WESTERN DOWNS REGIONAL COUNCIL

Drinking Water Quality Management Plan (DWQMP)

Annual Report 2022/23

OUR COMMUNITIES | OUR FUTURE

Drinking Water Quality Management Plan Report

Western Downs Regional Council

SPID: 480

2022 - 2023	
Details	Information
SPID	480
Postal Address	PO Box 551 DALBY QLD 4405
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Water Supply Schemes	Bell Chinchilla Condamine Dalby Jandowae Miles Tara Wandoan Warra

This report has been prepared following the Drinking Water Quality Management Plan Report Guidance Note.

Table of Contents

Table of Figures

1 Introduction

This is the Drinking Water Quality Management Plant (DWQMP) report for Western Downs Regional Council (WDRC) for the year 2022 - 2023.

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.

Click or tap here to enter text.

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 2022 - 2023 WDRC supplied 3266.3ML of potable water to 11 073 connections and maintained over 411.64km 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 Ground water - Racecourse Bore Eastplain Bores consisting of Koondaii Bore x 2 Warmga Bore Cattle creek Bore	Bell WTP - Aeration, flocculation, sedimentation, filtration, carbon dosing	**0.35ML/day**	**9.6**	**Bell**	**360**	**190**
Chinchilla	Surface water - Chinchilla Weir (Condamine River)	Process includes, potassium permanganate dosing flocculation, clarification, ultrafiltration, UV sterilisation and activated carbon and fluoridation. *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*	**5.04 ML/day**	**100.8**	**Chinchilla**	**5,490**	**3,166**
Condamine	Surface Water - Condamine Weir	Condamine WTP - Activated carbon *(if needed)*, flocculation, clarification, filtration, disinfection.	**0.5 ML/day**	**6.2**	**Condamine**	**210**	**120**
Dalby	Surface Water - Loudoun Weir on Condamine River Ground water - Alluvial 'A' Bores Alluvial 'B' Bores	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**	**181.2**	**Dalby**	**11,020**	**5,275**
	Surface water - Jandowae Dams	Jandowae WTP -	**0.96 ML/day**				

Scheme	*Water Source*	*Treatment processes*	*Treatment capacity*	*Length of Mains (km)*	*Towns Supplied*	*Population*	*Connections*
Jandowae		Aeration, flocculation, clarification, filtration, pH adjustment		**27.4**	**Jandowae**	**1,100**	**486**
	Groundwater - Jandowae Bores	Bore water is not treated apart from aeration and disinfection prior to supply					
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**	**23.4**	**Tara**	**1,150**	**482**
	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. *(Currently mothballed).* Train 2 Cooling, Aeration, KMNO4, BIRM media, and disinfection. *(Currently mothballed).* Train 3 Cooling, Aeration, Oxidation, flocculation inclined plate sedimentation filtration and disinfection.	**1.0 ML/day**	**20.4**	**Wandoan**	**500**	**374**
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**	**69**

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 2022 - 2023, is divided into the following categories:

1. **Process Review Program**
2. **Reservoir Inspection**
3. **Water Quality Review Data**
4. **Customer Complaints Review - including dirty water complaints**
5. **Risk Management Improvement Program**

The following information highlights the work undertaken within 2022 - 2023 for each of the mentioned programs.

3.1 Process Review Program

36 process reviews were performed during 2022 - 2023.

The purpose of the reviews was either Routine or Special.

The reviews were conducted by a review team generally lead by Utilities Treatment Principal and were completed via a plant visit or online.

The components of the Process Reviews are found below:

- Internal Testing Data
- Standard Chemical Analysis
- Flow and Power Logs
- Chemical Usage Records
- Microbiological Reports
- Calibration Logs
- Maintenance Records
- Operators Logbook
- Online Process Log
- Network Testing
- Found Safety Issues

3.2 Water Quality Data Program

27 water quality process reviews were performed during 2022 - 2023. The reviews evaluated the weekly water quality for the drinking water schemes. Results of pH; Conductivity; Free Residual Chlorine and Internal E.coli results was included in the review; along with commentary; the reviews are emailed to the Treatment Coordinators following the completion of the review.

3.3 Reservoir Inspection Program

Table 3-1 - Reservoir Inspection Program

Scheme	Clear Water Tank	Low Level Reservoir/s	Elevated Storage
Bell	Clear Water Tank		
Chinchilla		Industrial Park	
Condamine			
Dalby	Clearwater Res	Edward St Res	Owen Street Tower
Jandowae	Clear Water Tank		
Miles			
Tara			
Wandoan			
Warra			

3.4 Risk Management Improvement Program

Table 3-2 - Risk management improvement program implementation status as of 30 June 2023

Town	Improvement Action No.	Scheme Component	Hazard / Hazardous Event	Priority	Actions	Revised Target Date	Original Target Date	Estimated Cost	Improvement Action Reference	Responsibility	Status	Comments
Bell	BIA 12	Chemical dosing	Inadequate or incorrect dosing causes inadequate disinfection and or plant performance.	High	Install dosing monitor, duty standby pumps etc. and linked to future SCADA system	2021	2016	$50,000		Water Treatment Principal	Partially completed . SCADA installed	With no raw water for several years work was postponed. Settled water turb monitor has been installed as an implied monitoring of coagulant dosing. Hypo dosing has been reworked.
~~Bell~~	~~BIA 14~~	~~Residuals~~	~~Poor quality supernatant returned to the head of the plant causing poor performance~~	~~High~~	~~Based upon regular monitoring of residuals, install flow meter on residuals return~~	~~2021~~	~~2016~~	~~$10,000~~	-	~~Water Treatment Principal~~	~~Project may be dropped because no supernatant being returned.~~	~~Little or no supernatant being returned. With plant out of serevice for long periods due to drought work was put off.~~
~~Bell~~	~~BIA 3~~	~~Raw water supply~~	~~Changes in raw water turbidity~~	~~High~~	~~Online monitor to be linked to future SCADA system~~	~~2020~~	~~2016~~	~~$15,000~~	-	~~Water Treatment Principal~~	~~Complete d~~	~~SCADA is being installed at time of review June 2020. Settled water turbidity monitor installed as a substitute~~
~~Bell~~	~~BIA 2~~	~~Raw water supply~~	~~Changes in raw water turbidity~~	~~High~~	~~Install raw water turbidity monitor~~	~~Not going to be done~~	~~2014~~	~~$20,000~~	-	~~Water Treatment Principal~~	~~Complete d~~	~~With plant out of serevice for long periods due to drought work was put off. A settled water turbidity monitor linked to the SCADA was the ultimate solution~~
Bell	BIA 4	Rapid mix	Coagulants not mixed correctly	High	Undertake further study on mixing performance	2019	2014	$5,000		Water Treatment Principal	Project not currently required. Alternativ e options implement ed.	With plant out of serevice for long periods due to drought work was put off. Flow rate was reduced and coagulants changed so that mixing time available was sufficent. A temporary rapid mixer has been added as an experiement permit future testing of alternative coagulants if necessary
~~Chinchil la~~	~~CHIA 15~~	~~Disinfection~~	~~UV unit is below the required output increasing the risk of microbial contamination~~	~~High~~	~~Interim: Operation of system as is and monitor results. Short Term: Further investigations of operation in enhanced coagulation mode to achieve further improvements in UVT%. Long Term: Resolution by capacity upgrades or system improvements~~	~~2019~~	~~Jul-18~~	~~TBA~~	-	~~Supervisor~~	~~Complete d~~	~~UV unit duplicated~~

Town	Improvement Action No.	Scheme Component	Hazard / Hazardous Event	Priority	Actions	Revised Target Date	Original Target Date	Estimated Cost	Improvement Action Reference	Responsibility	Status	Comments
~~Conda mine~~	~~COIA2~~	~~Other (operator skill level)~~	~~Water quality event may be beyond operator skill~~	~~High~~	~~Install off site monitoring systems. System planned but deferred~~	~~2020~~	~~-~~	~~-~~	~~-~~	~~Water Treatment Principal~~	~~Complete d~~	~~SCADA is being installed at time of review June 2020. Certified operators perform all operational tasks. Settled water turbidity monitor with shut down authority installed~~
Conda mine	COIA12	Residuals	Poor quality residuals returned to plant which negatively impacts on process	High	Significant chance of negative impact. Installation of supernatant flow meter. . Return of spernatant not routinely practiced	2021	2016	$20,000		Supervisor	System installed but not yet used	Supernatant recycle system installed but manual operation only currently. Will allow return of supernatant to be controlled. System can also be used to operate with tankered CSG water.
Conda mine	COIA9	Chemical dosing	Incorrect dosing	Medium	Adequate system current exists but could be improved. Install dosing monitoring systemProject to be considered as part of future SCADA up grade	2022	2020	$50,000		Water Treatment Principal	Interim solution in place	Still being considered as part of future plant upgrade to link to SCADA. Settled water turbidity monitor installed. Chlorine monitor installed plabnned for 2021. Plant has higher level of operator attendance than in the past.
~~Conda mine~~	~~COIA4~~	~~Filtration~~	~~Turbidity carryover into treated water following backwash~~	~~High~~	~~No filter to waste capability. Investigate filter return to service performance~~	~~Defferred indefinitely. Interim solution in place.~~	~~2013~~	~~$20,000~~	-	~~Supervisor~~	~~Complete d with alterantive solution~~	~~Unable to install filter to waste capability at this time. Backwash procedure totally redeveloped to improve backwash performance. A 20 minute filter settle period is allowed after backwash which "ripens" the filter to some extent.~~
~~Conda mine~~	~~COIA5~~	~~Filtration~~	~~Turbidity carryover into treated water following backwash~~	~~High~~	~~No filter to waste capability. Install filter to waste facility Not currently practical to install filter to waste capability. Needs to be a part of a total review of operations.~~	~~Completed. Interim solution in place~~	~~2019~~	-	-	~~Water Treatment Principal~~	~~Complete d~~	~~Unable to install filter to waste capability at this time. Interim solution in place. See above.~~
~~Conda mine~~	~~COIA6~~	~~Disinfection~~	~~Inadequate disinfection~~	~~High~~	~~Total failure likely. Develop system to monitor tank levels. To be added to part of daily reads~~	~~2022~~	-	~~$30,000~~	-	~~Supervisor~~	~~Complete d and ongoing~~	~~Improved monitoring in place~~
Conda mine	COIA7	Disinfection	Inadequate disinfection	High	Total failure likely . Install dosing monitoring system Project to be considered as part of future SCADA up grade	2020-	2019	$30,000		Water Treatment Principal	Partially installed.	SCADA installed. Some basic alarms on disinfection system but not fully integrated
~~Conda mine~~	~~COIA13~~	~~Alarms~~	~~Treatment process failure is undetected and plant~~	~~High~~	~~No current system. Upgrade the current alarm system to a proper SCADA system. System proposed but deferred to 2019~~	~~Partially complete. Will be completed in 2020~~	~~2014~~	~~$50,000~~	-	~~Utilities Senior Technical Officer~~	~~Complete d~~	~~SCADA install schduled for completion by end of 2020~~

Town	Improvement Action No.	Scheme Component	Hazard / Hazardous Event	Priority	Actions	Revised Target Date	Original Target Date	Estimated Cost	Improvement Action Reference	Responsibility	Status	Comments
			~~produces unsafe water~~									
~~Conda mine~~	-	~~Coagulation /Floculation~~	~~High levels of organic carbon in raw water carry over in the treated water and increasing the risk of DBPs when chlorinated~~	~~High~~	~~Trial operation in enhanced coagulation mode~~	~~Completed. Interim solution in place~~	~~2021 Trials only~~	~~$10,000~~	-	~~Water Treatment Principal~~	~~Trial completed~~	~~Solution is included in DBP control strategy~~
Conda mine		Disinfection	High levels of organic carbon in raw water carry over in the treated water and increasing the risk of DBPs when chlorinated	High	~~Small reservoirs to be re-arranged to utilise one as a dedicated chlorine contact tank thereby improving the control of dosing and early detection of excessive or inadequate dosing.~~	~~Project replaced with alternative~~	~~2022~~	~~$30,000~~	-	~~Supervisor~~	~~Project to be superseeded by alternative solution~~	
Conda mine				High	Reservoirs to be equipped with aeration to remove chloroform	Completed by July 2022	New item	$20,000		Water Treatment Principal	Installation underway	Solution is included in DBP control strategy
Dalby	DI 7	Filtration	Turbidity carry over after backwash due to an unusual filter to waste process	High	Monitor filter water turbidities as filters return to service.	Ongoing	Ongoing	Operational Expense		Operator	Ongoing	
Dalby	DI 10	Alarms	Process problems during attended or unattended operation that cause the plant to produce unsafe water. (Applies primarily to the surface water plant only)	High	Compile a list of all current alarms and undertake a function test. Repair if necessary.	2022		$10,000		Supervisor	Partially Complete. Whole project on hold	Work is proposed as part of electrical and comntrol upgrade Stage 2
Dalby	DI 11	Alarms	Process problems during attended or unattended operation that cause the plant to produce unsafe water. (Applies primarily to the	High	Undertake an alarm risk assessment based on whole of plant scenario.	2022		Operational Expense		Water Treatment Principal	Partially Complete. Whole project on hold	Work is proposed as part of electrical and control upgrade Stage 2

Town	Improvement Action No.	Scheme Component	Hazard / Hazardous Event	Priority	Actions	Revised Target Date	Original Target Date	Estimated Cost	Improvement Action Reference	Responsibility	Status	Comments
			surface water plant only)									
Dalby	DI 12	Alarms	Process problems during attended or unattended operation that cause the plant to produce unsafe water (Applies primarily to the surface water plant only)	High	Implement alarm system changes based on risk assessment.	2022	2015	$50,000		Water Treatment Principal	Partially Complete . Whole project on hold	Work is proposed as part of electrical and control upgrade Stage 2
Dalby	DI 9	Disinfection	Disinfection system failure goes undetected	High	Install dosing system monitors on all dose pumps not already so equipped.	2022	2014	$100,000		Water Treatment Principal	Partially Complete . Whole project on hold	Work is proposed as part of electrical and control upgrade Stage 2
~~Jandowae~~	~~JIA 13~~	~~Raw water supply~~	~~Pesticides and chemicals in raw water supply~~	~~High~~	~~Monitor raw water supply for pesticides to establish a greater understanding of quantities and types detected-done~~	~~Ongoing~~	~~Immediate~~	~~Operational Expense~~	~~DWQMP~~	~~Supervisor~~	~~Ongoing~~	~~This has been incorporated into the regular program~~
~~Jandowae~~	~~JIA 1~~	~~Raw water supply~~	~~Changes in raw water turbidity~~	~~High~~	~~Daily checking and logging of turbidity- Done~~	~~Complete~~	~~Immediate~~	~~Operational Expense~~	~~DWQMP~~	~~Supervisor~~	~~Complete~~	-
~~Jandowae~~	~~JIA 4~~	~~Sedimentation~~	~~Poor settling causes high turbidity in settled water~~	~~High~~	~~Daily checking and logging of settled water turbidities- Done~~	~~Complete~~	~~Immediate~~	~~Operational Expense~~	~~DWQMP~~	~~Supervisor~~	~~Complete~~	-
~~Jandowae~~	~~JIA 6~~	~~Filtration~~	~~Inadequate backwashing causes poor filter performance~~	~~High~~	~~Remove current filter control system to allow manual operation of the system and to overcome system faults. Develop new backwash procedure with air and water combined.- Done~~	~~Complete~~	~~Complete~~	~~$15,000~~	~~DWQMP~~	~~Water Treatment Principal~~	~~Complete~~	-
~~Jandowae~~	~~JIA 7~~	~~Filtration~~	~~Turbidity carryover into treated water after backwashing~~	~~High~~	~~Improved backwash procedures including backwash based on need to reduce the frequency but increase the effectiveness- Done~~	~~Complete~~	~~Complete~~	~~Operational Expense~~	~~DWQMP~~	~~Supervisor~~	~~Complete~~	-

Town	Improvement Action No.	Scheme Component	Hazard / Hazardous Event	Priority	Actions	Revised Target Date	Original Target Date	Estimated Cost	Improvement Action Reference	Responsibility	Status	Comments
~~Jandowae~~	~~JIA 9~~	~~Disinfection~~	~~Low /inadequate chlorine residuals or very high chlorine residuals~~	~~High~~	~~Develop chlorine monitoring procedures for WTP, combined bores and network~~	~~Complete~~	~~Complete~~	~~Operational Expense~~	~~DWQMP~~	~~Supervisor~~	~~Complete~~	-
~~Jandowae~~	~~JIA 10~~	~~Chemical dosing~~	~~Inadequate monitoring of chemicals causes over or under dosing of chemicals~~	~~High~~	~~Implement improved monitoring of chemical usage- Done - levels on log sheet~~	~~Complete~~	~~Complete~~	~~Operational Expense~~	~~DWQMP~~	~~Supervisor~~	~~Complete~~	-
~~Jandowae~~	~~JIA 5~~	~~Sedimentation~~	~~Poor settling causes high turbidity in settled water~~	~~High~~	~~Install settled water turbidity monitorDone~~	~~Complete~~	~~2016+~~	~~$30,000~~	~~DWQMP~~	~~Water Treatment Principal~~	~~Complete~~	-
~~Jandowae~~	~~JIA 8~~	~~Filtration~~	~~Turbidity carryover into treated water after backwashing~~	~~High~~	~~Install filter to waste capability and filtered water turbidity monitors- Whole new filtration system installed~~	~~Complete~~	~~Complete~~	~~$100,000~~	~~DWQMP~~	~~Water Treatment Principal~~	~~Complete~~	~~Filtered water turbidity is monitored manually every day.~~
~~Jandowae~~	~~JIA 11~~	~~Chemical dosing~~	~~Inadequate monitoring of chemicals causes over or under dosing of chemicals~~	~~High~~	~~Install online chemical monitoring , tank levels, dose pump flow rate etc~~	~~Complete~~	~~Complete~~	~~$100,000~~	~~DWQMP~~	~~Water Treatment Principal~~	~~Project partially completed . Remainder of project dependent upon installation of a plant PLC in future upgrade.~~	~~Tanks and dose pumps were replaced so that batching of chemicals not required. Pumps have capability to be monitored. No in plant PLC avaliable . PLC to be installed in future plant wide upgrade. Early design work undertaken now for upgrades in 2021/22/23~~
Jandowae	JIA 12	Alarms	Plant not shutting down or no notification during poor water quality event , breakdown etc	High	Connect all monitors, alarms, etc into a comprehensive PLC based SCADA system	Complete	Complete	$250,000	DWQMP	Water Treatment Principal	Complete	
Jandowae	JIA 3	Rapid mix and Flocculation	Coagulants not adequately mixed. This prevents the use of some coagulants including alum. Enhanced coagulation not possible. Poorer levels of DBP	High	Install new rapid mix and floculation system- Will allow enhanced coagulation as an option when conditions are suitable.	Interim solution in place. Advanced solution scheduled for upgrades 2021/22/23	2016	$100000. Upgrade of floculation system only	DWQMP	Water Treatment Principal	Interim solution in place. New floculator in design. Work to be included in upgrades	Minor improvements implemented and changes to coagulant in use have improved plant performance. This project is being undertaken as part of an upgrade at the front of the treatment including improved access walkways and steps

Town	Improvement Action No.	Scheme Component	Hazard / Hazardous Event	Priority	Actions	Revised Target Date	Original Target Date	Estimated Cost	Improvement Action Reference	Responsibility	Status	Comments
			precursor removal than expected								in 2021/22/23	
~~Jandowae~~	~~JIA 2~~	~~Raw water supply~~	~~Changes in raw water turbidity~~	~~High~~	~~Install raw water turbidity monitor- Not done but manually checked daily~~	~~Complete. Alternative solution installed~~	~~2014~~	~~$30,000~~	~~DWQMP~~	~~Water Treatment Principal~~	~~Complete~~	~~Settled water monitor installed as this was deemed more efficient at detecting a range of issues~~
Jandowae	JIA 14	Disinfection	Disinfection- Incorrect chlorine dosing including low or high or no dosing	High	Modification of valving and pipework to allow the small reservoir to be operated as a Clear Water Chlorine Contact tank in series with the Larger Storage reservoir	New item	2023	$50,000	DWQMP	Water Treatment Principal	Almost complete	Work is being undertaken as a part of a number of upgrades across 2021/22/23
Jandowae	JIA 15	Disinfection	Dissolved organic carbon in raw water that is unable to be removed by the conventional process forming DBPs	High	Install an air stripper in the Clear Water Contact Tank to remove chloroform	New item	2023	$30,000	DWQMP	Water Treatment Principal	Early concept design work	Work is being undertaken as a part of a number of upgrades across 2021/22/24. Further work will be subject to the success or otherwise of the DBP control strategy for Warra , Condamine and Jandowae
Jandowae	JIA 16	Disinfection	High levels of Dissolved organic carbon in water being chlorinated because of failure to control by other means- Formation of DBPs above guideline values	Medium	Install chloramine dosing system	New item	2024	$100,000	DWQMP	Water Treatment Principal	Ammonia tank and some dosing equipment installed during earlier upgrades. Further work will be done as required.	Project will be dependant uponof the failure of other parts of the strategy. WDRC has no appetite for Chloramine dosing currently.
Miles	MIA 13	RO Ponds	Recommendations from Annual RO Ponds Inspection Report			Ongoing				Water Treatment Principal	Ongoing	
~~Miles~~	~~MIA 3~~	~~Alarms~~	~~In plant fault develops that has implications on water quality but is undetected by operator or occurs whilst plant is unattended~~	~~High~~	~~Next G alarm dialler connected to PLC to replace failed system~~	~~Complete~~	~~Complete~~	~~$10,000~~	-	-	~~Complete~~	~~System installed on filtration plant. Desalination plant has more comprehensive monitoring process.~~

Town	Improvement Action No.	Scheme Component	Hazard / Hazardous Event	Priority	Actions	Revised Target Date	Original Target Date	Estimated Cost	Improvement Action Reference	Responsibility	Status	Comments
~~Miles~~	~~MIA 4~~	~~Alarms~~	~~In plant fault develops that has implications on water quality but is undetected by operator or occurs whilst plant is unattended~~	~~High~~	~~Install comprehensive monitors and alarms linked to PLC etc. to provide alarms for extra parameters including quality. Included in proposed augmentation~~	~~Complete~~	~~Complete~~	-	-	-	~~Complete~~	~~Desalination plant has comprehensive monitoring installed. Turbidity monitoring installed on Filtration plant~~
~~Miles~~	~~MIA 7~~	~~Chemical dosing~~	~~Blue green algae or pesticide~~	~~High~~	~~Increase pesticide testing frequency~~	~~Complete~~	~~Complete~~	-	-	-	~~Complete~~	~~Current programmed maintained. Desalination plant allows the bore to be used as an alternative resource~~
~~Miles~~	~~MIA 9~~	~~Residuals~~	~~Poor quality residuals returned to plant which negatively impacts on process~~	~~High~~	~~Regular monitoring of supernatant return~~	~~Complete~~	~~Complete~~	-	-	-	~~Complete~~	-
~~Miles~~	~~MIA 11~~	~~Bore~~	~~Use of bore with high fluorides in emergency supply basis~~	~~High~~	~~Significant chance of negative impact. Bore to be equipped with desal plant as an augmentation to allow routine usage~~	~~Complete~~	~~Complete~~	-	-	-	~~Complete~~	~~Completed October 2014~~
Miles	MIA 12	Bore	Loss of bore when desal plant is required as only supply source due water quality issues in Gil Weir.	High	Significant chance of negative impact. Another bore to be installed to improve the reliability of the system	Defferred indefinitely	2013	$1.2 million		Utilities Manager	Defferred indefinitely	Council has elected to defer this project indefinitely.
~~Miles~~	~~MIA 1~~	~~Raw water supply~~	~~Change in raw water turbidity~~	~~Medium~~	~~Daily checking and logging of turbidity to continue~~	~~Complete~~	~~Complete~~	-	-	-	~~Complete~~	-
~~Miles~~	~~MIA 2~~	~~Raw water supply~~	~~Change in raw water turbidity~~	~~Medium~~	~~Install Online monitor linked to SCADA~~	~~Complete~~	~~Complete~~	-	-	-	~~Complete~~	~~New settled water turbidity monitor installed and linked to PLC. Will shut the plant down when excessive turbidity is detected.~~
~~Miles~~	~~MIA 5~~	~~Filtration~~	~~Turbidity carryover into treated water following backwash~~	~~Medium~~	~~Backwash procedure to be reviewed. Regular checks on end of wash and filter to waste turbidities to be performed~~	~~Complete~~	~~Complete~~	-	-	-	~~Complete~~	~~Completed. Backwash turbidity monitor installed~~
~~Miles~~	~~MIA 6~~	~~Disinfection~~	~~Inadequate disinfection~~	~~Medium~~	~~Improve monitoring procedures particularly with regards to volume used~~	~~Complete~~	~~Complete~~	-	-	-	~~Complete~~	~~Completed. Pumps with flow monitoring installed~~

Town	Improvement Action No.	Scheme Component	Hazard / Hazardous Event	Priority	Actions	Revised Target Date	Original Target Date	Estimated Cost	Improvement Action Reference	Responsibility	Status	Comments
~~Miles~~	~~MIA 8~~	~~Chemical dosing~~	~~Blue green algae or pesticide~~	-	~~No current facility. Install carbon dosing system~~	~~Complete~~	~~Complete~~	-	-	-	~~Complete~~	~~Desal plant has adequate capacity to provide base load . No plans to install carbon dosing system at this time..~~
~~Miles~~	~~MIA 10~~	~~Residuals~~	~~Poor quality residuals returned to plant which negatively impacts on process~~	-	~~No current facility. Centrifuge sludge processing plant to be installed as part of plant upgrade~~	~~Complete~~	~~Complete~~	-	-	-	~~Complete~~	~~Completed October 2014~~
Miles	MIA 13	RO Ponds	Recommendations from Annual RO Ponds Inspection Report			Ongoing				Water Treatment Principal	Ongoing	
Miles		Filters	Poor quality filtered water due to filter defects		Media replacement . Backwash trough repair, inspection of filter nozzles, concrete repair	New item	23/24		DWQMP- Process review 03/09/2021		Identified. Not yet budgetted	
Tara		RO Ponds	Recommendations from Annual RO Ponds Inspection Report			Ongoing				Water Treatment Principal	Ongoing	
~~Tara~~	~~TIA 1~~	~~WTP~~	~~Incorrect chemical use~~	~~-~~	~~Improve labelling and signage of the chemical tanks~~	~~-~~	~~2020~~	~~$5,000~~	~~DWQMP~~	~~Utilities Coordinators~~	~~Completed~~	~~-~~
Tara	TIA 2	WTP	No chemical dosing due to malfunction or lack of chemicals	-	When pumps are replaced considering integrating pumps into control system so that feedback is provide to control system.	-	2021	$40,000	DWQMP	Utilities Coordinators	Partially completed	Control system for the two plants are being integrated into the one system and surface water controls updated as the firsts stage along an improvement path.
Tara	TIA 3	WTP	Poor operation of plant or excessive return of supernatant causes high treated water turbidity	-	Install settled water turbidity monitor	-	2022	$20,000	DWQMP	Utilities Coordinators	-	Supernatant return suspended
~~Tara~~	~~TIA 4~~	~~WTP~~	~~Poor operation of plant or excessive return of supernatant causes high treated water turbidity~~	~~-~~	~~Install filtered water turbidity monitor~~	~~Complete~~	~~-~~	~~-~~	~~DWQMP~~	~~Utilities Coordinators~~	~~Complete~~	~~Supernatant return suspended~~
~~Tara~~		WTP	Poor filter performance and short filter runs	High	Rebuild or replace media filter		2023/25	$200,000	DWQMP-Process Review 31/1/2022		Planned future works	Filter is poor design and requires very careful operation to maintain quality

Town	Improvement Action No.	Scheme Component	Hazard / Hazardous Event	Priority	Actions	Revised Target Date	Original Target Date	Estimated Cost	Improvement Action Reference	Responsibility	Status	Comments
			contribute/cause poor filtered water quality									
~~Wandoan~~	~~WNIA 1~~	~~Disinfection~~	~~Incorrect disinfection due to poor chemical control.~~	~~High~~	~~Improve monitoring procedures on existing system to ensure that correct amount of hypo is dosed.~~	~~Complete~~	~~Complete~~	-	-	-	~~Complete~~	~~System of chemical tank daily monitoring implemented.~~
~~Wandoan~~	~~WNIA 2~~	~~Disinfection~~	~~Incorrect disinfection due to poor chemical control.~~	~~High~~	~~Dose pump monitoring system installed.~~	~~Complete~~	~~Complete~~	-	-	-	~~Complete~~	~~This was implemented as part of the 2014 upgrade. This issue has been significantly resolved. Disinfection monitoring is performed by online analyser and direct pump status readout on SCADA.~~
~~Wandoan~~	~~WNIA 4~~	~~Water Treatment Plant.~~	~~Commissioning and Operation.~~	~~High~~	~~Perform a treatment plant evaluation and operational risk assessment after commissioning and operation of new treatment plant.~~	~~Complete~~	~~Complete~~	-	-	-	~~Complete~~	~~Treatment plant evaluation undertaken.~~
~~Wandoan~~	~~WNIA 3~~	~~Aerators~~	~~Incorrect flow split causes plant overloading.~~	~~Medium~~	~~Flow splitting arrangement to be investigated and improved.~~	~~Complete~~	~~Complete~~	-	-	-	~~Complete~~	~~Flow splitting arrangements totally changed with 2014 upgrade. Each train now has its own supply pump.~~
Warra	WIA 26	Training		High	Training of operators to improve knowledge about their role in the operation of automated plants and the maintenance of water quality.	Ongoing	2015			Supervisor	Ongoing	(Refer to WIA 22)
Warra	WIA 28	Disinfection	Regular detections and exceedance of DBPs	High	Chloramine dosing is proposed as a trail solution. Chloramine system to be installed	System installed but not currently in use.	Jun-18			Water Treatment Principal	On hold	System completion only requires minor works and endorsement by Council. No decision will be made until other components of the DBP strategy are in place.
~~Warra~~	~~WIA 17~~	~~High service pumps~~	~~Pumps operating excessively without detection by operators~~	~~High~~	~~Existing SCADA based hours run meter be modified to record minutes run per day instead of hours run per day.~~	~~2019~~	~~Jan-16~~	~~$3,000~~	-	~~Supervisor~~	~~Complete~~	~~Improvement to UF Plant~~
~~Warra~~	~~-~~	~~Raw water supply~~	~~Algae growth in offstream storage linked to the formation of Bromoforms in treated water.~~	~~High~~	~~Monthly sampling and algae counting, to drive early intervention dosing~~	~~new item~~	~~2021~~	~~Ongoing operational expense~~	-	~~Supervisor~~	~~Ongoing~~	~~Regular sampling to monitor algae counts has occurred~~

Town	Improvement Action No.	Scheme Component	Hazard / Hazardous Event	Priority	Actions	Revised Target Date	Original Target Date	Estimated Cost	Improvement Action Reference	Responsibility	Status	Comments
			Algae growth in offstream storage linked to the formation of Bromoforms in treated water.	Medium	Regular dosing of chellated copper into the storage to reduce/eliminate algae growth. Dosing rig to be installed at off stream storage pumpstation	New item	by 2021	$10,000		Water Treatment Principal	Interim solution in place	Interim dose rig to be installed by the end of 2020. Permanent solution by the end of 2021. Manual dosing continuing but expected to be only required occassionally and in conjunction with aerators /circulators
-	-	-	~~Algae growth in offstream storage linked to the formation of Bromoforms and otherDBPs in treated water.~~	~~High~~	~~Install dam aeration and circulation to control algae and oxidise manganese~~	~~New item~~	~~2022~~	~~$50,000~~	-	~~Water Treatment Principal~~	~~Complete~~	~~2 aerator/circulators installed in January 2022. Will take some time to be fully effective~~
~~Warra~~	-	~~Raw water supply~~	~~Manganese in dam requires permanaganate dosing both of which controbute to dirty water events.~~	~~High~~	-				-			

4 Verification Monitoring - Water Quality Information and Summary

The section shows the water quality characteristics sampled under WDRC's Verification Monitoring Program during 2022 - 2023.

The information is classified 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

4.1 Disinfection By-Products

Table 4-1 - Disinfection By-Products

Scheme	Parameter	ADWG Water Quality Criteria (*mg/L unless otherwise specified*)	Average Water Quality Value	Max Water Quality Value	Min Water Quality Value	No. of Samples Required to be Sampled (*as per the DWQMP*)	No. of Samples Sampled Internally & Externally (*As per the DWQMP*)
Bell	**Chloroform**		49.64	160.00	1.00	**1 Reticulation Sample per Month**	**14**
	Bromide-chloromethane		53.71	110.00	1.00		
	Dibromo-chloromethane		47.14	90.00	3.00		
	Bromoform		19.14	44.00	2.00		
	Total Trihalomethanes	**250**	169.79	370.00	15.00		
	Monochloro-acetic Acid	**150**	6.21	10.00	5.00		
	Monobromo-acetic Acid		5.36	10.00	5.00		
	Dichloro-acetic Acid	**100**	25.43	59.00	5.00		
	Trichloro-acetic Acid	**100**	31.50	67.00	5.00		
	Bromochloro-acetic Acid		19.71	40.00	5.00		
	Bromodichloro-acetic Acid		27.71	5.00	50.00		
	Dibrom-acetic Acid		11.86	20.00	5.00		

	Chlorodibromo-acetic Acid		14.86	30.00	5.00		
	Dalapon 2,2-DPA	**500**	10.00	10.00	10.00		
	Chlorite	**0.8**	0.01	0.01	0.01		
	Chlorate	**0.8**	0.27	0.59	0.03		
Chinchilla	**Chloroform**		86.05	160.00	48.00	**1 Reticulation Sample per Month**	**19**
	Bromide-chloromethane		68.53	110.00	40.00		
	Dibromo-chloromethane		56.32	100.00	18.00		
	Bromoform		12.53	25.00	1.00		
	Total Trihalomethanes	250	222.63	330.00	120.00		
	Monochloro-acetic Acid	150	5.58	10.00	5.00		
	Monobromo-acetic Acid		5.00	5.00	5.00		
	Dichloro-acetic Acid	100	29.53	87.00	5.00		
	Trichloro-acetic Acid	100	30.16	71.00	5.00		
	Bromochloro-acetic Acid		16.95	37.00	5.00		
	Bromodichloro-acetic Acid		29.16	5.00	45.00		
	Dibrom-acetic Acid		10.63	26.00	5.00		
	Chlorodibromo-acetic Acid		14.63	26.00	5.00		
	Dalapon 2,2-DPA	500	10.00	10.00	10.00		
	Chlorite	0.8	0.19	0.37	0.12		
	Chlorate	0.8	0.20	0.37	0.12		

Condamine	**Chloroform**		26.17	45.00	3.00	**1 Reticulation Sample per Month**	**12**
	Bromide-chloromethane		18.00	30.00	10.00		
	Dibromo-chloromethane		20.08	53.00	3.00		
	Bromoform		10.58	35.00	1.00		
	Total Trihalomethanes	250	74.92	130.00	49.00		
	Monochloro-acetic Acid	150	7.33	13.00	5.00		
	Monobromo-acetic Acid		5.00	5.00	5.00		
	Dichloro-acetic Acid	100	34.67	80.00	7.00		
	Trichloro-acetic Acid	100	42.83	97.00	5.00		
	Bromochloro-acetic Acid		19.25	31.00	6.00		
	Bromodichloro-acetic Acid		21.67	9.00	37.00		
	Dibrom-acetic Acid		12.17	22.00	5.00		
	Chlorodibromo-acetic Acid		10.42	16.00	5.00		
	Dalapon 2,2-DPA	500	10.00	10.00	10.00		
	Chlorite	0.8	0.01	0.02	0.01		
	Chlorate	0.8	0.28	0.41	0.14		
Dalby	**Chloroform**		2.67	6.00	1.00	**1 Reticulation Sample per Month**	**12**
	Bromide-chloromethane		11.92	24.00	1.00		
	Dibromo-chloromethane		36.92	74.00	2.00		

	Bromoform		44.17	77.00	7.00		
	Total Trihalomethanes	250	95.58	180.00	11.00		
	Monochloro-acetic Acid	150	5.42	10.00	5.00		
	Monobromo-acetic Acid		5.42	10.00	5.00		
	Dichloro-acetic Acid	100	5.42	10.00	5.00		
	Trichloro-acetic Acid	100	5.42	10.00	5.00		
	Bromochloro-acetic Acid		8.00	13.00	5.00		
	Bromodichloro-acetic Acid		6.58	5.00	12.00		
	Dibrom-acetic Acid		15.00	28.00	5.00		
	Chlorodibromo-acetic Acid		10.58	18.00	5.00		
	Dalapon 2,2-DPA	500	10.00	10.00	10.00		
	Chlorite	0.8	0.01	0.01	0.01		
	Chlorate	0.8	0.18	0.33	0.05		
Jandowae	**Chloroform**		184.50	290.00	1.00	**1 Reticulation Sample per Month**	**14**
	Bromide-chloromethane		28.88	41.00	18.00		
	Dibromo-chloromethane		3.88	9.00	1.00		
	Bromoform		1.00	1.00	1.00		
	Total Trihalomethanes	250	216.38	310.00	19.00		
	Monochloro-acetic Acid	150	6.88	11.00	5.00		

	Monobromo-acetic Acid		5.31	10.00	5.00		
	Dichloro-acetic Acid	100	55.56	100.00	8.00		
	Trichloro-acetic Acid	100	82.56	150.00	32.00		
	Bromochloro-acetic Acid		8.44	13.00	5.00		
	Bromodichloro-acetic Acid		10.50	8.00	16.00		
	Dibrom-acetic Acid		5.31	10.00	5.00		
	Chlorodibromo-acetic Acid		5.31	10.00	5.00		
	Dalapon 2,2-DPA	500	10.00	10.00	10.00		
	Chlorite	0.8	0.01	0.01	0.01		
	Chlorate	0.8	0.14	0.26	0.08		
Miles	**Chloroform**		74.95	150.00	1.00	**1 Reticulation Sample per Month**	**20**
	Bromide-chloromethane		38.85	56.00	1.00		
	Dibromo-chloromethane		23.85	35.00	1.00		
	Bromoform		4.60	8.00	1.00		
	Total Trihalomethanes	250	142.40	230.00	4.00		
	Monochloro-acetic Acid	150	5.35	7.00	5.00		
	Monobromo-acetic Acid		5.00	5.00	5.00		
	Dichloro-acetic Acid	100	26.35	56.00	5.00		

	Trichloro-acetic Acid	100	29.15	65.00	5.00		
	Bromochloro-acetic Acid		11.55	17.00	5.00		
	Bromodichloro-acetic Acid		12.55	5.00	22.00		
	Dibrom-acetic Acid		5.80	10.00	5.00		
	Chlorodibromo-acetic Acid		5.25	7.00	5.00		
	Dalapon 2,2-DPA	500	10.00	10.00	10.00		
	Chlorite	0.8	0.01	0.01	0.01		
	Chlorate	0.8	0.35	0.86	0.01		
Tara	**Chloroform**		76.60	200.00	1.00	**1 Reticulation Sample per Month**	**15**
	Bromide-chloromethane		30.73	69.00	1.00		
	Dibromo-chloromethane		15.60	50.00	2.00		
	Bromoform		6.53	31.00	1.00		
	Total Trihalomethanes	250	128.87	300.00	4.00		
	Monochloro-acetic Acid	150	5.40	7.00	5.00		
	Monobromo-acetic Acid		5.00	5.00	5.00		
	Dichloro-acetic Acid	100	22.87	53.00	5.00		
	Trichloro-acetic Acid	100	38.93	110.00	5.00		
	Bromochloro-acetic Acid		9.33	19.00	5.00		

	Bromodichloro-acetic Acid		13.13	5.00	33.00		
	Dibrom-acetic Acid		6.00	13.00	5.00		
	Chlorodibromo-acetic Acid		5.07	6.00	5.00		
	Dalapon 2,2-DPA	500	10.00	10.00	10.00		
	Chlorite	0.8	0.01	0.01	0.01		
	Chlorate	0.8	0.76	1.10	0.37		
Wandoan	**Chloroform**		7.05	46.00	1.00	**1 Reticulation Sample per Month**	**19**
	Bromide-chloromethane		5.63	33.00	2.00		
	Dibromo-chloromethane		4.47	26.00	1.00		
	Bromoform		1.53	6.00	1.00		
	Total Trihalomethanes	250	18.26	110.00	5.00		
	Monochloro-acetic Acid	150	6.37	10.00	5.00		
	Monobromo-acetic Acid		5.00	5.00	5.00		
	Dichloro-acetic Acid	100	7.53	16.00	5.00		
	Trichloro-acetic Acid	100	6.58	20.00	5.00		
	Bromochloro-acetic Acid		5.42	9.00	5.00		
	Bromodichloro-acetic Acid		5.63	5.00	11.00		
	Dibrom-acetic Acid		5.00	5.00	5.00		
	Chlorodibromo-acetic Acid		5.00	5.00	5.00		

	Dalapon 2,2-DPA	500	10.00	10.00	10.00		
	Chlorite	0.8	0.01	0.01	0.01		
	Chlorate	0.8	0.62	1.81	0.08		
Warra	**Chloroform**		24.00	37.00	9.00	**1 Reticulation Sample per Month**	**23**
	Bromide-chloromethane		69.78	100.00	36.00		
	Dibromo-chloromethane		121.74	160.00	61.00		
	Bromoform		85.65	120.00	28.00		
	Total Trihalomethanes	250	302.17	410.00	170.00		
	Monochloro-acetic Acid	150	5.65	10.00	5.00		
	Monobromo-acetic Acid		5.52	10.00	5.00		
	Dichloro-acetic Acid	100	12.30	32.00	5.00		
	Trichloro-acetic Acid	100	6.35	15.00	5.00		
	Bromochloro-acetic Acid		20.30	31.00	9.00		
	Bromodichloro-acetic Acid		10.70	6.00	22.00		
	Dibrom-acetic Acid		28.87	40.00	14.00		
	Chlorodibromo-acetic Acid		16.22	26.00	10.00		
	Dalapon 2,2-DPA	500	10.00	10.00	10.00		
	Chlorite	0.8	0.01	0.01	0.01		
	Chlorate	0.8	0.47	0.86	0.03		

4.2 Fluoride

Table 4-2 - Fluoride

Scheme	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 Sampled (*as per the DWQMP*)	No. of Samples Collected and Tested Externally & Internally	Comments *Incident No - if applicable - will be included in Comments section further detail in Section 6 Incidents reported to the regulator
Chinchilla	Treated Spadns	1.5	0.65	0.77	0.54	*3 Water Treatment Plant per Month* *3 Reticulation per Month*	**71**	
Dalby			0.68	0.85	0.04		**72**	
Miles			0.09	0.12	0.07		**79**	*Miles's fluoride system is not operational*

4.3 Pesticides

Table 4-3 - Pesticides

Scheme	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 Sampled Internally & Externally
BELL	Ametryn	Heath 70ug/L	0.08	0.10	0.06	**1 Surface Water per 12 Month** **1 Reticulation per 3 Month**	**2** ***Surface water source not in use for majority of this period***
	Atrazine	Heath 20ug/L	0.16	0.20	0.11		
	Bromacil	Health 400ug/L	0.16	0.20	0.13		
	Desethyl Atrazine		0.08	0.10	0.06		
	Desisopropyl Atrazine		0.15	0.20	0.11		
	Diuron	Health 20ug/L	0.02	0.02	0.02		
	Fluometuron	Heath 70ug/L	0.16	0.20	0.13		
	Hexazione Hexazinone	Health 400ug/L	0.09	0.10	0.08		
	Imidacloprid		0.02	0.02	0.02		
	Dimethoate	Heath 70ug/L					
	Metolachlor-OXA	Health 400ug/L	0.08	0.10	0.06		
	Tebuconazole						
	Prometryn		0.08	0.10	0.06		

Scheme	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 Sampled Internally & Externally
	Simazine	Heath 20ug/L	0.16	0.20	0.13		
	Terbuthylazine	Heath 10µg/L	0.10	0.10	0.10		
	Triethyl Phosphate		0.10	0.10	0.10		
	Tris(Chloropropyl) Phosphate Isomers		0.20	0.20	0.20		
	N-Butylbenzenesulfonamide		0.08	0.10	0.08		
CHINCHILLA	Ametryn	Heath 70ug/L	0.02	0.02	0.02	**1 Surface Water per 12 Month** **1 Reticulation per 3 Month**	**8**
	Atrazine	Heath 20ug/L	0.26	0.37	0.14		
	Bromacil	Health 400ug/L	0.04	0.04	0.04		
	Desethyl Atrazine		0.03	0.04	0.02		
	Desisopropyl Atrazine		0.02	0.02	0.02		
	Diuron	Health 20ug/L	0.02	0.02	0.02		
	Fluometuron	Heath 70ug/L	0.05	0.06	0.04		
	Hexazione Hexazinone	Health 400ug/L	0.03	0.04	0.02		
	Imidacloprid		0.02	0.02	0.02		
	Dimethoate	Heath 70ug/L					

Scheme	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 Sampled Internally & Externally
	Metolachlor-OXA	Health 400ug/L	0.91	1.52	0.31		
	Tebuconazole						
	Prometryn		0.01	0.01	0.01		
	Simazine	Heath 20ug/L	0.03	0.04	0.03		
	Terbuthylazine	Heath 10µg/L	0.11	0.15	0.07		
	Triethyl Phosphate		0.04	0.06	0.03		
	Tris(Chloropropyl) Phosphate Isomers		0.19	0.20	0.19		
	N-Butylbenzenesulfonamide		0.08	0.10	0.05		
CONDAMINE	Ametryn	Heath 70ug/L	0.02	0.02	0.02	**1 Surface Water per 12 Month** **1 Reticulation per 3 Month**	**6**
	Atrazine	Heath 20ug/L	0.25	0.33	0.18		
	Bromacil	Health 400ug/L	0.04	0.04	0.04		
	Desethyl Atrazine		0.03	0.04	0.03		
	Desisopropyl Atrazine		0.02	0.02	0.02		
	Diuron	Health 20ug/L	0.02	0.02	0.02		
	Fluometuron	Heath 70ug/L	0.02	0.02	0.02		

Scheme	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 Sampled Internally & Externally
	Hexazione Hexazinone	Health 400ug/L	0.01	0.01	0.01		
	Imidacloprid		0.02	0.02	0.02		
	Dimethoate	Heath 70ug/L					
	Metolachlor-OXA	Health 400ug/L	0.78	1.24	0.31		
	Tebuconazole						
	Prometryn		0.01	0.02	0.01		
	Simazine	Heath 20ug/L	0.02	0.02	0.02		
	Terbuthylazine	Heath 10µg/L	0.14	0.21	0.08		
	Triethyl Phosphate		49.71	59.05	40.37		
	Tris(Chloropropyl) Phosphate Isomers		0.20	0.20	0.20		
	N-Butylbenzenesulfonamide		0.08	0.10	0.05		
DALBY	Ametryn	Heath 70ug/L	0.02	0.02	0.02	**1 Surface Water per 12 Month**	**6**
	Atrazine	Heath 20ug/L	0.27	0.35	0.20		
	Bromacil	Health 400ug/L	0.05	0.05	0.05		
	Desethyl Atrazine		0.01	0.01	0.01		

Scheme	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 Sampled Internally & Externally
	Desisopropyl Atrazine		0.03	0.04	0.02	**1 Reticulation per 3 Month**	
	Diuron	Health 20ug/L	0.02	0.03	0.02		
	Fluometuron	Heath 70ug/L	0.02	0.02	0.02		
	Hexazione Hexazinone	Health 400ug/L	0.05	0.05	0.05		
	Imidacloprid		0.05	0.05	0.05		
	Dimethoate	Heath 70ug/L	0.02	0.02	0.02		
	Metolachlor-OXA	Health 400ug/L	0.81	1.80	0.28		
	Tebuconazole		0.05	0.05	0.05		
	Prometryn		0.01	0.01	0.01		
	Simazine	Heath 20ug/L	0.05	0.05	0.05		
	Terbuthylazine	Heath 10µg/L	0.03	0.04	0.02		
	Triethyl Phosphate		0.05	0.05	0.05		
	Tris(Chloropropyl) Phosphate Isomers		0.17	0.22	0.13		
	N-Butylbenzenesulfonamide		0.01	0.01	0.01		
JANDOWAE	Ametryn	Heath 70ug/L	0.05	0.10	0.02		**4**

Scheme	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 Sampled Internally & Externally
	Atrazine	Heath 20ug/L	0.81	2.20	0.11	**1 Surface Water per 12 Month** **1 Reticulation per 3 Month**	
	Bromacil	Health 400ug/L	0.07	0.10	0.05		
	Desethyl Atrazine		0.04	0.10	0.01		
	Desisopropyl Atrazine		0.15	0.17	0.10		
	Diuron	Health 20ug/L	0.12	0.14	0.10		
	Fluometuron	Heath 70ug/L	0.02	0.02	0.02		
	Hexazione Hexazinone	Health 400ug/L	0.07	0.10	0.05		
	Imidacloprid		0.07	0.10	0.05		
	Dimethoate	Heath 70ug/L	0.02	0.02	0.02		
	Metolachlor-OXA	Health 400ug/L	6.83	8.30	4.80		
	Tebuconazole		0.07	0.10	0.05		
	Prometryn		0.04	0.10	0.01		
	Simazine	Heath 20ug/L	0.07	0.10	0.05		
	Terbuthylazine	Heath 10µg/L	0.05	0.10	0.02		
	Triethyl Phosphate		0.07	0.10	0.05		

Scheme	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 Sampled Internally & Externally
	Tris(Chloropropyl) Phosphate Isomers		0.04	0.10	0.01		
	N-Butylbenzenesulfonamide		0.04	0.10	0.01		
MILES	Ametryn	Heath 70ug/L	0.07	0.10	0.02	**1 Surface Water per 12 Month** **1 Reticulation per 3 Month**	**5**
	Atrazine	Heath 20ug/L	0.07	0.10	0.02		
	Bromacil	Health 400ug/L	0.08	0.10	0.05		
	Desethyl Atrazine		0.07	0.10	0.01		
			0.07	0.10	0.01		
	Diuron	Health 20ug/L	0.07	0.10	0.01		
	Fluometuron	Heath 70ug/L	0.02	0.02	0.02		
	Hexazione Hexazinone	Health 400ug/L	0.07	0.10	0.02		
	Imidacloprid		0.07	0.10	0.01		
	Dimethoate	Heath 70ug/L	0.02	0.02	0.02		
	Metolachlor-OXA	Health 400ug/L	0.10	0.11	0.10		
	Tebuconazole		0.08	0.10	0.05		
	Prometryn		0.07	0.10	0.01		

Scheme	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 Sampled Internally & Externally
	Simazine	Heath 20ug/L	0.07	0.10	0.02		
	Terbuthylazine	Heath 10µg/L	0.09	0.10	0.06		
	Triethyl Phosphate		0.07	0.10	0.02		
	Tris(Chloropropyl) Phosphate Isomers		0.15	0.25	0.10		
	N-Butylbenzenesulfonamide		0.07	0.10	0.02		
WARRA	Ametryn	Heath 70ug/L	0.06	0.10	0.02	**1 Surface Water per 12 Month** **1 Reticulation per 3 Month**	**4**
	Atrazine	Heath 20ug/L	0.16	0.21	0.10		
	Bromacil	Health 400ug/L	0.08	0.10	0.05		
	Desethyl Atrazine		0.06	0.10	0.01		
	Desisopropyl Atrazine		0.09	0.10	0.07		
	Diuron	Health 20ug/L	0.07	0.10	0.03		
	Fluometuron	Heath 70ug/L	0.02	0.02	0.02		
	Hexazione Hexazinone	Health 400ug/L	0.06	0.10	0.02		
	Imidacloprid		0.06	0.10	0.01		
	Dimethoate	Heath 70ug/L	0.03	0.04	0.02		

Scheme	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 Sampled Internally & Externally
	Metolachlor-OXA	Health 400ug/L	0.13	0.16	0.10		
	Tebuconazole		0.08	0.10	0.05		
	Prometryn		0.06	0.10	0.01		
	Simazine	Heath 20ug/L	0.08	0.10	0.05		
	Terbuthylazine	Heath 10µg/L	0.07	0.10	0.04		
	Triethyl Phosphate		0.08	0.10	0.05		
	Tris(Chloropropyl) Phosphate Isomers		0.09	0.10	0.08		
	N-Butylbenzenesulfonamide		0.06	0.10	0.01		

4.4 Microbiology

Table 4-4 - Microbiology

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
BELL						
E.coli	0	0	0	0	1 Water Treatment Plant per Month 1 Reticulation per Month	**Internal Results - 338** **External Results -21**
Coliforms	0	0	0	0.00		
CHINCHILLA						
E.coli	0	0	0	0	1 Water Treatment Plant per Month 6 Reticulation per Month	**Internal Results - 303** **External Results -77**
Coliforms	0	0	0	0		
CONDAMINE						
E.coli	0	0	0	0	1 Water Treatment Plant per Month 2 Reticulation per Month	**Internal Results - 115** **External Results -27**
Coliforms	0	0	0	0		
DALBY						
E.coli	0	0	0	0	1 Water Treatment Plant per Month	**Internal Results - 91** **External Results -86**
Coliforms	0	0	0	0		

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
					7 Reticulation per Month	
JANDOWAE						
E.coli	0	0	0	0	1 Water Treatment Plant per Month 5 Reticulation per Month	**Internal Results - 299** **External Results -60**
Coliforms	0	0	0	0.00		
MILES						
E.coli	0	0	0	0	1 Water Treatment Plant per Month 5 Reticulation per Month	**Internal Results - 51** **External Results -68**
Coliforms	0	0	0	0		
TARA						
E.coli	0	0	0	0	1 Water Treatment Plant per Month 5 Reticulation per Month	**Internal Results - 122** **External Results -70**
Coliforms	0	0	0	0		
WANDOAN						
E.coli	0	0	0	0	1 Water Treatment Plant per Month 2 Reticulation per Month	**Internal Results - 69** **External Results -31**

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
Coliforms	0	0	0	0		
WARRA						
E.coli	0	0	0	0	1 Water Treatment Plant per Month 1 Reticulation per Month	**Internal Results - 272** **External Results -16**
Coliforms	0	0	0	0		

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
BELL						
Alkalinity		356.67	610.00	140.00	**1 R/ 2 Month**	**12** **Free Chlorine** 541 **pH** 541 **Turbidity** 539
Aluminium (Al)	Aesthetic 0.2	0.03	0.04	0.03		
Bicarbonate (HCO^3)		426.00	726.00	170.00		
Boron (B)	Heath 4	0.06	0.08	0.04		
Calcium (Ca)		43.83	53.00	33.00		
Carbonate (CO^3)		3.97	7.40	1.40		
Chloride (Cl)	Aesthetic 250	251.67	370.00	160.00		
Conductivity		1478.33	2200.00	830.00		
Copper (Cu)	Aesthetic 1 Heath 2	0.00	0.00	0.00		
Figure of Merit Ratio		1.07	1.80	0.30		
Fluoride (F)	Heath 1.5	0.21	0.25	0.17		
Hydrogen (H)		0.00	0.00	0.00		

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
BELL						
Hydroxide (OH)		0.00	0.00	0.00		
Iron (Fe)	Aesthetic 0.3	0.01	0.01	0.01		
Magnesium (mg)		36.83	49.00	32.00		
Manganese (Mn)	Aesthetic 01 Heath 0.5	0.01	0.02	0.00		
Mole Ratio		2.12	2.30	1.90		
Nitrate (NO^3)	Aesthetic 50	0.76	1.20	0.19		
pH	Aesthetic 6.5 - 8.5pH	8.21	8.27	8.15		
pH Sat		7.42	7.70	7.10		
Potassium (K)		7.00	9.50	4.90		
Residual Alkalinity	Aesthetic 150	3.00	7.50	0.00		
Saturation Index		0.82	1.10	0.50		
Silica	Aesthetic 80	16.50	20.00	13.00		
Sodium (Na)	Aesthetic 180 Heath 180 ug/L	212.17	380.00	62.00		
Sodium Absorption. Ratio		5.78	11.00	1.70		

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
BELL						
Sulphate (SO4)	Aesthetic 250	20.33	27.00	14.00		
Temporary Hardness		206.17	323.00	142.00		
Total Dissolved Ions		1004.67	1540.00	495.00		
Total Dissolved Solids	Heath 500 µg/L Aesthetic 600 µg/L	808.33	1200.00	420.00		
Total Hardness	Aesthetic	260.83	323.00	219.00		
True Colour	Aesthetic 15 HU	8.00	8.00	8.00		
Turbidity	Aesthetic 5 NTU <1 NTU is the target for effective disinfection <0.2 NTU is the target for effective filtration of Cryptosporidium & Gardai	2.33	6.00	1.00		
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
CHINCHILLA						
Alkalinity		120.38	190.00	71.00	**1 R/Month**	**13** **Free Chlorine** 1452 **pH** 1444 **Turbidity** 1407
Aluminium (Al)	Aesthetic 0.2	0.16	0.32	0.03		
Bicarbonate (HCO^3)		145.15	222.00	87.00		
Boron (B)	Heath 4	0.04	0.06	0.03		
Calcium (Ca)		30.46	40.00	19.00		
Carbonate (CO^3)		1.03	3.00	0.10		
Chloride (Cl)	Aesthetic 250	95.46	130.00	40.00		
Conductivity		694.62	790.00	540.00		
Copper (Cu)	Aesthetic 1 Heath 2	0.00	0.00	0.00		
Figure of Merit Ratio		1.08	1.70	0.60		
Fluoride (F)	Heath 1.5	0.60	0.75	0.18		
Hydrogen (H)		0.00	0.00	0.00		
Hydroxide (OH)		0.00	0.00	0.00		
Iron (Fe)	Aesthetic 0.3	0.01	0.01	0.01		

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
CHINCHILLA						
Magnesium (mg)		22.00	30.00	12.00		
Manganese (Mn)	Aesthetic 01 Heath 0.5	0.00	0.00	0.00		
Mole Ratio		2.19	3.20	0.90		
Nitrate (NO^3)	Aesthetic 50	1.78	5.80	0.11		
pH	Aesthetic 6.5 - 8.5pH	7.95	8.38	7.30		
pH Sat		7.95	8.30	7.60		
Potassium (K)		5.09	5.70	4.30		
Residual Alkalinity	Aesthetic 150	0.00	0.00	0.00		
Saturation Index		-0.01	0.70	-1.00		
Silica	Aesthetic 80	10.85	14.00	8.20		
Sodium (Na)	Aesthetic 180 Heath 180 ug/L	73.38	89.00	59.00		
Sodium Absorpt. Ratio		2.58	3.70	1.70		
Sulphate (SO4)	Aesthetic 250	68.70	120.00	5.10		

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
CHINCHILLA						
Temporary Hardness		120.38	190.00	71.00		
Total Dissolved Ions		0.16	0.32	0.03		
Total Dissolved Solids	Heath 500 µg/L Aesthetic 600 µg/L	145.15	222.00	87.00		
Total Hardness 200	Aesthetic	0.04	0.06	0.03		
True Colour 15	Aesthetic 15 HU	30.46	40.00	19.00		
Turbidity	Aesthetic 5 NTU <1 NTU is the target for effective disinfection <0.2 NTU is the target for effective filtration of Cryptosporidium & Gardai	1.03	3.00	0.10		
Zinc (Zn)	Aesthetic 3	95.46	130.00	40.00		

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
CONDAMINE						
Alkalinity		128.91	170.00	92.00	**1 R/ Month**	**11** **Free Chlorine** 662 **pH** 659 **Turbidity** 646
Aluminium (Al)	Aesthetic 0.2	0.03	0.06	0.03		
Bicarbonate (HCO^3)		153.18	205.00	110.00		
Boron (B)	Heath 4	0.09	0.15	0.04		
Calcium (Ca)		26.64	42.00	15.00		
Carbonate (CO^3)		1.94	3.60	0.40		
Chloride (Cl)	Aesthetic 250	111.45	170.00	49.00		
Conductivity		621.82	870.00	370.00		
Copper (Cu)	Aesthetic 1 Heath 2	0.00	0.00	0.00		
Figure of Merit Ratio		1.04	1.30	0.90		
Fluoride (F)	Heath 1.5	0.12	0.15	0.09		
Hydrogen (H)		0.00	0.00	0.00		
Hydroxide (OH)		0.00	0.00	0.00		
Iron (Fe)	Aesthetic 0.3	0.01	0.01	0.01		
Magnesium (mg)		19.45	31.00	10.00		

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
CONDAMINE						
Manganese (Mn)	Aesthetic 01 Heath 0.5	0.00	0.00	0.00		
Mole Ratio		2.05	2.50	1.70		
Nitrate (NO^3)	Aesthetic 50	1.89	6.20	0.05		
pH	Aesthetic 6.5 - 8.5pH	8.25	8.49	7.71		
pH Sat		7.98	8.30	7.60		
Potassium (K)		4.74	5.40	3.90		
Residual Alkalinity	Aesthetic 150	0.05	0.30	0.00		
Saturation Index		0.26	0.80	-0.50		
Silica	Aesthetic 80	9.18	14.00	3.70		
Sodium (Na)	Aesthetic 180 Heath 180 ug/L	64.64	89.00	41.00		
Sodium Absorpt. Ratio		2.31	2.80	1.70		
Sulphate (SO4)	Aesthetic 250	4.57	6.30	2.00		
Temporary Hardness		126.91	174.00	81.00		
Total Dissolved Ions		388.45	535.00	248.00		

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
CONDAMINE						
Total Dissolved Solids	Heath 500 µg/L Aesthetic 600 µg/L	320.00	440.00	200.00		
Total Hardness 200	Aesthetic	147.09	231.00	81.00		
True Colour 15	Aesthetic 15 HU	8.00	8.00	8.00		
Turbidity	Aesthetic 5 NTU <1 NTU is the target for effective disinfection <0.2 NTU is the target for effective filtration of Cryptosporidium & Gardai	1.00	1.00	1.00		
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
DALBY						
Alkalinity		213.00	280.00	150.00	**4 R/Month**	**56**

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
DALBY						
Aluminium (Al)	Aesthetic 0.2	0.03	0.03	0.03		**Free Chlorine** 1163 **pH** 1167 **Turbidity** 1164
Bicarbonate (HCO^3)		256.30	330.00	186.00		
Boron (B)	Heath 4	0.08	0.14	0.04		
Calcium (Ca)		27.38	42.00	13.00		
Carbonate (CO^3)		1.48	2.90	0.10		
Chloride (Cl)	Aesthetic 250	143.40	180.00	110.00		
Conductivity		965.60	1200.00	810.00		
Copper (Cu)	Aesthetic 1 Heath 2	0.02	0.07	0.01		
Figure of Merit Ratio		0.54	1.00	0.30		
Fluoride (F)	Heath 1.5	0.66	0.79	0.07		
Hydrogen (H)		0.00	0.00	0.00		
Hydroxide (OH)		0.00	0.00	0.00		
Iron (Fe)	Aesthetic 0.3	0.01	0.01	0.01		
Magnesium (mg)		22.68	33.00	12.00		
Manganese (Mn)	Aesthetic 01 Heath 0.5	0.00	0.01	0.00		

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
DALBY						
Mole Ratio		2.30	3.70	1.90		
Nitrate (NO^3)	Aesthetic 50	1.31	3.40	0.40		
pH	Aesthetic 6.5 - 8.5pH	7.87	8.14	6.55		
pH Sat		7.75	8.20	7.50		
Potassium (K)		2.44	3.60	0.96		
Residual Alkalinity	Aesthetic 150	1.03	1.70	0.00		
Saturation Index		0.11	0.60	-1.40		
Silica	Aesthetic 80	20.20	26.00	14.00		
Sodium (Na)	Aesthetic 180 Heath 180 ug/L	142.40	180.00	110.00		
Sodium Absorpt. Ratio		5.04	6.70	3.20		
Sulphate (SO4)	Aesthetic 250	53.22	91.00	20.00		
Temporary Hardness		161.96	240.00	83.00		
Total Dissolved Ions		652.82	830.00	528.00		
Total Dissolved Solids	Heath 500 µg/L Aesthetic 600 µg/L	543.27	690.00	450.00		

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
DALBY						
Total Hardness 200	Aesthetic	162.45	240.00	83.00		
True Colour 15	Aesthetic 15 HU	8.00	8.00	8.00		
Turbidity	Aesthetic 5 NTU <1 NTU is the target for effective disinfection <0.2 NTU is the target for effective filtration of Cryptosporidium & Gardai	1.00	1.00	1.00		
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
JANDOWAE						
Alkalinity		60.82	77.00	48.00	**1 R/MONTH**	**12** **Free Chlorine** 1245 **pH** 1245
Aluminium (Al)	Aesthetic 0.2	0.04	0.05	0.03		
Bicarbonate (HCO^3)		73.55	93.00	58.00		

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
JANDOWAE						
Boron (B)	Heath 4	0.04	0.06	0.03		**Turbidity** 1245
Calcium (Ca)		8.63	11.00	7.10		
Carbonate (CO^3)		0.25	0.80	0.00		
Chloride (Cl)	Aesthetic 250	26.91	31.00	24.00		
Conductivity		218.18	260.00	200.00		
Copper (Cu)	Aesthetic 1 Heath 2	0.00	0.00	0.00		
Figure of Merit Ratio		0.60	0.70	0.50		
Fluoride (F)	Heath 1.5	0.14	0.20	0.10		
Hydrogen (H)		0.00	0.00	0.00		
Hydroxide (OH)		0.00	0.00	0.00		
Iron (Fe)	Aesthetic 0.3	0.01	0.01	0.01		
Magnesium (mg)		3.57	4.30	3.00		
Manganese (Mn)	Aesthetic 01 Heath 0.5	0.00	0.00	0.00		
Mole Ratio		2.44	3.20	1.80		
Nitrate (NO^3)	Aesthetic 50	3.15	3.90	2.40		

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
JANDOWAE						
pH	Aesthetic 6.5 - 8.5pH	7.63	8.27	6.95		
pH Sat		8.73	8.90	8.50		
Potassium (K)		6.01	6.70	5.30		
Residual Alkalinity	Aesthetic 150	0.49	0.70	0.30		
Saturation Index		-1.12	-0.40	-1.90		
Silica	Aesthetic 80	11.64	19.00	10.00		
Sodium (Na)	Aesthetic 180 Heath 180 ug/L	27.36	35.00	23.00		
Sodium Absorpt. Ratio		1.98	2.30	1.80		
Sulphate (SO4)	Aesthetic 250	3.53	4.70	2.40		
Temporary Hardness		36.18	44.00	30.00		
Total Dissolved Ions		153.18	187.00	133.00		
Total Dissolved Solids	Heath 500 µg/L Aesthetic 600 µg/L	129.09	160.00	120.00		
Total Hardness 200	Aesthetic	36.18	44.00	30.00		

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
JANDOWAE						
True Colour 15	Aesthetic 15 HU	8.00	8.00	8.00		
Turbidity	Aesthetic 5 NTU <1 NTU is the target for effective disinfection <0.2 NTU is the target for effective filtration of Cryptosporidium & Gardai	1.00	1.00	1.00		
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
MILES						
Alkalinity		86.67	100.00	78.00	**1 R/MONTH**	**12** **Free Chlorine** 827 **pH** 786 **Turbidity** 796
Aluminium (Al)	Aesthetic 0.2	0.03	0.06	0.03		
Bicarbonate (HCO^3)		104.92	121.00	95.00		
Boron (B)	Heath 4	0.10	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
MILES						
Calcium (Ca)		9.38	11.00	7.80		
Carbonate (CO^3)		0.50	1.40	0.10		
Chloride (Cl)	Aesthetic 250	80.25	96.00	69.00		
Conductivity		435.00	510.00	390.00		
Copper (Cu)	Aesthetic 1 Heath 2	0.00	0.00	0.00		
Figure of Merit Ratio		0.20	0.20	0.20		
Fluoride (F)	Heath 1.5	0.09	0.11	0.07		
Hydrogen (H)		0.00	0.00	0.00		
Hydroxide (OH)		0.00	0.00	0.00		
Iron (Fe)	Aesthetic 0.3	0.01	0.01	0.01		
Magnesium (mg)		1.32	3.10	0.81		
Manganese (Mn)	Aesthetic 01 Heath 0.5	0.00	0.00	0.00		
Mole Ratio		2.54	2.90	2.10		
Nitrate (NO^3)	Aesthetic 50	0.34	0.70	0.07		
pH	Aesthetic 6.5 - 8.5pH	7.74	8.18	7.43		

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
MILES						
pH Sat		8.54	8.70	8.40		
Potassium (K)		2.44	3.40	2.10		
Residual Alkalinity	Aesthetic 150	1.15	1.40	1.00		
Saturation Index		-0.82	-0.30	-1.20		
Silica	Aesthetic 80	6.32	9.70	5.00		
Sodium (Na)	Aesthetic 180 Heath 180 ug/L	78.83	96.00	69.00		
Sodium Absorpt. Ratio		6.38	7.40	5.60		
Sulphate (SO4)	Aesthetic 250	1.53	4.00	0.70		
Temporary Hardness		28.92	37.00	26.00		
Total Dissolved Ions		279.33	330.00	247.00		
Total Dissolved Solids	Heath 500 µg/L Aesthetic 600 µg/L	233.33	270.00	210.00		
Total Hardness 200	Aesthetic	28.92	37.00	26.00		
True Colour 15	Aesthetic 15 HU	8.00	8.00	8.00		

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
MILES						
Turbidity	Aesthetic 5 NTU <1 NTU is the target for effective disinfection <0.2 NTU is the target for effective filtration of Cryptosporidium & Gardai	1.17	3.00	1.00		
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
TARA						
Alkalinity		250.0555556	610	23	**1 R/MONTH**	**15** **Free Chlorine** 1207 **pH** 1208 **Turbidity** 1199
Aluminium (Al)	Aesthetic 0.2	0.488333333	6.1	0.03		
Bicarbonate (HCO^3)		288	713	28		
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		

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
TARA						
Chloride (Cl)	Aesthetic 250	63.27777778	120	18		
Conductivity		677.2222222	1500	130		
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		
pH Sat		9.433333333	11.1	8.1		
Potassium (K)		1.532222222	3.2	0.22		

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
TARA						
Residual Alkalinity	Aesthetic 150	4.844444444	12	0.1		
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		

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
TARA						
	<0.2 NTU is the target for effective filtration of Cryptosporidium & Gardai					
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
WANDOAN						
Alkalinity		82.38	85.00	80.00	**1 R/MONTH**	**13** **Free Chlorine** 479 **pH** 477 **Turbidity** 475
Aluminium (Al)	Aesthetic 0.2	0.03	0.05	0.03		
Bicarbonate (HCO^3)		99.00	102.00	96.00		
Boron (B)	Heath 4	0.03	0.04	0.02		
Calcium (Ca)		15.77	21.00	13.00		
Carbonate (CO^3)		0.63	1.10	0.30		
Chloride (Cl)	Aesthetic 250	47.15	58.00	41.00		
Conductivity		306.92	340.00	290.00		

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
WANDOAN						
Copper (Cu)	Aesthetic 1 Heath 2	0.00	0.00	0.00		
Figure of Merit Ratio		0.39	0.50	0.30		
Fluoride (F)	Heath 1.5	0.29	0.33	0.27		
Hydrogen (H)		0.00	0.00	0.00		
Hydroxide (OH)		0.00	0.00	0.00		
Iron (Fe)	Aesthetic 0.3	0.01	0.03	0.01		
Magnesium (mg)		0.17	0.31	0.05		
Manganese (Mn)	Aesthetic 01 Heath 0.5	0.00	0.00	0.00		
Mole Ratio		2.14	2.50	1.80		
Nitrate (NO^3)	Aesthetic 50	0.35	0.49	0.30		
pH	Aesthetic 6.5 - 8.5pH	8.03	8.35	7.76		
pH Sat		8.34	8.40	8.20		
Potassium (K)		2.02	2.30	1.80		
Residual Alkalinity	Aesthetic 150	0.84	1.00	0.60		
Saturation Index		-0.32	-0.10	-0.60		

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
WANDOAN						
Silica	Aesthetic 80	24.69	26.00	24.00		
Sodium (Na)	Aesthetic 180 Heath 180 ug/L	47.46	50.00	47.00		
Sodium Absorpt. Ratio		3.28	3.70	2.80		
Sulphate (SO4)	Aesthetic 250	0.21	0.30	0.20		
Temporary Hardness		40.23	55.00	34.00		
Total Dissolved Ions		213.08	233.00	203.00		
Total Dissolved Solids	Heath 500 µg/L Aesthetic 600 µg/L	188.46	210.00	180.00		
Total Hardness 200	Aesthetic	40.23	55.00	34.00		
True Colour 15	Aesthetic 15 HU	8.38	12.00	8.00		
Turbidity	Aesthetic 5 NTU <1 NTU is the target for effective disinfection <0.2 NTU is the target for effective filtration of Cryptosporidium & Gardai	1.00	1.00	1.00		

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
WANDOAN						
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
WARRA						
Alkalinity		150.91	190.00	120.00	**1 R/2 MONTH**	**11** **Free Chlorine** 895 **pH** 895 **Turbidity** 895
Aluminium (Al)	Aesthetic 0.2	0.05	0.11	0.03		
Bicarbonate (HCO^3)		178.82	225.00	137.00		
Boron (B)	Heath 4	0.06	0.06	0.06		
Calcium (Ca)		30.18	36.00	23.00		
Carbonate (CO^3)		2.06	3.60	0.90		
Chloride (Cl)	Aesthetic 250	200.00	220.00	170.00		
Conductivity		955.45	1100.00	860.00		
Copper (Cu)	Aesthetic 1 Heath 2	0.00	0.01	0.00		

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
Figure of Merit Ratio		0.86	1.10	0.70		
Fluoride (F)	Heath 1.5	0.28	0.31	0.23		
Hydrogen (H)		0.00	0.00	0.00		
Hydroxide (OH)		0.00	0.00	0.00		
Iron (Fe)	Aesthetic 0.3	0.01	0.01	0.01		
Magnesium (mg)		29.73	40.00	24.00		
Manganese (Mn)	Aesthetic 01 Heath 0.5	0.01	0.02	0.00		
Mole Ratio		2.25	2.60	2.00		
Nitrate (NO^3)	Aesthetic 50	0.46	1.10	0.19		
pH	Aesthetic 6.5 - 8.5pH	8.22	8.44	7.92		
pH Sat		7.85	8.10	7.70		
Potassium (K)		10.90	12.00	8.80		
Residual Alkalinity	Aesthetic 150	0.00	0.00	0.00		
Saturation Index		0.37	0.70	0.10		
Silica	Aesthetic 80	2.43	3.80	0.85		
Sodium (Na)	Aesthetic 180 Heath 180 ug/L	107.45	110.00	92.00		

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
Sodium Absorpt. Ratio		3.32	3.70	2.90		
Sulphate (SO4)	Aesthetic 250	7.65	12.00	6.40		
Temporary Hardness		159.45	239.00	117.00		
Total Dissolved Ions		566.55	664.00	501.00		
Total Dissolved Solids	Heath 500 µg/L Aesthetic 600 µg/L	477.27	550.00	420.00		
Total Hardness 200	Aesthetic	193.91	253.00	138.00		
True Colour 15	Aesthetic 15 HU	8.00	8.00	8.00		
Turbidity	Aesthetic 5 NTU <1 NTU is the target for effective disinfection <0.2 NTU is the target for effective filtration of Cryptosporidium & Gardai	1.00	1.00	1.00		
Zinc (Zn)	Aesthetic 3	0.06	0.06	0.06		

5 Compliance with Annual E.coli Rolling Annual Value

Table 5-1 - Compliance with Annual E.coli Rolling Annual Value

CALCULATE PERCENTAGE USING A TWELVE (12) MONTH 'ROLLING' ANNUAL VALUE

The Public Health Regulation 2005 (the regulation) require that 98 per cent of samples taken in a 12-MONTH period should contain no E. Coli.

This requirement is referred to as the 'annual value' in Schedule 3A of the regulation.

This requirement comes into effect once you have 12 MONTHs data and should be assessed every MONTH based on the previous 12 MONTHs data (so that it is a 'rolling' assessment).

Drinking water scheme: BELL Verification Monitoring Results (2022 - 2023)												
	Jul	*Aug*	*Sep*	*Oct*	*Nov*	*Dec*	*Jan*	*Feb*	*Mar*	*Apr*	*May*	*Jun*
No. of samples collected	*40*	*37*	*41*	*24*	*16*	*14*	*19*	*11*	*23*	*37*	*40*	*38*
No. of samples collected in which E. coli is detected (i.e., a failure)	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*1*	*0*	*0*	*0*
No. of samples collected in previous 12-MONTH period	*432*	*433*	*440*	*424*	*408*	*384*	*363*	*352*	*336*	*340*	*332*	*340*
No. of failures for previous 12-MONTH period	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*1*	*1*	*1*	*1*
% of samples that comply	*100.0%*	*100.0%*	*100.0%*	*100.0%*	*100.0%*	*100.0%*	*100.0%*	*100.0%*	*99.7%*	*99.7%*	*99.7%*	*99.7%*
Compliance with 98% annual value	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*

Drinking water scheme: CHINCHILLA Verification Monitoring Results (2022 - 2023)												
	Jul	*Aug*	*Sep*	*Oct*	*Nov*	*Dec*	*Jan*	*Feb*	*Mar*	*Apr*	*May*	*Jun*
No. of samples collected	*28*	*33*	*30*	*18*	*32*	*19*	*26*	*49*	*29*	*28*	*33*	*31*
No. of samples collected in which E. coli is detected (i.e., a failure)	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
No. of samples collected in previous 12-MONTH period	*309*	*318*	*334*	*338*	*345*	*341*	*346*	*363*	*357*	*357*	*358*	*356*
No. of failures for previous 12-MONTH period	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
% of samples that comply	*100.0%*	*100.0%*	*100.0%*	*100.0%*	*100.0%*	*100.0%*	*100.0%*	*100.0%*	*100.0%*	*100.0%*	*100.0%*	*100.0%*
Compliance with 98% annual value	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*

Drinking water scheme: CONDAMINE Verification Monitoring Results (2022 - 2023)												
	Jul	*Aug*	*Sep*	*Oct*	*Nov*	*Dec*	*Jan*	*Feb*	*Mar*	*Apr*	*May*	*Jun*
No. of samples collected	*9*	*7*	*5*	*11*	*17*	*14*	*11*	*4*	*9*	*11*	*10*	*7*
No. of samples collected in which E. coli is detected (i.e., a failure)	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
No. of samples collected in previous 12-MONTH period	*131*	*135*	*134*	*139*	*143*	*148*	*151*	*137*	*127*	*123*	*118*	*115*
No. of failures for previous 12-MONTH period	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
% of samples that comply	*100%*	*100%*	*100%*	*100%*	*100%*	*100%*	*100%*	*100%*	*100%*	*100%*	*100%*	*100%*
Compliance with 98% annual value	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*

Drinking water scheme: DALBY Verification Monitoring Results (2022 - 2023)												
	Jul	*Aug*	*Sep*	*Oct*	*Nov*	*Dec*	*Jan*	*Feb*	*Mar*	*Apr*	*May*	*Jun*
No. of samples collected	*21*	*21*	*26*	*33*	*29*	*24*	*25*	*28*	*23*	*15*	*24*	*32*
No. of samples collected in which E. coli is detected (i.e., a failure)	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
No. of samples collected in previous 12-MONTH period	*169*	*173*	*183*	*189*	*182*	*195*	*201*	*226*	*249*	*261*	*277*	*301*
No. of failures for previous 12-MONTH period	*2*	*2*	*2*	*2*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
% of samples that comply	*98.8%*	*98.8%*	*98.9%*	*98.9%*	*100%*	*100%*	*100%*	*100%*	*100%*	*100%*	*100%*	*100%*
Compliance with 98% annual value	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*

Drinking water scheme: JANDOWAE Verification Monitoring Results (2022 - 2023)												
	Jul	*Aug*	*Sep*	*Oct*	*Nov*	*Dec*	*Jan*	*Feb*	*Mar*	*Apr*	*May*	*Jun*
No. of samples collected	*25*	*39*	*20*	*24*	*28*	*21*	*26*	*20*	*23*	*24*	*27*	*22*
No. of samples collected in which E. coli is detected (i.e., a failure)	*0*	*1*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
No. of samples collected in previous 12-MONTH period	*286*	*305*	*304*	*304*	*307*	*305*	*301*	*299*	*295*	*301*	*301*	*299*
No. of failures for previous 12-MONTH period	*0*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
% of samples that comply	*100.0%*	*99.7%*	*99.7%*	*99.7%*	*99.7%*	*99.7%*	*99.7%*	*99.7%*	*99.7%*	*99.7%*	*99.7%*	*99.7%*
Compliance with 98% annual value	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*

Drinking water scheme: MILES Verification Monitoring Results (2022 - 2023)												
	Jul	*Aug*	*Sep*	*Oct*	*Nov*	*Dec*	*Jan*	*Feb*	*Mar*	*Apr*	*May*	*Jun*
No. of samples collected	*17*	*21*	*14*	*0*	*6*	*14*	*0*	*16*	*6*	*7*	*20*	*18*
No. of samples collected in which E. coli is detected (i.e., a failure)	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
No. of samples collected in previous 12-MONTH period	*149*	*160*	*159*	*143*	*133*	*134*	*124*	*140*	*141*	*129*	*135*	*139*
No. of failures for previous 12-MONTH period	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
% of samples that comply	*100%*	*100%*	*100%*	*100%*	*100%*	*100%*	*100%*	*100%*	*100%*	*100%*	*100%*	*100%*
Compliance with 98% annual value	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*

Drinking water scheme: TARA Verification Monitoring Results (2022 - 2023)												
	Jul	*Aug*	*Sep*	*Oct*	*Nov*	*Dec*	*Jan*	*Feb*	*Mar*	*Apr*	*May*	*Jun*
No. of samples collected	*8*	*4*	*13*	*9*	*9*	*7*	*11*	*15*	*13*	*7*	*23*	*13*
No. of samples collected in which E. coli is detected (i.e., a failure)	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
No. of samples collected in previous 12-MONTH period	*120*	*117*	*127*	*126*	*119*	*117*	*115*	*116*	*117*	*110*	*125*	*132*
No. of failures for previous 12-MONTH period	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
% of samples that comply	*100%*	*100%*	*100%*	*100%*	*100%*	*100%*	*100%*	*100%*	*100%*	*100%*	*100%*	*100%*
Compliance with 98% annual value	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*

Drinking water scheme: WANDOAN Verification Monitoring Results (2022 - 2023)												
	Jul	*Aug*	*Sep*	*Oct*	*Nov*	*Dec*	*Jan*	*Feb*	*Mar*	*Apr*	*May*	*Jun*
No. of samples collected	*0*	*24*	*16*	*4*	*7*	*16*	*2*	*0*	*0*	*0*	*0*	*0*
No. of samples collected in which E. coli is detected (i.e., a failure)	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
No. of samples collected in previous 12-MONTH period	*27*	*51*	*67*	*71*	*78*	*85*	*85*	*85*	*85*	*85*	*85*	*69*
No. of failures for previous 12-MONTH period	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
% of samples that comply	*100%*	*100%*	*100%*	*100%*	*100%*	*100%*	*100%*	*100%*	*100%*	*100%*	*100%*	*100%*
Compliance with 98% annual value	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*

Drinking water scheme: WARRA Verification Monitoring Results (2022 - 2023)												
	Jul	*Aug*	*Sep*	*Oct*	*Nov*	*Dec*	*Jan*	*Feb*	*Mar*	*Apr*	*May*	*Jun*
No. of samples collected	*21*	*21*	*23*	*15*	*22*	*19*	*22*	*20*	*22*	*22*	*23*	*24*
No. of samples collected in which E. coli is detected (i.e., a failure)	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
No. of samples collected in previous 12-MONTH period	*420*	*405*	*394*	*368*	*353*	*332*	*312*	*316*	*300*	*277*	*250*	*254*
No. of failures for previous 12-MONTH period	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
% of samples that comply	*100%*	*100%*	*100%*	*100%*	*100%*	*100%*	*100%*	*100%*	*100%*	*100%*	*100%*	*100%*
Compliance with 98% annual value	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*

6 Incidents reported to the Regulator

The incidents reported to the regulator and management actions undertaken over the 2022 - 2023 year are provided in this section.

Table 6-1 - Incidents Reported to the Regulator

Scheme	Report No.	Incident	Sample Location	Sample Date	Date Reported	Follow Up Sample Date/Actions		Incident Closed Date
Tara	**DWI-480-22-09719**	Chlorate	Tower	27/07/2022	10/08/2022	**CLOSED**	Request a re-sample at Tower to be carried out on Thursday 11.08.2022. Terry reviewing Chlorine deliveries - age, %, quantity. 09/12/2022 - Emailed Part B to Regulator	14.10.2021
Jandowae	**DWI-480-22-09728**	E. coli	Works Depot	15/08/2022	16/08/2022	**CLOSED**	Re-sampled 16/08/2022 11:00am - Negative for E. coli 24.08.2022 (Emailed Investigation Report AW)	05.12.2022

Scheme	Report No.	Incident	Sample Location	Sample Date	Date Reported	Follow Up Sample Date/Actions		Incident Closed Date
Bell	**DWI-480-22-09965**	TTHM	Railway Garden / Bunya Centre	9/11/2022	25/11/2022	**CLOSED**	Update email sent 20.03.2023 Update email sent 19.05.2023 Investigation Report email sent 01.06.2023	12/06/2023
Warra	**DWI-480-22-09774**	TTHM	Best Park / School / Highway Gardens / WTP	7/09/2022	20/09/2022	Open	Update email sent 06.01.2023 Update email sent 01.02.2023 Update email sent 24.03.2023 Update email sent 19.05.2023 Update email sent 02.06.2023	
Warra	**DWI-480-22-10094**	Chlorate	Best Park & School	13/12/2022	22/12/2022	**CLOSED**	Investigation Report email sent 23.02.2023	22.03.2023
Chinchilla	**DWI-480-23-10162**	TTHM	Industrial Park/Riverdel/Mackie Park/Beutel Park	24/01/2023	8/02/2023	Open	Part A email sent 09.02.2023 Update email sent 30.03.2023 Update email sent 19.05.2023 Update email sent 02.06.2023	

Scheme	Report No.	Incident	Sample Location	Sample Date	Date Reported	Follow Up Sample Date/Actions		Incident Closed Date
Wandoan	**DWI-480-23-10169**	Chlorate	Lindsey Oval	30/01/2023	10/02/2023	**CLOSED**	Part A email sent ???? Update email sent 04.04.2023 Update email sent 17.04.2023 Update email sent 09.05.2023 (Doc ID 4803050) Investigation Report email sent 23.05.2023	12/06/2023
Tara	**DWI-480-23-10196**	Chlorate	WTP - Test Point 8 / Tower	21/02/2023	28/02/2023	**CLOSED**	Initial Notification email sent 01.03.2023 Update email sent 21.03.2023 Update email sent 04.04.2023 Update email sent 09.05.2023 (Doc ID 4803052) Investigation Report email sent 01.06.2023	15/06/2023
Warra	**DWI-480-23-10195**	Turbidity	Tank 1 / Tank 4	27/02/2023	28/02/2023	**CLOSED**	Investigation Report email sent 07.03.2023	24.04.2023
Tara	**DWI-480-23-10202**	TTHM	WTP - Test Point 8 / Tower	21/02/2023	01/03.2023	**CLOSED**	Update email sent 21.03.2023 Update email sent 19.05.2023 Investigation Report email sent 17.07.2023	08.08.2023
Miles	**DWI-480-23-10201**	Chlorate	Dairy Farmers	21/02/2023	1/03/2023	**CLOSED**	Initial Notification email sent 02.03.2023 Update email sent 09.05.2023 Investigation Report email sent 01.06.2023	12/06/2023

Scheme	Report No.	Incident	Sample Location	Sample Date	Date Reported	Follow Up Sample Date/Actions		Incident Closed Date
Bell	**DWI-480-23-10222**	High Turbidity	WTP	23/03/2023	23/03/2023	**CLOSED**	Initial Notification emailed 23.03.2023 Micro sampling returned ABSENT Coliforms and E.coli when taken out at 16:55 on 23.03.2023 Investigation Report email sent 06.04.2023	24.04.2023
Tara		TCAA	WTP	17/05/2023	2/06/2023	Open		
Warra	**DWI-480-23-10313**	High Chlorine	Water Tower	28/06/2023	28/06/2023	**CLOSED**	Part A email sent 29.06.2023 Investigation Report email sent 18.07.2023	8/08/2023

7 Customer complaints

WDRC received 15 complaints relating to water quality during 2022 - 2023

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

All sections of the Drinking Water Quality Management Plan were reviewed during 2022-2023.

9 DWQMP audit outcomes

No audit was conducted or needed during the reporting period 01/07/2022 - 30/06/2023.