Appendix 15

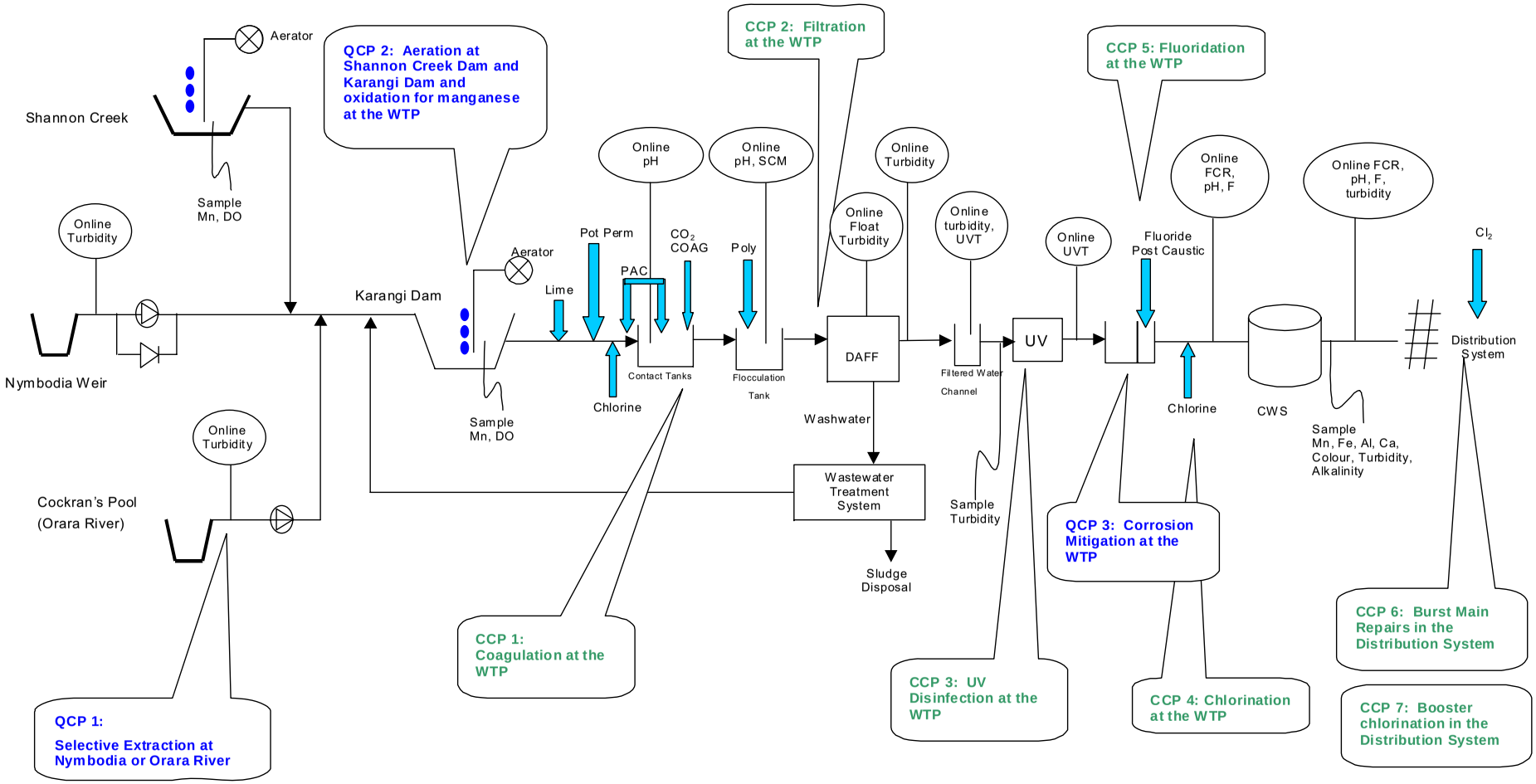
Control Plan

CONTROL PLAN FOR COFFS HARBOUR WATER TREATMENT PLANT — DRAFT

CCP No. 2	FILTRATION CONTROL – COFFS HARBOUR WATER TREATMENT PLANT	
PROCESS INPUTS	Floated Water at each filter that is below turbidity (floated water) design limits and coagulant dose conditions for raw water quality. Monitoring of plant inflow rate, floated water turbidity/sample point location.	
HAZARDS (Biological, Physical, Chemical or Radiological)	High filtered water turbidity periods or 'blips' permitting possible passage of virus/bacteria (shielded from disinfection in floc particles) and protozoans (Giardia/cryptosporidium)	
CONTROL MEASURES (What can be used to adjust performance of activity/step to continue to achieve quality limits)	• Flow rate to each filter controlled so that filter speed is less than design upper limit • Number of filters on line matches with WTP flow rate conditions • Minimising stop/start operation • Rate of change of flow rate controlled to less than design limit • Automatic backwash on exceeding set point for filter run time or head loss or filtered water turbidity limits • Plant shut down on continued high filtered water turbidity and alarm to SCADA	
KEY CONTROL MEASURE(S)	• Backwash and DAF settings correct	
CRITICAL LIMIT(S)/ALERT LIMIT(S) (Acceptance quality limits) (If alert limit exceeded record in WTP Diary or equivalent. If Critical Limit exceeded implement Corrective Action)	**Normal WTP Operation**	**Maturation Spike (TBC, duration and limits)**
Alert Limit	**> 0.15 NTU for > 15 min at each filter outlet Float water turbidity >3 for 30 mins (TBC)**	**> 0.5 NTU for > 5 min at each filter outlet**
Critical Limit	**> 0.3 NTU for > 15 mins at each filter outlet**	**> 1.0 NTU for > 5 mins at each filter outlet**
Tolerance	**± 0.05**	**± 0.05**

MONITORING PROCEDURES (Activities which show that the process is within acceptable quality limits)	What	Turbidity at each filter outlet
	How	Continuous turbidity analyser and grab samples analysed at WTP laboratory
	When	Continuous trend (SERCK SCX6) and grab samples at least weekly
	Where	Trend monitored at SERCK SCX6 screen on PC at WTP and at sample point next to each continuous analyser monitoring each filter outlet (record sample results in WTP diary)
	Who	Water Treatment Plant Duty Operator
CORRECTIVE ACTION (Contingency Plan) (Adjustments needed to restore the process to within quality limits after Critical Limit is exceeded)	What	SHUT DOWN FILTER (AUTOMATIC OR MANUAL), AND REPORT TO SENIOR STAFF/SUPERVISOR, THEN REFER TO CHECKLIST: • Plant shutdown • Manual initiated backwash • Adjust backwash water and air scour duration and backwash water flow rate set points • Adjust DAF recycle rate • Decrease plant flow rate • Increase number of filters online • Check coagulant and pre-lime dose (refer to work instruction) • Take filter offline for inspection/repair • Review scheduled maintenance plan and procedures (filter system) • Implement analyser calibration procedure (refer to SOP No XX) • Implement unscheduled maintenance response • Adjust float removal duration and interval time • Declare incident (refer to Incident Response Plan) • **Refer to Incident Response Plan for filtered water turbidity failure at WTP**
	Who	Water Treatment Plant Duty Operator (Corrective Action Response), Mechanical / Electrical Coordinator (maintenance review), Incident Operations Debrief Team (Incident Records)
	Records	Corrective Actions recorded in Water Treatment Plant Diary, Incident recorded in Dataworks (WTP Incidents), SERCK SCX6 alarm log, Planned/unplanned maintenance reports on AMS database

VERIFICATION RECORDS (Application of methods, procedures, tests and other evaluations in addition to monitoring to determine compliance with the HACCP plan, e.g. checks that all elements of the HACCP plan are being implemented *Are we doing what we said we would do?*	What	AUDIT: • Planned maintenance reconciles with delivered maintenance • Records of corrective action reconcile with high turbidity results from stored continuous and daily log sheet records and comments in WTP Diary on days when high values of turbidity occurred • Calibration records for turbidimeters • Incident records • History of unplanned maintenance reconciles with requests • Progress on Improvement Plan
	Where	WTP Diary, SERCK SCX6 (alarms and trends), AMS database (planned/scheduled and unplanned maintenance), Water Quality database, Dataworks, Improvement Plan Report
	When	Annually and when suspect a problem
	Who	Water Engineer (all records relating to this Control Plan), Mechanical / Electrical Coordinator (maintenance history)
VALIDATION RECORDS (Evidence that the elements of the HACCP plan are effective, e.g. delivery of acceptable quality at customer taps) *Are we doing the right things?*	What	• Turbidity, coliforms and THMs at customer taps remains compliant. Turbidity and coliforms in downstream storage facilities (Woodglen, Wy Yung 1 & 2, Sarsfield Basins prior to disinfection) are below scientifically justified target values for effective chlorination (turbidity <5 NTU and aiming for <3 NTU). • Correlation of raw water turbidity at pump station versus coliforms demonstrates high risk to health or aesthetic quality above critical limit. • Dry run" test of response times and actions to assess whether abstraction of theoretical pollution events in the catchment would have been avoided.
	How	REVIEW: • Routine treated water and customer tap water quality results for turbidity • Filtered water sample results for aluminium • Water quality complaints recorded on complaints system in Dataworks • Scientific literature on filtration and alert/critical limits
	When	Monthly at WTP (based on weekly aluminium results), Monthly (water quality at distribution sampling points and complaints), every 3 years (scientific literature)
	Who	Water Engineer / Process Engineer



Coffs Harbour WTP – Proposed Critical Control Points
(taken from draft HACCP plan)