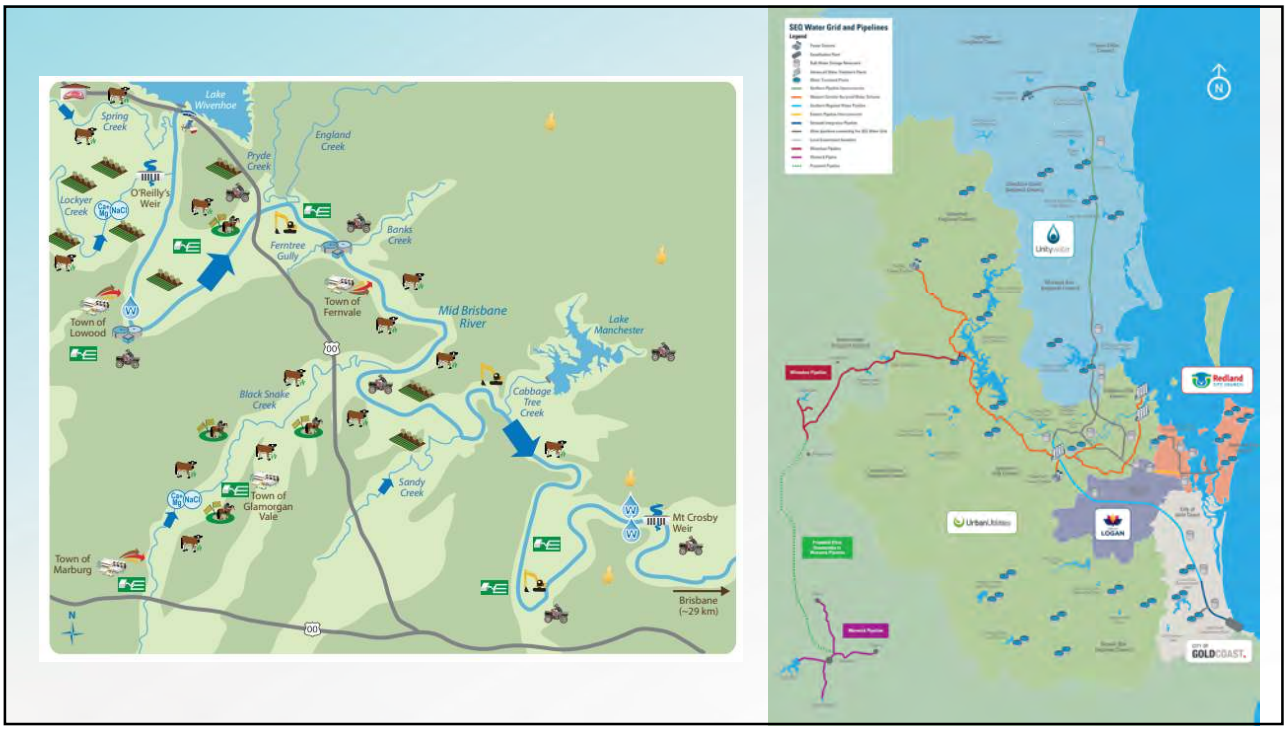
1

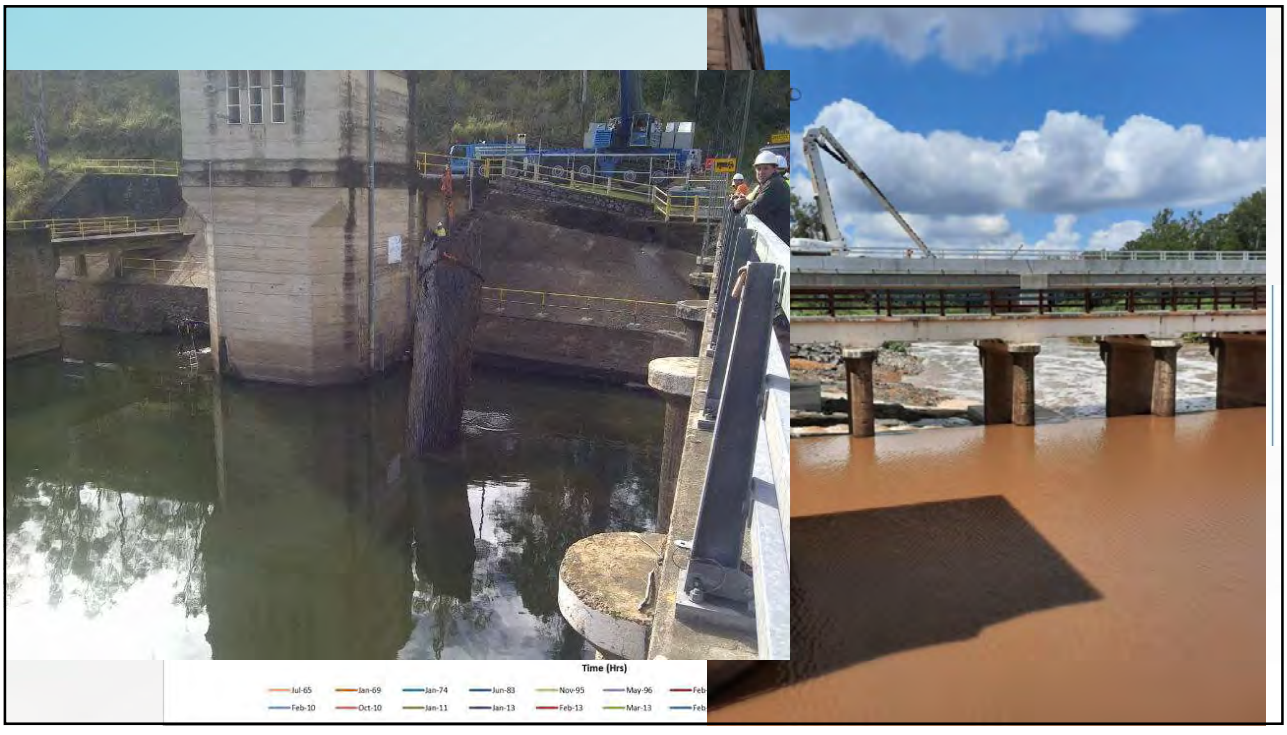
Seqwater acknowledges the Traditional Custodians of the land, catchments and waterways on which we live, work and play – the Kabi Kabi First Nations people; the Jinibara people; the Turrbal people; the Jagera people; the Quandamooka people; the Danggan Balun people; the Yuggera Ugarapul people; and the Gold Coast Native Title Group.

We pay our respects to Elders past, present and emerging; and acknowledge their continued connection to the land, water and culture of this area.

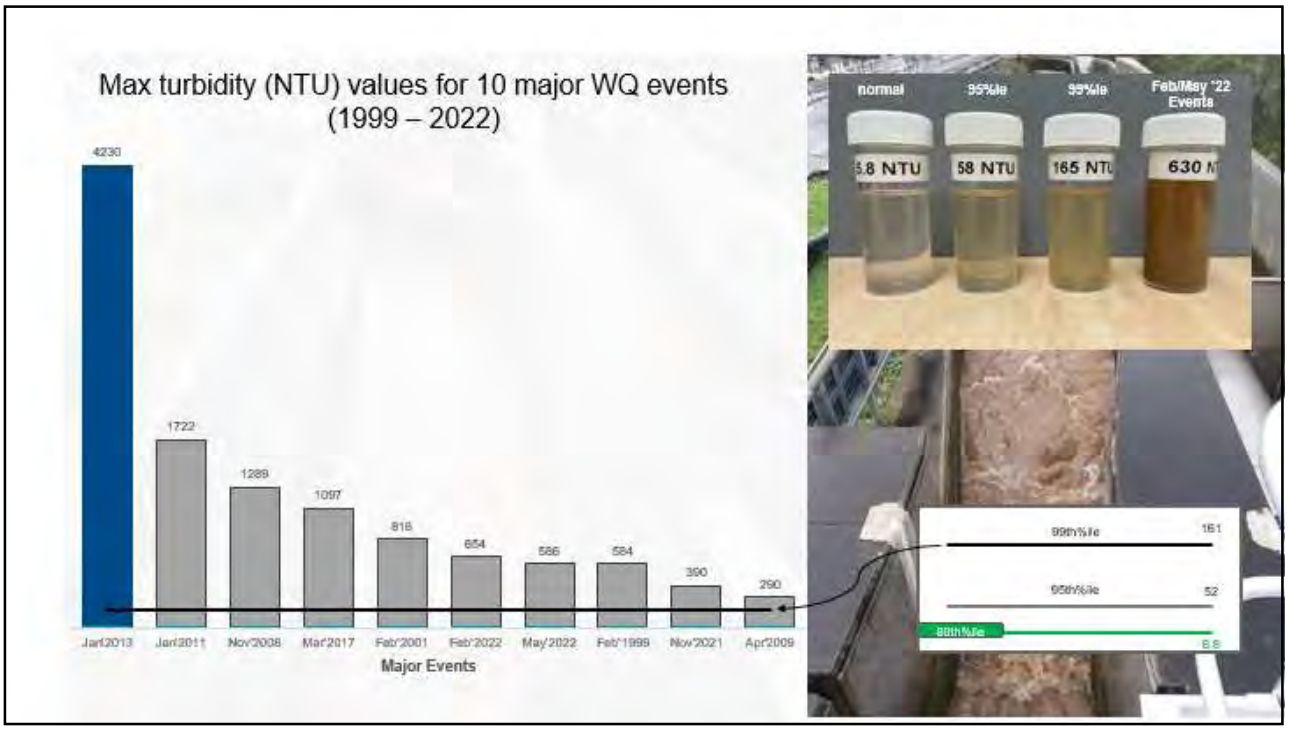
2


Lake Wivenhoe
Spring Creek
England Creek
Pryde Creek
O'Reilly's Weir
Lockyer Creek
Banks Creek
Ferntree Gully
Town of Fernvale
Mid Brisbane River
Lake Manchester
Town of Lowood
Black Snake Creek
Cabbage Tree Creek
Sandy Creek
Town of Glamorgan Vale
Mt Crosby Weir
Town of Marburg
Brisbane (~29 km)
SEQ Water Grid and Pipelines
Legend
N
Unitywater
Redland
Urban Utilities
LOGAN
GOLDCOAST.

3


Time (Hrs)
Jul-65
Jan-69
Jan-74
Jun-83
Nov-95
May-96
Feb-10
Oct-10
Jan-11
Jan-13
Feb-13
Mar-13

4



5

Bad day at the office

6

Bad day at the office

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Short-term Disruption Plan

Trigger	Seqwater Declaring Delegate	Trigger	Monitor, Emergency management and reporting	Communication	Water quality	Agreed Demand Reduction	Preparation for next level
1	Seqwater Coordinator Network Operations	As a result of a Threat Assessment decision made to increase water stored in reservoirs/tanks above normal levels.	• Evaluate bulk supply volume requirements above normal levels (Retailer(s) Customer) • Monitor daily reservoir/tank storage levels (ALL) • Monitor daily water use (ALL) • Distribute Disruption Plan (ALL)	• Advise Seqwater of bulk supply increase above normal levels (Retailer(s) Customer) • Awareness communications (Retailer(s) Customer/DLGWV)	N/A	Unrestricted Use	• Review of contact lists (S) • Review next trigger in preparation for escalation (ALL)
2	Seqwater Executive General Manager Operations (8hrs) OR Seqwater Duty Manager (4hrs)	• As a result of a disruption to the SEQ Water Grid, 'balancing' of water stored in reservoirs/tanks is required. • It is unlikely that any reservoirs will empty.	• Identify/ implement changes to normal reservoir operating levels to agreed levels of storage (24/18/12/6hrs) (Retailer(s) Customer) • Informs on supply status to DLGWV and Retailer(s) Customer • Review all non-essential planned works that may require potable water. Prioritise response to leaks/bursts (Retailer(s) Customer)	• Advise Seqwater of impact (Retailer(s) Customer) • Awareness communications (Retailer(s) Customer/DLGWV)	N/A	Unrestricted Use	• Liaise with impacted RETAILER(S) CUSTOMER regarding worst case scenario planning (S) • Review next trigger in preparation for escalation (ALL)
3		As a result of a disruption to the SEQ Water Grid, one or more reservoirs/tanks may possibly empty when applying TTR (Most Likely).	• Advise LG and other critical and major customers (Retailer(s) Customer) • Cancel any non-essential works that require potable water (Retailer(s) Customer)	• Increase communication (Retailer(s) Customer/DLGWV) • LDMG Notification of possible reservoir empty (Retailer(s) Customer)	Prepare for aesthetic water quality to be received by customers under Trigger 4 (Retailer(s) Customer)	Conserve Water Notification	Continue to liaise with Retailer(s) Customer on worst case scenario planning (S)
4		• As a result of a disruption to the SEQ Water Grid, one or more reservoirs/tanks will almost certainly empty. • Less than 10,000 customers impacted for up to 24 hours.	• Advise LG and other critical and major customers (Retailer(s) Customer) • Cancel any non-essential works that require potable water (Retailer(s) Customer)	Increase communication (Retailer(s) Customer/DLGWV)	Preparation for Trigger 5 (S)	Conserve Water Notification	Continue liaise with Retailer(s) Customer on worst case scenario planning (S)
5		• As a result of a disruption to the SEQ Water Grid, one or more reservoirs/tanks will almost certainly empty. • More than 10,000 customers impacted and/or for a period in excess of 24 hours.	As per level 4 (S & Retailer(s) Customer)	Increase communication (Retailer(s) Customer/DLGWV)	• Implement Emergency Drinking Water Quality Management Plan (S) • Prepare for issuing of boil water alert (Retailer(s) Customer/Seqwater/DLGWV/QHealth)	Essential water usage only	Continue liaise with Retailer(s) Customer on worst case scenario planning (S)
6		As a result of a disruption to the SEQ Water Grid, one or more reservoirs/tanks will almost certainly empty and a decision to allow 'Out of Specification' water into the network has been agreed to.	As per level 4 (S & Retailer(s) Customer)	Increase communication (Retailer(s) Customer/DLGWV)	• Implement Emergency Drinking Water Quality Management Plan (S) • Issue boil water alert Retailer(s) Customer)	Essential water usage only	Continue liaise with Retailer(s) Customer on worst case scenario planning (S)

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Plan

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Contents

	Version	Coordinator Water Treatment Central	supporting Info in Rex	Operations Central Region	supporting Info in Rex

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Preparation Phase. Time-triggered activities relating to readiness for dirty water / flooding. The Preparation Phase is undertaken in two components is based on an 'establish and maintain' mindset.

Trigger	Key Actions
Ongoing Improvements	• Completion of previous event reviews • Optimisation and readiness of new systems
Summer Preparation	• Summer preparation checklist review and assign actions D23/138163 • Seasonal outlook, catchment conditions • Training (This Plan, Incident Mgt, jar testing, *WTC Coag*) • Support systems: generators, critical spares, bunds, sludge, chemical stocks • Accommodation and food readiness • Draft 9-day rosters for O&M and support staff • Flush all caustic soda dosing lines • Prepare for event sampling program

Lean Forward Phase. Condition-triggered activities under a 'something is going to happen' in 3-4 days approach. The Lean Forward Phase applies when there is awareness (from BOM, Flood Centre, Incident Team, field observations etc.) that a high rainfall weather event and subsequent river flooding is likely. Consideration should be given to other factors that may increase the impact of flooding and significant dirty water.

Response	Key Actions
Management	• Declaration of an Incident or Incident Alert • Assemble an Incident Team and Roster. See Appendix 2 • Implement accommodation plans & food including just in time supplies • All non-essential work should be prepared to cease • Review and test the status of the Preparation Phase • Seek potential amendments to critical limits in the HACCP Plan • Undertake scenario testing in readiness to move into the Response Phase • Seek regular updates and issues identification from the sites • Establish regular reporting for WTP critical operation • Lean Forward checklist in D23/138163 • Stand up Sampling Team for event monitoring program.
Sites	• Monitor online Kholo early warning monitoring station for changes to turbidity • Maximise treatment production – keep Camerons Hill levels high • Maximise chemical storages. Order just in time sodium hypochlorite and alum • Implement coagulation caustic soda dosing • Calibrate and prepare to rescale critical raw water turbidity instruments • Readiness for rapid operational changes including high frequency raw water testing, jar testing, dosing changes guided by 'WTC Coag' calculator, basin desludging, filter backwashing • TWB DAF online and optimised • Report issues, activities and critical WTP situation to Incident Team • Drop WMC handrails • Mobilise supporting equipment (generators, pumps, critical spares)

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Response Phase. Condition-triggered activities under a 'something is happening' in 0-1 days approach.

1. Lockyer Creek - 1m over O'Reilly's Weir
2. Food Centre Stood Up for Wivenhoe Dam. Releases planned or actual - any radial gate releases
3. Water Quality in the Mid-Brisbane River - >50 NTU at Lowood WTP or Kholo

Response	Key Actions
Management	• Declaration and management of the Incident • Review Incident Team, rosters, accommodation a • Review Lean Forward status and readiness actio • Undertake scenario testing and readiness to ada • Report strategy, issues, activities and critical WT Emergency Team • Seek changes to HACCP and Environmental discl • Regular communications with staff by welfare ch
Sites	• Regular raw water level and quality monitoring • TURN OFF TEB AND TWB at 260 NTU or increase **INCIDENT TEAM & NETWORKS** • Keep high water levels in TCH and TWB dosed fil • Perform readiness to operation activities • Undertake regular raw water sampling and jar tes zeta potential range). • Upon stabilisation of raw water and quality is wit otherwise directed), proceed to restart TEB • TEB restart on 3 units for Basins 3 & 4 (without s • Introduce Basin 2 on 4 total units if plant is stabl • TWB restart at 80 ML/d with 8 filters • Chemical dosing as per WTC Coag and jar testing • Raw water testing 30-60 mins. Visual plant perfo • Increased basin de-sludging and filter backwashi • Rate up shall require approval from the Incident Coordinator

Recovery Phase. Condition-triggered activities under a 'get back on track' approach. The Recovery Phase covers two activities: correction of issues and return to normal conditions.

Response	Key Actions
Management	• Undertake assessment of issue and potential recovery options with Incident Team • Report issues, activities and critical WTP situation to Emergency Team
Correction	• Early intervention is best – apply STOP, THINK, DO mentality • If appropriate, arrange a MBR flush from Wivenhoe • De-rate where possible otherwise SHUT DOWN • Utilise Incident Team and SME reps for input • Target issue for rectification, assess downstream impacts • TEB & TWB – de-sludge and backwash to waste. Let filters settle after backwash • TEB – filter to waste • TWB – cycle filters by DAF recirculation • THH / TCH de-rate flows, close res outlet valves (but not both). Free chlorine option • Support team to guide
Return to Normal	• Target increased production based on steady state performance • Stop all environmental discharge • De-escalate Incident

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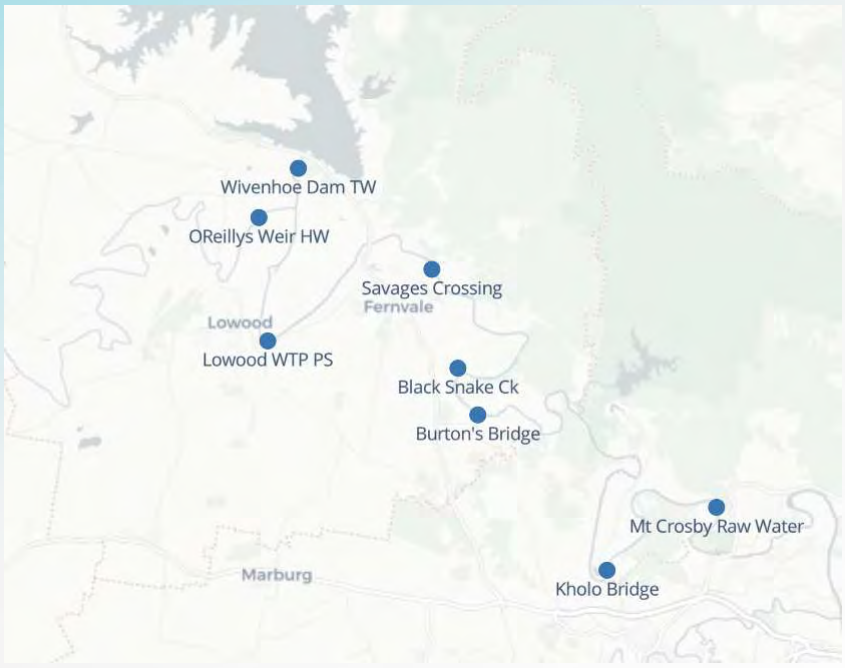

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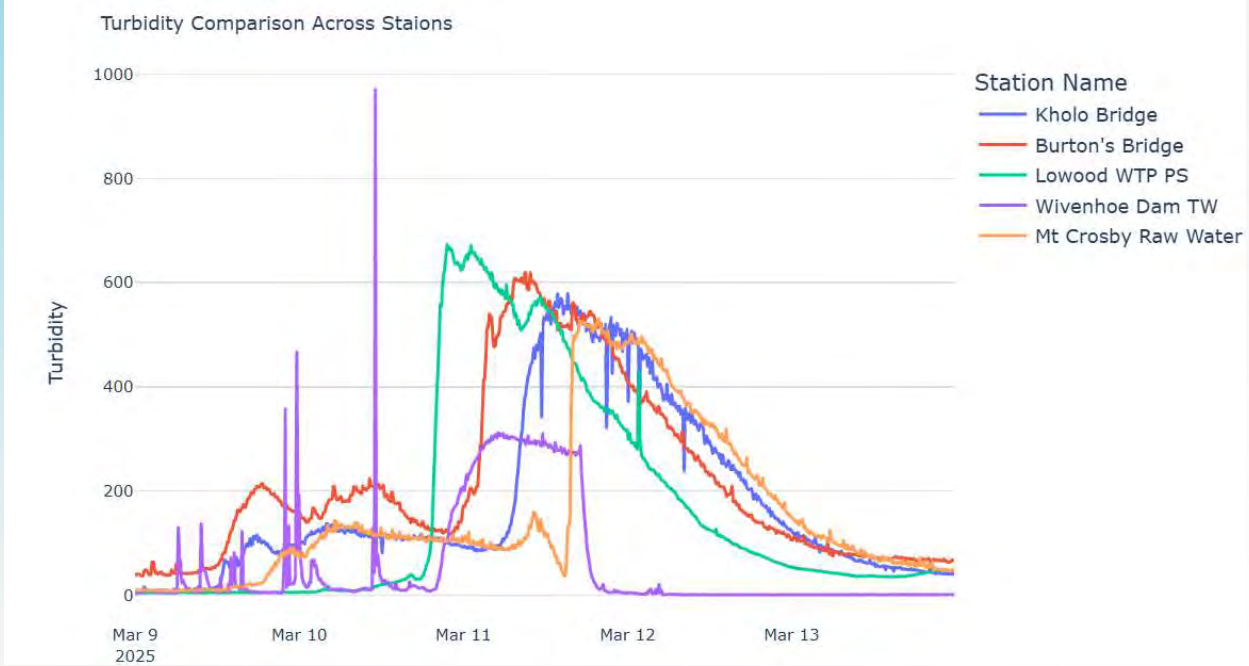

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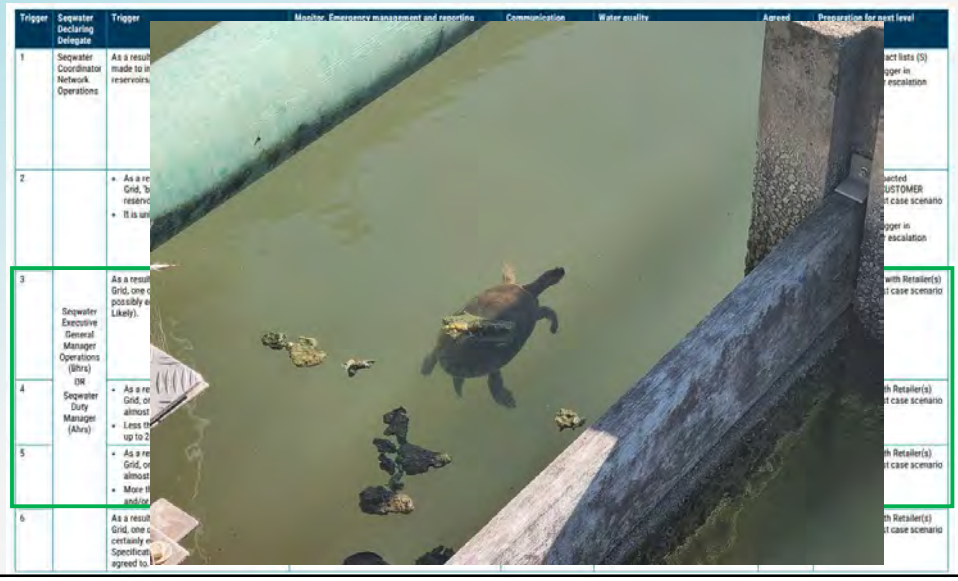
Short-term Disruption Plan



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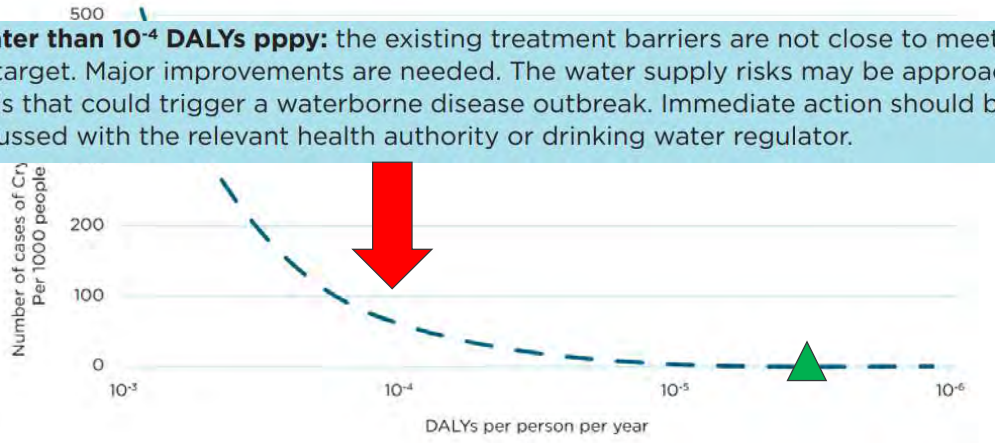
Pathogen Risk

Figure 5.3 The representation of the theoretical decline in the number of cases per 1000 people per year attributed to *Cryptosporidium*



- **greater than 10^{-4} DALYs pppy:** the existing treatment barriers are not close to meeting the target. Major improvements are needed. The water supply risks may be approaching levels that could trigger a waterborne disease outbreak. Immediate action should be discussed with the relevant health authority or drinking water regulator.

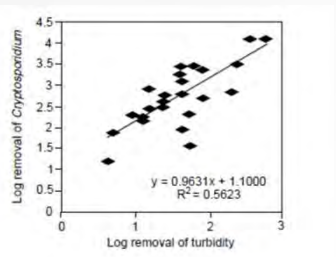
Changes to CCP Critical Limits

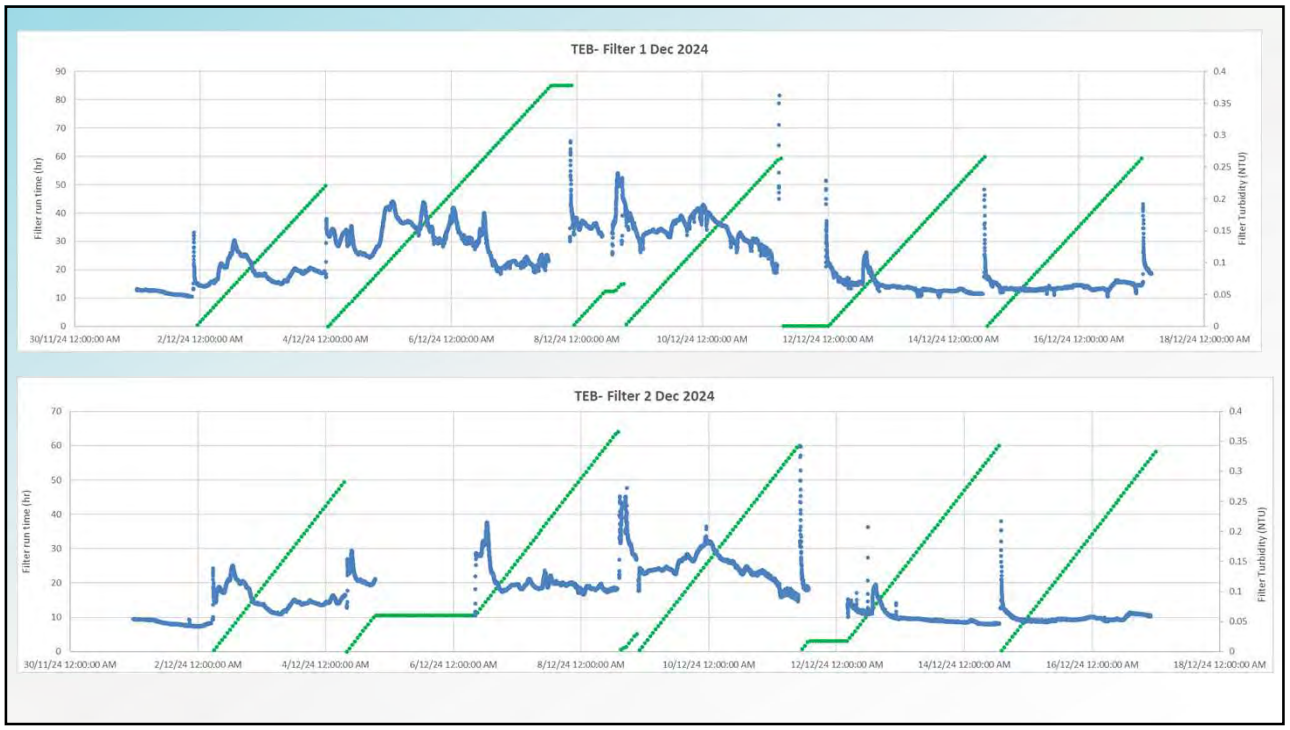
Any change to Critical Limit is notified as an "Event" to Water Supply Regulation

> 2 log reduction shortfall considered "out of specification water" – Boil Water Advisory may be required

- Possible that could occur within 48 hours – initiate discussion with Water Supply Regulation, Qld Health and relevant Retailer

Current or proposed critical limit	Estimated *Cryptosporidium* LRV	Estimated bacteria/virus LRV	Basis
Individual Filtered water turbidity >0.3 NTU for 15 min (BAU)	4.0	2.0	USEPA LT2
Individual Filtered water turbidity >0.5 NTU for 15 min	3.0	2.0	USEPA LT2
Individual Filtered water turbidity >0.5 NTU for 30 min	2.5	2.0	USEPA LT2
Chlorine disinfection Ct		Refer to table below	WaterVal chlorine disinfection validation protocol




TEB- Filter 1 Dec 2024
Filter run time (hr)
Filter Turbidity (NTU)
30/11/24 12:00:00 AM
2/12/24 12:00:00 AM
4/12/24 12:00:00 AM
6/12/24 12:00:00 AM
8/12/24 12:00:00 AM
10/12/24 12:00:00 AM
12/12/24 12:00:00 AM
14/12/24 12:00:00 AM
16/12/24 12:00:00 AM
18/12/24 12:00:00 AM
TEB- Filter 2 Dec 2024
Filter run time (hr)
Filter Turbidity (NTU)
30/11/24 12:00:00 AM
2/12/24 12:00:00 AM
4/12/24 12:00:00 AM
6/12/24 12:00:00 AM
8/12/24 12:00:00 AM
10/12/24 12:00:00 AM
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16/12/24 12:00:00 AM
18/12/24 12:00:00 AM

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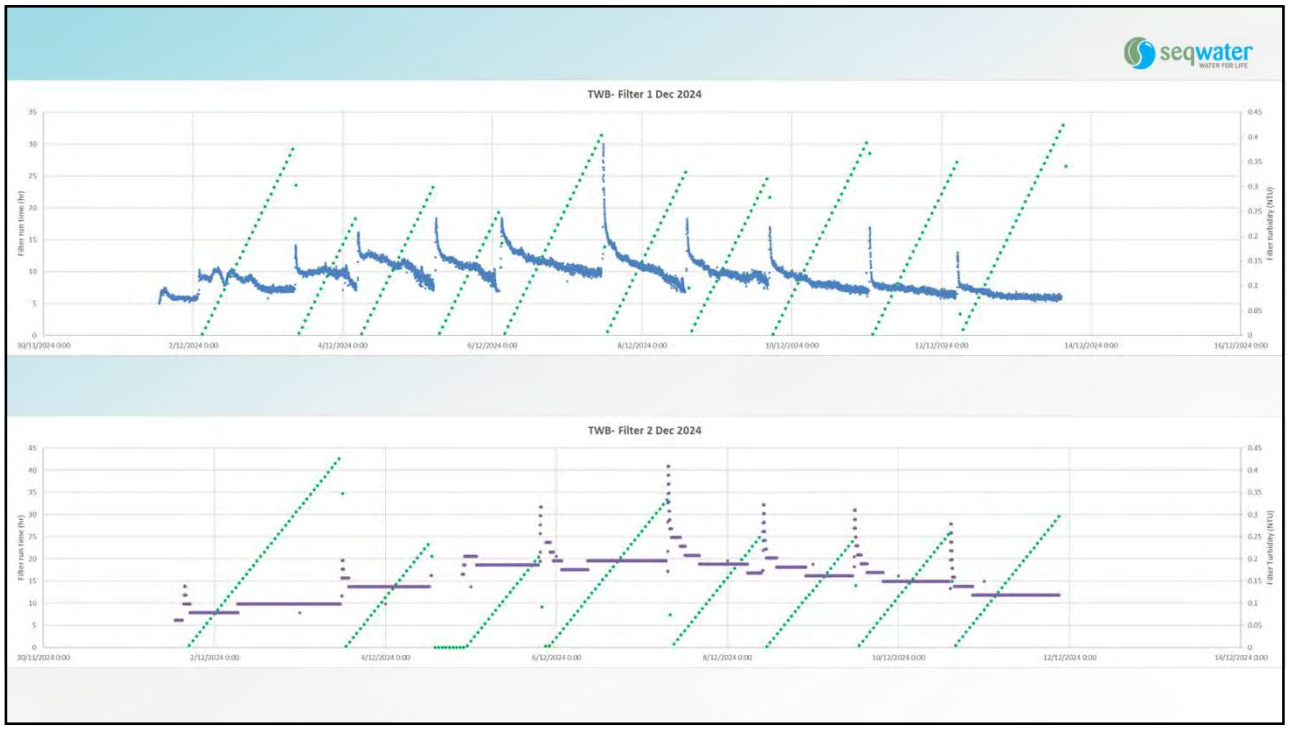
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TWB- Filter 1 Dec 2024
Filter run time (hr)
Filter turbidity (NTU)
TWB- Filter 2 Dec 2024
Filter run time (hr)
Filter Turbidity (NTU)

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Questions? Comments?

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WATER FOR LIFE

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Brisbane 2032

Currently no Seqwater sites are venues for Brisbane 2032

Learning from Paris and LA

- "Water Start" – linked with Las Vegas (Super Bowl and F1)

Engagement with Qld Health

- Build on G20 and Commonwealth Games – "threat environment" has changed
- Significant "cyber security" uplift

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Questions?

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