

**Drinking Water Quality
Management Plan
(DWQMP)**

**Annual Report
2021/22**



OUR COMMUNITIES

OUR FUTURE

Drinking Water Quality Management Plan Report

Western Downs Regional Council

SPID: 480

2021 - 2022

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Water Supply Schemes	Bell Chinchilla Condamine Dalby Jandowae Miles Tara Wandoan Warra

This report has been prepared in accordance with the Drinking Water Quality Management Plan Report Guidance Note.

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1 Introduction

This is the Drinking Water Quality Management Plan (DWQMP) report for Western Downs Regional Council (WDRC) for the year 2021 - 2022.

WDRC is a registered service provider with Service Provider Identification Number - SPID number 480. WDRC is operating under an approved DWQMP to ensure consistent supply of safe quality drinking water to protect public health. This is done through the proactive identification and minimization of public health related risks associated with drinking water.

This DWQMP report includes:

- The summary of the schemes managed under the DWQMP
- The -programs monitored through the operation of the DWQMP
 - Process Review Program
 - Reservoir Inspection
 - Water Quality Review Data
 - Customer Complaints Review - including dirty water complaints
 - Risk Management Improvement Program
- Verification Monitoring through the DWQMP
 - Water Quality Information and Summary
 - Compliance with Annual E.coli Rolling Annual Value
 - Incidents reported to the Regulator
 - Customer complaints
- DWQMP outcomes
 - DWQMP Review
 - DWQMP Audit

This report is submitted to the Regulator to fulfil our regulator requirement and is also made available to our customers through our website, www.wdrc.qld.gov.au or for inspection upon request at Council offices.

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2 Summary of scheme/s operated

The Western Downs Regional Council (WDRC) operates nine drinking water supplies within an area of 38,000 square kilometres.

During 2021 - 2022 WDRC provided 3336ML of potable water to 11 440 connections and maintained over 427km of reticulation mains.

WDRC's drinking water schemes utilise a range of different sources and infrastructure. Individual plants source their raw water from bores, dams and/or river systems. Treatment processes vary from plant to plant; region wide they include clarification, filtration and/or reverse osmosis desalination.

All networks are pressurised on demand by pumping stations and/or high lift towers.

Water is disinfected with chlorine before entering WDRC's reticulation networks. Individual consumption is metered for all customers.

Table 2-1- Summary of Schemes

Scheme	Water Source	Treatment processes	Treatment capacity	Length of Mains (km)	Towns Supplied	Population	Connections
Bell	Surface water - Koondaii Dam	Bell WTP - Aeration, flocculation, sedimentation, filtration, carbon dosing	0.35ML/day	9.6	Bell	360	189
	Ground water - Koondaii Bore x 2 Racecourse Bore (Emergency Supply Only) Warmga Bore						
Chinchilla	Surface water - Chinchilla Weir (Condamine River)	Process comprises, potassium permanganate dosing flocculation, clarification, ultrafiltration, UV sterilisation and activated carbon and fluoridation. <i>Activated carbon is only used during periods of blue-green algae outbreaks in the storage when pesticides are detected or other water quality issues for which carbon usage may be beneficial</i>	5.04 ML/day	111.8	Chinchilla	5,490	3,166
Condamine	Surface Water - Condamine Weir	Condamine WTP - Activated carbon (if required), flocculation, clarification, filtration, disinfection.	0.5 ML/day	6.2	Condamine	210	121
Dalby	Surface Water - Loudoun Weir on Condamine River	Dalby Water Treatment Plant Filtration plant- Rapid mix, flocculation/coagulation, sedimentation, activated carbon, filtration, disinfection, fluoridation. Alluvial 'A'-disinfection and fluoridation. RO desalination- UV, multimedia filtration, cartridge filtration, 2 stage reverse osmosis, air stripping, blending/stabilisation/ pH adjustment, disinfection, fluoridation. RO concentrate reprocessing-cartridge filtration, single stage RO, air stripping, blending, disinfection, fluoridation.	10.8 ML/day	185.0	Dalby	11,020	5,245
	Ground water - Alluvial 'A' Bores Alluvial 'B' Bores						
Jandowae	Surface water - Jandowae Dams	Jandowae WTP - Aeration, flocculation, clarification, filtration, pH adjustment	0.96 ML/day	27.4	Jandowae	1,100	485
	Groundwater - Jandowae Bores	Bore water is not treated apart from aeration and disinfection prior to supply					

Scheme	Water Source	Treatment processes	Treatment capacity	Length of Mains (km)	Towns Supplied	Population	Connections
Miles	Surface water - Gil Weir on Dogwood creek	Miles- Filtration Plant - Aeration, flocculation, clarification, filtration, fluoridation	1.6 ML/day	38.6	Miles	1,460	911
	Groundwater - Miles Bore	Miles RO plant - Cooling, UV, Media Filtration, Cartridge Filtration, 2 stage reverse osmosis, blending, pH adjustment, stabilisation, disinfection	417kL/day				
Tara	Surface water - Tara Lagoons	Tara WTP A- Flocculation, clarification, Filtration	500kL/day	24.1	Tara	1,150	481
	Groundwater - Tara Bores 1 & 2	Tara RO Plant - Pre-treatment - chloramination, UV, Ultrafiltration, 2 stage RO, blending, pH adjustment, stabilisation	360kL/day				
Wandoan	Groundwater - Wandoan Bores 1 & 2	Train 1 Cooling, Aeration, flocculation, inclined plate sedimentation, filtration, and disinfection. <i>(Currently mothballed)</i> .	1.0 ML/day	20.4	Wandoan	500	366
		Train 2 Cooling, Aeration, KMNO ₄ , BIRM media, and disinfection. <i>(Currently mothballed)</i> .					
		Train 3 Cooling, Aeration, Oxidation, flocculation inclined plate sedimentation filtration and disinfection.					
Warra	Surface Water - Warra Weir and off stream storage (Warra Dam)	Warra WTP Ultrafiltration, pre-dosing with alum, potassium permanganate or powdered activated carbon is possible.	200kl/day	4	Warra	150	70

3 DWQMP implementation

The actions undertaken to implement the DWQMP are summarised below.

The implementation of the Drinking Water Quality Management Plan (DWQMP) during the 2021 - 2022, is divided into the following categories:

- Process Review Program
- Reservoir Inspection
- Water Quality Review Data
- Customer Complaints Review - including dirty water complaints
- Risk Management Improvement Program

The following tables highlight the work undertaken within 2021 - 2022 for each of the mentioned programs.

Table 3-1 - Process Review

Plant	Date	Plant Type	Review Team:	Purpose of Review:	Specify:	Data Reviewed: (tick all that apply)	Other (please specify)	Review Undertaken	Identified Safety Issues:	Review Comments and Issues	Review Actions:
Chinchilla	18/10/21	Water	Terry Fagg	Routine		Internal Testing Data Network Testing Standard Chemical Analysis		Plant Visit	PPE Maintenance records on Staff lockers may not be up to date. 3 had entries, 3 had none for some time frame.	Plant generally operating ok but membrane integrity needs further investigation & improvement. Network Free Chlorine levels had been changing rapidly with very frequent dose rate changes (18 in 30 days). Fluoride is on average 0.5 to 1.0mg/L below the 0.8mg/L requirement. Many changes in caustic dosing have been made during the return of supernatant.	UV needs to be cleaned & kept clean to ensure more than 25MJ/cm. Small hypo tank needs blank flanges on tap sealing off. Sludge lamella to be drained down & launders & plates to be cleaned off. Security locks to be reinstalled on chemical tanks to prevent incorrect filling. PPE on chlorine room control panel to be shifted. Outside of control panel needs to be cleaned & surface corrosion treated. Leaks on caustic pumps to be repaired. Fluoride dose settings to be gradually trended upwards. Chlorine dose rate changes to be made followed by 2 to 3 days of system consolidation prior to next change.
Chinchilla	10/11/21	Water	Terry Fagg	Routine		Internal Testing Data Microbiological Report Network Testing Online Process Log Operators Log Book Standard Chemical Analysis		Plant Visit		Raw water quality changing quickly due to flooding. Turbidity in treated water was gradually climbing indication the presence of Manganese. Potassium Permanganate dosing was commenced, initially 0.1 mg/L bus was increased to 0.2 mg/L. Dosing into settled water with contract tank online. Free chlorine has been reasonably stable at Colamba Street with most samples between 1 - 1.5 mg/L. Industry Park has been low, but hter network points are OK. Fluoride 36%of samples 0.74 - 0.82. 24% of samples 0.82 - 0.894 for past 3 months. Raw Water turbidity rapidly changing due to flooding, will require regular jar testing to maintain correct performance. Currently 250 mg/L of Alum 50 mg/L of caustic in flashmix. Extra cleaning of UV maybe required. Aluminium levels 0.18.g/L at last SCA. pH control good at 7.5 - 7.7.	1. Repair CIP heater pump leak. 2. Addition of heater circuit flush in CIP sequence. 3. Complete membrane pinning to improve MIT results. 4. Investigate low chlorine at Industrial Park. 5. regular jar testing as raw conditions change.
Chinchilla	05/05/22	Water	Terry Fagg	Routine		Chemical Usage Records Flow & Power Logs Internal Testing Data Microbiological Report Network Testing Online Process Log SCADA Standard Chemical Analysis		Plant Visit	Tank fill caps were not locked. Maintenance work was being performed without adequately locking out/isolating equipment.	Overall performance was quite good with low turbidity, stable plt (approx. 7.5) and free chlorine ex Colamba st 1.2-1.5mg/L. Network results are all good. Chlorine dosage and demand was gradually falling & permanganate was no longer required. Several issues identified: 1) No.1 UV was offline waiting for parts. UV2 required cleaning and had near 0 output. 2) Backwash recycle was very cloudy & needed to be jar tested. it was found that no alum had been dosed into recycle for several days. Flow had been diverted to the recycled system but alum dosing had not been changed. 3) Main plant CIP performance was erratic & pH was about 4 in Citric/Phosphoric cleans. The CIP cycle itself was erratic but no fault could be found but once reset performed okay. Very little phosphoric acid was being dosed. Dose pump analogue scaling was all wrong set on 1.12 instead of 7.5 for 20mA. This meant that only 1/7 of the correct amount of acid was being dosed. This was rectified. Dose setting of 500mg/L of phosphoric was still insufficient to achieve a pH of 2-2.5. This will be further reviewed. Citric dosing was found to be about correct. 4) No.1 train had rising PDT pressure loss, 2+ Pinning was undertaken on both trains & PDT was reduced to under 1Kpa/min. Alarms had to be reset to 2Kpa. 5) Lamella sludge scraper performance was reviewed & was	1) No.2 UV to be cleaned, cleaned regularly. 2) MC & RC CIP to be monitored for pH & chemical usage. 3) PDT alarm set points to be reset to about 2Kpa. 4) CIP heater pipework to be replaced. 5) Membrane feed pump NO.1 motor to be investigated. 6) Locks to be reinstalled on chemical tank fill caps, to prevent inadequately filling with incorrect chemical. 7) Bund alarms to be investigated and Bunds drained etc. 8) Paper lock out procedures to be used.

Plant	Date	Plant Type	Review Team:	Purpose of Review:	Specify:	Data Reviewed: (tick all that apply)	Other (please specify)	Review Undertaken	Identified Safety Issues:	Review Comments and Issues	Review Actions:
										<p>working satisfactorily although some questions around what caused the previous failure. Downey checked but found no defect.</p> <p>6) Maximum feed pressure alarms were checked. Max press Max press 380Kpa. Alarms set at 300Kpa.</p> <p>7) Treated water chlorine monitor was checked & calibrated and low chlorine alarm was reset at 1.0mg/L.</p> <p>8) No internet connection was available from the WIFI. This was referred to Helpdesk.</p> <p>9) CIP heating was being used incorrectly. The correct cleaning strategy is to attempt to maintain 35 degrees Celsius throughout the whole clean.</p> <p>10) CIP heater pipework leaking badly. Copper needs to be replaced with UPVC. Leak causing corrosion to shed wall.</p> <p>11) Membrane feed pump No.1 had a knocking noise in the motor. Possibly a loose fan.</p> <p>12) On all the chemical tanks, no locks were installed on refill pipework caps. In some cases no caps were installed.</p> <p>13) Bund alarms were on in the Calcium Chloride & caustic bulk storage tanks.</p> <p>14) Maintenance work was being conducted without systems being adequately locked out & isolated.</p>	
Chinchilla	07/06/22	Water	Terry Fagg	Routine		Internal Testing Data Network Testing SCADA Standard Chemical Analysis		Plant Visit		<p>Plant generally operating satisfactorily. Raw water turbidity is gradually declining, potassium permanganate is not currently required. Network free chlorine levels have been high everywhere (1.6mg/L) but this is being gradually lowered (0.2mg/L reduction & then hold for a few days). A problem has been detected with the chlorine spiking immediately after a hypo maintenance clean. This happens over 10 mins or more after returning service. Does not happen after a Citric maintenance clean however sludge wasting adjusted reduced time per waste from 180 to 160secs but probably more will be possible. Set up Citect to operate sludge lagoon super transfer pump on auto. As the turbidity improves there may be coagulant dose reduction options. Steady increase in MIT on one train.</p>	<ol style="list-style-type: none"> Continue with reductions & monitoring of hypo dose. At next hypo MC on both skids monitor hypo at UV on both trains. Further investigation required. Sludge wasting to be monitored with a view to further reductions. Monitor plant during MIT to identify vessels that may need to be pinned. Fluoride needs to be lifted about 0.1mg/L.
Condamine	27/10/21	Water	Terry Fagg, Craig Tomlinson	Routine		Internal Testing Data Microbiological Report Network Testing Other	DBP 14/10/2021	Plant Visit		<p>Plant operation ok. Turbidity about 1000 NTU Chlorine demand reasonable high. Magnasol dose only slightly increased from when operating at 100 NTU. May indicate ineffectiveness of Magnasol 589 in clean water or was being overdosed. Free chlorine varying somewhat but turb & pH generally good. DBP's are running about 200 ug/L when the blower and aeration was running but only in the centre res. That was to be change to series flow so that aerated res is #2. Investigated leak outside the fence coming from valve on sludge lines. Possibly overflow coming from lagoons. Supernatant tanks to be filled for testing.</p>	<ol style="list-style-type: none"> Res valve to be reconfigured so flow is in series through the reservoirs. Blower to be run to remove the chloroform. Overflow from lagoon valve to be checked & should normally be closed. Supertanks to be filled. Regular jar testing to be performed to confirm Magnasol dose is correct for conditions.
Dalby	18/11/21	Water	Terry Fagg, Jim Clearihan	Special (Specify)	Review after Minor	Internal Testing Data Operators Log Book Other	Visual Inspection	Plant Visit		<p>The plant had operated for some periods with incorrect coagulant and caustic dose due to miscommunication between operators and a change in water quality by an order of</p>	<ol style="list-style-type: none"> Operators to conduct regular walk rounds of the plant especially during and immediately after start up to review operations.

Plant	Date	Plant Type	Review Team:	Purpose of Review:	Specify:	Data Reviewed: (tick all that apply)	Other (please specify)	Review Undertaken	Identified Safety Issues:	Review Comments and Issues	Review Actions:
					Operational Incident					<p>magnitude. The operator's shutdown the plant when filtered turbidity reached 0.7ntu but the coagulant and caustic dose issue had not been properly resolved.</p> <p>There is uncertainty about alum and caustic dose capacity and whether sufficient capacity exists. There does not appear to be any apparent spares or redundant dose pumps of sufficient capacity to replace those in service however it may be possible to jury rig something if necessary.</p> <p>Existing caustic pumps are 0.2 bar rated and maybe fitted with incorrect dosing quills which may explain inadequate capacity due to excessive backpressure.</p> <p>The operator routine for plant operations may not be adequate for manually controlled and monitored operations. There may be insufficient understanding of the operation of the clarifier and the plug flow characteristics of the unit. The team plan for return to service was okay.</p>	<p>2. A significant raw water quality change always requires a full review of water quality. Turbidity, pH, hardness, alkalinity, and conductivity is the minimum to be tested.</p> <p>3. A significant quality change requires jar testing to calibrate alum and caustic dose rates.</p> <p>4. A single jar test taken directly from the flocculator should be performed at regular intervals throughout the day and after every alum and pre-dose caustic dosage change.</p> <p>5. Given that the plant is fully manual a filtered water quality of greater than 0.5ntu should cause an immediate investigation of the cause and a shutdown should be initiated unless an immediate solution that resolves the problem can be implemented. A filter turbidity greater than 1.0ntu shall trigger an immediate shutdown. The target for filtered water is less than 0.2ntu and should be the norm.</p> <p>6. The dosing capacity, both nameplate and actual capacity of all the alum and caustic pumps should be confirmed and recorded.</p> <p>7. Injection quills and pressure loading valve settings are to be checked against pump operating pressures. The large lwaki pumps have a lower operating pressure, and this may be too low for use with the standard injection quills.</p> <p>8. An inventory of dosing pumps and spares on hand to be developed and the operating status of spare pumps to be determined and tagged accordingly. Spare pump capacity to be provided.</p> <p>9. Sedimentation/Clarification training refresher to be conducted with all operators.</p> <p>10. Critical limits for clarifier operation 4ntu/5ntu alerUtritical with a 2ntu target as detailed in the DWQMP to be reinforced with operators.</p> <p>11. During the return to service after this event, clarified water quality should be monitored for pH and turbidity at regular frequent intervals due the large changes in dose rates that were used.</p> <p>12. All dose rate changes appear to have been recorded on the log sheet, however there is no process log to record the reasoning behind those changes.</p>
Dalby	13/12/21	Water	Terry Fagg	Special (Specify)	Result of floods - debrief			Plant Visit		<p>plant was surrounded by floodwater with some dirty water entering clear water tank via leaking drain valve. works and items identified as a result of the floods.</p> <p>1) Drain valve to be investigated. drain valve pit to be investigated for insertion of a plug.</p> <p>2) Cwt and pipe gallery to be measured and inspected for pneumatic plug insertion.</p> <p>3) Bores to be inspected for sealing - Bore inspection form to be used.</p> <p>4) Bore 8 turbidity issue to be investigated/ main flushed etc.</p> <p>5) Bore 2,4,5 and weir pump SCADA to be repaired.</p> <p>6) Checking of drain valve manhole after CWT drain down to be added to CWT clean out procedure.</p>	

Plant	Date	Plant Type	Review Team:	Purpose of Review:	Specify:	Data Reviewed: (tick all that apply)	Other (please specify)	Review Undertaken	Identified Safety Issues:	Review Comments and Issues	Review Actions:
										<p>7) Preflood checklist to be reviewed and filling of CWT upon shutdown to be added.</p> <p>8) Valve map to be updated and valve identified so that a CWT bypass procedure can be developed.</p> <p>9) Hypo dose settings used during bypass to be documented.</p> <p>10) RO2 transfer pumps to be checked as capacity was marginally lower than expected.</p> <p>11) Essential hoses to be moved from pipe gallery preflood - to be added to preflood checklist.</p> <p>12) Recommended spares and tools list to be reviewed and amended. items such as insertion rubber and wooden blocks to be added to the list. wooded blocks etc to be obtained to be used for various duties, stored neatly. Tool room to be tidied.</p> <p>13) CWT to be cleaned ASAP - Scheduled this week</p> <p>14) Simulation of "bypass" exercise to be undertaken, once procedure has been established.</p>	
Dalby	24/01/22	Water	Terry Fagg, RI	Routine		Flow & Power Logs Internal Testing Data Online Process Log Operators Log Book SCADA Standard Chemical Analysis		Plant Visit		<p>General review of plant operations. General waste quality good. RO2 potentially being over boosted because permeate flow was high. RO1 stage 2 under boosted resulting in low differential pressures.</p> <p>RO2 conductivity gradually getting higher 800+us/em.</p> <p>Filter plant had some filtered waste turbidities above 0.25ntu but generally okay.</p> <p>Control of river pumps still unreliable over SCADA. 2 pumps being operated to achieve flowrate about 70 L/sec.</p> <p>EPMH 1 - variation around 1000 us/em - 3 months.</p> <p>EPMH 2 - variation around 250 us/em - over 3 months.</p>	<p>1) River pump performance to be investigated.</p> <p>2) SCADA to be repaired to allow remote speed control.</p> <p>3) RO1 is to have Permeate rotameters installed to allow balance between stage 1 and 2 to be set up.</p> <p>4) RO2 feed pressures to be reviewed.</p> <p>5) Filter performance to be closely monitored to ensure 0.25ntu not exceeded.</p>
Dalby	11/03/22	Water	Terry Fagg	Special (Specify)	Review of surface water ops.	Chemical Usage Records Flow & Power Logs Internal Testing Data Other SCADA Standard Chemical Analysis		Plant Visit	Some chem tank isolation valves are damaged or without handles.	<p>Water Quality: Due to flooding issues, treated water quality has been okay but there has been many changes in sourcing and plants on line. RO2 with or without bores has done the bulk of the work. Conductivity 800-900 for most of the time. Turbidity 0.2-0.3. FCR 1-1.2. pH 7.7-7.8.</p> <p>When the surface water plant has been used, overall quality has not changed much.</p> <p>Filtered water, particularly on No1 filter has exceeded our 0.25 ntu alert level on several occasions. Some comments regarding backwashing on SWIM.</p> <p>Mar 13-14 FCR trended upwards. Ex CWT based on higher demand with increasing amounts of surface water. Surface water plant operating in Enhanced Coagulation Mode with pHs in the low 5s, and not closing any caustic.</p> <p>Quite a lot of time has been put into trying to optimise the alum dose, as turbidity charged daily with trends up and down.</p> <p>All network test points: pH about 7.7, Cond 800-900, turb 0.2-0.3, FCR about 1.0mg/L.</p> <p>The LSI's have been strongly negative.</p> <p>Plant operating satisfactorily but took some time to achieve the correct dose.</p> <p>There are currently many items that require repair/replacement/modification to improve plant resilience or reliability.</p>	<p>1) The GPO on the rate control rack in the pipe gallery needs to be relocated or mounted on a stand off block to allow proper plug access.</p> <p>2) The airline from the compression to RO1 is to be upgraded and re-routed via the cable tray.</p> <p>3) The workshop compressor to be fitted with an isolator immediately above the compressor.</p> <p>4) The Alum and Caustic tank isolators with broken handles to be repaired or replaced.</p> <p>5) The drawdown calibration tubes on the alum and caustic pumps to be replaced with larger size eg 5 litre, to allow for easier calibration of pump flows.</p> <p>6) The surface plant requires two alum pumps and two caustic pumps of appropriate capacity. Alum 150 L/hr. Caustic 100. Proper paperwork and manifolds and calibration tubes.</p> <p>7) Plant room us extensively cracked. Water comes from cracks when clear water tank is overfilled and is therefore a potential source of contamination, from spills or leaks on the floor or flooding.</p> <p>8) RO2 transfer pumps to be uprated from 30 to 60 L/hr to allow greater direct transfer capacity.</p> <p>9) RO2 treated water tank to be fitted with a bore inlet pipe, valve, and service from the bore main to allow direct fill.</p> <p>10) RO1 to RO2 permeate transfer pipe to allow RO1 to fill treated water tank on RO2.</p> <p>11) CWT overflow drain valve and pipework to be repaired or replaced.</p> <p>12) Weeds and grass to be removed from the rear of RO1 in the permeate tank areas.</p> <p>13) Cracks that are leaking in Flash mix to be repaired.</p> <p>14) Alum tank sixing - currently only have enough capacity for 30mL of production in dirty water conditions, however 10% of tank capacity</p>

Plant	Date	Plant Type	Review Team:	Purpose of Review:	Specify:	Data Reviewed: (tick all that apply)	Other (please specify)	Review Undertaken	Identified Safety Issues:	Review Comments and Issues	Review Actions:
											unable to be accessed. 15) Main valves on clarifier/flash mix to be repaired or replaced to restore functionality. 16) Temporary overflow plug in manhole to have airline and gauge extended to allow above ground checking when in service. 17) Overflow function to be restored once flooding has passed. 18) Filter backwash overrun switch to be repaired or replaced with a sensor and run on timer. 19) NO1 Flocculator gearbox to be repaired. 20) Centrifuge roller door to be repaired or replaced. 21) Operations staff require practice in Jar testing and calibration and set up of alum and caustic pumpings based on jar test results.
Miles	03/09/21	Water	Terry Fagg, Craig Tomlinson	Special (Specify)	Poor filter performance investigation	Flow & Power Logs Internal Testing Data Microbiological Report Network Testing Operators Log Book Other SCADA Standard Chemical Analysis	offline process log	Plant Visit	a rated lifting point to be installed to allow the use of fall arrest equipment in filters. Toe beard to fitted on northern side of Mezzanine level.	filters were inspected after performance, which contributed to a water quality incident. The following issues were identified. 1) Backwash flowrate had fallen from 65 L/sec to 58 l/sec resulting in poor filter bed expansion. 2) The concrete walls of the filter has lost the coating in many areas 3) The backwash troughs were heavily corroded and No1 had a hole in the bottom. 4) The filters were routinely being operated beyond 24 hours of filter runtime and with the rate control valves fully open. 5) Both filters had lost 100mm of media 6) Mudballs were present in both filters but more so in No1 7) The filters were not drawing down low enough initially. 8) Backwash turbidity indicated that the filters were not back washing adequately. 9) Filters to waste was not sufficiently long to guarantee low turbidity when returned to service. 10) Filter nozzles require repair to distribute air/ water more efficiently.	1) Backwash flowrate increased and retested (Done, Bed expansion improved) 2) Concrete wall repaired, media replaced and filter nozzles repaired and replaced. Referred to RMIP (1-3 years) 3) Backwash trough repair (1-3 months). Trough replacement (1-3 year) 4) Operated filters appropriately a) Do not exceed 24 hours filter time b) Do not operate with rate control valves at 100% (this should be reason to backwash) c) Filter setting to be adjusted to draw down to 5% level before backwash commenced d) Max filter should be operated to allow 20-30 minutes free standing and then 20 minutes of filter to waste. f) Regular measurement of end of backwash turbidity (should be 10-15 ntu) 5) Rock pond pump to be operated at low flow in conjunction with main raw pumps to feed super natal at approximate 10% of flow.
Miles	27/10/21	Water	Terry Fagg	Routine		Flow & Power Logs Internal Testing Data Microbiological Report Network Testing Online Process Log Operators Log Book SCADA		Plant Visit	New Pipe "stepover" is worse than what is was without it	Air compressor being changed out in both plants. Cooling tower on RO was being cleaned out A large amount of scale was preset in the cooling tower sump. This has been dislodged by hosing the packing. Surface plant had "high" settle water turbidity and was running filter to waste to bring filtered water quality below 0.5NTU. Plant had faulted during backwash as there was a chance that raw water had been allowed, in rather than shutting down. Did not cause a turbidity spike in treated water because all bad water was sent to waste. All testing up to date. Significant variation in free chlorine levels ex CLR 1.0 to 2.7 over 2 weeks. Plant had been operation with 10% supernatant return.	1.Resume process of measuring quantity in hypo, caustic and Coag tanks & recording on log sheet to support troubleshooting when process issues occur. 2. Continue quality testing of Pocky Pond & measuring level.
Miles	02/02/22	Water	Terry Fagg	Routine		Chemical Usage Records Flow & Power Logs Internal Testing Data Operators Log Book SCADA				EPO1 dry, EPO2 45NS/cm, 0 Depth Water quality h=generally good although FCRs trending high with 0.8 - 1.5mg/L in the network. Turbidity is less than 0.3 ntu in network, pH 7.5 - 7.7 surface water plant operating - all filtered water turbidities were ntu for January. Backwash frequency has generally been about 24 hours between wash. Transfer pump VFD replace. Backwash pump requires becoming replacement and foot valve repair. RO plant requires CIP - pressures are getting close to maximum and flow is dropping - over 3 months since last full CIP. Bag filters are being replaced twice weekly but cartridges infrequently. New head exchangers in service reducing temps to about 33C. Hypo dose to be increased 230 - 250 ml/hr. Algae growth in clarifies causing concern.	1) RO CIP required 2) Treat rocky pond and clarifier to be treated with coprol 5 liters into rock and 1 liter into clarifier. 3) Backwash pump to be repaired. 4) Trends a network free chlorine to be regularly reviewed. Considerable amount of changes in hypo dose rate being made.

Plant	Date	Plant Type	Review Team:	Purpose of Review:	Specify:	Data Reviewed: (tick all that apply)	Other (please specify)	Review Undertaken	Identified Safety Issues:	Review Comments and Issues	Review Actions:
Miles	17/02/22	Water	Terry Fagg, CT	Routine		Flow & Power Logs Internal Testing Data Microbiological Report Operators Log Book SCADA Standard Chemical Analysis		Plant Visit		Plants operating okay with, turb, pH and FCRs all okay. Filtered water turbidity good with only one excursion (0.28ntu) above 0.25. RO operating okay, after CIP. Flows and pressures okay. New HEX working well. Flow meter leak on RO will require the flow sensor to be replaced. Overflow/drain pipework on bore tank has fractured and needs repair. Might be able to be replaced with hose or flex coupling. Surface plant backwash pump still waiting repair on foot valve. Bearing to be replaced, pump noisy. VSDs on transfer pumps and high service pumps had been replaced. Oil leaking from large clarifier gearbox.	1) Bore tank pipework to be repaired/ replaced. 2) RO plant flow sensor to be replaced. 3) Clarifier gearbox leak to be investigated/repared. 4) Foot valve on backwash pump and bearing to be repaired or replaced.
Miles	23/02/22	Water	Terry Fagg	Routine		Flow & Power Logs Internal Testing Data Microbiological Report Operators Log Book SCADA Standard Chemical Analysis		Plant Visit		Plants operating okay with, turb, pH & FCRs all okay. Filtered water turbidity good with only one exclusive (0.28ntu) above 0.25. RO operating okay, after CIP. Flows and pressures okay. New HEX working well. Flow meter leak on RO will require the flow sensor to be replaced. Overflow/drain pipework on bore tank has fractured and needs repair. Might be able to be replaced with hose on flex coupling. Surface plant backwash pump still waiting repair on footvalve. Bearing to be replaced pump noisy VSDs on transfer pumps & high service pumps had been replaced. Oil leaking from large clarifier gearbox.	1) Bore tank pipework to be repaired/replaced 2) RO plant flow sensor to be replaced 3) Clarifier gearbox leak to be investigated/repared 4) Footvalve on backwash pump & bearing to be repaired or replaced
Miles	22/06/22	Water	Terry Fagg, JM, DMcK, CT	Special (Specify)	Filter Inspection					Both filters were inspected as a follow up from an inspection done in Sept 2021. Backwash troughs were measured in detail as first step to replacement. Filter 1 - media level 670-690mm - 20-50mm lower then 6 months earlier. Filter 2 - 500mm below trough - about the same as Sept 2021. Backwash pump failed to prime after works. Footvalve to be replaced immediately. Failure in No.1 backwash trough has become more prominent.	1) Filter media to be topped up: Ti sand 2.6m ³ 2) Backwash foot valve to be repaired. 3) No.1 backwash trough to be repaired.
Tara	07/09/21	Water	Terry Fagg, RG	Routine		Internal Testing Data Online Process Log Operators Log Book SCADA Standard Chemical Analysis			Handling of acid drums - shed to be modified.	Reviewed operation of UF and RO plant. Surface water plant off. UF pressures have improved significantly after weekend cleaning sequence. TMPs below 100kpa at 6.1 L/sec. RO pressures are good but boost pump is close to 100% speed. Discussed changes to acid dosing and the redesign of the shed to move back to HCl. Discussed no future return of supernatant. Allow to overflow back to lagoon. Downloaded evap pond data and quickly reviewed. Both loggers dry. Filter to waste time may need to be extended based of turbidity.	Actions: 1) Supernatant pump to be turned off 2) Filter to waste turbidity to be monitored after backwash. Don't return to operation until 0.5 ntu or lower is achieved. 3) Quotes for construction of acid shed to be obtained. 4) Network and pre RO free chlorine to be regularly monitored. 5) Log sheets for key parameters to be re-implemented.
Tara	31/01/22	Water	Terry Fagg	Special (Specify)	Review after water incident	Incident Reports Internal Testing Data SCADA		Plant Visit		Review was undertaken after a low chlorine operational incident. Low chlorine strength contributed to incident. Incorrect dropper in chlorine strength test kit 18 drops/mL. Most others are 11 -12. Problems organ pipe test. Approx 100 - 150mm bed expansion on both air scour and backwash. High turbidity at stat reducing to 10ntu at completion of wash. Blower set to 50Hz but the filter level is lowered to 100mm above bed before air scour. Refer to incident investigation Memo regarding management of chlorine residuals. Blower faults regularly. Plant feed water meter required to assist with plant operation calculations.	1) Filter backwash procedure to be modified and used. 2) Incident investigation Memo recommendations to be implemented. 3) RO plant CIP heater to have water leak repaired 4) Filters should be double back washed if necessary rather than running long cycles.
Tara	18/02/22	Water	Terry Fagg	Special (Specify)	Review of filter ops.	Flow & Power Logs Internal Testing Data		Plant Visit		RO plant operations satisfactory. Filter plant operations are marginal at times based on filtered	1) Referred to RMIP for proposed upgrade of Citect, combining the two projects and retaining the two monitors.

Plant	Date	Plant Type	Review Team:	Purpose of Review:	Specify:	Data Reviewed: (tick all that apply)	Other (please specify)	Review Undertaken	Identified Safety Issues:	Review Comments and Issues	Review Actions:
						Online Process Log Standard Chemical Analysis				water turbidity. Double backwashes have assisted. Operations are generally okay. Reviewed options for Citect computer system as remote access is not currently available for Surface Water Plant. System still runs Windows 98.	
Tara	11/05/22	Water	Terry Fagg	Routine		Internal Testing Data Online Process Log SCADA Standard Chemical Analysis		Plant Visit	Bracing in acid room thoroughfare to be "highlighted" further.	Plants operating satisfactorily with most of the demand being met by the RO plant. Surface water plant only being operated occasionally. Treated water free chlorine reasonably consistent exiting water tower but between 1 & 2.5mg/L at treatment plant 8. Some post reservoir data missing. Conductivity had risen 40 to 50% over a few weeks.	<ol style="list-style-type: none"> 1) Conductivity per RO vessel to be taken once per week for a few weeks to allow trends. 2) Hypo tank to be repaired - Vent is uncovered & loose in the top of the tank & tank is to ultimately be drained out & cleaned out. 3) Bracing straps on acid room to be highlighted. 4) The acid tank & pumps need to be physically cleaned. 5) The clarifier is to be treated with Coptrol to prevent algal growth amongst the tubes. 6) Chemical stocks to be reviewed regularly
Wandoan	27/01/22	Water	Terry Fagg	Routine		Internal Testing Data SCADA Standard Chemical Analysis		Plant Visit		Plant generally operating satisfactorily, but problems monitoring temperature, and some carry over of iron occurring. Investigated cooling tower performance and found that previous cleaning efforts had achieved little. Both towers needed to run at about 100% speed but struggling to stay under 38°C instead of 30°C. Dose of coagulant was checked and found to be about 20mg/L which is adequate. Some iron not settling with carry over to filters. Many temporary dose lines running across footpath. Data 2 weeks behind entry to SWIM.	<ol style="list-style-type: none"> 1) Investigate cooling tower performance - EVAPCO regarding iron fouling on packing. 2) Dose lines to be permanently repaired. 3) Clarifier/ filter performance to be monitored, after change of coagulant from 8588 to Ultraclear 3000. Different dose rate to be trialed if necessary. 4) Data to be updated.
Wandoan	25/05/22	Water	Terry Fagg	Special (Specify)	Look at issues during filter rinse	SCADA				Plant was performing okay but after a backwash the plant was cutting short on the rinse sequence by about 3 mins every time. This was tracked to the clarified water tank getting to about 25% & the rate of fall in the tank slowing (as if the outflow was slowing). However the wastewater tank into which the rinse water flows showed a consistent increase as though there was no change of flow. The clarified water tank had a 20% low setpoint but was only reading 25%. The wastewater tank had an 81% setpoint but was responding to a hand coded 70% max level. Downey changed the hand coded valve to an adjustable.	<ol style="list-style-type: none"> 1) Rinse turbidity to be monitored to see if full 10 minute rinse is required. 2) Filtered turbidity when first online to be checked to determine if lack of rinse is causing filter turbidity spike.
Warra	18/11/21	Water	Terry Fagg, Len Beck	Special (Specify)	Investigate Post CIP turbidity	Internal Testing Data Operators Log Book SCADA		Plant Visit		Plant has spikes of turbidity in clearwater tank after return to service post CIP. Spikes are typically 1-2 NTU. Clearwater Turb monitor is currently out of service. Lasertrax Turb monitor is not highlighting unusual turbidity ex-membrane.	<p>Three actions required to assist in trouble-shooting.</p> <ol style="list-style-type: none"> 1. Manually collect & analyse samples from outlet manifold for Turb (and maybe others) at 1 minute intervals for 10 mins. 2. Connect low pressure air to outlet manifold to allow a visual MIT to be conducted, by looking down the inlet port. This might detect a significant membrane failure. A 0-100kpa regulator must be fitted for this test although testing is likely to be at 50-70kpa. 3. Clearwater turbidity monitor to be repaired & return to service.

Table 3-2 - Reservoir Inspection Program

Scheme	Clear Water Tank	Low Level Reservoir/s	Low Level Large Reservoir Large	Treated Water Tank	Elevated Storage
SHADING	<i>Not applicable</i>		<i>Completed</i>	<i>Not completed</i>	
Bell		Inspected 2021-22			Inspected 2021-22
Chinchilla					
Condamine		1. Inspected 2021-22 2. Inspected 2021-22			
Dalby	Inspected 2021-22	Inspected 2021-22	Inspected 2021-22		
Jandowae	Inspected 2021-22	Inspected 2021-22			
Miles					
Tara		Inspected 2021-22			
Wandoan					
Warra					

Table 3-3 - Reservoir Inspection Program

Date	Scheme	Sample Site	Water Quality Reviewed	Comments	Scheme	Sample Site	Water Quality Reviewed	Comments	Scheme	Sample Site	Water Quality Reviewed	Comments	Scheme	Sample Site	Water Quality Reviewed	Comments
24/06/22	Bell	LLR	Conductivity E.coli FCR Turbidity pH		Chinchilla	Colamba st	E.coli FCR Turbidity pH		Chinchilla	Hospital	E.coli FCR Turbidity pH		Condamine	LLR	E.coli FCR Turbidity pH	
24/06/22	Dalby	LLR Edward st	Conductivity FCR Turbidity pH		Dalby	Anzac Pk	Conductivity E.coli FCR Turbidity pH		Jandowae	Final Water	Conductivity E.coli FCR Turbidity pH		Jandowae	Tower Exit	E.coli FCR Turbidity pH	Lots of FCR variation.
24/06/22	Miles			Data two weeks behind. Sent SMS to Craig.	Tara	Tower Exit	Conductivity E.coli FCR Turbidity pH		Tara	Stand Pipe	Conductivity FCR Turbidity pH		Wandoan			Data 10 days behind.
24/06/22	Warra	Best Park	Conductivity E.coli FCR Turbidity pH	Plant had operated in recycle mode.	Warra	Tank 4	Conductivity E.coli FCR Turbidity pH									
03/06/22	Condamine	LLR	FCR Turbidity pH	01/06/2022	Bell	LLR	Conductivity E.coli FCR Turbidity pH		Chinchilla	Colamba st	E.coli FCR Turbidity pH	Data missing Colamba st 08/05 & 17/05. Very stable operations.	Dalby	DWR Edward st	Conductivity FCR Turbidity pH	
03/06/22	Jandowae	Tower Exit	FCR Turbidity pH	FCR recovered after low period.	Miles	LLR	E.coli Fluoride FCR Turbidity pH		Tara	Test Points	Conductivity E.coli FCR Turbidity pH	High network chlorine - option to reduce phosphate dose - emailed	Warra	Tank 4	Conductivity E.coli FCR Turbidity pH	
03/06/22	Wandoan	Final	FCR Turbidity pH	Data missing for May - Emailed												
10/05/22	Bell	LLR Exit	Conductivity E.coli FCR Turbidity pH	Low FCR the last couple of days	Chinchilla	Colamba Exit	FCR Turbidity pH	FCR high everywhere	Condamine	LLR	FCR Turbidity pH		Dalby	DWR Edward st	Conductivity FCR Turbidity pH	

Date	Scheme	Sample Site	Water Quality Reviewed	Comments	Scheme	Sample Site	Water Quality Reviewed	Comments	Scheme	Sample Site	Water Quality Reviewed	Comments	Scheme	Sample Site	Water Quality Reviewed	Comments
10/05/22	Jandowae	Final Water	Conductivity E.coli FCR Turbidity pH	Emailed about trend	Miles	LLR	Conductivity Fluoride FCR Turbidity pH		Tara	Post Reservoir	Conductivity E.coli FCR Turbidity pH	FCR high everywhere - Emailed	Wandoan	Final Treated	FCR Turbidity pH	
10/05/22	Warra	Tank 4	Conductivity E.coli FCR Turbidity pH	Trending high - Emailed	Jandowae	Tower		06/05/2022 Missing data - emailed to update	Jandowae	Final water		14/05/2022 Emailed to update	Tara	Tower Exit		14/05/2022 Emailed to update
06/05/22	Bell	LLR exit	Conductivity E.coli FCR Turbidity pH	Low FCR the last couple of days	Chinchilla	Columba exit	FCR Turbidity pH	FCR high everywhere	Condamine	LLR	FCR Turbidity pH		Dalby	Dalby Water Reservoir Edward Street	Conductivity FCR Turbidity pH	
06/05/22	Jandowae	Final Water	Conductivity E.coli FCR Turbidity pH	Emailed about trend.	Miles	LLR	Conductivity Fluoride FCR Turbidity pH		Tara	Post Reservoir	Conductivity E.coli FCR Turbidity pH	FCR high everywhere - emailed	Wandoan	Final treated	FCR Turbidity pH	
06/05/22	Warra	Tank 4	Conductivity E.coli FCR Turbidity pH	Trending High - emailed												
26/04/22	Condamine	Bell Park	FCR Turbidity pH	1 test/ 7 days short	Chinchilla	Columba Street	Conductivity E.coli FCR Turbidity pH	Some data missing	Chinchilla	Hospital	FCR Turbidity pH		Bell	LLR	FCR Turbidity pH	Some data missing, no Ecoli for 7 days
26/04/22	Warra	Tank 1	E.coli FCR Turbidity	Subject to incident	Warra	Tank 4	Conductivity E.coli FCR Turbidity pH		Warra	Tower exit	Conductivity E.coli FCR Turbidity pH	FCR needs to be reduced.	Wandoan	Final treated	E.coli FCR Turbidity pH	A couple of days behind in data.
26/04/22	Bell	Railway Gardens	FCR Turbidity pH		Bell	LLR	FCR Turbidity pH	Some data missing. No E.coli for 7 days	Bell	Railway Garden	FCR Turbidity pH		Condamine	Low Level	FCR Turbidity pH	1 test/7 days start
26/04/22	Wandoan	Lindsay Oval	E.coli FCR Turbidity pH	FCR is coming down - data behind.	Tara	Tower exit	Conductivity E.coli FCR Turbidity pH	Inadequate data entry, regarding surface water ops.	Tara	Hospital	Conductivity E.coli FCR Turbidity pH	Inadequate data entry, regarding surface water ops	Miles	LLR	Conductivity Fluoride FCR Turbidity pH	Data is a few days behind.

Date	Scheme	Sample Site	Water Quality Reviewed	Comments	Scheme	Sample Site	Water Quality Reviewed	Comments	Scheme	Sample Site	Water Quality Reviewed	Comments	Scheme	Sample Site	Water Quality Reviewed	Comments
26/04/22	Miles	Apex Park	Conductivity FCR Turbidity pH	Data is a few days behind	Jandowae	Final	Conductivity E.coli FCR Turbidity pH		Jandowae	Tower Exit	Conductivity E.coli FCR Turbidity pH	A couple rows of data missing	Dalby	DWR Edward st	Conductivity FCR Turbidity pH	
26/04/22	Dalby	Lone Pine	Conductivity Fluoride FCR Turbidity pH	Network test data a week behind.	Condamine	Low level	FCR Turbidity pH	1 test/ 7 days short								
08/04/22	Wandoan	WTP	FCR	Data eight days behind.	Miles	Network		Network samples eight days behind.	Miles	Low level	Conductivity Fluoride FCR Turbidity pH	No network data available. Can't tell whether Ecoli testing has been done. Don't know if FCR is okay in the network. Free chlorine is probably too high.	Warra	WTP	Conductivity E.coli FCR Turbidity pH	
08/04/22	Dalby	DWR	Conductivity FCR Turbidity pH	High conductivity - Asked the question about RO1 being used. No data for 2/4/2022	Dalby	Pioneer	Conductivity FCR Turbidity pH		Condamine	Bell PK	E.coli FCR Turbidity pH	FCR high	Condamine	Final Water	E.coli FCR Turbidity pH	FCR high
08/04/22	Chinchilla	Colamba st	E.coli Fluoride FCR Turbidity pH	Data missing 3/4/2022	Chinchilla	Beutel	E.coli FCR Turbidity pH	FCR high but noticed that has been reduced	Bell	Res Exit	Conductivity E.coli FCR Turbidity pH		Bell	Railway Garden	Conductivity E.coli FCR Turbidity pH	
08/04/22	Warra	Tower Exit	Conductivity FCR Turbidity pH	Not certain about network E.Coli	Tara	Res TP8	Conductivity E.coli FCR Turbidity pH		Tara	Tower Exit	Conductivity FCR Turbidity pH	Not certain about network E.coli	Jandowae	Final Water	Conductivity FCR Turbidity pH	Some data missing
08/04/22	Jandowae	Apex park	Conductivity E.coli FCR Turbidity pH		Dalby	DWR	Conductivity FCR Turbidity pH	High conductivity - Asked the question about RO1 being used. No data for 2/4/2022	Dalby	Pioneer Gardens	Conductivity FCR Turbidity pH		Condamine	Bell Park	E.coli FCR Turbidity pH	FCR High

Date	Scheme	Sample Site	Water Quality Reviewed	Comments	Scheme	Sample Site	Water Quality Reviewed	Comments	Scheme	Sample Site	Water Quality Reviewed	Comments	Scheme	Sample Site	Water Quality Reviewed	Comments
18/03/22	Wandoan	Final	FCR Turbidity pH	At least 5 days behind with records. No network results.	Warra	Tank 4	FCR Turbidity pH		Warra	School	Conductivity E.coli FCR Turbidity pH		Bell	Res exit	Conductivity E.coli FCR Turbidity pH	Turb trending upwards.
18/03/22	Bell	Railway Gardens	Conductivity E.coli FCR Turbidity pH		Chinchilla	Columba Street	E.coli FCR Turbidity pH		Chinchilla	Beutel Park	Conductivity Fluoride FCR Turbidity pH	Free Chlorine is higher than required.	Condamine	LLR	FCR Turbidity pH	Not certain about Ecoli sampling.
18/03/22	Condamine	Pioneer Gardens	Conductivity E.coli FCR Turbidity		Jandowae	Final Waters	Conductivity E.coli FCR Turbidity pH		Jandowae	Tower exit	Conductivity E.coli FCR Turbidity pH		Miles	Final	Conductivity E.coli FCR Turbidity pH	
18/03/22	Miles	Maguire Park	Conductivity FCR Turbidity pH		Tara	Test P 8	Conductivity Fluoride FCR Turbidity pH		Tara	Hospital	FCR Turbidity pH					
04/03/22	Bell	LLR	Conductivity E.coli FCR Turbidity pH		Chinchilla	LLR	FCR Turbidity pH	High chlorine- email sent	Condamine	LLR	FCR Turbidity pH		Dalby	LLR DWR	Conductivity E.coli FCR Turbidity pH	
04/03/22	Jandowae	LLR Final	Conductivity E.coli FCR Turbidity pH		Miles	LLR	Conductivity FCR Turbidity pH	2-3 days behind	Tara	LLR	Conductivity Fluoride FCR Turbidity pH	High chlorine - email sent	Wandoan	Final treat	FCR Turbidity pH	a couple of days behind with date
04/03/22	Warra	Tank 4	Conductivity E.coli FCR Turbidity pH	High chlorine - email sent												
23/02/22	Bell	Railway Garden	Conductivity E.coli FCR Turbidity pH		Condamine	LLR	E.coli FCR Turbidity pH	Uncertain about Ecoli data.	Condamine	Bell Park	FCR Turbidity pH	High Chlorine has been an issue.	Jandowae	Tower exit	Conductivity E.coli FCR Turbidity pH	A spike in turb a week ago. Bores?

Date	Scheme	Sample Site	Water Quality Reviewed	Comments	Scheme	Sample Site	Water Quality Reviewed	Comments	Scheme	Sample Site	Water Quality Reviewed	Comments	Scheme	Sample Site	Water Quality Reviewed	Comments
23/02/22	Chinchilla	Colamba Street	E.coli FCR Turbidity pH	Incident related to turbidity previous week.	Chinchilla	Hospital	FCR Turbidity pH	Ok.	Dalby	Edward Street DWR	Conductivity Fluoride FCR Turbidity pH	E.Coli testing not certain. About a week of data missing. No recent tests	Dalby	Network		About a week of data missing, no recent tests.
23/02/22	Jandowae	Tower Exit	Conductivity E.coli FCR Turbidity pH	A spike in turbidity a week ago. Bores?	Jandowae	Rotary Park	Conductivity E.coli FCR Turbidity pH		Miles	LLR	Conductivity Fluoride FCR Turbidity pH	No Ecoli data recorded. Data is behind.	Miles	Council Chambers	Conductivity FCR Turbidity pH	No Ecoli data recorded. Data is behind.
23/02/22	Jandowae	Rotary park	Conductivity E.coli FCR Turbidity pH		Miles	LLR	Conductivity Fluoride FCR Turbidity pH	No E.Coli data recorded	Miles	Council chambers	Conductivity FCR Turbidity pH	Data is behind	Tara	Tower exit	Conductivity FCR Turbidity pH	Not certain about E.Coli data
23/02/22	Tara	Hospital	Conductivity E.coli FCR Turbidity pH	Some data missing	Wandoan	Final treated	FCR Turbidity pH		Wandoan	No network data		Emailed	Warra	Tank 4	Conductivity E.coli FCR Turbidity pH	
23/02/22	Warra	Warra School	Turbidity pH		Bell	LLR	Conductivity E.coli FCR Turbidity pH	High Turbidity Emailed Len	Condamine	Bell park	FCR Turbidity pH	High chlorine has been an issue	Tara	Tower Exit	Conductivity FCR Turbidity pH	Not certain about Ecoli data.
10/02/22	Miles			No records since Fri 4th Feb	Bell	Low Level R	Conductivity E.coli FCR Turbidity pH	OK.	Chinchilla	Columba Street	FCR Turbidity pH	None recorded in last 7 days.	Chinchilla	Hospital	Conductivity FCR Turbidity pH	No record in last 7 days.
10/02/22	Condamine	LLR	FCR Turbidity pH	Only 1 in last 7 days	Condamine	Pioneer	FCR Turbidity pH	Not sure about	Dalby	DWR Edward Street	Conductivity E.coli FCR Turbidity pH		Dalby	Wood Street Park	Conductivity E.coli FCR Turbidity pH	
10/02/22	Jandowae	LLR	Conductivity E.coli FCR Turbidity pH	Costic and hypo had been reduced.	Jandowae	Hospital	Conductivity FCR Turbidity pH		Tara	Tsp 8	Conductivity FCR Turbidity pH	Not sure about Ecoli	Tara	Tower exit	Conductivity FCR Turbidity pH	Not sure about Ecoli

Date	Scheme	Sample Site	Water Quality Reviewed	Comments	Scheme	Sample Site	Water Quality Reviewed	Comments	Scheme	Sample Site	Water Quality Reviewed	Comments	Scheme	Sample Site	Water Quality Reviewed	Comments
10/02/22	Warra	Tank 4	Conductivity E.coli FCR Turbidity pH		Warra	Tower exit	Conductivity E.coli FCR Turbidity pH	FCR a little high but ok.	Wandoan			No records for February.				
31/01/22	Bell	LLR	Conductivity E.coli FCR Turbidity pH	Data up to date	Chinchilla	Colamba Street	E.coli FCR Turbidity pH	Data missing 12th January 2022	Chinchilla	CSP10	Fluoride FCR Turbidity pH	Net certain about E Coli numbers : Emailed sent	Chinchilla	Gaske	Conductivity Fluoride FCR Turbidity pH	28/01/2022 No recent E Coli test
31/01/22	Tara	Showgrounds	Conductivity E.coli FCR Turbidity pH	Alot of movement in CL2 levels up and down. Uncertain about E Coli - Emailed.	Tara	EX LLR TP8	Conductivity Fluoride FCR Turbidity pH	Alot of movement in CL2 levels up and down. Uncertain about E Coli - Emailed.	Wandoan			Data available only to the 17th of January.	Warra	Tank 4	Conductivity FCR Turbidity pH	
31/01/22	Condamine	LLR	FCR Turbidity pH	Data for 8 and 9/1/2022 missing. Emailed.	Condamine	Pioneer Park	FCR Turbidity pH	No recent Ecoli date.	Dalby	Edward street AH	E.coli FCR Turbidity pH	Emailed about Ecoli numbers and variation between AH and AB.	Dalby	ANZAC Park	Fluoride FCR Turbidity pH	
31/01/22	Warra	School	Conductivity E.coli FCR Turbidity pH	Okay												
31/01/22	Jandowae	Tower exit	E.coli	Incomplete data. Emailed.	Jandowae	Lions Park	FCR Turbidity pH	High pH. Emailed.	Jandowae	Final Water	Conductivity FCR Turbidity pH	High pH. Emailed.	Miles	LLR	Conductivity Fluoride FCR Turbidity pH	Unsure about Ecoli data. Emailed.
31/01/22	Miles	Maguire	Conductivity Fluoride FCR Turbidity pH	Unsure about E Coli data - Emailed												
02/12/21	Bell	Res Exit	Conductivity FCR Turbidity pH	Emailed about no comments on previous day.	Chinchilla	Colamba St	FCR Turbidity pH		Chinchilla	CSPIO	E.coli Fluoride FCR Turbidity pH	Sent email about low FCR - Industrial park.	Condamine	LLR	E.coli FCR Turbidity pH	Records of E.coli not good enough.

Date	Scheme	Sample Site	Water Quality Reviewed	Comments	Scheme	Sample Site	Water Quality Reviewed	Comments	Scheme	Sample Site	Water Quality Reviewed	Comments	Scheme	Sample Site	Water Quality Reviewed	Comments
02/12/21	Dalby	DWR	Conductivity Fluoride FCR Turbidity pH		Jandowae	Final Water	Conductivity E.coli FCR Turbidity pH	Emailed regarding the need to backwash earlier.	Jandowae	Tower Exit.	FCR Turbidity pH		Miles	LLR	Conductivity E.coli Fluoride FCR Turbidity pH	FCR high but network okay.
02/12/21	Dalby	DWR	Conductivity Fluoride FCR Turbidity pH		Jandowae	Final Water	Conductivity E.coli FCR Turbidity pH		Tara	Tower Exit	Conductivity FCR Turbidity pH		Wandoan	Final	FCR Turbidity pH	No network data (not certain about ecoli)
02/12/21	Tara	LLR TPS	E.coli Fluoride FCR Turbidity pH		Tara	Tower Exit	Conductivity FCR Turbidity pH		Wandoan	Final	FCR Turbidity pH	No network data. Not certain about E.coli. Email sent.	Warra	Tank 4	Conductivity E.coli FCR Turbidity pH	
02/12/21	Miles	LLR	Conductivity E.coli Fluoride FCR Turbidity pH	FCR high but network okay	Warra	Tank 4	Conductivity E.coli FCR Turbidity pH		Warra	Tower Exit	Conductivity E.coli FCR Turbidity pH		Jandowae	Tower Exit	FCR Turbidity pH	
12/11/21	Miles	LLR	Conductivity E.coli Fluoride FCR Turbidity pH	Apex Park low FCR abit high - Emailed	Jandowae	Tower Exit	Conductivity E.coli FCR Turbidity pH		Dalby	Edward Street	FCR Turbidity pH		Condamine	LLR	FCR Turbidity pH	
12/11/21	Chinchilla	Colamba Street	E.coli FCR Turbidity pH		Bell	LLR	Conductivity E.coli FCR Turbidity pH		Tara	Tower exit	Conductivity E.coli FCR Turbidity pH		Wandoan	Final treated	FCR Turbidity pH	Chlorine low but close increases recorded.
12/11/21	Warra	Tank 4 Final	Conductivity E.coli FCR Turbidity pH													
29/10/21	Bell	LLR exit	Conductivity E.coli FCR Turbidity pH	Emailed about low FCR levels.	Warra	Tank 4	Conductivity E.coli FCR Turbidity pH	FCR has been up and down over the week.	Wandoan	Final treated	FCR Turbidity pH	Discussed with.	Tara	Test P 8	Conductivity E.coli FCR Turbidity pH	RO offline - Bore 1 direct feed in

Date	Scheme	Sample Site	Water Quality Reviewed	Comments	Scheme	Sample Site	Water Quality Reviewed	Comments	Scheme	Sample Site	Water Quality Reviewed	Comments	Scheme	Sample Site	Water Quality Reviewed	Comments
29/10/21	Miles	LLR	Conductivity E.coli FCR Turbidity pH		Jandowae	Final Water	Conductivity E.coli FCR Turbidity pH		Dalby	DWR Edward Street	Conductivity E.coli FCR Turbidity pH		Chinchilla	Colamba St	FCR Turbidity pH	Ecoli testing insufficient - Emailed
29/10/21	Condamine	LLR	E.coli FCR Turbidity pH	Ecoli testing adequate.	Chinchilla	Gaske	Conductivity Fluoride FCR Turbidity pH									
22/10/21	Tara	Test Point 8	Conductivity E.coli FCR Turbidity pH	Not frequent enough with Ecoli - Emailed	Tara	Tower Exit	pH		Warra	Tank 4	Conductivity E.coli FCR Turbidity pH	Complies enough samples	Jandowae	Final Water	Conductivity E.coli FCR Turbidity pH	pH?? email sent
22/10/21	Dalby	Edward Street	Conductivity FCR Turbidity pH	Ecoli testing ok but a little hit and miss.	Miles	LLR	Fluoride FCR Turbidity pH	Chlorine low but being worked on. Ecoli sporadic.	Condamine	LLR	FCR Turbidity pH	Not sufficient frequency.	Chinchilla	Colamba Street	FCR Turbidity pH	Some data missing
22/10/21	Bell	LLR exit	Conductivity E.coli FCR Turbidity pH	Complies.	Wandoan	Final treated	FCR Turbidity pH	No record at plant exit Ecoli (Not on swim).								
29/09/21	Bell	Res Exit	Conductivity E.coli FCR Turbidity pH	28/9/2021	Bell	Work Depot	Conductivity FCR Turbidity pH	27/9/2021	Chinchilla	Colamba Street	FCR Turbidity pH		Chinchilla	Wondai Road	E.coli FCR Turbidity pH	No fluoride test result 27/9/2021
29/09/21	Miles	Anzac	Conductivity FCR Turbidity pH		Miles	LLR	Conductivity E.coli Fluoride FCR Turbidity pH	Not enough Ecoli taken for LLR	Tara	LLR	Conductivity E.coli FCR Turbidity pH	Not enough Ecoli taken for LLR	Tara	Tower Exit	Conductivity FCR Turbidity pH	
29/09/21	Condamine	Low level	FCR Turbidity pH	Emailed with query on Turb.	Condamine	Pioneer Park	FCR pH	No Turb data. Ecoli did not conform with recent direction, 2 in 7 days.	Dalby	DWR Edward	Conductivity Fluoride FCR Turbidity pH	Ecoli did not conform with existing sample table.	Dalby	STP	Conductivity Fluoride FCR Turbidity pH	

Date	Scheme	Sample Site	Water Quality Reviewed	Comments	Scheme	Sample Site	Water Quality Reviewed	Comments	Scheme	Sample Site	Water Quality Reviewed	Comments	Scheme	Sample Site	Water Quality Reviewed	Comments
26/07/21	Jandowae	Final Water	Conductivity FCR Turbidity pH		Jandowae	Hospital	Conductivity FCR Turbidity pH		Jandowae	Apex	Conductivity FCR Turbidity pH		Miles	Final	FCR Turbidity pH	
26/07/21	Miles	Morgan	Conductivity Fluoride FCR Turbidity pH													
12/07/21	Bell	LLR Exit	Conductivity E.coli FCR Turbidity pH	Good results	Bell	Works Depot	Conductivity FCR Turbidity pH	Good results 8/7/2021	Bell	Railway Gardens	Conductivity FCR Turbidity pH	Good results 6/7/2021	Chinchilla	Final	Fluoride FCR Turbidity pH	
12/07/21	Miles	Final Water	FCR Turbidity pH		Miles	LLR	Conductivity E.coli Fluoride FCR Turbidity pH		Miles	Apex	Conductivity FCR Turbidity pH	Needs a flush? Low FCR	Tara	Test Point 8	Conductivity FCR Turbidity pH	
12/07/21	Chinchilla	Hospital	E.coli Fluoride FCR Turbidity pH	High FCR	Chinchilla	Gaske?	Conductivity Fluoride FCR Turbidity pH	High FCR	Condamine	LLR	E.coli FCR Turbidity pH		Condamine	Pioneer	E.coli FCR Turbidity pH	
12/07/21	Tara	Tarcoola	Conductivity FCR Turbidity pH		Tara	Skatepark	Conductivity E.coli FCR Turbidity pH		Wandoan	Final Treated	FCR Turbidity pH		Wandoan	Apex	E.coli FCR Turbidity pH	Behind in Network testing
12/07/21	Dalby	DWR	Conductivity FCR Turbidity pH		Dalby	Wood st park	Conductivity E.coli Fluoride FCR Turbidity pH	Testing of pH - back in the lab?	Dalby	Lone Pine	Conductivity E.coli FCR Turbidity pH		Jandowae	Final	Conductivity E.coli FCR Turbidity pH	
12/07/21	Warra	Best Park	Conductivity FCR Turbidity pH	Turbidity is higher than it should be	Warra	Tank 4	Conductivity E.coli FCR Turbidity pH	Turbidity was higher the day before but okay today	Jandowae	Tower Exit	Conductivity E.coli FCR Turbidity pH		Jandowae	Hospital	Conductivity FCR Turbidity pH	Chinchilla high FCR - email sent Query regarding testing of pH at Dalby - Missing clearwater data. Jandowae - FCR has been increased

Table 3-4 - Risk management improvement program implementation status

Date	Plant	Identified (RMIP) Tasks	RMIP Priority	RMIP Budget	Review Comments and Issues	Review Actions:
14/09/2022	Condamine	Filtered water turbidity have been difficult to maintain due to poor backwash. Blower faulty	Urgent	2022/23	<p>The filtered water turbidity had been much higher than normal. Backwash water turbidities indicated a high spike & quick decline, but little un time before high turbidity again. A lot of variation between filters. Set up to do an organ pipe test, but found during air scour that the blower produced no air/no bed expansion. 75 to 100mm expansion during backwash but water only wash was unable to clean out the turbidity.</p> <p>Filter inspection revealed: - depth of bed still okay - some small mud balls on surface & upper levels - no gravel etc coming to the surface - Shake test after backwash - lot of floc etc settled out in media - see photo</p> <p>Possible problem with backwash pump & backwash pump valve position switch.</p>	<ol style="list-style-type: none"> 1). Replace/repair blower ASAP. 2). Resolve valve position issue. 3). Operators to observe backwashes.
24/10/2022	Tara	Replacement of hypo tank with 2x rectangle tanks to allow tanks to be cleaned out	Urgent	2022/23	<p>Water quality generally good with RO plant doing 100% of demand. pH 7.7-7.8, Turbidity 0.2, FCR 1.5mg/l, F 0.2-0.5mg/l.</p> <p>H3PO4 dose is currently 7mg/l. Hypo tank is still sludgy on the bottom. Antiscalant tank grubby with some dirt in suspension.</p> <p>Filter to waste valves fitted to allow normal flow filter to waste function without using valve 26 & risking feed to reservoir. Backwash procedure to be modified to incorporate new filter to waste valves.</p> <p>Antiscalant pump to be overhauled. Inlet strainer check/clean. Daily procedure to be modified - Antiscalant tank should be refilled daily (preferred as a cross check on the daily quantity being used).</p> <p>Blend flow meter setup was corrected. CIP had been undertaken day before with good effect.</p>	<ol style="list-style-type: none"> 1). Chem unloading slab to be drained appropriately. 2). Hypo tank to be cleaned out. Tank to be replaced with two rectangle tanks of about the same total capacity. 3). Antiscalant tank to be scrubbed out & pump overhauled. 4). Phosphoric dosing to be reduced to 1.9% & monitored. 5). Surface plant to be run for several days _ test. 6). Backwash procedure to be modified to incorporate new valves.
4/08/2022	Wandoan	Cooling tower packing to be replaced or repaired. Cooling efficiency is low & support bearer bowed due to weight.	High	2023/242024/25	<p>Plant operating satisfactorily. Running on bore 1. Hypo supply issues but being topped up from Miles. Hypo has lost strength quickly. Possible that hypo strength on the top of the tank is different to where the pump draws from. No data available on SWIM since 20th July 2022. Data onsite. FCR around 1.0 mg/l. Control system UPS requires battery replacement. Batteries were inspected. Cooling tower performance marginal. Bore 1 leaking badly.</p>	<ol style="list-style-type: none"> 1) Data to be updated - log sheets being sent to reporting offices for input. 2) Chlorine strength to be maintained/increased & monitored. 3) UPS batteries to be replaced. 4) Bore 1 requires shaft seal repair. (This has been organised. Awaiting visit by contractor.)
13/07/2022	Wandoan	Bird-proofing on guttering on large reservoir to be improved. Better than nothing.	High	2023/24	<p>Reviewed data at local level. Data not available on SWIM. Operation okay. Chlorine, turbs, micro, pH - good.</p> <p>Checked changes to backwash cycle. Time was changed from 7 to 5 minutes which assures that rinse water does not run out before end of cycle. This seems to be working okay.</p> <p>Some floc carry over from Lamella at time of visit. Maybe just a start up issue. Sludge withdrawal from Lamella was appropriate.</p> <p>Checked solar panels, working okay.</p> <p>Inspected large reservoir roof after repair works undertaken. new bird-proofing along the centre box guttering was poor. New hatch was an improvement & gutter downpipe into the overflow was good.</p> <p>UPS faulty - battery alarm</p>	<ol style="list-style-type: none"> 1) Data to be updated. 2) Bird-proofing on centre gutter to be improved. 3) UPS to be repaired. 4) Backwash performance to be monitored.

Date	Plant	Identified (RMIP) Tasks	RMIP Priority	RMIP Budget	Review Comments and Issues	Review Actions:
22/06/2022	Miles	Both filters to have media topped up to maintain performance.	Urgent	2021/22	Both filters were inspected as a follow up from an inspection done in Sept 2021. Backwash troughs were measured in detail as first step to replacement. Filter 1 - media level 670-690mm - 20-50mm lower then 6 months earlier. Filter 2 - 500mm below trough - about the same as Sept 2021. Backwash pump failed to prime after works. Footvalve to be replaced immediately. Failure in No.1 backwash trough has become more prominent.	1) Filter media to be topped up: Ti sand 2.6m ³ 2) Backwash foot valve to be repaired.3) No.1 backwash trough to be repaired.
11/03/2022	Dalby	Repair of Plant Room Floor and General Clean Water Tank Overhaul.	Medium	2024/25	Water Quality: Due to flooding issues, treated water quality has been okay but there has been many changes in sourcing and plants on line. R02 with or without bores has done the bulk of the work. Conductivity 800-900 for most of the time. Turbidity 0.2-0.3. FCR 1-1.2. pH 7.7-7.8. When the surface water plant has been used, overall quality has not changed much. Filtered water, particularly on No1 filter has exceeded our 0.25 ntu alert level on several occasions. Some comments regarding backwashing on SWIM. Mar 13-14 FCR trended upwards. Ex CWT based on higher demand with increasing amounts of surface water. Surface water plant operating in Enhanced Coagulation Mode with pHs in the low 5s, and not closing any caustic. Quite a lot of time has been put into trying to optimise the alum dose, as turbidity charged daily with trends up and down. All network test points: pH about 7.7, Cond 800-900, turb 0.2-0.3, FCR about 1.0mg/L. The LSI's have been strongly negative. Plant operating satisfactorily but took some time to achieve the correct dose. There are currently many items that require repair/replacement/modification to improve plant resilience or reliability.	1) The GPO on the rate control rack in the pipe gallery needs to be relocated or mounted on a stand off block to allow proper plug access. 2) The airline from the compression to R01 is to be upgraded and re-routed via the cable tray. 3) The workshop compressor to be fitted with an isolator immediately above the compressor. 4) The Alum and Caustic tank isolators with broken handles to be repaired or replaced. 5) The drawdown calibration tubes on the alum and caustic pumps to be replaced with larger size eg 5 litre, to allow for easier calibration of pump flows. 6) The surface plant requires two alum pumps and two caustic pumps of appropriate capacity. Alum 150 L/hr. Caustic 100. Proper paperwork and manifolds and calibration tubes. 7) Plant room us extensively cracked. Water comes from cracks when clear water tank is overfilled and is therefore a potential source of contamination, from spills or leaks on the floor or flooding. 8) R02 transfer pumps to be uprated from 30 to 60 L/hr to allow greater direct transfer capacity. 9) R02 treated water tank to be fitted with a bore inlet pipe, valve, and service from the bore main to allow direct fill. 10) R01 to R02 permeate transfer pipe to allow R01 to fill treated water tank on R02. 11) CWT overflow drain valve and pipework to be repaired or replaced. 12) Weeds and grass to be removed from the rear of R01 in the permeate tank areas. 13) Cracks that are leaking in Flash mix to be repaired. 14) Alum tank sicing - currently only have enough capacity for 30mL of production in dirty water conditions, however 10% of tank capacity unable to be accessed. 15) Main valves on clarifier/flash mix to be repaired or replaced to restore functionality. 16) Temporary overflow plug in manhole to have airline and gauge extended to allow above ground checking when in service. 17) Overflow function to be restored once flooding has passed. 18) Filter backwash overrun switch to be repaired or replaced with a sensor and run on timer. 19) NO1 Flocculator gearbox to be repaired. 20) Centrifuge roller door to be repaired or replaced. 21) Operations staff require practice in Jar testing and calibration and set up of alum and caustic pumpings based on jar test results.
18/02/2022	Tara	Upgrade and reorganization of Citect computer systems.	High	2022/23	RO plant operations satisfactory. Filter plant operations are marginal at times based on filtered water turbidity. Double backwashes have assisted. Operations are generally okay. Reviewed options for Citect computer system as remote access is not currently available for Surface Water Plant. System still runs Windows 98.	1) Referred to RMIP for proposed upgrade of Citect, combining the two projects and retaining the two monitors.
31/01/2022	Tara	Rebuild or replacement of media filter.	High	2023/24	Review was undertaken after a low chlorine operational incident. Low chlorine strength contributed to incident. Incorrect dropper in chlorine strength test kit 18 drops/mL. Most others are 11 to 12. Problems with unsatisfactory filter performance. High filtered turbs 0.5 ntu + and long interval for filter *ripening*. Performed organ pipe test. Approx 100-150.. bed expansion on both air scour and backwash. High turb at start reducing to 10ntu at completion of wash. Blower set to 50Hz but the filter level is lowered to 100mm above bed before air scour. Refer to Incident Investigation Memo regarding management of chlorine residuals. Blower faults regularly. Plant feed water meter required to assist with plant operation calculations.	1) Filter backwash procedure to be modified and used. 2) Incident Investigation Memo recommendations to be implemented. 3) RO plant CIP heater to have water leak repaired. 4) Filters should be double backwashed if necessary rather than running long cycles.
31/01/2022	Tara	Rebuild or replacement of media filter.	High	2023/24	Review was undertaken after a low chlorine operational incident. Low chlorine strength contributed to incident. Incorrect dropper in chlorine strength test kit 18 drops/mL. Most others are 11 -12. Problems organ pipe test. Approx 100 - 150mm bed expansion on both air scour and backwash. High turbidity at stat reducing to 10ntu at completion of wash. Blower set to 50Hz but the filter level is lowered to 100mm above bed before air scour. Refer to incident investigation Memo regarding management of chlorine residuals. Blower faults regularly. Plant feed water meter required to assist with plant operation calculations.	1) Filter backwash procedure to be modified and used. 2) Incident investigation Memo recommendations to be implemented. 3) RO plant CIP heater to have water leak repaired 4) Filters should be double back washed if necessary rather than running long cycles.

Date	Plant	Identified (RMIP) Tasks	RMIP Priority	RMIP Budget	Review Comments and Issues	Review Actions:
27/01/2022	Wandoan	Investigate and replace/repair of cooling tower packing material.	High	2022/23	Plant generally operating satisfactorily, but problems monitoring temperature, and some carry over of iron occurring. Investigated cooling tower performance and found that previous cleaning efforts had achieved little. Both towers needed to run at about 100% speed but struggling to stay under 38°C instead of 30°C. Dose of coagulant was checked and found to be about 20mg/L which is adequate. Some iron not settling with carry over to filters. Many temporary dose lines running across footpath. Data 2 weeks behind entry to SWIM.	1) Investigate cooling tower performance - EVAPCO regarding iron fouling on packing. 2) Dose lines to be permanently repaired. 3) Clarifier/ filter performance to be monitored, after change of coagulant from 8588 to Ultraclear 3000. Different dose rate to be trialed if necessary. 4) Data to be updated.
13/12/2021	Dalby	RO1 Permeate feed line to be extended to retaining wall to allow a RO1 to transfer tank connection.	Medium	2022/23	Debrief of Dalby staff post event. Plant was surrounded by floodwater with some dirty water entering clear water tank via leaking drain valve. Works and items identified as a result of the floods. i) Drain valve to be investigated. Drain valve pit to be investigated for insertion of a plug. ii) CWT and pipe gallery to be measured and inspected for pneumatic plug insertion. iii) Bores to be inspected for sealing - Bore inspection form to be used. iv) Bore 8 turbidity issue to be investigated/main flushed etc. v) Bore 2, 4, 5 and Weir pump SCADA to be repaired. vi) Checking of drain valve manhole after CWT drain down to be added to CWT clean out procedure. vii) Pre-flood checklist to be reviewed - filling out of CWT upon shutdown to be added. viii) Valve map to be updated and valves identified so that a CWT bypass procedure can be developed. ix) Hypo dose settings used during bypass to be documented. x) RO2 transfer pumps to be checked as capacity was marginally lower than expected. xi) Essential hoses to be moved from pipe gallery pre-flood - to be added to pre-flood checklist. xii) Recommended spares and tools list to be reviewed and amended. Items such as insertion rubber and wooden blocks to be added to list. Wooden clocks etc to be obtained to be used for various duties. Stored neatly. Tool room to be tidied. xiii) CWT to be cleaned ASAP - scheduled this week. xiv) Simulation of "bypass" exercise to be undertaken once procedure has been established.	
13/12/2021	Dalby	RO1 Permeate feed line to be extended to retaining wall to allow a RO1 to transfer tank connection. .	Medium	2022/23	plant was surrounded by floodwater with some dirty water entering clear water tank via leaking drain valve. works and items identified as a result of the floods. 1) Drain valve to be investigated. drain valve pit to be investigated for insertion of a plug. 2) Cwt and pipe gallery to be measured and inspected for pneumatic plug insertion. 3) Bores to be inspected for sealing - Bore inspection form to be used. 4) Bore 8 turbidity issue to be investigated/ main flushed etc. 5) Bore 2,4,5 and weir pump SCADA to be repaired. 6) Checking of drain valve manhole after CWT drain down to be added to CWT clean out procedure. 7) Preflood checklist to be reviewed and filling of CWT upon shutdown to be added. 8) Valve map to be updated and valve identified so that a CWT bypass procedure can be developed. 9) Hypo dose settings used during bypass to be documented. 10) RO2 transfer pumps to be checked as capacity was marginally lower than expected. 11) Essential hoses to be moved from pipe gallery preflood - to be added to preflood checklist. 12) Recommended spares and tools list to be reviewed and amended. items such as insertion rubber and wooden blocks to be added to the list. wooded blocks etc to be obtained to be used for various duties, stored neatly. Tool room to be tidied. 13) CWT to be cleaned ASAP - Scheduled this week 14) Simulation of "bypass" exercise to be undertaken, once procedure has been established.	

Date	Plant	Identified (RMIP) Tasks	RMIP Priority	RMIP Budget	Review Comments and Issues	Review Actions:
3/09/2021	Miles	Filter repairs as per inspection report.	Medium	2022/23	Filters were inspected after performance, which contributes to a water quality incident. The following issues were identified:1) Backwash flowrate had fallen from 65 L/sec to 58 L/sec resulting in poor filter bed expansion.2) The concrete walls of the filter had lost the coating in many areas.3) The backwash troughs were heavily corroded and no 1 had a hole in the bottom.4) The filters were routinely being operated beyond 24 hours of filter routine and with the rate control values fully open.5) Both filters had lost 100mm + of media.6)Mudballs were present in both filters but more so in no 1.7) The filters were not drawing down low enough initially.8) Backwash turbidity indicated that the filters were not backwashing adequately.9) Filter to waste was not sufficiently long to guarantee low turbidity when returned to service.10) Filter nozzles require repair to distribute air/water more efficiently.	1) Backwash flowrate increased and retested (done. Bed expansion improved)2) Concrete wall repaired, media replaced and filter nozzles repaired and replaced. Referred to RMIP (1-3 years)3) Backwash trough repair (1-3 months). Trough replacement (1-3 years)4) Operate filters approximately = a) do not exceed 24 hours filter time b) do not operate with rate control values at 100% (this should be reason to backwash) c) filter setting to be adjusted to draw down to 5% level before backwash commenced. d) max filter run time alarm to be adjusted to 24 hours. e) filters should be operated to allow 20-30 mins free standing and then 20 mins of filter to waste. f) regular measurement of end of backwash turbidity (should be 10-15 ntu)5) Rock pond pump to be operated at low flow in conjunction with main raw pumps to feed supernatant at approx 10% of flow.
3/09/2021	Miles	filter repairs as per inspection report	Medium	2022/23	filters were inspected after performance, which contributed to a water quality incident. The following issues were identified:1) Backwash flowrate had fallen from 65 L/sec to 58 l/sec resulting in poor filter bed expansion.2) The concrete walls of the filter has lost the coating in many areas3) The backwash troughs were heavily corroded and No1 had a hole in the bottom.4) The filters were routinely being operated beyond 24 hours of filter runtime and with the rate control values fully open. 5) Both filters had lost 100mm of media 6) Mudballs were present in both filters but more so in No1 7) The filters were not drawing down low enough initially.8) Backwash turbidity indicated that the filters were not back washing adequately. 9) Filters to waste was not sufficiently long to guarantee low turbidity when returned to service.10) Filter nozzles require repair to distribute air/ water more efficiently.	1) Backwash flowrate increased and retested (Done, Bed expansion improved)2) Concrete wall repaired, media replaced and filter nozzles repaired and replaced. Referred to RMIP (1-3 years) 3) Backwash trough repair (1-3 months). Trough replacement (1-3 year) 4) Operated filters appropriately a) Do not exceed 24 hours filter time b) Do not operate with rate control valves at 100% (this should be reason to backwash) c) Filter setting to be adjusted to draw down to 5% level before backwash commenced d) Max filter should be operated to allow 20-30 minutes free standing and then 20 minutes of filter to waste. f) Regular measurement of end of backwash turbidity (should be 10-15 ntu)5) Rock pond pump to be operated at low flow in conjunction with main raw pumps to feed super natal at approximate 10% of flow.
17/06/2021	Chinchilla	MIT failures - with pipes being welded, opportunity to look for other leaks.	Urgent	2021/22	Clear water tank back online after liner repair.weld and pipe failures in stainless steel is gradually being repaired with plant operating at night only.More complex repairs still to be done. A couple of valves to be replaced due to spindle leakage.Whiteboard basically up to date, good flat trend.SWIM data only one day behind. FCR is trending high because chlorine dose was increased but has now from 11/6 been decreased, so a small decline may come through system.Turbidity quite good 0.2-->0.3 going to town.Chem waste pit okay.Problems with tower level controls one week ago.UVs to be cleaned.	1) After pipe repairs are completed, focus on MIT failures.2) Sludge withdrawal was too low and started to carry over.3) Rate to be monitored using jar settling tests.
16/06/2021	Warra	Improved coagulant dosing system at dam, to reduce raw water organic carbon. Algae control system in dam.	Urgent	2021/22	Reviewed plant performance. Currently achieving about 75% UVT with coagulant. After THM sampling today coagulant dose is to be increased 25% to check if UVT % increases. If it does then UVT % will be able to be used as a TOC surrogate. Plant operating okay with coagulants. Backwash at 40 mins intervals still appropriate and maintenance cleans about twice per week. Dam slightly turbid 3-10ntu and full. HACH instrument calibration will occur in next few weeks. FCR high everywhere. E.coli sampling at tower continues everyday.	1) After THM sampling completed coagulant dose to be increased by 25%. About "250". 2) Free chlorine needs to be better managed around the town. Chlorine dose to remain static so a demand baseline can be established and acceptable chlorine dose calculated. 3) FCR going into tower no longer required. 4) All changed and events to be logged in plant "online plant log".
26/05/2021	Wandoan	Water leaking from tower overflow and reservoir underdrains - 5kL/hour estimated.	Urgent	2021/22	Plant operating okay with water quality good. Some data behind and possibly some network testing behind schedule (internal only). Slightly rising trend in network free chlorine. Stand by genset was test run but some confusion over procedure required. Genset and switchboard DSE controllers should be in auto and the system should run on a power outage. Genset fueled up.Water tower leaking through overflow at 2-3kL/hr. Tower is filling through leakage in the non return valves. Tower quality is similar to that going to town.Small reservoir leaking through under chains at 1-2kL/hr.E.coli incubator thermometer did not match log sheet readings. Log sheet 37. Incubator thermometer barely 35.	1) Check incubator temp.2) Confirm and test genset controls. A full test run with new pumps required.3) Overflow leak to be investigated/repared.4) Res leak to be investigated/repared/reservoir to be overhauled.

Date	Plant	Identified (RMIP) Tasks	RMIP Priority	RMIP Budget	Review Comments and Issues	Review Actions:
19/05/2021	Miles	Filter inspection on surface water plant - filtered water turbidity gradually increasing.	Urgent	2021/22	RO plant needs a CIP as 2nd differentials close to the limit. Bag filters are being replaced regularly but regular backwash schedule on media filters has helped overall. The filter plant filtered water turbidity have been gradually worsening, despite backwashing. Bed expansion testing required to check backwash. Backwash turbidities to be checked every minute to get a profile. Filter media inspection required. Potentially some opportunity for improvement with jar testing. Slight adjustment in caustic and coagulant possible.	1) RO CIP required. 2) Filter bed expansion test to be performed. 3) Filter bed inspection to be performed.
11/05/2021	Warra	THM have continued to be high - THM control to be implemented	Urgent	2020/212021/22	Process review being undertaken because of sustained high THM's & problems with Mn; thurbidy being unable to be controlled. Dose rates at 15mg/: at permanganate being used but turbidity persists & treated water is intermittently pink. Likely cause is inadequate time for the oxidation process to be completed. Algae die off in the dam likely cause of high chlorine & permanganate demand & re-release of Mn.Plant operation ok but CIP's potentially being done too frequently, given that the water has near zero biofouling potential.	1. Airstripping unit to be fabricated & installed into Tank 2 for trial removal of BROMOFORM.2. Low Level tanks ti be inspected for Mn residue & cleaned as required.3. UF plant to be operated in circulate mode as necessary to keep treated water reasonably free of oxidised Manganese.4. Permanganate does be reduced to the point where treated water is not pink but operated where Mn removal is maximised. Some turbidity will form after chlorination & further oxidation. Plant to be recirculated as in 3. above.5. Once 1. 2. 3. & 4. are implemented, airstripping to be commissioned & tested. Monitoring should determine if Free Chlorine is being unusually lowered by airstripping & any other impacts. 6. THM monitoring across all sample points for a few rounds to continue to check system performance7. Monthly TOC sampling from Dam & Treated water.8. Fortnightly algae count samples from Dam.9. Trial dosing of small dose 10-30 mg/L of alum at Dam dosing point to be set up. This is proposed to improve Mn capture & potentially absorb some DOC into the floc.10. Trial dosing of small dose of NaOH 1-5 mg/L to slightly raise pH to increase oxidation rates of permanganate to be established at Dam dosing point.11. Flush of mains prior to THM sampling
7/04/2021	Wandoan	Repair of No1 bore drive bush. Bore is still useable at this stage but repair required.	Urgent	2021/22	Treated water aluminum levels were higher than required. 8588 dose to be confirmed at 10-15mg/L.Otherwise plant operating well. Network tests show that Free chlorine levels are too high at 1.2-->1.3 everywhere and should be reduced.E.coli testing not following procedure regarding marking bottles with time of collection.Bore 1 not yet repaired. Colling tower for bearings are overdue for lubrication and belt inspection. Lamella and flocculation to be cleaned. Water tower level controls not working.	1) Chlorine close to be reduced gradually over a couple of weeks. 0.5 --> 0.7mg/L is adequate in the network.2) E.coli sampling to be as per procedure.3) Water tower level controls will need to be inspected by electrician.4) The drive shaft bush requires repair on No 1 Bore. This will require the motor and drive lead to be removed.5) Lamella plates and flocculation to be drained down and cleaned.6) Cooling tower fan to be greased, belts inspected and packing hosed out.
6/04/2021	Tara	Acid dosing shed to be replaced.	High	2022/23	RO plant supplying 100% of the demand.Plant operating okay. Routine UF CIP being undertaken.Water quality very stable.pH 7.5-7.6FCR 1-1.5Turb 0.1Cond 500Continuing concerns about Coogee Hypo deliveries. Tending to be late.	1) Antiscalant tank to be cleaned out. Build up of "black" on the tank internal surfaces causes problems with antiscalant pumps and product quality. 2) Caustic tank to be cleaned out.3) Caustic storage drum to be labelled. All chemical tanks to have appropriate labels and HAZCHEM diamonds added.4) Screens to be fitted to Magnesol and Cal chlor tank overflows.5) Acid dosing shed to be rebuilt or replaced.
9/03/2021		THM have continued to be high and THM control to be implemented.	Urgent	2021/22	Process review being undertaken because of sustained high THM's and problems with Mn turbidity being unable to be controlled. Dose rates of 15mg/l of permanganate being used but turbidity persists and treated water is intermittently pink. Likely cause is inadequate time for the oxidation process to be completed. Algae die off in the dam likely cause of high chlorine and permanganate demand and re-release of Mn. Plant operating okay, but CIP's potentially being done too frequently given that the water has near zero biofouling potential.	1) Airstripping unit to be fabricated and installed in to Tank 2 for trial removal of BROMOFORM.2) Low level tanks to be inspected for Mn residue and cleaned as required. 3) UF plant to be operated in circulate mode as necessary to keep treated water reasonably free of oxidised Manganese.4) Permanganate dose be reduced to the point where treated water is not pink, but operated where Mn removal is maximised. Some turbidity will form after chlorination and further oxidation. Plant to be recirculated as in 3) above. 5) Once 1), 2), 3) and 4) above implemented, airstripper to be commissioned and tested. Monitoring should determine if free chlorine is being unusually lowered by airstripping and any other imapcts. 6) THM monitoring across all sample points for a few rounds to continue to check system performance. 7) Monthly TOC sampling from Dam and treated water. 8) Fortnightly algae count samples from Dam.9) Trial dosing of small dose 10-30mg/l of alum at Dam dosing point to be set up. This is proposed to improve Mn capture and potentially absorb some DOC into the floc. 10) Trial dosing of small dose of N & OH 1-5mg/l to slightly raise pH to increase oxidation rates of permanganate to be established at Dam dosing point. 11) Flush of mains prior to THM sampling.

Date	Plant	Identified (RMIP) Tasks	RMIP Priority	RMIP Budget	Review Comments and Issues	Review Actions:
16/02/2021		Sand filters on surface plant - inspection of multiple cells - possible media replacement.	High	2021/22	Surface water plant operation was reviewed during routine operations. Plant had started up cold after about a week offline. Raw turb approx. 20, settled water 1-2 ntu filtered about 0.5ntu. Some floc carry over occurring particularly basin 2. Dose rate based on pump settings was about 90mg/l as alum. This seemed high for the turbidity but with the short run there is little time to optimise the dose. Filtered water turbidity was higher than desired and was seemingly not improved by earlier backwash events. Backwash flow rate was not available.	1) Filter inspection required - see RMIP action. 2) Alum dosing calibration tube requires an internal tank isolation valve to make tube use easy. 3) Filter and backwash turbidities to be closely monitored to assist with troubleshooting.
7/09/2020	Tara	Bore 2 to be dipped and tested whilst operating. Bore may need maintenance or pump deepening - inadequate flow bore to be sealed.	High	2021/22	Reservoir level slowly declining. Surface plant offline. RO plant operating. Pressures and flows good. Array 1 182kpa PD. Array 2 104kpa. Check PV conductivity 300, 140, 120 pws/cm. Combined permeate 200. Bore 1 online. Approx. 1 month since CIP but pressures are still good. Daily program of CIPs on UF and permeate flush on RO working well. Plant was operating at slightly too high recovery 81.5%. Adjust concentrate flow back to 1.1l/sec. 79.2% recovery. Should not exceed 80%. Plant operating at slightly higher than nominal design flow rate. Cartridge filters on blend lasting okay. RO plant reasonably tidy and clean. Antiscalant task requires a flush out. Surface plant revised backwash procedure okay. A couple of more test runs to go. Bore 2 to be tested for drawdown during operation. Airline to be pumped up and recorded regularly when in operation. Bore 2 head to be better sealed. Reservoir has been cleaned.	1) Drawdown on bore 2 during ops to be determined. 2) Bore 2 head to be sealed. 3) Chlorine residual to be maintained a little lower. Currently trending high 1.5 upwards in the network. 4) Flush out antiscalant tank. 5) Further testing of new backwash procedure required.
31/08/2020	Bell	Clarifier and Reservoir rust repair. Roof repair on reservoir. External Painting and rust removal.	High	2021/22	Plant has had a fluctuation performance over a couple of weeks with Cl and Turbidity swings. Settled water turbs have been 2-8 ntu and treated water has often been above 1 ntu. Chlorine appears to be running between 0 and 2.5 and pH has been high up to 8.4. What does Cl2 - mean in diary. Racecourse bore has been used automatically. Does not seem to be discrete water quality testing of bore after chlorination. Cause of turb and low chlorine. Many record gaps in SWIM. Rusting in clarifier becoming bad and requires repair. Operators diary contains numerous notes about cleaning blockage, bleeding lines etc which suggests inconsistent dosing on flowrates. Hypo pump is to be lowered below tank. Shut off valve to be installed on the hypo tank. Excessive looping of caustic and Magnasol lines may be contributing to problems with chem dosing. Excessive restriction above flow meter may contribute to clogging on raw line (DN15). Comments about calibration of 21000 turb monitor being unable to calibrate. Seems to work okay. SDS book to be updated - NaOH and Magnasol to be added. "Caustic Acid" sign on chem line. CCP whiteboard not up and being used. Primary sludge pond almost full. Some in second pond. New C Key lock.	1) Hypo tank/pump to be rearranged so pump is below tank. Hypo tank to have outlet valve fitted. 2) Hypo, Caustic and Magnasol dose lines to be rearranged to avoid looping immediately after pump. 3) "Caustic Acid" sign to be replaced. 4) SDS to be updated to include NaOH and Magnasol 589. 5) Clarifier rust repair - refer to budget. 6) 2100Q calibration issue to be resolved. 7) Bore water tank outlet to be fitted with a test tap. 8) Free chlorine testing and dosing when bore online/offline to be confirmed. If chlorine is dosed into bore tank, testing of FRC and turb to be done prior to reservoir and levels recorded and managed. 9) Dosing of surface plant and bores is to occur separately if bores are being run independently. 10) CCP whiteboard to be installed and used. 11) DN15 section in raw water line to be removed. 12) Washout behind bore tank to be repaired. Causing the backwash pump to be buried, by mudslide. 13) Data needs to be entered into SWIM. 14) Staff to report unsatisfactory plant performance e.g.: 15th August and 21 August significant gaps and potential poor performance.

4 Verification Monitoring - Water Quality Information and Summary

The section identifies the water quality characteristics sampled under WDRC's Verification Monitoring Program during 2021-2022.

The information is categorized into:

- Water quality parameter.
- Schemes sampling for the specific parameter.
- Number of samples required under WDRC's Verification Monitoring Program
- Number of samples collected and Tested by External and Internal Labs

Incident numbers applicable to the specific parameter and scheme.

Only incident numbers will be included in the comments; further detail relating to incidents, if applicable, will be provided in **Section 6 - Incidents Reported to the Regulator**.

4.1 Disinfection By-Products

Table 4-1 - Disinfection By-Products

Parameter	ADWG Water Quality Criteria <i>(mg/L unless otherwise specified)</i>	Average Water Quality Value	Max Water Quality Value	Min Water Quality Value	No. of Samples Required to be Sampled <i>(as per the DWQMP)</i>	No. of Samples Sampled Internally & Externally <i>(as per the DWQMP)</i>	Comments <i>*Incident No - if applicable - will be included in Comments section further detail in Section 6 Incidents reported to the regulator</i>
BELL							

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Chloroform		17.27	160	1	1 R/1 MONTH	19	
Bromide-chloromethane		12.29	110	1		19	
Dibromo-chloromethane		13.16	84	2		19	
Bromoform		22.79	46	2		19	
Total Trihalomethanes	250	60.16	370	10		19	
Monochloro-acetic Acid	150	5.73	10	5		19	
Monobromo-acetic Acid		5	5	5		19	
Dichloro-acetic Acid	100	11.33	59	5		19	
Trichloro-acetic Acid	100	12.47	67	5		19	
Bromochloro-acetic Acid		8.33	30	5		19	
Bromodichloro-acetic Acid		9.93	49	5		19	
Dibrom-acetic Acid		6.8	16	5		19	
Chlorodibromo-acetic Acid		6.8	22	5		19	

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Dalapon 2,2-DPA	500	8.85	10	5		19	
Chlorite	0.8	0.01	0.01	0.01		12	
Chlorate	0.8	0.166	0.46	0.08		12	
CHINCHILLA							
Chloroform		113.88	170	65	1 R/1 MONTH	17	
Bromide-chloromethane		40.88	72	28		17	
Dibromo-chloromethane		17.71	51	6		17	
Bromoform		2.31	13	1		17	
Total Trihalomethanes	250	174.12	280	120		17	
Monochloro-acetic Acid	150	7.5	11	5		17	
Monobromo-acetic Acid		5	5	5		17	
Dichloro-acetic Acid	100	57.06	87	14		17	
Trichloro-acetic Acid	100	57.29	100	19		17	
Bromochloro-acetic Acid		15.47	23	5		17	

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Bromodichloro-acetic Acid		26.53	43	19		17	
Dibrom-acetic Acid		6.47	14	5		17	
Chlorodibromo-acetic Acid		7.88	24	5		17	
Dalapon 2,2-DPA	500	10	10	10		17	
Chlorite	0.8	0.01	0.01	0.01		11	
Chlorate	0.8	0.178	0.28	0.1		11	
CONDAMINE							
Chloroform		115	230	30	1 R/1 MONTH	16	
Bromide-chloromethane		29.69	56	10		16	
Dibromo-chloromethane		8.44	23	3		16	
Bromoform		1.25	3	1		16	
Total Trihalomethanes	250	153.88	280	49		16	DWI-480-20-08649 DWI-480-20-08653
Monochloro-acetic Acid	150	8.21	13	5		16	

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Monobromo-acetic Acid		5	5	5		16	
Dichloro-acetic Acid	100	62.44	99	5		16	DWI-480-20-08653
Trichloro-acetic Acid	100	86.19	140	41		16	
Bromochloro-acetic Acid		16.06	26	5		16	
Bromodichloro-acetic Acid		21.81	37	13		16	
Dibrom-acetic Acid		5.77	9	5		16	
Chlorodibromo-acetic Acid		5.77	10	5		16	
Dalapon 2,2-DPA	500	9.44	10	5		16	
Chlorite	0.8	0.01	0.01	0.01		12	
Chlorate	0.8	0.382	0.71	0.01		12	
DALBY							
Chloroform		1.94	6	1	1 R/1 MONTH	18	
Bromide-chloromethane		8.56	22	1		18	

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Dibromo-chloromethane		28.72	60	5		18	
Bromoform		46.5	74	13		18	
Total Trihalomethanes	250	84.22	140	9		18	
Monochloro-acetic Acid	150	5.45	10	5		18	
Monobromo-acetic Acid		5	5	5		18	
Dichloro-acetic Acid	100	5	5	5		18	
Trichloro-acetic Acid	100	5.45	10	5		18	
Bromochloro-acetic Acid		6.33	13	5		18	
Bromodichloro-acetic Acid		5.77	12	5		18	
Dibrom-acetic Acid		12.5	23	5		18	
Chlorodibromo-acetic Acid		7.41	17	5		18	
Dalapon 2,2-DPA	500	8.64	10	5		18	
Chlorite	0.8	0.012	0.02	0.01		10	
Chlorate	0.8	0.250	0.44	0.07		10	

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JANDOWAE							
Chloroform		153.71	230	1	1 R/1 MONTH	21	
Bromide-chloromethane		22.86	31	18		21	
Dibromo-chloromethane		2.9	7	1		21	
Bromoform		1	1	1		21	
Total Trihalomethanes	250	179	260	19		21	
Monochloro-acetic Acid	150	6.57	11	5		21	
Monobromo-acetic Acid		5	5	5		21	
Dichloro-acetic Acid	100	59.95	110	22		21	
Trichloro-acetic Acid	100	89.81	200	2		21	DWI-480-21-08959
Bromochloro-acetic Acid		8.76	12	6		21	
Bromodichloro-acetic Acid		12	23	5		21	
Dibrom-acetic Acid		5.24	10	5		21	

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Chlorodibromo-acetic Acid		5	5	5		21	
Dalapon 2,2-DPA	500	9.29	10	5		21	
Chlorite	0.8	0.01	0.01	0.01		15	
Chlorate	0.8	0.197	0.43	0.09		15	
MILES							
Chloroform		101.08	240	37	1 R/1 MONTH	24	
Bromide-chloromethane		42.63	55	14		24	
Dibromo-chloromethane		25.29	40	1		24	
Bromoform		4.96	10	1		24	
Total Trihalomethanes	250	174.58	300	110		24	
Monochloro-acetic Acid	150	6.67	9	5		24	
Monobromo-acetic Acid		5	5	5		24	
Dichloro-acetic Acid	100	43.63	210	12		24	
Trichloro-acetic Acid	100	50.08	200	12		24	

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Bromochloro-acetic Acid		12.67	23	9		24	
Bromodichloro-acetic Acid		13.7	26	6		24	
Dibrom-acetic Acid		5.96	10	5		24	
Chlorodibromo-acetic Acid		5.29	7	5		24	
Dalapon 2,2-DPA	500	9.55	10	5		24	
Chlorite	0.8	0.016	0.1	0.01		15	
Chlorate	0.8	0.553	0.92	0.22		15	
TARA							
Chloroform		46.08	130	1	1 R/1 MONTH	19	
Bromide-chloromethane		22.62	51	1		19	
Dibromo-chloromethane		11.63	32	1		19	
Bromoform		5.11	21	2		19	
Total Trihalomethanes	250	65	210	5		19	

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Monochloro-acetic Acid	150	5.11	6	5		19	
Monobromo-acetic Acid		5	5	5		19	
Dichloro-acetic Acid	100	33.33	69	5		19	
Trichloro-acetic Acid	100	44	73	5		19	
Bromochloro-acetic Acid		13.56	32	5		19	
Bromodichloro-acetic Acid		14.29	26	8		19	
Dibrom-acetic Acid		12	32	6		19	
Chlorodibromo-acetic Acid		5.29	7	5		19	
Dalapon 2,2-DPA	500	8.89	10	5		19	
Chlorite	0.8	0.01	0.01	0.01		13	
Chlorate	0.8	0.606	0.96	0.32		13	DWI-480-21-08954
WANDOAN							
Chloroform		18.13	110	1	1 R/1 MONTH	23	
Bromide-chloromethane		9.78	38	1		23	

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Dibromo-chloromethane		6.96	26	1		23	
Bromoform		2	6	1		23	
Total Trihalomethanes	250	36	170	4		23	
Monochloro-acetic Acid	150	10.23	32	5		21	
Monobromo-acetic Acid		5	5	5		21	
Dichloro-acetic Acid	100	14.64	56	5		21	
Trichloro-acetic Acid	100	10.57	38	5		21	
Bromochloro-acetic Acid		7	19	5		21	
Bromodichloro-acetic Acid		6.71	11	5		21	
Dibrom-acetic Acid		6.73	10	5		21	
Chlorodibromo-acetic Acid		5	5	5		21	
Dalapon 2,2-DPA	500	9.55	10	5		21	
Chlorite	0.8	0.01	0.01	0.01		14	
Chlorate	0.8	0.439	1.37	0.11		14	

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Parameter	ADWG Water Quality Criteria <i>(mg/L unless otherwise specified)</i>	Average Water Quality Value	Max Water Quality Value	Min Water Quality Value	No. of Samples Required to be Sampled <i>(as per the DWQMP)</i>	No. of Samples Sampled Internally & Externally <i>(as per the DWQMP)</i>	Comments <i>*Incident No - if applicable - will be included in Comments section further detail in Section 6 Incidents reported to the regulator</i>
WARRA							
Chloroform		46.74	85	9	1 R/1 MONTH	35	
Bromide-chloromethane		80.94	130	36		35	
Dibromo-chloromethane		107.86	160	56		35	
Bromoform		46.03	81	20		35	
Total Trihalomethanes	250	282	420	170		35	DWI-480-20-08651 DWI-480-20-08652
Monochloro-acetic Acid	150	7.42	22	5		29	
Monobromo-acetic Acid		5.16	6	5		29	
Dichloro-acetic Acid	100	28.68	69	7		29	DWI-480-20-08652
Trichloro-acetic Acid	100	13	31	5		29	
Bromochloro-acetic Acid		32.31	57	9		29	
Bromodichloro-acetic Acid		22.83	52	7	29		

Parameter	ADWG Water Quality Criteria <i>(mg/L unless otherwise specified)</i>	Average Water Quality Value	Max Water Quality Value	Min Water Quality Value	No. of Samples Required to be Sampled <i>(as per the DWQMP)</i>	No. of Samples Sampled Internally & Externally <i>(as per the DWQMP)</i>	Comments <i>*Incident No - if applicable - will be included in Comments section further detail in Section 6 Incidents reported to the regulator</i>
Dibrom-acetic Acid		31.03	50	14		29	
Chlorodibromo-acetic Acid		25.38	54	12		29	
Dalapon 2,2-DPA	500	8.57	10	5		29	
Chlorite	0.8	0.015	0.03	0.01		16	
Chlorate	0.8	0.371	0.77	0.17		16	

4.2 Fluoride

Table 4-2 - Fluoride

Scheme	Parameter	Water Quality Criteria <i>(mg/L unless otherwise specified) (ADWG guideline value)</i>	Average Water Quality Value	Max Water Quality Value	Min Water Quality Value	No. of Samples Required to be Sampled <i>(as per the DWQMP)</i>	No. of Samples Collected and Tested Externally & Internally	Comments <i>*Incident No - if applicable - will be included in Comments section further detail in Section 6 Incidents reported to the regulator</i>
Chinchilla	Treated Spadns	1.5	0.67	0.77	0.06	3 WTP/MONTH	449	
Dalby			0.56	0.84	0.03	3 R./MONTH	437	
Miles			0.11	0.29	0.04		442	Miles's fluoride system remains off line

4.3 Pesticides

Table 4-3 - Pesticides

Parameter	Water Quality Criteria <i>(mg/L unless otherwise specified)</i> <i>(ADWG guideline value)</i>	Average Water Quality Value	Max Water Quality Value	Min Water Quality Value	No. of Samples Required to be Collected <i>(as per the DWQMP)</i>	No. of Samples Sampled Internally & Externally	Comments <i>*Incident No - if applicable - will be included in Comments section further detail in Section 6 Incidents reported to the regulator</i>
BELL							
Ametryn	Heath 70ug/L	0.10	0.10	0.10	1 WTP/12 MONTH	9	Count includes pesticide sampling of raw surface water
Atrazine	Heath 20ug/L	0.10	0.10	0.10	1 R/3 MONTH		
Bromacil	Health 400ug/L	0.10	0.10	0.10			
Desethyl Atrazine		0.10	0.10	0.10			
Desisopropyl Atrazine		0.10	0.10	0.10			
Diuron	Health 20ug/L	0.02	0.02	0.02			
Fluometuron	Heath 70ug/L	0.08	0.01	0.10			
Hexazone Hexazinone	Health 400ug/L	0.09	0.02	0.10			
Imidacloprid		0.02	0.01	0.02			
Dimethoate	Heath 70ug/L	0.10	0.10	0.10			
Metolachlor-OXA	Health 400ug/L	0.18	0.10	0.10			
Tebuconazole		0.08	0.02	0.10			

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Parameter	Water Quality Criteria <i>(mg/L unless otherwise specified)</i> <i>(ADWG guideline value)</i>	Average Water Quality Value	Max Water Quality Value	Min Water Quality Value	No. of Samples Required to be Collected <i>(as per the DWQMP)</i>	No. of Samples Sampled Internally & Externally	Comments <i>*Incident No - if applicable - will be included in Comments section further detail in Section 6</i> <i>Incidents reported to the regulator</i>
Prometryn		0.09	0.01	0.10			
Simazine	Heath 20ug/L	0.09	0.10	0.01			
Terbutylazine	Heath 10µg/L	0.10	0.10	0.10			
Triethyl Phosphate		0.18	0.10	0.20			
Tris(Chloropropyl) Phosphate Isomers		0.10	0.10	0.50			
N-Butylbenzenesulfonamide		0.10	0.10	0.10			
CHINCHILLA							
Ametryn	Heath 70ug/L	0.05	0.01	0.10	1 WTP/12 MONTH	5	
Atrazine	Heath 20ug/L	0.31	0.02	0.90	1 R/3 MONTH		
Bromacil	Health 400ug/L	0.05	0.02	0.10			
Desethyl Atrazine		0.05	0.01	0.10			
Desisopropyl Atrazine		0.05	0.02	0.10			
Diuron	Health 20ug/L	0.02	0.02	0.02			
Fluometuron	Heath 70ug/L	0.05	0.01	0.10			

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Hexazine Hexazinone	Health 400ug/L	0.03	0.02	0.10			
Imidacloprid		0.02	0.01	0.03			
Dimethoate	Health 70ug/L	1.01	0.08	4.10			
Metolachlor-OXA	Health 400ug/L	0.09	0.05	0.10			
Tebuconazole		0.06	0.01	0.10			
Prometryn		0.06	0.01	0.60			
Simazine	Health 20ug/L	0.22	0.01	0.02			
Terbutylazine	Health 10µg/L	0.09	0.10	0.10			
Triethyl Phosphate		0.19	0.01	0.20			
Tris(Chloropropyl) Phosphate Isomers		0.05	0.02	0.10			
N- Butylbenzenesulfonamide		0.31	0.02	0.10			
CONDAMINE							
Ametryn	Health 70ug/L	0.05	0.01	0.10	1 WTP/12 MONTH	5	
Atrazine	Health 20ug/L	0.16	0.04	0.46	1 R/3 MONTH		

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Bromacil	Health 400ug/L	0.06	0.02	0.10			
Desethyl Atrazine		0.09	0.01	0.40			
Desisopropyl Atrazine		0.06	0.02	0.20			
Diuron	Health 20ug/L	0.03	0.02	0.14			
Fluometuron	Heath 70ug/L	0.02	0.01	0.10			
Hexazione Hexazinone	Health 400ug/L	0.01	0.02	0.01			
Imidacloprid		0.02	0.01	0.03			
Dimethoate	Heath 70ug/L	0.51	0.10	2.80			
Metolachlor-OXA	Health 400ug/L	0.10	0.05	0.10			
Tebuconazole		0.04	0.01	0.10			
Prometryn		0.02	0.01	0.40			
Simazine	Heath 20ug/L	0.14	0.01	0.04			
Terbuthylazine	Heath 10µg/L	0.09	0.10	0.10			
Triethyl Phosphate		0.18	0.01	0.20			
Tris(Chloropropyl) Phosphate Isomers		0.05	0.04	0.10			

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N-Butylbenzenesulfonamide		0.16	0.02	0.10			
DALBY							
Ametryn	Heath 70ug/L	0.10	0.10	0.10	1 WTP/12 MONTH	4	
Atrazine	Heath 20ug/L	0.10	0.10	0.10	1 R/3 MONTH		
Bromacil	Health 400ug/L	0.10	0.10	0.10			
Desethyl Atrazine		0.10	0.10	0.10			
Desisopropyl Atrazine		0.10	0.10	0.10			
Diuron	Health 20ug/L	0.02	0.02	0.02			
Fluometuron	Heath 70ug/L	0.03	0.01	0.10			
Hexazione Hexazinone	Health 400ug/L	0.03	0.02	0.10			
Imidacloprid		0.02	0.01	0.02			
Dimethoate	Heath 70ug/L	0.07	0.01	0.10			
Metolachlor-OXA	Health 400ug/L	0.10	0.10	0.10			
Tebuconazole		0.03	0.02	0.10			
Prometryn		0.04	0.01	0.10			

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Simazine	Heath 20ug/L	0.10	0.10	0.10			
Terbutylazine	Heath 10µg/L	0.10	0.20	0.10			
Triethyl Phosphate		0.20	0.10	0.20			
Tris(Chloropropyl) Phosphate Isomers		0.10	0.10	0.10			
N-Butylbenzenesulfonamide		0.10	0.10	0.10			
JANDOWAE							
Ametryn	Heath 70ug/L	0.10	0.10	0.10		4	
Atrazine	Heath 20ug/L	0.80	0.10	2.20			
Bromacil	Health 400ug/L	0.10	0.10	0.10			
Desethyl Atrazine		0.10	0.10	0.10			
Desisopropyl Atrazine		0.10	0.10	0.10			
Diuron	Health 20ug/L	0.11	0.02	0.20			
Fluometuron	Heath 70ug/L	0.04	0.01	0.10			
Hexazione Hexazinone	Health 400ug/L	0.08	0.02	0.10			

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Imidacloprid		0.02	0.01	0.02			
Dimethoate	Heath 70ug/L	1.33	0.10	4.80			
Metolachlor-OXA	Health 400ug/L	0.10	0.10	0.10			
Tebuconazole		0.08	0.02	0.10			
Prometryn		0.06	0.01	0.10			
Simazine	Heath 20ug/L	0.06	0.10	0.01			
Terbutylazine	Heath 10µg/L	0.10	0.10	0.10			
Triethyl Phosphate		0.58	0.10	2.00			
Tris(Chloropropyl) Phosphate Isomers		0.10	0.10	0.10			
N-Butylbenzenesulfonamide		0.80	0.10	0.10			
MILES							
Ametryn	Heath 70ug/L	0.08	0	0	1 WTP/12 MONTH	6	
Atrazine	Heath 20ug/L	0.09	0	0	1 R/3 MONTH		
Bromacil	Health 400ug/L	0.09	0	0			
Desethyl Atrazine		0.08	0	0			

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		0.09	0.01	0.10			
Diuron	Health 20ug/L	0.02	0.02	0.10			
Fluometuron	Health 70ug/L	0.03	0.02	0.10			
Hexazione Hexazinone	Health 400ug/L	0.03	0.01	0.10			
Imidacloprid		0.02	0.02	0.10			
Dimethoate	Health 70ug/L	0.09	0.02	0.02			
Metolachlor-OXA	Health 400ug/L	0.10	0.01	0.10			
Tebuconazole		0.09	0.02	0.10			
Prometryn		0.08	0.01	0.02			
Simazine	Health 20ug/L	0.10	0.01	0.10			
Terbuthylazine	Health 10µg/L	0.11	0.10	0.10			
Triethyl Phosphate		0.15	0.02	0.10			
Tris(Chloropropyl) Phosphate Isomers		0.08	0.01	0.10			
N- Butylbenzenesulfonamide		0.09	0.10	0.10			

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Parameter	Water Quality Criteria <i>(mg/L unless otherwise specified)</i> <i>(ADWG guideline value)</i>	Average Water Quality Value	Max Water Quality Value	Min Water Quality Value	No. of Samples Required to be Collected <i>(as per the DWQMP)</i>	No. of Samples Sampled Internally & Externally	Comments <i>*Incident No - if applicable - will be included in Comments section further detail in Section 6</i> <i>Incidents reported to the regulator</i>
WARRA							
Ametryn	Heath 70ug/L	0.10	0.10	0.10	1 WTP/12 MONTH	5	
Atrazine	Heath 20ug/L	0.10	0.10	0.10	1 R/3 MONTH		
Bromacil	Health 400ug/L	0.10	0.10	0.10			
Desethyl Atrazine		0.10	0.10	0.10			
Desisopropyl Atrazine		0.10	0.10	0.10			
Diuron	Health 20ug/L	0.11	0.02	0.20			
Fluometuron	Heath 70ug/L	0.03	0.01	0.10			
Hexazione Hexazinone	Health 400ug/L	0.03	0.02	0.10			
Imidacloprid		0.03	0.01	0.04			
Dimethoate	Heath 70ug/L	0.10	0.10	0.10			
Metolachlor-OXA	Health 400ug/L	0.10	0.10	0.10			
Tebuconazole		0.06	0.02	0.10			
Prometryn		0.06	0.01	0.10			
Simazine	Heath 20ug/L	0.06	0.10	0.01			
Terbuthylazine	Heath 10µg/L	0.10	0.10	0.10			

Parameter	Water Quality Criteria <i>(mg/L unless otherwise specified)</i> <i>(ADWG guideline value)</i>	Average Water Quality Value	Max Water Quality Value	Min Water Quality Value	No. of Samples Required to be Collected <i>(as per the DWQMP)</i>	No. of Samples Sampled Internally & Externally	Comments <i>*Incident No - if applicable - will be included in Comments section further detail in Section 6</i> <i>Incidents reported to the regulator</i>
Triethyl Phosphate		0.13	0.10	0.20			
Tris(Chloropropyl) Phosphate Isomers		0.10	0.10	0.10			
N-Butylbenzenesulfonamide		0.10	0.10	0.10			

4.4 Microbiology

Table 4-4 - Microbiology

Parameter	Water Quality Criteria <i>(mg/L unless otherwise specified)</i> <i>(ADWG guideline value)</i>	Average Water Quality Value	Max Water Quality Value	Min Water Quality Value	No. of Samples Required to be Collected <i>(as per the DWQMP)</i>	No. of Samples Collected and Tested Internally & Externally	Comments <i>*Incident No - if applicable - will be included in Comments section further detail in Section 6</i> <i>Incidents reported to the regulator</i>
BELL							
E.coli	0	0	0	0	1 WTP/MONTH	External - 23	
Coliforms	0	0	0	0	1 R/MONTH	Internal - 850	
CHINCHILLA							
E.coli	0	0.012	1	0	1 WTP/MONTH	External - 83	DWI-480-21-09075

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Parameter	Water Quality Criteria <i>(mg/L unless otherwise specified)</i> <i>(ADWG guideline value)</i>	Average Water Quality Value	Max Water Quality Value	Min Water Quality Value	No. of Samples Required to be Collected <i>(as per the DWQMP)</i>	No. of Samples Collected and Tested Internally & Externally	Comments <i>*Incident No - if applicable - will be included in Comments section further detail in Section 6</i> <i>Incidents reported to the regulator</i>
Coliforms	0	0	0	0	6 R/MONTH	Internal - 632	
CONDAMINE							
E.coli	0	0	0	0	1 WTP/MONTH	External - 33	
Coliforms	0	0	0	0	2 R/MONTH	Internal - 314	
DALBY							
E.coli	0	0	1	0	1 WTP/MONTH	External - 98	DWI-480-21-09229
Coliforms	0	0	0	0	7 R/MONTH	Internal - 490	
JANDOWAE							
E.coli	0	0	0	0	1 WTP/MONTH	External - 71	
Coliforms	0	0	0	0	5 R/MONTH	Internal - 560	
MILES							
E.coli	0	0	0	0	1 WTP/MONTH	External - 60	
Coliforms	0	0	0	0	5 R/MONTH	Internal - 178	
TARA							
E.coli	0	0	0	0	1 WTP/MONTH	External - 70	
Coliforms	0	0	0	0	5 R/MONTH	Internal - 234	
WANDOAN							

Parameter	Water Quality Criteria (mg/L unless otherwise specified) (ADWG guideline value)	Average Water Quality Value	Max Water Quality Value	Min Water Quality Value	No. of Samples Required to be Collected (as per the DWQMP)	No. of Samples Collected and Tested Internally & Externally	Comments <i>*Incident No - if applicable - will be included in Comments section further detail in Section 6 Incidents reported to the regulator</i>
E.coli	0	0	0	0	1 WTP/MONTH	External - 32	
Coliforms	0	0	0	0	2 R/MONTH	Internal - 102	
WARRA							
E.coli	0	0	0	0	1 WTP/MONTH	External - 14	DWI-480-21-08907
Coliforms	0	0	0	0	1 R/MONTH	Internal - 916	

4.5 Standard Chemical Analysis

Table 4-5 - Standard Chemical Analysis

Parameter	Water Quality Criteria (mg/L unless otherwise specified) (ADWG guideline value)	Average Water Quality Value	Max Water Quality Value	Min Water Quality Value	No. of Samples Required to be Collected (as per the DWQMP)	No. of Samples Collected and Tested by an Internal & External Laboratory	Comments <i>*Incident No - if applicable - will be included in Comments section further detail in Section 6 Incidents reported to the regulator</i>
BELL							
Alkalinity		686.8	1300	430	1 R/2 MONTH	R 7	
Aluminium (Al)	Aesthetic 0.2	0.03	0.03	0.03	1 SW/2 MONTH	SW 12	
Bicarbonate (HCO ³)		818.64	1520	518			
Boron (B)	Heath 4	0.0816	0.13	0.05			

Parameter	Water Quality Criteria (mg/L unless otherwise specified) (ADWG guideline value)	Average Water Quality Value	Max Water Quality Value	Min Water Quality Value	No. of Samples Required to be Collected (as per the DWQMP)	No. of Samples Collected and Tested by an Internal & External Laboratory	Comments <small>*Incident No - if applicable - will be included in Comments section further detail in Section 6 Incidents reported to the regulator</small>
BELL							
Calcium (Ca)		47.16	93	16			
Carbonate (CO ³)		7.228	26	0.6			
Chloride (Cl)	Aesthetic 250	249.6	470	150			
Conductivity		1980	2600	1300			Additional Internal Sampling - 582
Copper (Cu)	Aesthetic 1 Heath 2	0.26908	6	0.003			
Figure of Merit Ratio		0.44	0.9	0.1			
Fluoride (F)	Heath 1.5	0.2324	0.34	0.13			
Hydrogen (H)		0	0	0			
Hydroxide (OH)		0	0	0			
Iron (Fe)	Aesthetic 0.3	0.0136	0.1	0.01			
Magnesium (mg)		37.108	71	8.7			
Manganese (Mn)	Aesthetic 01 Heath 0.5	0.02272	0.08	0.001			
Mole Ratio		1.86	3.1	0.1			
Nitrate (NO ³)	Aesthetic 50	0.8656	2.5	0.05			

Parameter	Water Quality Criteria (mg/L unless otherwise specified) (ADWG guideline value)	Average Water Quality Value	Max Water Quality Value	Min Water Quality Value	No. of Samples Required to be Collected (as per the DWQMP)	No. of Samples Collected and Tested by an Internal & External Laboratory	Comments <small>*Incident No - if applicable - will be included in Comments section further detail in Section 6 Incidents reported to the regulator</small>
BELL							
pH	Aesthetic 6.5 - 8.5pH	7.95	8.53	7.14			
pH Sat		7.088	7.2	6.9			
Potassium (K)		5.928	8.8	4.2			
Residual Alkalinity	Aesthetic 150	8.058333333	24	0			
Saturation Index		0.876	1.3	0.3			
Silica	Aesthetic 80	28.48	58	14			
Sodium (Na)	Aesthetic 180 Heath 180 ug/L	360.4	670	200			
Sodium Absorption Ratio		11.74	33	5.1			
Sulphate (SO4)	Aesthetic 250	19.472	62	3.9			
Temporary Hardness		265.28	489	76			
Total Dissolved Ions		2097.6	15300	979			
Total Dissolved Solids	Heath 500 µg/L Aesthetic 600 µg/L	1167.2	1700	730			
Total Hardness	Aesthetic	274.2	520	76			

Parameter	Water Quality Criteria (mg/L unless otherwise specified) (ADWG guideline value)	Average Water Quality Value	Max Water Quality Value	Min Water Quality Value	No. of Samples Required to be Collected (as per the DWQMP)	No. of Samples Collected and Tested by an Internal & External Laboratory	Comments <small>*Incident No - if applicable - will be included in Comments section further detail in Section 6 Incidents reported to the regulator</small>
BELL							
True Colour	Aesthetic 15 HU	8	8	8			
Turbidity	Aesthetic 5 NTU <1 NTU is the target for effective disinfection <0.2 NTU is the target for effective filtration of Cryptosporidium & Gardai	3.36	18	1			
Zinc (Zn)	Aesthetic 3	0.062	0.11	0.06			

Parameter	Water Quality Criteria (mg/L unless otherwise specified) (ADWG guideline value)	Average Water Quality Value	Max Water Quality Value	Min Water Quality Value	No. of Samples Required to be Collected (as per the DWQMP)	No. of Samples Collected and Tested by an Internal & External Laboratory	Comments <small>*Incident No - if applicable - will be included in Comments section further detail in Section 6 Incidents reported to the regulator</small>
CHINCHILLA							
Alkalinity		93.1	120	68	1 R/MONTH	R 19	
Aluminium (Al)	Aesthetic 0.2	0.122	0.52	0.03		SW 10	
Bicarbonate (HCO ³)		111.5	139	83		WTP 5	
Boron (B)	Heath 4	0.038	0.05	0.03			

Parameter	Water Quality Criteria (mg/L unless otherwise specified) (ADWG guideline value)	Average Water Quality Value	Max Water Quality Value	Min Water Quality Value	No. of Samples Required to be Collected (as per the DWQMP)	No. of Samples Collected and Tested by an Internal & External Laboratory	Comments <small>*Incident No - if applicable - will be included in Comments section further detail in Section 6 Incidents reported to the regulator</small>
CHINCHILLA							
Calcium (Ca)		17.29	24	9.9			
Carbonate (CO ³)		0.32	0.8	0			
Chloride (Cl)	Aesthetic 250	32.2	56	14			
Conductivity		295	420	200			Additional Internal Sampling - 215
Copper (Cu)	Aesthetic 1 Heath 2	0.0034	0.004	0.003			
Figure of Merit Ratio		1.57	2	1.1			
Fluoride (F)	Heath 1.5	0.14	0.17	0.11			
Hydrogen (H)		0	0	0			
Hydroxide (OH)		0	0	0			
Iron (Fe)	Aesthetic 0.3	0.134	0.39	0.02			
Magnesium (mg)		10.27	16	5.3			
Manganese (Mn)	Aesthetic 01 Heath 0.5	0.0014	0.002	0.001			
Mole Ratio		2.39	3.1	1.8			
Nitrate (NO ³)	Aesthetic 50	1.689	3.1	0.23			

Parameter	Water Quality Criteria (mg/L unless otherwise specified) (ADWG guideline value)	Average Water Quality Value	Max Water Quality Value	Min Water Quality Value	No. of Samples Required to be Collected (as per the DWQMP)	No. of Samples Collected and Tested by an Internal & External Laboratory	Comments <small>*Incident No - if applicable - will be included in Comments section further detail in Section 6 Incidents reported to the regulator</small>
CHINCHILLA							
pH	Aesthetic 6.5 - 8.5pH	7.503	8.01	7.02			Additional Internal Sampling - 839
pH Sat		8.28	8.6	8			
Potassium (K)		5.23	8.2	4.1			
Residual Alkalinity	Aesthetic 150	0.16	0.5	0			
Saturation Index		-0.78	0	-1.5			
Silica	Aesthetic 80	19.7	24	14			
Sodium (Na)	Aesthetic 180 Heath 180 ug/L	24.9	33	20			
Sodium Absorpt. Ratio		1.17	1.4	0.9			
Sulphate (SO4)	Aesthetic 250	4.78	6.8	3			
Temporary Hardness		83.6	115	46			
Total Dissolved Ions		208.6	282	151			
Total Dissolved Solids	Heath 500 µg/L Aesthetic 600 µg/L	172	230	130			
Total Hardness 200	Aesthetic	85.5	128	46			

Parameter	Water Quality Criteria (mg/L unless otherwise specified) (ADWG guideline value)	Average Water Quality Value	Max Water Quality Value	Min Water Quality Value	No. of Samples Required to be Collected (as per the DWQMP)	No. of Samples Collected and Tested by an Internal & External Laboratory	Comments <small>*Incident No - if applicable - will be included in Comments section further detail in Section 6 Incidents reported to the regulator</small>
CHINCHILLA							
True Colour 15	Aesthetic 15 HU	62.3	120	8			
Turbidity	Aesthetic 5 NTU <1 NTU is the target for effective disinfection <0.2 NTU is the target for effective filtration of Cryptosporidium & Gardai	139.4	530	1			Additional Internal Sampling -- 822
Zinc (Zn)	Aesthetic 3	0.06	0.06	0.06			

Parameter	Water Quality Criteria (mg/L unless otherwise specified) (ADWG guideline value)	Average Water Quality Value	Max Water Quality Value	Min Water Quality Value	No. of Samples Required to be Collected (as per the DWQMP)	No. of Samples Collected and Tested by an Internal & External Laboratory	Comments <small>*Incident No - if applicable - will be included in Comments section further detail in Section 6 Incidents reported to the regulator</small>
CONDAMINE							
Alkalinity		81.27272727	110	49	1 R/MONTH	R - 14	
Aluminium (Al)	Aesthetic 0.2	0.294545455	1	0.03	1 SW//MONTH	SW - 11	
Bicarbonate (HCO ³)		98.18181818	133	60			
Boron (B)	Heath 4	0.05	0.14	0.03			
Calcium (Ca)		14.11818182	20	7.9			

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CONDAMINE							
Carbonate (CO ³)		0.409090909	2.8	0			
Chloride (Cl)	Aesthetic 250	31.81818182	62	14			
Conductivity		275.4545455	430	170			Additional Internal Sampling - 10
Copper (Cu)	Aesthetic 1 Heath 2	0.004454545	0.01	0.003			
Figure of Merit Ratio		1.254545455	1.8	0.8			
Fluoride (F)	Heath 1.5	0.120909091	0.14	0.08			
Hydrogen (H)		0	0	0			
Hydroxide (OH)		0	0	0			
Iron (Fe)	Aesthetic 0.3	0.255454545	0.83	0.01			
Magnesium (mg)		8.3	14	4.3			
Manganese (Mn)	Aesthetic 01 Heath 0.5	0.001909091	0.004	0.001			
Mole Ratio		2.454545455	3	1.6			
Nitrate (NO ³)	Aesthetic 50	2.78	8.5	0.98			
pH	Aesthetic 6.5 - 8.5pH	6.841818182	8.52	0.18			Additional Internal Sampling - 124

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CONDAMINE							
pH Sat		8.427272727	8.8	8.1			
Potassium (K)		6.054545455	15	4			
Residual Alkalinity	Aesthetic 150	0.254545455	0.5	0.1			
Saturation Index		-					
		0.963636364	0.4	-1.8			
Silica	Aesthetic 80	18.45454545	25	13			
Sodium (Na)	Aesthetic 180 Heath 180 ug/L	26.63636364	45	18			
Sodium Absorpt. Ratio		1.409090909	2	0.9			
Sulphate (SO4)	Aesthetic 250	4.236363636	5.8	2.4			
Temporary Hardness		69.27272727	105	37			
Total Dissolved Ions		192.7272727	289	129			
Total Dissolved Solids	Heath 500 µg/L Aesthetic 600 µg/L	161.8181818	240	110			
Total Hardness 200	Aesthetic	69.27272727	105	37			
True Colour 15	Aesthetic 15 HU	84	220	8			

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CONDAMINE							
Turbidity	Aesthetic 5 NTU <1 NTU is the target for effective disinfection <0.2 NTU is the target for effective filtration of Cryptosporidium & Gardai	194.7272727	580	1			Additional Internal Sampling - 120
Zinc (Zn)	Aesthetic 3	0.06	0.06	0.06			

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DALBY							
Alkalinity		152.6	360	86	4 R/MONTH 1 SW/2 MONTH	R - 49 SW - 7	Additional Internal Sampling - 54
Aluminium (Al)	Aesthetic 0.2	0.036	0.06	0.03	1 GW/6 MONTH	GW - 18	
Bicarbonate (HCO ³)		183.2	437	105			
Boron (B)	Heath 4	0.107	0.19	0.03			
Calcium (Ca)		19.8	57	10			
Carbonate (CO ³)		1.01	2.3	0.2			

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DALBY							
Chloride (Cl)	Aesthetic 250	185.3	830	25			
Conductivity		948	3600	290			Additional Internal Sampling - - 684
Copper (Cu)	Aesthetic 1 Heath 2	0.0253	0.058	0.003			
Figure of Merit Ratio		0.72	2.1	0.2			
Fluoride (F)	Heath 1.5	0.505	0.79	0.11			
Hydrogen (H)		0	0	0			
Hydroxide (OH)		0	0	0			
Iron (Fe)	Aesthetic 0.3	0.033	0.11	0.01			
Magnesium (mg)		18.09	71	9.9			
Manganese (Mn)	Aesthetic 01 Heath 0.5	0.0012	0.002	0.001			
Mole Ratio		2.36	2.9	1.9			
Nitrate (NO ³)	Aesthetic 50	1.215	2.2	0.81			
pH	Aesthetic 6.5 - 8.5pH	7.86	8.4	7.42			Additional Internal Sampling - 400
pH Sat		8.1	8.4	7.2			

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DALBY							
Potassium (K)		2.475	5.3	0.83			
Residual Alkalinity	Aesthetic 150	0.72	1.5	0			
Saturation Index		-0.23	0.6	-0.7			
Silica	Aesthetic 80	17.2	33	11			
Sodium (Na)	Aesthetic 180 Heath 180 ug/L	150.6	580	21			
Sodium Absorpt. Ratio		5.52	12	0.9			
Sulphate (SO4)	Aesthetic 250	30.38	140	3.8			
Temporary Hardness		123.3	434	67			Additional Internal Sampling - 54
Total Dissolved Ions		591	2120	206			
Total Dissolved Solids	Heath 500 µg/L Aesthetic 600 µg/L	513	1900	170			
Total Hardness 200	Aesthetic	116	361	67			
True Colour 15	Aesthetic 15 HU	20.9	59	8			

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DALBY							
Turbidity	Aesthetic 5 NTU <1 NTU is the target for effective disinfection <0.2 NTU is the target for effective filtration of Cryptosporidium & Gardai	49.4	270	1			Additional Internal Sampling - 699
Zinc (Zn)	Aesthetic 3	0.06	0.06	0.06			

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JANDOWAE							
Alkalinity		67.6	85	55	1 R/MONTH	15	
Aluminium (Al)	Aesthetic 0.2	0.395	1.6	0.03	1 SW/MONTH	12	
Bicarbonate (HCO ³)		81.8	102	67	1 GW/2 MONTH	17	
Boron (B)	Heath 4	0.042	0.05	0.04			
Calcium (Ca)		9.92	13	7.6			
Carbonate (CO ³)		0.26	0.7	0			
Chloride (Cl)	Aesthetic 250	6.08	11	3.8			

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JANDOWAE							
Conductivity		156	180	130			Additional Internal Sampling - 791
Copper (Cu)	Aesthetic 1 Heath 2	0.0063	0.016	0.003			
Figure of Merit Ratio		2.07	2.9	1.2			
Fluoride (F)	Heath 1.5	0.164	0.2	0.12			
Hydrogen (H)		0	0	0			
Hydroxide (OH)		0	0	0			
Iron (Fe)	Aesthetic 0.3	0.307	1.1	0.01			
Magnesium (mg)		5.67	7.5	4.4			
Manganese (Mn)	Aesthetic 01 Heath 0.5	0.0019	0.004	0.001			
Mole Ratio		1.84	2.8	1			
Nitrate (NO ³)	Aesthetic 50	3.01	4.1	1.1			
pH	Aesthetic 6.5 - 8.5pH	7.517	8.13	6.92			Additional Internal Sampling - 806
pH Sat		8.64	8.8	8.4			
Potassium (K)		5.24	6.5	4.4			

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JANDOWAE							
Residual Alkalinity	Aesthetic 150	0.4	0.4	0.4			
Saturation Index		-1.13	-0.3	-1.9			
Silica	Aesthetic 80	14.66	26	8.5			
Sodium (Na)	Aesthetic 180 Heath 180 ug/L	11.19	15	9.5			
Sodium Absorpt. Ratio		0.72	1.1	0.5			
Sulphate (SO4)	Aesthetic 250	2.16	3.2	1.7			
Temporary Hardness		48.2	64	37			
Total Dissolved Ions		125.4	149	106			
Total Dissolved Solids	Heath 500 µg/L Aesthetic 600 µg/L	99.3	110	84			
Total Hardness 200	Aesthetic	48.2	64	37			
True Colour 15	Aesthetic 15 HU	71.1	160	14			
Turbidity	Aesthetic 5 NTU <1 NTU is the target for effective disinfection	336	440	230			Additional Internal Sampling - 805

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JANDOWAE							
	<0.2 NTU is the target for effective filtration of Cryptosporidium & Gardai						
Zinc (Zn)	Aesthetic 3	0.06	0.06	0.06			

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MILES							
Alkalinity		220.5451852	810	0.72	1 R/MONTH	R - 15	
Aluminium (Al)	Aesthetic 0.2	0.531481481	5.9	0.03	1 SW/MONTH	SW - 12	
Bicarbonate (HCO ³)		265.9259259	979	19	1 GW/6 MONTH		
Boron (B)	Heath 4	0.091481481	0.24	0.04			
Calcium (Ca)		11.82222222	31	2.5			
Carbonate (CO ³)		2.392592593	7.5	0			
Chloride (Cl)	Aesthetic 250	196.3703704	720	13			
Conductivity		1041.962963	3800	90			Additional Internal Sampling - 205

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MILES							
Copper (Cu)	Aesthetic 1 Heath 2	0.006	0.056	0.003			
Figure of Merit Ratio		0.340740741	0.7	0.1			
Fluoride (F)	Heath 1.5	0.365555556	1.4	0.03			
Hydrogen (H)		0	0	0			
Hydroxide (OH)		0	0	0			
Iron (Fe)	Aesthetic 0.3	0.585185185	4.5	0.01			
Magnesium (mg)		3.355555556	5.5	1.9			
Manganese (Mn)	Aesthetic 01 Heath 0.5	0.019162963	0.1	0.001			
Mole Ratio		2.633333333	4	1.5			
Nitrate (NO ³)	Aesthetic 50	0.293703704	0.86	0.05			
pH	Aesthetic 6.5 - 8.5pH	7.686666667	8.94	6.35			Additional Internal Sampling - 200
pH Sat		8.678888889	9.8	7.1			
Potassium (K)		6.611111111	18	2.6			
Residual Alkalinity	Aesthetic 150	3.544444444	14	0			

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MILES							
Saturation Index		- 0.740740741	6.1	-3.4			
Silica	Aesthetic 80	16.32592593	43	5.8			
Sodium (Na)	Aesthetic 180 Heath 180 ug/L	206.7148148	790	8.3			
Sodium Absorpt. Ratio		10.28888889	35	1.3			
Sulphate (SO4)	Aesthetic 250	3.27777778	19	1			
Temporary Hardness		43.44444444	101	14			
Total Dissolved Ions		703.8518519	2540	56			
Total Dissolved Solids	Heath 500 µg/L Aesthetic 600 µg/L	592.8888889	2100	58			
Total Hardness 200	Aesthetic	43.44444444	101	14			
True Colour 15	Aesthetic 15 HU	83.7037037	350	8			
Turbidity	Aesthetic 5 NTU <1 NTU is the target for effective disinfection	75.62962963	340	1			Additional Internal Sampling - 205

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MILES							
	<0.2 NTU is the target for effective filtration of Cryptosporidium & Gardai						
Zinc (Zn)	Aesthetic 3	0.06	0.06	0.06			

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TARA							
Alkalinity		250.0555556	610	23	1 R/MONTH	R - 8	
Aluminium (Al)	Aesthetic 0.2	0.488333333	6.1	0.03	1 SW/MONTH	SW - 8	
Bicarbonate (HCO ³)		288	713	28		GW - 8	
Boron (B)	Heath 4	0.235555556	0.79	0.04			
Calcium (Ca)		1.433333333	3.2	0.4			
Carbonate (CO ³)		8.338888889	27	0			
Chloride (Cl)	Aesthetic 250	63.27777778	120	18			
Conductivity		677.2222222	1500	130			Additional Internal Sampling - 964

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TARA							
Copper (Cu)	Aesthetic 1 Heath 2	0.0045	0.022	0.003			
Figure of Merit Ratio		0.072222222	0.3	0			
Fluoride (F)	Heath 1.5	0.360388889	1.2	0.007			
Hydrogen (H)		0	0	0			
Hydroxide (OH)		0	0	0			
Iron (Fe)	Aesthetic 0.3	0.270555556	3.1	0.01			
Magnesium (mg)		0.64	2.3	0.03			
Manganese (Mn)	Aesthetic 01 Heath 0.5	0.001983333	0.008	0.0007			
Mole Ratio		1.972222222	4.1	0.6			
Nitrate (NO ³)	Aesthetic 50	0.369222222	1.1	0.006			
pH	Aesthetic 6.5 - 8.5pH	8.003888889	9.14	6.57			Additional Internal Sampling - 1001
pH Sat		9.433333333	11.1	8.1			
Potassium (K)		1.532222222	3.2	0.22			
Residual Alkalinity	Aesthetic 150	4.844444444	12	0.1			

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TARA							
Saturation Index		- 1.355555556	1.2	-3.1			
Silica	Aesthetic 80	18.22222222	35	13			
Sodium (Na)	Aesthetic 180 Heath 180 ug/L	157.4444444	360	23			
Sodium Absorpt. Ratio		56.57222222	136.3	2.7			
Sulphate (SO4)	Aesthetic 250	2.133333333	6.8	0.2			
Temporary Hardness		5.905555556	17	0.1			
Total Dissolved Ions		505.5	1210	90			
Total Dissolved Solids	Heath 500 µg/L Aesthetic 600 µg/L	394.5	860	97			
Total Hardness 200	Aesthetic	5.905555556	17	0.1			
True Colour 15	Aesthetic 15 HU	100.7777778	490	8			
Turbidity	Aesthetic 5 NTU <1 NTU is the target for effective disinfection	170.1666667	870	1			Additional Internal Sampling - 1002

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TARA							
	<0.2 NTU is the target for effective filtration of Cryptosporidium & Gardai						
Zinc (Zn)	Aesthetic 3	0.06	0.06	0.06			

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WANDOAN							
Alkalinity		80.7	83	80	1 R/MONTH	R - 12 GW - 3	
Aluminium (Al)	Aesthetic 0.2	0.03	0.03	0.03			
Bicarbonate (HCO ³)		98.2	101	97			
Boron (B)	Heath 4	0.022	0.03	0.02			
Calcium (Ca)		0.41	0.5	0.4			
Carbonate (CO ³)		0.08	0.1	0			
Chloride (Cl)	Aesthetic 250	9.91	11	0.1			
Conductivity		181	190	180			

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WANDOAN							
Copper (Cu)	Aesthetic 1 Heath 2	0.0042	0.014	0.003			
Figure of Merit Ratio		0	0	0			
Fluoride (F)	Heath 1.5	0.311	0.32	0.3			
Hydrogen (H)		0	0	0			
Hydroxide (OH)		0	0	0			
Iron (Fe)	Aesthetic 0.3	0.682	1.8	0.01			
Magnesium (mg)		0.118	0.18	0.11			
Manganese (Mn)	Aesthetic 01 Heath 0.5	0.0346	0.048	0.032			
Mole Ratio		2.51	3	2.2			
Nitrate (NO ³)	Aesthetic 50	0.05	0.05	0.05			
pH	Aesthetic 6.5 - 8.5pH	7.025	7.37	6.61			Additional Internal Sampling - 103
pH Sat		10.06	10.1	9.8			
Potassium (K)		1.83	2.1	1.8			
Residual Alkalinity	Aesthetic 150	1.6	1.6	1.6			
Saturation Index		-3.05	-2.7	-3.5			

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WANDOAN							
Silica	Aesthetic 80	26.1	27	25			
Sodium (Na)	Aesthetic 180 Heath 180 ug/L	43.1	44	43			
Sodium Absorpt. Ratio		16.8	18	14			
Sulphate (SO4)	Aesthetic 250	0.2	0.2	0.2			
Temporary Hardness		1.28	2	1.1			
Total Dissolved Ions		154.6	159	153			
Total Dissolved Solids	Heath 500 µg/L Aesthetic 600 µg/L	130	130	130			
Total Hardness 200	Aesthetic	1.28	2	1.1			
True Colour 15	Aesthetic 15 HU	21.1	35	8			
Turbidity	Aesthetic 5 NTU <1 NTU is the target for effective disinfection <0.2 NTU is the target for effective filtration of Cryptosporidium & Gardai	4.5	12	1			Additional Internal Sampling - 98
Zinc (Zn)	Aesthetic 3	0.06	0.06	0.06			

Parameter	Water Quality Criteria (mg/L <i>unless otherwise specified</i> (ADWG guideline value)	Average Water Quality Value	Max Water Quality Value	Min Water Quality Value	No. of Samples Required to be Collected <i>(as per the DWQMP)</i>	No. of Samples Collected and Tested by an Internal & External Laboratory	Comments <i>*Incident No - if applicable - will be included in Comments section further detail in Section 6 Incidents reported to the regulator</i>
WARRA							
Alkalinity		122.75	140	82	1 R/2 MONTH	R - 6	
Aluminium (Al)	Aesthetic 0.2	0.12625	0.62	0.03	1 SW/MONTH	SW - 3	
Bicarbonate (HCO ³)		142.5	162	99			
Boron (B)	Heath 4	0.06	0.07	0.03			
Calcium (Ca)		25.8	32	0.4			
Carbonate (CO ³)		2.375	7.5	0.1			
Chloride (Cl)	Aesthetic 250	160.125	200	11			
Conductivity		775	950	180			Additional Internal Sampling - 507
Copper (Cu)	Aesthetic 1 Heath 2	0.00775	0.026	0.003			
Figure of Merit Ratio		0.75	0.9	0			
Fluoride (F)	Heath 1.5	0.27	0.32	0.22			
Hydrogen (H)		0	0	0			
Hydroxide (OH)		0.0125	0.1	0			
Iron (Fe)	Aesthetic 0.3	0.27125	2.1	0.01			

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Parameter	Water Quality Criteria (mg/L <i>unless otherwise specified</i> (ADWG guideline value)	Average Water Quality Value	Max Water Quality Value	Min Water Quality Value	No. of Samples Required to be Collected (as per the DWQMP)	No. of Samples Collected and Tested by an Internal & External Laboratory	Comments <i>*Incident No - if applicable - will be included in Comments section further detail in Section 6 Incidents reported to the regulator</i>
WARRA							
Magnesium (mg)		22.515	27	0.12			
Manganese (Mn)	Aesthetic 01 Heath 0.5	0.009	0.043	0.001			
Mole Ratio		2.275	2.9	1.6			
Nitrate (NO ³)	Aesthetic 50	0.10125	0.29	0.05			
pH	Aesthetic 6.5 - 8.5pH	8.11	8.93	6.88			Additional Internal Sampling - - 515
pH Sat		8.1875	10	7.9			
Potassium (K)		6.375	7.4	1.8			
Residual Alkalinity	Aesthetic 150	0.2	1.6	0			
Saturation Index		-0.0875	1	-3.1			
Silica	Aesthetic 80	6.21875	26	0.05			
Sodium (Na)	Aesthetic 180 Heath 180 ug/L	89.875	100	45			
Sodium Absorpt. Ratio		4.9	17	3			
Sulphate (SO ₄)	Aesthetic 250	10.2375	21	0.2			
Temporary Hardness		111.1625	136	1.3			

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WARRA							
Total Dissolved Ions		460.625	542	158			
Total Dissolved Solids	Heath 500 µg/L Aesthetic 600 µg/L	395	470	130			
Total Hardness 200	Aesthetic	157.5375	193	1.3			
True Colour 15	Aesthetic 15 HU	15.75	54	8			
Turbidity	Aesthetic 5 NTU <1 NTU is the target for effective disinfection <0.2 NTU is the target for effective filtration of Cryptosporidium & Gardai	3.375	6	1			Additional Internal Sampling - 515
Zinc (Zn)	Aesthetic 3	0.06	0.06	0.06			

6 Incidents reported to the Regulator

The incidents reported to the regulator and management actions undertaken over the 2021 - 2022 year are provided in this section.

Commented [AW1]: @Trudy Westaway can you please update Section 6 Incidents reported to the Regulator. Thank you

Table 6-1 - Incidents Reported to the Regulator

Scheme	Report No.	Incident	Sample Location	Sample Date	Date Reported	Status	Follow Up Sample Date/Actions	Incident Closed Date
Miles	DWI-480-21-09076	Event - Samples Not Tested	All	25/08/2021	26/08/2021	CLOSED		14.10.2021
Wandoan	DWI-480-21-09074	Event - Samples Not Tested	All	25/08/2021	26/08/2021	CLOSED		14.10.2021
Chinchilla	DWI-480-21-09075	E. coli	Beutel Park	25/08/2021	27/08/2021	CLOSED		31.08.2021
Miles	DWI-480-21-09029	Turbidity	Reservoir Apex Park	14/07/2021	14/07/2021	CLOSED		07.09.2021
Chinchilla	DWI-480-22-09474	Turbidity	Network	17/02/2022	17/02/2022	CLOSED	Investigation Report sent 07/03/2022	15/03/2022
Dalby	DWI-480-21-09212	Event - Missed Sampling	All	14/10/2021 (Samples for July, August, September 2021 Missed)	14/10/2021	CLOSED		22.12.2021
Dalby	DWI-480-21-09229	E.coli	Anzac Park	3/11/2021	3/11/2021	CLOSED	22.06.22 - Emailed Investigation Report. TW	
Wandoan	DWI-480-21-09376	Chlorate	Showgrounds	24/11/2021	21/12/2021	Open		
Condamine	DWI-480-22-09518	Trichloroacetic Acid (TCAA)	Pioneer Park	10/02/2022	7/03/2022	Open		
Miles	DWI-480-22-09516	Chlorate	Morgan Place	10/02/2022	7/03/2022	Submitted the investigation report and are awaiting advice from QWSR		
Miles	DWI-480-22-09516	Chlorate	Council Chambers	27/01/2022 10/02/2022	7/03/2022	Submitted the investigation report and are awaiting advice from QWSR		
Warra	DWI-480-22-09531	Turbidity	Water Tower	21/03/2022	21/03/2022	Submitted the investigation report and are awaiting advice from QWSR		
Chinchilla	DWI-480-22-09407	THM	Beutel Park	24/02/2021	12/08/2021	Closed		31/03/2022

Scheme	Report No.	Incident	Sample Location	Sample Date	Date Reported	Status	Follow Up Sample Date/Actions	Incident Closed Date
Warra	DWI-480-22-09564	Turbidity	Tower Exit & Tank 4	12/04/2022	12/04/2022	Closed		3/06/2022 Regulator acknowledged Investigating Report email.
Tara	DWI-480-22-09602	Chlorate	Tower	20/04/2022	10/05/2022	Submitted the investigation report and are awaiting advice from QWSR		
Miles	DWI-480-22-	THM	Dairy Farmers & Morgan Place	16/03/2022	13/04/2022	OPEN		
Tara	DWI-480-21-09398	Event - Low Chlorine Residual	Plant and Network	29/12/2021	29/12/2021	OPEN	Investigation Report Emailed 23.06.2022	
Jandowae	DWI-480-22-09629	Trichloroacetic Acid (TCAA)	Rotary Park	24/05/2022	7/06/2022	OPEN	24/05/2022 TCAA = 110ug/L at Jandowae Reticulated - Rotary Park 07/06/2022 TCAA = 200ug/L 07/06/2022 DCAA = 110ug/L Update emailed to Regulator 17/06/2022 (New Incident lodged for THM detection in this sample also)	
Tara	DWI-480-22-09504	Chlorate	Tower	15/12/2021	18/01/2022	Closed	Investigation Report Emailed 30.06.2022	
Jandowae	DWI-480-22-09649	Total Trihalomethanes (THM)	Rotary Park	7/06/2022	20/06/2022	Open		
Miles	DWI-480-22-09668	Samples Not Transported	ALL Miles & Wandoan June Samples	22/06/2022 & 28/06/2022	29/06/2022	Open		
Wandoan	DWI-480-22-09669	Samples Not Transported	ALL Miles & Wandoan June Samples	22/06/2022 & 28/06/2022	29/06/2022	Open		
Miles	DWI-480-22-09431	Total THM	Council Chambers	24/11/2021	18/01/2022	Open		
Condamine	DWI-480-22-09429	Total THM	Pioneer Park	16/11/2021	18/01/2022	Submitted the investigation report and are awaiting advice from QWSR		

7 Customer complaints

WDRC received 15 complaints relating to water quality during 2021 - 2022

Table 7-1 - Customer Complaints (Water Quality)

Scheme	Health concern	Dirty water	Taste and odour	Other
Bell	0	0	0	0
Chinchilla	0	5	0	0
Condamine	0	0	0	0
Dalby	0	6	0	1
Jandowae	0	0	0	0
Miles	0	3	0	0
Tara	0	0	0	0
Wandoan	0	0	0	0
Warra	0	0	0	0
Total	0	14	0	1

8 DWQMP review outcomes

WDRC DWQMP was required to be reviewed by the 30/6/2022. This review was undertaken and submitted to QWSR for review and approval.

9 DWQMP audit outcomes

No audit was conducted or required during the reporting period 01/07/2021 - 30/06/2022.