

WATER AND WASTE COMMITTEE**9 APRIL 2014****2****IMPROVEMENTS IN DRINKING WATER QUALITY FOR RURAL INTAKES**

TV:AU : 24/32/1- : 4044272v3

RECOMMENDATION:**It is recommended that Council note the report.****EXECUTIVE SUMMARY:**

Water and Waste are pleased to provide details to Council outlining the recent advancements in disinfection and treatment currently being installed by our operations team to enhance the quality of drinking water supplied to our rural customers. Small scale filtration units and Ultra Violet (UV) irradiation units are currently being installed or finalised at the following rural sites; Mountain View, Orchid Valley, Fishery Falls, Bellenden Ker, Frenchmen's Creek, Miriwinni, Bramston Beach and Bartle Frere, to address the risks identified in relation to cryptosporidium and giardia incidents.

BACKGROUND:

This report provides details to Council outlining the recent advancements in disinfection and treatment currently being installed by our Operations team to enhance the quality of drinking water supplied to our rural customers. This is a further upgrade from the previous construction of rural storage reservoirs which also improved the quality and reliability of supply.

A drier than normal wet season has seen our creeks and rivers miss their annual 'flush' that is associated with fast flowing flood events. Slow and consistent rainfall means that more organics and faecal matter have flushed into our intakes more frequently this year and our incidents of cryptosporidium and giardia failures have become more wide spread.

To address the risk of cryptosporidium and giardia entering the water supply system, UV disinfection and filtration units were identified as the most appropriate form of treatment in these locations. This follows the successful installation and operation of similar UV units at Behana in 2010 in response to a cryptosporidium and giardia incident as reported to Council at the June 2010 meeting.

Water and Waste have a requirement as a Water Service Provider under the Water Supply (Safety and Reliability) Act 2008 to identify and manage the risks to drinking water quality.

All of these rural supplies are based on 'run-of-river' sources with varying degrees of upstream agricultural activity. While generally very high quality they are subject to turbidity spikes and the potential presence of giardia and cryptosporidium, particularly during heavy rain events.

All have had chlorination disinfection for some time but this provides limited protection against protozoa.

At the end of this upgrade program all will have pre-filters, 1 micron (bag) filters, UV disinfection and chlorine disinfection. All systems also have turbidity sensors on the raw water with auto shutdown when a predetermined limit is exceeded.

This is quite an innovative combination of technologies to produce a very high quality water with a low operating cost. Early experience with the equipment confirms that it is relatively easy to maintain and produces the desired outcomes.

Overall, this represents a substantial improvement in the security of these supplies.

COMMENT:

The works commenced following a report to Council on 11 September 2013 regarding emergency works for the Division 1 locations.

A site tour on the 20 January with Councillor Brain, the General Manager Water and Waste, Operations Manager, Coordinator Regulatory and Systems support and the Water Services Coordinator showed the works to date and highlighted the previous reservoir construction upgrade works.

Photographs of the finished installations and a table of works can be viewed in attachment A and B.

All works are planned to be finalised prior to the end of the financial year. Delivery times for UV units have slowed the installation to date. All equipment has now been received and operations staff are currently finalising the installations.

At this time most of the treatment equipment has been installed but SCADA monitoring and control systems have to be completed before commissioning.

OPTIONS:

That council note the report

CONSIDERATIONS:

Risk management:

Waterborne disease outbreak risk as identified in the drinking water quality management plan and the risk treatment is a multiple barrier treatment approach which is in line with the Australian drinking water guidelines and which the technology being installed supplies.

Financial

2013/14 CAPEX budget (4th review) is \$417,000 for works on a number of these supplies. Given the 'Boil Water Notice' events the scope was extended to bring all sites up to the full treatment specification. Expenditure to date is \$486,000 with completion expected to be within \$550,000 by 30 June.

Corporate and Operational Plans 2013-2018:

Corporate Goal 1.1 A safety active and healthy community.

Statutory:

Australian Drinking Water Guidelines
Approved Drinking Water Quality Management Plan under Water Supply Safety and Reliability Act

Policy:

1:01:26 *Drinking Water Quality Policy*

Sustainability:

A Sustainability Assessment is not required for Reports for noting.

CONSULTATION:

Cairns Regional Council Water & Waste have been working in conjunction with Queensland Health in building a solution to improve the risk of pathogen failures occurring at our rural sites since February 2013.

ATTACHMENTS:

Attachment 1 - Crypto Challenge to Rural Drinking Water Supplies – Summary Up-date No 2

Attachment 2 - Photographs of rural intake completion

Alex Ung
Manager Operations



Paul Utting
General Manager Water and Waste

Attachment 1

Crypto Challenge to Rural Drinking Water Supplies – Summary Up-date No 2

Scheme Name/ Communities Served	Intake Name	Operational Installation and Ordering update provide by Denney Phillips March 2014
Mountain View [PCW14106]	Little Mulgrave River	Bag Filters, Prefilter and UV unit installed. Recirculated chlorine dosing to be installed at reservoir. Slab to be installed by 31/03/14.
Babinda	Frenchman's Creek	Bag Filters, Prefilter and UV unit installed. SCADA to be Completed.
Bramston Beach	Joyce/Worth Creek	UV and filters installed. Building works to be Completed by 28/03/14. SCADA to be completed
Orchid Valley	Little Mulgrave River	Prefilter installed. UV and filters installed and building completed. SCADA to be Completed.
Bartle Frere	Majuba Creek	UV and filters installed Completed by 28/03/14. SCADA to be Completed.
Miriwinni	Pughs Creek	UV and filters installed Building works to be completed by April. SCADA to be Completed.
Bellenden Ker	Junction Creek	UV and filters installed Building works to be completed by April. SCADA to be Completed.
Fishery Falls*	Fishery Creek	Bag Filters, Prefilter and UV unit installed. Completed. SCADA to be Completed.

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Attachment 2



Figure 1: UV installation at Orchid Valley



Figure 2: Bag filter installation at Mountain View

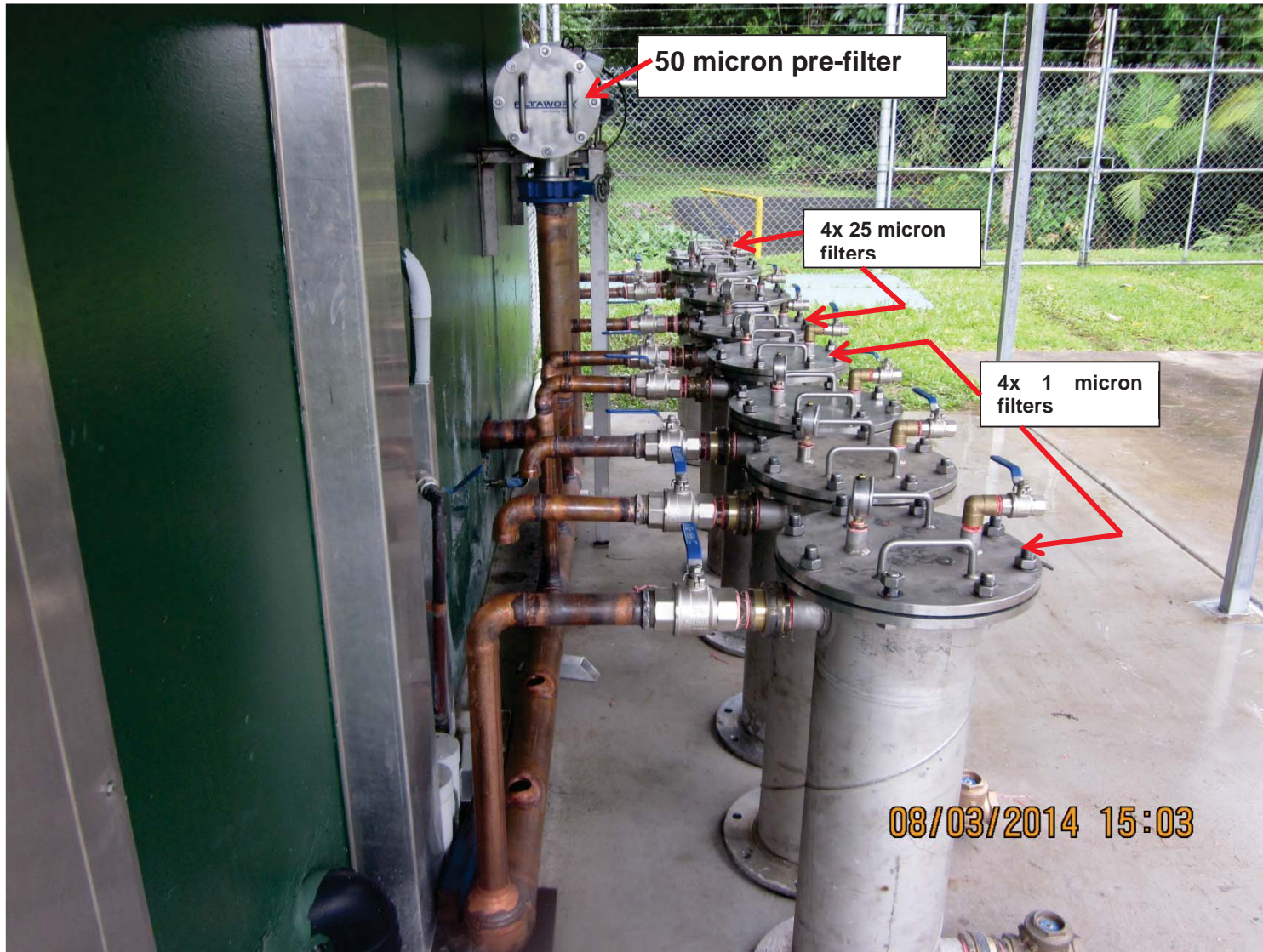


Figure 3: 50 micron pre Filter Frenchman's Creek



Figure 4: Pre filter Bramston beach with auto flushing valve