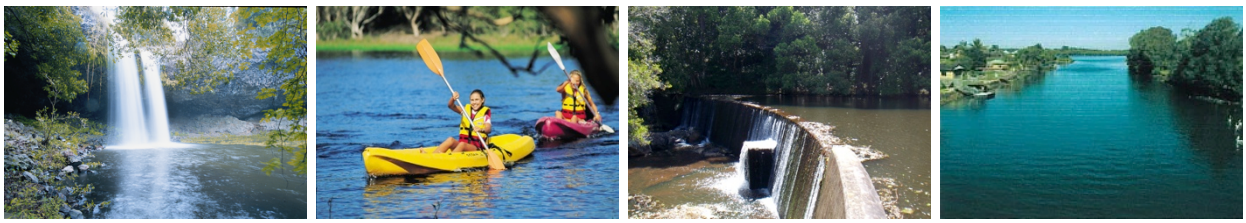

Ballina Shire Council

Drinking Water Management System – CCP Procedures

Drinking Water Quality Management System

CCP Procedures

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Citation: Ballina Shire Council 2012, Drinking Water Quality Management System - CCP Procedures, prepared for Ballina Shire Council by Viridis Consultants Pty Ltd.

Contents

Document history and status

Revision	Date issued	Approved by	Date approved	Revision type
0.1	11/10/2012	K. Pither	11/10/20012	Draft to Ballina Shire Council
0.2	4/12/2012	A. Swan	4/12/2012	Ballina Shire Comments
1.0	11/12/2012	J. Howey	11/12/2012	Final

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Name of client:	Ballina Shire Council
Name of project:	Drinking Water Quality Management System
Name of document:	CCP Procedures
Document number	R90
Document version:	1.0
Project number	12NS07

1 Introduction

Critical control points (CCPs) are a point, step or procedure at which control can be applied and which is essential to prevent or eliminate a hazard or reduce it to an acceptable level.

Appropriate selection of critical control points is an important consideration, as increased focus in process control (monitoring and documentation) for a water supply system will be directed toward these activities and processes. The identity and number of critical control points is system specific and will be determined by the range and magnitude of potential hazards and associated risks. Identification of critical control points may be aided by the use of a decision tree in the Drinking Water Quality Management System (DWMS).

CCPs have several operational requirements, including establishing an appropriate monitoring regime specifying specific parameters and critical limits to ensure the process or activity operates effectively. Failure to meet a critical limit represents loss of control of the process and an unacceptable health risk, either directly, through the supply of unsafe water, or indirectly, where multiple critical control points exist, by exceeding the capacity of subsequent processes. Corrective actions must also be available to re-establish process control when criteria have not been met. If there is a deviation from a critical limit corrective actions also must be available to reduce the health risk from hazards present in the system (ADWG).

This document includes a procedure for the identification of CCPs, a register of CCPs and procedures of how to manage those CCPs.

2 Responsibilities

It is the responsibility of Operations Engineer to ensure that this document is up-to-date.

It is the responsibility of the Operations Engineer to ensure that CCPs are identified in accordance with this procedure.

It is the responsibility of Team Leader Water and Wastewater to ensure that the identified CCPs are appropriately implemented and managed.

3 Control Points

CCPs were identified in accordance with the DWMS. Four CCPs were identified in the Ballina Shire Council drinking water scheme for Marom Creek WTP:

CCP1 – selective abstraction - turbidity
CCP2 - coagulation – pH
CCP3 – filtration - turbidity
CCP4 - chlorination - free chlorine residual

4 CCP Procedures

The following tables identify the monitoring and corrective actions that are required at each CCP. CCP exceedences are to be reported using the *CCP Exceedence Form*. Two consecutive samples refer to immediate resample on the same day. The immediate resample triggers the CCP critical correctional measures.

CCP 1	**Monitoring**
Step: Selective abstraction **Hazard/s controlled:** Protozoa, bacteria, turbidity **Preventive measures:** Coagulation/flocculation, filtration, suspend water treatment; WTP Operator	**What:** Turbidity **Purpose:** To ensure that the water is suitable for disinfection **Where:** Raw water **How:** Grab **When:** Daily **Who:** Operator
Alert Limits	**Alert Correctional Measures**
Alert: >5 NTU	**What:** Visual Check of Creek and Flocculation Pond. Check forecast weather conditions and determine if pre-emptive shutdown is prudent **Who:** Operator
	Reporting: Operator to record details on daily log sheet
Critical Limits	**Critical Correctional Measures**
Critical: > 10 NTU	**What:** Suspend water transfer immediately. Visual Check of Creek and Flocculation Pond. If Flocculation Pond is dirty: immediately take a turbidity grab sample of floc pond outlet to verify the result. Do not process water from Flocculation Pond until it is clear (<10 NTU) If Flocculation Pond is clear: immediately take a turbidity grab sample of Raw Water Inlet to verify the result. Do not process water from Creek until it is clear (<10 NTU) **Who:** Operator
	Reporting: Sample results and action taken - Operator to the Team Leader Water and Wastewater Exceedence of CCP Critical Limit – Team Leader Water and Wastewater to report to the Operations Engineer. Operations Engineer to elevate to Manager/ Director when appropriate.

CCP 2	**Monitoring**
Step: Coagulation **Hazard/s controlled:** Protozoa, bacteria, turbidity **Preventive measures:** Filtration, suspend water treatment; WTP Operator	**What:** pH **Purpose:** To ensure that the water is suitable for disinfection **Where:** Flocculation pond, dose water **How:** Grab **When:** Daily **Who:** Operator
Alert Limits	**Alert Correctional Measures**
Alert: <6.6 and >6.8	**What:** Immediately resample floc pond dose water. Undertake an investigation to find the cause for increased turbidity. Undertake appropriate action to achieve pH to 6.6-6.8 **Who:** Operator
	Reporting: Sample results and action taken - Operator to record details on daily log sheet
Critical Limits	**Critical Correctional Measures**
Critical: <6 and >7.5	**What:** Suspend water transfer immediately. Then resample floc pond dose water. Determine the cause of non complaint pH, take appropriate action and recommence pumping with the approval of the Operations Engineer. **Who:** Operator
	Reporting: Sample results and action taken - Operator to the Team Leader Water and Wastewater Exceedence of CCP Critical Limit – Lead Operator to report to the Operations Engineer. Officer to elevate to Manager/ Director when appropriate.

CCP 3	**Monitoring**
Step: Filtration **Hazard/s controlled:** Protozoa, bacteria, turbidity **Preventive measures:** Backwash, suspend water treatment; WTP Operator	**What:** Turbidity **Purpose:** To ensure that the water is suitable for disinfection **Where:** Clear Water Tank **How:** Grab **When:** Daily **Who:** Operator
Alert Limits	**Alert Correctional Measures**
Alert: > 0.5 NTU	**What:** Immediately resample floc pond dose water. Undertake an investigation to find the cause for increased turbidity. Undertake appropriate action to reduce turbidity to <0.5 NTU **Who:** Operator
	Reporting: Sample results and action taken - Operator to record details on daily log sheet
Critical Limits	**Critical Correctional Measures**
Critical: > 1 NTU	**What:** Suspend water transfer immediately. Immediately take a turbidity grab sample to verify the result. Check other recent turbidity results Determine the cause of the elevated turbidity, take appropriate action and recommence pumping with the approval of the Operations Engineer. **Who:** Operator
	Reporting: Sample results and action taken - Operator to the Team Leader Water and Wastewater Exceedence of CCP Critical Limit – Team Leader Water and Wastewater to report to the Operations Engineer. Operations Engineer to elevate to Manager/ Director when appropriate.

CCP 4	**Monitoring**
Step: Disinfection **Hazard/s controlled:** Bacteria, viruses **Preventive measures:** Contact time,	**What:** Free chlorine **Purpose:** To ensure there is sufficient chlorine for disinfection **Where:** Clear Water Tank **How:** Grab **When:** Daily **Who:** Operator
Alert Limits	**Alert Correctional Measures**
Alert: **<1.2 mg/L** **>1.4 mg/L**	**What:** Immediately take a chlorine grab sample to verify the result. If possible boost chlorine levels to 1.2 – 1.4 mg/L. **Who:** Operator
	Reporting: Sample results and action taken - Officer
Critical Limits	**Critical Correctional Measures**
Critical; Low: 0.5 mg/L High: 5.0 mg/L	**What:** Immediately take a chlorine grab sample to verify the result. Suspend water transfer if the resample is < 0.5 or >5.0 mg/L. Rectify issue and adjust chlorine to at least > 1.2 -1.4 mg/L. Recommence pumping with the approval of the Operations Engineer. **Who:** Operator
	Reporting: Sample results and action taken - Operator to the Team Leader Water and Wastewater Exceedence of CCP Critical Limit – Team Leader Water and Wastewater to report to the Operations Engineer. Operations Engineer to elevate to Manager/ Director when appropriate.