contractor is recognised and managed to ensure the Council is discharging its project responsibilities in an effective manner.

Commissioning

In all Yorke Peninsula Council commissioning activities, the emphasis is firstly on providing a safe commissioning process, then on the effective plant commissioning to ensure outputs from the plant comply with legislation and license requirements.

Commissioning plans take full account of the required health and safety standards for the new or modified plant such as pathogen and E.coli levels, disinfection levels, pH and various biochemical parameters etc.

Inspection and test plans form an integral part of the commissioning process and include the use of pre commissioning and commissioning checklists, review of construction data and supplier manuals and other data relevant to development of a safe commissioning process.

Commissioning is not commenced until documentation has been fully reviewed by all designated employees involved in the commissioning process. Resources for commissioning are selected as having appropriate experience with the particular plant and processes involved.

3.3.2 Operations and Maintenance

Operations - Safe Operational Procedures (SOP)

The CWMS, potable water system and associated assets operated by Yorke Peninsula Council use a range of procedures, site-specific operational procedures, generic operational procedures and administrative procedures.

The Safe Operational Procedures (SOPs) are developed by risk analysis of each task in the procedure and prescribe the safe methods for routine work. Other procedures in place to ensure work safety during non-standard or non-routine activities, and when multiple activities occur, include the following:

Permit to Work

The Yorke Peninsula Council has in place a Permit to Work process in conjunction with relevant WHS procedures, e.g. Confined Space Management Procedure, Electrical Safety Procedure and Hot Work Procedure. The Permit to Work System is used by all operators, maintenance employees and contractors who work on Yorke Peninsula Council infrastructure. It is administered by the Works and Operations Managers.

Safe Work Method Statement

Safe Work Method Statement (SWMS) processes are used to identify, assess and mitigate risks and hazards at a workgroup level, on a daily operational task basis. It is a simple, effective tool for planning and communicating job hazards and risks to individual work groups, and involves all workers in applying their skills and knowledge to plan how the job should be undertaken safely and effectively. It is completed jointly by all of the people involved in the task, documented and then approved and signed off by all participants before the task is undertaken. The objective is to enable all tasks to be completed with minimal risk.

Worker training in the SWMS process covers when it is required, and the steps for carrying out a Safe Work Method Statement. This training is provided to all new workers who work at the operational or maintenance level as a part of their normal duties. Regular refresher training is also provided for existing workers.

Confined Space Procedures

REF: PR099 - Confined Space Management Procedure

(Reviewed every thirty-six (36) months)

No Council employee or contractor is permitted to enter a designated confined space unless possessing the required training, qualifications, skills, and equipment. A written risk assessment must also be conducted by a competent person prior to the first entry into the confined space.

Hazardous Chemicals

REF: PR102 - Hazardous Chemical Procedure

(Reviewed every thirty-six (36) months)

The Yorke Peninsula Council as part of its commitment under its Hazardous Work Policy (PO004) recognises its obligation to manage risks to health and safety associated with using, handling, generating or storing hazardous chemical(s) at the workplace.

Specific procedures exist for the handling and use of hazardous chemicals in operations, and the core components of this procedure are:

- A current SDS is provided for all hazardous chemicals.
- Risk assessments are conducted for hazardous chemicals.
- Appropriate risk controls are identified, implemented, and regularly reviewed.
- Records are maintained and are readily available to relevant stakeholders.
- Persons undertaking work on behalf of Yorke Peninsula Council are appropriately trained.
- Health monitoring requirements are identified and a monitoring program implemented.
- Airborne contaminant levels are identified and monitored.
- Emergency response provisions, including site emergency plans are in place.
- Where relevant, a manifest of chemicals is maintained.

Employees are given specific training in the use of each hazardous chemical, and training records are kept to aid in ensuring regular refresher training is provided.

3.3.3 Decommissioning, Demolition, Disposal

REF: PO072 - Sale and Disposal of Land & Other Assets

(Reviewed every thirty-six (36) months)

Decommissioning of assets being replaced or renewed is included in Yorke Peninsula Council's annual capital and maintenance programs, and processes are in place to ensure that the assets are decommissioned in a safe and appropriate manner.

Disposal procedures for demolished equipment and materials include checks to ensure that they are free of toxic or corrosive chemicals that may be a hazard for future operators, third parties, the environment or the public. Relevant authorities are notified if required by Licence.

3.3.4 Emergency Response Management

REF: PO005 - Emergency Management Policy

(Reviewed every thirty-six (36) months)

REF: PO027 – Business Continuity Policy

(Reviewed every forty-eight (48) months)

The responsibility for emergency preparedness and response within Yorke Peninsula Council rests with the Director Assets and Infrastructure Services, and the Emergency Management Procedure (PR080) provides details of organisational responsibilities adopted during emergency situations.

The plan is communicated to all relevant workers within the organisation, from executive management through to operators and maintenance. It undergoes regular review to maintain relevance.

Emergency Management Procedures have been developed to provide specific response actions for a range of emergency scenarios across Yorke Peninsula assets and the surrounding area. These procedures are tested on a regular basis.

3.4 Monitoring and Evaluation

3.4.1 Incident Management, Reporting and Investigation

REF: PR013 - Incident Reporting and Investigation Procedure

(Reviewed every thirty-six (36) months)

REF: PR048 - Corrective and Preventative Action Procedure

(Reviewed every thirty-six (36) months)

The Yorke Peninsula Council has a comprehensive Incident Management process, which requires staff to report all incidents and/or hazards on appropriate forms. As part of the reporting process, an investigation is undertaken by the relevant manager/supervisor to ascertain the root cause of the incident and the Work Health and Safety representative for the specific work area is advised of the incident. The Incident Reporting and Investigation Procedure provides staff with guidelines in relation to their responsibilities regarding incidents and near misses.

The Incident/Near Miss Report is then forwarded to the Risk Management Officer for inclusion in the next WHS Committee Meeting agenda. Where necessary, a risk assessment is completed and controls put in place to ensure the risk of the incident re-occurring is reduced.

The Correction and Preventative Action Procedure outlines staff responsibilities in relation to capturing, monitoring and evaluating any control measures implemented to reduce risk within the organisation.

The Corporate Management Team monitor all activities relating to WHS issues and receives copies of the Safety Committee minutes as well as other WHS monitoring documents such as Types of Incidents Reports, Corrective and Prevention Action Reports, WHS Activity Calendar.

Staff are trained in all WHS policies and procedures to ensure they are fully aware of their responsibilities in relation to maintaining a safe work environment for all.

3.4.2 Documentation and Reporting

REF: PO019 - Document Management Policy

(Reviewed every thirty-six (36) months)

REF: PR076 - WHS Consultation and Communication Procedure

(Reviewed every thirty-six (36) months)

WHS policies and procedures are generally reviewed every three (3) years or as required if legislative changes are made that would affect the accuracy of the document. When policies / procedures are amended they are first submitted to the WHS Committee for consideration and then made available to all staff for consideration and comment. The WHS Committee will make any necessary amendments following consideration of staff comments, after which the Policy / Procedure is forwarded to the Corporate Management Team for adoption.

All policies / procedures show the date it was adopted and also include an expiry / review date.

Legislative changes are monitored through LGA Circulars, which are released weekly by the Local Government Association, and outline any legislative changes which may affect Council processes.

Council's WHS Document Management Policy outlines the process that is undertaken internally in relation to Document Control. The latest versions of all Council policies are available on the Council Website www.yorke.sa.gov.au so staff have access at all times to the latest version of the relevant documents.

The WHS Consultation and Communication Procedure outlines the process to ensure appropriate communication and consultation with staff in relation to WHS and other Council activities.

3.5 Audit and Review

Regular external Key Performance Indicator Audits are undertaken in relation to WHS issues and an Audit Committee that includes external independent members has been established to monitor Council financial and other areas of risk throughout the organisation.

An external Auditor is engaged to monitor and audit Council's financial activities annually, and at interim periods throughout the financial year.

REF: SF242 – CWMS Workplace Inspection Checklist
(Reviewed every twelve (12) months)

Reporting of any Incidents to the Office of The Technical regulator via below link
https://www.sa.gov.au/_data/assets/word_doc/0009/156888/water-and-sewerage-infrastructure-notification-form.docx

Reporting of any Incidents to SA Health Waste water management via below link
<https://www.sahealth.sa.gov.au/wps/wcm/connect/0998936e-c5b3-483f-8e0a-b3edfa13bb01/Editable%2BPDF%2B-%2BWastewater%2BManagement-V2-web.pdf?MOD=AJPERES&CACHE=NONE&CONTENTCACHE=NONE>

4 Formal Safety and Reliability Assessment

4.1 General

Safety and reliability assessments are adopted for avoiding and minimising risks, which may occur from the design, manufacture, procurement, importation, construction, operation and management of assets.

The assessment involves understanding and identifying hazards that are presented by the assets, and the risk or potential that these hazards have to cause damage or harm to property or people. Understanding the risk will assist, part way, to the selection of appropriate controls to mitigate the risk or the severity of consequence of the hazardous event. The application of these controls will reduce the risk to a residual level, which should be considered “as low as reasonably practicable” (ALARP).

The assessment is undertaken to respond to the legal duty or obligation of Yorke Peninsula Council and in turn satisfy the requirements of due diligence.

4.2 Due Diligence

Hazard Identification and Rating

REF: PO002 - Hazard Management Policy

(Reviewed every thirty-six (36) months)

REF: PR016 - Hazard Management Procedure

(Reviewed every thirty-six (36) months)

The hazard identification processes, both for new infrastructure and ongoing operations, are aimed at identifying all reasonably foreseeable hazards. The identification process utilises persons with appropriate knowledge and experience, and the processes include:

- Consideration for off-design operating conditions and deterioration of existing equipment.
- Consultation with the employees/operators “at the coal face” or those with experience in similar operations. This is a requirement of legislation.

Identified hazards are assessed and rated according to the likelihood of occurrence and the consequence of the event, which may be affected by circumstances at the time. While not only addressing safety, the rating system also considers implications such as environmental, societal/reputational or financial, and methodologies and mitigations for addressing the hazards taking into account these environmental, societal/reputational or financial considerations.

A Hazard and Risk Register is maintained and regularly reviewed and updated for incorporation of new assets as existing operating assets are modified.

Levels of Responsibility

The level of responsibility for controlling and reporting of hazards, and monitoring the effectiveness of hazard controls, are aligned with the organisational structure, where each member of the workforce carries a responsibility commensurate with their level of influence, as described below:

- Level 1– Yorke Peninsula Council
It is the duty of Yorke Peninsula Council under legislation to eliminate or minimise risks so far as is reasonably practicable (ALARP).
- Level 2 – Departmental
CEO and managers ensure the health and safety of employees, contractors and the public by exercising due diligence to be aware of the risks that the business undertake.

- Level 3 – Supervisor
Supervisors ensure that they do not present undue risks to the health and safety of any person whilst maintaining safe and reliable operations.
- Level 4a – Installation, construction, commissioning employees
Systems and processes are implemented for the selection and control of contracting and procurement functions, which ensure that during the installation and commissioning of equipment, appropriate maintenance services, are in place to keep all equipment fit for safe use. The systems ensure that employees have sufficient understanding and skill to implement the works with reasonable care.
- Level 4b – Designers, manufacturers, importers and suppliers
Design development for all new plant/equipment and modification to existing assets is undertaken with reasonable care, and includes the appropriate level of hazard identification and assessment.

4.3 Risk Response, Mitigation and Control

In responding to and mitigating identified risks, Yorke Peninsula Council applies a rigorous set of controls which take account of, for each risk or hazard, how well the hazard or risk is known, what can be done, and is reasonable to do, the degree of harm associated with failure of the controls, and the availability and sustainability of controls.

The methods employed to reduce risk are selected recognising the hierarchy of controls as follows:

- Elimination – removes the cause of danger completely e.g. using non-hazardous acids and alkalis for controlling pH instead of Class 8 chemicals.
- Substitution – controls the hazard by replacing it with a less risky way to achieve the same outcome.
- Isolation – separates the hazard from the people at risk by isolating it e.g. moving the chlorine dosing away from the plant and encasing it in an enclosure with increased security measures such as locks and alarm systems.
- Engineering – using engineering controls, i.e. making physical changes, to lessen any remaining risk, e.g. redesign a machine by adding safeguards.
- Administration – using administrative controls to lessen the risk, e.g. install signs, job rotation.
- Personal Protective Equipment (PPE) - requiring employees to wear PPE, e.g. provide gloves, earplugs, goggles.

Within this hierarchy, both physical and procedural controls are applied. However, where applicable, the implementation of physical controls such as traffic barriers or fencing will be preferred over procedural controls.

Risk Control

REF: PR016 - Hazard Management Procedure

(Reviewed every thirty-six (36) months)

The identification of hazards is conducted in accordance with Council's Hazard Management Procedure and includes the specific aspects associated with the legal roles and duties as per legislative requirements, e.g. designers, owners, employers, importers, suppliers, manufacturers, installers and those undertaking commissioning activities.

Risk Assessment Process

- Specific controls are required under the WHS Regulations for certain types of plant. In some situations, specialised expertise may be required to assist in completing the risk assessment process. These situations include those where:
 - There is uncertainty about the degree of risk.
 - There is a significant risk, for example, exposure to sustained noise, plant that requires complex guarding, etc.
 - Plant that has not been manufactured in Australia.
 - The plant is of such a nature that specialist knowledge is required to complete the risk assessment competently.
 - Other factors such as locality, timing and/or expense are a consideration as to the completion of the task.
- The findings are to be documented on the plant risk assessment form, which should include the agreed estimations for likelihood, consequence and risk rating.
- The plant risk assessment should be:
 - Signed by all parties who participated in the risk assessment process.
 - Revised whenever there is evidence to indicate that the assessment is no longer current, risk controls are no longer effective, or when there has been a change in the work to which the assessment relates.
- The purchaser should complete the purchase documentation in accordance with any procurement guidelines and specifically:
 - Any specific requirements identified during the risk assessment process should be documented in the purchase documentation.
 - All purchases of plant should have manufacturers' instructions supplied.
- The department manager should check that all hazards identified during the risk assessment process are added to the hazard register.
- An action plan is also developed and, where it is not reasonably practicable to eliminate all risks, controls from the highest level of Hierarchy of Control that are as low as reasonably practicable (ALARP) must be selected, documented and implemented, in accordance with the requirements of the Hazard Management Procedure.

Training

The department manager/supervisor shall make sure, so far as is reasonably practicable, that any item of plant is not operated at the workplace unless the operator has been provided with information, training, instruction or supervision that is necessary to protect all persons from risks to their health and safety.

- The instruction and training should be commensurate with any risk to health or safety that has been identified by the risk assessment process.
- When required, persons must hold a current licence for plant operation and maintenance.
- When required, persons must hold a current certificate of competency.

4.4 Risk Assessment

REF: PO091 - Risk Management Policy

(Reviewed every thirty-six (36) months)

REF: PR098 - Risk Management Procedure

(Reviewed every thirty-six (36) months)

Identified risks and hazards are assessed using criteria, which are standardised throughout Yorke Peninsula Council, for the likelihood of the event occurring and the consequence if it does occur.

In particular, consequences are not just assessed as the physical or employees impact (e.g. number of injuries or fatalities) but also against other criteria such as financial impact, environmental impacts and reputational impacts where such criteria are relevant.

Financial Impact

Assessment of financial impact considers the cost of a hazardous event to Yorke Peninsula Council including physical repairs, lost production, damages from third parties, legal claims and the like. Various levels of cost are determined and ranked as Low, Moderate, Significant and Major, for use in the risk ranking process described in the Risk Management Procedure.

Environmental Impact

Environmental impacts considered range from those ranked as trivial, which have minor or no effects and are rectified rapidly, through to those with increasing severity.

Minor risks are those where the effect is localised and of short-term duration with manageable consequences, whilst extreme risks represent those where the effects are widespread with possible major off-site and long term severe environmental effects.

Customers or Community Impact

Social and community impacts are those which have an impact on the social standing and reputation of Yorke Peninsula Council towards their customers. They include coverage of the incident in local or national media, effect on communities surrounding the incident site, involvement of regulators and/or shareholders.

Risk Matrix

All risks are assessed using a standard Risk Matrix adopted by Yorke Peninsula Council, which ranks each item against levels of consequence (as described above) and likelihood (see detailed explanation in Risk Management Procedure).

The final step in the formal risk assessment process is consideration of reducing the risk, for risks and hazards that are assessed as medium or higher. Yorke Peninsula Council processes for this consider:

- What can be done? What is possible in the circumstances for ensuring safety and reliability.
- Whether it is reasonable in the circumstances to do all that is possible? Factors that may determine whether something is 'reasonably practicable' include:
 - Likelihood of the hazard and associated risks occurring.
 - Degree of damage or harm that might result from the hazard/risks.
 - What the person concerned knows, or ought reasonably to know, about the hazard/risks, and ways of eliminating the hazard/risks through design.
 - The availability and suitability of design approaches to eliminate or minimise the risks.
 - The design costs associated with available ways of eliminating or minimising the risk, including whether the cost is grossly disproportionate to the risk.

Importantly, the issue of influence and control is also considered in what is 'reasonably practicable'. A risk ranking 'as low as reasonably practical' (ALARP) is considered to be reached when all that at a particular time, reasonably able to be done to ensure health, safety and reliability has been done, taking into account and weighing up all relevant matters.

Residual Risks

Yorke Peninsula Council's risk assessment process includes assessing the initial risk using Council's Risk Matrix Template, and then the residual risk is recorded after appropriate controls or mitigation methods have been implemented. Workers participate in the development of risk assessments and have input into the various controls that are implemented and evaluated to ensure their appropriateness and effectiveness.

5 Asset Management

5.1 Asset Management Systems

REF: Asset Management System (Conquest)

Link: [Community Wastewater Management Scheme \(CWMS\) Asset Management Plan](#)

Yorke Peninsula Council has developed a computerised Asset Management System (Conquest) that includes a CWMS Asset Register. This Register is also linked to Council's GIS Mapping.

The CWMS Register is now considered to be at a reliable standard to manage the CWMS assets.

The information in the CWMS Register is continuously reviewed and updated accordingly. Every twelve months assets are reviewed and data within the asset management system is upgraded to show these changes. Any new assets are communicated to relevant staff and any required actions discussed

Asset management should involve coordinated activity to realise value from assets, and requires the balancing of costs, opportunities and risks against the required performance of assets, to achieve the organisational objectives. This balancing is considered over different timeframes.

Yorke Peninsula Council's goal in managing infrastructure assets is to meet the required level of service in the most cost effective manner for present and future consumers. The key elements of infrastructure management are:

- Taking a life-cycle approach.
- Developing cost-effective management strategies for the long term.
- Providing a defined level of service and monitoring performance.
- Understanding and meeting the demands of growth through demand management and infrastructure investment.
- Managing risks associated with asset failures.
- Sustainable use of physical resources.
- Continuous improvement in asset management practices.

Yorke Peninsula Council's objective will be to minimise the whole of life cost of its assets whilst ensuring other critical factors such as changes in the risk profile due to external factors and business continuity are considered objectively in the decision making process.

5.2 Operations and Maintenance Decision Making

Yorke Peninsula Council manages the capital and operational expenditure of plant and facilities to maintain a balance between business growth and sustainability with minimum life cycle cost. The decision-making processes for the CWMS and the Potable Water System are supported by well-established documented procedures and checklists for regular maintenance activities, which will continuously be improved.

REF: Council's Site Monitoring schedule and information is located in Council's Records Management System.

6 Contract Management

6.1 General

REF: PO058 - Purchasing and Procurement Policy

(Reviewed every forty-eight (48) months)

The Council is committed to ensuring a fair, transparent and accountable process in procuring goods/services on a value for money basis, and in disposing of assets at their market value. Value for money is not restricted to price alone, and a comprehensive list of additional considerations is included in the abovementioned Policy.

The procurement method that may be used depends on the value of the transaction and these may be summarised as:

Purchase Method	Specific Requirements	Purchase Value	Authority to Approve Exceptions
Direct Purchase	Purchase from a single supplier	Up to \$5,000	N/A
Quotations	Minimum of two written quotes required	\$5,001 to \$20,000	Director
Quotations	Minimum of three written quotes required	\$20,001 to \$50,000	CEO
Selective Tendering	<ul style="list-style-type: none"> • Minimum three independent suppliers invited to tender. • Approved suppliers should be given equal opportunity to submit a tender. 	\$50,001 to \$100,000	CEO
Open Tendering	Open invitation issued inviting suppliers to submit a tender	Greater than \$100,001	Council resolution required

Table 6.1: Procurement Methods

Specific officers within Council have been delegated the power to expend Council funds by the CEO, and must also abide by the provisions of the Purchasing and Procurement Policy for the supply of all goods and services.

6.2 Contracting Risks, Mitigation, Review and Audit

REF: PR098 - Risk Management Procedure

(Reviewed every thirty-six (36) months)

Yorke Peninsula Council has in place a Risk Assessment Template (as described in PR098) which can be used to evaluate risks associated with contracting activities. Contract management risks are included if a risk assessment is undertaken at the commencement of the procurement phase, whether for a period operating contract or a specific project contract.

Risks to successful contract management can arise from a number of sources. These include:

- Contract management capability – both within the Council and the contractor.
- Contractor performance – capability, competency, on time delivery, over or under budget.
- Change in circumstances – no change management implemented, variation management, changes not identified and addressed in a timely manner.
- Stakeholder relationships – stakeholders not consulted.
- Risks to safety – use of contract resources rather than in-house employees, contractor safety performance.

6.3 Contractor Management

REF: PO006 - Contractor Management Policy

(Reviewed every thirty-six (36) months)

All Contractors who wish to perform work for Yorke Peninsula Council are required to supply Council with up to date evidence that they are compliant with the *Work Health and Safety Act 2012*.

It is the responsibility of the appropriate Council employee to identify and communicate foreseeable WHS risks relevant to the contract work, including any specific WHS requirements of the Contractor undertaking the Contract with the Council.

Yorke Peninsula Council is committed under its WHS Contractor Management Policy to:

- Ensure, so far as is reasonably practicable, the health and safety of workers engaged, or caused to be engaged by Council while the workers are at work in Council's business or undertaking.
- Eliminate risks to health and safety, so far as is *reasonably practicable* and if it is not reasonably practicable to eliminate risks to health and safety, to minimise those risks so far as is reasonably practicable.
- So far as is reasonably practicable, consult, co-operate and co-ordinate activities with other persons who have a duty in relation to the same matter.

7 Customer and Public Protocols and Agreements

7.1 General

REF: PO018 - Hardship Policy for Customers of Minor and Intermediate Water Retailers
(Reviewed every sixty (60) months)

Customer and Public communication protocols are reviewed on a regular basis and updated as required. These protocols are integrated within Yorke Peninsula Council's Policy and Procedures Registers.

Stakeholder and Public Communication

It is an obligation of Yorke Peninsula Council to be prepared for either a planned or unplanned service outage, and to notify all customers of a planned service outage specifying the date and expected duration of the outage, using the following means as appropriate:

- A letter is posted to customers at least two (2) weeks before the date
- Yorke Peninsula Council website
- Work crews erect signs in the local area of the planned work

Public Notification of Traffic Restrictions

REF: PR106 - Work Zone Traffic Management
(Reviewed every thirty-six (36) months)

At times Yorke Peninsula Council may need to undertake planned or unplanned works on infrastructure that will result in traffic restrictions and, in such cases, the Council will ensure all restrictions comply with the *Road Traffic Act* and subsequent regulations.

Work Zone Traffic Management risk assessments are completed and appropriate controls (traffic control devices) implemented to reduce risk to employees, contractors and the public. Employees regularly update their Work Zone Traffic Management training to ensure qualifications are maintained in this area.

Public Emergency Announcements and Evacuation Procedures / Drills

REF: PR080 - Emergency Management
(Reviewed every thirty-six (36) months)

An emergency may arise following a hazardous chemical spill at a Council facility. In such an instance, the WHS Emergency Management Procedure will be followed to manage the event, including reference to the spilt chemical Material Safety Data Sheet (MSDS).

7.2 Supply Agreements

CWMS Effluent

Yorke Peninsula Council is responsible for the collection, treatment and disposal of effluent from the CWMS it operates.

As detailed in Section 2.2.1, disposal of treated wastewater is to either the local golf course, an agricultural activity or Council woodlot, under arrangements as detailed below.

- Golf Courses - no formal supply agreements exist between the Council and the Ardrossan, Maitland or Yorketown golf courses. In each of these townships there is a large treated water storage dam, which acts as an adequate buffer between supply and demand throughout the year. Irrigation Management Plans currently implemented for Ardrossan and Maitland golf courses. REF: HPE Content Manager.

- Stansbury - Council leases land under agreement from a local landowner to irrigate a lucerne crop with treated effluent for disposal.
 - Yorke Peninsula Council Lease No. 1446
(Located within Council's Record Management System)
- Sultana Point - Council leases to a farmer under agreement a portion of land adjoining the WWTP for the development and operation of a vineyard.
 - Yorke Peninsula Council Lease No. 943
(Located within Council's Record Management System)
- Port Vincent - Council leases land under agreement from a local landowner to irrigate a lucerne crop with treated effluent for disposal.
 - Yorke Peninsula Council Lease No. 1445
(Located within Council's Record Management System)
- Woodlots - No formal supply agreements exist for these Council owned properties where disposal by irrigation continues year round. The woodlots have been sized as per relevant licence conditions to provide adequate disposal capacity without degrading the soil.
- The Council does not currently charge for any treated water supplied for reuse. End users can take as much as they want, subject to such availability being determined by operational supply and demand.

8 Compliance Monitoring

8.1 General

Yorke Peninsula Council operates all its wastewater treatment plants under various government approvals and licences, and a summary of the associated infrastructure is included in Section 2. In several locations Council also provides recycled water to third party users with the water quality again determined by the relevant Department of Health approval conditions.

A more detailed analysis of the overall compliance monitoring and risk management approach to recycled water reuse can be found in one of several recent Recycled Water Management Plans completed for the DHA.

REF: Yorke Peninsula Council's Recycled Water Management Plans are all located within Council's Records Management System.

8.2 Safety and Technical Requirements

The wastewater reuse schemes operate under a set of Key Performance Indicators, which are a combination of approval and licence conditions and others, which are a result of plant operating parameters, and the Council's safe, efficient and economic operation of the systems.

These Key Performance Indicators are regularly reported to external authorities as required and monitored for managing and responding to plant operation trends. The KPIs shown in Table 8.1 provide an on-going measurement of the typical WWTP performance in providing a consistent, compliant outcome. They are used as the first level indicator regarding the health of the plant and system.

KPI	Description	Target
BOD ₅	Process parameter	Mean value not greater than 20 mg/L
Suspended Solids	Process parameter	Mean value not greater than 30 mg/L
<i>E coli</i>	Process parameter and key indicator for public health	Median thermotolerant coliform count not greater than 100/100mL
Chlorine level	Process parameter and key indicator for effective disinfection	Median total chlorine level not less than 1 mg/L

Table 8.1: Typical WWTP Key Performance Indicators

8.3 Periodic Audit of Operations

Yorke Peninsula Council will monitor and audit its operations as required by Licence and Approval conditions to ensure long-term system sustainability and reliability.

8.4 Corrective Action and Continual Improvement

All Yorke Peninsula CWMS and Potable Water Supply systems have been the subject of considerable testing, modification and monitoring to achieve the stable operating regime that currently exists.

There is no structured system in place to regularly address corrective actions and continual improvement for either the CWMS or Potable Water Supply systems, except for those actions arising from a risk assessment or accident/incident report. However, as any improvements in

technology or operating procedures are identified they will be considered for implementation in the context of the relevant asset management principles and guidelines.

8.5 Water Quality

Community Wastewater Management Schemes

Water quality for treated water from Council's CWMS is controlled and monitored as detailed in previous Sections.

Several tests are performed onsite by Council operators, including:

- pH testing;
- dissolved oxygen testing;
- chlorine residual testing; and
- turbidity testing.

Every three (3) months water samples are sent for testing, including:

- Biochemical Oxygen Demand [mg/l];
- Suspended Solids[mg/l]; and
- Thermotolerant Coliforms-Ecoli [/100ml].

Results are reported to the DHA annually. An example of these results is included in Appendix B.

Potable Water Supply

Potable water supplies to Balgowan, Black Point and Hardwicke Bay from SA Water are the subject of regular three (3) monthly sampling and testing undertaken by AWQC or ALS, including Thermotolerant Coliforms-Ecoli [/100ml] of every tank and a common network supply point.

Desalinated Water Supply - Marion Bay

Water from the Desalination Plant is closely monitored according to the plant design parameters.

Council is currently developing a Risk Management Plan for this site in conjunction with SA Health.

Several tests are performed onsite by Council operators, including:

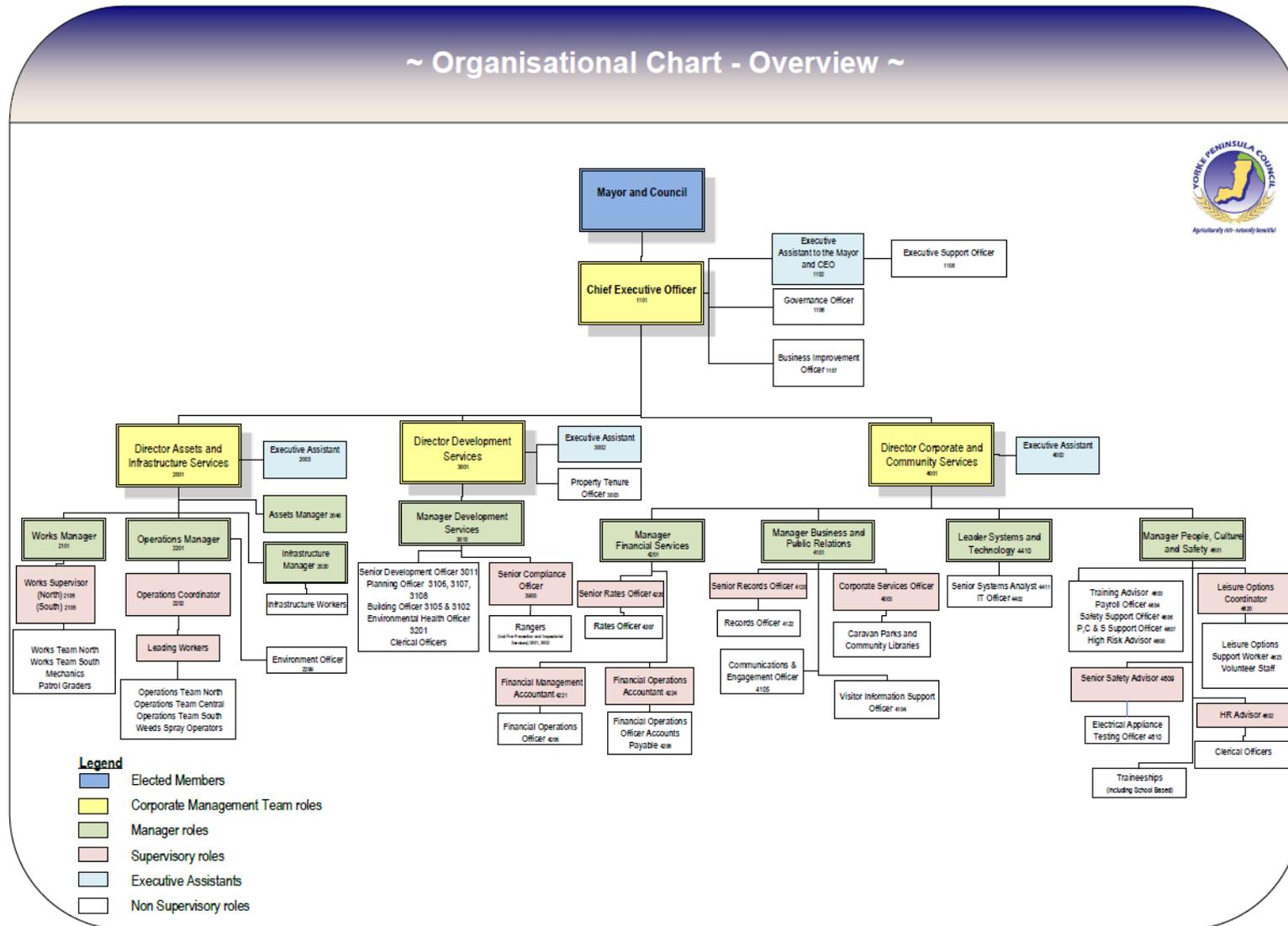
- pH testing;
- chlorine residual testing; and
- permeate conductivity US/cm.

Every three (3) months water samples are sent for testing, including:

- pH testing;
- Thermotolerant Coliforms-Ecoli [/100ml];
- Langelier index;
- permeate conductivity US/cm; and
- metals and chemicals.

REF: Copies of Council's Water Sample tests and results are all located within Council's Records Management System.

Appendix A: Organisational Chart



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Appendix B: Water Quality Results - CWMS

Yorke Peninsula Council

Water sampling results – Stansbury

All samples tested at Australian Water Quality Centre unless otherwise stated

07/08

Sample date	Limits	9/7/07	8/10/07	21/1/08	7/4/08	%	Comments
Biochemical Oxygen Demand [mg/l]	20	8	46	7	20	75	Average
Suspended Solids[mg/l]	30	5	60	15	20	75	Average
Thermotolerant Coliforms-Ecoli [/100ml]	100	0	77,000	200	5,400	25	Poor

08/09

Sample date	Limits	14/7/08	6/10/08	5/1/09	14/4/09	%	Comments
Biochemical Oxygen Demand [mg/l]	20	6	10	41	4	75	Average
Suspended Solids[mg/l]	30	6	4	53	10	75	Average
Thermotolerant Coliforms-Ecoli [/100ml]	100	78	2	460	200,000	50	Poor

09/10

Sample date	Limits	3/8/09	3/11/09	1/2/10	3/5/10	%	Comments
Biochemical Oxygen Demand [mg/l]	20	3	3	12	9	100	Very good
Suspended Solids[mg/l]	30	5	18	29	11	100	Good
Thermotolerant Coliforms-Ecoli [/100ml]	100	21	5	1300	770	50	Poor

10/11

Sample date	Limits	2/08/10	1/11/10	31/1/11	2/5/11	%	Comments
Biochemical Oxygen Demand [mg/l]	20	6	10	36	6	75	Good
Suspended Solids[mg/l]	30	17	18	21	1	100	Very good
Thermotolerant Coliforms-Ecoli [/100ml]	100	5	3	690	34	75	Good

11/12

Sample date	Limits	2/08/11	1/11/11	15/2/12	1/5/12	%	Comments
Biochemical Oxygen Demand [mg/l]	20	5	8	11	<2	100	Very good
Suspended Solids[mg/l]	30	10	12	8	8	100	Very good
Thermotolerant Coliforms-Ecoli [/100ml]	100	2	6	3900	0	75	Good

12/13

Sample date	Limits	7/08/12	6/11/12	5/2/13	7/5/13	%	Comments
Biochemical Oxygen Demand [mg/l]	20	4	3	2	2	100	Very Good
Suspended Solids[mg/l]	30	6	2	5	4	100	Very Good
Thermotolerant Coliforms-Ecoli [/100ml]	100	0	4	0	0	100	Very Good

13/14

Sample date	Limits	6/08/13	5/11/13	5/2/14	7/5/14	%	Comments
Biochemical Oxygen Demand [mg/l]	20	<2	6	9	18	100	Very Good
Suspended Solids[mg/l]	30	3	4	11	30	100	Very Good
Thermotolerant Coliforms-Ecoli [/100ml]	100	0	0	0	0	100	Very Good

14/15

Sample date	Limits	5/08/14	4/11/14	3/2/15	7/5/15	%	Comments
Biochemical Oxygen Demand [mg/l]	20	22	16	13	7	75	Very Good
Suspended Solids[mg/l]	30	22	7	28	20	100	Very Good
Thermotolerant Coliforms-Ecoli [/100ml]	100	0	0	12	0	100	Very Good

15/16 samples tested at ALS

Sample date	Limits	25/8/15	17/11/15	5/2/16	11/5/16	%	Comments
Biochemical Oxygen Demand [mg/l]	20	42	43	15	9	50	Average
Suspended Solids[mg/l]	30	34	<5	26	10	75	Good
Thermotolerant Coliforms-Ecoli [/100ml]	100	1	17	0	24	100	Very Good

16/17 samples tested at ALS

Sample date	Limits	8/8/16	9/11/16	14/2/17	10/5/17	%	Comments
Biochemical Oxygen Demand [mg/l]	20	7	8	8	16	100	Very Good
Suspended Solids[mg/l]	30	5	13	<5	7	100	Very Good
Thermotolerant Coliforms-Ecoli [/100ml]	100	0	0	1	7	100	Very Good

17/18 samples tested at ALS

Sample date	Limits	1/8/17	8/11/17	15/2/18	8/5/18	%	Comments
Biochemical Oxygen Demand [mg/l]	20	<2	<2	10	<2	100	Very Good
Suspended Solids[mg/l]	30	<5	6	<5	7	100	Very Good
Thermotolerant Coliforms-Ecoli [/100ml]	100	0	0	11,000	0	75	Good
Poor sample comments		Good	Good	Disinfection system to be checked	Good		

18/19 samples tested at ALS

Sample date	Limits	9/8/18	7/11/18	5/2/19	14/5/19	%	Comments
Biochemical Oxygen Demand [mg/l]	20	<2	<2	8	<2	100	Very Good
Suspended Solids[mg/l]	30	14	19	13	<5	100	Very Good
Thermotolerant Coliforms-Ecoli [/100ml]	100	0	0	14	<10	100	Very Good
Poor sample comments		Good	Good	Good	Good		

Appendix C: Example of SA Health Approval



Government of South Australia
SA Health

Contact: Tony Farror
Telephone: (08) 8226 7164
Email: tony.farror@health.sa.gov.au

Public Health
Citi Centre Building
11 Hindmarsh Square
Adelaide SA 5000
PO Box 6
Rundle Mall SA 5000
DX 243
Tel 08 8226 7100
Fax 08 8226 7102
ABN 97 643 356 590
www.health.sa.gov.au

Our reference: 2010-00720

2 June 2010

Mr R Gayler
GPE Professional Engineering
21 Rundle St
Kent town SA 5067

Dear Sir,

RE: WASTEWATER TREATMENT PLANT AND RECYCLED WATER USE
ARDROSSAN CWMS.

I refer to your application on behalf of the District Council of Yorke Peninsula seeking approval to install a wastewater treatment plant and use of recycled water at Ardrossan.

I advise that, pursuant to Public and Environmental Health (Waste Control) Regulations 7, 8, 11, 12A and 13, your application for wastewater system has been approved subject to the following conditions.

1. The approved system consists of:
 - 1.1. use of the existing diversion of the rising main from the foreshore pump station to the treatment plant.
 - 1.2. 2.1 m diameter pump station containing duty and standby pumps rated at 11 L/sec discharging to the existing rising main to the facultative lagoons.
 - 1.3. Pump station to be fitted with control mechanisms to allow all excess flows to be diverted to the facultative lagoons.
 - 1.4. A wastewater treatment plant located in the golf course confines to treat a hydraulic flow of 180 kL/day and BOD₅ load of 48 kg /day consisting of the following components as specified by the design engineer:
 - 1.4.1. Two 160 kL reactor tanks (Demand and intermittent operation).
 - 1.4.2. Two 5.5 kW sinkair aerators.
 - 1.4.3. One 140 kL sludge thickening tank
 - 1.4.4. Acromet E series liquid hypochlorite dosing pump
 - 1.4.5. Chlorine probe and telemetry alarm /feedback system to notify operators of malfunctions and increase the dose where necessary.
 - 1.4.6. 2 x 22,500 L decant/ contact tanks (interconnected)
 - 1.5 Recycled water irrigation system to serve the Ardrossan golf course (13.7 ha) consisting of :

- 1.5.1 2 x storage ponds (fenced) with a combined capacity of approximately 1.6 ML.
 - 1.5.2 existing pumps (9.5 kW) to deliver recycled water to designated holes of the course. At a rate of 1.7 ML /week during the irrigation season
 - 1.5.3 Anemometer switching set to discontinue irrigation if wind speed exceeds 20 km/hr
 - 1.5.4 Alteration of the existing sprinkler layout such that:
 - 1.5.4.1 All property boundary fences are 20 m from any wetted area
 - 1.5.4.2 Directional heads are used to direct sprays away from property boundaries.
 - 1.5.4.3 Cross connection of water supplies is prevented with physical separation of systems or suitable backflow prevention devices (see clause 9).
2. The system is to be installed, commissioned, operated and maintained in accordance with:
- 2.1 The plans and specifications submitted including any amendments made/required with this approval.
 - 2.2 Designers, manufacturers, installers and equipment suppliers' specifications, instructions and recommendations.
 - 2.3 Australian Guidelines for Water Recycling: Managing Health and Environmental Risks Phase 1.
 - 2.4 All other relevant standards and codes.
 - 2.5 Conditions of this approval.
3. A telemetry alarm system for the plant must be installed and connected to a suitable location to advise of any malfunctions.
4. Spare parts are to be kept on site to enable prompt repair of the aerator, pumps or any other critical components.
5. Operation and maintenance manuals for the wastewater treatment plant and associated equipment are to be provided and maintained onsite for use by the system operator and maintenance personnel. The personnel are to be adequately trained to ensure the system is operated as required by the manufacturer and installation contractor as well as in compliance with this approval, including the recycled water quality monitoring and reporting requirements. Training shall also include Occupation Health and Safety aspects of system operation and maintenance. Appropriate signage advising of the use of chlorine is to be affixed to the building housing the chlorine containers and any ventilation requirements must also be adhered to.
6. The wastewater treatment plant is to produce reclaimed water complying with the following criteria:
- 6.1 A mean value BOD₅ not greater than 20 mg/L
 - 6.2 A mean value of suspended solids not greater than 30 mg/L

- 6.3 A median thermotolerant coliform (*E coli*) count not greater than 100/100 mL
- 6.4 A mean residual chlorine level of not less than 1.0 mg/L

Monitoring is to be carried out weekly for 4 weeks, fortnightly for 8 weeks and monthly for 9 months, then pending successful completion of this regime, on a quarterly basis thereafter. Sampling and analysis of samples are to be carried out by a NATA registered laboratory and the results are to be submitted to the Minister for Health (C/- Wastewater Management Section, DH) as soon as they become available.

After satisfactory completion of the initial 12 months, the results are to be submitted to the Minister for Health (C/- Wastewater Management Section, Department of Health) in the form of an annual report due on the 30th September each year (for the period of 1st July to 30th June of each year). This report must also include the annual Backflow Prevention Device Inspection and Maintenance Report sheet as per Clause 9.

However, the Minister for Health (C/- Wastewater Management Section, DH) reserves the right to request for the monitoring results at anytime. The owner and operator of the system are also responsible for reporting the results to the Minister for Health (C/- Wastewater Management Section, DH) immediately when there is a malfunction of the wastewater system or its components and/or the recycled water quality criteria above is not achieved, together with the measures taken to operate the system as per the requirements of this approval.

All such malfunctions and/or recycled water quality variations and the measures taken to rectify the problem(s) are also to be detailed in the annual report.

- 7. All pumps and rising mains used must be suitable for their respective loads and operating environment.
- 8. Backflow prevention devices must be fitted to the golf course system as per AS/NZS 3500 by personnel holding appropriate qualifications to ensure all water supplies are protected from cross contamination. Backflow Prevention Device Inspection and Maintenance Report sheets for backflow prevention work carried out are to be submitted to the DH and the Coorong District Council within 14 days. A full backflow prevention audit must be carried out by a certified backflow prevention tester in conjunction with the certifying engineer, and comply with all requirements prior to the use of recycled water. All backflow prevention devices must be tested and reported to the DH annually.
- 9. Irrigation is to be carried out in accordance with the following additional requirements:
 - 9.1. There will be no irrigation between the hours of 6 am to 10 pm.
 - 9.2. Prominent warning signs will be erected in accordance with the submitted Irrigation Risk Management Plans stating "WARNING RECYCLED WATER – DO NOT DRINK".
 - 9.3. The irrigation areas are to be monitored to ensure runoff is not occurring.
 - 9.4. All irrigated surfaces must be dry prior to use.

- 9.5. Any play ground equipment or benches installed within close proximity to the irrigation system must not allow pooling of effluent.
- 9.6. All valves at the site must be locked or fitted with removable controls.
- 9.7. All new irrigation pipe work including sprinkler system and valves will be of lilac colour and/or labelled to indicate recycled water.
10. Within eight weeks of the completion of the installation, engineering certification by an independent chartered professional engineer experienced in wastewater system design, construction and operation, considering all the conditions of this approval, is to be submitted to the Minister for Health (C/- Wastewater Management Section, DH) including:
- 10.1 Structural soundness of the installation for all aspects of the system.
- 10.2 Certification that all tanks sumps and pipework, are fit for purpose, structurally sound and water tight.
- 10.3 That tests required under Clause 6 are being undertaken.
- The engineering certification is to clearly state the compliance or otherwise with the approval, of both system components and the system as a whole.
11. Pursuant to the Public and Environmental Health (Waste Control) Regulations, the Minister for Health (C/- Wastewater Management Section, DH) reserves the right to vary any or all of the approval conditions, and require the repair, replacement, rectification, or alteration of the system or any part thereof should at any time:
- 12.1 The system or a component thereof not be manufactured, installed and/or operated in accordance with the approval conditions; or
- 12.2 The system is defective and not able to perform the function for which the approval was issued; or
- 12.3 The system is operated in a manner that is prejudicial to public and environmental health, or causes environmental nuisance; or
- 12.4 The operator or the person or agency holding the approval for the system fails to undertake necessary monitoring of the system or provide the results as required in the DH approval conditions.

Approved by:



(Mr Tony Farror) Date: 2 June 2011

Acting Manager, Wastewater Management
Delegate of the Minister for Health

CC: DC Yorke Peninsula

References: -Information received from Gayler Professional
Engineering dated 28/4/11., 7/5/11, 2/5/11

Note 1: The approval does not abrogate responsibilities under other Acts or Regulations to obtain necessary approvals, permits or licences from other agencies, including but not limited to:

- Environmental Protection Agency (EPA)
- Department of Water, Land and Biodiversity Conservation
- Natural Resource Management Boards
- Development Assessment Commission (DAC) and/or the local Council

Note 2: Sludge from the system is to be taken away by an EPA licensed operator to an approved site and in accordance with the SA Biosolids Guidelines.

Note 3: This approval is issued on the basis of information provided by Gayler Professional Engineering and The district Council of Yorke Peninsula.

Note 4: All extensions/upgrades/modifications to the Ardrossan community wastewater management scheme (including the treatment plant) will be subject to separate application(s) and approval from the Minister for Health (C/- Wastewater Management Section, DH).