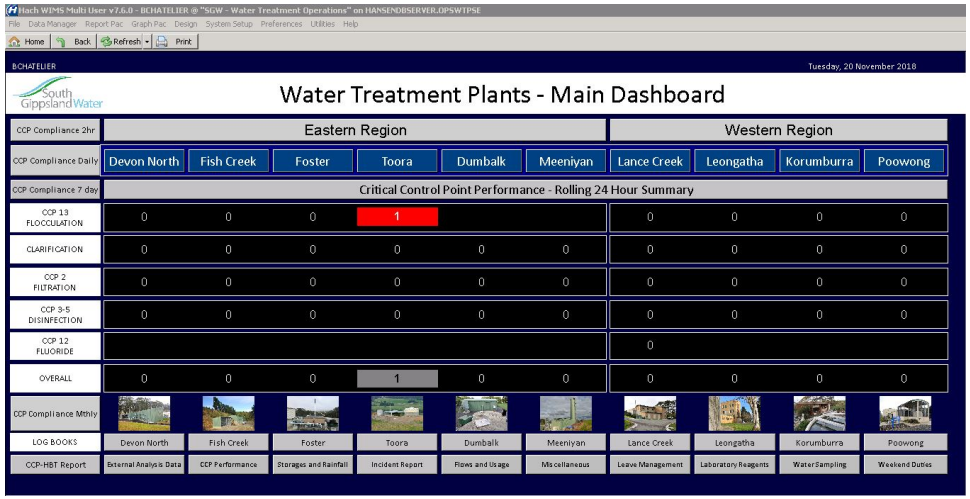
WATER INFORMATION MANAGEMENT SOLUTION (WIMS)



Accurate information… informed decisions

November 2018

Introduction - Overview

Background – South Gippsland Water (SGW)

- Treatment plants
- Resources

Historical data management at South Gippsland Water

- Databases – *SCADA, External/Internal Analysis Data*
- Regulation – *SDW Act, SDW Regulations*
- Analysis – *ADWG, WTA*

Implementation of Hach WIMS at South Gippsland Water

- Why Hach WIMS?
- Implementation to date – sharing our experience
- What's next?

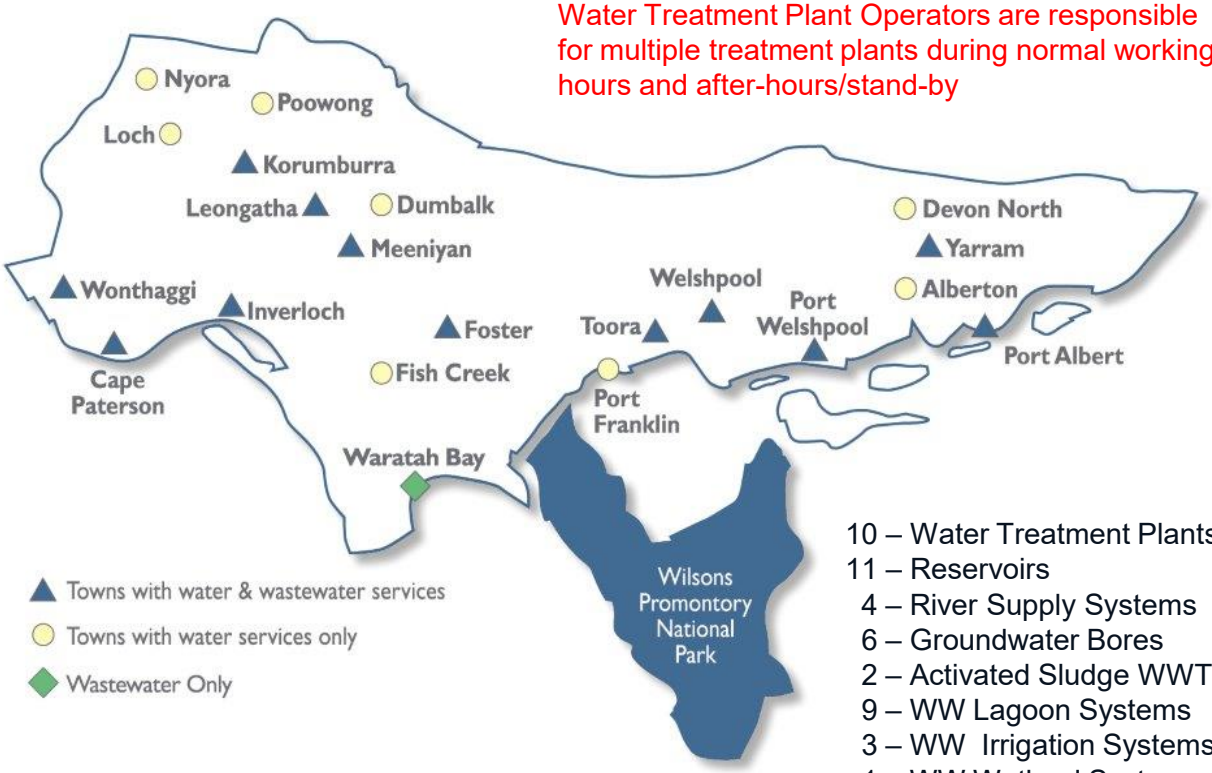
South Gippsland Water

Background - South Gippsland Water

South Gippsland Water

Background - South Gippsland Water

Water Treatment Plant Operators are responsible for multiple treatment plants during normal working hours and after-hours/stand-by



10 – Water Treatment Plants
11 – Reservoirs
4 – River Supply Systems
6 – Groundwater Bores
2 – Activated Sludge WWTPs
9 – WW Lagoon Systems
3 – WW Irrigation Systems
1 – WW Wetland System

South Gippsland Water

Historical Data Management - SGW

Management of data at SGW:

Primary Purpose

Regulatory reporting – DHHS, EPA, BOM etc

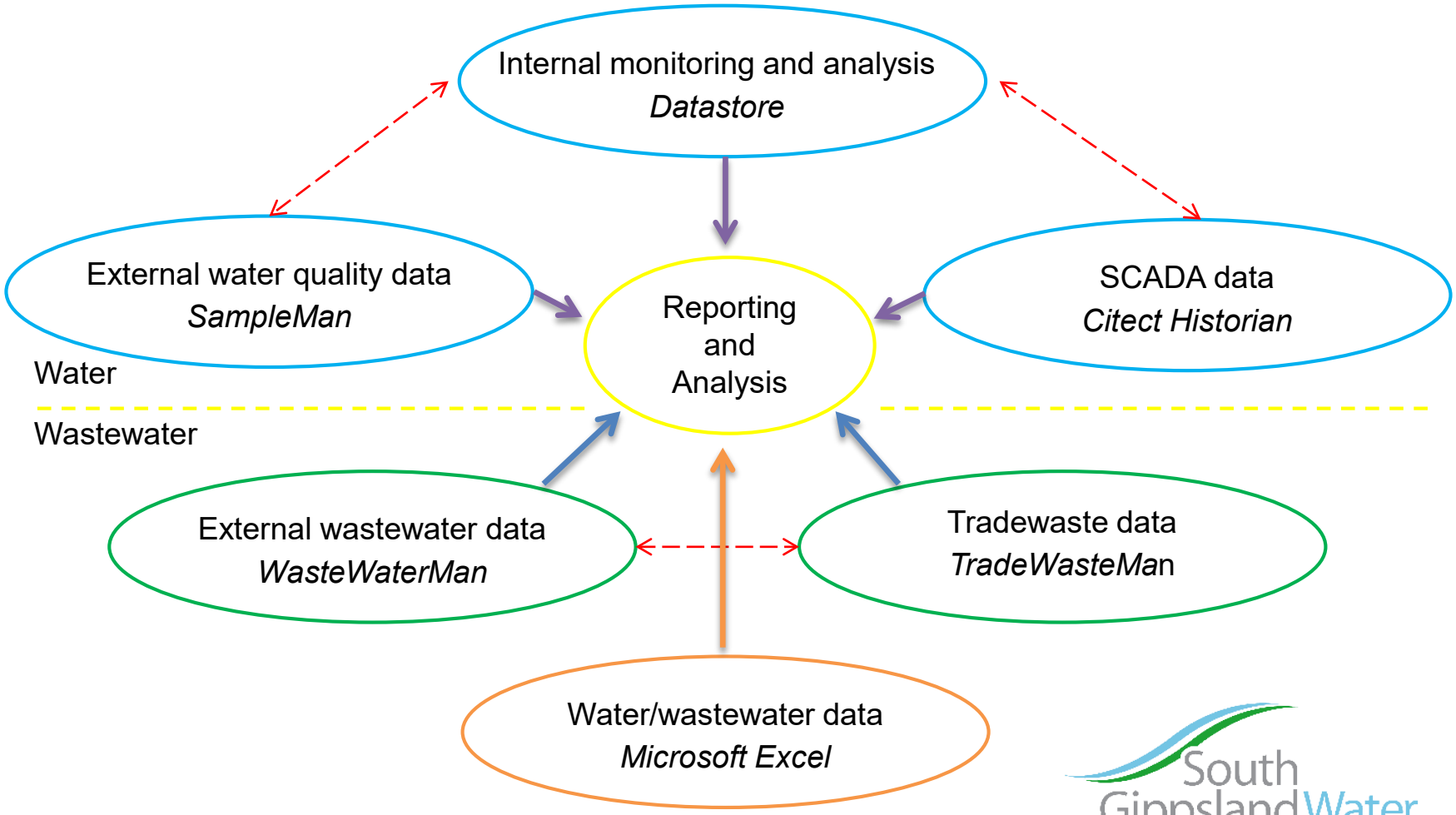
Management reporting – SMT and Board

Operation and optimisation

South Gippsland Water

Historical Data Management - SGW

Historical Data Management Structure at SGW:



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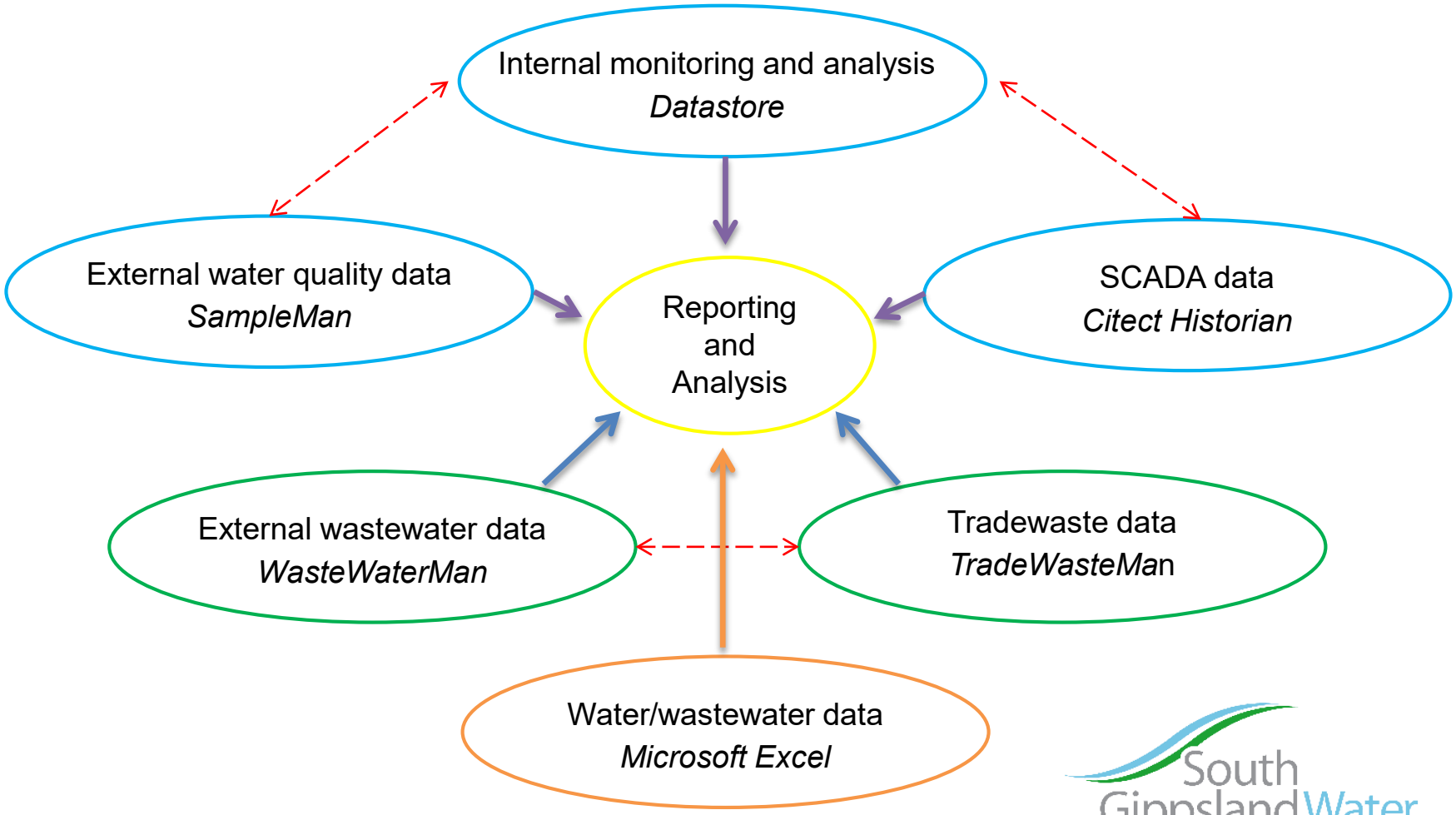
Historical Data Management - SGW

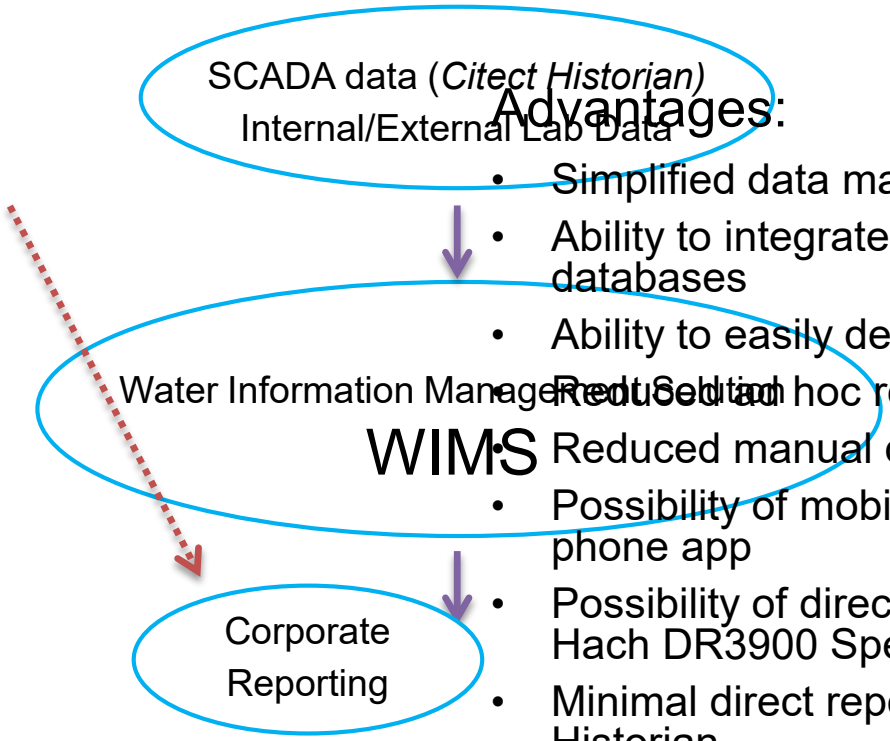
Current Data Management Model at SGW:



South Gippsland Water

Historical Data Management - SGW

Current Data Management Model at SGW:



Advantages:

- Simplified data management structure
- Ability to integrate data from different databases
- Ability to easily develop reports/forms
- Reduced ad hoc reporting using Excel
- Reduced manual data entry
- Possibility of mobile data entry utilising phone app
- Possibility of direct data entry using Hach DR3900 Spectrophotometer
- Minimal direct reporting from Citect Historian

South Gippsland Water

Water Quality Management 101

So why is data management important in managing water quality?

"Monitoring data are generated from various sources, such as continuous operational monitoring, field measurements, grab samples, and observational activities. Results from both operational monitoring and verification of drinking water quality should be evaluated over both the short and long term. Results should be documented systematically, and a system of regular reporting of results to relevant staff, departments and external stakeholders (e.g. regulators) should be implemented."

Australian Drinking Water Guidelines 2011: Chapter 10 – Page 10-1

- Management: potentially massive amount of monitoring data is collected
- Analysis: data needs to be evaluated over short & long-term periods
- Reporting: regular reporting to relevant internal/external stakeholders

South Gippsland Water

Water Quality Management Incident- SGW

Example: Cryptosporidium Incident – Meeniyan 2012

- High risk catchment – agricultural activities

South Gippsland Water

Water Quality Management Incident- SGW

Example: Cryptosporidium Incident – Meeniyan 2012

- High risk catchment – agricultural activities

South Gippsland Water

Water Quality Management Incident- SGW

Example: Cryptosporidium Incident – Meeniyan 2012

- High risk catchment – agricultural activities

South Gippsland Water

Water Quality Management Incident- SGW

Example: Cryptosporidium Incident – Meeniyan 2012

- High risk catchment – agricultural activities
- Catchment subject to flooding near the supply offtake

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Water Quality Management Incident- SGW

Example: Cryptosporidium Incident – Meeniyan 2012

- Cryptosporidium detected in source, filter and entry point water
- Boiled Water Advisory issued – “no risk to public safety” approach

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Water Quality Management Incident- SGW

Example: Cryptosporidium Incident – Meeniyan 2012

- Follow-up sampling – Cryptosporidium still detected in RW
- Critical analysis of filter water trends required to rescind BWA

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Water Quality Management Incident- SGW

Example: Cryptosporidium Incident – Meeniyan 2012

- Analysis and reporting of WTP filtration performance to DHHS
- Verification monitoring of Cryptosporidium in distribution system

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Water Quality Management Incident- SGW

Example: Cryptosporidium Incident – Meeniyan 2012

- Boiled Water Advisory rescinded based on operational and verification monitoring and data

South Gippsland Water

Water Quality Management

Water quality management = a risk based approach

Risk management is about taking a carefully considered course of action. As the obligation is to ensure safe water and protect public health, the balancing process must be tipped in favour of taking a precautionary approach.

Australian Drinking Water Guidelines: Chapter 1 – Page 1-3

"Even a correct decision is wrong when it was taken too late".

Lee Iacocca 1924-, Father of the Ford Mustang and CEO of Chrysler

"Risk comes from not knowing what you're doing"

Warren Buffett 1930-, American Investment Entrepreneur

South Gippsland Water

Implementation of WIMS at SGW

Why Hach WIMS?

- User friendly – development & end use
- Different data types can be integrated and compared
- Functionality – water quality functions, optimisation, efficiency
- Mature software
- Records, Reporting & Analysis – timely, accurate & progressive

Water Quality Management Tool

Planning & Implementation

- Variable structure, define WIMS role (*still on-going..?*)
- Timeframe & resources
- Migration & integration of data
- Progressive roll-out

Examples of WIMS implementation at SGW

South Gippsland Water

Examples of WIMS Implementation at SGW

1. Regulatory Compliance Management
   - Critical Control Points (CCP)
   - Health Based Targets (HBT)
2. WTP Performance Management
   - Filter Performance (WTA)
   - Contact time (Ct)
3. Task and Resource Management
   - Plant process activities (routine/non-routine)
   - Dams Surveillance
   - Fluoride Dosing System Management
   - Weekend Duties
   - Leave Management
4. Chemical Management
5. Water Sampling Management
6. Laboratory Reagent Management

Examples of WIMS Implementation at SGW

1. Regulatory Compliance Management

Hach WIMS Multi User v7.6.0 - BCHATELIER @ "SGW - Water Treatment Operations" on HANSENDBSERVER.OPSWTPSE

File Data Manager Report Pac Graph Pac Design System Setup Preferences Utilities Help

Home Back Refresh Print

BCHATELIER Tuesday, 20 November 2018

South Gippsland Water

Water Treatment Plants - Main Dashboard

CCP Compliance 2hr	Eastern Region						Western Region			
CCP Compliance Daily	Devon North	Fish Creek	Foster	Toora	Dumbalk	Meeniyan	Lance Creek	Leongatha	Korumburra	Poowong
CCP Compliance 7 day	Critical Control Point Performance - Rolling 24 Hour Summary									
CCP 13 FLOCCULATION	0	0	0	1			0	0	0	0
CLARIFICATION	0	0	0	0	0	0	0	0	0	0
CCP 2 FILTRATION	0	0	0	0	0	0	0	0	0	0
CCP 3-5 DISINFECTION	0	0	0	0	0	0	0	0	0	0
CCP 12 FLUORIDE							0			
OVERALL	0	0	0	1	0	0	0	0	0	0
CCP Compliance Mthly										
LOG BOOKS	Devon North	Fish Creek	Foster	Toora	Dumbalk	Meeniyan	Lance Creek	Leongatha	Korumburra	Poowong
CCP-HBT Report	External Analysis Data	CCP Performance	Storages and Rainfall	Incident Report	Flows and Usage	Miscellaneous	Leave Management	Laboratory Reagents	Water Sampling	Weekend Duties

Examples of WIMS Implementation at SGW

1. Regulatory Compliance Management

Victorian Regulatory Compliance:

- Safe Drinking Water Regulations
  i. *Regulation 8(1)(i): Critical Control Points*
  ii. *Regulation 8(2)(a)(b): RMP – Quantification of Microbial Hazards*

Industry Standards:

- Australian Drinking Water Guidelines
  Filtration performance monitoring
  Multiple barrier approach

- WSAA Health Based Target Manual
  Methodology for quantifying microbial risk

South Gippsland Water

Examples of WIMS Implementation at SGW

1. Regulatory Compliance Management

DWMS - Critical Control Point Performance

Rolling 2hr Summary Report

15/11/2018 05:00 to 15/11/2018 07:00

1. CCP Compliance Summary

System	CCP 13 Flocculation	Clarification Floatation	CCP 2 Filtration	CCP 3 Primary Disinfection	CCP 3 Primary Disinfection	CCP 4 Secondary Disinfection	CCP 5 Secondary Disinfection	CCP 12 Fluoridation
Toora								
Fish Creek								
Foster								
Devon North								
Dumbalk								
Meeniyan								
Leongatha								
Korumburra								
Poowong								
Lance Creek								

Note: Yellow indicates "Data Quality Review Required". All exceedances are based on 15 consecutive min above/below control limit unless otherwise stated

2. Flocculation (pH) CCP 13

System	Process Location	Process Operational	Min	Max	Number of Samples	Control Limit Exceedances	Control Minimum Limit	Control Maximum Limit
Toora		Yes	0.000	0.000	61		5.90	6.50
Fish Creek		No			0	0	5.80	6.50
Foster		Yes	6.150	6.154	61	0	5.70	6.80
Devon North	Combined	Yes	6.360	6.420	61	0	5.80	6.60
Dumbalk	Offline Only	No			0	0	6.80	8.70
Meeniyan	Offline Only	No			0	0		
Leongatha	WTP 1	Yes	6.334	6.361	61	0	5.80	7.30
	WTP 2		6.341	6.354	61	0	5.80	7.30
Korumburra		No			0	0	6.00	7.10
Poowong	Train 1	Yes	6.859	6.877	61	0	6.20	7.40
	Train 2	Yes	6.759	6.777	61	0	6.20	7.40
Lance Creek	DAF 1-3	No			0	0	7.00	8.50

3. Clarification/Floatation (Turbidity)

System	Process Location	Process Operational	Min	Max	Number of Samples	Control Limit Exceedances	Target Maximum Limit	Control Maximum Limit
Toora		Yes	0.260	0.300	61	0	1.00	3.00
Fish Creek		No			0	0	1.00	3.00
Foster		No			0	0	1.00	3.00
Devon North	Train 1	Yes	0.650	1.220	61	0	1.00	3.00
	Train 2	Yes	0.610	1.220	61	0	1.00	3.00
Dumbalk *		No			0	0	1.00	3.00
Meeniyan	Combined	No			0	0	1.00	3.00
Leongatha	WTP 1	Yes	1.400	1.583	61	0	1.00	3.00
	WTP 2	Yes	1.259	1.391	61	0	1.00	3.00
Korumburra		No			0	0	1.00	3.00
Poowong *	Train 1	Yes			0		1.00	3.00
	Train 2	No			0	0	1.00	3.00
Lance Creek	DAF 1	No			0	0	1.00	3.00
	DAF 2	No			0	0	1.00	3.00
	DAF 3	No			0	0	1.00	3.00

* Off-line manual readings only - no online turbidity analysers available; Alarm delay for maximum control limits is 15mins except for Lance Creek - 30mins

Safe Drinking Water Regulations Vic

i. Regulation 8(1)(i): Critical Control Points

RMP Critical Control Point Reports:

- Variety of reporting periods – 2-hourly, daily, weekly and monthly
- Scheduled reports emailed to staff
- Fail-safe/independent reporting tool for potential CCP alarms or exceedances

South Gippsland Water

Examples of WIMS Implementation at SGW

1. Regulatory Compliance Management

4. Filtration (Turbidity) CCP 2

System	Process Location	Process Operational	Min	Max	Number of Samples	Control Limit Exceedances	Target Maximum Limit	Control Maximum Limit
Toora	Filter 1 & 6	Yes	0.029	0.031	61	0	0.20	0.50
	Filter 2 & 5	Yes	0.034	0.038	61	0	0.20	0.50
	Filter 3 & 4	Yes	0.170	0.180	61	0	0.20	0.50
Fish Creek	Filter A	No			0	0	0.20	0.50
	Filter B	No			0	0	0.20	0.50
Foster	Combined	No			0	0	0.20	0.50
Devon North	Filter A	Yes	0.070	0.070	61		0.20	0.50
	Filter B	Yes	0.070	0.080	61	0	0.20	0.50
Dumbalk	Combined	No			0	0	0.20	0.50
Meeniyan	Combined	No			0	0	0.20	0.50
Leongatha	WTP 1 Bank 1	Yes	0.103	0.122	61	0	0.20	0.50
	WTP 1 Bank 2	Yes	0.149	0.159	61	0	0.20	0.50
	WTP 1 Bank 3	Yes	0.023	0.038	61	0	0.20	0.50
	WTP 2 Bank 1	Yes	0.072	0.088	61	0	0.20	0.50
	WTP 2 Bank 2	Yes	0.128	0.133	61	0	0.20	0.50
Korumburra	Combined	No			0	0	0.20	0.50
Poowong	Filter A	Yes	0.070	0.100	61	0	0.20	0.50
	Filter B	Yes	0.090	0.110	61	0	0.20	0.50
Lance Creek	Filter 1				0	0	0.20	0.50
	Filter 2				0	0	0.20	0.50
	Filter 3				0	0	0.20	0.50

5. Primary Disinfection (Treated Water Chlorine) CCP 3

System	Process Location	Process Operational	Min	Max	Number of Samples	Control Limit Exceedances	Control Minimum Limit	Control Maximum Limit
Toora	CWS Inlet	Yes	1.894	2.246	61	0	0.90	3.50
Fish Creek	CWS Inlet	No			0	0	0.40	3.50
Foster	CWS Inlet	No			0	0	0.50	3.50
Devon North +	CWS Inlet	Yes	3.540	3.990	61	0	1.50	5.00
Dumbalk	CWS Inlet	No			0	0	1.00	2.50
Meeniyan	CWS Inlet	No			0	0	0.80	3.50
Leongatha +	CWS Inlet	Yes	2.993	3.312	61	0	1.00	3.50
Korumburra	CWS Inlet	No			0	0	1.20	4.80
Poowong	CWS Inlet	Yes	3.370	4.220	61	0	2.00	6.00
Lance Creek	CWS Inlet	No			0	0	2.00	6.00

* Off-line manual readings only - no online chlorine analysers available + Alarm delay for maximum control limits: Devon Nth - 10mins; Leongatha - 60mins

6. Primary Disinfection (Entry Point Water - Chlorine) CCP 3

System	Process Location	Process Operational	Min	Max	Number of Samples	Control Limit Exceedances	Control Minimum Limit	Control Maximum Limit
Toora *	CWS Outlet	Yes			0		1.00	4.00
Fish Creek *	CWS Outlet	No			0	0	0.20	2.00
Foster *	CWS Outlet	Yes			0		0.30	1.00
Devon North	CWS Outlet	Yes	2.740	2.770	61	0	1.50	4.50
Dumbalk *	CWS Outlet	No			0	0	0.20	1.20
Meeniyan *	CWS Outlet	Yes			0		0.30	3.00
Leongatha *	CWS Outlet	Yes			0		0.40	1.80
Korumburra *	CWS Outlet	Yes			0		0.40	1.80
Poowong	CWS Outlet	Yes	2.700	2.782	61	0	2.00	4.50
Lance Creek	CWS Outlet	Yes	4.455	7.920	61	1	0.50	5.00

* Off-line manual readings only - no online chlorine analysers available

Safe Drinking Water Regulations Vic

i. Regulation 8(1)(i): Critical Control Points

RMP Critical Control Point Reports:

- Variety of reporting periods – 2-hourly, daily, weekly and monthly
- Scheduled reports emailed to staff
- Failsafe reporting tool for potential CCP alarms or exceedances

South Gippsland Water

Examples of WIMS Implementation at SGW

1. Regulatory Compliance Management

7. Secondary Disinfection (Entry Point Water - After Trim - Chlorine/Chloramination) CCP 4

System	Process Location	Process Operational	Min	Max	Number of Samples	Control Limit Exceedances	Control Minimum Limit	Control Maximum Limit
Foster	CWS Outlet	Yes	0.602	0.622	61	0	0.10	1.20
Dumbalk	CWS Outlet	Yes	0.532	0.642	61	0	0.30	1.20
Meeniyan	CWS Outlet	Yes	0.920	1.011	61	0	0.50	1.80
Leongatha	CWS Outlet	Yes	1.192	1.238	61	0	0.40	1.80
Korumburra	CWS Outlet	Yes	0.920	0.968	61	0	0.60	1.60
Lance Creek	CWS Outlet	Yes	4.455	7.920	61	[illegible]	0.50	5.00

8. Secondary Disinfection (2nd/3rd Distribution Storages Entry Point Water - Chlorine) CCP 5

System	Process Location	Process Operational	Min	Max	Number of Samples	Control Limit Exceedances	Control Minimum Limit	Control Maximum Limit
Toora	Toora Dp.	Yes	0.853	0.903	13	0	0.50	2.00
	Pt. Fkln	Yes	0.752	0.752	13	0	0.60	1.20
Fish Creek	Basin Inlet *	No			0		0.20	2.20
	Basin Outlet *	Yes			0		0.20	1.20
	Basin Outlet	Yes			0	0	0.20	0.80

* Off line manual readings only - no online chlorine analysers available

9. Fluoridation CCP 12

System	Process Location	Process Operational	Min	Max	Number of Samples	Control Limit Exceedances	Control Minimum Limit	Control Maximum Limit
Lance Creek	TW - Offline *	No			0	0	0.60	1.20
	TW - Online *	Yes	0.840	0.890	61	0	0.60	1.50
	EP - Offline	Yes			0		0.60	1.20
	EP - Online	Yes	0.741	0.811	61	0	0.60	1.20

* WIMS reporting alarm delays for minimum control limits for fluoride in the pre-CWS and post-CWS have been set at 1440mins (or 24 hrs) and 2880mins (or 48hrs) respectively for both off-line and online measurements.
All other delays, for maximum control limits, have been set for 15

10. Incident Reporting Requirement Matrix

System	CCP 13 Flocculation	Clarification	CCP 2 Filtration	CCP 3 Primary Disinfection	CCP 3 Primary Disinfection	CCP 4 Secondary Disinfection	CCP 5 Secondary Disinfection	CCP 12 Fluoridation
Toora	Data/Comms Failure				Data/Comms Failure			
Fish Creek								
Foster					Data/Comms Failure			
Devon North								
Dumbalk								
Meeniyan					Data/Comms Failure			
Leongatha					Data/Comms Failure			
Korumburra					Data/Comms Failure			
Poowong								
Lance Creek					Yes - up to 1 Report(s)			

Notes:
1. An exceedance is based on non-compliant data (ie. above/below a control limit) recorded over 15 consecutive minutes. The count provided in the Control Limit Exceedance" column is for Control Limit exceedances only. A count of Target Limit exceedances is not provided.
2. Process operational has been accessed based on the relevant instantaneous flow meter and a recorded water quality result.
3. Red highlighted exceedances require an "Incident Report" to be completed as specified in SOW/IM-003 Management of Incident Reporting and Corrective Actions Procedure. A single Incident Report is only required for a re-occuring incident however this should be noted in the submitted Incident Report.
4. For clarification and filtration, yellow highlighted exceedances are Target Limit breaches and do not require an "Incident Report" to be completed as

Safe Drinking Water Regulations Vic

i. Regulation 8(1)(i): Critical Control Points

RMP Critical Control Point Reports:

- Variety of reporting periods – 2-hourly, daily, weekly and monthly
- Scheduled reports emailed to staff
- Failsafe reporting tool for potential CCP alarms or exceedances

South Gippsland Water

Examples of WIMS Implementation at SGW

1. Regulatory Compliance Management

Safe Drinking Water Regulations Vic

ii. Regulation 8(2)(a)(b): RMP – Quantification of Microbial Hazards

Summary of pathogen reduction requirements across SGW water treatment systems based on HBT risk assessments

SGW Water System	Category	Risk Category	Minimum pathogen log reduction requirements		
			Bacteria	Viruses	Protozoa
Lance Creek	4	High	6.0	6.0	5.5
Leongatha	4	High	6.0	6.0	5.5
Meeniyan	4	High	6.0	6.0	5.5
Dumbalk	4	High	6.0	6.0	5.5
Foster	3	Moderate	6.0	6.0	5.5
Fish Creek	2	Low	5.0	4.0	2.5
Toora	4	High	6.0	6.0	5.5
Yarram	3	Moderate	5.0	4.0	3.5

Note: Korumburra and Poowong Water Systems have not been included as requirements have been addressed by LCWCP

South Gippsland Water

Examples of WIMS Implementation at SGW

DWMS - Critical Control Point & Health Based Target (HBT) Summary Report

1/10/2018 to 31/10/2018
[Period: 31 Day(s)]

1. CCP Alarm Notification Summary

System		CCP 13 Flocculation	Clarification	CCP 2 Filtration	CCP 3 Primary Disinfection	CCP 3 Primary Disinfection	CCP 4 Secondary Disinfection	CCP 5 Secondary Disinfection	CCP 12 Fluoridation
Toora	Treatment Plant								
Fish Creek	Treatment Plant								
Foster	Treatment Plant								
Devon North	Treatment Plant								
Dumbalk	Treatment Plant								
Meeniyan	Treatment Plant								
Leongatha	Treatment Plant								
Korumburra	Treatment Plant								
Poowong	Treatment Plant								
Lance Creek	Treatment Plant								

2. Health Based Target (HBT) Assessment

System	Process	Catchment LRV Requirements				Treatment LRV Achieved (Bacteria-Viruses-Protozoa)													HBT Assessment		
		Category	Bacteria	Viruses	Protozoa	Coagulation, Flocculation & DAF			Conventional Treatment Filtration			Chlorination Disinfection			Chloramination Disinfection			Ultraviolet Disinfection			Bacteria	Viruses	Protozoa
Toora WTP	Filter 1 & 6	4	6.0	6.0	5.5	1.0	1.0	0.5	2.0	2.0	3.0	4.0	4.0	0.0				4.0	1.0	4.0	5.0	2.0	2.0
	Filter 2 & 5								2.0	2.0	3.0										5.0	2.0	2.0
	Filter 3 & 4								2.0	2.0	3.0										5.0	2.0	2.0
Fish Creek WTP	Filter 1	2	5.0	4.0	2.5	1.0	1.0	0.5	2.0	2.0	4.0	4.0	4.0	0.0							2.0	3.0	2.0
	Filter 2								2.0	2.0	4.0										2.0	3.0	2.0
Foster WTP	Combined	4	6.0	6.0	5.5	1.0	1.0	0.5	2.0	2.0	3.0	4.0	4.0	0.0							1.0	1.0	-2.0
Devon North WTP	Train 1	3	5.0	4.0	3.5	1.0	1.0	0.5	2.0	2.0	4.0										-2.0	-1.0	1.0
	Train 2					1.0	1.0	0.5	2.0	2.0	4.0										-2.0	-1.0	1.0
Dumbalk WTP	Filter 1	4	6.0	6.0	5.5	1.0	1.0	3.5	2.0	2.0	3.0	4.0	4.0	0.0				4.0	1.0	4.0	5.0	2.0	5.0
Meeniyan WTP	Combined	4	6.0	6.0	5.5	1.0	1.0	0.5				4.0	4.0	0.0				4.0	1.0	4.0	3.0	0.0	-1.0
Leongatha WTP	WTP 1 Bank 1	4	6.0	6.0	5.5	1.0	1.0	0.5	2.0	2.0	3.0	4.0	4.0	0.0							1.0	1.0	-2.0
	WTP 1 Bank 2								2.0	2.0	3.0										1.0	1.0	-2.0
	WTP 1 Bank 3								2.0	2.0	3.0										1.0	1.0	-2.0
	WTP 2 Bank 1					1.0	1.0	0.5	2.0	2.0	3.0										1.0	1.0	-2.0
	WTP 2 Bank 2								2.0	2.0	3.0										1.0	1.0	-2.0
Korumburra WTP	Combined	3	5.0	4.0	3.5	1.0	1.0	0.5	2.0	2.0	3.0	4.0	4.0	0.0							1.0	2.0	-0.5
Poowong WTP	Train 1	4	6.0	6.0	5.5	1.0	1.0	3.5													-5.0	-5.0	-2.0
	Train 2								2.0	2.0	4.0										-4.0	-4.0	-1.5
Lance Creek WTP	DAFF Cell 1	4	6.0	6.0	5.5	1.0	1.0	0.5	2.0	2.0	4.0	4.0	4.0	0.0									
	DAFF Cell 2					1.0	1.0	0.5	2.0	2.0	3.5										1.0	1.0	-1.5
	DAFF Cell 3					1.0	1.0	0.5	2.0	2.0	4.0										1.0	1.0	-1.0

Water Safety Assessment:
- Treatment LRV achieved
- LRV requirement satisfied/exceeded
- Safe Sector 0.5-1.0 log shortfall
- Marginal Sector 1.5-2.0 log shortfall
- Outbreak Sector >2.0 log shortfall

Safe Drinking Water Regulations Vic

ii. Regulation 8(2)(a)(b): RMP – Quantification of Microbial Hazards

Health-Based Target (HBT) Reports:

- Variety of reporting periods – daily, weekly and monthly
- Scheduled reports emailed to staff
- On-line analysis & assessment
- Automated assignment of LRVs

South Gippsland Water

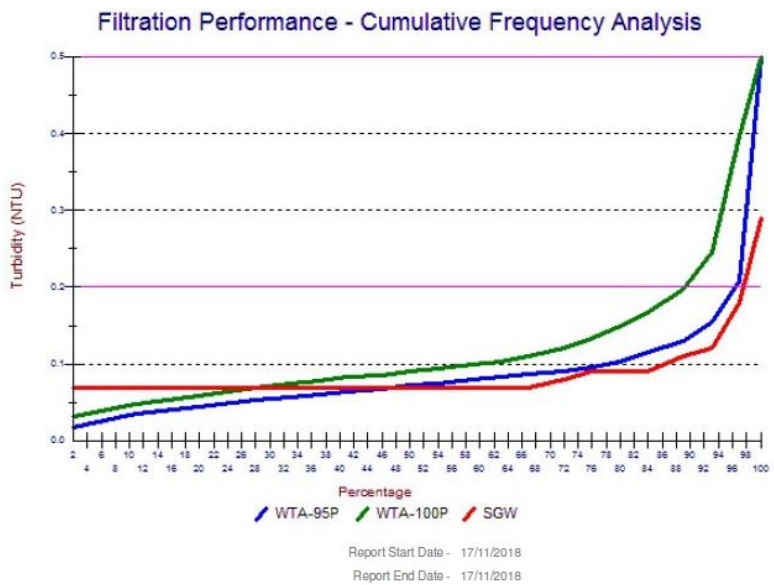
Examples of WIMS Implementation at SGW

2. WTP Performance Management – WTA-Based Reporting

Devon North WTP - TR_Filter 1 Performance - Daily Analysis Report - 17 November 2018

Water Treatment Plant - Filter Performance - Analysis Reports are based on the on-line filter turbidity levels measured in an individual or combined filter cell(s). This data is recorded in the SGW SCADA System. The on-line SCADA data is polled at 1 second intervals from the WTP and then stored in an Historian database. The turbidty recorded at 1 minute intervals is then extracted by the WIMS database. This data is then further analysed to determine the filter performance based on the maximum recorded 15 minute and hourly on-line turbidity levels measured while the WTP is in operation.

Hour	Time of Hourly Maximum	Maximum Hourly Turbidity	Number of exceedences occuring for 15 minutes
1			0
2			0
3			0
4			0
5			0
6			0
7			0
8			0
9			0
10	09:43	**0.220**	0
11	10:00	0.120	0
12	11:00	0.070	0
13	12:00	0.070	0
14	13:00	0.070	0
15	14:00	0.070	0
16	15:00	0.070	0
17	16:00	0.070	0
18	17:00	0.070	0
19	18:00	0.070	0
20	19:00	0.070	0
21	20:23	0.120	0
22	21:16	**0.290**	0
23	22:00	0.100	0
24	23:00	0.090	0



Compliance summary of on-line turbidity data based on 1 min interval readings i.e. 3600 records per day

Turbidity NTU	Frequency 1 Min Intervals %	Frequency 15 Min Continuous %
< 0.100	85.0	89.0
< 0.125	93.5	93.8
< 0.150	95.1	95.9
< 0.175	96.8	98.2
< 0.200	97.8	100.0
< 0.225	99.2	100.0
< 0.250	99.3	100.0
< 0.275	99.8	100.0
< 0.300	100.0	100.0
< 0.325	100.0	100.0
< 0.350	100.0	100.0
< 0.375	100.0	100.0
< 0.400	100.0	100.0
< 0.425	100.0	100.0
< 0.450	100.0	100.0
< 0.475	100.0	100.0
< 0.500	100.0	100.0

WIMS Variable Description:		Performance Summary - Based on 1 minute interval data:		Violation Summary - Based on monitored data:		Sample Statistics	
VARNUM:	428126	Maximum Turbidity	0.290 NTU	No. of 15 min intervals turbidty exceeded 0.2 NTU	0 exceedences	Operational Hours:	13.9
Name:	TR_FW1_Turbidity -O (Filtered)	Average Turbidity	0.083 NTU	No. of 15 min intervals turbidty exceeded 0.5 NTU	0 exceedences	Total no. of samples:	833
Location:	TR_Filter 1	Standard Deviation	0.030 NTU	Total Time turbidity exceeded 0.2 NTU	16 minute - 1.9 %		
				Total Time turbidity exceeded 0.5 NTU	0 minute - 0 %		

South Gippsland Water

Examples of WIMS Implementation at SGW

2. WTP Performance Management – Ct Reporting

Daily Disinfection Performance Report: Lance Creek WTP CWS 30/10/2018

USEPA rules state - "Measurements must be taken on the same day of the week, every week, for one year (52 measurements), during peak hourly flow for that day. Data can be measured manually or with on-line instrumentation."

To meet USEPA compliance you must calculate the CT Achieved for a day. There are 2 methods you can choose:
1. Calculate the CT Achieved for each hour and report the minimum
2. Calculate the CT Achieved for the hour that the Peak Hourly Flow rate occurred

Ct calculation method 1 has been adopted in this report.

Lance Creek WTP CWS		750140	745150		745153				745155			705023	740122	750107		Compliance			
	Date / Hour	CWS Max Hourly Outflow	CWS Minimum Hourly Level	CWS Diammeter	Minimum Hourly Volume		Detention Time		Baffling Factor	T10	CtAchieved	Temperature	Maximum Hourly pH	Minimum Hourly Chlorine	WIMS - CTRsLGC: Ct Required 3 Log Giardia (Note7)	Escherichia coli	Enteric Viruses	Giardia	Cryptosporidium
	30/10/2018	L/sec	mm	m	kL	ML	min	hrs		mins	mg/L..min	oC		mg/L	mg/L..min	35	4%	7	
	00.00	73	4,089.7	28.000	2,514.9	2.515	574.2	9.6	0.3	172.25	406.5	11.5	8.424	2.360	199.01				
	01.00	73	4,168.8	28.000	2,567.3	2.567	586.1	9.8	0.3	175.84	410.4	11.5	8.443	2.334	199.91				
	02.00	51	4,324.4	28.000	2,663.1	2.663	870.3	14.5	0.3	261.09	630.8	11.5	8.540	2.416	209.00				
	03.00	50	4,548.7	28.000	2,801.2	2.801	933.7	15.6	0.3	280.12	676.8	11.5	8.493	2.416	205.96				
	04.00	50	4,760.8	28.000	2,931.9	2.932	977.3	16.3	0.3	293.19	686.3	11.5	8.679	2.341	218.44				
	05.00	49	4,483.1	28.000	2,760.8	2.761	939.1	15.7	0.3	281.72	645.7	11.5		2.292	0.00				
	06.00	50	4,201.2	28.000	2,587.2	2.587	862.4	14.4	0.3	258.72	578.0	11.5		2.234	0.00				
	07.00	50	3,920.4	28.000	2,414.3	2.414	804.8	13.4	0.3	241.43	528.7	11.5		2.190	0.00				
	08.00	50	3,792.2	28.000	2,335.4	2.335	778.5	13.0	0.3	233.54	502.8	11.5	8.951	2.153	236.81				
	09.00	50	3,919.3	28.000	2,413.6	2.414	804.5	13.4	0.3	241.36	563.3	11.5	8.480	2.334	202.70				
	10.00	75	4,147.0	28.000	2,553.9	2.554	567.5	9.5	0.3	170.26	406.1	11.5	8.479	2.385	203.66				
	11.00	76	4,219.5	28.000	2,598.5	2.599	569.8	9.5	0.3	170.95	420.5	11.5	8.562	2.460	211.63				
	12.00	76	4,071.5	28.000	2,507.4	2.507	549.9	9.2	0.3	164.96	408.8	11.5	8.492	2.478	206.53				
	13.00	74	3,963.1	28.000	2,440.6	2.441	549.7	9.2	0.3	164.91	401.7	11.5	8.269	2.436	189.13				
	14.00	74	3,999.0	28.000	2,462.7	2.463	554.7	9.2	0.3	166.40	423.8	11.5	8.309	2.547	194.11				
	15.00	74	4,087.5	28.000	2,517.2	2.517	566.9	9.4	0.3	170.08	437.6	11.5	8.335	2.573	196.51				
	16.00	74	4,160.4	28.000	2,562.1	2.562	577.1	9.6	0.3	173.12	415.1	11.5	8.381	2.398	196.56				
	17.00	49	4,346.5	28.000	2,676.7	2.677	910.4	15.2	0.3	273.13	687.2	11.5	8.428	2.516	202.39				
	18.00	49	4,580.4	28.000	2,820.8	2.821	959.4	16.0	0.3	287.83	715.3	11.5	9.151	2.485	249.10				
	19.00	49	4,727.6	28.000	2,911.4	2.911	990.3	16.5	0.3	297.08	713.9	11.5	8.585	2.403	212.25				
	20.00	49	4,453.3	28.000	2,742.5	2.742	932.8	15.5	0.3	279.85	648.1	11.5		2.316	0.00				
	21.00	47	4,188.2	28.000	2,579.2	2.579	914.6	15.2	0.3	274.39	618.5	11.5		2.254	0.00				
	22.00	46	3,930.0	28.000	2,420.2	2.420	876.9	14.6	0.3	263.07	576.1	11.5		2.190	0.00				
	23.00	45	3,793.8	28.000	2,336.3	2.336	865.3	14.4	0.3	259.59	557.6	11.5	9.146	2.148	240.94				

	CT for 99% / 2.0 log removal				CT for 99.9% / 3.0 log removal				CT for 99.99% / 4.0 log removal			
Microorganism	Free Chlorine		Chloramine		Free Chlorine		Chloramine		Free Chlorine		Chloramine	
Escherichia coli	0	0	857	857	NA	NA	NA	NA	15	15	1988	1988
	(Note 1)	(Note 1)	(Note 5)	(Note 5)					(Note 3)	(Note 3)	(Note 5)	(Note 5)
Enteric Viruses	2	2	428	428	3	3	712	712	4	15	994	994
(for viruses in general)	(Note 4)	(Note 4)	(Note 4)	(Note 4)			(Note 4)	(Note 4)	(Note 4)	(Note 6)	(Note 4)	(Note 4)
Giardia	30	630	1000	1000	49	195	1500	1500	NA	NA	NA	NA
	(Note 1)	(Note 1)	(15oC)	(15oC)	(Note 2)	(Note 2)	(15oC)	(15oC)				
Cryptosporidium	7200	7200	7200	7200	NA	NA	NA	NA	NA	NA	NA	NA
	(25oC)	(25oC)	(25oC)	(25oC)								

Temperature is 15 degrees Celsius and pH is within the range of 6-9 unless stated. In the absence of a maximum Ct requirement, the minimum Ct requirement has been used as the maximum Ct requirement.

Note 1: Ct values for 99% inactivation at 5oC. Adapted from Hoff (1986)
Note 2: USEPA Guidance Manual - Table B-1 - 3-log reduction at 15oC and pH 6-9
Note 3: WSA 202-2015-1.2 Manual for the Application of Health Based Targets - Table 8 - pH <8.5
Note 4: WSA 202-2015-1.2 Manual for the Application of Health Based Targets - Table D4 - pH 6-9 and 15oC
Note 5: WSA 202-2015-1.2 Manual for the Application of Health Based Targets - Table 8 - pH 6-9 and 5oC
Note 6: WHO (1996) - reference in SA 202-2015-1.2 Manual for the Application of Health Based Targets - page 92 pH6-9 & all water temperatures
Note 7: WIMS - CTRsLGC: Approximation using a interpolating polynomial to produce Ct tables values for chlorine achieving 3-log inactivation of Giardi Cysts - Utah Division of Drinking Water - USEAP Surface Water Treatme

"Contact Time Requirements (Guide Only)"	
Chlorine (gas)	>30 minutes
Sodium Hypochlorite	>1 hour
Chloramination	>2 hours

South Gippsland Water

Examples of WIMS Implementation at SGW

3. Task and Resource Management

Hach WIMS Multi User v7.6.0 - BCHATELIER @ "SGW - Water Treatment Operations" on HANSENDBSERVER.OPSWTPSE

File Data Manager Report Pac Graph Pac Design System Setup Preferences Utilities Help

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BCHATELIER Tuesday, 20 November 2018

South Gippsland Water

Water Treatment Plants - Main Dashboard

CCP Compliance 2hr	Eastern Region						Western Region			
CCP Compliance Daily	Devon North	Fish Creek	Foster	Toora	Dumbalk	Meeniyan	Lance Creek	Leongatha	Korumburra	Poowong
CCP Compliance 7 day	Critical Control Point Performance - Rolling 24 Hour Summary									
CCP 13 FLOCCULATION	0	0	0	1			0	0	0	0
CLARIFICATION	0	0	0	0	0	0	0	0	0	0
CCP 2 FILTRATION	0	0	0	0	0	0	0	0	0	0
CCP 3-5 DISINFECTION	0	0	0	0	0	0	0	0	0	0
CCP 12 FLUORIDE							0			
OVERALL	0	0	0	1	0	0	0	0	0	0
CCP Compliance Mthly										
LOG BOOKS	Devon North	Fish Creek	Foster	Toora	Dumbalk	Meeniyan	Lance Creek	Leongatha	Korumburra	Poowong
CCP-HBT Report	External Analysis Data	CCP Performance	Storages and Rainfall	Incident Report	Flows and Usage	Miscellaneous	Leave Management	Laboratory Reagents	Water Sampling	Weekend Duties

Examples of WIMS Implementation at SGW

3. Task and Resource Management

Hach WIMS Multi User v7.6.0 - BCHATELIER @ "SGW - Water Treatment Operations" on HANSENDBSERVER.OPSWTPSE

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BCHATELIER

Lance Creek WTP - Operator Dashboard

Week 47 (3 of 4)
Tuesday, 20 November 2018

Operational Duties Forms

- Water Quality Analysis
- Treatment and Distribution Management
- WTP Site Management
- Raw Water Storage Management
- Chemical Dosing System Management
- Fluoride Dosing System Management
- Coagulation / Flocculation System
- Filtration System
- WTP Clear Water Storage
- Distribution System Management
- Waste Handling System
- Verification & Review
- Alarm Verification
- Monthly Flows and Storage
- Valve Inspections
- Performance and Operation Review
- Laboratory Reagents
- Daily Task Report
- WTP Noticeboard Form
- Miscellaneous Tasks
- Laboratory Reagents

Task completion required today
Task completion required within 4 week period

Storages & Flows

Storage Levels/Flows	Current	24hr Avg	24hr Peak
Reservoir Level (ML)	4,111.5	4,107.6	4,112.3
CWS Volume (ML)	4,499.1	4,659.1	4,887.1
RW Inlet Flow (L/sec)	0.1	0.2	0.3
CWS Outlet (L/sec)	15.0	58.9	71.0

Plant Management Reports

- Fluoridation Reconciliation Report - Monthly
- Fluoridation Reconciliation Report - 7 Days
- Fluoride Dosing System - 4 Week Summary Report

Noticeboard Report	Total	Current Mth	7 days
	1	0	0

Incident Report Form

Online CCP Water Quality

WTP Water Quality - 24 Hr Summary	TMin	TMax	CMin	CMax	Min	Max	Target	Control
Flocculated Water - pH	7.2	8	7	8.5			0	0
DAFF 1 Floated Water - Turbidity	0	1	0	3			0	0
DAFF 2 Floated Water - Turbidity	0	1	0	3			0	0
DAFF 3 Floated Water - Turbidity	0	1	0	3			0	0
DAFF 1 Filtered Water - Turbidity	0	0.2	0	0.5			0	0
DAFF 2 Filtered Water - Turbidity	0	0.2	0	0.5			0	0
DAFF 3 Filtered Water - Turbidity	0	0.2	0	0.5			0	0
Treated Water - Cl2 Total	2.5	5.5	2	6			0	0
Treated Water - Fluoride	0.8	1	0.6	1.5	0.75	1.00	1	0
Entry Point - Cl2 Total	1.5	4.5	0.5	5	1.82	5.16	1	0
Entry Point - Fluoride	0.8	1	0.6	1.2	0.63	0.87	3	0
Entry Point - Turbidity	0	0.2	0	1	0.49	0.55	1	0

CCP Performance Reports: CCP - 7 Day Summary | CCP - 24hr Summary | CCP - Day Summary | CCP - 2hr Summary | Ct - Monthly Summary | Ct - Daily Summary

Task Management - Weeks: 45 to 48

Day	Week 47 Routine	Week 47 Non Routine	Week 48 Routine	Week 48 Non Routine
Monday	MF/AT			
Tuesday	MF/AT			
Wednesday	WE/MF			
Thursday	MF/WE			
Friday	WE/RC			

Task Category	Task Completion	Tasks due today	Tasks due this period
Routine	416 of 1168	1	752
Non-Routine	of		0
Miscellaneous	-	-	2

Summary Reports

Daily Required Tasks | Daily Tasks by Login | Leave Register
Non-Routine Tasks | 4 Week Task Completion
Miscellaneous Tasks | Analysis - Burn Down

OLD Dashboard | **Log Book**

South Gippsland Water

Examples of WIMS Implementation at SGW

3. Task and Resource Management – Data Entry Forms

Lance Creek WTP - Chemical Dosing Systems Mgt (Custom Data Entry Form)

File Edit Format Help KeyPad

Start Date: 1 /10/2018 | Current Date: Monday, 1 October 2018 | Comment

N16 | Save | Approve | Calc | Show Calcs

Lance Creek WTP - Chemical Dosing Systems Management

Week 40 - Monday 01 October 2018 - (4 of 4)

Enter task status 1-6 (1=Completed; 2=Inadequate Time; 3=Inadequate Staff; 4= WTP Failure; 5=WTP Offline; 6=Not Required)

Enter specific value or test result for the task completed. Please note correct units of measure

Assigned Days Remaining	Available Today	Area	Process	Task Description	Frequency (Wks)	Task Category	Staff Required	Time Required	Task Status / Entry			
-			Chlorine Gas Dosing System	Check the auto shutoff air cylinder pressure	1	1	1	5	kPa	8500.0		
-				Order and arrange delivery of chemical	R	1	1	10				
									Delivery Docket No.			
-				Chemical tank changeover	R	1	1	120				
-				Remove injection point and visually check	52	2	2	15				
-				Inspect and exercise valves - rotation of dosing system	13	2	1	15		*Completed*		
-				Contractor service	52	1	1	60				
-				Check chlorine gas sensors and alarming - inc in contract?	52	1	1	30				
2	✓			Cross-checking chemical levels - SCADA vs Manual	3/W	2	1	15	1	*Completed*		
-				Visual/Auditory Assessment - confirm rotameter setting- dosing lines and	4/W	1	1	5	g/hr:	2130.0		
2	✓		KMnO4 Dosing System	Visual observation of batched chemical levels	3/W	1	1	10	mm	82		
-				Confirm operation of agitator/mixer and check for oil leaks	1	1	1	10	1	*Completed*		
-				Inspect and drain bunding	1	1	1	10	1	*Completed*		
				Chemical batching	R	1	1	15				
-									kg:		H2O:	
									Sol. Strength			mg/ml
-				Cleaning of dosing lines - cold flushing - pigging	13	2	1	30				
-				Pump calibration	13	2	1	30				
-				Inspect and exercise valves	13	2	1	15		*Completed*		
-				Major - total drain and clean	52	2	1	90				
-				Check operation of all level probes and floats by physically lifting/tilting to	52	2	1	5				
-				Cross-checking chemical levels - SCADA vs Manual	1	2	1	15	1	*Completed*		
-				Perform drop tests and check operation of dosing pumps and agitators. Run pump at 100% for 10 - 20 seconds- observe drop tube for increased discharge rate. Observe dosing lines and pressure gauges	1	2	1	15	ml/ min:	280.0	Duty Pump:	1
-			ACH Dosing System	Visual observation of bulk chemical levels	1	1	1	10	mm	34		
-				Order and arrange delivery of chemical	R	1	1	10	Delivery date			
-				Inspect and drain bunding	1	1	1	10	1	*Completed*		
				Chemical delivery and QA testing	R	1	1	10				
-									L:		pH:	
									SG:		%Al2O3	
									Delivery Docket No.			
-				Cleaning of dosing lines - cold flushing - pigging	13	2	1	30				
-				Pump calibration	13	2	1	30				
-				Inspect and exercise valves	13	2	1	15		*Completed*		
-				Check operation of all level probes and floats by physically lifting/tilting to	52	2	1	5				

South Gippsland Water

Examples of WIMS Implementation at SGW

3. Task and Resource Management – Dams Surveillance

Dam Inspection Summary Report

Report prepared: Friday 16 November for the week commencing: 12/11/2018

LOCATIONS	SEEPAGE REQUIRMENT	Monday 12/11	Tuesday 13/11	Wednesday 14/11	Thursday 15/11	Friday 16/11	Weekly Insp. Remaining	Weekly VIR
LANCE CREEK	Tri Weekly	COMPLETED		COMPLETED		COMPLETED	COMPLETED	
LITTLE BASS (POOWONG)	Twice Weekly		COMPLETED			COMPLETED	COMPLETED	
COALTION CREEK (KORUMBURRA)	Daily (Weds - VIR)	COMPLETED	COMPLETED		COMPLETED	COMPLETED	Reading Missing	
BELLEVIEW (KORUMBURRA)	Weekly	COMPLETED					COMPLETED	
NESS GULLY (KORUMBURRA)	Tri Weekly		COMPLETED		COMPLETED	COMPLETED	COMPLETED	
LEONGATHA NO.1		COMPLETED						
LEONGATHA NO.2	Weekly	COMPLETED					COMPLETED	
NO.3 HYLAND (LEONGATHA)	Twice Weekly	COMPLETED				COMPLETED	COMPLETED	
NO.4 WESTERN (LEONGATHA)	Twice Weekly	COMPLETED				COMPLETED	COMPLETED	
BATTERY CREEK (FISH CREEK)	Tri Weekly	COMPLETED	COMPLETED		COMPLETED		COMPLETED	
FOSTER DAM	Twice Weekly	COMPLETED			COMPLETED		COMPLETED	
DEEP CREEK	Weekly	COMPLETED					COMPLETED	

South Gippsland Water

Examples of WIMS Implementation at SGW

3. Task and Resource Management – Fluoride Dosing System Forms

Lance Creek WTP - Fluoride Dosing Management (Custom Data Entry Form)

File Edit Format Help KeyPad

Start Date: 20/11/2018 Current Date: Comment

A1 Save Approve Calc Show Calcs

Lance Creek WTP - Fluoride Dosing Management - Verification & Maintenance Tasks

Week 47 - Tuesday 20 November 2018 - (3 of 4)

Enter task status 1-6 (1=Completed; 2=Inadequate Time; 3=Inadequate Staff; 4= WTP Failure; 5=WTP Offline; 6=Not Required)

Enter specific value or test result for the task completed. Please note correct units of measure

Assigned Days Remaining	Available Today	Location	Task Description	Frequency (Wks)	Task Category	Staff Required	Time Required	Task Status / Entry		
1.0 Fluoride Reconciliation Requirements										
TODAY	✓	Reporting	Complete daily fluoride reconciliation requirements	5W	1	1	15	kL	11706643.0	*FSA Totaliser Meter Reading*
								Kg	0.000	*Day Tank Daily Usage*
TODAY	✓		Bulk tank level reading - online Citect level	5W	1	1	5	L	9394.000	*Manual Citect reading*
			Review and distribute weekly fluoride reconciliation report	1	1	1	15			
			Fluoride reconciliation daily comment	R	1	1	5	DP5 sole supply		
4	✓	Monthly Cross-check and Verification	Collect post-CWS sample to be sent to laboratory and record online, offline and laboratory results	4	1	1	30	*Based on completion of other relevant tasks in Section 1.0-2.0, ie. completion of fluoride measurements, external sampling, calibrations etc.*		
4	✓		Calibration portable fluoride analyser	4	1	1	30		*Refer to Section 2.0*	
4	✓		Fluoride - External Laboratory Result	4	1	1	10	mg/L		
2.0 Analyser Maintenance and Verification										
2	✓	DP5 Supply	Verifty operation - check flow to analyser	3W	1	1	5	1	*Completed*	
4	✓		Inspect condition of analyser - clean if required	1	1	1	15			
4	✓		Cleaning of sample lines - Open 100%	1	2	1	30			
4	✓		Verification of On-line Equipment Pre Analyser using 0.5mg/L and 1.0mg/L standards	4	1	1	10	0.5mg/L		*Probe reading from 0.5mg/L standard*
								1.0mg/L		*Probe reading from 1.0mg/L standard*
-			Calibration of On-line Equipment Pre Analyser	52	1	1	60		*Completed*	
2	✓	Treated Water	Verifty operation - check flow to analyser	3W	1	1	5	1	*Completed*	
4	✓		Inspect condition of analyser - clean if required	1	1	1	15			
4	✓		Cleaning of sample lines - Open 100%	1	2	1	30			
-			Change Cartridge	4	2	1	30		*Completed - 08/11/18*	
-			Verification of On-line Equipment Pre Analyser using 0.5mg/L and 1.0mg/L standards	4	1	1	10	0.5mg/L		*Probe reading from 0.5mg/L standard*
								1.0mg/L		*Probe reading from 1.0mg/L standard*
-			Calibration of On-line Equipment Pre Analyser	52	1	1	60			
2	✓	Entry Point Water	Verifty operation - check flow to analyser	3W	1	1	5	1	*Completed*	
4	✓		Inspect condition of analyser - clean if required	1	1	1	15			
4	✓		Cleaning of sample lines - Open 100%	1	2	1	30			
-			Change Cartridge	4	2	1	30		*Completed - 08/11/18*	
-			Verification of On-line Equipment Post Analyser using 0.5mg/L and 1.0mg/L standards	4	1	1	120	0.5mg/L		*Probe reading from 0.5mg/L standard*
								1.0mg/L		*Probe reading from 1.0mg/L standard*
-			Calibration of On-line Equipment Post Analyser	52	1	1	60			
4	✓		Verify offline fluoride analyser using 1mg/l standard (if result is outside of 0.95mg/l or 1.05mg/l, a full calibration is required). Record reading	1	1	1	15	1.0mg/L		*Probe reading from 1.0mg/L standard*
			Calibration of Portable Handheld analyser (3 - point Calibration using 0.5mg/l, 1mg/l and 2mg/l standards). Record probe readings in standards prior to calibration. Record the calibration slope % and mV value	1	1	1	15	0.5mg/L		*Probe reading from 0.5mg/L standard*
								1.0mg/L		*Probe reading from 1.0mg/L standard*

South Gippsland Water

Examples of WIMS Implementation at SGW

3. Task and Resource Management – Fluoride Dosing System Forms

Lance Creek WTP - Fluoride Dosing Management (Custom Data Entry Form)

File Edit Format Help KeyPad

Start Date: 20/11/2018 Current Date: Comment

I41 VINFO(A41,"UD7") Save Approve Calc Show Calcs

Lance Creek WTP - Fluoride Dosing Management - Verification & Maintenance Tasks

Week 47 - Tuesday 20 November 2018 - (3 of 4)

Enter task status 1-6 (1=Completed; 2=Inadequate Time; 3=Inadequate Staff; 4= WTP Failure; 5=WTP Offline; 6=Not Required)

Enter specific value or test result for the task completed. Please note correct units of measure

Assigned Days Remaining	Available Today	Location	Task Description	Frequency (Wks)	Task Category	Staff Required	Time Required	Task Status / Entry		
								mg/L		*Online reading - post-CWS*
3.0 Dosing Plant Maintenance and Verification										
2	✓	Fluoride Dosing System	Validate level readings - crosscheck of bulk chemical levels - Digital, Magnetic Level Indication and Citect recorded levels	3/W	1	1	10	L	9,394.000	*Manual Citect reading*
								L	9367.000	*Manual Digital Reading*
								L	9100.000	*Manual Magnetic Indicator Reading*
4	✓		Inspect and drain bunding	1	1	1	10			
-			Pump calibration	13	2	1	30		*Completed*	
-			Inspect and exercise valves	4	2	2	15		*Completed - 08/11/18*	
-			Order and arrange delivery of chemical	R	1	1	10			
-			Chemical delivery and QA testing (QA results must be entered from the Laboratory Certificate supplied with the delivered chemical)	R	1	3	120	L		*Litres received*
								SG		*Specific Gravity*
								%w/w		*Solution strength*
								NTU		*Turbidity*
								NTU		*Delivery Docket no.*
-			Perform drop tests and check operation of dosing pumps and agitators. Run pump at 100% for 10 - 20 seconds- observe drop tube for increased discharge rate. Observe dosing lines and pressure gauges	4	2	2	30	ml/min:		*Pump drop tube test in ml/min*
-								Pump		*Duty Pump Selection*
-			Test high level switches and ensure that the power is cut to the delivery power supply	4	2	2	15		*Completed - 08/11/18*	
-			Test ESTOP functions aand ensure system shuts down	4	1	2	30		*Completed - 08/11/18*	
-			Check HMI for errors.	4	1	2	15		*Completed - 08/11/18*	
-			Flush Strainers	8	1	2	60			
-			Check water trap on overflow of Day Tank and Storage Tank is full of water.	4	1	2	30		*Completed - 08/11/18*	
-			Check operation pressure at PI-309 (2-4 Bar) when dosing pump	4	1	2	15		*Completed - 08/11/18*	
-			Inspect injection point for correct function. Only to be undertaken during contractor service when fluoride system has been operating on water for 72hrs	R	1	1	90			
-			Check pressure in 1-048-AC and pump up to 2 Bar with dampener removed from system	4	1	1	90		*Completed - 08/11/18*	
-			Check all pipework union and threaded connections for leaks	4	1	2	15		*Completed - 08/11/18*	
-			Check all flanged connections for leaks	4	1	2	15		*Completed - 08/11/18*	
-			Check all dosing pump union connections for leaks. Tighten union if loose. Otherwise, replace seals.	4	1	1	15		*Completed - 08/11/18*	
-			Check dosing pump union connections for leaks	4	1	2	15		*Completed - 08/11/18*	
-			Check transfer pump union connections for leaks	4	1	2	15		*Completed - 08/11/18*	

South Gippsland Water

Examples of WIMS Implementation at SGW

3. Task and Resource Management – Fluoride Dosing System Reports

Fluoridation Reconciliation Report - FSA Feed and Fluoride Concentration - 7 Day Report

South Gippsland Water

Date Prepared: Monday, 12 November 2018

Lance Creek Fluoridation Record			Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10	Column 11	Column 12	Comments
for the period ending:		12/11/2018	719030	719053	719253				739010		740111	750110			
Fluoridation Chemical Used			Volume of water treated in a 24-hour period	Mass of fluoride solution added to water	Fluoride as H2SIF6 in supplied fluoridating chemical	Fluoride Ion Content	Available Fluoride Conc. in supplied fluoridating chemical	Calculated mass of fluoride ion added to water	Fluoride conc. in WTP filter water	Calculated theoretical fluoride conc.	Online measurement of pre-CWS fluoride conc. (Average over 24-hour period)	Online measurement of post-CWS fluoride conc. (Average over 24-hour period)	Difference between theoretical and measured pre-CWS fluoride conc.	Difference between theoretical and measured post-CWS fluoride conc.	
Hydrofluorosilicic Acid (FSA)															
Supplied by:	Incitec Pivot														
Supply Date:	03/12/2015														
Specific Gravity:	1.19														
Confirmation Day / Date		Notes:		a	b	c	d	e	f	g	On-Line	On-Line	h	i	
		Day No.	kL	kg	%w/w	%w/w	%w/w	kg	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
	12/10/2018														
Saturday	13/10/2018	1	4,630	20.8	20.40	79.2	16.16	3.4	0.114	0.840	0.834	0.761	0.006	0.079	
Sunday	14/10/2018	2	4,342	17.8	20.40	79.2	16.16	2.9	0.114	0.776	0.830	0.766	-0.054	0.011	
Monday	15/10/2018	3	3,259	13.0	20.40	79.2	16.16	2.1	0.114	0.758	0.813	0.760	-0.055	-0.002	
Tuesday	16/10/2018	4	3,629	15.9	20.40	79.2	16.16	2.6	0.114	0.822	0.814	0.766	0.008	0.056	
Wednesday	17/10/2018	5	3,274	13.2	20.40	79.2	16.16	2.1	0.164	0.815	0.764	0.755	0.052	0.060	
Thursday	18/10/2018	6	2,660	4.1	20.40	79.2	16.16	0.7	0.164	0.413	0.584	0.597	-0.171	-0.184	Fluoride off since 3pm yesterday due to post analyser fault.
Friday	19/10/2018	7	3,312	8.9	20.40	79.2	16.16	1.4	0.164	0.598	0.609	0.581	-0.011	0.017	Fluoride dosing restarted 10am yesterday.
Average			3,587	13.4				2.2	0.135	0.717	0.750	0.712	-0.032	0.005	
Total			25,106	93.7				15.1							

Report Notes: The Confirmation Day/Date is day/date when the reconciliation has been completed by Operations. Calculated results determined on the confirmation day/date are for the previous production day.

a: Values for Column 2 are equal to the loss of weight in the day tank over the 24-hour period, provided no additional chemical has been transferred from the bulk storage tank.

b: Refer to Analysis Certificate for supplied chemical: Value is the same for the one batch of chemical from the supplier.

c: Value is a constant for all FSA. Refers to theoretical percent fluoride ion concentration at 100 % purity.

d: Available Fluoride Ion Content – Column 3 x Column 4 ÷ 100

e: Mass of fluoride ion added to water supply – Column 2 x Column 5 ÷ 100

f: Measured using hand-held ISE fluoride analyser. Value doesn't change significantly from day to day.

g: Calculated Theoretical Fluoride Concentration – ((Column 6 x1000) ÷ Column 1) ÷ Column 7

h and i: For Columns 11 and 12 a 10% tolerance (approx. ± 0.09 mg/L) is used when reporting differences between the theoretical and measured pre- and post- CWS fluoride concentrations. Exceedances of the 10% tolerance are shown by a RED indicator. If value outside this range, please notify the supervisor and investigate cause. Note findings and corrective actions in comments section.

Examples of WIMS Implementation at SGW

3. Task and Resource Management – Fluoride Dosing System Reports

Fluoridation Management 4-Weekly Summary Report

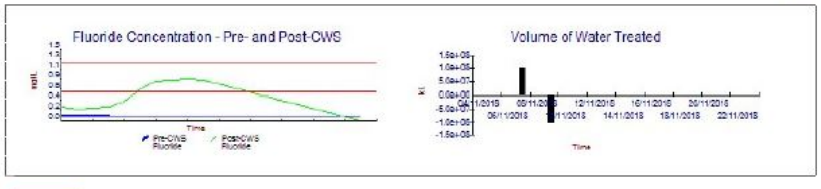
South Gippsland Water

Report Prepared: 11 November 2018 (Week 46)

Weeks 45 to 48
Report Period: 04/11/2018 to 01/12/2018

Parameter	Location	Requirement Min	Requirement Max	Result	
Monthly Analyser Residual	Pre CWS	0.600	1.200	0.545	
	Post CWS	0.600	1.200	0.678	
Monthly Theoretical Residual				0.104	
Average difference between analysers and theoretical readings	Pre CWS			-0.321	-308.1%
	Post CWS			-0.543	-521.6%
Average Filtered Water Fluoride background residual				0.000	
Monthly Filtered Water Flow Total	kL			10,910	
Daily Filtered Water Flow Average	kL			390	
Monthly FSA Usage (based on Day Tank manual Citect readings)	kg			0	
Citect Bulk Tank Usage (based on difference in manual Citect readings)	L			9,388	
Number of CCP Breaches/Non-Compliances in month			0	1	

Monthly Fluoride Dosing System Management Task Completion					
Reconciliation Reporting Requirements		Frequency	Required Count	Completed Count	
Complete daily fluoride reconciliation requirements	Laboratory		10	7	
Fluoride Analyser Management - Verification and Calibration		Frequency	Required Count	Completed Count	
Verification of offline fluoride anlaysers		1		0	
Verification of online pre/post-CWS online analysers		4	2	2	
Calibration of offline fluoride analysers		1	4	0	
Calibration of online pre/post-CWS online analysers		52	1	6	
Dosing Plant Maintenance and Verification	No. of Tasks	Frequency	Required Count	Completed Count	
Summary of the completion of various maintenance and verification tasks. Task to be completed vary in required frequency. Such tasks include verification of equipment performance, maintenance of equipment and validation of recorded information from instrumentation.	1	3/W	6	3	
	1	1	2	1	
	23	4	12	23	
	1	8	1	0	
	1	13	1	1	
	2	52	1	0	
	3	R	1	0	



Reported task/result complies with required frequency or standard
No compliance requirement specifically required within the stated reporting period
Reported task/result does not comply with required frequency or standard

South Gippsland Water

Examples of WIMS Implementation at SGW

3. Task and Resource Management – Weekend Duties Dashboard

Hach WIMS Multi User v7.6.0 - BCHATELIER @ "SGW - Water Treatment Operations" on HANSENDBSERVER.OPSWTPSE

File Data Manager Report Pac Graph Pac Design System Setup Preferences Utilities Help

Home Back Refresh Print

BCHATELIER Tuesday, 20 November 2018

South Gippsland Water

Water Treatment Plants - Weekend Duties

	Eastern Region						Western Region			
STANDARD DASHBOARDS	Devon North	Fish Creek	Foster	Toora	Dumbalk	Meeniyan	Lance Creek	Leongatha	Korumburra	Poowong
WEEKEND DUTIES	Devon North	Fish Creek	Foster	Toora	Dumbalk	Meeniyan	Lance Creek	Leongatha	Korumburra	Poowong
NOTICEBOARDS	Devon North	Fish Creek	Foster	Toora	Dumbalk	Meeniyan	Lance Creek	Leongatha	Korumburra	Poowong
LOG BOOKS	Devon North	Fish Creek	Foster	Toora	Dumbalk	Meeniyan	Lance Creek	Leongatha	Korumburra	Poowong
MISCELLANEOUS REPORTS	External Analysis Data	CCP Performance	Storages and Rainfall	Incident Report	Flows and Usage	Miscellaneous				
	CCP Compliance 2hr	CCP Compliance Daily	CCP Compliance 7 day	CCP Compliance Mthly	CCP Rolling 24 Hour	CCP-HBT Report				

South Gippsland Water

Examples of WIMS Implementation at SGW

3. Task and Resource Management – Weekend Duties Forms

Leongatha WTP - Weekend Duties (Custom Data Entry Form)

File Edit Format Help KeyPad

Start Date: 19/11/2018 Current Date: Comment

D13 VINFO(A13,"Description") Save Approve Calc Show Calcs

Leongatha WTP - Weekend Duties Form

Tuesday November 20, 2018

Enter task status 1-6 (1=Completed; 2=Inadequate Time; 3=Inadequate Staff; 4= WTP Failure; 5=WTP Offline; 6=Not Required)

Enter specific value or test result for the task completed. Please note correct units of measure

Meter Readings

Area / Location	Description	Units	Previous Reading Date	Previous Reading Result	Current Reading	Throughput	Online/Time	Message
Raw Water Inlet	Totalised Flow to Plant	kL	19/11/2018	28,362,290	28362290	0.00		
Entry Point (After Trim)	Totalised Plant Outflow (After Trim)	kL	19/11/2018	5,192,450	5192450			
Raw Water Inlet	Instantaneous Flow to Plant	L/s	19/11/2018	Average	61.2			
General	Leongatha WTP - Rainfall	mm	19/11/2018	0	0.0			

Water Quality Monitoring

Area / Location	Description	Units	Previous Result Date	Previous Result Result	Current Result	Target Minimum	Target Maximum	Control Minimum	Control Maximum
Reservoir 1	Manganese Soluble Filtered -Internal Testing	mg/L	19/11/2018	0.030	0.030	NA	NA	NA	NA
Raw Dosed Water	pH -Internal Testing	pH units	19/11/2018	8.000	8.00	8.5	9.5	NA	NA
	pH -Online Cross Check	pH units	19/11/2018	8.000	8.00	8.5	9.5	NA	NA
	pH -Online Cross Check Time		11/11/2018	1.000		NA	NA	NA	NA
CWS Outlet (before trim)	Chlorine Free Residual -Internal Testing	mg/L	19/11/2018	0.690	0.690	0.5	1	0.4	1.8
Entry Point (After Trim)	Chlorine Free Residual -Internal Testing	mg/L	19/11/2018	0.830	0.830	0.5	1.5	0.4	1.8
	Chlorine Free Residual - Online Cross Check	mg/L	19/11/2018	0.830	0.830	0.5	1.1	0.1	1.2
	Manganese Total -Internal Testing	mg/L	19/11/2018	0.011	0.011	NA	0.02	NA	0.05
	pH -Internal Testing	pH units	19/11/2018	7.160	7.16	7.3	8	7	8.5
	Turbidity - Internal Testing	NTU	19/11/2018	0.110	0.110	NA	0.5	NA	1

Water Quality Analyser Management

Area / Location	Process	Description	Task Status	Comments
All locations	All	Verifty operation - check flow to analyser		Completion of tasks refers to ALL analysers for chlorine, pH and turbidity for all water types

Raw Water	*Turbidity Analyser*	*T1 - Filter Water Combined*	*Turbidity Analyser*
Raw Dosed Water	*pH Analyser*	*T2 - Filter Water Combined*	*Turbidity Analyser*
Flocculated Water 1	*pH Analyser*	*T2 - Filter Bank 1*	*Turbidity Analyser*
Flocculated Water 2	*pH Analyser*	*T2 - Filter Bank 2*	*Turbidity Analyser*
Clarifier Water 1	*Turbidity Analyser*	*Treated Water*	*Free Chlorine Anal*
Clarifier Water 2	*Turbidity Analyser*	*Treated Water*	*pH Analyser*
T1 - Filter Bank 1	*Turbidity Analyser*	*Entry Point Water*	*Free Chlorine Anal*
T1 - Filter Bank 2	*Turbidity Analyser*	*Entry Point Water*	*Turbidity Analyser*
T1 - Filter Bank 3	*Turbidity Analyser*	*Entry Point Water*	*pH Analyser*

South Gippsland Water

Examples of WIMS Implementation at SGW

3. Task and Resource Management – Weekend Duties Forms

Leongatha WTP - Weekend Duties (Custom Data Entry Form)

File Edit Format Help KeyPad

Start Date: 19/11/2018 Current Date: Comment

D35 VINFO(A35,"Description") Save Approve Calc Show Calcs

Leongatha WTP - Weekend Duties Form

Tuesday November 20, 2018

Enter task status 1-6 (1=Completed; 2=Inadequate Time; 3=Inadequate Staff; 4= WTP Failure; 5=WTP Offline; 6=Not Required)

Enter specific value or test result for the task completed. Please note correct units of measure

Water Quality Analyser Management

Area / Location	Process	Description	Task Status	Comments
All locations	All	Verifty operation - check flow to analyser		Completion of tasks refers to ALL analysers for chlorine, pH and turbidity for all water types

Raw Water	*Turbidity Analyser*	*T1 - Filter Water Combined*	*Turbidity Analyser*
Raw Dosed Water	*pH Analyser*	*T2 - Filter Water Combined*	*Turbidity Analyser*
Flocculated Water 1	*pH Analyser*	*T2 - Filter Bank 1*	*Turbidity Analyser*
Flocculated Water 2	*pH Analyser*	*T2 - Filter Bank 2*	*Turbidity Analyser*
Clarifier Water 1	*Turbidity Analyser*	*Treated Water*	*Free Chlorine Anal*
Clarifier Water 2	*Turbidity Analyser*	*Treated Water*	*pH Analyser*
T1 - Filter Bank 1	*Turbidity Analyser*	*Entry Point Water*	*Free Chlorine Anal*
T1 - Filter Bank 2	*Turbidity Analyser*	*Entry Point Water*	*Turbidity Analyser*
T1 - Filter Bank 3	*Turbidity Analyser*	*Entry Point Water*	*pH Analyser*

Operational Monitoring

Area / Location	Description	Units	Previous Result Date	Previous Result Result	Current Result	Target Minimum	Target Maximum	Control Minimum	Control Maximum
T2_Clarifier	Clarifier Blanket Depth	mm	18/11/2018	1		NA	NA	NA	NA

Chemical Dosing Systems

Enter a result only if a chemical dose rate is changed or adjusted

Area / Location	Description	Units	Previous Result Date	Previous Result Result	Current Result		Units	Previous Result Date	Previous Result Result
Alum Dosing System	Alum - Drop Test Value	ml/min	14/11/2018	380		Calculated Chemical Dose Rates	mg/L		
Caustic Soda Dosing System	Pre Treatment Soda Ash - Drop Test Value	ml/min	14/11/2018	42			mg/L		
Chlorine Gas Dosing System	Chlorine Gas - Rotamter Value	g/hr	19/11/2018	850	850.0		mg/L		
KMnO4 Dosing System	KMnO4 - Drop Test Value	ml/min	14/11/2018	108			mg/L		
PAC Dosing	PAC - Drop Test Value	ml/min							
Polymer Dosing System	Secondary Coagulant - Drop Test Value	ml/min					mg/L		

Chemical Storages

Enter a result only if the observed chemical storage level does not correspond to the level displayed on SCADA

Area / Location	Description	Units	Previous Result Date	Previous Result Result	Current Result	Low-Low SP	Low SP	High SP	High-High SP
Alum Dosing System	Alum Tank Storage Level - Manual Oberservation	%	19/11/2018	70	70	NA	NA	NA	NA
Caustic Soda Dosing System	Soda Ash Tank Storage Level - Manual Oberservation	%	19/11/2018	22	22	NA	NA	NA	NA
Chlorine Gas Dosing System	Chlorine Gas - Weight Remaining	kg				NA	NA	NA	NA
KMnO4 Dosing System	KMnO4 Tank Storage Level - Manual Oberservation	L	19/11/2018	100	100	NA	NA	NA	NA
PAC Dosing	PAC Tank Storage Level - Manual Oberservation	%				NA	NA	NA	NA
Polymer Dosing System	Secondary Coagulant Tank Storage Level - Manual Oberservation	%	08/10/2018	0		NA	NA	NA	NA

South Gippsland Water

Examples of WIMS Implementation at SGW

3. Task and Resource Management – Leave Register

Eastern Area - Leave Register (Custom Data Entry Form)

File Edit Format Help KeyPad

Start Date: 19/11/2018 Current Date: Comment

A1 Save Approve Calc Show Calcs

Eastern Area - Leave Register
19 Nov to 19 Feb 2019

	Scott Rathjen	Brad Angwin	David Thornell	Damien Stefani	Paul Selzer	Adam Wiggins	Brian Wigg	Jack Dobson	Kevin Wake	WTP Duties 1	WTP Duties 2	On-Call Standby	Major Holiday Standby
2018 Assignment Summary													
Standby Weeks	11	9	5	0	7	0	9	0	11				
Weekends	20	24	12	0	18	0	22	0	19				
Annual Leave	21	27	16	26	15	24	57	0	0				
Requested Leave	0	0	0	0	0	0	0	0	0				
RDOs	11.0	14.5	12.0	0.0	15.0	13.0	1.0	0.0	0.0				
Sick / Carers	2	5	2	0	4	10	0						
Past 12 Month Assignment Summary: 19/11/17 to 19/11/18													
Standby Weeks	9	9	7	0	7	0	9	0	11				
Weekends	18	22	14	0	21	0	22	0	20				
Annual Leave	18	30	16	31	12	24	57	0	0				
Requested Leave	0	0	0	0	0	0	0	0	0				
RDOs	12.0	13.5	14.5	3.0	15.0	12.0	1.0	0.0	0.0				
Sick / Carers	2	6	2	0	5	11	0	0	0				

			Scott Rathjen	Brad Angwin	David Thornell	Damien Stefani	Paul Selzer	Adam Wiggins	Brian Wigg	Jack Dobson	Kevin Wake	WTP Duties 1	WTP Duties 2	On-Call Standby	Major Holiday Standby
1	Mon	19 Nov 18		RDO							Ann. Leave			Paul Selzer	
	Tue	20 Nov 18												Paul Selzer	
	Wed	21 Nov 18							RDO					Paul Selzer	
	Thu	22 Nov 18	Sick/Carers											Kevin Wake	
	Fri	23 Nov 18					RDO			RDO				Kevin Wake	
	Sat	24 Nov 18										Kevin Wake	Kevin Wake	Kevin Wake	
	Sun	25 Nov 18										Kevin Wake	Kevin Wake	Kevin Wake	
	Mon	26 Nov 18												Kevin Wake	
	Tue	27 Nov 18	Ann. Leave											Kevin Wake	
	Wed	28 Nov 18	Ann. Leave											Kevin Wake	
	Thu	29 Nov 18	Ann. Leave											Brad Angwin	
	Fri	30 Nov 18	Ann. Leave											Brad Angwin	
	Sat	01 Dec 18	Ann. Leave									Brad Angwin	Brad Angwin	Brad Angwin	
	Sun	02 Dec 18	Ann. Leave									Brad Angwin	Brad Angwin	Brad Angwin	
	Mon	03 Dec 18	Ann. Leave											Brad Angwin	
	Tue	04 Dec 18												Brad Angwin	
	Wed	05 Dec 18												Brad Angwin	
	Thu	06 Dec 18												Brian Wigg	
	Fri	07 Dec 18												Brian Wigg	
	Sat	08 Dec 18										Brian Wigg	Brian Wigg	Brian Wigg	
	Sun	09 Dec 18										Brian Wigg	Brian Wigg	Brian Wigg	
	Mon	10 Dec 18												Brian Wigg	
	Tue	11 Dec 18												Brian Wigg	
	Wed	12 Dec 18				RDO								Brian Wigg	

Major Holiday Assignments

2014		
Easter	Brad Angwin	Brian Wigg
Christmas	Brad Angwin	Paul Selzer
New Years	Brad Angwin	Paul Selzer
2015		
Easter	Brian Wigg	Kevin Wake
Christmas	Scott Rathjen	David Thornell
New Years	Brian Wigg	
2016		
Easter	Kevin Wake	Brian Wigg
Christmas	Scott Rathjen	Brian Wigg
New Years	Brad Angwin	
2017		
Easter	Paul Selzer	David Thornell
Christmas	Kevin Wake	Paul Selzer
New Years	David Thornell	Brian Wigg
2018		
Easter	Scott Rathjen	Brian Wigg
Christmas	Kevin Wake	Brad Angwin
New Years	Scott Rathjen	Brian Wigg

South Gippsland Water

Examples of WIMS Implementation at SGW

3. Task and Resource Management – Leave Reports

South Gippsland Water

South Gippsland Water - Water Treatment Daily Leave Report

Tuesday 20 November 2018

Eastern Area			
Operator	**Availablity**	**Plant(s) Attending**	**On-Call/Standby**
Scott Rathjen	✓		Paul Selzer
Brad Angwin	✓	Dumbalk, Meeniyan,	
David Thornell	✓		
Kevin Wake	✓		
Paul Selzer	✓	Devon North,	
Brian Wigg	✓	Toora,	
Damian Stefani	✓	Fish Creek, Foster,	
Jack Dobson	✓		

Western Area			
Operator	**Availablity**	**Plant(s) Attending**	**On-Call/Standby**
Ash Turner	✓	Lance Creek,	Jack Dobson
Will Egan	✓		
Damian Stefani	✓		
Michael Fawett	✓	Lance Creek,	
Nik Bergman	✓	Leongatha,	
Jack Dobson	✓	Korumburra, Poowong,	
Megan Hoskins	✓	Leongatha,	
Ryleigh Coombes	✓		

Please Note:

- If an assigned operator to a site cannot be contacted, please contact the region Team Leader for assistance.
- Damien Stefani and Jack Dobson are available to be rostered for WTP duties in the Eastern and Western Regions

South Gippsland Water

Examples of WIMS Implementation at SGW

3. Task and Resource Management – Leave Reports

South Gippsland Water

Water Treatment Operations - Leave Balance Report

	Leave Summary: 2018 Calendar Year				Leave Summary: Previous Calendar Year				Leave Summary: 2018 YTD			
WESTERN	Standby Weeks	Annual Leave	RDOs	Sick / Carers	Standby Weeks	Annual Leave	RDOs	Sick / Carers	Standby Weeks	Annual Leave	RDOs	Sick / Carers
Ash Turner	8.6	32.0	11.5	6.0	10.0	25.0	11.5	3.0	7.6	28.0	11.5	6.0
Damien Stefani	10.6	19.0	12.0	2.0	10.6	26.0	9.0	5.0	9.6	17.0	9.0	2.0
Michael Fawcett	12.3	15.0	13.0	8.0	10.7	11.0	11.5	7.0	10.3	14.0	13.0	8.0
Nick Bergman	0.0	7.0	1.0	1.0	0.0	14.0	1.0	2.0	0.0	5.0	1.0	1.0
Will Egan	10.0	28.0	9.0	2.0	10.9	14.0	6.0	0.0	8.3	28.0	9.0	2.0
Jack Dobson	9.3	13.0	12.0	6.0	10.0	10.0	9.5	2.0	9.1	13.0	11.0	6.0
Megan Hoskins	0.0	17.0	6.5	2.0	0.0	0.0	0.0	0.0	0.0	17.0	5.5	2.0
Ryleigh Coombes	0.0	21.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	21.0	4.0	0.0
EASTERN												
Scott Rathjen	10.7	21.0	11.0	2.0	8.0	19.0	16.0	6.0	9.0	14.0	10.0	1.0
Brad Angwin	9.0	27.0	14.5	5.0	8.6	17.0	12.5	15.0	8.0	27.0	13.5	5.0
David Thornell	5.4	16.0	12.0	2.0	9.6	8.0	15.0	7.0	5.4	16.0	12.0	2.0
Kevin Wake	11.0	26.0	0.0	0.0	9.0	18.0	15.0	1.0	9.0	26.0	0.0	0.0
Paul Selzer	6.9	15.0	15.0	4.0	8.0	26.0	7.0	9.0	6.7	12.0	14.0	4.0
Adam Wiggins	0.0	57.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	57.0	1.0	0.0
Brian Wigg	9.1	24.0	13.0	10.0	9.0	8.0	14.0	9.0	8.1	24.0	11.0	10.0

Examples of WIMS Implementation at SGW

4. Chemical Management – Summary Dashboards

Hach WIMS Multi User v7.6.0 - BCHATELIER @ "SGW - Water Treatment Operations" on HANSENDBSERVER.OPSWTPSE

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Lance Creek WTP - Chemical Dosing Systems

Week 47

Tuesday, 20 November 2018

Chemical Dosing Systems Management

Chemical Reports	Pre-Caustic Soda 46%	Post-Caustic Soda 46%	Potassium Permanganate	Aluminium Sulphate	ACH	Ammonia 23%	Hydrochloric Acid	Polymer	Chlorine Gas	Fluoride
Total Capacity Available	12000		2000	25000	25000	5000	2000	3000	1840	10000
On-line Storage Level %	22		95	81	81	73				94
Off-line / Manual Storage %	23		95	33		88		75	43	94
Available Quantity (L)	2640		1,900	20,250	20,250	3,660			794	9394
Order Quantity Required (L)	9,360		100	4,750	4,750	1,340		3,000	1,840	606
	0 25 50 75 100		0 25 50 75 100	0 25 50 75 100	0 25 50 75 100	0 25 50 75 100			0 25 50 75 100	0 25 50 75 100
	Storage Trend		Storage Trend	Storage Trend	Storage Trend	Storage Trend	Storage Trend	Storage Trend	Storage Trend	Storage Trend
Last Chemical Delivery	27/07/2018			28/03/2018	30/08/2018	1/10/2018			5/03/2018	10/07/2018
Last Chemical Batch			8/11/2018					8/11/2018		
Run time hrs available				1,023		12200				
Run time 24 hr days available				43		508				
	Pre pH	Post pH	Mn/Fe Oxidation	Coagulant	Coagulant	Primary Disinfection	Pre pH	Polymer	Primary Disinfection	Fluoridation
Dose Rate (mg/L)	0.00	0.00	0.00		0.00	40.70	0.00		0.00	0.00
Drop Test (ml/min) / (g/hr)	0.00	0.00	0.00	330.00	0.00	5.00	0.00	75.00	0.00	0.00
	0 13 25 38 50	0 25 50 75 100	0 75 150 225 300		0 10 20 30 40	0 13 25 38 50	0 25 50 75 100		0 13 25 38 50	0 13 25 38 50
	Dose Rate Trend	Dose Rate Trend	Dose Rate Trend	Dose Rate Trend	Dose Rate Trend	Dose Rate Trend	Dose Rate Trend	Dose Rate Trend	Dose Rate Trend	Dose Rate Trend
	Drop Test Trend	Drop Test Trend	Drop Test Trend	Drop Test Trend	Drop Test Trend	Drop Test Trend	Drop Test Trend	Drop Test Trend	RotameterTrend	Drop Test Trend
- Dosing Lines Maintenance	326 Days	326 Days	Days	Days	4 Days	331 Days	Days	Days	Days	Days
- Major Tank Maintenance	Days		Days	Days	Days	Days	Days	Days	Days	Days
- Last Pump Calibration	47 Days	47 Days	Days	326 Days	110 Days	47 Days	Days	Days	Days	12 Days
- Last Pump Service										
- Pump Run Hours										

South Gippsland Water

Examples of WIMS Implementation at SGW

4. Chemical Management – Dose Rates

Hach WIMS Multi User v7.6.0 - BCHATELIER @ "SGW - Water Treatment Operations" on HANSENDBSERVER.OPSWTPSE

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Lance Creek WTP - Chemical Dosing Systems

Week 47

Tuesday, 20 November 2018

Chemical Dosing Systems Management

Chemical Reports	Pre-Caustic Soda 46%	Post-Caustic Soda 46%	Potassium Permanganate	Aluminium Sulphate	ACH	Ammonia 23%	Hydrochloric Acid	Polymer	Chlorine Gas	Fluoride
Total Capacity Available	12000								1840	10000
On-line Storage Level %	22									94
Off-line / Manual Storage %	23								43	94
Available Quantity (L)	2640								794	9394
Order Quantity Required (L)	9,360								1,840	606
	0 25 50								25 50 75 100	0 25 50 75 100
	Storage Tr								Storage Trend	Storage Trend
Last Chemical Delivery	27/07/20								5/03/2018	10/07/2018
Last Chemical Batch										
Run time hrs available										
Run time 24 hr days available										
	Pre pH								nary Disinfection	Fluoridation
Dose Rate (mg/L)	0.00								0.00	0.00
Drop Test (ml/min) / (g/hr)	0.00								0.00	0.00
	25 13 38 0 50								25 3 38 50	25 13 38 0 50
	Dose Rate Trend								ose Rate Trend	Dose Rate Trend
	Drop Test Trend								RotameterTrend	Drop Test Trend
- Dosing Lines Maintenance	326 Days								Days	Days
- Major Tank Maintenance	Days								Days	Days
- Last Pump Calibration	47 Days	47 Days	Days	326 Days	110 Days	47 Days	Days	Days	Days	12 Days
- Last Pump Service										
- Pump Run Hours										

Quick Graph

Refresh 08/01/2018 00:00 08/31/2018 00:00 Aug 2018 Custom Data Tip Print Close

4/8/2018 7:13, 22.806

709133 - LC_ACH_Dose Rate - C

1/08/2018 - 31/08/2018

mg/L

35 30 25 20 15 10 5

1 Wed 8 Wed 15 Wed 22 Wed 1 Sat

Aug 2018

South Gippsland Water

Examples of WIMS Implementation at SGW

4. Chemical Management – Storage Levels

Hach WIMS Multi User v7.6.0 - BCHATELIER @ "SGW - Water Treatment Operations" on HANSENDBSERVER.OPSWTPSE

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Lance Creek WTP - Chemical Dosing Systems

Week 47

Tuesday, 20 November 2018

Chemical Dosing Systems Management

Chemical Reports	Pre-Caustic Soda 46%	Post-Caustic Soda 46%	Potassium Permanganate	Aluminium Sulphate	ACH	Ammonia 23%	Hydrochloric Acid	Polymer	Chlorine Gas	Fluoride
Total Capacity Available	12000		2000	25000	25000	5000	2000	3000	1840	10000
On-line Storage Level %	22									94
Off-line / Manual Storage %	23								43	94
Available Quantity (L)	264								794	9394
Order Quantity Required (L)	9,36								1,840	606
	Storage								Storage Trend	Storage Trend
Last Chemical Delivery	27/07/2								5/03/2018	10/07/2018
Last Chemical Batch										
Run time hrs available										
Run time 24 hr days available										
	Pre pH								Primary Disinfection	Fluoridation
Dose Rate (mg/L)	0.00								0.00	0.00
Drop Test (ml/min) / (g/hr)	0.00								0.00	0.00
	Dose Rate Trend								Dose Rate Trend	Dose Rate Trend
	Drop Test Trend								Rotameter Trend	Drop Test Trend
- Dosing Lines Maintenance	326 Days								Days	Days
- Major Tank Maintenance	Day								Days	Days
- Last Pump Calibration	47 Days								Days	12 Days
- Last Pump Service										
- Pump Run Hours										

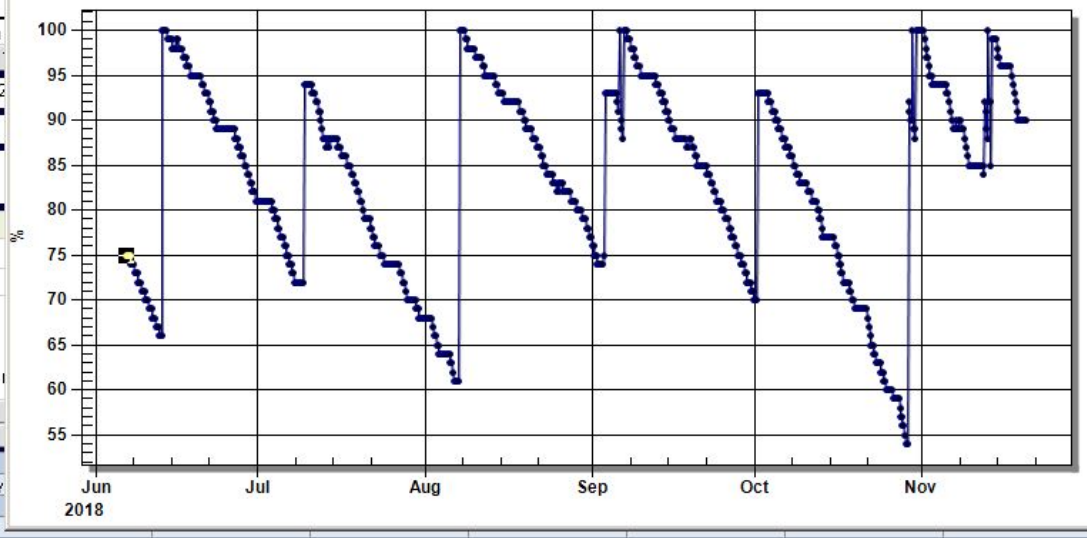
Quick Graph

Refresh 06/06/2018 16:00 11/20/2018 04:00 Jun 2018 Custom Data Tip Print Close

17/6/2018 8:13, 64.072

415151 - TR_NCD_Tank Level -O

6/06/2018 - 20/11/2018



South Gippsland Water

Examples of WIMS Implementation at SGW

4. Chemical Management – Analysis Reports

Lance Creek WTP

Chemical Dose Rate & Usage Analysis - Aluminium Chlorohydrate - October, 2018

	Date	Maximum SCADA daily Inlet flow	Chemical dosing pump drop test	Median SCADA calculated dose rate	WTP daily SCADA Totalised Inlet Flow	WTP daily Manual Reading Totalised Inlet Flow	Chemical usage based on SCADA daily dose rate	Chemical usage based on SCADA daily dose rate	Chemical usage per ML Inlet water volume	Chemical cost based on SCADA data
		7.20140	100.00	100.32	7.20140	7.00000				
		Litres/sec	ml/min	mg/L	Kilolitres	Kilolitres	Kg	Litres	Litres/ML	$/day
1	1/10/2018	108.150	150.00	15.67	1,382		21.66	16.660	15.67	3.50
2	2/10/2018	194.820		17.43	3,522		113.94	87.648	29.05	20.51
3	3/10/2018	115.740		15.17	5,652		140.36	107.970	25.28	25.26
4	4/10/2018	191.650		11.02	5,758		106.51	81.931	18.37	19.17
5	5/10/2018	191.160		7.21	6,264		82.50	63.460	12.02	14.85
6	6/10/2018	105.250		12.88	5,464		117.31	90.236	21.47	21.12
7	7/10/2018	104.580		12.92	4,376		94.20	72.469	21.53	16.96
8	8/10/2018	122.800		12.37	3,487		71.91	55.315	20.62	12.94
9	9/10/2018	155.410		12.77	3,847		81.86	62.970	21.28	14.73
10	10/10/2018	122.640		10.98	3,875		70.92	54.552	18.30	12.77
11	11/10/2018	146.940		12.86	4,046		86.71	66.701	21.44	15.61
12	12/10/2018	106.700		12.99	3,802		82.33	63.330	21.66	14.82
13	13/10/2018	106.050		12.96	4,630		99.92	76.864	21.58	17.99
14	14/10/2018	106.470		12.90	4,342		93.32	71.787	21.49	16.80
15	15/10/2018	106.130		12.91	3,259		70.15	53.961	21.52	12.63
16	16/10/2018	106.050		12.98	3,629		78.53	60.406	21.64	14.14
17	17/10/2018	105.400		13.01	3,274		70.98	54.599	21.68	12.78
18	18/10/2018	156.020		12.62	2,660		55.94	43.032	21.03	10.07
19	19/10/2018	124.230		11.07	3,312		61.11	47.006	18.45	11.00
20	20/10/2018	122.190		11.07	3,696		68.20	52.469	18.46	12.28
21	21/10/2018	121.350		11.12	3,436		63.67	48.975	18.53	11.46
22	22/10/2018	122.000	80.00	7.82	3,310		43.15	33.190	13.04	7.77
23	23/10/2018	160.940		7.84	4,052		52.96	40.741	13.07	9.53
24	24/10/2018	93.040		7.84	2,501		32.69	25.146	13.07	5.88
25	25/10/2018	92.770		7.89	3,284		43.16	33.200	13.14	7.77
26	26/10/2018	93.190		7.81	4,182		54.42	41.862	13.01	9.80
27	27/10/2018	92.700		7.82	4,946		64.43	49.559	13.03	11.60
28	28/10/2018	92.850		7.83	3,601		46.96	36.146	13.06	8.46
29	29/10/2018	93.920		7.80	4,966		64.41	49.544	13.00	11.59
30	30/10/2018	93.190		7.81	4,015		52.28	40.217	13.02	9.41
31	31/10/2018	92.050		11.08	4,794		88.56	68.113	18.47	15.94
	Monthly Average	120.87	115.00	11.18	4009		73.39	56.45	18.29	13.21
	Monthly 90th %ile	160.94	150.00	13.01	5464		106.51	81.93	21.65	19.17
	Monthly Minimum	92.09	80.00	7.21	1382		21.66	16.66	12.02	0.00
	Monthly Maximum	194.82	150.00	17.43	6864		140.36	107.97	29.05	25.26
	Monthly Total				124291		2,275.06	1,750.04		409.51

	Total Water Volume (kL)	Total Chemical Used (kg)	Total Chemical Cost ($)	
Monthly Summary				
Method 1	124,291	2,275.06	409.51	SCADA totalised flow readings, daily calculated chem dose rates using raw SCADA inst flows
Method 2	124,291	2,684.58	483.03	SCADA totalised flow readings, 90th% calculated chem dose rates using raw SCADA inst flows
Method 3				Manual totalised flow readings, 90th% calculated chem dose rates using raw SCADA inst flows
Projected Annual				
Method 1	1,491,492	27,300.67	4,914.12	
Method 2	1,491,492	32,205.01	5,820.30	
Method 3				

Date Prepared: 20/11/2018

Chem Unit Cost ($/kg) 0.180

Specific Gravity (g/L) 1.30

South Gippsland Water

Examples of WIMS Implementation at SGW

5. Water Sampling Management – Summary Dashboard

Hach WIMS Multi User v7.6.0 - BCHATELIER @ "SGW - Water Treatment Operations" on HANSENDBSERVER.OPSWTPSE

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BCHATELIER Tuesday, 20 November 2018

South Gippsland Water

Water Sampling Management

	Eastern Region						Western Region			
Water Systems	Tarra River	Battery Creek	Deep Creek	Agnes River	Tarwin River - East	Tarwin River - West	Lance Creek	Coalition Creek	Little Bass	Ruby Creek
Water Treatment Plants	Devon North	Fish Creek	Foster	Toora	Dumbalk	Meeniyan	Lance Creek	Korumburra	Poowong	Leongatha

Water Sampling Program Schedule - Current Week

Mon 19/11/2018							AW	RC	RC	RC
Tue 20/11/2018	AW	DT	BA	DT	BA	BA				
Wed 21/11/2018										
Thu 22/11/2018										
Fri 23/11/2018										

Water Sampling Reports and Forms

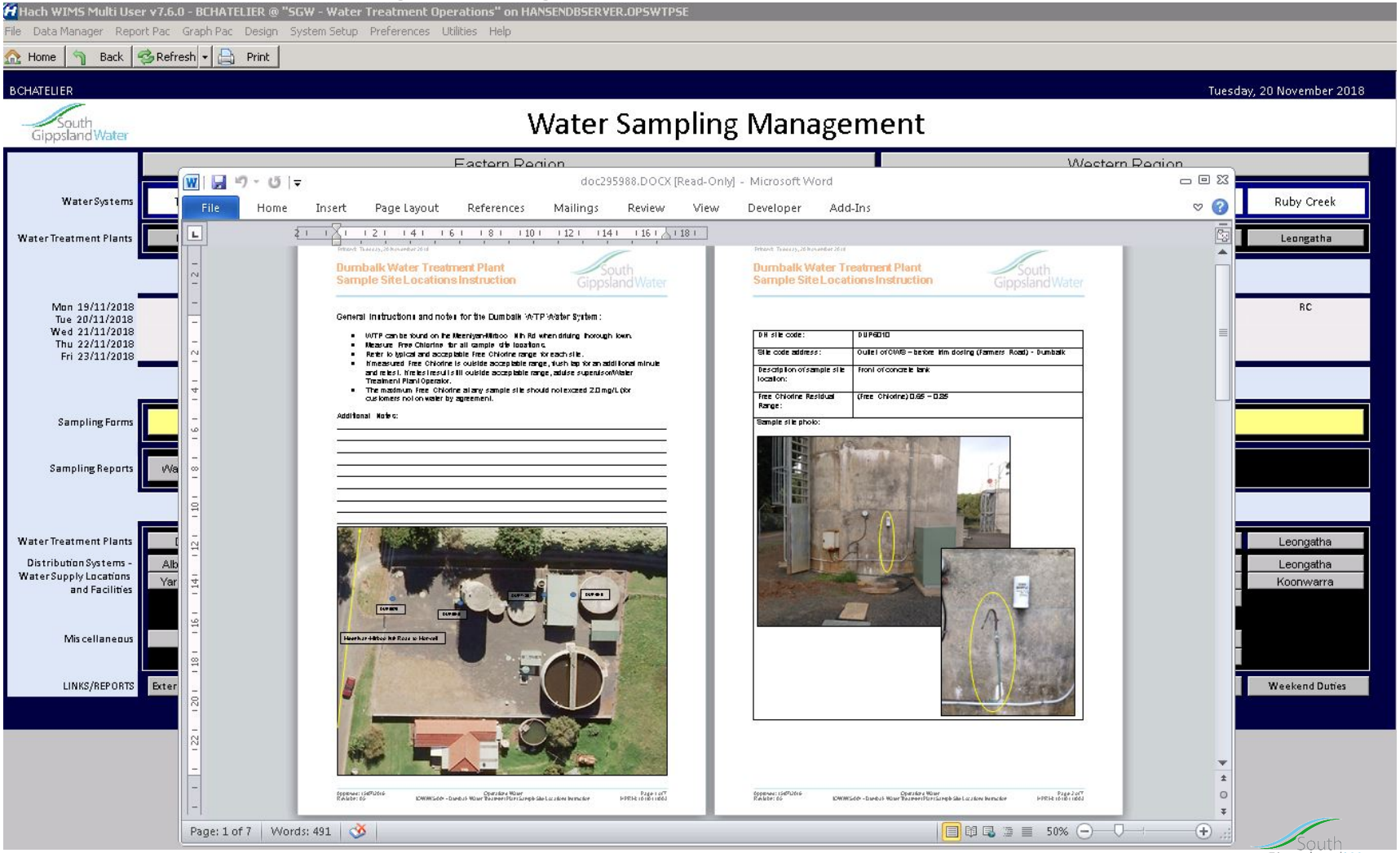
Sampling Forms	Water Sampling Management - Staff Scheduler Form		
Sampling Reports	Water Sampling Schedule Report - 4 Week	Water Sampling Schedule Report - Annual	Water Sampling Assignment Report - Weekly

WaterSampling Instructions

Water Treatment Plants	Devon North	Fish Creek	Foster	Toora	Dumbalk	Meeniyan	Lance Creek	Korumburra	Poowong	Leongatha
Distribution Systems - Water Supply Locations and Facilities	Alberton-Pt.Albert	Fish Creek	Foster	Toora-Agnes River	Dumbalk	Meeniyan	Cape Paterson	Korumburra	Loch	Leongatha
	Yarram-Devon Nth	Fish Creek Basin		Welshpool-Port Welshpool			Inverloch		Nyora	Koonwarra
							Lance Creek		Poowong	
							Wonthaggi			
Miscellaneous	SOWWS-001a Water Sampling Management Procedure			SOWWS-001 Bacteriological Water Sampling Procedure			SOWQA-010 - Water Supply Taste and Odour Assessment Procedure			
				SOWWS-001b Chemical-Physical Water Sampling Procedure			FOWQA-010b - Taste and Odour Assessment Record Form			
LINKS/REPORTS	External Analysis Data	CCP Performance	Storages and Rainfall	Incident Report	Flows and Usage	Miscellaneous				Weekend Duties

Examples of WIMS Implementation at SGW

5. Water Sampling Management – Hyperlinks to Quality System



Examples of WIMS Implementation at SGW

5. Water Sampling Management – Staff Scheduler Form

Water Sampling Scheduler (Custom Data Entry Form)

File Edit Format Help KeyPad

Start Date: 29/10/2018 Current Date: Comment

B19 #(COUNT(E19:P23)<12,"N","Y") Save Approve Calc Show Calcs

South Gippsland Water

Water Sampling Management - Staff Scheduler

29 Oct to 29 Jan 2019

Scroll right to access the Leave Register

Sample Localities Groupings: A, B, C, D, E

Scheduling Completed	Date	Dumbalk	Meeniyan	Foster	Fish Creek	Toora-Welshpool	Korumburra	Leongatha-Koonwarra	Poowong-Loch-Nyora	Wonthaggi-Inverloch-Cape Paterson	Yarram-Alberton	Lab Delivery	Comments (General resource management, variations to the sample program, additional sample collection requests etc.)	Adam Wiggins (AW)	Brian Wigg (BW)	Brad Angwin (BA)	David Thornell (DT)	Kerry Matthews (KM)	Megan Hoskins (MH)	Nick Bergman (NB)	Paul Selzer (PS)	Ryleigh Coombes (RC)
	Mon 29 Oct 18						RC	RC	RC	AW		AW	Mon: LCk taste-test req. Notify WQ Cord of signifiant changes/issues & scan-email completed form					N				
	Tue 30 Oct 18	PS	PS	BW	AW	AW					RC	RC				N						
Y	Wed 31 Oct 18																					
	Thu 01 Nov 18															N						
	Fri 02 Nov 18															N						
	Sat 03 Nov 18																					
	Sun 04 Nov 18																					
	Mon 05 Nov 18	DT	DT	DT	AW	AW	RC	RC	RC	MH	AW	DT	Mon: LCk taste-test req. Notify WQ Cord of signifiant changes/issues & scan-email completed form		N	N		N				
	Tue 06 Nov 18												Adam drop eskies at Meeniyan WTP for Dave to pick up and meet up with Ryleigh and Megan at Loc	N	N	N	N	N	N	N	N	N
N	Wed 07 Nov 18												Ryleigh on call Tuesday cup day if any resampling is required.							N	N	
	Thu 08 Nov 18														N			N	N			N
	Fri 09 Nov 18														N				N			N
	Sat 10 Nov 18																					
	Sun 11 Nov 18																					
	Mon 12 Nov 18						AW	AW	AW	MH		AW	Mon: LCk taste-test req. Notify WQ Cord of signifiant changes/issues & scan-email completed form		N							N
	Tue 13 Nov 18	BA	BA	BA	MH	AW					AW	AW			N							N
Y	Wed 14 Nov 18														N							N
	Thu 15 Nov 18																	N				
	Fri 16 Nov 18														N							
	Sat 17 Nov 18																					
	Sun 18 Nov 18																					
	Mon 19 Nov 18						RC	RC	RC	AW		AW	Mon: LCk taste-test req. Notify WQ Cord of signifiant changes/issues & scan-email completed form			N						
	Tue 20 Nov 18	BA	BA	BA	DT	DT					AW	DT	DT has replaced RC sampling and Melbourne run regards SR.					N				
Y	Wed 21 Nov 18														N							
	Thu 22 Nov 18																					
	Fri 23 Nov 18																		N		N	
	Sat 24 Nov 18																					
	Sun 25 Nov 18																					
	Mon 26 Nov 18						AW	AW	AW	RC		AW	Mon: LCk taste-test req. Notify WQ Cord of signifiant changes/issues & scan-email completed form									
	Tue 27 Nov 18	BA	BA	BA	RC	RC					AW	RC										
Y	Wed 28 Nov 18																					
	Thu 29 Nov 18																	N				
	Fri 30 Nov 18																					
	Sat 01 Dec 18																					
	Sun 02 Dec 18																					
	Mon 03 Dec 18						AW	AW	AW	RC		AW	Mon: LCk taste-test req. Notify WQ Cord of signifiant changes/issues & scan-email completed form									
	Tue 04 Dec 18	BA	BA	BA	RC	RC					AW	RC										

Leave Register

Date	Adam Wiggins (AW)	Brian Wigg (BW)	Brad Angwin (BA)	David Thornell (DT)	Kerry Matthews (KM)	Megan Hoskins (MH)
Mon 29 Oct 18					RDO	
Tue 30 Oct 18			Training			
Wed 31 Oct 18						
Thu 01 Nov 18			RDO			
Fri 02 Nov 18			RDO			
Sat 03 Nov 18						
Sun 04 Nov 18						
Mon 05 Nov 18		RDO	RDO		RDO	
Tue 06 Nov 18	Public Holiday	Public Holiday	Public Holiday	Public Holiday	Public Holiday	Public Holiday
Wed 07 Nov 18						
Thu 08 Nov 18		Sick/Carers			Training	Training
Fri 09 Nov 18		Sick/Carers				Training
Sat 10 Nov 18						
Sun 11 Nov 18						
Mon 12 Nov 18		Sick/Carers				
Tue 13 Nov 18		Sick/Carers				
Wed 14 Nov 18		1/2 Sick/Carers				
Thu 15 Nov 18					Training	
Fri 16 Nov 18		1/2 Sick/Carers				
Sat 17 Nov 18						
Sun 18 Nov 18						
Mon 19 Nov 18			RDO			
Tue 20 Nov 18					Training	
Wed 21 Nov 18		RDO				
Thu 22 Nov 18						
Fri 23 Nov 18						RDO
Sat 24 Nov 18						
Sun 25 Nov 18						
Mon 26 Nov 18						
Tue 27 Nov 18						
Wed 28 Nov 18						
Thu 29 Nov 18					Training	
Fri 30 Nov 18						
Sat 01 Dec 18						
Sun 02 Dec 18						
Mon 03 Dec 18						
Tue 04 Dec 18						

South Gippsland Water

Examples of WIMS Implementation at SGW

5. Water Sampling Management - Reporting

Report Prepared: Tuesday, 20 November 2018

South Gippsland Water

Water Sampling Assignment Report - Weekly Notification

Attention: To staff recieving this email notification, please ensure the following:

- sample locations that have been assigned to you for the specified period have been reviewed
- required sample eskies for assigned sample locations, available sample bottles and paperwork are available prior to the sample date
- where applicable, ensure you have arranged to have use of an appropriate vehicle for undertaking sampling
- relevant sampling procedures that are listed below to ensure correct sample methods are followed when collecting water samples have been reviewed
- Team Leaders or the Water Treatment & Quality Manager has been notified prior to the specified sample day if you are unable to complete the assigned sampling

Sampling Program Schedule for week commencing Monday 22/10/2018

Sample Locality Groupings	A			B		C			D	E		
Date	Tarwin River - East	Tarwin River - West	Deep Creek	Battery Creek	Agnes River	Coalition Creek	Ruby Creek	Little Bass	Lance Creek	Tarra River	Sample Delivery	Comments: General resource management, variations to the sample program, additional sample collection requests etc.
Mon 22/10/2018						RC	RC	RC	AW		AW	
Tue 23/10/2018	DT	DT	BW	AW	AW					RC	RC	Mon&Tue: Taste-testing of all systems required. Scan-email completed form to WQ Cord & WTP Op
Wed 24/10/2018												
Thu 25/10/2018												
Fri 26/10/2018												

Sampling Instruction Procedure References - *refer to DWMS Intranet or WIMS Water Sampling Management Dashboard*

- SOW/WS-001a Water Sampling Management Procedure
- SOW/WS-001 Bacteriological Water Sampling Procedure
- SOW/WS-001b Chemical-Physical Water Sampling Procedure
- SOW/QA-010 - Water Supply Taste and Odour Assessment Procedure
- FOW/QA-010b - Taste and Odour Assessment Record Form

South Gippsland Water

Examples of WIMS Implementation at SGW

6. Laboratory Reagent Management – Summary Dashboard

Hach WIMS Multi User v7.6.0 - BCHATELIER @ "SGW - Water Treatment Operations" on HANSENDBSERVER.OPSWTPSE

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BCHATELIER

Tuesday, 20 November 2018

South Gippsland Water

Water Treatment Plants - Laboratory Reagent Management

	Eastern Region						Western Region			
STANDARD DASHBOARDS	Devon North	Fish Creek	Foster	Toora	Dumbalk	Meeniyan	Lance Creek	Leongatha	Korumburra	Poowong
LOG BOOKS	Devon North	Fish Creek	Foster	Toora	Dumbalk	Meeniyan	Lance Creek	Leongatha	Korumburra	Poowong
STOCKTAKE FORMS	Devon North	Fish Creek	Foster	Toora	Dumbalk	Meeniyan	Lance Creek	Leongatha	Korumburra	Poowong
STOCKTAKE REPORT										

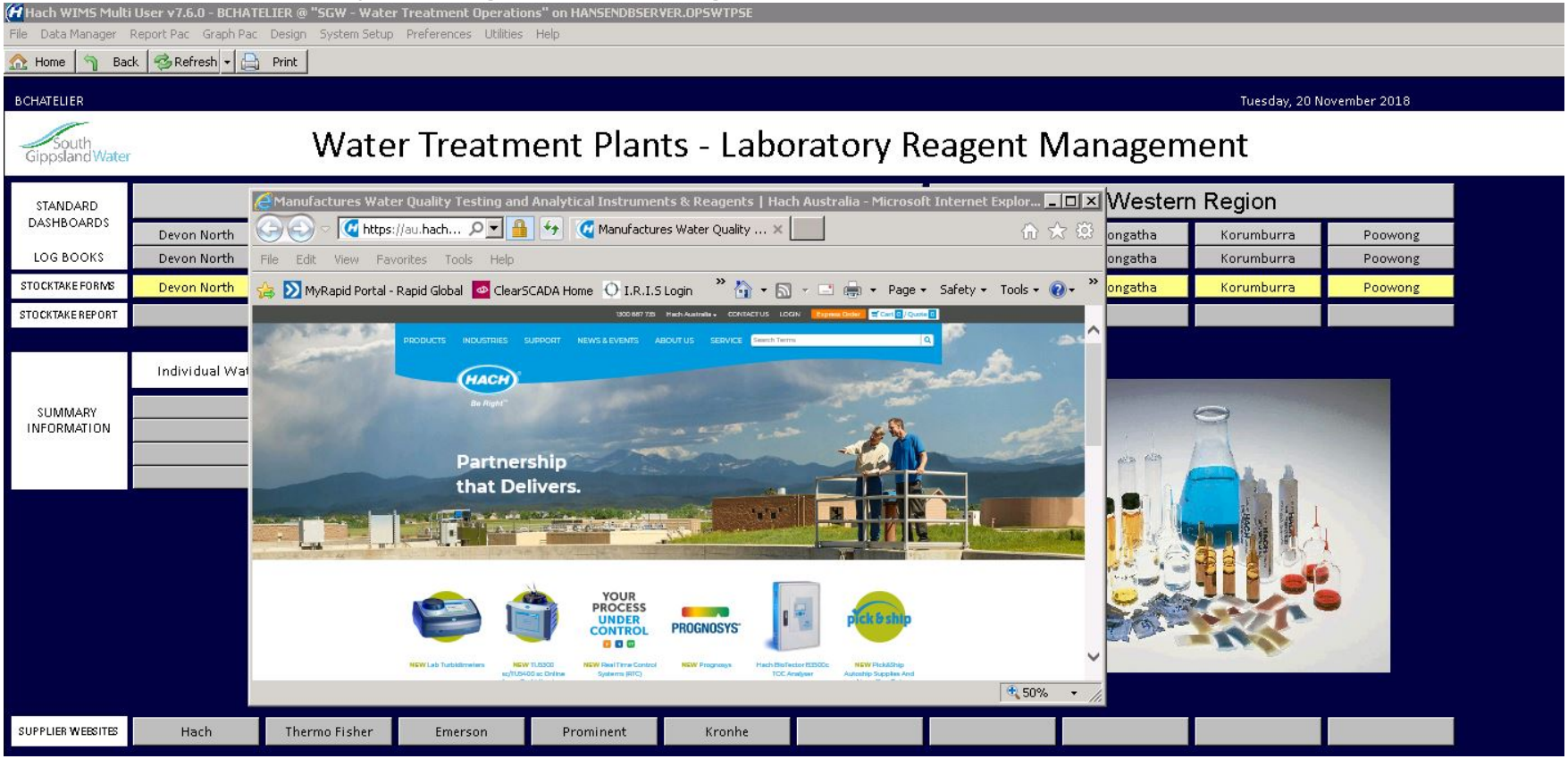
SUMMARY INFORMATION

- Individual Water Treatment Plant Reagent Stock Reports
- Summary Reports
- Reagent Stock Available by WTP Site

SUPPLIER WEBSITES										
	Hach	Thermo Fisher	Emerson	Prominent	Kronhe					

Examples of WIMS Implementation at SGW

6. Laboratory Reagent Management – Web-Links



Examples of WIMS Implementation at SGW

6. Laboratory Reagent Management – Forms and Reports

Reagent Stock Management - Lance Creek WTP (Custom Data Entry Form)

File Edit Format Help KeyPad

Start Date: 20/11/2018 Current Date: Comment

A1 Save Approve Calc Show Calcs

Lance Creek WTP - Laboratory Reagent Management

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Please record all laboratory reagent transfers to/from your water treatment plant. A transfer may occur from stock kept in stores, another water treatment plant or a depot location. When a reagent is opened (ie. a unit is a bo
to be used.

Category	Reagent Stock Item
Acid-Base	Sodium Hydroxide Solution 0.05on 1 Litre
	Sulfuric Acid Standard Solution 0.035N 100mL
	Sulfuric Acid Standard Solution 0.10N 100mL
Aluminium	AluVer 3 Aluminium Reagent 100/pack
	Bleaching 3 Reagent 100/pack
Ammonia	Free Ammonia 25/pack
	Total Ammonia 25/pack
	Free Ammonia Reagent Set
	Free Ammonia Chlorinated Solution
Chlorine Free	DPD Free Chlorine Reagent 10mL Sample 1000/pack
	DPD Free Chlorine Reagent 25mL Sample 1000/pack
Chlorine Total	DPD Total Chlorine Reagent 10mL Sample 1000/pack
	DPD Total Chlorine Reagent 25mL Sample 1000/pack
	Total Chlorine 25/pack
Copper	Copper Reagent 10mL Sample 100/pack
Fluoride	Fluoride Standard Solution 0.5mg/L 0.5 Litre
	Fluoride Standard Solution 1.0mg/L 0.5 Litre
	Fluoride Standard Solution 2.0mg/L 0.5 Litre
	Fluoride Standard Solution 10.0mg/L 0.5 Litre
	Fluoride ICA Powder Pillows 100/pack
Iron	FeroVer_Iron Reagent Pillows 10mL 100/pack
Manganese	Permachem Reagent Phenolthalein Indicator Pillow
	Ascorbic Acid Powder Pillows 100/pack
	Alkaline Cyanide Reagent 50mL
	Alkaline Cyanide Reagent 100mL
	PAN Indicator Solution 0.1% 50mL SCDB
	PAN Indicator Solution 0.1% 100mL SCDB
Monochloramine	Monochloramine 25/pack
	Monochlor FTM Reagent 50/pack
	Monochlor FTM Reagent 100/pack
pH	Tripac 10 Buffer Solution 1 Litre
	Tripac 7 Buffer Solution 1 Litre
	Tripac 4 Buffer Solution 1 Litre
	Labserv 10 Buffer Solution 0.5 Litre
	pH Storage Solution 0.5 Litre
Turbidity	Stablcal Standard 0.015 NTU 1 Litre
	Stablcal Standard 20 NTU 1 Litre
Miscellaneous	Dessicant for Hach LDO 6/pack
	Dessicant 1 for Ultraturb
	Dessicant 2 for Ultraturb

South Gippsland Water

Laboratory Reagent Management - Stock Available by Water Treatment Plant Site

Week 47 - Tuesday 20 November 2018 - (3 of 4)

Category	Laboratory Reagent Description	Part No.	TOTAL	Devon North	Dumbalk	Fish Creek	Foster	Korumburra	Lance Creek	Leongatha	Meeniyan	Poowong	Toora
Acid-Base	Sodium Hydroxide Solution 0.05on 1 Litre	CBRTT10	1				1						
	Sulfuric Acid Standard Solution 0.035N 100mL	CBRTT11	3	2		0	1						
	Sulfuric Acid Standard Solution 0.10N 100mL	CBRTT12	1				1						
Aluminium	AluVer 3 Aluminium Reagent 100/pack	CWRTT90	6	2		1	1		2				
	Bleaching 3 Reagent 100/pack	CWRTT80	2	1		0	0		1				
Ammonia	Free Ammonia 25/pack	CWRTT53	0						0				
	Total Ammonia 25/pack	CWRTT54	1						1				
	Free Ammonia Reagent Set	CWRTT55											
	Free Ammonia Chlorinated Solution	CWRTT56	3	3					0			0	
Chlorine Free	DPD Free Chlorine Reagent 10mL Sample 1000/pack	CWRTT40	2			0	2		0				
	DPD Free Chlorine Reagent 25mL Sample 1000/pack	CWRTT41	1			1			0				
Chlorine Total	DPD Total Chlorine Reagent 10mL Sample 1000/pack	CWRTT42	2			0	1		1				
	DPD Total Chlorine Reagent 25mL Sample 1000/pack	CWRTT43	1			1							
	Total Chlorine 25/pack	CWRTT50	0						0				
Copper	Copper Reagent 10mL Sample 100/pack	CWRTT70	0				0		0				
Fluoride	Fluoride Standard Solution 0.5mg/L 0.5 Litre	CWRTT01	1						1				
	Fluoride Standard Solution 1.0mg/L 0.5 Litre	CWRTT02	0						0				
	Fluoride Standard Solution 2.0mg/L 0.5 Litre	CWRTT03	3						3				
	Fluoride Standard Solution 10.0mg/L 0.5 Litre	CWRTT04	1						1				
	Fluoride ICA Powder Pillows 100/pack	CWRTT05	1						1				
Iron	FeroVer_Iron Reagent Pillows 10mL 100/pack	CWRTT10	5	3		0	1		1		-1		1
Manganese	Permachem Reagent Phenolthalein Indicator Pillow 100/p	CWRTT26	8	1		3	3		1				
	Ascorbic Acid Powder Pillows 100/pack	CWRTT30	6	0		0	5	1	1	-1		0	0
	Alkaline Cyanide Reagent 50mL	CWRTT31	8	2		1	3	0	0	0		1	1
	Alkaline Cyanide Reagent 100mL	CWRTT32	1					1					
	PAN Indicator Solution 0.1% 50mL SCDB	CWRTT33	3				2	1					
	PAN Indicator Solution 0.1% 100mL SCDB	CWRTT34	9	2		0	2	0	3	1			1
Monochloramine	Monochloramine 25/pack	CWRTT52	0						0				
	Monochlor FTM Reagent 50/pack	CWRTT60	3	3									
	Monochlor FTM Reagent 100/pack	CWRTT61	1	0					1			0	
pH	Tripac 10 Buffer Solution 1 Litre	CBRTT01	2			0	1		0				1
	Tripac 7 Buffer Solution 1 Litre	CBRTT02	1			0	0		0				1
	Tripac 4 Buffer Solution 1 Litre	CBRTT03	3			0	1		1				1
	Labserv 10 Buffer Solution 0.5 Litre	CBRTT04											
	pH Storage Solution 0.5 Litre	CBRTT05	3			0	3		0				
Turbidity	Stablcal Standard 0.015 NTU 1 Litre	CWRTT20	0			0							
	Stablcal Standard 20 NTU 1 Litre	CWRTT21	3			0	2			1			
Miscellaneous	Dessicant for Hach LDO 6/pack	CWRTT22											
	Dessicant 1 for Ultraturb	CWRTT23	13			6	7						
	Dessicant 2 for Ultraturb	CWRTT24	13			6	7						
	Bromcresol Green-Methyl Red Indicator Powder		2			1	2					-1	
	Silicone Oil 15mL	CWRTT25	2	1		0			1				

South Gippsland Water

Examples of WIMS Implementation at SGW

7. Other Examples

- Water treatment plant internal water quality testing
- Jar Testing
- Filter management - inspections, operations etc.
- Clear water storage – maintenance, inspections, site security
- Chemical management – usage, budget, deliveries
- Alarm Verification
- Critical equipment monitoring – valves
- Monitoring equipment calibration
- Bulk Entitlement Management
- Water resource management – Lance Creek Connection Project

Implementation of WIMS at SGW

- Water quality management:
  - Compliance ✓
  - Analysis ✓
  - Forms & Reports ✓
  - Contract Laboratory Data ✓
- Plant operation – Task Management:
  - Process eg. coagulation/flocculation, filtration, disinfection ✓
  - Critical equipment management ✓
  - Storage management – reservoirs ✓
  - Flow management – water metering & volumes ✓
- Plant optimisation and efficiency:
  - Equipment calibration ✓
  - Chemicals ✓
  - Energy usage ✓
  - Operators – portability, equipment interfacing, reduced data entry ✓

What's next for WIMS at SGW? Our progress so far…

South Gippsland Water

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Questions