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1	30-April-2010	Original
2	12-August -2010	Formatting in document was completely Lost
3	13-August-2010	Changes made to reflect Wetalla AWTP Calibration Schedule
4	25-August-2010	Changes made after Clifton and Nobby Site Visits
5	2-September-2010	Changes made after Greenmount Site Visits
6	17-November-2010	Changes made after Wetalla Operator Review Meeting
7	17-November-2010	Changes made to reflect changes to Wetalla AWTP Chlorine meter
8	7-September-2011	Add remaining regional service centre locations
9	13-September-2011	Name Changes made after internal Departmental Restructure
10	5-December-2011	Changes made after review of WIS Calibration/Verification Procedure
11	22-December-2011	Changes made after operator review
12	20-March-2012	Changes made after operator review
13	2-April-2012	Convert document across to Microsoft Office 2010
14	21-January-2013	Changes made as part of Regional DWQMP Implementation
15	15-February-2013	Changes made after review from all water operations locations
16	28-March-2014	Changes made after Branch Common Review Meeting
17	21 July 2014	Changes made to Water Operations Northern Section after review of Water Treatment Plants.
18		Changes made to manual after DWQMP Implementation audits

Note:

At present not all service centre dosing pumps or operator instruments are listed in this manual. Water Operations Branch Support Staff are currently sourcing all data for these items and will be updating this manual as information comes to hand.

This manual is under continuous review. This is to allow additional information to be added to the manual as plant/s and associated equipment are added to the HACCP Program. This will mean that parts of the manual are complete, whilst other sections maybe under development.

All inquiries regarding this manual are to be directed to the Manager Water Operations who is responsible for its administration.

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1 WATER QUALITY MONITORING OBJECTIVES

Water quality monitoring of water/wastewater treatment processes is necessary:

- To demonstrate that environmental releases comply with EPA license requirements.
- To demonstrate that Final product complies with Queensland Health and Australian Drinking Water Guidelines requirements.
- To demonstrate that Final product complies with OWSR requirements.
- To demonstrate that Final product complies with requirements set out in approved DWQMP and RWMP's
- To demonstrate that Product Water releases comply with New Acland Coal (NAC) commercial agreement.
- To demonstrate that Final product complies with Class A+ water quality as defined in the NAC commercial agreement
- To demonstrate that the Final Product complies with HACCP requirements.
- To ensure that there is minimal pollution to the receiving watercourse.
- To provide data for daily plant operations and decisions.
- To provide data for Branch Operations.
- To provide data for end users of the Wetalla AWT Operations.
- To provide data for Water Operations Staff.
- To provide data required by legislation, e.g. NPI, EPA, NRW and the Council.

1.1 WATER QUALITY MONITORING SCHEME

Toowoomba Regional Council reporting requires analysis performed at a NATA accredited Laboratory. Toowoomba Regional Council uses its own laboratory located at Mt Kynoch, and external laboratories holding the appropriate NATA accreditation.

1.2 TRAINING

All officers who are required to collect water samples for quality monitoring shall receive training in the correct techniques and equipment for such sampling. Refer to Work Procedure QP-WWO-18.1 "Training Procedure" Doc #2103726.

Laboratory Services, acting under the relevant laboratory and water quality procedures provide training to Toowoomba Regional Council staff involved with sampling. Follow-up training and assessment of sampling techniques is provided annually. This training is designed to cover the collection of samples but not the testing of samples.

GLOSSARY

NTU.

Nephelometric Turbidity Units – Measurement for turbidity

WTP

Water Treatment Plant

WWTP

Waste Water Treatment Plant

AWTP

Advanced Water Treatment Plant

RO Plant

Reverse Osmosis Treatment Plant

GAB

Great Artesian Basin

GAC

Granulated Activated Carbon – used to assist in the removal of algal toxins during algal blooms in raw water storages

PAC

Powder Activated Carbon – used to assist in the removal of algal toxins during algal blooms in raw water storages

THMs

Total Trihalomethanes – By-product of chlorination and chloramination

HACH

Manufacturer of instruments, meters, reagents and general lab equipment for laboratories, water and waste water providers

THERMOFISCHER SCIENTIC

Australian and New Zealand Company who sells and provides equipment and service backup for HACH

HACCP

Hazard Analysis Critical Control Point is a systematic preventive approach to food safety and pharmaceutical safety that address physical, chemical and biological hazards as a means of prevention rather than finished product inspection

BRANCH COMMON LISTING

Document shared across all water and waste treatment plants in Toowoomba Regional Council e.g. DEPOLOX 4 Online Chlorine Meter. Branch Common documents have restricted editing access. Branch Common documents are reviewed every 12 months and changes if needed are made after review

FLOWMETERS

Device used to record the volume of water (treated or raw), that has been moved from one location to another, normally using mains (water pipes)

DM

Toowoomba Regional Council Document Management System. All Corporate documents are saved to this system and are automatically assigned a unique document number (e.g. DM#3612708)

DWQMP

Drinking Water Quality Management Plan

RWMP

Recycled Water Management Plan

QWSR

Queensland Water Supply Regulator

CALIBRATION CHECK

Calibration Check is an action that is performed to ensure that an instrument, dosing system and/or dosing pump is operating within calibration limits, ranges and/or frequencies. This is also known as verification. Calibration Check (Verification), of an instrument, dosing system, dosing pump is performed using a known measurement, or correctness. This measurement or correctness is called the standard. Staff use, the standard to perform Calibration Check/s on a set frequency and if a calibration check fails to meet standard limits or ranges then a calibration is undertaken.

CALIBRATION

Calibration is when an instrument, dosing system, dosing pump is calibrated or reset back to factory standards. Calibration is undertaken using approved standards that have been designed for a specific instrument, or dosing system. If a dosing system or dosing pump requires calibration and a calibration standard cannot be used, then trained staff will perform calibration using equipment supplied by manufacturer for specific dosing system or dosing pump.

Document Reviews

Any required changes to this manual will be made after reviews and consultation has taken place. Refer to QP-CL-025 WWO Quality Document Listing Water Operation for the latest version of this document.

Before document changes are made, Branch Common Manuals will be discussed at all team meetings and changes that are required to be made will be minuted. These minuted minutes are to then be forwarded to Management Systems Coordinator and Regulatory Compliance Officer, who will then ensure that appropriate changes are made after ALL Team Meeting Minutes have been received.

After all Meeting Minutes have been received the Branch Common Manual will be discussed and minuted in the Branch Meeting Minutes. Once this has occurred, the manual will be saved as a new version.

OPERATOR INSTRUMENTATION

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Calibration of Field Instruments

Operator field instruments have regular calibration checks and calibrations performed on the individual instrument. Calibration checks are performed to ensure that the instrument is providing the operator with accurate data. If a calibration check fails or indicates that an instrument is not in calibration then a full calibration of that instrument will be undertaken.

Calibration of instruments are undertaken by operational staff, and an annual calibration of the instrument is undertaken by approved companies that have training and expertise with the instruments that are being calibrated.

If an instrument constantly needs calibration then staff will assess if the instrument is still suitable for operational purposes. This may require the instrument to be returned to the supplier to be assessed by their technicians. If service supplier technicians find that the instrument is not fit for purpose then the instrument will be replaced with a new instrument,

Calibration Records

Calibration records for instrumentation that used in the water operations branch are listed in the individual branch common or individual operational manuals.

Calibration Work Instructions

Calibration work instructions for individual instrumentation can be found in the relevant Branch Common or individual operational manuals.

These documents list;

- Work Instructions for calibrating individual instrument
- Work Instructions for performing a calibration check on individual instruments
- Calibration Record forms used by staff when calibrating Instrument
- Calibration Frequency
- Calibration Check Frequency
- Location of where calibration records (digital), are stored.

Calibration of Online Instruments

Online instruments have regular calibration checks and calibrations performed on the individual instrument. Calibration checks are performed to ensure that the instrument is providing the operator with accurate data. If a calibration check fails or indicates that an instrument is not in calibration then a full calibration of that instrument will be undertaken.

Calibration of instruments are undertaken by operational staff, and an annual calibration of the instrument is undertaken by approved companies that have training and expertise with the instruments that are being calibrated.

If an instrument constantly needs calibration then staff will assess if the instrument is still suitable for operational purposes. This may require the instrument to be returned to the supplier to be assessed by their technicians. If service supplier technicians find that the instrument is not fit for purpose then the instrument will be replaced with a new instrument,

Calibration Records

Calibration records for instrumentation that is used in the water operations branch are listed in the individual branch common or individual operational manuals.

Calibration Work Instructions

Calibration work instructions for individual instrumentation can be found in the relevant Branch Common or individual operational manuals. .

These documents list;

- Work Instructions for calibrating individual instrument
- Work Instructions for performing a calibration check on individual instruments
- Calibration Record forms used by staff when calibrating Instrument
- Calibration Frequency
- Calibration Check Frequency
- Location of where calibration records (digital), are stored.
- Location of where calibration records (hard copies), are stored.

Branch Common Instrument Manuals

The following table lists all Branch Common Instrumentation that is used across Toowoomba Regional Council Water Operations. These manuals are updated on an annual basis. For the latest version of the manuals refer to QP-CL-025 WWO Quality Document Listing Water Operation DM#2231660

Manual Number	DM Document Number	Manual Name	Comments
QP-M-098	3683154	HACH 1720E Online turbidity Meters	
QP-M-099	3675681	HACH 2100P Portable Turbidity Meter	
QP-M-100	3676465	HACH DR890 Portable Colorimeter	
QP-M-101	3677480	HACH Ultraturb	
QP-M-103	3685999	DEPOLOX Online Chlorine Analyzer	
QP-M-110	3993421	HACH Pocket Colorimeter II	
QP-M-111	4118493	HACH 2100Q Portable Turbidity Meter	

Branch Common Documentation

Manual Number	DM Document Number	Document Name	Comments
QP-CL-118	5585334	Regional Water Supply Alert and Critical Limits	Applies to all Regional Water Supply Schemes
	3446876	MTK HACCP Specifications from 1-08-2009	Applies to All Toowoomba Water Supply Schemes
QP-WI-395	5835261	Chlorine Monitoring and Routine Maintenance	
QP-WWO-18.1	2103726	Training Procedure	

Operational Documentation

Manual Number	DM Document Number	Document Name	Comments
QP-WI-257	3429422	Pre and Post Dose Chlorine Check and Adjustment	
QP-KTP-020	2203082	Calibration of Chemical Dosing Pumps	
QP-WET-016	2932650	Wetalla Lab calibration Procedure	
	5716566	Grundfos DDA Operational Manual	Provided by Manufacturer
	5716567	Grundfos DDE Operational Manual	Provided by Manufacturer
QP-WI-187	2928907	Calibration Check of S.C.A.D.A Dam RL Level and Seepage Flow	
QP-WI-368	2581919	Lab Calibration Procedure	
QP-FRM-030	2245138	pH Meter Calibration Form	
QP-FRM-033	2245148	Chemical Dosing Pump Calibration Form	
QP-FRM-049	2380946	Online pH meter Calibration Record	
QP-FRM-051	2501083	Chemical Dosing Pump Calibration (Alum, Lt20, Poly Dadmac)	
QP-FRM-159	3730510	Fluoride pH Meter Calibration Sheet	
QP-WI-015	2212466	Daily pH Meter Calibration	
QP-FRM-246	5689292	On Line DO Sensors Calibration checks	
QP-FRM-200	5039662	AWTP Chlorine pH analyzer 6785 Calibration and Calibration Check	
QP-WI-373	3521782	AWT Calibration Procedure	
QP-FRM-207	5164806	Coagulant Dose Pump Calibration Chart Yarraman WTP	
QP-FRM-210	5164809	Post Chlorine Dose Pump Calibration Chart Yarraman WTP	
QP-FRM-211	5164810	Pre Chlorine Dose Pump Calibration Chart Yarraman	
QP-FRM-213	5164812	Yarraman WTP Chlorine Pump Calibration Record	
QP-FRM-222	5223977	Yarraman WTP Coagulant Dose Pump Calibration Record	
QP-WI-288	4652615	Dosatronic Residual Chlorine Analyzer Calibration	
QP-WI-293	5027428	Yarraman pH meter calibration check	

QP-WI-294	5049648	Yarraman HANNA Portable TDS meter calibration
QP-WI-295	5049646	Yarraman HANNA pH meter Calibration
QP-WI-302	5164814	Yarraman WTP Coagulant Pump Calibration Check
QP-Wi-309	5180021	Yarraman WTP Pre Filter Chlorine Dose Pump Calibration Check
	5996754	SPS Data Logger (YSI 650 Multiparameter)
	6010492	SPS Data Logger (YSI 650 Multiparameter) pH Calibration
QP-WI-395	5835261	Chlorine Monitoring and Routine Maintenance
QP-M-112	5236681	Oakey RO Ultrameter II Operator Manual

Operational Manuals

The following table lists all Branch Common and Individual Scheme Manuals that used across Toowoomba Regional Council Water Operations. These manuals are updated on an annual basis. For the latest version of the manuals refer to QP-CL-025 WWO Quality Document Listing Water Operation DM#2231660

Manual Number	DM Document Number	Manual Name	Comments
QP-M-135	5718546	Cressbrook Water Treatment and Waste Water Pumping Station Manual	
QP-M-116	3012212	Basalt Bores – Operation and Calibration	
QP-M-096	3639620	Mt Kynoch Fluoride Plant Manual and SOP's	
QP-M-120	5521234	Yarraman Operations and Maintenance (O&M) Manual	
QP-M-133	6000040	Cecil Plains Water Treatment Plant Operations and Maintenance Manual	Still in DRAFT
QP-M-131		Yarranlea Water Treatment Plant Operations and Maintenance Manual	Still in DRAFT
QP-M-132	5962124	Millmerran Wastewater Treatment Plant Operation and Maintenance Manual	Still in DRAFT
QP-M-130	5848718	Perseverance Water Treatment Plant Operational Manual	Still in DRAFT
QP-M-127	5861494	Yarraman Sewage Treatment Plant Operations and Maintenance Manual	Still in DRAFT
QP-M-122	5920879	Kingsthorpe Sewage Pumping Station Operation and Maintenance Manual	
QP-M-123	5936616	Gowrie Junction Sewage Pumping Station Operation and Maintenance Manual	
QP-M-128	5936679	Highfields Sewage Pumping Station Operation and Maintenance Manual	
QP-M-124	5962353	Westbrook Sewage Pumping Station Operation and Maintenance Manual	
QP-M-125	5962905	Koorunga Valley Sewage Pumping Station Operation and Maintenance Manual	
QP-M-113	5457747	Cecil Plains Waste Water Operations Manual	Still in DRAFT
QP-M-107	5436635	Millmerran Operators Wastewater Operations Manual	Still in DRAFT

Calibration Labels

All water operations operator instruments will have (as detailed in **WWSG-PR-003 Calibration of Monitoring and Measuring Equipment**), calibration labels or stickers affixed to the relevant operator instrument.

Any new instrument or equipment where applicable will be fully calibrated by an authorized person before first time use. Any new instrument or equipment will be added to relevant calibration log (see page ???), before being used.

Any instrument or testing equipment that undergoes regular external calibration or external calibration checks will have a calibration sticker or label affixed to the instrument or piece of equipment detailing the following;

- Instrument/Equipment
- Identification Number
- Last Tested
- Next Test Date
- Issued by
- Date Issued

If the instrument or equipment is too small to have the sticker or label affixed to it than the details will be recorded in the relevant calibration logs and a copy of the sticker will be kept in close proximity of the equipment or instrument at all times.

If a piece of equipment or instrument has become unable to use due to constant calibration failure a label/sticker will affixed to that piece of equipment/instrument stating the following;

WARNING UNCALIBRATED EQUIPMENT
NOT TO BE USED FOR INSPECTION, MEASURING or TESTING
Signed
Date

These details are also to then be added to the calibration spreadsheet, and the instrument/piece of equipment removed from operation, and reported to coordinator.

For details refer to Water and Waste Services **WWSG-PR-003 Calibration of Monitoring and Measuring Equipment** Procedure, DM#2758472

DOSING PUMPS

Calibration of Dosing Pumps

Operational staff regularly check, the calibration of relevant dosing pumps within each water supply scheme which can include:

- Water Treatment Plants
- Waste Water Treatment Plants
- Bore Stations that dose chemicals (Chlorine, Acid)
- Pump Stations
- Re-chlorination sites

If a dosing pump or pumps fall out of calibration, then operational staff will re-calibrate the dosing or the online analyzer that controls the dosing pump. If the dosing pump and/or the analyzer continue to need calibration then service technicians from within Toowoomba Regional Council or suppliers who are qualified will perform a calibration on the dosing pump or analyzer. If the technicians cannot repair or recalibrate the dosing pump or analyzer then TRC staff will look at replacement options for either the pump or analyzer or for both.

Calibration Records

Calibration records for dosing pumps and analyzers that used in the water operations branch are listed in the individual branch common manuals and or individual scheme manuals.

Calibration Work Instructions

Calibration work instructions for individual instrumentation can be found in the relevant Branch Common and or individual Scheme Manual.

These documents list;

- Work Instructions for calibrating individual dosing pump
- Work Instruction for calibrating individual online analyzer
- Work Instruction for performing Calibration Check on online analyzer
- Work Instruction for performing Calibration Check on dosing pump
- Calibration Record forms used by staff when calibrating pump or analyzer
- Calibration Frequency
- Calibration Check Frequency
- Location of where calibration records (digital), are stored.
- Location of where calibration records (hard copies), are stored.

Dosing Pumps

The following tables in appendix A, list the locations of dosing pump across all TRC Water and Wastewater Schemes.

NOTE:

This manual is updated annually; therefore at times some dosing pumps that are listed within these tables will not be the dosing pumps that are located onsite at each individual scheme. This is because operational, technical services staff have had to change the dosing pump, between document reviews. At the time of the next document review the new dosing pumps will be added to this manual.

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FLOWMETERS

INFRASTRUCTURE FLOWMETER DATABASE

Currently there is only a database on the flow meters within the Toowoomba Service Centre. The database for these flow meters are looked after by Water Infrastructure Services and are listed in a spreadsheet. This spreadsheet is Flow meter Database DM #3651501.

INFRASTRUCTURE FLOWMETER CALIBRATION

At present there is also a Flow meter calibration procedure. This procedure is once again looked after by Water Infrastructure Services and can be found on doc number 3192689

All Flow meters are to be calibrated by ABB CalMaster Check, with council Electricians to check/verify the signal loop.

Flow meters for the Wetalla AWT are to be calibrated at 12 month intervals and the calibration reports from these are to be sent the relevant parties.

TRADE WASTE FLOWMETERS

All trade waste generators are responsible (owners) for the flowmeters and servicing of meters listed below, trade waste services keeps a database of these meters.

Trade Waste Services use a database to record all registered trade waste catchment generators. This database lists the following information;

- Generator Name (Business Name)
- Address
- Instrument Type
- Make
- Part No.
- Service Provider
- Last Service Date
- Service Intervals

And can be found in doc number 2955142. This database is regularly checked and updated by Trade Waste Services Staff.

NOTES

- On the 30 November 2009, BIOLAB Australia PTY LTD changed its name to *ThermoFisher Scientific*.
- ALLDOS dosing pump line was purchased by Grundfos Corporation in 2006. Alldos pumps were renamed and incorporated into the Grundfos offerings.

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APPENDICES

APPENDIX A

Dosing Pumps

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Wetalla AWTP

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule
Wilden	Chlorine Dosing Pump	Daily Visual inspection of pump		Fitters Trade Services	Annual Service and when needed, due to damaged dosing lines or dosing problems
Wilden	Sodium Hydroxide Transfer Pump	Daily Visual inspection of pump		Fitters Trade Services	Annual Service and when needed, due to damaged dosing lines or dosing problems
Wilden	Citric Acid Transfer Pump	Daily Visual inspection of pump		Fitters Trade Services	Annual Service and when needed, due to damaged dosing lines or dosing problems
Wilden	Sodium Bisulphate Transfer Pump	Daily Visual inspection of pump		Fitters Trade Services	Annual Service and when needed, due to damaged dosing lines or dosing problems
Grundfos		Daily Visual inspection of pump	150L/Hr	Fitters Trade Services	Annual Service and when needed, due to damaged dosing lines or dosing problems

Mt Kynoch WTP

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule
ALLDOS	Magnasol Dosing Pump	Daily Drop Test	+/- 20% over two days. See Note Below	ALLDOS Brisbane and SJ Electrics Brisbane, or TRC Fitters	Replace diaphragm on pump when needed. Adjust 4-20mA settings on S.C.A.D.A when needed
ALLDOS	LT25 Filter Aid Dosing Pump	Daily Drop Test	+/- 20% over two days. See Note Below	ALLDOS Brisbane and SJ Electrics Brisbane, or TRC Fitters	Replace diaphragm on pump when needed. Adjust 4-20mA settings on S.C.A.D.A when needed
ALLDOS	LT25 Backwash Recovery Dosing Pump	Daily Drop Test	+/- 20% over two days. See Note Below	ALLDOS Brisbane and SJ Electrics Brisbane, or TRC	Replace diaphragm on pump when needed. Adjust 4-20mA settings on S.C.A.D.A

				Fitters	when needed
ALLDOS	POLY DADMAC Dosing Pump	Daily Drop Test	+/- 20% over two days. See Note Below	ALLDOS Brisbane and SJ Electrics Brisbane, or TRC Fitters	Replace diaphragm on pump when needed. Adjust 4-20mA settings on S.C.A.D.A when needed
ALLDOS	Alum (Aluminum Sulphate), dosing Pump	Daily Drop Test	+/- 20% over two days. See Note Below	ALLDOS Brisbane and SJ Electrics Brisbane, or TRC Fitters	Replace diaphragm on pump when needed. Adjust 4-20mA settings on S.C.A.D.A when needed

Treatment Plant Operators make adjustments on dosing pumps using S.C.A.D.A. These adjustments take into consideration the flow and water quality coming into the treatment plant. If an operator cannot achieve the desired dose rate (+/- 20% over two days), then fault finding will occur.

Fault finding will often include;

- Filter cleaning on pump lines
- Checking for blockages in dosing system

Once the above have been ruled out and the dose rate is still out, operators will contact any of the following;

- ALLDOS – Pump service providers, who can replace pump diaphragms or overhaul pumps
- SJ Electrics – S.C.A.D.A service providers, who can make changes to S.C.A.D.A and the 4 to 20 mA signal.
- Toowoomba Regional Council Trade Services Fitters – Pump service providers who can replace pump diaphragms or overhaul pumps

Cressbrook WTP

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule
ALLDOS	Chlorine Dosing Pump	Changes made to “speed” of pump after water quality testing has been conducted	Based on chlorine residual in Clearwater Tank	Fitters Trade Services	When needed, due to damaged dosing lines or dosing problems
ALLDOS	Chlorine Dosing Pump	Changes made to “speed” of pump after water quality testing has been conducted	Based on chlorine residual in Clearwater Tank	Fitters Trade Services	When needed, due to damaged dosing lines or dosing problems
ALLDOS	Magnasol Dosing Pump	Changes made to “speed” of pump after water quality testing has been conducted	Based on chlorine residual in Clearwater Tank	Fitters Trade Services	When needed, due to damaged dosing lines or dosing problems

Toowoomba Reticulation System

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule
ALLDOS	Chlorine dosing Pump. A.N.Z.A.C Ave Pump Station	Daily (5) Visual inspection of pump		Fitters Trade Services	Annual Service and when needed, due to damaged dosing lines or dosing problems
ALLDOS	Chlorine dosing Pump. Airport Bore Station	Daily (5) Visual inspection of pump		Fitters Trade Services	Annual Service and when needed, due to damaged dosing lines or dosing problems
ALLDOS	Chlorine dosing Pump. Acacia Street Bore Station	Daily (5) Visual inspection of pump		Fitters Trade Services	Annual Service and when needed, due to damaged dosing lines or dosing problems
ALLDOS	Chlorine dosing Pump. Alderley Street Bore Station	Daily (5) Visual inspection of pump		Fitters Trade Services	Annual Service and when needed, due to damaged dosing lines or dosing problems
ALLDOS	Chlorine dosing Pump. Creek Street Bore Station	Daily (5) Visual inspection of pump		Fitters Trade Services	Annual Service and when needed, due to damaged dosing lines or dosing problems
ALLDOS	Chlorine dosing Pump. Eastern Valley Bore Station	Daily (5) Visual inspection of pump		Fitters Trade Services	Annual Service and when needed, due to damaged dosing lines or dosing problems
ALLDOS	Chlorine dosing Pump. Freyling Park Bore Station	Daily (5) Visual inspection of pump		Fitters Trade Services	Annual Service and when needed, due to damaged dosing lines or dosing problems
ALLDOS	Chlorine dosing Pump. Ballin Drive Bore Station	Daily (5) Visual inspection of pump		Fitters Trade Services	Annual Service and when needed, due to damaged dosing lines or dosing problems
ALLDOS	Chlorine dosing Pump. Milne Bay Bore Station	Daily (5) Visual inspection of pump		Fitters Trade Services	Annual Service and when needed, due to damaged dosing lines or dosing problems
ALLDOS	Chlorine dosing Pump. Nell E Robinson Bore Station	Daily (5) Visual inspection of pump		Fitters Trade Services	Annual Service and when needed, due to damaged dosing lines or dosing problems
ALLDOS	Chlorine dosing Pump. Queens Park Bore Station	Daily (5) Visual inspection of pump		Fitters Trade Services	Annual Service and when needed, due to damaged dosing lines

				or dosing problems
ALLDOS	Chlorine dosing Pump. Stephen Street Bore Station	Daily (5) Visual inspection of pump	Fitters Trade Services	Annual Service and when needed, due to damaged dosing lines or dosing problems
ALLDOS	Chlorine dosing Pump. Newtown Park Bore Station	Daily (5) Visual inspection of pump	Fitters Trade Services	Annual Service and when needed, due to damaged dosing lines or dosing problems

NORTHERN DISTRICTS

Yarraman WTP

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule
	2 x Chlorine Dosing Pumps	Visual Inspection			
	??? Dosing Pump	Visual Inspection			
	??? Dosing Pump	Visual Inspection			

Yarraman WWTP

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule
	Chlorine Dosing Pump	Visual Inspection			

Perseverance WTP

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule
ALLDOS	Chlorine Dosing Pump	Visual Inspection			
Grundfos DDA	2 x Chlorine Dosing Pumps	Visual Inspection			
Grundfos DDA	Flocculent Dosing Pump	Visual Inspection			
Southern Cross	Backwash Pumps	Visual Inspection			

Pechey WTP

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule
Grundfos DDA	3 x Chlorine Dosing Pump	Visual Inspection			
Grundfos DDI	2 x Flocculent Dosing Pump	Visual Inspection			
Grundfos	Raw Water Feed Pumps	Visual Inspection when run			

Crows Nest WWTP

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule

Hampton WTP (Decommissioning Dec 2014)

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule
Grundfos DDA	2 x Chlorine Dosing Pump	Visual Inspection			
Grundfos DDI	Flocculent Dosing Pump	Visual Inspection			
Grundfos	Transfer Pump from WTP Reservoir to High Level Reservoir (during emergencies)	Visual Inspection when run			
Southern Cross	Backwash pumps	Visual Inspection			

Oakey RO PLANT (Currently Not Operational)

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule
Grundfos	Pre Chlorine Dosing Pump	Visual Inspection			
Grundfos	Flocculent Dosing Pump	Visual Inspection			
Grundfos	Acid Dosing Pump	Visual Inspection			
Grundfos	Anti Scalant Dosing Pump	Visual Inspection			
Grundfos	SMBS Dosing Pump	Visual Inspection			
Grundfos	Chlorine Dosing Pump	Visual Inspection			

Oakey Reticulation System

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule
Grundfos	Oakey Reservoir Chlorine Re-dose Pump	Visual Inspection			
Grundfos	Bore 4 Chlorine Re-dose Facility	Visual Inspection			

Goombungee Reticulation System

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule
Grundfos DDI	Goombungee Chlorine Re-dose Facility (Old WTP Site)				

Gowrie Junction Reticulation System

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule
ALLDOS	Birdwood Reservoir. Chlorine Dosing Pump. Chlorine Re-dose Facility	Visual Inspection			
ALLDOS	Junction Drive Reservoir	Visual Inspection			

Meringandan West Reticulation System

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule
ALLDOS	Highview Reservoirs Chlorine Dosing Pump. Chlorine Re-dose Facility	Visual Inspection			

Kingsthorpe Reticulation System

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule
ALLDOS	Simons Reservoir. Chlorine Dosing Pump. Chlorine Re-dose Facility	Visual Inspection			

Haden Water Supply

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule
Grundfos DDA	Haden Bore. Chlorine Dosing Pump	Visual Inspection			

SOUTHERN DISTRICTS

Clifton Water Supply

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule
	Chlorine Dosing Pump	Visual Inspection			

Nobby Water Supply

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule
	Chlorine Dosing Pump	Visual Inspection			

Greenmount Water Supply

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule
	Chlorine Dosing Pump Haldon Street Bore	Visual Inspection			
	Chlorine Dosing Pump Watts Siding Road Bore	Visual Inspection			
	Chlorine Dosing Pump Gilbride Street	Visual Inspection			

Cambooya Water Supply

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule
	Chlorine Dosing Pump John Street Bore	Visual Inspection			
	Chlorine Dosing Pump George Street Bore	Visual Inspection			

Wyreema Water Supply

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule
	Chlorine Dosing Pump Loves Road Bore				
	Chlorine Dosing Pump Hartvigsen Bore				
	Chlorine Dosing Pump Newmann Road Bore				

Vale View Water Supply

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule
	Chlorine Dosing Pump Stark Drive Bore	Visual Inspection			
	Chlorine Dosing Pump Smiths Creek Bore	Visual Inspection			

Hodgson Vale Water Supply

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule
	Chlorine Dosing Pump Hamblin Bore, Mt Rascal	Visual Inspection			
	Chlorine Dosing Pump Geddes Bore, Hodgson Vale	Visual Inspection			
	Chlorine Dosing Pump Freyling Bore, Hodgson Vale	Visual Inspection			
	Chlorine Dosing Pump Pendoma Bore, Hodgson Vale	Visual Inspection			
	Chlorine Dosing	Visual Inspection			

	Pump Clearview Bore, Hodgson Vale	
Grundfos DDA	Chlorine Dosing Pump, Chlorine Re-dose Facility Top Camp Reservoir, Top Camp	Visual Inspection

Pittsworth Water Supply

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule
	Chlorine Dosing Pump Brookstead Blended Bores, Brookstead	Visual Inspection			
	Chlorine Dosing Pump, Chlorine Re-dose Facility Vines Street, Pittsworth	Visual Inspection			

Yarranlea WTP

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule

Pittsworth WWTP

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule
	Chlorine Dosing Pump	Visual Inspection			

Millmerran Water Supply

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule
Grundfos DDI	Chlorine Dosing Pump Bore No.7 , Yandilla	Visual Inspection			
Grundfos DDI	Chlorine Dosing Pump Bore No.8, Yandilla	Visual Inspection			
Grundfos DDA	Chlorine Dosing Pump Low Level Reservoir, Millmerran	Visual Inspection			

Millmerran WWTP

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule
	Chlorine Dosing Pump	Visual Inspection			

Cecil Plains WTP

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule
Grundfos DDA	Chlorine Dosing Pump	Visual Inspection			
ALLDOS	Chlorine Dosing Pump	Visual Inspection			
ALLDOS	Acid Dosing Pump	Visual Inspection			

Cecil Plains WWTP

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule

APPENDIX B

Water Services Department has a current procedure for inspection, measuring and testing equipment (Water and Waste Services WWSG-PR-003 Calibration of Monitoring and Measuring Equipment Procedure). This document is currently reviewed every 12 months by the Coordinator Quality Management and HACCP Systems Water Strategy and Coordination

Any equipment that should fail a weekly, monthly or annual calibration, calibration check or should become damaged is the responsibility of the operator and/or Water Infrastructure Services Staff.

Any equipment that has an annual service conducted and is arranged through Water Infrastructure Services, the staff of Water Infrastructure Services are to be notified immediately of the situation when damage or equipment failure has occurred so that repair or replacement can be arranged as soon as possible.

Water Infrastructure Services will have relevant records of repairs or replacements for equipment that they are in charge of. Water Operations staff record any replacements or repairs in operator diaries and also on electronic spreadsheet.

These spreadsheets can be found listed on the next page.

Water Operations Calibration Logs

Service Centre	Equipment Type	Responsibility for maintaining	Spreadsheet Store	Comments
Toowoomba Water	<ul style="list-style-type: none"> • Operator field Testing Equipment • Operator Laboratory Equipment 	<ul style="list-style-type: none"> •Coordinator Toowoomba •Senior Water Treatment Plant Operator Toowoomba •Senior Systems Controller •Senior Dam Operator 	W:\MtKynoch\Data\ReportData\Kynoch Plant Calibration Log.xlsm W:\MtKynoch\Data\Cressbrook WTP\Calibration Log.xls	
Toowoomba Wastewater	<ul style="list-style-type: none"> • Operator field Testing Equipment • Operator Laboratory Equipment 	<ul style="list-style-type: none"> •Coordinator Toowoomba Wastewater •Senior Operators 	W:\Wetalla\Data\ReportData\Wetalla Treatment Plant Calibration Log.xls	
Northern Districts	<ul style="list-style-type: none"> • Operator field Testing Equipment • Operator Laboratory Equipment 	<ul style="list-style-type: none"> •Coordinator Northern Districts •Senior Operator 	DM#5054924	
Southern Districts	<ul style="list-style-type: none"> • Operator field Testing Equipment • Operator Laboratory Equipment 	<ul style="list-style-type: none"> •Coordinator Southern Districts •Water & Sewerage Officers 	DM# 5133388	

APPENDIX C

Online Instruments

TOOWOOMBA

Wetalla AWTP

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule
HACH 1720E	Online turbidity meter Feed Water	Weekly Calibration Check, or when meter falls out of calibration. 3 monthly calibration	+/- 2NTU from previous calibration. Results using 20 NTU Formazin 0.001 – 100 Nephelometric Turbidity Units	ThermoFisher Scientific	Annual Service and Calibration on meter
HACH 1720E	Online turbidity meter Filtrate water	Weekly Calibration Check, or when meter falls out of calibration. 3 monthly calibration	+/- 2NTU from previous calibration. Results using 20 NTU Formazin 0.001 – 100 Nephelometric Turbidity Units	ThermoFisher Scientific	Annual Service and Calibration on meter
HACH 1720E	Online turbidity meter. Turbidity meter located individually on AWTP skids A,B,C,D	Weekly Calibration Check, or when meter falls out of calibration. 3 monthly calibration	+/- 2NTU from previous calibration. Results using 20 NTU Formazin 0.001 – 100 Nephelometric Turbidity Units	ThermoFisher Scientific	Annual Service and Calibration on meter
HACH	ORP Probe		+/- 100mV	ThermoFisher	Annual Service and Calibration on meter

Wetalla Reclamation Facility

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule

Mt Kynoch Water Treatment Plant

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule
HACH Ultraturb	Online turbidity meter, fitted with SC100 controller Raw Water	Weekly Calibration Check or when meter fails out of Calibration	+/- 2NTU from previous calibration results	ThermoFisher Scientific	Annual Service and Calibration on meter
HACH Ultraturb	Online turbidity meter, fitted with SC100 controller shared across two meters. Filtered Water	Weekly Calibration Check or when meter fails out of Calibration	+/- 2NTU from previous calibration results	ThermoFisher Scientific	Annual Service and Calibration on meter
HACH Ultraturb	Online turbidity meter, fitted with SC100 controller shared across two meters. Clear Water	Weekly Calibration Check or when meter fails out of Calibration	+/- 2NTU from previous calibration results	ThermoFisher Scientific	Annual Service and Calibration on meter
	Online Particle Counter Filtered Water particle counter	Weekly Clean of Meter		Terry Bilson. TJ Instruments PTY LTD	Annual Service and Calibration on meter
Chlorine Meter	Depolox 5 Online Chlorine Analyser	Daily Calibration Check or when meter falls out of calibration	+/-10% difference from grab sample taken on the discharge of meter. Measuring Range 0.05 to 20.0mg/L	Siemens Australia	Annual Service and Calibration on meter
Chlorine Meter	Depolox 4 Online Chlorine Analyser	Daily Calibration Check or when meter falls out of calibration	+/-10% difference from grab sample taken on the discharge of meter. Measuring Range 0.05 to 10.0mg/L	Siemens Australia	Annual Service and Calibration on meter

Toowoomba Reticulation System

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule
CONEX DIA-1	Online Chlorine Analyser Airport Bore Station	Weekly Calibration Check or when meter falls out of calibration	Free Chlorine 0.0 to 20.0mg/L dependent on setting	ALLDOs and/or TRC Trade services	
CONEX DIA-1	Online Chlorine Analyser Freyling Park Bore Station	Weekly Calibration Check or when meter falls out of calibration	Free Chlorine 0.0 to 20.0mg/L dependent on setting	ALLDOs and/or TRC Trade services	
CONEX DIA-1	Online Chlorine Analyser Newtown Park Bore Station	Weekly Calibration Check or when meter falls out of calibration	Free Chlorine 0.0 to 20.0mg/L dependent on setting	ALLDOs and/or TRC Trade services	
CONEX DIA-1	Online Chlorine Analyser ANZAC Ave Pumping Station	Weekly Calibration Check or when meter falls out of calibration	Free Chlorine 0.0 to 20.0mg/L dependent on setting	ALLDOs and/or TRC Trade services	
CONEX DIA-1	Online Chlorine Analyser	Weekly Calibration Check or when meter falls out of calibration	Free Chlorine 0.0 to 20.0mg/L dependent on setting	ALLDOs and/or TRC Trade services	
CONEX DIA-1	Online Chlorine Analyser	Weekly Calibration Check or when meter falls out of calibration	Free Chlorine 0.0 to 20.0mg/L dependent on setting	ALLDOs and/or TRC Trade services	
CONEX DIA-1	Online Chlorine Analyser	Weekly Calibration Check or when meter falls out of calibration	Free Chlorine 0.0 to 20.0mg/L dependent on setting	ALLDOs and/or TRC Trade services	

NORTHERN DISTRICTS

Goombungee Water Supply

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule
CONEX DIA-1	Online Chlorine Analyser Goombungee Chlorine Re-dose Facility (Old WTP Site)	Weekly Calibration Check or when meter falls out of calibration	Free Chlorine 0.0 to 20.0mg/L dependent on setting	ALLDOs and/or TRC Trade services	

Kingsthorpe Water Supply

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule
CONEX DIA-1	Online Chlorine Analyser Simons Reservoir	Weekly Calibration Check or when meter falls out of calibration	Free Chlorine 0.0 to 20.0mg/L dependent on setting	ALLDOs and/or TRC Trade services	
CONEX DIA-1	Online Chlorine Analyser Graman Street Reservoir	Weekly Calibration Check or when meter falls out of calibration	Free Chlorine 0.0 to 20.0mg/L dependent on setting	ALLDOs and/or TRC Trade services	

Gowrie Junction Water Supply

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule
CONEX DIA-1	Online Chlorine Analyser Birdwood Reservoir	Weekly Calibration Check or when meter falls out of calibration	Free Chlorine 0.0 to 20.0mg/L dependent on setting	ALLDOs and/or TRC Trade services	
CONEX DIA-1	Online Chlorine Analyser Junction Drive Reservoir	Weekly Calibration Check or when meter falls out of calibration	Free Chlorine 0.0 to 20.0mg/L dependent on setting	ALLDOs and/or TRC Trade services	

Meringandan West Water Supply

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule
CONEX DIA-1	Online Chlorine Analyser Highview Reservoirs	Weekly Calibration Check or when meter falls out of calibration	Free Chlorine 0.0 to 20.0mg/L dependent on setting	ALLDOs and/or TRC Trade services	

Yarraman Water Supply

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule
CONEX DIA-1	Online Chlorine Analyser Yarraman Water Treatment Plant	Weekly Calibration Check or when meter falls out of calibration	Free Chlorine 0.0 to 20.0mg/L dependent on setting	ALLDOs and/or TRC Trade services	
CONEX DIA-1	Online Chlorine Analyser Yarraman Reservoir No.2 Chlorine Re-dose Facility	Weekly Calibration Check or when meter falls out of calibration	Free Chlorine 0.0 to 20.0mg/L dependent on setting	ALLDOs and/or TRC Trade services	

Haden Water Supply

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule
CONEX DIA-1	Online Chlorine Analyser Haden Bore Station	Weekly Calibration Check or when meter falls out of calibration	Free Chlorine 0.0 to 20.0mg/L dependent on setting	ALLDOs and/or TRC Trade services	

Oakey Water Supply

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule
CONEX DIA-1	Online Chlorine Analyser Reservoirs Chlorine Re-dose Facility	Weekly Calibration Check or when meter falls out of calibration	Free Chlorine 0.0 to 20.0mg/L dependent on setting	ALLDOs and/or TRC Trade services	
CONEX DIA-1	Online Chlorine Analyser Oakey Bore No.4 Chlorine Re-dose Facility	Weekly Calibration Check or when meter falls out of calibration	Free Chlorine 0.0 to 20.0mg/L dependent on setting	ALLDOs and/or TRC Trade services	

Pechey Water Treatment Plant

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule
CONEX DIA-1	Online Chlorine Analyser Airport Bore Station	Weekly Calibration Check or when meter falls out of calibration	Free Chlorine 0.0 to 20.0mg/L dependent on setting	ALLDOs and/or TRC Trade services	

Highfields Water Supply

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule
CONEX DIA-1	Online Chlorine Analyser Highfields Reservoir Chlorine Re-dose facility	Weekly Calibration Check or when meter falls out of calibration	Free Chlorine 0.0 to 20.0mg/L dependent on setting	ALLDOs and/or TRC Trade services	

Perseverance Water Supply

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule
CONEX DIA-1	Online Chlorine Analyser Perseverance Water Treatment Plant	Weekly Calibration Check or when meter falls out of calibration	Free Chlorine 0.0 to 20.0mg/L dependent on setting	ALLDOs and/or TRC Trade services	

SOUTHERN DISTRICTS

Clifton Water Supply

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule
CONEX DIA-1	Online Chlorine Analyser Bore No.2 Bore Station	Weekly Calibration Check or when meter falls out of calibration	Free Chlorine 0.0 to 20.0mg/L dependent on setting	ALLDOs and/or TRC Trade services	

Nobby Water Supply

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule
CONEX DIA-1	Online Chlorine Analyser Nobby Bore Compound	Weekly Calibration Check or when meter falls out of calibration	Free Chlorine 0.0 to 20.0mg/L dependent on setting	ALLDOs and/or TRC Trade services	

Greenmount Water Supply

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule
CONEX DIA-1	Online Chlorine Analyser Haldon Street Bore Station	Weekly Calibration Check or when meter falls out of calibration	Free Chlorine 0.0 to 20.0mg/L dependent on setting	ALLDOs and/or TRC Trade services	
CONEX DIA-1	Online Chlorine Analyser Gilbride Street Bore Station	Weekly Calibration Check or when meter falls out of calibration	Free Chlorine 0.0 to 20.0mg/L dependent on setting	ALLDOs and/or TRC Trade services	
CONEX DIA-1	Online Chlorine Analyser Watts Siding Road Bore Station	Weekly Calibration Check or when meter falls out of calibration	Free Chlorine 0.0 to 20.0mg/L dependent on setting	ALLDOs and/or TRC Trade services	

Cambooya Water Supply

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule
CONEX DIA-1	Online Chlorine Analyser John Street Bore Station	Weekly Calibration Check or when meter falls out of calibration	Free Chlorine 0.0 to 20.0mg/L dependent on setting	ALLDOs and/or TRC Trade services	
CONEX DIA-1	Online Chlorine Analyser George Street Bore Station	Weekly Calibration Check or when meter falls out of calibration	Free Chlorine 0.0 to 20.0mg/L dependent on setting	ALLDOs and/or TRC Trade services	

Wyreema Water Supply

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule
CONEX DIA-1	Online Chlorine Analyser Newmann Road Bore Station	Weekly Calibration Check or when meter falls out of calibration	Free Chlorine 0.0 to 20.0mg/L dependent on setting	ALLDOs and/or TRC Trade services	
CONEX DIA-1	Online Chlorine Analyser Hartvigsen Bore Station	Weekly Calibration Check or when meter falls out of calibration	Free Chlorine 0.0 to 20.0mg/L dependent on setting	ALLDOs and/or TRC Trade services	
CONEX DIA-1	Online Chlorine Analyser Love Road Bore Station	Weekly Calibration Check or when meter falls out of calibration	Free Chlorine 0.0 to 20.0mg/L dependent on setting	ALLDOs and/or TRC Trade services	

Vale View Water Supply

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule
CONEX DIA-1	Online Chlorine Analyser Stark Drive Bore Station	Weekly Calibration Check or when meter falls out of calibration	Free Chlorine 0.0 to 20.0mg/L dependent on setting	ALLDOs and/or TRC Trade services	
CONEX DIA-1	Online Chlorine Analyser Smith's Creek Bore Station	Weekly Calibration Check or when meter falls out of calibration	Free Chlorine 0.0 to 20.0mg/L dependent on setting	ALLDOs and/or TRC Trade services	

Hodgson Vale Water Supply

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule
CONEX DIA-1	Online Chlorine Analyser Geddes Bore Station	Weekly Calibration Check or when meter falls out of calibration	Free Chlorine 0.0 to 20.0mg/L dependent on setting	ALLDOs and/or TRC Trade services	
CONEX DIA-1	Online Chlorine Analyser Freyling Bore Station	Weekly Calibration Check or when meter falls out of calibration	Free Chlorine 0.0 to 20.0mg/L dependent on setting	ALLDOs and/or TRC Trade services	
CONEX DIA-1	Online Chlorine Analyser Pendoma Bore Station	Weekly Calibration Check or when meter falls out of calibration	Free Chlorine 0.0 to 20.0mg/L dependent on setting	ALLDOs and/or TRC Trade services	
CONEX DIA-1	Online Chlorine Analyser Clearview Bore Station	Weekly Calibration Check or when meter falls out of calibration	Free Chlorine 0.0 to 20.0mg/L dependent on setting	ALLDOs and/or TRC Trade services	
CONEX DIA-1	Online Chlorine Analyser Hamblin Drive Bore Station	Weekly Calibration Check or when meter falls out of calibration	Free Chlorine 0.0 to 20.0mg/L dependent on setting	ALLDOs and/or TRC Trade services	
CONEX DIA-1	Online Chlorine Analyser Top Camp Reservoir	Weekly Calibration Check or when meter falls out of calibration	Free Chlorine 0.0 to 20.0mg/L dependent on setting	ALLDOs and/or TRC Trade services	
CONEX DIA-1	Online Chlorine Analyser Claudia Court Reservoir	Weekly Calibration Check or when meter falls out of calibration	Free Chlorine 0.0 to 20.0mg/L dependent on setting	ALLDOs and/or TRC Trade services	
CONEX DIA-1	Online Chlorine Analyser Big Hill Reservoir	Weekly Calibration Check or when meter falls out of calibration	Free Chlorine 0.0 to 20.0mg/L dependent on setting	ALLDOs and/or TRC Trade services	

Pittsworth Water Supply

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule
CONEX DIA-1	Online Chlorine Analyser Brookstead Blended Bore Station	Weekly Calibration Check or when meter falls out of calibration	Free Chlorine 0.0 to 20.0mg/L dependent on setting	ALLDOs and/or TRC Trade services	
CONEX DIA-1	Online Chlorine Analyser Vines Street Chlorine Re-dose Station	Weekly Calibration Check or when meter falls out of calibration	Free Chlorine 0.0 to 20.0mg/L dependent on setting	ALLDOs and/or TRC Trade services	

Yarranlea WTP ---(Currently Not Operational)

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule
CONEX DIA-1	Online Chlorine Analyser Yarranlea Water Treatment Plant	Weekly Calibration Check or when meter falls out of calibration	Free Chlorine 0.0 to 20.0mg/L dependent on setting	ALLDOs and/or TRC Trade services	

Millmerran Water Supply

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule
CONEX DIA-1	Online Chlorine Analyser GAB No.7 Bore Station	Weekly Calibration Check or when meter falls out of calibration	Free Chlorine 0.0 to 20.0mg/L dependent on setting	ALLDOs and/or TRC Trade services	
CONEX DIA-1	Online Chlorine Analyser GAB No.8 Bore Station	Weekly Calibration Check or when meter falls out of calibration	Free Chlorine 0.0 to 20.0mg/L dependent on setting	ALLDOs and/or TRC Trade services	
CONEX DIA-1	Online Chlorine Analyser Low Level Reservoir	Weekly Calibration Check or when meter falls out of calibration	Free Chlorine 0.0 to 20.0mg/L dependent on setting	ALLDOs and/or TRC Trade services	

Cecil Plains WTP

Instrument	Description	Operator Calibration Schedule	Limits / Ranges	Service Provider	Service Provider Calibration Schedule
CONEX DIA-1	Online Chlorine Analyser Cecil Plains Water Treatment Plant	Weekly Calibration Check or when meter falls out of calibration	Free Chlorine 0.0 to 20.0mg/L dependent on setting	ALLDOs and/or TRC Trade services	

APPENDIX D

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APPENDIX E

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Operator Notes/Review;

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