OPERATIONS

SAFETY MANAGEMENT PLAN

(OSMP)

for

Coffs Harbour City Council's

Water Treatment Plant

140 Upper Orara Road Karangi NSW 2450

Revision List

Revision:	5
Date:	13 March 2009
Prepared:	Paul Johnson
Reviewed:	Neil Matthews
Approved for Issue:	Simon Thorn

Signature: .....

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1.0 Policy Statements

1.1 Occupational Health and Safety, Environment and Quality Policy Statement

Occupational Health and Safety, Environment and Quality Policy Statement

At Coffs Harbour City Council, we demonstrate a duty of care for the health and safety of all, the protection of the environment and provide high quality services to the community.

We aim to be at the forefront of occupational health and safety, environmental protection and quality performance by:

- Identifying and managing risks to health, safety and the environment to minimise the harmful effects that may result from exposure to those risks.
- Ensure budgetary allowances are planned for to ensure continuous improvement to the safety, environment and quality aspects of our operations.
- Manage incidents that do occur to minimise their harmful effects and to prevent recurrence.
- Continuously review and improve our management system, establishing measurable objectives and targets, which work towards excellence in safety, environmental protection and quality.
- Ensure compliance with all relevant legislative requirements and standards.
- Ensure all staff, suppliers and contractors are appropriately qualified and competent to carry out the tasks required of them.
- Promote safe and environmentally sound practices among the community and staff through instruction, training and education
- Consult with our staff, suppliers, contractors and community to enable them to contribute to decisions affecting their health, safety, welfare and the protection of the environment.
- Ensure clear accountability for safety, environment and quality at all levels.

We will implement this policy through the development of our integrated management system throughout all levels of the organisation.

Approved by: *Executive Team in consultation with staff.*

.....	.....
Mayor	**General Manager**
.....	
OH&S Committee Chairperson	**6 July 2006**
CHCC-M-POLS-001	

1.2 Injury Management and Rehabilitation Policy Statement

Injury Management and Rehabilitation Policy Statement

Coffs Harbour Council is committed to providing effective injury management and rehabilitation of injured workers.

To achieve this, we have adopted the following specific goals:

- Council will ensure the health, safety and welfare at work of all employees;
- Ensure that return to work as soon as possible after injury is a normal practice and expectation;
- Provide suitable and meaningful duties consistent with the nature of the injury/illness as soon as safely possible;
- Identify, implement and promote best practice in injury and rehabilitation management systems;
- Provide support throughout the rehabilitation process;
- Consult with employees and their representatives, to ensure that our rehabilitation programs operate effectively;
- Comply with all relevant legislation and go beyond mere compliance where necessary to improve Council's performance;
- Achieve continual improvement in performance through ongoing review and assessment of our systems.

Approved by: *Executive Team in consultation with staff.*

.....	.....
Mayor	**General Manager**
Date	**9th June 2002**

CHCC-M-POLS-002 V00(09/06/02)

1.3 Risk Management Policy Statement

Risk Management Policy Statement

Managing risk is essential for the efficient management of Council and applies to all of Council's operations. Effective risk management ensures continual improvement and is as much about identifying opportunities as avoiding or mitigating losses.

Management will ensure that all hazards and their associated risks are identified assessed, where possible eliminated or other wise controlled.

Prioritisation of the actions for the implementation of control measures is required where,

- the risks can not be immediately eliminated or the risk reduced to an acceptable level
- the long term controls are not implemented prior to commencement of the activity

Council will review risk assessments and all measures adopted to control risks, whenever

- there is evidence that the risk assessment is no longer valid
- adverse impacts result from exposure to a hazard to which the risk assessment relates
- a significant change is proposed in our place of work or in work practices or procedures to which the risk assessment relates.

Consultation will take place,

- when risks relating to Council's activities are assessed
- when decisions are made about the measures to be taken to control risks
- when the assessment of risks are reviewed
- when introducing or altering the procedures for monitoring risks
- when decisions are made about the adequacy of facilities
- when changes are proposed to the systems or methods of work or the plant or substances used for work.

The hazard identification, risk assessment and control process will be documented and retained by Council's information management system.

Approved by: *Executive Team in consultation with staff.*

.....	.....
Mayor	**General Manager**
.....	**Date**
OH&S Committee Chairperson	**9 June 2002**

2.0 Introduction

2.1 Scope of Plan

2.1.1 This document constitutes the Operations Safety Management Plan (OSMP) for the entire life cycle of the Water Treatment Plant at 140 Upper Orara Road Karangi NSW 2450 from the commencement of operations.

2.1.2 The scope of this Operations Safety Management Plan satisfies Section 5.4 b) of the Department of Planning Project Approval (Application 06-0285) given under Section 75J of the Environmental Planning and Assessment Act 1979.

2.1.3 Project Approval Extract:

5.4 b) a document setting out a comprehensive Safety Management System, covering all operations involving hazardous materials. The document shall clearly specify all safety related procedures, responsibilities and policies, along with details of mechanisms for ensuring adherence to the procedures. Records shall be kept at the Plant site and shall be available for inspection by the Director-General or nominee upon request. The Safety Management System shall be developed in accordance with the Department's *Hazardous Industry Planning Advisory Paper No. 9, 'Safety Management'.*

2.2 Objectives

2.2.1 The objectives of the Operational Safety Management are:

- Provide an effective Safety Management System based on two models the AS4801 continual improvement model combined with specific operational controls adopted from the US Standard 29 CFR 1910 Process Safety Management model.
- Fit for purpose Safety Management System that is comprehensive, comprehensible and integrated to cover the full range of operational activities that could have significant safety impact.
- Risk based that represents the hazards that are present and support the actual practices of the facility.
- Provide a Safety Management System that meets relevant legislative requirements.

2.3 Key Risks

2.3.1 The key risks associated with the operations of the plant were identified through a formal Risk Assessment workshop held 4th February 2009.

2.3.2 Attendees including operational staff and major stakeholders. The items listed below as key risk are risks identified at the workshop which received a 'high' risk rating prior to mitigating controls being put in place. It is important to note for this plant, the stakeholders at the risk assessment workshop identified no risks as 'extreme'. Refer Appendix 1 for project specific workshopped operational risk assessment. The following are the risks identified as 'high' prior to mitigating controls being put in place;

- Non compliance with OH&S legislation with standard management systems in place
- Incidents/accidents
- Chlorine gas leak in chlorine building
- Chlorine gas leak outside building

- Unauthorised access to site
- Crane operations damage underground services
- Staff inexperienced in plant operation and process
- Substandard contractors exposed to high risks
- Undue delays in arrival of emergency services
- Undue delays in attendance of injured personnel
- Undue delays in stopping and cleaning chemical spills and leaks
- Entry into pits and chambers – confined space, access
- Trips and falls – falling into water

2.4 NSW Department of Planning

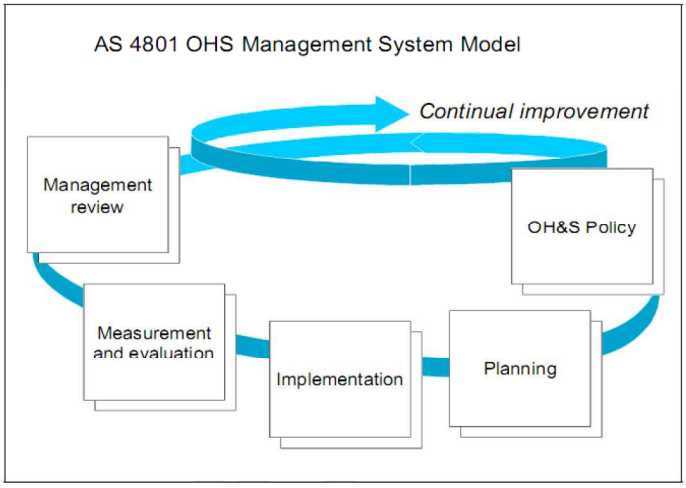
2.4.1 This Operational Safety Management System is based on compliance with the following document:

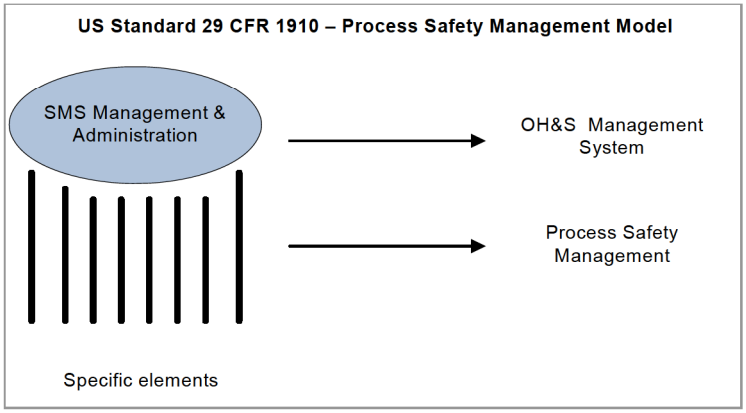
NSW Government Department of Planning Hazardous Industry Planning Advisory Paper No. 9 Safety Management.

The NSW Department of Planning have clearly described the preferred model for an effective Safety Management System is based, in part, on the AS4801 continual improvement model combined with specific operational controls adopted from US OSHA Process Safety Management Standard 29 CFR 1910.

Below are the two models adopted in the compilation of the Safety Management System.

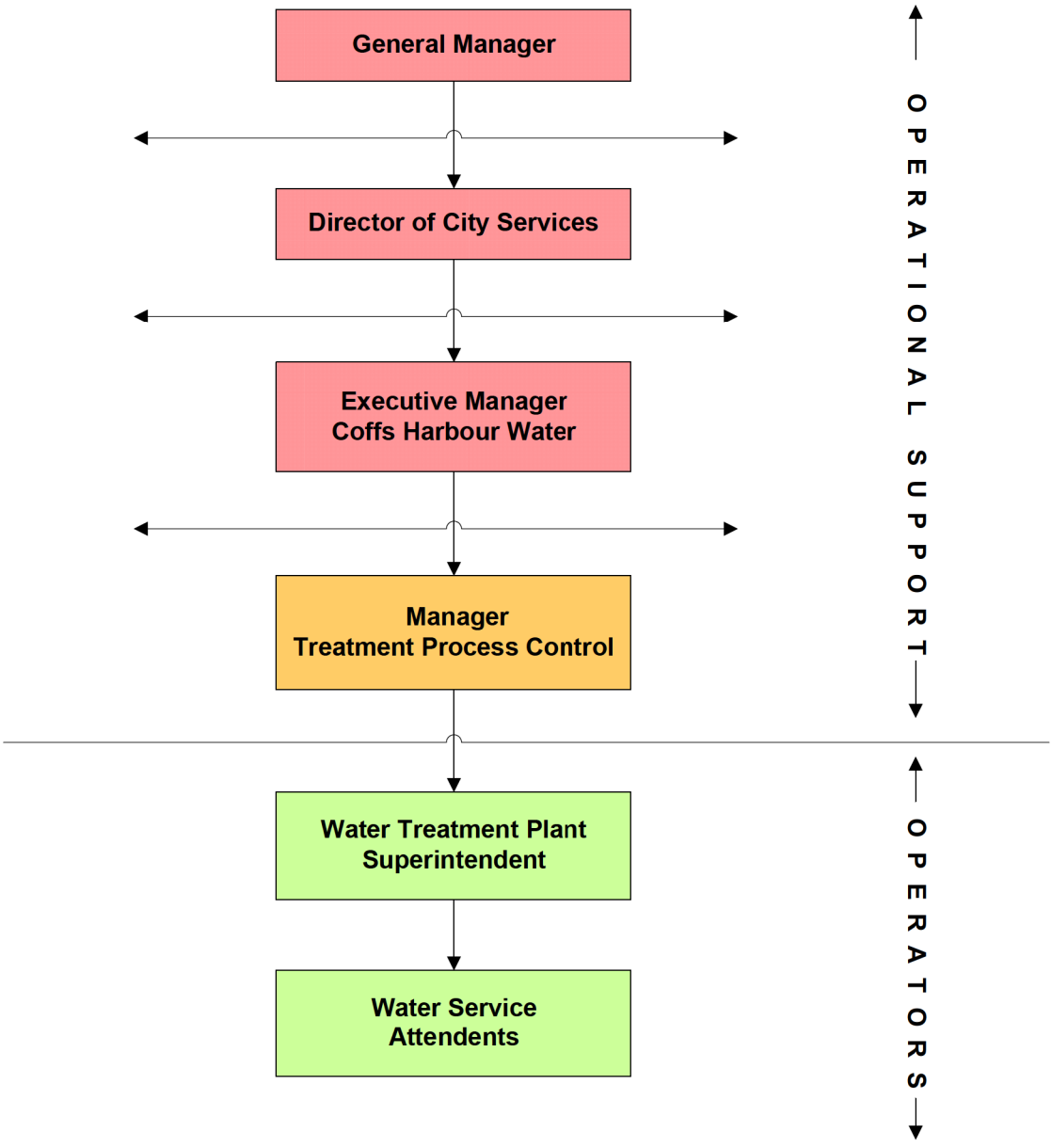
Figure 2-1: Preferred Models Adopted





3.0 Structure and Accountabilities

3.1 Organisation Chart



3.2 Accountabilities and Responsibilities

3.2.1 Responsibility for safety lies with the Coffs Harbour City Council (CHCC) General Manager who is ultimately in charge of the facility. Just as authority is delegated down through the organisational structure to ensure that the objectives of the CHCC are efficiently fulfilled, safety needs to be delegated and persons held responsible. Those who are accountable for the safety of operational staff for the Plant have the authority to redesign work processes. Below are the accountabilities and responsibilities for those presented on the organisation chart.

3.2.2 General Manager

- Oversees the establishment of policies and ensures that the policy objectives reflect the intentions of the council and remain up to date and relevant.

3.2.3 Director of City Services

- Makes provision for adequate resources to be available for the implementation of the council policy objectives and provide feedback to the General Manager.

3.2.4 Executive Manager – Coffs Harbour Water

- Ensures that the systems are in place, cover all applicable works and include the processes required to implement the management strategies.

3.2.5 Manager – Treatment Process Control

- Updates the systems as required and provides the Executive Manager Coffs Harbour Water with feedback on the implementation of the management strategies and provides recommendations on resource requirements.

3.2.6 Water Treatment Plant – Superintendent

- Supervises the daily activities on the Water Treatment Plant and manages how these activities are to be undertaken for compliance with systems.
- Provides recommendations on improvements and resource requirements to the Manager - Treatment Process Control.

3.2.7 Water Service – Attendants

- Undertake activities as instructed by the Water Treatment Plant Superintendent.

3.2.8 Contractors

- Contractors are contractually required to undertake works in accordance with CHCC systems and directions from the Water Treatment Plant Superintendent.

Appendix 3 - OHS&R critical position – responsibility matrix provides plant specific responsibilities in line with the contents of this Plan.

4.0 Planning

4.1 General

4.1.1 An effective Safety Management System is one that combines all the generic management system elements and supports all the plant specific operational control measures in proportion to their influence on safe operation. In the planning process it was decided by stakeholders this safety management system needed to incorporate two overall aspects.

- Generic Safety Management Systems aspects that provide a framework for planning, implementing, checking and correcting and reviewing measures for preventing major incidents.
- Specific Safety Management Systems elements which address the facility, its hazards, potential major incidents and associated risk, and the control measures.

The following sections of planning detail the core management processes and administration activities of the system:

- Identification of Hazards, Assessment and Control of Risks
- Contractor Management
- Safety Objectives, Targets and Performance Standards
- Management System
- Relevant Industry Codes of Practice, Standards and Legislation

4.2 Identification of Hazards, Assessment and Control of Risks

4.2.1 The process of identifying hazards and assessing risks is an important aspect for the effective planning for the development and implementation of the Safety Management System. The following section provides an overview of the process to ensure that the Safety Management System is adequate and "fit for purpose". For further details refer Section 5.1 Risk Management and Appendix 1 – Plant Specific Risk Assessment.

4.2.2 The adopted risk management principals as outlined in detail in Section 5.1 of this plan are:

- identify hazards
- access risks
- control the risks related to the full scope of activities (including design, construction, normal, abnormal and emergency situations) products and services of the organisation
- periodically evaluate the effectiveness of the controls.

4.3 Contractor Management

4.3.1 CHCC has a statutory obligation to ensure contractors perform their activities in a manner which is safe and without risk to their own employees or other persons.

4.3.2 The Occupational Health and Safety Policy (refer page 4) states that CHCC will "ensure all, suppliers and contractors are appropriately qualified and competent to carry out the tasks required of them".

4.3.3 Leading up to the establishment of a contract, health and safety shall be taken into account.

4.3.4 At the commencement of each contract, the Plant Superintendent ensures the following is performed:

- details of the contractor's organisation are available;
- contract personnel attend the plant specific induction;
- where applicable the name and position of the contractor's OHS&R representative is provided.

4.3.5 During the performance of the contract the Plant Superintendent as required ensures that:

- contractor personnel are included in interface meetings such as toolbox and meetings;
- contractor's OHS&R practices are monitored and audited;
- accidents and incidents involving contractors are recorded and reported appropriately;
- the performance of the contractor is evaluated for future contracts.

4.4 Safety Objectives, Targets and Performance Standards

4.4.1 The Plant specific Operational Safety Management System objectives established by key stakeholders during the planning phase are:

- Provide an effective Safety Management System based on two models the AS4801 continual improvement model combined with specific operational controls adopted from the US Standard 29 CFR 1910 Process Safety Management model.
- Fit for purpose Safety Management System that is comprehensive, comprehensible and integrated to cover the full range of operational activities that could have significant safety impact.
- Risk based that represents the hazards that are present and support the actual practices of the facility.
- Provide a Safety Management System that meets relevant legislative requirements.

4.4.2 For targets and performance standards established refer Section 5.10 of this Plan.

4.4.3 Appendix 3 – OHS&R Critical Positions – Responsibility Matrix is a useful tool for reviewing performance and;

- the designation of responsibility
- assessing resources required
- timeframe and applicable systems

5.0 Implementation

5.1 Risk Management

5.1.1 The management of risk is an integral part of CHCC's good business practices. Refer page 6 for CHCC Risk Management Policy Statement. Risk Management is an iterative process that consists of well-defined steps which, taken in sequence, will support better decision making by contributing a greater insight into risks and their impacts.

A structured process is therefore required to ensure that all risks (and opportunities) associated with the operational activities, are identified, analysed, prioritised and treated in order to eliminate/mitigate (or take advantage of) the consequences should that event occur.

5.1.2 The main elements of the risk management process are consistent with AS/NZS 4360:1999: 'Risk Management' for this Safety Management System are as follows:

5.1.3 Risk Category / Potential Risk (Identify the Risks)

All risks that may have some effect on the operational/activities are identified via 'brain-storming' techniques. The risk identification process covers the risks associated with the entire operational life cycle of the Plant from commencement of operations. Risks are then recorded together with any existing controls or mitigation factors on the Risk Assessment Worksheet. Refer Appendix 1 for Plant specific Risk Assessment workshopped 4 February 2009.

5.1.4 Risk Rating (Evaluate and analyse the risks)

The identified risks are evaluated, to indicate their maximum potential impact. Existing controls and mitigating strategies are then considered to determine a residual for each risk. The risks are then analysed in terms of the probability that things may go wrong and what the consequences for the plant will be in the context of current controls. These elements (probability and consequence) are combined to produce an estimated level of risk. The parameters for rating of consequences as minor, major, catastrophic etc will vary from activity to activity. Refer Appendix 1 for 'Consequence' and 'likelihood' which combine to establish the Risk Rating.

5.1.5 Risk Priorities (Assess and prioritise the risks)

The estimated levels of risk are then reviewed and all risks are ranked on the Risk Assessment Worksheet to identify priorities and thereby facilitate their management. The assessed residual risk is also considered in this process on the basis of the 'is the risk acceptable'.

5.1.6 Risk Treatment Options (Treat the risks)

Low priority risks are generally accepted and monitored. Appropriate methods for managing other risks are developed. These may include reducing the consequences and/or likelihood of the risk, avoiding or eliminating the risk or a combination of the above. Refer Appendix 1 "Controls/Risk Treatments".

5.1.7 Implement, monitor report and review (Implement risk treatments and review improve)

The performance of the risk management methods are monitored and reviewed throughout the life of the operational activities to ensure that they remain applicable and that any changes needed are identified. Progress against the management of risks is a key component of the plants reporting regimes and periodical management reviews.

5.2 Operations Inductions

5.2.1 All personnel working at the plant unsupervised for a period exceeding four hours shall attend the plant specific induction. The plant specific induction shall be plant specific and fit for purpose.

5.2.2 The Plant Specific Induction shall reference this plan and focus on the inherent risks associated with the plant.

5.2.3 At the completion of the induction a Plant Specific Induction Pass will be issued to the inductee.

5.2.4 Copies of all certificates of competency, licences and other qualifications as deemed necessary by the Plant Superintendent shall be copied and attached to the induction. This information shall be maintained on the plant files for future reference.

5.3 Work Team Briefings

5.3.1 The Plant Superintendent will carry out work team briefings as deemed necessary at the commencement of the shift to ensure safety issues specific to the work being performed are addressed. These team briefings may be daily in the case of shutdowns. At a minimum diaries reference to the team briefings shall be maintained. In addition, this forum shall be used to provide a consultative framework for employees to raise and discuss safety issues and to ensure appropriate actions are taken.

5.4 Toolbox Meetings

5.4.1 These meetings are intended to be informal, the frequency to be determined by the Plant Superintendent. Toolbox meetings are designed to discuss Safe Work Method Statements that have been developed for a specific work task and/or an informal and open discussion about relevant health and safety matters between the Superintendent and the workforce, including Contractor employees.

5.4.2 A copy of toolbox meetings shall be maintained on the plant files for future reference.

5.4.3 Action items shall be promptly followed up and the results reported at the next meeting.

5.5 Consultation

5.5.1 Using a combination of the communication process and other methods as stated throughout this plan, all employees including contractors' employees shall be consulted with regard to the hazards, risks and risk controls that impact on them through the particular work activity that they are performing.

Note: Appendix 1 - Risk Assessment details a 'Consultation' related risk as having a risk rating of 'high'.

5.6 Meetings

5.6.1 CHCC, contractor and stakeholder meetings may be held to ensure that issues and planning of critical activities that interface with other activities and other stakeholders on the site are formally discussed and minuted. Records of these meetings will be maintained in the plant files by the Plant Superintendent.

5.7 Safety Notice Board

5.7.1 A safety notice board shall be established in a prominent area, with pertinent Safety related documentation. e.g. Industry Safety Alerts.

5.8 Site Safety Rules

5.8.1 Site Safety Rules may be developed for the plant and shall be handed out during the plant induction and displayed in a prominent location.

5.9 Auditing

5.9.1 Planning and auditing of this plan, OHS practices and control measures shall be performed. The Plant Superintendent shall prepare a basic audit plan showing the audit frequency and the areas or sections (contractors) to be audited.

5.9.2 As a minimum the Plant Safety Management Plan shall be audited within 3 months of operations commencing followed by a minimum of one in the preceding 12 months and within every 36 month period thereafter.

5.9.3 The Plant Superintendent shall carry out self audits/reviews/site inspections of the project on a regular basis.

5.9.4 Deficiencies identified as a result of audits/review/site inspection shall be documented and rectified to a point of close out by the Plant Superintendent.

5.10 Performance Reporting

5.10.1 Performance standards against which the implementation of the Safety Management System can be measured may include:

- % of audit recommendations implemented as per audit plan – Target 100%
- % of hazard identified and closed out within seven days – Target 95%;
- % of attendant's relevant competencies obtained – Target 90%.

5.11 Management System Review (Change & Continual Improvement)

5.11.1 The Plant Superintendent shall collate monitoring and surveillance data, stakeholder feedback and improvement data. The results of the analysis are presented to the Manager - Treatment Process Control for review. The Operations Safety Management System review is an integral part of the overall review of the plant systems. Records of such reviews are documented as minutes and maintained by the Manager - Treatment Process Control.

5.11.2 System reviews are generally carried out within 12 months after operations commencement and at a frequency of not exceeding 12 months thereafter.

6.0 Standard Operations Controls

6.1 Introduction

6.1.1 For the purpose of this Plan, Standard Operations Controls are defined as any systems, procedures, and operational hardware and software, that are intended to eliminate hazards, prevent or reduce the likelihood of incident from occurring, or reduce/mitigate the severity of consequences of any incidents that do occur. Standard Operations Controls are the primary tools which the Operator utilises to deliver a safe operation at the facility.

6.1.2 Standard Operations Controls may be pro-active, in that they eliminate, prevent or reduce the likelihood of incidents, or they may be reactive, in that they reduce or mitigate the consequences of such incidents that do occur. Both types of Standard Operations Controls are essential for an effective Safety Management System.

6.1.3 The systematic and comprehensive hazard identification and risk assessment (Refer Appendix 1) assists the Plant Superintendent to manage the facility in a manner that minimises risk to people, property and the environment. It is the risk assessment process that details the level of controls necessary to prevent major accidents. The risk assessment in Appendix 1 sets out to:

- Develop a detailed understanding of major accident risks associated with the facility.
- Provide a transparent and robust basis for making decisions on control measures, management systems and other resources for safe operation of the facility.
- Identify critical controls measures and link these controls to the identified hazards.

The below Standard Operations Controls compliment the risk assessment process described in Section 5.1 to provide clear instructions for all attendants for ensuring that activities are conducted methodically, reproducibly and safely. The Plant Superintendent on an ongoing basis identifies work methods, processes, or critical tasks that have significant potential safety and environmental risks and develops where deemed necessary Safe Work Method Statements to prevent associated incidents.

6.2 Personal Protective Equipment (PPE)

All employees have a responsibility for maintaining and wearing the appropriate Personal Protective Equipment (PPE) at all times whilst at the plant. Mandatory Personal Protective equipment is detailed within Plant Induction.

The Plant Superintendent will ensure that all employees are supplied with the necessary Personal Protective Equipment required to perform their duties and meet legislative requirements.

All contractors are required to supply their employees with any necessary personal protective equipment.

Examples of PPE

Head Protection

Approved safety helmets to AS 1801. Employees shall not write, paint or otherwise mark helmets. Stickers identifying site specific inductions shall be displayed. Employees are to exchange out of date helmets as required.

Occupational Protective Footwear

Approved steel-capped safety footwear to AS2210.2.

High Visibility Apparel

Appropriate high visibility apparel to AS4602 - High Visibility Safety Garments and as described in AS 1742.2.

Protective Clothing

Appropriate industrial clothing. Where additional protective clothing is required by personnel perform task such as welding etc. then that clothing shall be provided by the Contractor to the employee.

Eye Protection

Approved eye protection to AS 1337 - Eye protectors for industrial applications, appropriate to the task, all times by all personnel using grinders, oxy / acetylene, welding, power and pneumatically driven tools and equipment.

Hearing Protection

The identification, assessment of risk and control of risk associated with noise in the workplace must be in accordance with relevant legislation.

Approved hearing protection to AS 1270, must be worn where an employee is in a designated mandatory hearing protection area. Where an employee in carrying out a task that generates noise and exposes the employee to noises > 85dbA, then the appropriate hearing protection will be provided and must be worn by the employee and by any other employee that is effected.

All plant and equipment that exposes an employee to noises > 85dbA is required to have mandatory hearing protection signs displayed.

Hand Protection

Hand protection in accordance with AS/NZS 2161.1 - Occupational protective gloves - Part 1: Selection, use and maintenance, must be worn when the employee is exposed to chemical contaminants or work that has the potential to cause injury to an employees hands. The gloves provided, must suit the task and the hazard which the employee is exposed to, the gloves must be maintained in good condition and free from excessive wear.

UV Protection

Due to the nature of work being outdoors on occasion, it is required that a supply of 30+ sun-block, UV safety glasses and broad brim for hard hats be available to all employees.

Wet Weather Clothing

Wet weather clothing that is suitable for the task shall be provided to all employees required to work during wet weather.

Additional Personal Protective Equipment

Additional personal protective equipment may be required to be worn by personnel undertaking tasks with additional hazards. Equipment may include: goggles; face shields; fall arrest equipment; respirators; life vests; self-rescuers. The equipment requirements for a particular task shall be determined by the relevant Supervisor in consultation with the Plant Superintendent.

6.3 Site Security

6.3.1 The Plant Superintendent shall ensure that systems are in place to monitor and control security and legitimate access to the site, as well as to prevent all forms of non-legitimate access to the site. Attendants should pay particular attention to the physical security of the facility, chemical storage areas, and chemical processes. All facilities shall have appropriate security in place to minimise crime and to protect people, property and the environment.

6.3.2 The plant shall have a perimeter fence installed that is adequate for the risks associated with operating a Water Treatment Plant in accordance with relevant legislation.

Note: Appendix 1 – Risk Assessment details a 'Site Security' related risk as having a risk rating of 'high'.

6.4 Fire Prevention and Protection

6.4.1 Fire Prevention and protection shall be taken into account when planning operational activities.

6.4.2 An assessment of the suitability of fire fighting equipment should be made for the plant. AS 2444 provides details on the various types available and their use and effectiveness for various types of fire.

6.4.3 Where a task being undertaken exposes any employee and/or property to fire, appropriate temporary fire protection equipment shall be provided at that location. Hot Work Permits may be required for all hot work carried out at the Plant.

6.4.4 Employees shall be adequately instructed in the use of the fire fighting equipment.

6.4.5 Fire fighting equipment must be tagged to be in compliance with AS 2444.

6.5 Traffic Management

6.5.1 A process for management of delivery and transport vehicles shall be established by the Plant Superintendent prior to operations commencement.

6.5.2 Specific site rules regarding traffic management and control are to be incorporated in to the operations induction.

6.6 Isolation of Services

6.6.1 It is essential that when work is being carried out on any operational equipment or facility and the work may affect the facility's operations, that a procedure to isolate systems in place.

This is to ensure that the safety and the integrity of the related systems are not jeopardised because of the works.

6.6.2 An isolation system will only ensure protection when:

- All stored energies within the equipment are reduced to non-injurious levels
- All sources of energy to the equipment are removed

6.7 'Danger' and 'Out of Service' Tagging

6.7.1 'Danger' tagging where appropriate shall be implemented to ensure the safety of personnel working on plant and equipment to prevent inadvertent use by unauthorised persons during maintenance / repair processes or to ensure isolated equipment is secure prior to working in an area or on a piece of equipment or plant that may effect employees working in such areas or on such equipment.

6.7.2 'Out of Service' tagging shall be implemented to ensure that defective plant and equipment that requires servicing or repair is correctively identified as 'Out of Service' to prevent inadvertent use of such plant or equipment.

6.8 Excavation and Trenching

6.8.1 All excavation and trenching operation shall be suitably benched, battered and/or shored to ensure that there are systems in place to prevent / control:

- Falling or dislodgement of earth and rock within the excavation
- Instability of the excavation or adjacent structures
- In-rush of water into the excavation
- Placement of spoil and materials impacting or falling into the excavation
- Instability due to persons or plant working adjacent to the excavation

6.8.2 An Excavation Work Permit may be required (determined by the Plant Superintendent) prior to the commencement of excavation works.

6.9 Safe Work in Confined Spaces

6.9.1 All work carried out on the project shall be assessed to determine if a particular work activity maybe deemed as confined spaces as per the definition stipulated in applicable legislation. Where a potential confined space is identified the Plant Superintendent shall assess. As a preference, the Plant Superintendent will implement appropriate controls to ensure the work area is designed as a place of work to eliminate the hazards and/or where this can not be achieved then deem that the work area is to be carried out as 'working in a confined space'.

6.9.2 Where work is carried out in an area deemed to be 'working in a confined space', then the work shall be carried out strictly in accordance with the legislation.

6.9.3 For further guidance refer to – AS 2865 – 2001 – Safe working in a confined space and AS/NZ Handbook – HB 213:2003 – Guidelines for safe working in a confined space.

Note: Appendix 1 – Risk Assessment details a 'Safe Work in Confined Spaces' related risk as having a risk rating of 'high'.

6.10 Work at Heights

6.10.1 Personnel who are required to perform work in an elevated position, and where there is the potential to free-fall and sustain injury, shall ensure systems and controls exist to prevent such falls.

6.10.2 The general requirement is that, when a person is required to work in an elevated position > 2.0m the control hierarchy for fall protection shall be used. However, where the potential to sustain an injury from falling is identified at heights < 2.0m, the same considerations shall be taken and necessary controls implemented to prevent such a fall.

6.10.3 For further guidance refer OHS Regulation – cl. 56 – Prevention of falls from Height – particular control measures and OHS (Safety Standards) Regulations 1994 - Part 13.

6.11 Scaffolding

6.11.1 All scaffolding shall be erected and maintained in accordance with AS 1576, Part 1-4 and the erection carried out by a competent person(s), holding the relevant Certificate of Competency for the task.

6.11.2 All scaffold erected must have a scaffold hand-over certificate supplied by the erector.

6.11.3 Scaffold must comply with the requirements of OHS Regulation – cl. 58 – Scaffold – particular control measures. Further guidance maybe obtained from AS/NZS 4576 – Guidelines for Scaffolds.

6.12 Hot Work

6.12.1 Hot work includes any of the following work activities:

- All forms of welding
- Oxy acetylene cutting
- Grinding or cutting using abrasive tools

6.12.2 Persons undertaking hot work may be required to be accompanied by an assistant whose duties will include that of fire watcher and monitoring of the work area after the work has been completed.

6.12.3 All hot work in areas other than designated workshops / process areas where appropriate fuel reduction and fire fighting equipment is permanently established or where hot work is required to be performed in a confined space may require a Hot Work Permit being issued.

6.12.4 Where 'total fire bans' are in force the Plant Superintendent shall ensure all requirements are met through consultation with the local fire department.

6.13 Use of Plant and Equipment

6.13.1 Plant personnel who are required to operate plant and/or equipment at the plant shall be trained and possess the necessary skills and where applicable licences to ensure the safe and competent operation of the plant.

6.13.2 Where plant or equipment in use requires a certified operator, the operator shall provide a copy of a current certificate of competency at the plant induction.

6.13.3 All relevant certificates of competency shall be copied and a record maintained by the Plant Superintendent.

6.13.4 Plant and equipment shall be inspected as per the manufacturer recommendations.

6.14 Cranes and Elevated Work Platform (EWP)

6.14.1 All persons required to operate any mobile crane or Elevated Work Platforms (EWP) shall be trained and/or certified for the equipment and must hold the appropriate competence certification for the plant item being used in accordance with acceptable industry practice and/or Certificates of Competency.

Note: Appendix 1 – Risk Assessment details a 'Cranes and Elevated Work Platforms' related risk as having a risk rating of 'high'.

6.15 Material Handling

6.15.1 Materials handling for the plant is limited to the transportation, receipt, unloading, storage and placement of permanent and temporary material, equipment and plant.

6.15.2 Employees should be trained in correct manual handling techniques and the process of identify manual handling hazards. Suitable controls should be implemented where deviations are required from "correct manual handling techniques" in accordance with relevant legislation and the National Code of Practice for Manual Handling.

6.16 Electrical Equipment

6.16.1 All electrical equipment must be thoroughly inspected prior to use and where damage is evident the equipment must be tagged 'DO NOT USE' and reported to the Plant Superintendent.

6.16.2 Any tools and equipment that do not have a current inspection tag in place must not be used at the plant.

6.17 Rigging, Lifting and Fall Protection Equipment

6.17.1 All rigging equipment shall be inspected by the rigger and/or dogman prior to use. Any damaged or equipment with out of date test certificates is not to be used until tested and certified.

6.17.2 All slings, chains, shackles, hooks and other lifting equipment shall have the Safe Working Load and/or WLL details clearly marked on the equipment.

6.17.3 All mechanically operated lifting / rigging equipment (chain blocks, turfers etc) may require to be independently inspected and re-certified on a 12 monthly basis.

6.18 Work Above and/or On Water

6.18.1 Prior to commencing any work over water the following control should be applied and implemented to eliminate and/or minimise risk:

- Determine what activities need to be carried out over water,
- Plan the work to minimise the amount of activity required over water which would incorporate access and egress provisions.

6.18.2 Where appropriate implement the following to eliminate and/or minimise the risk;

Safe Work Platform

- Provide a safe working platform, either fixed or floating, with handrails, kickboards and/or mesh guarding to prevent personnel, materials and equipment entering water;
- Provide containment controls to prevent chemicals from entering water.

6.18.3 Provide restraint and/or fall arrest devices

- Provide fall restraint equipment, e.g. Harnesses, may be used to provide support in an unstable position, or to restrain movement to prevent a person encroaching on an unprotected edge.

  Note: Fall restraint devices must not be used to arrest falls.

6.18.4 Minimise injury and damage

- Provide personnel flotation devices (PFD's), of a vest type, to all persons that are not prevented from free fall into water; and
- Provide temporary floating bunds and a spill kit to contain any fuel / chemical spills.

Personnel working over or on water should be in the company of a least one other person.

7.0 Measurement and Evaluation

7.1 Inspection and Testing

7.1.1 Inspection and testing shall be carried out using a number of methodologies and practices to ensure that material, plant, equipment, work method, protective measures and other items as necessary are in place. The inspection and testing regime below are endorsed by the Manager - Treatment Process Control as representing the management of the hazards that are present and support the actual practices of the facility.

7.1.1 Monitoring of Plant and Equipment

7.1.1.1 The Plant Superintendent shall ensure that the plant and equipment are inspected at the frequency specified in the manufacturer's recommendations and/or legislative requirements.

7.1.2 Monitoring of Work Activities

7.1.2.1 The Plant Superintendent shall ensure that regular inspections and audits are undertaken of work activities being carried out. Where appropriate inspections shall be carried out in conjunction with attendants for a particular activity.

7.1.2.2 Monitoring of the activities shall generally be carried out by the following processes:

- Informal, on an 'as seen' basis during normal work activities;
- Structured, through a formal 'inspection' program and prioritised on the level of risk for each process;
- Safe Work Method Statement implementation reviews.

7.1.3 Informal Hazard Inspections

7.1.3.1 CHCC employees and contractors are encouraged at all times to identify and control hazards on a 'see and fix' basis where it is in their ability to do so.

7.1.3.2 Hazards which are identified, but are outside a person's ability to immediately rectify, should be immediately reported to the Plant Superintendent.

7.1.4 Formal Hazard Inspections

7.1.4.1 Formal plant hazard inspections will be completed regularly applicable to the work activities or work process being performed.

7.1.4.2 The frequency of the hazard inspections will be at the Plant Superintendents discretion.

7.1.4.3 The purpose of the hazard inspection is to identify any matters which may have been overlooked through the normal daily OHS&R management process.

7.1.4.4 At the conclusion of the hazard inspection, the Plant Superintendent shall provide a summary of all identified hazards or non-conforming items found during the inspection.

7.1.4.5 The Plant Superintendent shall track the rectification status on the identified hazards to a point of close out.

7.1.4.6 The Plant Superintendent shall maintain records of all completed 'Hazard Inspection Reports'.

7.2 Emergency Preparedness

7.2.1 Emergency Response and Evacuation

7.2.1.1 The Manager – Treatment Process Control in consultation with operational staff and key stakeholders shall develop a Plant specific Operational Emergency Planning Management Plan.

7.2.1.2 Emergency Instructions and Emergency Response Action Plans shall be included as part of the Plant specific Induction and posted prominently in operations offices and amenities.

7.2.1.3 The Plant Superintendent has been nominated as the Emergency Coordinator to ensure planning and preparation in the event of an emergency is performed in accordance with the Plant specific Operational Emergency Planning Management Plan (OEPMP). Unplanned events that may occur at the Plant that are covered in the OEPMP include:

- Medical Emergency
- Gas Leak
- Natural Disaster
- Chemical Spill / Hazardous Substances / Dangerous Goods
- Fire
- Explosion
- Rescue – Confined space / At Height / Over-Under Water / Trapped
- Moving Equipment Accident
- Power Failure (Possibility of Emergency)
- Public Unauthorised Entry
- Threat of any Nature

7.2.1.4 Once operations have commenced a familiarisation inspection by emergency services should be undertaken.

7.2.1.5 The Plant Superintendent shall arrange for an emergency / evacuation exercise to test the effectiveness of responses and the readiness of operational staff and contractors. The Plant Superintendent may invite participation from external parties and providers to the exercise. A debrief shall occur after the exercise to determine and adopt lessons learnt.

Note: Appendix 1 – Risk Assessment details 3 off 'Emergency Reference and Evacuation' related risks as having a risk rating of 'high'.

7.2.2 Crisis Management

7.2.2.1 A crisis is an out of ordinary event, announcement, disclosure or set of circumstances, which threatens the safety or well being of employees or other stakeholders or the integrity, performance, reputation or survival of the organisation.

7.2.2.2 CHCC recognised that certain events as listed below can be detrimental to certain stakeholders and require special attention to avert undue attention to the Plant:

- Events that adversely affect the health and safety of people or the environment;
- Major issues affecting normal operations;
- Security breaches;

- Threats to the reputation, integrity or survival of the operations stakeholders.

It is therefore essential that when developing and training personnel in plant specific emergency response the Emergency Coordinator (Plant Superintendent) is aware of CHCC crisis management protocols.

7.3 Incident Management

7.3.1 Reporting and Investigation Requirements

7.3.1.1 The Plant Superintendent shall ensure all incidents are managed in accordance with:

- Incident Class Definitions
- Incident Notification and Reporting Timeframes

as summarised in the tables below.

Table 7-1: Incident Class Definitions

Impact Area	Class 1A or 1P	Class 2A or 2P	Class 3A or 3P
People	damage which permanently alters the future of the individual (fatality, quadriplegia, amputee, disabled back or psychological disturbance).	an injury or disease resulting in temporary disability or time lost from work of one or more complete days or shifts.	an injury which inconveniences the individual such as minor cuts or sprains, but allows the person to continue to carry out normal duties.
Environment.	Causes (1A) or has the potential (1P) to cause damage to the environment which can be rectified and results in remediation costs of >$50,000.	Causes (2A) or has the potential (2P) to cause damage to the environment which can be rectified and results in remediation costs of >$10,000 <$50,000.	Causes (3A) or has the potential (3P) to cause damage to the environment which can be rectified and results in remediation costs of <$10,000.
Plant / Equipment / Property	damage to plant/equipment and/or property >$50,000	damage to plant/equipment and/or property >$10,000 <$50,000	damage to plant/equipment and/or property <$10,000
Legend: *Causes actual (A) or has the potential (P) to cause:*			

Table 7-2: Incident Notification and Reporting Timeframes

Incident Category	Incident must be Notified to	Notification Time Frame and Report Type	Written Investigation Report Time Frame and Report Type
All Incidents	• Plant Superintendent	Immediately	As per below categories
Class 3A or 3P	• Plant Superintendent	Within 24 hours to Manager – Treatment Process Control.	Within 24 hours (Interim report within 24 hours if not practicable to provide completed final report).
Class 2A or 2P	• Plant Superintendent • Manager – Treatment Process Control	By the end of current shift verbal notification to Manager – Treatment Process Control	Within 24 hours (Interim report within 24 hours if not practicable to provide completed final report).
Class 1A or 1P	• Plant Superintendent • Manager – Treatment Process Control and Executive Manager – Coffs Harbour Water	Immediate notification to Manager – Treatment Process Control and Executive Manager - Water Treatment Plants.	Within 24 hours interim report Within 7 days final report.

Note: Appendix 1 – Risk Assessment details 3 off 'Incident Notification and Reporting Timeframes' related risks as having a risk rating of 'high'.

7.3.2 Reporting Requirements to External Parties

7.3.2.1 The Manager – Treatment Process Control in consultation with senior CHCC representatives where applicable may have legislative requirements to notify of incidents e.g. NSW WorkCover Authority and Environmental Protection Agency. (Department of Environment and Climate Change).

7.3.2.2 Contractors may be required to provide evidence of notification to the NSW WorkCover or Environmental Protection Agency.

7.3.2.3 Where appropriate the Plant Superintendent must ensure that non-disturbance of places and plant involved in certain occurrence until permission is given by the relevant Statutory Authority.

7.4 Injury Management and Rehabilitation

7.4.1 First Aid and Medical Services

7.4.1.1 Injury Management and Rehabilitation Policy Statement (Refer Section 1.2) for the plant shall be prominently displayed on the Site Safety Notice board and explained in the Plant Specific Induction.

7.4.1.2 Adequate First Aid facilities shall be established on site to provide employees with access to immediate first aid treatment when required. The Plant Superintendent shall be provided with appropriate first aid training, and a backup nominated.

7.4.1.3 A suitable independent medical provider shall be nominated by the Plant Superintendent to provide medical treatment for any work injuries requiring treatment beyond first aid. The Plant Superintendent shall brief the medical provider on:

- The plant safety objectives and the absolute commitment to pro-active injury management and rehabilitation principles;
- Work location, the tasks being completed;
- Alternative duties that may be utilised in the event a worker may sustain an injury.

7.4.1.4 CHCC have a Return to Work Coordinator, in the event of an injury the Plant Superintendent transfers injury management at a particular point to the CHCC Return to Work Coordinator.

Note: Appendix 1 – Risk Assessment details 3 off 'First Aid and Medical Services' related risks as having a risk rating of 'high'.

8.0 Control of Issues

8.1 Issue Resolution

8.1.1 The Plant Superintendent shall ensure prompt effective resolution of safety issues by facilitating resolution at the lowest management level possible and promptly implementing agreed actions.

8.2 Non Conformance and Corrective Action

8.2.1 Non-compliance identified as a result of verification, testing or audits may be documented in a Non-Compliance Report.

8.2.2 The Plant Superintendent shall ensure that all agreed corrective actions, are verified as being complete or complied with and closed off.

9.0 Training

9.1 A training program for all attendants shall be implemented to ensure a minimum acceptable level of employee competence and to develop an appropriate level of process knowledge and understanding. The training program will ensure that employees are fully aware of the hazards associated with the processes and are competent in the use of adopted control measures. Training will also cultivate a safety culture and reduce human errors that may lead to major accidents.

9.2 The Plant Superintendent shall ensure that a yearly training review is carried out to identify any training requirements that are required for himself/herself and Plant Attendants, e.g. refresher first aid certificate, manual handling etc.

9.3 The outcome of the Plant Superintendents training review shall be approved for implementation by the Manager –Treatment Process Control.

9.4 Training Records shall be maintained by the Plant Superintendent.

Note: Appendix 1 – Risk Assessment details 3 off 'Training' related risks as having a risk rating of 'high'.

10.0 Document Control

10.1 The Plant Documentation and Control system shall be implemented by the Plant Superintendent including the filing system for the following safety related documents;

- Correspondence and meeting minutes
- Injury and rehabilitation
- Accident / incident investigations
- Inspection and testing
- Audits
- Training
- Records of qualification and competency
- Risks assessments
- Plant hazard assessments
- Non-compliance and corrective action
- Permits and approvals

10.2 The Plant Superintendent shall determine which documents shall be electronically stored and/or hard copy filed.

11.0 Procurement and Hazardous Materials & Substances

11.1 The Plant Superintendent shall ensure that purchasing related hazards are controlled prior to goods and services being delivered to the Plant with particular attention to hazardous materials and substances.

11.2 Written systems should exist for purchasing chemical substances, machinery/equipment, and services.

11.3 The Plants overall procurement system includes:

- Systems to ensure that suppliers provide all relevant safety information about their products including the provision of Material Safety Data Sheets (MSDSs).
- Purchasing documents contain, where applicable:
  - Precise identification of product/services to be delivered.
  - Product acceptance criteria.
  - Specific references to drawings, specifications, standards etc.
- Specific reference to approvals and/or qualifications of product, processes, equipment or personnel, including appropriate verifications where relevant.
- Appropriate methods of receipt, storage, transfer, handling and waste disposal for materials procured (where relevant).
- Records of quantities of chemicals and other hazardous substances are maintained.
- Checking compliance of delivered products and services to procurement specifications.
- Segregation and disposal of nonconforming products.
- Provision of applicable licences, safe storage and handling facilities for all hazardous materials and equipment.
- An inspection system for all materials and equipment stored, to ensure that these are not issued in a deteriorated or unserviceable condition.

Appendix 1 Risk Assessment: Identified / Rating / Controls Review

Project: Coffs Harbour Water Treatment Plant
Issue Date: 4-2-09 **Rev No:** 1

WORKSHOP ATTENDEES (04.02.09)

George Frougas	JH Facilitator
Carlo Modulon	GHD Design Lead
Glenn O'Grady	CHCC Project Manager
Les Potter	CHCC Superintendent
John Saleh	JH Commissioning Engineer
Mark Knight	CNF&A Electrical Engineer
Matt Landers	Abi Project Manager
Nathan Oliver	JH Commissioning Manager
Peter Buckingham	CHCCMechanical / Electrical Coordinator
Phil Woodford	CNF&A Design Manager
Simon Thorn	CHCC Executive Manager Coffs Harbour Water
Tyron Cook	CHCC Manager - Treatment Process Control
Stefan Everingham	Abi Environmental Engineer

Consequence		
		People (effect if risk occurs)
Level	Descriptor	Example of Description
1	Insignificant	No injuries, low financial loss
2	Minor	First Aid treatment, Medium financial loss
3	Moderate	Medical Treatment Required, high financial loss
4	Major	Extensive injuries, loss of production capability, major financial loss
5	Catastrophic	Fatality, huge financial loss

Likelihood (chance of problem occurring)		
Level	Descriptor	Description
A	Almost certain	Event is expected to occur in most circumstances
B	Likely	Event will probably occur in most circumstances
C	Moderate	Event might occur at some time
D	Unlikely	Event could occur at some time
E	Rare	Event may occur only in exceptional circumstances

Risk Rating					
Likelihood	*Consequence*				
	Insignificant 1	Minor 2	Moderate 3	Major 4	Catastrophic 5
A (Almost Certain)	H	H	E	E	E
B (Likely)	M	H	H	E	E
C (Moderate)	L	M	H	E	E
D (Unlikely)	L	L	M	H	E
E (Rare)	L	L	M	H	H
Legend E – Extreme Risk, H - High risk; M - Medium risk; L - Low risk					

Risk Priority
1. Extreme
2. High
3. Medium
4. Low

Risk treatment Options
Avoid the Risk
Transfer the Risk
Accept the Risk
Reduce the Consequence
Reduce the likelihood

No.	*Category*	*Potential Risks*	*Risk Rating*	*Risk Priority*	*Risk Treatment Options*	*Controls/Risk Treatments*	*New Risk Rating*	*Responsibility*	*Date Actioned*
1	**Overall OH&S Risk Management**	• Non compliance with OH&S legislation with standard management systems in place • Incidents/accidents	5E	H	Accept Risk	• Development of safety system and emergency plan prior to the start of operation • Operational Staff aware of responsibilities and proactive in promoting OH&S • Independent auditing of compliance with systems and hazard study			
2	**Overall Environmental Risk Management**	• Non compliance with environmental legislation • Incidents resulting in clean up costs and / or fines	3E	M	Accept Risk	• Full review of all EA and statutory requirements, initiatives and recommendations. These are then to be reflected in the OEPMP • Development and approval of OEPMP before operation • Operational Staff aware of responsibilities and proactive in promoting preventative measures through various training programs			
3	**Community Issues**	Unauthorised access to site	4E	H	Accept Risk	Existing security system including security fencing, gates and security patrols.			
		Residences subject to excessive operational impacts such as odour and noise	2D	L	Accept Risk	Plant to comply with environmental legislation and approval documents.			
4	**Inclement weather**	Excessive wet weather results in poor site conditions Flooding causes damage to structures/machinery	2D	L	Accept Risk	All structures are located above the 1 in 100 year flood level and Probable Maximum Flood Level.			
5	**Equipment / Machinery Standards**	Failure of equipment / machinery resulting in environmental damage.	2D	L	Accept Risk	All equipment assessed to AS4024 compliance with DoP approval, relevant legislation and dangerous goods standards			

6	**Crane Operations**								
6.1		Crane operations hit services	2D	L	Accept Risk	Crane operators to be fully qualified.			
6.2		Crane operations damage underground services	4E	H	Reduce likelihood and consequences	• Existing designated crane areas around the site for use during heavy lifts. • Plan to be prepared that identifies the areas where heavy lift cranes can set up and operate.	2E L	Phil Woodford – Design Manager	
7	**Electrical**								
7.1		Electrical fire due to switchroom equipment failure	2C	M	Reduce likelihood	• Existing fire detection and alarm system. • Regular maintenance including thermographic surveys. • SOP to be prepared identifying the maintenance requirements.	2D L	Executive Manager Operations – Simon Thorn	
7.2		General site fire event	2D	L	Accept risk	• Existing fire detection and alarm system. • Compliance with requirements for workplace fire safety.			
7.3		Bush Fire	3D	M	Accept risk	• Noted site is located outside of the recognised bush fire hazard zones. • Bushfire plan incorporated into emergency plan. • Landscape maintenance on a regular basis			
8	**Operational staff, Contractors**	• Staff inexperienced in plant operation and process • Substandard contractors exposed to high risks	3B	H	Reduce likelihood and consequences	CHCC to instigate permit to work system. Adopt JV system used during commissioning and modify accordingly to CHCC protocols.	2D L	Executive Manager Operations – Simon Thorn	

9	**Emergency Procedures**	• Undue delays in arrival of emergency services • Undue delays in attendance of injured personnel • Undue delays in stopping and cleaning chemical spills and leaks.	3C	H	Reduce likelihood and consequences	Induction of emergency services to site	3D M	Executive Manager Operations – Simon Thorn	
10	**Waste**	• Illegal disposal • Stormwater pollution • Odour • Aesthetics • Poor use of resources	2D	L	Accept Risk	• Compliance with statutory requirements. • Existing waste management strategy. • Requirements included within OEPMP			
11	**DAFF – through to UV channel**								
11.1		Chemical line breakage in dosing pit and discharging to emergency storage lagoon.	2D	L	Accept Risk	• Covered by SOP, inspection of lagoon by operator. • Noted that volumes of chemicals would be small.			
11.2		Entry into pits and chambers – confined space, access	5E	H	Reduce likelihood and consequences	Permit to work to complement existing confined space procedures.	2E L	Executive Manager Operations – Simon Thorn	
11.3		Trips and falls – falling into water	5E	H	Reduce likelihood and consequences	• Permit to work and SOP for working over water. • Existing system to prevent unauthorised access via use of security gates and fences.	2E L	Executive Manager Operations – Simon Thorn	
11.4		Overflow - inlet water, filtered water channel, washwater.	2E	L	Accept risk	• Existing system where overflows are directed to the emergency storage lagoon. Lagoon has been designed to contain these events. • Existing alarms installed that notify operators of overflows.			

11.5		Insufficient maintenance leading to machinery malfunction – noise emission	2D	L	Accept risk	Ensure maintenance undertaken to manufacturer's recommendations and breakdown maintenance adhered to immediately.			
11.6		Lighting upsetting environmental amenity	1C	L	Accept Risk	• Lights will not to be operating when works not being undertaken (assessed as being for the norm for the majority of circumstances). • If night operation or emergency works are required the operator's safety is paramount and lights will be turned on as required.			
11.7		Inundation of floor areas (filter gallery and UV area) with water. Excess water in excess of floor drainage capacity flows through stormwater system into environment. Floor drainage flows to washwater tank.	1D	L	Accept Risk	Filtered water to flow through established drainage system, consequence insignificant.			
11.8		Fluoride and sodium hydroxide dosing within dosing chamber at end of UV channel. Pipe breakage outside of channel substances spilling onto the ground outside of the building.	2D	L	Reduce likelihood and consequences	Pipe attached to wall to be double contained. Vermin mesh required.	1E L	Phil Woodford – Design Manager	
11.9		Breakage of chemical lines from chemical storage to dosing points.	2C	M	Reduce likelihood and consequences	• Regular pit inspections along the dosing lines. • Lines are double contained. • Maintenance of dosing lines to include hose replacement as required following regular inspections. • Labelling of dosing lines within pits.	2D L	John Saleh – Commissioning Engineer	

12	**Dry Chemical Storage, switchroom and blower room.**								
12.1		Spillage of bags during unloading.	2C	M	Reduce likelihood and consequences	SOP to be prepared to manage dry chemical spills.	1D L	John Saleh – Commissioning Engineer	
12.2		Process of unloading. To use mechanical methods – walker stacker. Dropping pallets, plant / worker interaction.	2D	L	Accept Risk	SOP and manufactures training			
12.3		Air quality. Dust from spillage and loading activities. Dust inhalation.	2D	L	Accept Risk	SOP prepared. All operators trained in MSDS.		John Saleh – Commissioning Engineer	
12.4		Release to atmosphere of lime dust.	1C	L	Accept Risk	Dust reducer / extractor used during operation.			
12.5		Release of CO2 to atmosphere.	1D	L	Accept risk	CO2 vessel not enclosed within a building and access restricted (fenced).			
12.6		Noise emissions from compressor and blower.	2D	L	Accept risk	• Noise attenuation designed within the plant. • Compliance with statutory requirements and approval documents.			
13	**Liquid chemical storage area**								
13.1		Release of vapours to atmosphere	1D	L	Accept risk	Fluorosilic acid vented through water bath.			
13.2		Leakage of chemicals inside bunded storage area	2D	L	Accept risk	Bunded areas to Australian Standards to contain all spills and leaks.			
13.3		Spillage of chemicals during filling of chemical storage tanks	2D	L	Accept risk	• SOP prepared • Existing tanker unloading area designed to contain spill		John Saleh – Commissioning Engineer	

13.4		Chemicals unloaded into the wrong tank	2D	L	Reduce likelihood	• SOP prepared. • Permit to work for operator to escort deliveries during unloading.	2E L	Executive Manager Operations – Simon Thorn	
13.5		Operator contact with chemicals.	2D	L	Reduce likelihood and consequences	• SOP prepared. • Awareness of MSDS. • CHCC to purchase required PPE.	1D L	Executive Manager Operations – Simon Thorn	
13.6		Discharging of fluoride water vent bath.	1C	L	Accept risks	SOP to be prepared and detail the safe disposal of water.		John Saleh – Commissioning Engineer	
13.7		Breakage of chemical hose on cable tray	2E	L	Reduce likelihood	Ensure chemical dosing lines are double contained when outside of bunded areas and out of ground. Regular checks of hoses.	2E L	Phil Woodford – Design Manager	
13.8		Noise from high level sirens / lights following malfunction.	1D	L	Accept risk	Infrequent but necessary component of operation.			
14	**Chlorine Storage and Dosing**								
14.1		Chlorine gas leak in chlorine building	5E	H	Reduce consequences	• Existing standby chlorguard system • Existing standby sensor system • Existing chlorguard system activating ventilation system • SOP for entry to chlorine building including PPE • Permit to work for any works on chlorine system • Restricted access into the chlorine building • Emergency procedures • Ensure personnel working on chlorine system to have supplier training	3E M	Executive Manager Operations – Simon Thorn John Saleh – Commissioning Engineer Phil Woodford – Design Manager	
14.2		Chlorine gas leak outside of the chlorine building.	5E	H	Reduce consequences	• Chlorine awareness to be included in visitor inductions • Emergency plan including site evacuation	3E M	Executive Manager Operations – Simon Thorn	

14.3		Unloading drums from truck. Drum falling off truck during unloading procedure.	2E	L	Accept risk	• Drum designed for heavy impact to prevent damage. • Review drivers SWMS prior to unloading.			
15	**Backwash and Residual Thickening and Handling System**								
15.1		Trips and falls – falling into water	5E	H	Reduce likelihood and consequences	• Permit to work and SOP for working over water • Existing system to prevent unauthorised access via use of security gates and fences.	2E L	Executive Manager Operations – Simon Thorn	
15.2		Overflow to environment.	2D	L	Accept risk	Existing system to direct overflow to emergency storage lagoon and washwater tank.			
15.3		Spillage of bags during unloading.	2C	M	Reduce likelihood and consequences	SOP to be prepared to manage dry chemical spills.	1D L	John Saleh – Commissioning Engineer	
15.4		Process of unloading. To use mechanical methods – walker stacker. Dropping pallets, plant / worker interaction.	2D	L	Accept Risk	SOP and manufacturers training			
15.5		Air quality. Dust from spillage and loading activities. Dust inhalation.	2D	L	Accept Risk	• SOP prepared. • All operators trained in MSDS.		John Saleh – Commissioning Engineer	
15.6		Sludge spillage to environment	2D	L	Accept Risk	Existing drainage system to direct water to washwater tank			
15.7		Overflow / spill of residue from skip bins	2C	M	Reduce consequences	• SOP to be prepared. • Existing covers over bins when transporting.	1C L	John Saleh – Commissioning Engineer	
15.8		Odour emissions.	1D	L	Accept risk	Regular off site disposal of sludge.			
15.9		Noise from centrifuges	1D	L	Accept risk	Plant to comply with noise criteria and approval conditions.			

15.10		Excessive noise from backwash water discharging to washwater tank	2D	L	Accept risk	Plant to comply with noise criteria and approval conditions			
16	**Treated Water Storage and Pump Station**								
16.1		Trips and falls – falling into water	5E	H	Reduce likelihood and consequences	• Permit to work and SOP for working over water • Existing system to prevent unauthorised access via use of security gates and fences.	2E L	Executive Manager Operations – Simon Thorn	
16.2		Discharge from fluoride analyser pit	2D	L	Accept risk	Existing system for high level alarm and emergency discharge into washwater tank			
16.3		Water spill flooding TWPS	1D	L	Accept risk	Existing system to direct water back to washwater tank			
16.4		Water flooding switchroom sub floor	2D	L	Accept risk	Existing measures to ensure water levels do not exceed the level of the switchroom sub floor.			
16.5		Diesel spill from generator	2D	L	Accept risk	Existing bunded area			
16.6		Noise from TWPS	2D	L	Accept risk	• Comply to noise criteria and approval conditions. • Existing building properties to provide adequate noise attenuation • Normal maintenance as per manufacturer's recommendations.			
17	**Emergency Storage Lagoon**								
17.1		Overflow of lagoon to the environment	2D	L	Accept risk	Existing measures to pump water back to washwater tank.			
17.2		Trips and falls – falling into water	1D	L	Accept risk	• Permit to work and SOP for working over water • Existing site security system to prevent unauthorised access.		Executive Manager Operations – Simon Thorn	

Appendix 2 Definitions, References and Abbreviations

A2-1 Definitions

There are various definitions of what constitutes a safety management system (SMS). Consistent with the definition of the SMS in the National Standard for the Control of Major Hazard Facilities, for the purpose of this Operational Safety Management Plan the definition of a SMS is a comprehensive and integrated system for managing safety at a potentially hazardous facility which sets out:

- The safety objectives
- The systems and procedures by which these are to be achieved
- The performance standards which are to be met
- The means by which adherence to these standards is to be maintained
- The key accountabilities and responsibilities
- The training assessment system
- The records management system
- Classification of hazards
- Scope with respect to nature scale and risk of activities
- Associated monitoring requirements
- Hazardous Areas
- What constitutes an emergency for the purpose of invoking the plan
- Auditing requirements and how non-conformities are managed to close out.
- Definition and classification of emergencies

Stakeholder	*a. Persons who reside in; and* *b. persons who are owners or managers of land in; and* *c. persons in management and control of workplaces, or of places where persons gather for recreational, cultural or sporting purposes in;* *the area within which a major accident may cause harm.* *In determining the extent of this area, the operator of a major hazard facility must consider the area defined by the emergency plan for the facility and the area included in the emergency services evacuation plan, and choose whichever is greater.*

Emergency Services	*Any combat agency identified in the NSW State Disaster Plan and includes but is not limited to the:* *a. Ambulance Service of New South Wales,* *b. New South Wales Fire Brigades,* *c. NSW Rural Fire Service,* *d. Police Service,* *e. Roads and Traffic Authority,* *f. State Emergency Service,* *g. Environment Protection Authority,* *h. New South Wales Volunteer Rescue Association Incorporated.*
Environment	*Components of the earth, including:* *a. land, air and water, and* *b. any layer of the atmosphere, and* *c. any organic or inorganic matter and any living organism, and* *d. human-made or modified structures and areas,* *and includes interacting natural ecosystems that include components referred to in paragraphs (a)–(c).*
Facility	*The whole area under the control of the Plant Superintendent upon or within which a potentially hazardous activity could take place.*
Hazard	*An intrinsic property of a material or a physical situation with the potential to cause harm to people or the environment.*
Incident	*All undesired events, including major accidents and near misses.*
Major Accident	*An occurrence (including a major emission, loss of containment, fire, explosion or release of energy or projectiles) resulting from uncontrolled developments in the course of the operation of a facility and leading to serious danger or harm, whether immediate or delayed, to people or the environment.*
Modification	*Modification to a facility, means any:* *a. change to plant, processes, materials, operating conditions, operating procedures or quantities of materials;* *b. introduction of new plant, processes, materials, operating conditions, operating procedures or quantities of materials; or* *c. change to the safety management system, in particular, organisational change;* *that may alter the likelihood, extent or severity of a potential accident at the facility.*
Near Miss	*Any occurrence which, but for mitigation effects, actions or systems, could have escalated to a major accident.*

Operator	*An employer, occupier or person who has at some point management or control of a part of the facility.*
Risk	*The likelihood of an undesired event with specified consequences occurring within a specified period or in specified circumstances.*

A2-2 References

OH&S Management Systems:

AS 4801 OH&S management systems – Specification with guidance for use

US Standard 29 CFR 1910 - OS&H standards

Hazardous Industry Planning Advisory Papers (HIPAPs):

No. 1 Industry Emergency Planning Guidelines

No. 2 Fire Safety Study Guidelines

No. 3 Environmental Risk Assessment Guidelines

No. 4 Risk Criteria for Land Use Planning

No. 5 Hazard Audit Guidelines

No. 6 Guidelines for Hazard Analysis

No. 7 Construction Safety Studies

No. 8 HAZOP Guidelines

No. 9 Safety Management System Guidelines

No. 10 Land Use Safety Planning (Consultation Draft)

Other Publications:

Applying SEP 33: Hazardous and Offensive Development Application Guidelines

Multi-level Risk Assessment

Locational Guideline: Development in the Vicinity of Operating Coal Seam Methane Wells

Liquefied Petroleum Gas Automotive Retail Outlets

Other reference documents:

John Holland Group Various Design & Construction Safety system related documents.

A2-3 Abbreviations

CFR	Code of Federal Regulations
CHCC	Coffs Harbour City Council
EWP	Elevated Work Platform
HIPAP's	Hazardous Industry Planning Advisory Papers
ITP	Inspection and Test Plan
NCR	Non Conformance Report
NSW	New South Wales
OEPMP	Operations Emergency Planning Management Plan
OH&S	Occupational Health & Safety
OHS&R	Occupational Health Safety & Rehabilitation
OSMP	Operations Safety Management Plan
PFD	Personal Flotation Device
SMS	Safety Management System
SOP	Standard Operational Procedures
SWMS	Safe Work Method Statement

Appendix 3 Critical Positions – Responsibilities Matrix

The following matrix summarises the main activities which must be undertaken, the positions that have primary responsibility to undertake the activities and the positions that are required to provide support or assistance. (P = Primary Responsibility and S = Support or Assistance)

Activity Description.	Executive Manager – Coffs Harbour Water	Manager – Treatment Process Control	Plant Superintendent	Attendants / Contractors	Applicable System
Plan and initiate OH&S System audits.		S	P	S	5.9
Ensure that the systems are in place, cover all applicable works and include the processes required to implement the management strategies.	P	S	S	S	3.2.4
Manager – Treatment Process Control updates the systems as required and provides the Executive Manager Coffs Harbour Water with feedback on the implementation of the management strategies and provides recommendations on resource requirements.	S	P	S		3.2.5
Records of management are documented as minutes and maintained by the Manager - Treatment Process Control		P	S		5.11.1
The Manager –Treatment Process Control in consultation with operational staff and key stakeholders shall develop a Plant specific Operational Emergency Planning Management Plan		P	S		7.2.1.1

Activity Description.	Executive Manager – Coffs Harbour Water	Manager –Treatment Process Control	Plant Superintendent	Attendants / Contractors	Applicable System
The Manager – Treatment Process Control in consultation with senior CHCC representatives where applicable may have legislative requirements to notify of incidents e.g. NSW WorkCover Authority and Environmental Protection Agency. (Department of Environment and Climate Change).	S	P	S		7.3.2.1
At the commencement of each contract, the Plant Superintendent ensures the following is performed: • details of the contractor's organisation are available; • contract personnel attend the plant specific induction; where applicable the name and position of the contractor's OHS&R representative is provided.		S	P		4.3.4
During the performance of the contract the Plant Superintendent as required ensures that: • contractor personnel are included in interface meetings such as toolbox and meetings; • contractor's OHS&R practices are monitored and audited; • accidents and incidents involving contractors are recorded and reported appropriately; • the performance of the contractor is evaluated for future contracts.		S	P		4.3.5
The outcome of the Plant Superintendents training review shall be approved for implementation by the Manager –Treatment Process Control.		S	P		9.3

Activity Description.	Executive Manager – Coffs Harbour Water	Manager –Treatment Process Control	Plant Superintendent	Attendants / Contractors	Applicable System
Copies of all certificates of competency, licences and other qualifications as deemed necessary by the Plant Superintendent shall be copied and attached to the induction.		S	P		5.2.5
The Plant Superintendent will carry out work team briefings as deemed necessary at the commencement of the shift to ensure safety issues specific to the work being performed are addressed.		S	P		5.3.1
Records of meetings will be maintained on the plant files by the Plant Superintendent.		S	P		5.6.1
The Plant Superintendent shall prepare a basic audit plan showing the audit frequency and the areas or sections (or contractors) to be audited.		S	P		5.9.1
The Plant Superintendent shall carry out self audits/reviews/site inspections of the project on a regular basis		S	P		5.9.3
The Plant Superintendent shall collate monitoring and surveillance data, stakeholder feedback and improvement data		S	P		5.11.1
The Plant Superintendent on an ongoing basis identifies work methods, processes, or critical tasks that have significant potential safety and environmental risks and develops Safe Work Method Statements to prevent associated incidents.		S	P		6.1.3
The Plant Superintendent will ensure that employees are supplied with the necessary Personal Protective Equipment required to perform their duties and meet legislative requirements.		S	P	S	6.2

Activity Description.	Executive Manager – Coffs Harbour Water	Manager –Treatment Process Control	Plant Superintendent	Attendants / Contractors	Applicable System
The Plant Superintendent shall ensure that systems are in place to monitor and control security and legitimate access to the site, as well as to prevent all forms of non-legitimate access to the site.		S	P	S	6.3.1
A process for management of delivery and transport vehicles shall be established by the Plant Superintendent prior to operations commencement.		S	P	S	6.5.1
Where a potential confined space is identified the Plant Superintendent shall assess		S	P	S	6.9.1
As a preference, the Plant Superintendent will implement appropriate controls to ensure the work area is designed as a place of work to eliminate the hazards and/or where this can not be achieved then deem that the work area is to be carried out as 'working in a confined space'.		S	P	S	6.9.1
Where 'total fire bans' are in force the Plant Superintendent shall ensure all requirements are met through consultation with the local fire department.		S	P	S	6.12.4
The Plant Superintendent shall ensure that the plant and equipment are inspected at the frequency specified in the manufacturer's recommendations and/or legislative requirements		S	P	S	7.1.1.1
The Plant Superintendent shall ensure that regular inspections and audits are undertaken of work activities being carried out.		S	P	S	7.1.2.1
At the conclusion of the hazard inspection, the Plant Superintendent shall provide a summary of all identified hazards or non-conforming items found during the inspection.			P	S	7.1.4.4
The Plant Superintendent shall track the rectification status on the identified hazards to a point of close out.		S	P	S	7.1.4.5

Activity Description.	Executive Manager – Coffs Harbour Water	Manager –Treatment Process Control	Plant Superintendent	Attendants / Contractors	Applicable System
The Plant Superintendent shall maintain records of all completed 'Hazard Inspection Reports'.			P		7.1.4.6
The Plant Superintendent shall arrange for an emergency / evacuation exercise to test the effectiveness of responses and the readiness of operational staff and contractors	S	S	P	S	7.2.1.5
The Plant Superintendent shall ensure all incidents are managed in accordance with: • Incident Class Definitions; • Incident Notification and Reporting Timeframes	S	S	P		7.3.1.1

Activity Description.	Executive Manager – Coffs Harbour Water	Manager –Treatment Process Control	Plant Superintendent	Attendants / Contractors	Applicable System
The Plant Superintendent shall brief the medical provider on: • The plant safety objectives and the absolute commitment to pro-active injury management and rehabilitation principles; • Work location, the tasks being completed; • Alternative duties that may be utilised in the event a worker may sustain an injury.			P		7.4.3
The Plant Superintendent shall ensure prompt effective resolution of safety issues by facilitating resolution at the lowest management level possible and promptly implementing agreed actions	S	S	P	S	8.1.1
The Plant Superintendent shall ensure that all agreed corrective actions, are verified as being complete or complied with and closed off.		S	P	S	8.2.2
The Plant Superintendent shall ensure that a yearly training review is carried out to identify any training requirements that are required for himself/herself and Plant Attendants, e.g. refresher first aid certificate, manual handling etc.	S	S	P	S	9.2
The Plant Documentation and Control system shall be implemented by the Plant Superintendent including the filing system for the safety related documents as discussed in Section 10.1.		S	P	S	10.1