

Drinking Water Quality Performance Report

July 2016 - June 2017



Unitywater

Serving you today,
investing in tomorrow.



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Message from the CEO

Dear Customers,

I am pleased to share with you our Drinking Water Quality Report for 2016-17. This report provides information about the quality of the drinking water we supply, where your water comes from and what we are doing to ensure a food grade product is supplied to the highest possible standard.

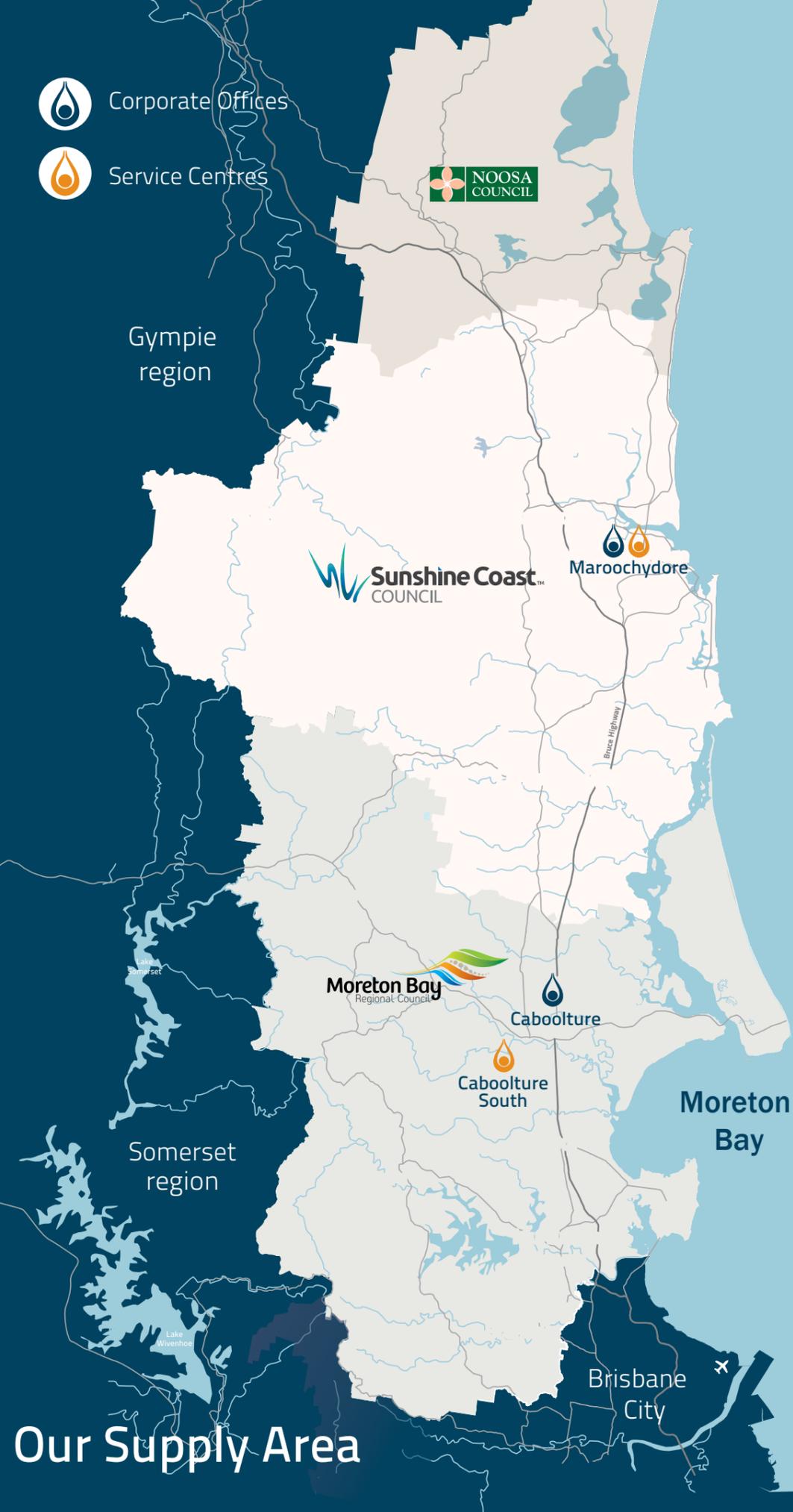
The *Queensland Public Health Regulation* for drinking water requires 98% of all drinking water samples contain no *E.coli* bacteria, an indicator of possible water contamination. Unitywater has consistently achieved this target since operations began in 2010, with performance improving as the years progressed. This year I am proud to announce that we have achieved 100% compliance for all 4523 drinking water *E.coli* verification samples collected. Furthermore, from our routine monitoring program (more than 102,000 individual microbiological, chemical and physical tests) only 1 result did not meet an individual guideline. This result was promptly investigated and all re-samples met the required guideline.

For Unitywater, 2016-17 was a transformational year, our focus remained on providing a food grade product to our customers and reducing our cost to serve. Our customers are at the heart of what we do every day and as we move into a new financial year we will continue to encourage and support innovative ideas to improve the quality of our product and the value we provide to our customers.

If you have any questions, or feedback on the content of this report, please do not hesitate to call our customer contact centre on 1300 0 UNITY.

George Theo
Chief Executive Officer
Unitywater

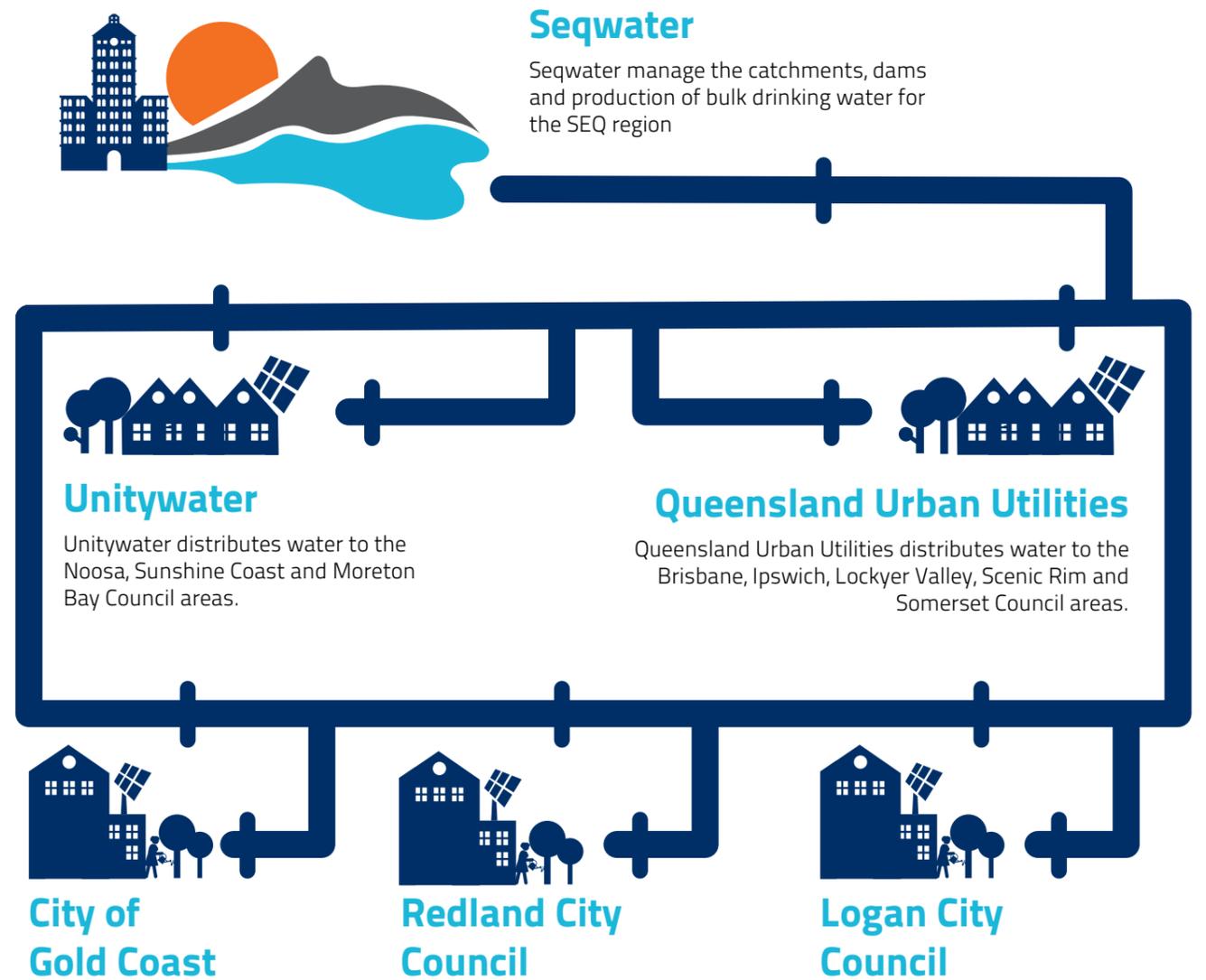
-  Corporate Offices
-  Service Centres



Where we sit in the grid

The south-east Queensland water grid connects the water supplies from the Sunshine Coast, through greater Brisbane and down to the Gold Coast. This arrangement allows Seqwater to move treated 'bulk' drinking water from one area to another, reducing the risk of any single source being used up (i.e. during drought conditions).

More detail on the bulk water supply network can be found here:
<http://www.seqwater.com.au/water-supply/supply-network>



Water supply sources

Unitywater purchases bulk (treated) water from Seqwater. Seqwater are responsible for the water catchment (the raw water source), the water treatment plants (WTP) and the bulk water distribution up to the bulk supply points. Please direct any queries around bulk water supply arrangements to Seqwater (<http://www.seqwater.com.au/contacts>).

The purchased water enters the Unitywater network either directly from a water treatment plant or via the major pipeline called the Northern Pipeline Interconnector- NPI. The Northern Pipeline Interconnector was built by the Queensland government to provide long term water supply and security. The Northern Pipeline Interconnector allows water to be transferred between the Sunshine Coast, Moreton Bay and Brisbane Council. The Northern Pipeline Interconnector is owned and operated by Seqwater in either a northerly or southerly flow direction, with additional options available. Configuration is dependent on source water availability and regional demand and negotiated between Seqwater and the Distribution Retail Entities.

For water quality reporting Unitywater's supply network is divided into 5 regions:

1. Dayboro
2. Kenilworth
3. North
4. Pine Rivers North
5. South

Dayboro

This includes the Dayboro Township and surrounds that receive reticulated water.

General operation:

Dayboro Water Treatment Plant

- The Dayboro WTP treats water extracted from bores located in the North Pine River and supplies the Dayboro region.
- Dayboro is not connected to the South East Queensland water grid. Water can be imported via water tankers if necessary.

Kenilworth

This includes the Kenilworth Township and surrounds that receive reticulated water.

General Operation:

This area is normally supplied from the Kenilworth Water Treatment Plant

- The Kenilworth WTP treats water extracted from bores located in the Mary River and supplies the Kenilworth region.

Kenilworth is not connected to the South East Queensland water grid. Water can be imported via water tankers if necessary.

North

This includes all areas within the Sunshine Coast and Noosa Regional Councils that receive reticulated water, i.e. Caloundra, Maleny, Maroochy North, Maroochy South, Noosa and Railway Towns (excluding Kenilworth).

General Operation:

This area is normally supplied from the Lake Macdonald, Image Flat and Landers Shute Water Treatment Plant (WTP) with supplementary supply via the Northern Pipeline Interconnector - stage 2.

- The Lake Macdonald WTP treats raw water from Lake Macdonald and the Mary River to supply the Noosa area (includes Pomona and Cooroy).
- The Image Flat WTP treats raw water from Cooloolabin Dam, Wappa Dam and Poona Dam to supply the Maroochy North area. Bli Bli and Coolum zones are supplemented by the Nambour Northern Pipeline Interconnector -stage 2
- The Landers Shute WTP Treats raw water from Baroon Pocket Dam and supplies the Maroochy South, Maleny, Caloundra and Railway Towns area.

The Ewen Maddock WTP was recommissioned in July 2017 to improve water supply security for the Sunshine Coast and reduce demand on Baroon Pocket Dam. Ewen Maddock WTP will supply the majority of the Caloundra area with supplementary supply from Landers Shute WTP. Water for Ewen Maddock WTP will be sourced from Ewen Maddock Dam.

Pine Rivers North

This includes all areas within the Pine Rivers North region that receives reticulated water. The Petrie WTP is currently in the process of being decommissioned. Seqwater anticipate that Petrie WTP will be offline by 2018 and this area will be incorporated into the Southern region.

General operation:

- This area is normally supplied from the Petrie Water Treatment Plant.
- The Petrie WTP treats water extracted from Lake Kurwongbah and the North Pine River and supplies the Pine Rivers North region.

South

This includes all areas within the Moreton Bay Regional Council that receive reticulated water, i.e. Bribie Island, Caboolture, Redcliffe, Pine Rivers South & Woodford (excluding Dayboro and Pine Rivers North).

General Operation:

North Pine WTP treats water from North Pine Dam and supplies the Redcliffe and Pine Rivers South region via the Northern Pipeline Interconnector.

The Woodford, Caboolture and Bribie areas are supplied primarily by Landers Shute WTP via the Northern Pipeline Interconnector.

Your suburb and its water supply region

Suburb	Region
ALBANY CREEK	South
ALEXANDRA HEADLAND	North
ARANA HILLS	South
AROONA	North
BANKSIA BEACH	South
BATTERY HILL	North
BEACHMERE	South
BEERBURRUM	North
BEERWAH	North
BELLARA	South
BELLMERE	South
BIRTINYA	North
BLI BLI	North
BONGAREE	South
BRAY PARK	South
BRENDALE	South
BRIBIE ISLAND	South
BUDDINA	North
BUDERIM	North
BUNYA	South
BURPENGARY	South
BURPENGARY EAST	South
CABOOLTURE	South
CABOOLTURE SOUTH	South
CALOUNDRA	North
CALOUNDRA WEST	North
CASHMERE	South
CLEAR MOUNTAIN	South
CLONTARF	South
COES CREEK	North
COOLUM BEACH	North
COORAN	North

Suburb	Region
COOROY	North
COTTON TREE	North
CURRIMUNDI	North
D'AGUILAR	South
DAKABIN	Pine Rivers North
DAYBORO	Dayboro
DECEPTION BAY	South
DICKY BEACH	North
DIDDILLIBAH	North
DONNYBROOK	South
EATONS HILL	South
ELIMBAH	South
EUMUNDI	North
EVERTON HILLS	South
EVERTON PARK	South
FERNY HILLS	South
FOREST GLEN	North
GLASSHOUSE MOUNTAINS	North
GOLDEN BEACH	North
GRIFFIN	Pine Rivers North
HARBOUR HILL	North
HIGHWORTH	North
JOYNER	South
KALLANGUR	Pine Rivers North
KEIL MOUNTAIN	North
KENILWORTH	Kenilworth
KINGS BEACH	North
KIPPA-RING	South
KULANGOOR	North
KULUIN	North
KUNDA PARK	North
LANDSBOROUGH	North

Suburb	Region
LAWNTON	Pine Rivers North
LITTLE MOUNTAIN	North
MALENY	North
MARCOOLA	North
MARCUS BEACH	North
MARGATE	South
MAROOCHYDORE	North
MERIDIAN PLAINS	North
MINYAMA	North
MOFFAT BEACH	North
MOOLOOLABA	North
MOOLOOLAH VALLEY	North
MORAYFIELD	South
MOUNT COOLUM	North
MOUNTAIN CREEK	North
MUDJIMBA	North
MURRUMBA DOWNS	Pine Rivers North
NAMBOUR	North
NARANGBA	South
NEWPORT	South
NINGI	South
NOOSA HEADS	North
NOOSAVILLE	North
NORTH ARM	North
NORTH LAKES	Pine Rivers North
PACIFIC PARADISE	North
PALMWOODS	North
PARKLANDS	North
PARREARRA	North
PELICAN WATERS	North
PEREGIAN BEACH	North
PEREGIAN SPRINGS	North

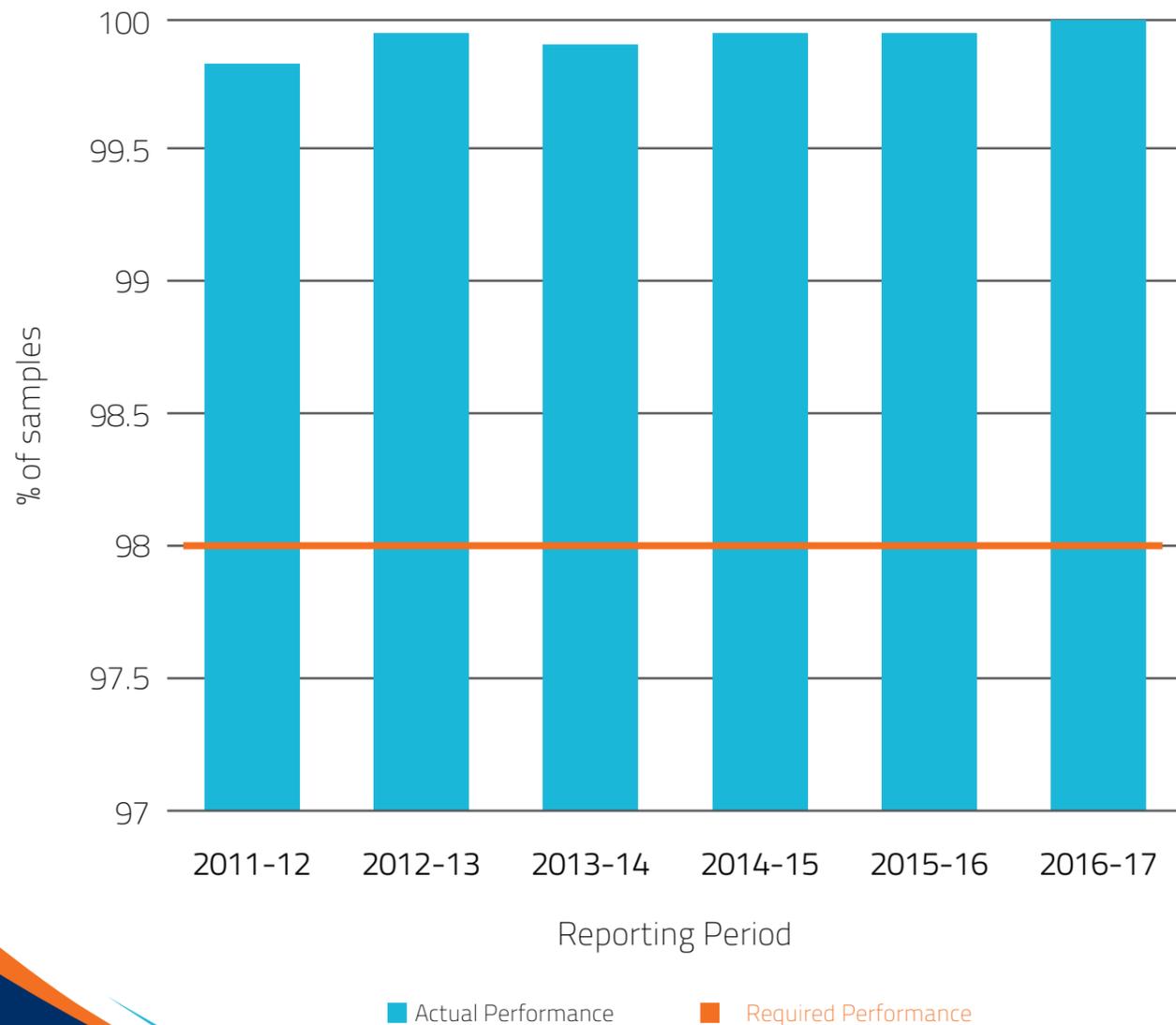
Suburb	Region
PETRIE	Pine Rivers North
POINT ARKWRIGHT	North
POINT CARTWRIGHT	North
POMONA	North
REDCLIFFE	South
ROSEMOUNT	North
ROTHWELL	South
SAMFORD	South
SANDSTONE POINT	South
SCARBOROUGH	South
SIPPY DOWNS	North
SOLANDER	South
STRATHPINE	South
SUNRISE BEACH	North
SUNSHINE BEACH	North
TANAWHA	North
TEWANTIN	North
TOORBUL	South
TOWEN MOUNTAIN	North
TWIN WATERS	North
UPPER CABOOLTURE	South
WAMURAN	South
WARANA	North
WARNER	South
WOODFORD	South
WOODY POINT	South
WOOMBYE	North
WOORIM	South
WURTULLA	North
YANDINA	North
YAROOMBA	North

Water quality summary

PUBLIC HEALTH REGULATION 2005

The *Public Health Regulation 2005* requires that all water service providers in Queensland meet the regulated drinking water quality standard; which is that more than 98% of all samples tested must return a negative result for *E.coli* (*E.coli* is used as an indicator for faecal contamination).

In 2016-2017, 100% of Unitywater's samples were negative for *E.coli*. The graph below shows our performance over the past seven years:



PRECAUTIONARY BOILED WATER ALERT – PETRIE

On the 5th of June 2017 Unitywater issued a 24 hour precautionary boiled water alert for residents located within Petrie and Old Petrie Town, affecting an estimated 3500 properties.

Widespread dirty water occurred throughout Petrie and Old Petrie Town following an event in the network and at the Petrie water treatment plant. A valve failure resulted in water that may not have met Australian Drinking Water Guidelines entering the network.

During the alert period dirty water was flushed from the affected areas contributing to elevated results (including turbidity, manganese and iron). Laboratory sampling was undertaken post flush, verifying that the water was safe to drink and returning the water supply to customers on 6th June 2017.

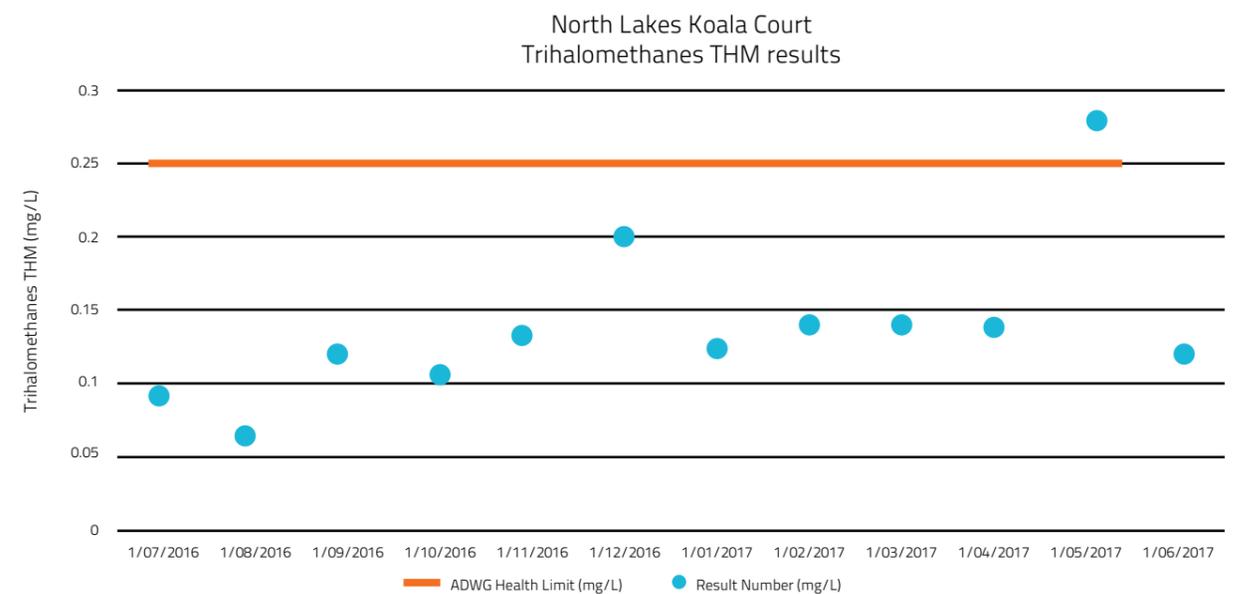
AUSTRALIAN DRINKING WATER GUIDELINES – HEALTH

Unitywater, like other water service providers in Australia is obligated to provide customers with water that meets the health related limits as specified in the Australian Drinking Water Guidelines 2011.

In 2016-2017, there was one instance where the ADWG long-term health limit for Trihalomethanes - THM (0.25mg/L) was not met at a reticulation sampling site. Routine laboratory sampling identified the elevated result (0.28mg/L) at Koala Court, North Lakes. Further testing throughout the network confirmed there were no other elevated levels and this was an isolated event.

Disinfectant (i.e. chlorine) when added to water can react with naturally occurring organic material, to produce THMs. To mitigate this Unitywater has reviewed its secondary chlorine dosing strategy.

The Australian Drinking Water Guidelines states that THM concentrations fluctuating occasionally (for a day or two annually) up to 1 mg/L are unlikely to pose a significant health risk.



Drinking water quality performance

The table below briefly summarises drinking water performance across three categories, by each supply region.

Microbiological performance is said to have met the performance requirement if more than 98% of samples from the supply region returned a nil result for *E.coli*.

Chemical (Health) performance is said to have met the performance requirement if the 95th percentile (a statistical calculation) for each chemical is below the Australian Drinking Water Guidelines health value for that chemical.

Chemical (Aesthetic) performance is said to have met the performance requirement if the average result for each chemical is below the Australian Drinking Water Guidelines aesthetic value for that chemical.

Supply Region	Microbiological Performance	Chemical (Health) Performance	Chemical (Aesthetic) Performance
Dayboro	✓	✓	✓
Kenilworth	✓	✓	✓
North	✓	✓	✓
Pine Rivers North	✓	✓	✓
South	✓	✓	✓

✓ means that performance requirement was met

Supply Region	Number of Positive <i>E.coli</i> Results (12 Mth)	Required <i>E.coli</i> Performance (12 Mth)	Actual <i>E.coli</i> Performance (12 Mth)	Met PHR
Dayboro	0	98%	100%	✓
Kenilworth	0	98%	100%	✓
North	0	98%	100%	✓
Pine Rivers North	0	98%	100%	✓
South	0	98%	100%	✓

PHR = Public Health Regulation 2005

The Public Health Regulation 2005 requires that all water service providers in Queensland meet the regulated drinking water quality standard.

This means more than 98% of all samples tested must return a negative result for *E.coli*.

In 2016-2017 Unitywater has not detected any *E.coli* organisms in our drinking water distribution network!

4523

E.coli samples collected 2016-17

100%

of compliant *E.coli* samples

Chemical performance in detail

Dayboro - Chemical (health) performance

Parameter	Units	Number Of Samples	Min Result	Max Result	Average Result	95th Percentile	ADWG Guideline	Met ADWG
Arsenic	mg/L	1	<0.001	<0.001	<0.001	<0.001	0.01	✓
Bromate	mg/L	4	<0.005	<0.005	<0.005	<0.005	0.02	✓
Chlorate	mg/L	24	0.02	0.48	0.14	0.43	a	a
Chlorine Free	mg/L	180	0.4	1.5	0.92	1.2	5	✓
Chlorine Total	mg/L	180	0.5	1.8	0.97	1.21	5	✓
Copper	mg/L	25	<0.01	<0.01	<0.01	<0.01	2	✓
Fluoride	mg/L	24	0.3	0.97	0.79	0.95	1.5	✓
HAA's	ug/L	2	<60	<60	<60	<60	a	a
Lead	mg/L	25	<0.01	<0.01	<0.01	<0.01	0.01	✓
Manganese	mg/L	82	<0.01	<0.01	<0.01	<0.01	0.5	✓
Nickel	mg/L	25	<0.01	<0.01	<0.01	<0.01	0.02	✓
THMs	ug/L	24	19	140	46	67	250	✓

a - No guideline limit

Dayboro - Chemical (aesthetic) performance

Parameter	Units	Number Of Samples	Min Result	Max Result	Average Result	95th Percentile	ADWG Guideline	Met ADWG
Alkalinity Total	mg/L as CaCO ₃	12	36.4	102	75.77	100.90	a	a
Aluminium	mg/L	82	<0.02	0.03	<0.02	0.02	0.2	✓
Calcium	mg/L	12	10	15	12.83	15.00	a	a
Chloride	mg/L	4	34	45	39.00	44.25	250	✓
Colour Apparent	PCU	60	<1	2	<1	1.51	15	✓
Colour True	PCU	60	<1	<1	<1	<1	15	✓
Conductivity	uS/cm	179	177	348	303	342	1000	✓
Copper	mg/L	25	<0.01	<0.01	<0.01	<0.01	1	✓
Iron	mg/L	82	<0.01	0.03	0.01	0.02	0.3	✓
Magnesium	mg/L	12	7	11	8.92	11.00	a	a
Manganese	mg/L	82	<0.01	<0.01	<0.01	<0.01	0.1	✓
pH	pH Units	179	6.9	8	7.4	7.8	6.5-9.2	✓
Potassium	mg/L	4	1.5	1.6	1.55	1.60	a	a
Silica as SiO₂	mg/L	2	12	13	12.50	12.95	80	✓
Sodium	mg/L	4	29	36	32.0	35.6	180	✓
Sulphate	mg/L	1	6.7	6.7	6.7	6.7	250	✓
Temperature	°C	179	17.1	30.7	22.8	27.9	a	a
Total Hardness	mg/L as CaCO ₃	12	51	85	68.58	83.35	200	✓
Turbidity	NTU	179	0.05	0.29	0.15	0.21	5	✓
Zinc	mg/L	25	<0.01	<0.01	<0.01	<0.01	3	✓

a - No guideline limit

Kenilworth - Chemical (health) performance

Parameter	Units	Number Of Samples	Min Result	Max Result	Average Result	95th Percentile	ADWG Guideline	Met ADWG
Arsenic	mg/L	1	<0.001	<0.001	<0.001	<0.001	0.01	✓
Bromate	mg/L	4	<0.005	0.009	<0.005	0.008	0.02	✓
Chlorate	mg/L	35	<0.01	0.21	0.11	0.21	a	a
Chlorine Free	mg/L	178	0.4	2.1	1.11	1.50	5	✓
Chlorine Total	mg/L	178	0.4	2.1	1.17	1.60	5	✓
Copper	mg/L	36	<0.01	0.02	<0.01	0.01	2	✓
Fluoride	mg/L	35	<0.1	0.51	0.18	0.23	1.5	✓
HAAs	ug/L	2	<60	<60	<60	<60	a	a
Lead	mg/L	36	<0.01	<0.01	<0.01	<0.01	0.01	✓
Manganese	mg/L	47	<0.01	<0.01	<0.01	<0.01	0.5	✓
Nickel	mg/L	36	<0.01	<0.01	<0.01	<0.01	0.02	✓
THMs	ug/L	35	5	59	28	44	250	✓

a - No guideline limit

Kenilworth - Chemical (aesthetic) performance

Parameter	Units	Number Of Samples	Min Result	Max Result	Average Result	95th Percentile	ADWG Guideline	Met ADWG
Alkalinity Total	mg/L as CaCO ₃	12	32	159	143.42	158.45	a	a
Aluminium	mg/L	47	<0.02	<0.02	<0.02	<0.02	0.2	✓
Calcium	mg/L	12	16	20	18.00	19.45	a	a
Chloride	mg/L	4	36	48	42.00	47.25	250	✓
Colour Apparent	PCU	47	<1	1.2	<1	1.00	15	✓
Colour True	PCU	47	<1	1	<1	<1	15	✓
Conductivity	uS/cm	177	239	452	424	445	1000	✓
Copper	mg/L	36	<0.01	0.02	<0.01	0.01	1	✓
Iron	mg/L	47	<0.01	<0.01	<0.01	<0.01	0.3	✓
Magnesium	mg/L	12	9	12	10.08	11.45	a	a
Manganese	mg/L	47	<0.01	<0.01	<0.01	<0.01	0.1	✓
pH	pH Units	177	7.2	7.8	7.4	7.6	6.5-9.2	✓
Potassium	mg/L	4	<1	1.2	<1	1.19	a	a
Silica as SiO₂	mg/L	2	25	25	25.00	25.00	80	✓
Sodium	mg/L	4	57	62	59.5	61.7	180	✓
Sulphate	mg/L	1	7.8	7.8	7.8	7.8	250	✓
Temperature	°C	177	18.4	31	23.8	28.8	a	a
Total Hardness	mg/L as CaCO ₃	12	76	97	86.50	94.25	200	✓
Turbidity	NTU	177	<0.05	1.7	0.08	0.15	5	✓
Zinc	mg/L	36	<0.01	<0.01	<0.01	<0.01	3	✓

a - No guideline limit

North - Chemical (health) performance

Parameter	Units	Number Of Samples	Min Result	Max Result	Average Result	95th Percentile	ADWG Guideline	Met ADWG
Arsenic	mg/L	9	<0.001	<0.001	<0.001	<0.001	0.01	✓
Bromate	mg/L	36	<0.005	0.01	<0.005	0.010	0.02	✓
Chlorate	mg/L	258	<0.01	0.92	0.06	0.27	a	a
Chlorine Free	mg/L	3,694	<0.1	2.7	0.90	1.60	5	✓
Chlorine Total	mg/L	3,694	<0.1	2.9	1.01	1.70	5	✓
Copper	mg/L	266	<0.01	0.02	<0.01	<0.01	2	✓
Fluoride	mg/L	258	0.24	1	0.75	0.91	1.5	✓
HAA's	ug/L	22	<60	<60	<60	<60	a	a
Lead	mg/L	266	<0.01	<0.01	<0.01	<0.01	0.01	✓
Manganese	mg/L	1,390	<0.01	0.06	<0.01	<0.01	0.5	✓
Nickel	mg/L	266	<0.01	0.01	<0.01	<0.01	0.02	✓
THMs	ug/L	258	11	190	62	112	250	✓

a - No guideline limit

North - Chemical (aesthetic) performance

Parameter	Units	Number Of Samples	Min Result	Max Result	Average Result	95th Percentile	ADWG Guideline	Met ADWG
Alkalinity Total	mg/L as CaCO ₃	102	<20	59.6	40.37	51.99	a	a
Aluminium	mg/L	1,390	<0.02	0.11	<0.02	0.03	0.2	✓
Calcium	mg/L	102	9	26	16.20	23.95	a	a
Chloride	mg/L	36	14	84	36.47	63.75	250	✓
Colour Apparent	PCU	1,391	<1	23	1.14	3.40	15	✓
Colour True	PCU	1,391	<1	2	<1	1.10	15	✓
Conductivity	uS/cm	3,581	109	401	224	323	1000	✓
Copper	mg/L	266	<0.01	0.02	<0.01	<0.01	1	✓
Iron	mg/L	1390	<0.01	0.3	0.01	0.03	0.3	✓
Magnesium	mg/L	102	2	10	5.57	9.00	a	a
Manganese	mg/L	1,390	<0.01	0.06	<0.01	<0.01	0.1	✓
pH	pH Units	3,581	6.9	9.3	7.6	8.2	6.5-9.2	✓
Potassium	mg/L	36	<1	2.1	1.53	1.93	a	a
Silica as SiO₂	mg/L	18	1	10	3.50	7.45	80	✓
Sodium	mg/L	36	8	37	19.4	33.0	180	✓
Sulphate	mg/L	9	19	32	25.1	32.0	250	✓
Temperature	°C	3,577	15.7	31.7	23.3	28.7	a	a
Total Hardness	mg/L as CaCO ₃	102	41	81	63.34	75.00	200	✓
Turbidity	NTU	3,580	<0.05	7.3	0.15	0.34	5	✓
Zinc	mg/L	266	<0.01	0.04	<0.01	<0.01	3	✓

a - No guideline limit

Pine Rivers North - Chemical (health) performance

Parameter	Units	Number Of Samples	Min Result	Max Result	Average Result	95th Percentile	ADWG Guideline	Met ADWG
Arsenic	mg/L	2	<0.001	<0.001	<0.001	<0.001	0.01	✓
Bromate	mg/L	8	<0.005	0.01	<0.005	0.007	0.02	✓
Chlorate	mg/L	48	0.04	0.72	0.24	0.59	a	a
Chlorine Free	mg/L	433	0.06	2.5	1.49	2.10	5	✓
Chlorine Total	mg/L	433	0.8	2.8	1.68	2.30	5	✓
Copper	mg/L	53	<0.01	0.06	0.01	0.05	2	✓
Fluoride	mg/L	48	<0.1	0.99	0.72	0.97	1.5	✓
HAA's	ug/L	4	<60	109	70.00	104.80	a	a
Lead	mg/L	53	<0.01	<0.01	<0.01	<0.01	0.01	✓
Manganese	mg/L	211	<0.01	0.2	<0.01	<0.01	0.5	✓
Nickel	mg/L	53	<0.01	<0.01	<0.01	<0.01	0.02	✓
THMs	ug/L	47	32	280 ¹	100	150	250	✓

a - No guideline limit

Pine Rivers North - Chemical (aesthetic) performance

Parameter	Units	Number Of Samples	Min Result	Max Result	Average Result	95th Percentile	ADWG Guideline	Met ADWG
Alkalinity Total	mg/L as CaCO ₃	24	20	47.6	33.5	47.28	a	a
Aluminium	mg/L	199	<0.02	0.24	0.02	0.04	0.2	✓
Calcium	mg/L	24	10	24	14.04	16.00	a	a
Chloride	mg/L	8	20	36	26.63	33.90	250	✓
Colour Apparent	PCU	166	<1	53	1.9	3.18	15	✓
Colour True	PCU	166	<1	1.5	<1	1.18	15	✓
Conductivity	uS/cm	428	187	272	228	266	1000	✓
Copper	mg/L	53	<0.01	0.06	0.01	0.05	1	✓
Iron	mg/L	199	<0.01	0.07	<0.01	<0.01	0.3	✓
Magnesium	mg/L	24	3	7	4.25	5.85	a	a
Manganese	mg/L	199	<0.01	0.2	<0.01	<0.01	0.1	✓
pH	pH Units	428	7	8.3	7.4	7.8	6.5-9.2	✓
Potassium	mg/L	8	1.9	2.4	2.11	2.37	a	a
Silica as SiO₂	mg/L	4	2	3	2.50	3.00	80	✓
Sodium	mg/L	8	18	30	24.6	29.7	180	✓
Sulphate	mg/L	2	35	36	35.5	36.0	250	✓
Temperature	°C	428	17.1	31.2	23.9	29.5	a	a
Total Hardness	mg/L as CaCO ₃	24	44	71	53.00	59.55	200	✓
Turbidity	NTU	428	<0.05	3.9	0.13	0.21	5	✓
Zinc	mg/L	53	<0.01	<0.01	<0.01	<0.01	3	✓

a - No guideline limit

South - Chemical (health) performance

Parameter	Units	Number Of Samples	Min Result	Max Result	Average Result	95th Percentile	ADWG Guideline	Met ADWG
Arsenic	mg/L	7	<0.001	0.001	<0.001	<0.001	0.01	✓
Bromate	mg/L	29	<0.005	0.02	<0.005	0.010	0.02	✓
Chlorate	mg/L	265	0.01	0.95	0.18	0.57	a	a
Chlorine Free	mg/L	2,956	<0.1	5.2	0.34	1.40	5	✓
Chlorine Total	mg/L	2,960	<0.1	5.4	1.23	3.10	5	✓
Copper	mg/L	272	<0.01	<0.01	<0.01	<0.01	2	✓
Fluoride	mg/L	265	0.17	0.99	0.80	0.91	1.5	✓
HAAs	ug/L	22	<60	68	<60	62.30	a	a
Lead	mg/L	272	<0.01	<0.01	<0.01	<0.01	0.01	✓
Manganese	mg/L	1,085	<0.01	0.02	<0.01	<0.01	0.5	✓
Monochloramine NH ₂ Cl	mg/L	2,047	<0.02	2.38	0.55	1.74	3	✓
Nickel	mg/L	272	<0.01	<0.01	<0.01	<0.01	0.02	✓
Nitrate NO ₃ ⁻ (calc)	mg/L	36	0.28	2.57	1.23	2.42	50	✓
Nitrite as NO ₂ ⁻	mg/L	2,007	<0.02	1.18	0.17	0.67	3	✓
THMs	ug/L	265	16	160	64	120	5	✓

a - No guideline limit

South - Chemical (aesthetic) performance

Parameter	Units	Number Of Samples	Min Result	Max Result	Average Result	95th Percentile	ADWG Guideline	Met ADWG
Alkalinity Total	mg/L as CaCO ₃	86	35.2	73.2	42.98	48.40	a	a
Aluminium	mg/L	1,085	<0.02	0.16	0.03	0.06	0.2	✓
Calcium	mg/L	87	9	22	12.77	17.70	a	a
Chloride	mg/L	29	22	58	26.31	30.60	250	✓
Colour Apparent	PCU	1,022	<1	15	1.40	2.80	15	✓
Colour True	PCU	1,022	<1	2.6	<1	1.30	15	✓
Conductivity	uS/cm	2,847	119	467	234	265	1000	✓
Copper	mg/L	272	<0.01	<0.01	<0.01	<0.01	1	✓
Iron	mg/L	1,085	<0.01	0.25	0.01	0.04	0.3	✓
Magnesium	mg/L	87	4	11	5.45	6.70	a	a
Manganese	mg/L	1,085	<0.01	0.02	<0.01	<0.01	0.1	✓
pH	pH Units	2,847	7	9.1	7.7	8.2	6.5-9.2	✓
Potassium	mg/L	29	1.4	2.1	1.94	2.10	a	a
Silica as SiO ₂	mg/L	22	2	3	2.91	3.00	80	✓
Sodium	mg/L	29	15	25	20.9	25.0	180	✓
Sulphate	mg/L	7	20	21	20.1	20.7	250	✓
Temperature	°C	2,807	10.9	34.6	23.6	29.2	a	a
Total Hardness	mg/L as CaCO ₃	87	42	102	54.20	63.10	200	✓
Turbidity	NTU	2,847	<0.05	5.4	0.13	0.23	5	✓
Zinc	mg/L	272	<0.01	<0.01	<0.01	<0.01	3	✓

a - No guideline limit



Improving our drinking Water quality

International Food Safety Certification ISO 22000

Unitywater became the first distributor-retailer in South East Queensland to achieve international food safety certification ISO 22000 in 2016. Each year we are audited on our compliance with our Drinking Water Management System and ISO22000 standard. The most recent ISO22000 audit was completed in February 2017. They assessed our operational practices, work procedures, process/document control, and much more. The outcomes of this audit were positive and we are continuing to improve our Drinking Water Management System!

Mains Cleaning

To maintain the quality of the water supply, we occasionally need to clean our water mains. Drinking water carries tiny amounts of natural sediment, which over years settle as deposits in water pipes.

In October 2016 Unitywater undertook a Neutral Output Discharge Elimination System (NO-DES) trial in the Wamuran and Morayfield East area. The major benefits of this method include minimal customer interruption, biofilm and sediment removal, simplicity of use for field operators and a good cost/benefit ratio compared to other technologies. Overall the NO-DES trial was very effective and sediment was removed, improving the water quality in this area.



Improving Our Drinking Water Quality continued

Managing disinfectant for safe drinking water

The presence of a measurable disinfectant residual is recognised as one of the most effective quality assurance measures in the supply of safe drinking water via distribution pipe networks. Disinfection is typically achieved in full at the water treatment plant, and usually the process is designed so that some leftover or 'residual' disinfectant persists through into the water distribution system.

At network extremities, areas that are the most distant from the supply source, disinfectant chemicals may degrade or decay with time. To achieve consistent disinfection throughout the network and improve water quality performance four new chlorine tablet dosing units were installed in 2016-2017. In addition, a performance review of our chlorine dosing stations was undertaken to improve disinfectant management in our network.



Aerial drones for monitoring reservoir condition

Unitywater maintains 104 in service drinking water reservoirs throughout our network. Our reservoirs are a vital part of our water distribution network and maintaining their structural integrity is equally vital. Conducting reservoir condition inspections manually can be a time-consuming and labour-intensive process. The use of drone technology to conduct condition inspections has become increasingly popular amongst utilities in Australia and throughout the world. In 2017 Unitywater began trialling the use of drones to undertake reservoir condition inspections and if successful will aim to incorporate this technique into the asset management strategy.

Intelligent water network pilot trial

Unitywater operates in one of the fastest growing regions of Australia. Population growth, aging infrastructure and climate variability means we need to look differently at how to get more out of our existing infrastructure. In 2017 we initiated a pilot intelligent water network trial in our Dayboro and Kenilworth regions. This pilot scale trial will continue through to the 2017/18 period.

This trial aims to gather 'real time' water quality data, such as chlorine, enabling forward predictive capabilities to improve the effective control of network performance. The benefit of forward predictive capability is to inform and/or intervene network controls such as pump sequencing or chlorine dose rates, before a problem occurs.





Unitywater

ABN: 89 791 717 472

Head Office

Ground Floor, 33 King Street, Caboolture, QLD

PO Box 953, Caboolture QLD 4510

1300 0 UNITY (1300 086 489)

www.unitywater.com

Unitywater has certification to:

OH&S ISO 4801:2001 Reg No 4260

Environmental ISO 14001:2004 Reg No 4259

Quality Systems ISO 9001:2008 Reg No 4258

Food Safety Management ISO 22000



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