Minutes

Of The

General Council Meeting

Held in the Council Chambers, 45 Glendon Street Kingaroy

on Wednesday, 15 August 2012

Chief Executive Officer: **Ken McLoughlin**

SOUTH BURNETT REGIONAL COUNCIL MINUTES

Wednesday, 15 August 2012

ORDER OF BUSINESS:

Minutes of the meeting of the South Burnett Regional Council, held in the Council Chambers, 45 Glendon Street Kingaroy on 15 August 2012 at 8.57am

PRESENT:

Councillors:
Cr DW Kratzmann (Mayor), Cr KM Campbell, Cr CD Dalton, Cr KA Duff, Cr BL Green, Cr DP Tessmann
Permanent Absence: Cr DJ Palmer

Cr DJ Palmer has a leave of absence from the meeting.

Council Officers:
Ken McLoughlin (Chief Executive Officer), Gary Wall (General Manager Finance & Information Services), John Kersnovski (General Manager Infrastructure Services), Eleanor Sharpe (General Manager Community & Economic Development), Stan Taylor (General Manager Planning & Environment)

1. Leave Of Absence

Motion:

Moved Cr KA Duff, seconded Cr DP Tessmann.

That leave of absence be granted for Cr DJ Palmer.

Carried 6/0
FOR VOTE - Councillors voted unanimously
ABSENT. DID NOT VOTE - Cr DJ Palmer

2. Prayers

A representative of the Ministers Fraternal, Reverend Bill Lutton from the Presbyterian Church offered prayers for Council and for the conduct of the Council meeting.

3. Address From Public Gallery

Nil

4. Receipt Of Petitions

Nil.

5. Confirmation Of Minutes Of Previous Meeting

5.1 South Burnett Regional Council Minutes

Officer's Recommendation

That the minutes of the previous meeting held on Wednesday 18 July 2012 as recorded be confirmed.

Resolution:

Moved Cr KA Duff, seconded Cr DP Tessmann.

That the minutes of the previous meeting held on Wednesday 18 July 2012 as recorded be confirmed.

Carried 6/0
FOR VOTE - Councillors voted unanimously
ABSENT. DID NOT VOTE - Cr DJ Palmer

5.2 South Burnett Regional Council Special Minutes

Officer's Recommendation

That the minutes of the special meeting held on Wednesday 25 July 2012 as recorded be confirmed.

Resolution:

Moved Cr CD Dalton, seconded Cr BL Green.

Officer's Recommendation

That the minutes of the special meeting held on Wednesday 25 July 2012 as recorded be confirmed.

Carried 6/0
FOR VOTE - Councillors voted unanimously
ABSENT. DID NOT VOTE - Cr DJ Palmer

6. Mayoral Report

6.1 MR - 1308279 - Mayoral Report

Summary

Mayoral Report to council for the period Thursday 12 July 2012 to Wednesday 8 August 2012.

Officer's Recommendation

That the Mayoral Report to council for the period Thursday 12 July 2012 to Wednesday 8 August 2012 be received.

Resolution:

Moved Cr DW Kratzmann, seconded Cr KA Duff.

That the Mayoral Report to council for the period Thursday 12 July 2012 to Wednesday 8 August 2012 be received.

Carried 6/0
FOR VOTE - Councillors voted unanimously
ABSENT. DID NOT VOTE - Cr DJ Palmer

CONSIDERATION OF BUSINESS SECTIONS INCLUDING BUSINESS ARISING OUT OF MINUTES OF PREVIOUS MEETINGS

See Business Function Headings

7. Planning & Environment

7.1 Environmental Services

7.1.1 ES - 1307312 - Request for Burial at Lot 66 MZ 428 Murgon

Summary

Letter of request received from Mr JR Maudsley to be buried on private land at 324 Kitoba Road, Windera on Lot 66 MZ 428 in the Murgon area.

Officer's Recommendation

Council approve Mr J R Maudsley's request for burial on private land at 324 Kitoba Road, Windera (Lot 66 MZ 428) subject to the following conditions:

- That the grave must be located within a suitably fenced area and clearly demarcated from the rest of the property;
- That Council be provided with the GPS co-ordinates of the burial site;
- That a plaque or memorial marker is clearly laid on the burial site in order to identify the grave and who is buried there;
- That the internment is not permitted to adversely affect or impact upon the quality of groundwater in the surrounding area;
- That the internment will not cause harm or jeopardise the health and safety of any persons; and
- A letter of permission from the existing owners (Dale P Beddows and Emma M Maudsley) being received granting their permission for Mr Maudsley to be buried at the property and within thirty (30) days of Council's Approval.

Resolution:

Moved Cr KA Duff, seconded Cr CD Dalton.

Council approve Mr J R Maudsley's request for burial on private land at 324 Kitoba Road, Windera (Lot 66 MZ 428) subject to the following conditions:

- That the grave must be located within a suitably fenced area and clearly demarcated from the rest of the property;
- That Council be provided with the GPS co-ordinates of the burial site;
- That Council's property record be noted with the private burial details;
- That a plaque or memorial marker is clearly laid on the burial site in order to identify the grave and who is buried there;
- That the internment is not permitted to adversely affect or impact upon the quality of groundwater in the surrounding area;
- That the internment will not cause harm or jeopardise the health and safety of any persons; and
- A letter of permission from the existing owners (Dale P Beddows and Emma M Maudsley) being received granting their permission for Mr Maudsley to be buried at the property and within thirty (30) days of Council's Approval.

Carried 6/0
FOR VOTE - Councillors voted unanimously
ABSENT. DID NOT VOTE - Cr DJ Palmer

DECLARATION OF INTEREST:
Cr KM Campbell declared an interest in the following matter and left the meeting at 09:16 AM.

Reason:
Cr KM Campbell is on the Committee of SBCare.

7.1.2 ES - 1206280 - Response to SBCare Requesting Fee Waiver for Waste Disposal

Summary

SBCare has written to Council requesting that their waste disposal fees be waived.

Officer's Recommendation

That Council:

1. Approve SBCare's request for the waiver of waste disposal fees incurred on its behalf for their residential clients.

2. Delegate to the Chief Executive Officer authority to waiver waste disposal fees for similar non profit organisations disposing of residential green waste at Council waste disposal facilities.

Resolution:

Moved Cr KA Duff, seconded Cr DP Tessmann.

That the Officer's Recommendation be adopted.

Carried 5/0
FOR VOTE - Councillors voted unanimously
ABSENT. DID NOT VOTE - Cr KM Campbell, Cr DJ Palmer

ATTENDANCE:

Cr KM Campbell has returned from temporary absence at 09:18 AM.

7.2 Natural Resource Management (NRM) & Parks

Nil.

7.3 NRM, Parks and Environment Portfolio Report

Cr KA Duff addressed council with NRM, Parks and Environment portfolio report.

Motion:

Moved Cr KA Duff, seconded Cr DP Tessmann.

That the report be received.

Carried 6/0
FOR VOTE - Councillors voted unanimously
ABSENT. DID NOT VOTE - Cr DJ Palmer

8. Planning, Land Management and Waste

8.1 Planning and Land Management

8.1.1 P&LM - 1306880 - Response to Technical Paper: Identifying Technical Issues Relevant to Wind Farm Development in Queensland and addition of wind farms to list of ERAs requiring approval under Environmental Protection Act 1994

Summary

- The Cooranga North Concerned Citizens Group have requested the Minister for Environment and Heritage Protection to include wind farms on the list of ERA's in the *Environmental Protection Act, 1994*. Spokesperson for the Cooranga North Concerned Citizens Group (the Group), Mr Bryan Lyons requested that Council support their request.
- The submission by the Group highlights it's concerned at the current lack of enforcement power for Council's on a non compliant operating wind farm. The Group is of the view that in order to protect health, an industry must be regulated and an authority must have the power to enforce that regulation.
- An ERA is an industrial/commercial activity with the potential to release contaminants into the environment such as chemical manufacturing, waste treatment and spray painting. Most commercial businesses in Queensland, including wind farms are not regarded as ERAs and do not require an environmental approval under the Environmental Protection Act 1994.

- The Department of Environment and Heritage Protection (DEHP) responded to the Group's submission and confirmed that the additional regulatory burden associated with regulating a wind farm as an ERA is not warranted.
- Council has resolve in the past that the Planning Minister implements a State Planning Policy to regulate the planning of wind farms.
- Recommended that Council do not support the submission by the Group to include wind farms as an ERA and reiterate Council's position that a State Planning Policy is required for the development of wind farms that include a requirement that no wind turbine is located closer than 2km to a residence.

Officer's Recommendation

That Council request:

1. The Chief Executive Officer to advise the Cooranga North Concerned Citizens Group that Council does not support the submission to include wind farms on the list of ERA's in the Environmental Protection Act, 1994, as it is considered that this activity does not have the potential to release contaminates into the environment and is considered an unnecessary legislative burden; and

2. The Chief Executive Officer to forward a response to the Department of Energy and Water Supply regarding the Technical Paper: Identifying Technical Issues Relevant to Wind Farm Development in Queensland confirming that a State Planning Policy is required for the development of wind farms including a requirement that no wind turbine is located closer than 2km to an existing residence.

Resolution:

Moved Cr KM Campbell, seconded Cr DW Kratzmann.

That *the Officer's Recommendation be adopted.*

Lost 2/4
FOR VOTE - Cr DW Kratzmann (Mayor), Cr KM Campbell
AGAINST VOTE - Cr CD Dalton, Cr KA Duff, Cr BL Green, Cr DP Tessmann
ABSENT. DID NOT VOTE - Cr DJ Palmer

Resolution:

Moved Cr CD Dalton, seconded Cr BL Green.

That:

1. Council will provide comment to the Cooranga North Concerned Citizens Group in relation to ERAs and that Council will not participate in the joint submission; and

2. The Chief Executive Officer to forward a response to the Department of Energy and Water Supply regarding the Technical Paper: Identifying Technical Issues Relevant to Wind Farm Development in Queensland and reconfirming Council's position in relation to wind farms as per Council's decision on 18 January 2012.

Carried 6/0
FOR VOTE - Councillors voted unanimously
ABSENT. DID NOT VOTE - Cr DJ Palmer

8.1.2 P&LM - 1307152 - Report to Council on Delegated Authority on Development Application - Material Change of Use (Intensive animal husbandry - piggery) - 330 Cridlands Road, Abbeywood

Summary

- Application for Material Change of Use for extending an existing piggery from 3500 Standard Pig Unit (spu) to 6500 spu was submitted by Mr Peter Bleys on 23 May 2012
- The existing piggery was approved by Council on 9 June 2012 for 7 sheds with an 3500spu
- Council issued an Acknowledgement Notice on 1 June 2012 identifying the Department of Environment and Resource Management (DERM) as a concurrence agency under the State Planning Policy 1/12: Protection of Queensland Strategic Cropping Land (SPP 1/12)
- The application site is mapped as containing potential strategic cropping land under the trigger maps produced for the purpose of SPP 1/12
- To be trigged for assessment the development footprint of the proposed development must have a footprint of greater than 750m^2 and must be wholly or partly on potential strategic cropping land
- Council assisted the applicant to obtain pre-lodgement advice but DERM required a high level of detail information to confirm the size of the development footprint before the applicant referred the application
- Without this detailed information DERM indicated it was likely to issue an information request to the applicant and the referral would potentially have taken some time before Council would be able to consider the applicant's request
- In light of the delay with the DERM referral and the fact that the applicant had to obtain a development permit from Council before 11 August 2012 to ensure that the existing approval for an Environmental Relevant Activity (ERA) remains current, the applicant decided to amend the application by reducing the proposed development footprint to include one additional shed (98m x 10m)
- All applications for intensive animal husbandry must be approved by Council
- Given the delays the applicant experienced with the referral to DERM and the possibility of having to re-apply for the existing ERA, approval was granted under delegated authority in consultation with the CEO
- Request that Council endorse the approval for the MCU to expand the existing piggery

Officer's Recommendation

That Council *endorse* the approval granted under delegated authority for a Development Permit (Material Change of Use – Intensive Animal Husbandry (Piggery)) at 330 Cridlands Road, Hivesville and described as Lot 198 on BO111.

Resolution:

Moved Cr CD Dalton, seconded Cr KA Duff.

That the Officer's Recommendation be adopted.

Carried 6/0
FOR VOTE - Councillors voted unanimously
ABSENT. DID NOT VOTE - Cr DJ Palmer

8.1.3 P&LM - 1235280 - The Planning Place - SeDA Reconfiguration of a Lot (4 lots into 8 lots) - 3, 9 and 29 Oasis Drive & 27B Kingaroy Street, Kingaroy - Lots 15, 25, 28 and 40 on SP204673 - Applicant: The Planning Place; Owner: Logan Central P/L

Summary

Key Point Summary

- Application for Reconfiguring a Lot (4 lots into 8 lots) in the Residential B preferred land use area;
- Application is Code Assessable against the Kingaroy Shire IPA Planning Scheme;
- Proposed development involves the creation of eight (8) residential allotments, seven proposed allotments are below the required minimum lot size of 600m^2 with frontages less than the required 17 metre;
- Council sought third party comment from all adjoining owners to the subject properties, due to the proposed allotment sizes being smaller than the average lots in the surrounding residential area;
- Submissions from adjoining owners highlighting concerns regarding the existing lot sizes, residential character and amenity aspects, were received on 2 and 9 July 2012 respectively;
- Council initiated the third party comment process therefore, no rights of appeal against the decision are available to the submitters;
- The application provides the opportunity for affordable housing through infill development in an existing residential estate;
- The application is recommended for approval subject to conditions.

Officer's Recommendation

That Council *approve* the Development Application for Reconfiguring a Lot (4 Lots into 8 Lots) on Lots 15, 25, 28 & 40 on SP204673 located at 3, 9, 29 Oasis Drive and 27B Kingaroy Street, Kingaroy subject to the following conditions:

General

GEN1. The subject site is to be developed generally in accordance with the plans and information submitted with the application unless otherwise amended by the following conditions:

- Reconfigure Lots 15, 25, 28 & 40 on SP204673 prepared by O'Reilly Nunn Favier Consulting Surveyors, Drawing No.4629 P/1 Sheet 1 of 1 Rev A.

GEN2. The development herein approved may not start until the following development permits have been issued and complied with as required:

- Development Permit for Operational Works (site works, road widening, kerb and channel and associated drainage, landscaping, access driveways, water supply and sewerage discharge, sludge collection and removal, stormwater disposal).

GEN3. All works, including the repair or relocation of services (Telstra, lighting) is to be completed at no cost to Council.

GEN4. Dust prevention measures must be undertaken to ensure that dust does not cause a nuisance to occupiers of adjacent properties.

GEN5. Prior to sealing the Plan of Survey the applicant is required to pay the Council all rates and charges or any expenses being charged over the subject land under any Act in accordance with Section 815 of the *Sustainable Planning Act 2009*.

GEN6. Payment of Department of Environmental and Resource Management valuation fees that will result from the issue of split valuations prior to Council sealing the Plan of Survey. The contribution is currently assessed at $296 (8 x $ 37.00); however, the actual amount payable will be based on Council's Register of Regulatory & Cost-Recovery Fees and the rate applicable at the time of payment.

GEN7. Prior to the sealing of the Plan of Survey the applicant is to provide a certificate signed by a licensed surveyor stating that after the completion of all works associated with the reconfiguration, survey marks were reinstated where necessary and all survey marks are in their correct position in accordance with the Plan of Survey.

Compliance Certificate

GEN8. All conditions of this approval are to be satisfied prior to Council issuing a Compliance Certificate for the Plan of Survey, and it is the applicant's responsibility to notify Council to inspect compliance with conditions.

Sealing of a Plan of Survey fee will be charged, with payment required prior to Council consenting to the Survey Plan.

Electrical and Telecommunications

ENG1. Prior to Council sealing the Plan of Survey the applicant is to provide each lot with a telecommunication service. Where supply is not able to be provided at this time, details of the proposed service is to be provided for Council's consideration and approval.

ENG2. Prior to Council sealing the Plan of Survey the applicant is to provide each lot with an electricity supply. Where supply is not able to be provided at this time, details of the proposed supply shall be provided for Council's consideration and approval.

Stormwater Drainage

ENG3. The stormwater drainage is to be designed such that no restriction to existing or developed stormwater flow from upstream properties or ponding of stormwater within upstream properties occurs as a result of the development.

ENG4. All stormwater collected from the proposed lots including roof water and overflow from rainwater tanks is to be piped to a legal point of discharge. The legal point of discharge for proposed Lots 102, 103, 104, 105, 106, 107 and 100 and 101 is the kerb and channel system adjacent to the site on Oasis Drive and Kingaroy Street respectively.

ENG5. Heavy duty galvanised steel roof water kerb adaptors (Kacey or similar), are to be installed in the kerb and channelling during construction for proposed lots, in accordance with South Burnett Regional Council standards.

ENG6. Prior to Sealing the Survey Plan the applicant, is required to Provide a secondary drainage system along the rear boundaries where the stormwater from impervious areas; existing and future; cannot be satisfactorily drained to the street frontage. Such systems are to connect to the main drainage system and design in accordance with the Queensland Urban Drainage manual. The designs to be to the Level II in accordance with the current version of QUDM.

Water and Sewerage

ENG7. All lots within the development shall be connected to Council's Reticulated Water Supply System. The works shall include, but not be limited to, the construction of pipework, valves, fire hydrants, connection to the existing system, relocation of utility and Council services, service connections including stop taps to each lot, and reinstatement of all properties and road reserve affected by the works.

ENG8. Nominal Main Sizes are to be designed in accordance with the "Guidelines for the Planning and Design of Urban Water Supply Schemes" and Technical Bulletins published by the Department of Natural Resources and have consideration for the demand and pressure required at each lot.

ENG9. Reticulated sewerage disposal is to be connected to each lot in accordance with current South Burnett Regional Council standards.

Building Over and Adjacent to Sewer

ENG10. Any work over or adjacent to Council's sewer infrastructure, including the construction/rebuilding/alteration of buildings or other structures and filling or excavation of material, is to be in accordance with Council's Building Over and Adjacent to Sewers Policy.

Property Access

ENG11. Property access shall be in accordance with IPWEAQ Standard Drawing Road/Street R-0052 (Residential) and table S2.7 – Design and Construction Standards of the Kingaroy Shire Council IPA Planning Scheme.

Only one access per lot shall be permitted.

Advice

ADV1. Council notes that a stormwater gully pit and a street light in-front of Lot 40 which could affect the location of driveways and may necessitate the relocation of Council services.

ADV2. With the introduction of the *Sustainable Planning (Housing Affordability and Infrastructure Charges Reform) Amendment Act 2011*, an applicant's obligations with respect to infrastructure contributions/charges is now contained in a separate adopted infrastructure charges notice rather than in this development approval.

ADV3. Section 341(2) of the *Sustainable Planning Act 2009* provides that, if this approval is not acted upon within the period of four (4) years the approval will lapse. Note that in accordance with section 341(7) a related approval may extend the relevant (currency) period.

ADV4. This development approval does not authorise any activity that may harm Aboriginal Cultural Heritage. Under the *Aboriginal Cultural Heritage Act 2003* you have a duty of care in relation to such heritage. Section 23(1) provides that "A person who carries out an activity must take all reasonable and practicable measures to ensure the activity does not harm Aboriginal Cultural Heritage." Council does not warrant that the approved development avoids affecting Aboriginal Cultural Heritage. It may therefore, be prudent for you to carry out searches, consultation, or a Cultural Heritage assessment to ascertain the presence or otherwise of Aboriginal Cultural Heritage. The Act and the associated duty of care guidelines explain your obligations in more detail and should be consulted before proceeding.

ADV5. Telecommunication connections can be arranged by logging onto Telstra's website (www.telstrasmartcommunity.com) and completing the 'Intent to Develop' form to register your development.

ADV6. Council would encourage you to discuss the development with Ergon Energy upon receipt of this approval to facilitate the timely supply of electricity to the development. Connection of electricity can take up to eight (8) months from the date of application to Ergon Energy.

ADV7. Attached for your information is a copy of Division 8 of the *Sustainable Planning Act 2009* as regards Rights of Appeal. With respect to Appeal Rights of Applicants, the following is drawn to your attention:-

a) the applicant's Appeal Period commences upon receipt of this advice and expires twenty (20) business days thereafter.
b) should the applicant notify the Assessment Manager (Council) in writing of acceptance of the conditions of approval and that it is not intended to make an appeal, the Applicant's Appeal Period is at an end.

Resolution:

Moved Cr BL Green, seconded Cr KM Campbell.

That the Officer's Recommendation be adopted.

Carried 3/3 with the casting vote of the Mayor
FOR VOTE - Cr DW Kratzmann (Mayor), Cr KM Campbell, Cr BL Green
AGAINST VOTE - Cr CD Dalton, Cr KA Duff, Cr DP Tessmann
ABSENT. DID NOT VOTE - Cr DJ Palmer

8.2 Waste

8.2.1 W - 1306940 - Wondai - Murgon Transfer Stations Opening Hours - August 2012

Summary

Update on the opening of the Wondai and Murgon Transfer Stations.

Officer's Recommendation

That Council:

- Approve the Wondai Waste facility to open between the hours of 8:00am and 12:00 noon Wednesday to Monday (being closed Tuesday as well as Good Friday and Christmas day) while the Murgon Waste Facility is open between the hours of 1:00pm and 5:00pm Wednesday to Sunday and 8.00am and 12.00 noon Tuesday (being closed Monday as well as Good Friday and Christmas day).

- Monitor the opening hours arrangements over a three (3) month period and report back to Council for consideration.

Resolution:

Moved Cr CD Dalton, seconded Cr KM Campbell.

That the previous item lay on the table until later in the meeting.

Carried 6/0
FOR VOTE - Councillors voted unanimously
ABSENT. DID NOT VOTE - Cr DJ Palmer

ADJOURNMENT:

Motion:

Moved Cr BL Green, seconded Cr KA Duff.

That the meeting adjourn for twenty (20) minutes.

Carried 6/0
FOR VOTE - Councillors voted unanimously
ABSENT. DID NOT VOTE - Cr DJ Palmer

RESUMPTION:

Motion:

Moved Cr BL Green, seconded Cr DP Tessmann.

That the meeting resume at 10.52am with attendance as previous to the adjournment.

Carried 6/0
FOR VOTE - Councillors voted unanimously
ABSENT. DID NOT VOTE - Cr DJ Palmer

8.3 Planning & Land Management & Waste Portfolio Report

Cr CD Dalton addressed council with Planning, Land Management and Waste portfolio report.

Motion:

Moved Cr CD Dalton, seconded Cr DP Tessmann.

That the report be received.

Carried 6/0
FOR VOTE - Councillors voted unanimously
ABSENT. DID NOT VOTE - Cr DJ Palmer

9. Community & Cultural Services

9.1 Community & Cultural Services

9.1.1 C&CS - 1306811 - Healthy Communities Committee Minutes 19 July 2012

Summary

Providing a copy of the minutes from the Healthy Communities Committee meeting held in Kingaroy on 19 July 2012.

Officer's Recommendation

That Council endorse the minutes and recommendations of the Healthy Communities Committee meeting held on 19 July 2012.

South Burnett
Regional Council

PO Box 336 Kingaroy Qld 4610
Ph 1300 789 279 Fax 07 4162 4806
Email: info@southburnett.qld.gov.au
www.southburnett.qld.gov.au
ABN 89 972 463 351

Healthy Communities Committee

Meeting Minutes

MEETING DATE:	Thursday 19 July 2012 **TIME:** 1:15pm
VENUE:	Council Chambers, Glendon Street, Kingaroy
ATTENDEES:	Kerry Oldfield (SBRC); Nicole Connolly (TPS); Michael Eadie (PCYC); Berneice Hilly (RHealth); Caitlin Isaac (RHealth); Eleanor Sharpe (SBRC); Nicole O'Brien (BIEDO); Karen Baron (Rotary); Louise Judge (SBCN); Janine Pay (SRO); Cr Deb Palmer
APOLOGIES:	Prue Leng (BIEDO); Cr Keith Campbell (SBRC); Carolyn Knudsen (SBRC);

Cr Deb Palmer opened the meeting.

Confirmation of Previous Meeting Minutes

Minutes of meeting held 21 June 2012.

Moved Berneice Hilly seconded Caitlin Isaac

That minutes of the previous meeting be adopted.

Carried 10/0

Business arising from previous minutes:

$1500 toward the R U OK Day breakfast was approved by Council.

Business for Discussion

1. **Seeds of Hope**

   Eleanor Sharpe advised the committee that she received an email from Sandy Towell saying that Seeds of Hope will no longer need the approved funds from the Healthy Community Committee because the manufacturer is unable to meet the deadline for September. Bendigo their main sponsor is also unable to provide funding until later in the month which will also delay the process. Because of this they are unable to meet the timelines to launch the Seeds of Hope program this year as planned. The program will now not be launched until next year.

2. **Update from the Healthy Communities Officer Kerry Oldfield**

   - Lynelle Siler started Heart Moves program in early July.
   - Lift for Life program will start a bit later than the expected July due to the over 50's needing to get a certificate from their GPs.
   - Nanango and Kingaroy swimming participants: rewards program will get started once the pool maintenance works are completed and the pools are opening again. Council is spending $400,000 on new heat pumps for the pools.

South Burnett
Regional Council

PO Box 336 Kingaroy Qld 4610
Ph 1300 789 279 Fax 07 4162 4806
Email: info@southburnett.qld.gov.au
www.southburnett.qld.gov.au
ABN 89 972 463 351

Healthy Communities Committee

- Active Parks: this program starts in Kingaroy on 23 July to 29 August and will include fitness circuit, boxercise and yoga.
- Community Kitchen: Kingaroy went really well and Centra Care provided the hall free of charge.
- There will be a Healthy Communities stall at the Bloomin'Beautiful Blackbutt Festival in September. Jason Ford will be in attendance.
- The last Community Garden working bee at Pound Street went really well. Another one is scheduled for Saturday 28 July 2012.
- Lighten Up program: this program starts in Wondai from 7 August to 18 September 2012. The program consists of seven (7) free workshops to help improve level of physical activity, current diet, understanding of food labels and self esteem.

3. **Future funding of RHealth positions**

Recent changes initiated by the Queensland Government have seen a significant reduction in the preventative health workforce in non-government organisations across Queensland with a number of organisations like RHealth being handed a three (3) month extension, pending review.

Berneice Hilly advised the committee that RHealth have tried to consult with government to get more information across on how well their programs are benefiting the community but government will not meet with them. Berneice also advised that the Minister is looking at evidence base only (through reports).

Berneice and Caitlin Isaac are working on how to pass on their programs on to other organisations to make sure things continue in case they don't get further funding.

Michael Eadie arrived at the meeting at 1:40pm.

4. LGAQ's Community Wellbeing Symposium

This Community Wellbeing Symposium is a three (3) day event that will bring together industry leaders from local councils, State and Federal governments, private enterprise, non-government sector and peak bodies to learn, participate and explore ways to improve and strengthen local community wellbeing practices. The symposium will be held in Brisbane from 20 November to 23 November 2012.

Recommendation

Healthy Communities Committee recommends to Council that we send representatives of this committee to the Symposium funded by the committee.

Moved Louise Judge seconded Nicole Connolly

Carried 11/0

South Burnett
Regional Council

PO Box 336 Kingaroy Qld 4610
Ph 1300 789 279 Fax 07 4162 4806
Email: info@southburnett.qld.gov.au
www.southburnett.qld.gov.au
ABN 89 972 463 351

Healthy Communities Committee

Recommendation

Healthy Communities Committee recommends that Council consider any opportunity to be present at this conference.

Moved Louise Judge *seconded Karen Baron*

Carried 11/0

LGAQ Healthy Leaders Awards: nominations close on 3 August 2012. There are two (2) categories for nomination 1 being an elective member (winner will receive $40,000 in playground equipment) and 2 being manager/officer (winner will receive $2,000).

Recommendation

Healthy Communities Committee recommends to Council that we nominate Cr Keith Campbell in the Elective Member category and Eleanor Sharpe in the Manager/Officer category.

Moved Louise Judge *seconded Karen Baron*

Carried 11/0

5. Active South Burnett Activities

No meeting was held this month due to undecided funding. Next meeting will be in August and Kerry Oldfield will now attend in place of Anna Grundy.

Recommendation

The Healthy Communities Committee would like to acknowledge the work that Active South Burnett does and are concerned about the current changes in State government and the fact that this body may not exist in the future.

Moved Kerry Oldfield *seconded Janine Pay*

Carried 11/0

General Business - Updates from Members

- Nicole Connolly – R U OK Day Breakfast will be held on 13 September 2012. The breakfast will be held outside Gloria Jeans in Kingaroy. Nicole is still looking for more speakers. Coffee shops in other towns will be provided some sponsorship to supply some free coffee to people who cannot attend Kingaroy. All businesses registered on the R U OK website will be sent information on R U OK Day.
- Janine Pay – There will be Get Active accreditation programs coming up for teachers. People can register online. There is a club governance workshop being held in Murgon on 17 October. There is a club house check list on the website were the clubs can gauge where their club is heading. Sport and recreation will go ahead with the 3 election commitments:

South Burnett
Regional Council

PO Box 336 Kingaroy Qld 4610
Ph 1300 789 279 Fax 07 4162 4806
Email: info@southburnett.qld.gov.au
www.southburnett.qld.gov.au
ABN 89 972 463 351

Healthy Communities Committee

- Get Started - $150 subsidy to assist with sports registration cost
- Get Going - $10,000 to sporting clubs to assist with education & training, equipment and come and try
- Get Playing - $100,000 towards infrastructure projects.

- Michael Eadie – Friday night live program was really successful with 140-160 kids attending a night.
- Nicole O'Brien – finding the main problem with clubs is the people management. Proston golf club is in discussions with Stanwell regarding a fundraiser. Nanango golf club wants to hold a Mayoral gold day fundraiser once a year. Paula from PCYC has organised a community coaching program. This program is to encourage people from clubs to help with coaching kids at school instead of just teachers.
- Kerry Oldfield – Healthy Communities tents and tear drop banners are now available for use.
- Caitlin Isaac – Lighten up program is starting up in August. Have started an indigenous men's golf group in Murgon. Caitlin will be going to the races to help promote the Healthy Communities stall.
- Berneice Hilly – the Reading Bug egg is now finished and weighs 13 kg. The egg will be found at Meandu Mine date yet to be decided. On 10 November 2012 there will be a street parade in Nanango where the egg will be paraded around and shops will be encouraged to dress up their shop windows. The Reading Bug will be promoted at the Nanango markets each month and car stickers will be handed out. You can also look at the website nanangorbug.org for more information on the Reading Bug. Utube was suggested for the hatching of the egg. It has been proposed to hold a Reading Bug stall at the Nanango Markets each month. At the stall there will be the Reading Bug egg. Children will be encouraged to come and read to the egg and will receive a sticker, once they have four (4) stickers they can then go to their local library and receive a free book.

Nicole O'Brien left the meeting at 3:50pm

Louise Judge – Louise suggested that the Darling Downs Medicare Local Peta Rutherford and Kerry Zellar should be invited to join the committee.

Recommendation

The Healthy Communities Committee recommends to Council that we write a letter to Peta Rutherford and Kerry Zellar from the Darling Downs Medicare Local inviting them to join the Healthy Communities Committee.

Moved Louise Judge seconded Caitlin Isaac

Carried 10/0

- Eleanor Sharpe – advised the committee that there will be $10,000 funding for the Healthy Communities Committee and that there will be a 5.7% rate increase. Eleanor also recommended that the draft healthy food access basket should be brought to the Healthy Communities Committee ASAP.

South Burnett
Regional Council

PO Box 336 Kingaroy Qld 4610
Ph 1300 789 279 Fax 07 4162 4806
Email: info@southburnett.qld.gov.au
www.southburnett.qld.gov.au
ABN 89 972 463 351

Healthy Communities Committee

Meeting closed: 3:04 pm

Next meeting – Thursday 16 August 2012, 1:00-3:00pm, Corporate Meeting Room, Glendon Street, Kingaroy

Resolution:

Moved Cr KM Campbell, seconded Cr DP Tessmann.

That Council endorse the minutes and recommendations of the Healthy Communities Committee meeting held on 19 July 2012.

Carried 6/0
FOR VOTE - Councillors voted unanimously
ABSENT. DID NOT VOTE - Cr DJ Palmer

9.2 Community & Cultural Services Portfolio Report

Nil.

10. Economic Development & Property Management

10.1 Economic Development & Property Management

10.1.1 ED&PM - 1307489 - Amendments to Approved Council Fees and Charges for 2012/2013

Summary

Approval is sought to amend fees and charges that relate to Coolabunia Saleyards, Bjelke Petersen Dam, Boondooma Dam and Swimming Pool Season Passes. Revised fees and charges schedule are listed in Attachment A.

Officer's Recommendation

That council approve the following changes proposed in Fees and Charges for 2012/2013:

Type Of Charge	11/12	12/13 Adopted	12/13 Proposed	Comments
Bjelke-Petersen Dam				
Cabins per night				
1-2 days	$110.00	$110.00	$115.00	Adopted rate is the same as last year. Need to reflect increase as initially proposed.
>2 Days	$93.00	$93.00	$97.00	Currently same as last year need to reflect increase as initially proposed.
Villas Per Night				
1-2 days	$140.00	$147.00	$147.00	No change
>2 Days	$119.00	$119.00	$124.00	Increase stay of 2 or more days to cover operating costs.

Caravan & Camping Area				
Powered Sites Extra Child				
1-2 days	$9.00	$9.00	$9.00	No change
>2 Days	$7.00	$10.00	$8.00	Lower 2 Day stay to remain competitive. Increase revenue to council over previous year.
Unpowered Sites Extra Adult				
1-2 days	$13.00	$14.00	$12.00	The unpowered site rate for the initial two people is $26.00 1-2 days and $22.00 for >2 days. The adopted rate for 2 extra adults is higher than the rate for the initial two people booked at the site. This may encourage adults to book additional sites and reduce potential revenue to Council
>2 Days	$11.00	$12.00	$10.00	The unpowered site rate for the initial two people is $26.00 1-2 days and $22.00 for >2 days. The adopted rate for 2 extra adults is higher than the rate for the initial two people booked at the site. This may encourage adults to book additional sites and reduce potential revenue to Council
Unpowered Site Extra Child				
1-2 days	$8.00	$9.00	$8.00	Lower rates to be less expensive than extra child at powered sites
>2 Days	$7.00	$8.00	$7.00	Lower rates to be less expensive than extra child at powered sites
Ensuite Powered Caravan Sites				
Ensuite Extra Child				
1-2 days	$9.00	$10.00	$9.00	Make same as powered site for extra child
>2 Days	$7.00	$8.00	$8.00	No change

Boondooma Dam				
Caravan & Camping Sites				
Powered Site Extra Adult				
1-2 Days	$14.00	$15.00	$14.00	The powered site rate for the initial two people is $30.00 1-2 days and $25.00 for >2 days. The adopted rate for 2 extra adults is higher than the rate for the initial two people booked at the site. This may encourage adults to book additional sites and reduce potential revenue to Council
Powered Site Extra Child				
1-2 Days	$8.00	$8.00	$8.00	No change
>2 Days	$6.00	$9.00	$7.00	Adopted increase too high
Lookout				
Powered site Extra Child				
1-2 days	$8.00	$8.00	$8.00	No change
>2 Days	$7.00	$9.00	$7.00	Adopted increase too high
Saleyards				
Livestock Selling Fees				
Dipping at sale(includes Inspection if required)	N/A	Not included	$3.00 per head	Combines Inspection and dipping charge for sale cattle. No reduction in revenue to Council
Yard fees for Held over cattle from sale after initial 4 days	$0.90 per day	NA	$0.50 per day	This is included to compensate buyers who are waiting for cattle to clear and encourage extra patronage of yards. Current price is higher than neighbouring yards. Most sale cattle are cleared from yards within the 4 days.
Consignment Stock Holding Fee	$2.10 per day	$2.20 per day 1st Day $1.00 per day 2nd day and thereafter	$2.20 per day 1st day $1.00 per day 2nd day and thereafter	No change to fee only change of task title : **Consignment/Held Over Stock Holding Fee**
Dipping Fees				
Minimum fee (less than 7 head)	$14.00	Not included	$14.50	Needs to be added

Spraying Fees				
Per Animal(excluding horses)	$4.50	$4.80	$4.80	No change in fee. Change in task title only (Excluding Horses) needs to be added.
Horses per Animal		N/A	$10.50	Needs to be added
Swimming Pool				
Season Tickets All Pools 9 months Sep-May				Change to say Season Pass Expires May 2013 and remove all other Season Pass references. It is proposed to have one season pass for all pools together with the introduction of discounted 10 and 20 visit passes. This will simplify pool pass administration and costs and assist to increase patronage.
Children per season	$115.00	$120.00	$120.00	No change to fee
Adult per season	$140.00	$150.00	$150.00	No change to fee
Family Season Pass	$410.00	$430.00	$430.00	No change to fee
Senior Season Pass	$115.00	$120.00	$120.00	No change to fee
Pool/Gym Pass(pool portion only)	$115.00	$120.00	NA	To be removed
Season Tickets All Pools 11 months Sept- July Kingaroy, Nanango and Murgon				
Children per season	$140.00	$150.00	NA	To be removed from fees and charges
Adult per season	$180.00	$190.00	NA	
Family Season Pass	$500.00	$160.00	NA	
Senior Season Pass	$140.00	$150.00	NA	
Pool/Gym Pass(pool portion only)	$140.00	$150.00	NA	

Season Tickets 9 months Sept- May Blackbutt, Wondai and Proston				
Children per season	$95.00	$100.00	NA	To be removed from fees and charges
Adult per season	$116.00	$122.00	NA	
Family Season Pass	$340.00	$360.00	NA	
Senior Season Pass	$95.00	$100.00	NA	
Pool/Gym Pass (Pool portion only)	$95.00	$100.00	NA	
10 Pass Visit Adult	NA	NA	$25.00	To be introduced to supplement the Season Pass and encourage extra patronage for those who do not want season pass but get the advantage of reduced entry.
10 Pass Visit Child /Senior	NA	NA	$11.50	
20 Pass Visit Adult	NA	NA	$48.00	
20 Pass Visit Child/Senior	NA	NA	$22.00	

Resolution:

Moved Cr DP Tessmann, seconded Cr KM Campbell.

That the Officer's Recommendation be adopted.

Carried 6/0
FOR VOTE - Councillors voted unanimously
ABSENT. DID NOT VOTE - Cr DJ Palmer

10.2 Economic Development Portfolio Report

Cr DP Tessmann addressed council with Economic Development and Community & Cultural Services portfolio report.

Motion:

Moved Cr DP Tessmann, seconded Cr KA Duff.

That the report be received.

Carried 6/0
FOR VOTE - Councillors voted unanimously
ABSENT. DID NOT VOTE - Cr DJ Palmer

11. Operations and Technical Services

11.1 Operations

11.2 Technical Services

11.2.1 TS - 1292852 - Renaming & Renumbering of Former Boundary Roads

Summary

Following amalgamation, several roads on the borders of the former Council areas have been identified as having inconsistent road names and/or rural addressing of properties.

This causes confusion to the casual user and significant difficulties to emergency services.

This report identifies these roads and recommends amendments to the names and/or numbering of these roads.

Australian Standard AS/NZS 4819:2011 Rural and Urban Addressing has specific requirements in relation to road naming and these requirements will be adopted in the report's recommendations.

No suggestion has been included for sections of roads that require re-naming. The renaming of these sections will be carried out in accordance with Council's Road Naming Policy.

Part 1 of the recommendation redefines the extents of existing road names by combining existing sections of the same name but with different extents due to Council amalgamations or reduces the extent of a road name due to physical limitations. Due to the revised extents some of these roads will also require renumbering as shown in Part 3.

New road names, as indicated in Part 2 of the recommendation, need to be identified through the application of Council's Road Naming Policy.

Officer's Recommendation

That Council:

1. Confirm the following road names and extents:

- **i. Booie Road**, defined as being from the Burnett Highway to Kingaroy-Barkers Creek Road
- **ii. Bellbird Road,** defined as being from the D'Aguilar Highway to Kingaroy-Cooyar Road
- **iii. Old Taabinga Road,** defined as from the currently named Barkers Creek-West Coolabunia Road to Kingaroy-Cooyar Road.
- **iv. Lucas Road,** defined as from the D'Aguilar Highway to Semgreens Road

2. Agree in principle to rename and renumber the following roads/roads sections in accordance with Council's Road Naming Policy following consultation with landowners adjoining the sections of road affected and Council offering financial assistance, to a maximum of $50 per residence, to assist residents with their change of address obligations:

- **i.** School Road and the small section of Darley Estate Road between Semgreens Road and Kunioon Road be renamed as Kunioon Road. Kunioon Road would then be defined as from Nanango Brooklands Road to Buttsworth Road.
- **ii.** Barkers Creek-West Coolabunia Road be renamed as Goodger Gully Road.
- **iii.** Lucas Road between West Coolabunia Road and Semgreens Road be renamed to form part of West Coolabunia Road.

iv. Archookoora Road, defined as from Kingaroy-Cooyar Road to Mustons Road via the forestry access road.
v. Old Taabinga Road
vi. The section of Old Taabinga Road from Archookoora Road to Stuart Valley Drive.
vii. The section of Old Taabinga Road from Stuart Valley Drive to Stuart River.
viii. The section of Old Taabinga Road from Stuart River to Bunya Highway.
ix. Coverty Road between Dangore Mountain Road and Underwoods Road.
x. Ellesmere North Road/Glencliffe Road
xi. Ellesmere North Road be renamed Ellesmere Road and be defined as from Stuart Valley Drive to Wengenville-Glencliffe Road.
xii. Glencliffe Road be defined as from Kumbia-Brooklands Road to Wengenville-Glencliffe Road.
xiii. Kumbia-Brooklands Road be renamed Kumbia Road

3. Agree to renumbering of the following roads in accordance with Australian Standard AS/NZS 4819:2011 with affected landowners being advised of the reasons for the changes and Council offering financial assistance, to a maximum of $50 per residence, to assist residents with their change of address obligations:

i. Bellbird Road
ii. Booie Road
iii. Goodger Gully Road, defined as from Semgreens Road to Nanango Brooklands Road
iv. Old Taabinga Road between Barkers Creek-West Coolabunia Road to Kingaroy-Cooyar Road.

4. That DERM be advised of these changes for updating their database.

5. All property addresses affected by the above changes, or otherwise identified within the report, be amended by Council in its records.

6. Council's 'Road Naming Policy' be reviewed for compatibility with Australian Standard AS/NZS 4819:2011 Rural and Urban Addressing.

PROCEDURAL MOTION:

Moved Cr CD Dalton, seconded Cr KA Duff.

That the previous item lay on the table until the next meeting.

Carried 6/0
FOR VOTE - Councillors voted unanimously
ABSENT. DID NOT VOTE - Cr DJ Palmer

11.2.2 TS - 1308072 - 2012-2013 - Blackspot Funding Nominations

Summary

This report nominates Blackspot funding proposals to be submitted to the Department of Transport and Main Roads for 2012-13. Blackspot funding is a federal program that is fully funded and targets locations where multiple crashes occur on roads. The program funds measures for the consideration of intersection upgrades to roundabouts or traffic signals at dangerous locations. The proposed locations of blackspot funding are:

- D'Aguilar Highway/ Burnett Highway Intersection, Nanango
- D'Aguilar Highway/ Markwell Street Intersection, Kingaroy

Both proposals have been the subject of increased traffic volumes and proportionally to these are traffic accidents. Both intersections are controlled intersections and warrant a higher level of management than currently exists. Channelised turn lanes, roundabouts and signalised intersections are recognised improvements on traffic safety and our submissions will reflect one of the above options for funding.

Officer's Recommendation

That Council adopt both proposals in its submission to the Department of Transport and Main Roads for the 2012-13 Blackspot Program. The proposed locations for Blackspot funding are:

- D'Aguilar Highway/ Burnett Highway Intersection, Nanango
- D'Aguilar Highway/ Markwell Street Intersection, Kingaroy

Resolution:

Moved Cr KM Campbell, seconded Cr BL Green.

That the Officer's Recommendation be adopted.

Carried 6/0
FOR VOTE - Councillors voted unanimously
ABSENT. DID NOT VOTE - Cr DJ Palmer

11.2.3 TS - 1195055 - Peter D Scott - Requesting a change of name for Hayne Kite Millar Road at Blackbutt to Pioneer Drive or Douglass Millar Scott Road Blackbutt

Summary

A request has been received from Mr Peter D. Scott to consider the renaming of Hayne Kite Millar Road to Douglass Millar Scott Road or Pioneer Drive, Blackbutt. The reasoning is predominantly related to the first settlers to the Blackbutt region being Douglass, Millar and Hart.

Hayne Kite Millar Road is on the southern side of Blackbutt and traverses between Nukku Rd and the southern region of Benarkin. The request has been assessed in accordance with the Road Naming Policy and the officer's recommendation is to refuse the request on the grounds of similar names in the region, having more than one name in the title and the confusion associated with renaming a three (3) worded road with a similar three (3) worded road.

Officer's Recommendation

That the request be refused on the grounds of the proposal not complying with the policy as the proposed names are all in existence in the localities of Blackbutt and Benarkin

Resolution:

Moved Cr KM Campbell, seconded Cr DP Tessmann.

That the Officer's Recommendation be adopted.

Carried 6/0
FOR VOTE - Councillors voted unanimously
ABSENT. DID NOT VOTE - Cr DJ Palmer

11.3 Roads Portfolio Report

Cr DW Kratzmann addressed council with Roads portfolio report.

Motion:

Moved Cr DW Kratzmann, seconded Cr BL Green.

That the report be received.

Carried 6/0
FOR VOTE - Councillors voted unanimously
ABSENT. DID NOT VOTE - Cr DJ Palmer

12. Water & Wastewater

12.1 Water & Wastewater

12.1.1 W&WW - 1306765 - Drinking Water Quality Management Plan report

Summary

A draft Drinking Water Quality Management Plan was presented to Council at the Portfolio Briefing session held on the 2 August 2012. The Plan was prepared for Council by Wide Bay Water Corporation with Council Officer input at all stages.

The plan was undertaken in accordance with the requirements of the Water Supply Safety and Reliability Act and using the proforma document provided by the State.

Officer's Recommendation

That the draft Drinking Water Quality Management Plan be adopted and that an application for approval be submitted to the Department of Energy and Water Supply.

SOUTH BURNETT
REGIONAL COUNCIL

South Burnett Regional Council
Service Provider No 491

Drinking Water Quality Management Plan

WIDE BAY water
CORPORATION

Draft May 2012

Contents

1 Registered Service Details

South Burnett Regional Council (Service Provider No 491) provides drinking water services to the towns listed in the following table. Council operates all the schemes.

Table 1 Listing of Drinking Water Supplies

Scheme Name	Operator (organis-ation)	Communities Served	Current			Projected in 10 years		
			Population served	Connect-ions	Demand ML/yr	Population served	Connect-ions	Demand ML/d
Blackbutt	SBRC	Blackbutt, Benarkin	1017	442	60	1100	480	66
Boondooma	SBRC	Boondooma	20	10	1	40	10	2
Kingaroy	SBRC	Kingaroy	11068	4730	900	20300	8700	2170
Murgon	SBRC	Murgon	2644	1130	250	2900	1200	270
Nanango	SBRC	Nanango	3073	1336	200	3300	1400	220
Proston	SBRC	Proston	582	253	25	600	270	28
Wondai	SBRC	Wondai, Tingoora	2544	996	140	2800	1100	150
Yallakool	SBRC	Yallakool	20	1	1	40	1	2

Council has Customer Service offices in Blackbutt, Kingaroy, Murgon, Nanango and Wondai. Council's mailing address is:

South Burnett Regional Council
PO Box 336
Kingaroy QLD 4610

The Council contact in relation to this plan is:

Allen Christensen
Manager Water Supply and Sewerage
phone 07 4189 9100
email AChristensen@southburnett.qld.gov.au

2 South Burnett DWQMP Structure

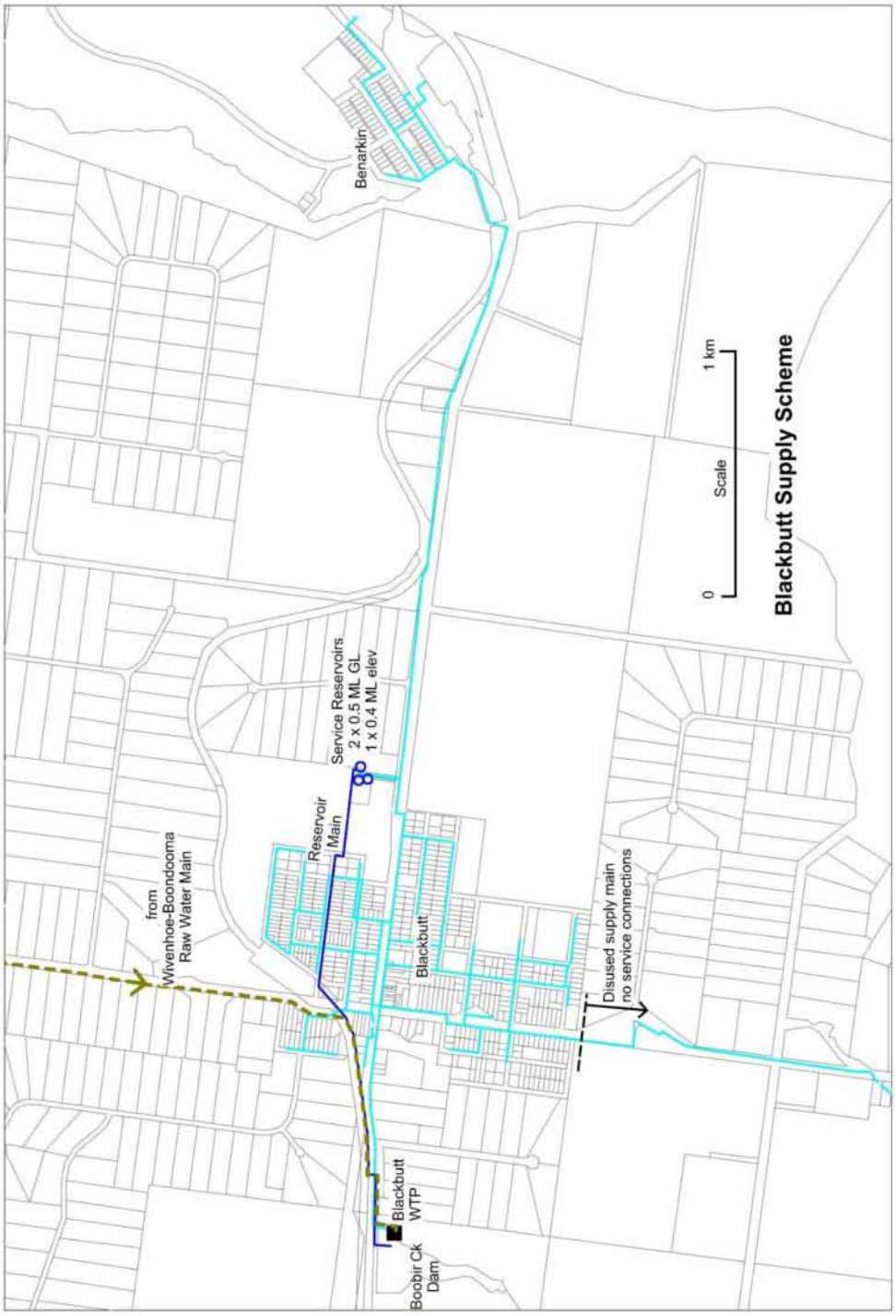
For convenience of access the details of each of the six supply schemes are listed separately in alphabetical sequence in the following sections.

Separate risk analysis workshops were conducted for the southern (Blackbutt and Nanango) and northern (Kingaroy, Murgon, Wondai and Proston) parts of the region, involving the relevant operators, supervisors and Councillors. The analysis follows after the individual scheme details.

Blackbutt

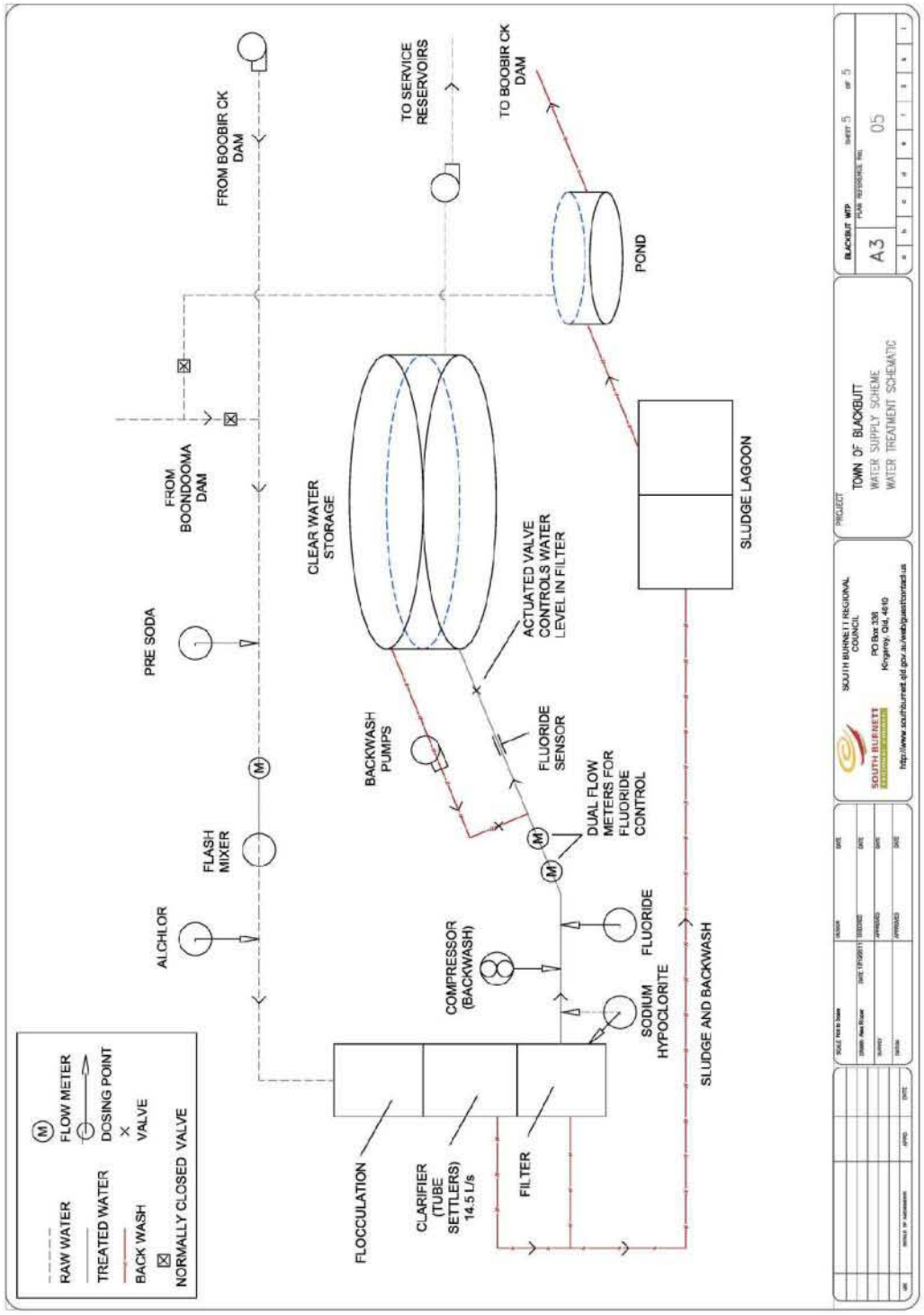
3 Blackbutt

3.1 Overall Schematic



Blackbutt

3.2 WTP Schematic



Blackbutt

3.3 Infrastructure Details

Blackbutt		
Component		Details
Source 1	Name	Boobir Creek Dam
	Type	surface water, 170ML dam
	% of supply	100%
	Reliability	100% with drought management
	Water quality issues	turbidity
Source Infrastructure	Type	raw water pumps
	Description	VFD pump station on bank
Source 2	Name	SunWater pipeline from Tarong
	Type	source Boondooma Dam
	% of supply	normally 0%
	Reliability	100% with drought management
	Water quality issues	turbidity
Source Infrastructure	Type	PRV and connection to plant inlet
	Description	normally valved off
Treatment		All water undergoes treatment prior to supply
	Name	Blackbutt WTP
	Process	Coagulation, flocculation, clarification, filtration, disinfection, fluoridation
	Design Capacity (20 hr operation)	1,000 kL/d
	Daily flow range	0 – 1,000 kL/d
	Chemicals added	coagulant: Alchlor Premium pH adjustment: soda ash fluoride
	Standby chemical dosing facilities	All dose pumps have duty/standby
	Water sourced from and %	100% from Boobir Creek Dam
	% of average day demand provided	100%
	% of scheme supply Distribution area supplied	100%
	Bypasses / Variations	No bypasses available
Disinfection		All water undergoes disinfection prior to supply
	Location	Into flocculation tank
	Type	Sodium hypochlorite
	Dose rate	as required
	Target residual levels	2.2 mg/L
	Duty/standby	Yes
	Dosing arrangements	Manually set depending on hypo strength and level
	Alarms	nil for chlorine
	Auto shut-off arrangements	On plant shut-down

Blackbutt

Blackbutt		
Component		**Details**
Distribution and Reticulation System	Pipe material	AC
	Age range	47 years
	Approx % of total length	53%
	Pipe material	PVC
	Age range	17 to 20 years
	Approx % of total length	47%
	Areas where potential long detention periods could be expected	nil significant
	Areas where low water pressure (eg < 12 m) could be expected during peak or other demand periods)	nil significant
Reservoirs	**Ground (No)**	1
	Name	WTP clear water storage
	Capacity (kL)	350 kL
	Roofed (Y/N)	Yes
	Vermin-proof (Y/N)	Yes
	Runoff directed off roof (Y/N)	Yes
	Ground (No)	2
	Name	Service reservoirs
	Capacity (kL)	2 x 500 kL
	Roofed (Y/N)	Yes
	Vermin-proof (Y/N)	Yes
	Runoff directed off roof (Y/N)	Yes
	Elevated (No)	1
	Name	Elevated tank
	Capacity (kL)	311 kL
	Roofed (Y/N)	Yes
	Vermin-proof (Y/N)	Yes
	Runoff directed off roof (Y/N)	Yes
If supply is obtained from Boondooma (SunWater system) Council will liaise with SunWater staff regarding any water quality issues and if any take suitable measures.		

Blackbutt

3.4 Boobir Creek Dam Catchment

Boobir Creek Dam has a fairly small catchment extending 5 kilometres south-west from the dam. The land is undulating and the land use is mostly low density grazing with an avocado farm towards the top end of the catchment.

The Blackbutt - Crows Nest Road crosses the catchment at the southern end and the Nukku – Crows Nest Road follows the catchment boundary on the south-west. A minor farm road, the Hayne Kite Millar Road crosses the middle of the catchment.

The roads within the catchment are fairly minor and they are in close proximity to the town of Blackbutt. Should a significant spill occur it would soon be common knowledge and Council would be able to switch to the alternate supply from Boondooma Dam until the Boobir Creek Dam water quality could be confirmed as satisfactory.

Boobir Creek is an ephemeral stream, so for much of the year a spill in the catchment would not be carried to the dam and remedial action could be taken to prevent contaminants from reaching the dam.

Because the catchment is relatively flat and grassed, the raw water turbidity is relatively low and consistent.

Although there may be a potential for pesticide run-off from the farm, none of the 123 pesticides tested for in the snapshot monitoring in September 2011 was above the detection limit. The detection limits are generally at least two orders of magnitude below the respective ADWG health limits. Therefore there was a very large factor of safety against any risk from pesticides at that time.

Blackbutt

3.5 Water Quality Summary Tables

Historical water quality data could not be located for Blackbutt, but the operator has recently been given a laptop computer and is entering data consistently from January 2012. The operational test data available for this report comprised November 2011 and January 2012.

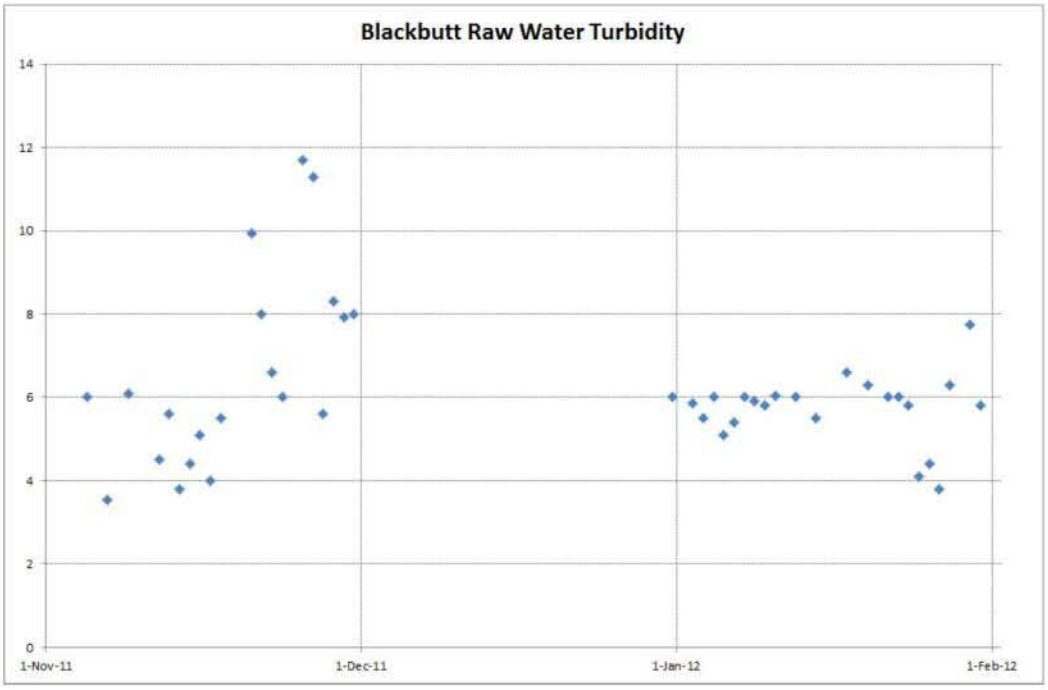
Blackbutt Raw Water							
Parameter	Sampling location	Time Period	No of samples	Summary of Results			Comments
				Max	Average	Min	
Turbidity (NTU)	WTP	1 Nov 11 – 31 Jan 12	43	11.7	6.1	3.6	
pH	WTP	1 Nov 11 – 31 Jan 12	44	7.3	7.0	6.8	

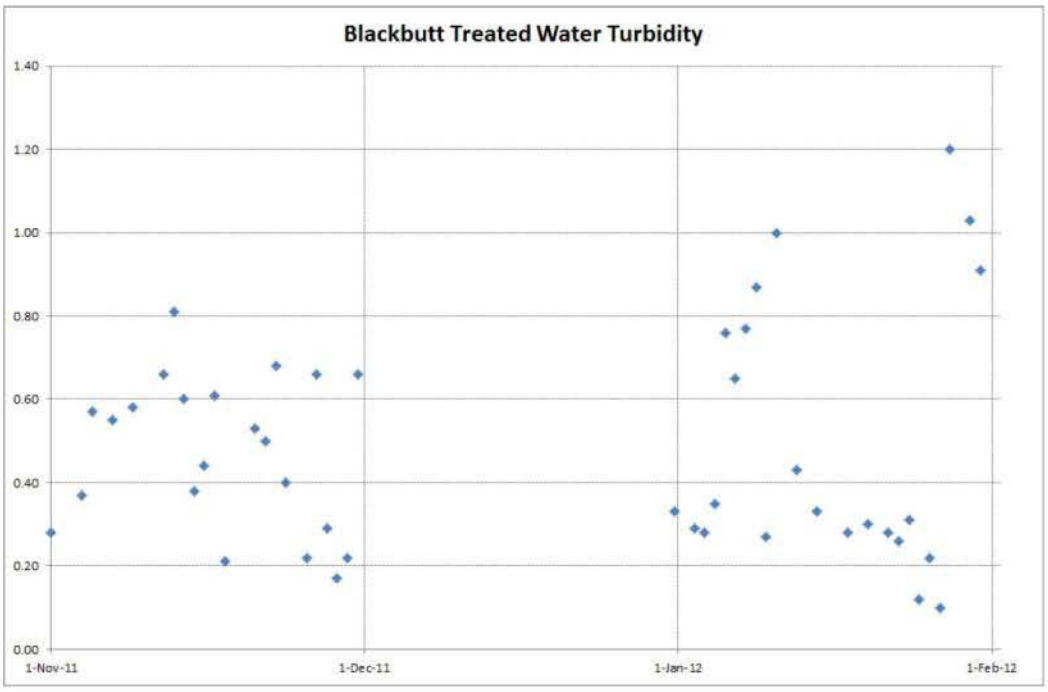
Blackbutt Treated Water									
Parameter	Sampling location	Time Period	No of samples	Summary of results			ADWG value	No of samples outside ADWG value	Comment
				Max	Average	Min			
Turbidity (NTU)	GL Res at WTP	1 Nov 11 – 31 Jan 12	45	1.2	0.5	0.1			
pH	GL Res at WTP	1 Nov 11 – 31 Jan 12	47	7.5	7.2	6.9	6.5 – 8.5	0	
Free Chlorine residual	GL Res at WTP	1 Nov 11 – 31 Jan 12	48	3.5	2.5	1.9	5	0	

Blackbutt Reticulation								
Parameter	Time Period	No of samples	Summary of Results			ADWG value	No of samples outside ADWG value	Comment
			Max	Average	Min			
E.coli								
Turbidity								
pH								
Free Chlorine residual								

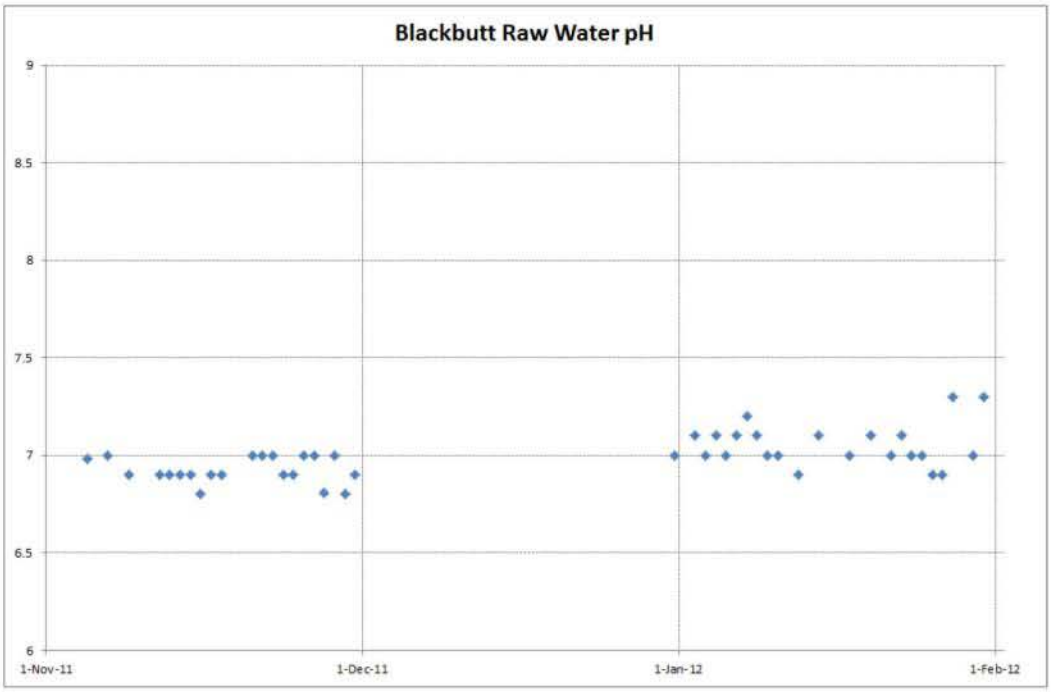
Blackbutt

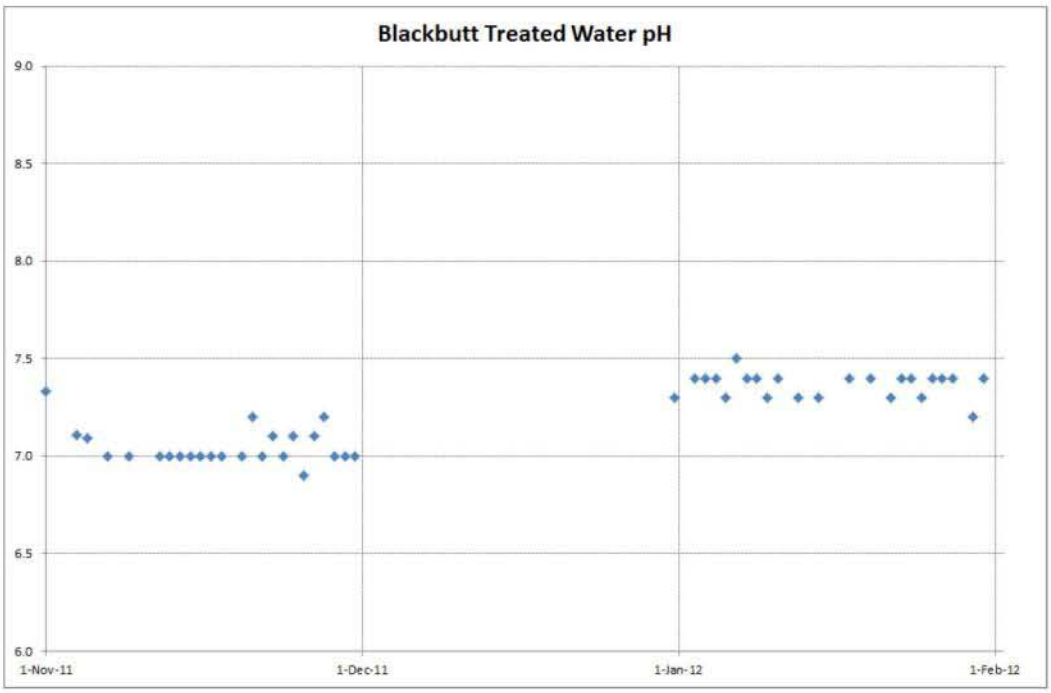
3.6 Water Quality Graphs



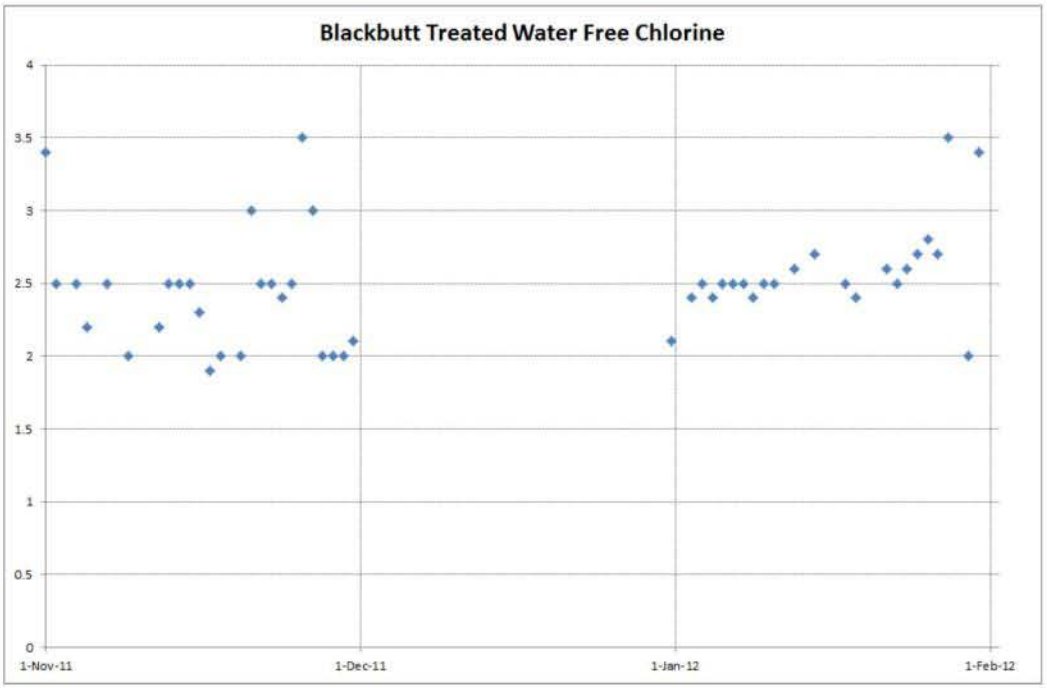


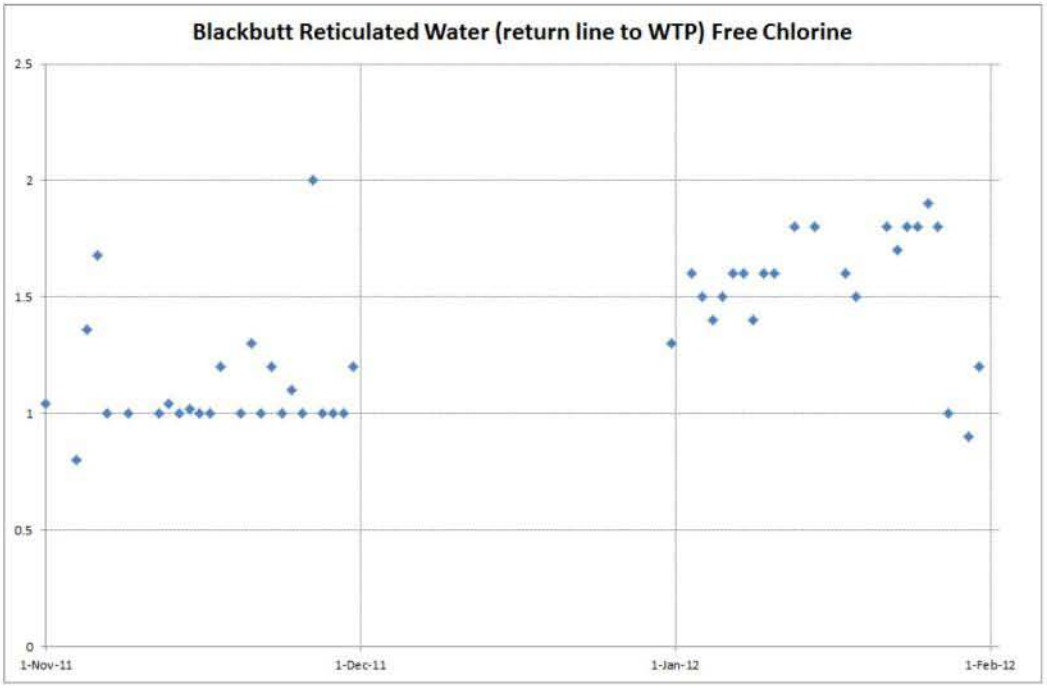
Blackbutt


Blackbutt Raw Water pH
9
8.5
8
7.5
7
6.5
6
1-Nov-11
1-Dec-11
1-Jan-12
1-Feb-12


Blackbutt Treated Water pH
9.0
8.5
8.0
7.5
7.0
6.5
6.0
1-Nov-11
1-Dec-11
1-Jan-12
1-Feb-12

Blackbutt

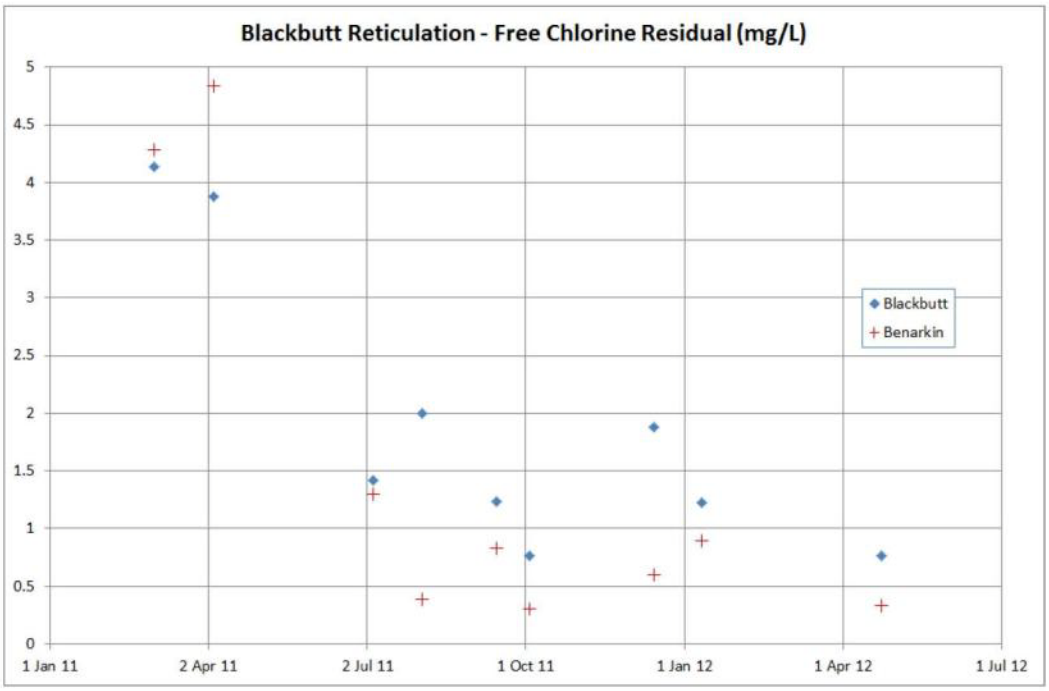




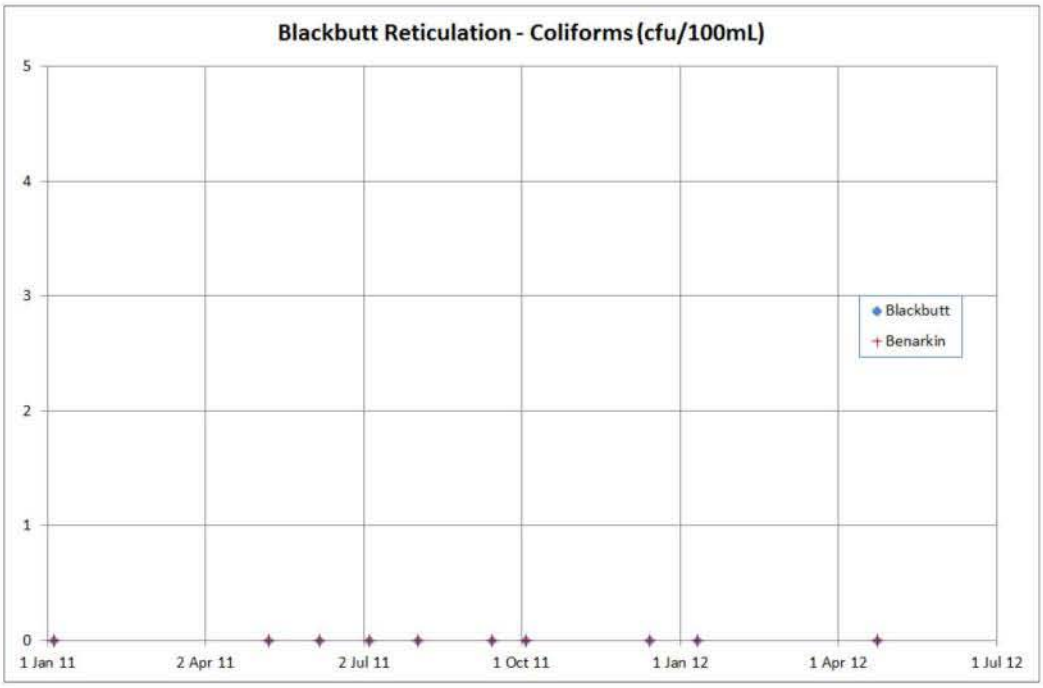
The return line to the WTP comes from the service reservoirs which are on the far side of Blackbutt from the treatment plant

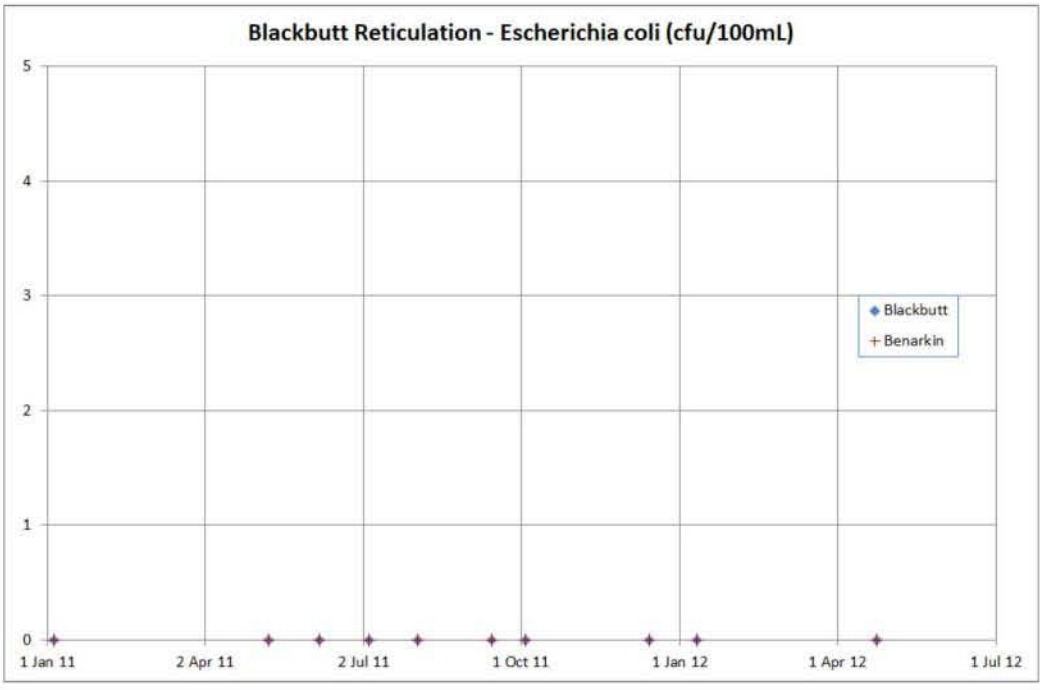
Blackbutt

Blackbutt/Benarkin Reticulation								
Parameter	Time Period	No of samples	Summary of Results			ADWG value	No of samples outside ADWG value	Comment
			Max	Average	Min			
E.coli	1 Jan 11 – 1 May 12	10	0	0	0	0	0	
Free Chlorine residual	1 Jan 11 – 1 May 12	9	4.1	1.9	0.8	5.0	0	



Blackbutt


Blackbutt Reticulation - Coliforms (cfu/100mL)
5
4
3
2
1
0
1 Jan 11
2 Apr 11
2 Jul 11
1 Oct 11
1 Jan 12
1 Apr 12
1 Jul 12
Blackbutt
Benarkin


Blackbutt Reticulation - Escherichia coli (cfu/100mL)
5
4
3
2
1
0
1 Jan 11
2 Apr 11
2 Jul 11
1 Oct 11
1 Jan 12
1 Apr 12
1 Jul 12
Blackbutt
Benarkin

Blackbutt

3.7 Snapshot Monitoring

Blackbutt Snapshot Monitoring				
Sample Description			Raw Water	
Collected Date			01-Sep-11	16-Nov-11
Metals				
Aluminium	mg/L	0.2	0.21	0.084
Antimony	mg/L	**0.003**	< 0.0001	< 0.0001
Arsenic	mg/L	**0.01**	< 0.0003	< 0.0001
Barium	mg/L	**2.**	0.043	0.043
Beryllium	mg/L	**0.06**	< 0.0001	< 0.0001
Boron	mg/L	**4.**	0.092	0.082
Cadmium	mg/L	**0.002**	< 0.0001	< 0.0001
Chromium	mg/L	**0.05**	0.0002	0.0003
Cobalt	mg/L		0.0022	0.0018
Copper	mg/L	**2.**	< 0.001	< 0.001
Iron	mg/L	0.3	0.44	0.48
Lead	mg/L	**0.01**	< 0.0001	0.0002
Manganese	mg/L	**0.5**	0.17	0.22
Molybdenum	mg/L	**0.05**	< 0.0001	< 0.0001
Nickel	mg/L	**0.02**	0.0015	0.0012
Selenium	mg/L	**0.01**	< 0.0010	< 0.0010
Silver	mg/L	**0.1**	< 0.001	< 0.001
Stronium	mg/L		0.031	0.032
Thallium	mg/L		< 0.0001	< 0.0001
Titanium	mg/L		0.007	0.002
Uranium	mg/L	**0.017**	< 0.0001	< 0.0001
Vanadium	mg/L		0.0005	0.0007
Zinc	mg/L	3.	0.002	0.003

Colour Key			
Health Parameters		**Aesthetic Parameters**	
	Not detected		Not detected
	Less than ADWG limit		Less than ADWG limit
	Above ADWG limit		Above ADWG limit

Blackbutt

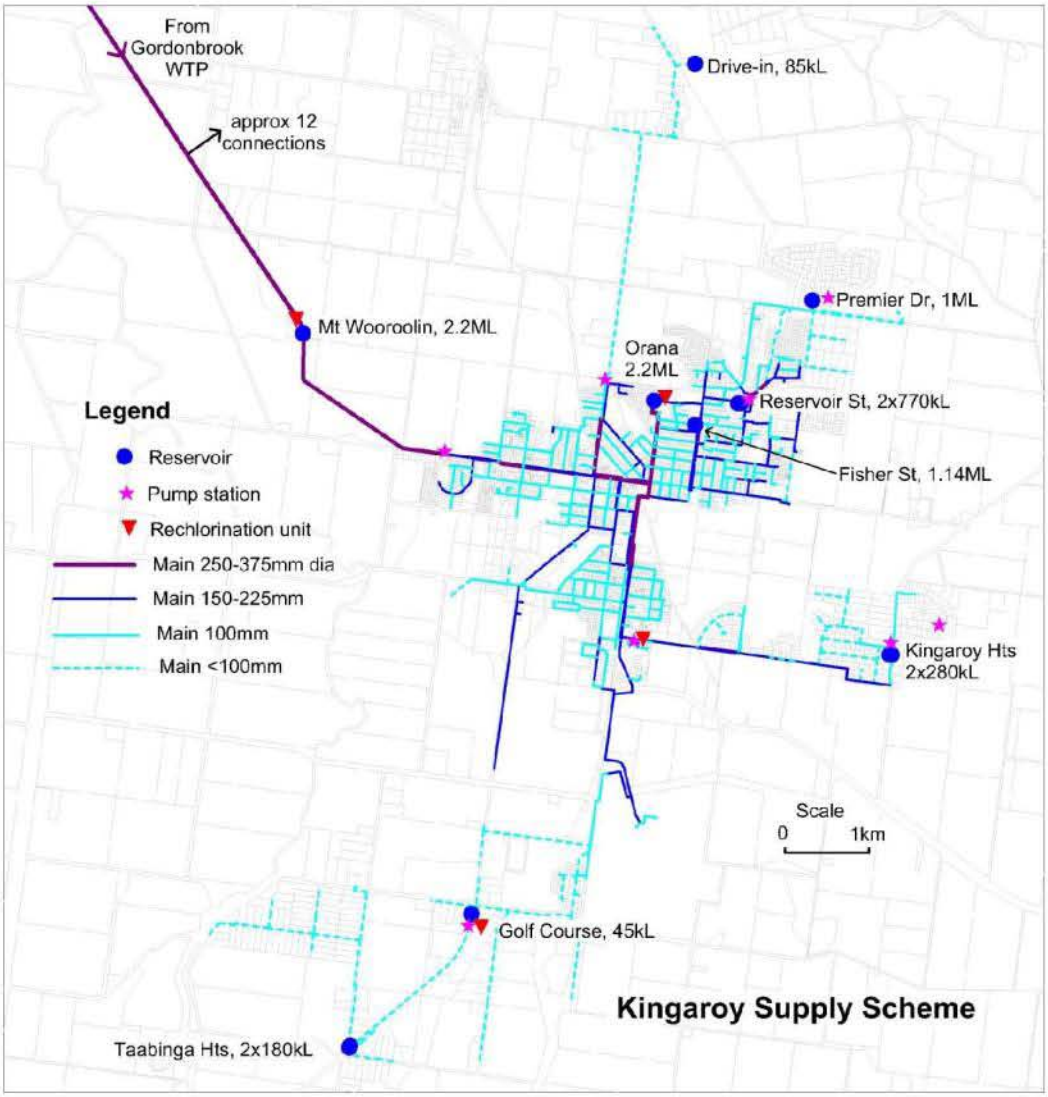
Blackbutt Snapshot Monitoring				
Sample Description			Raw Water	
Collected Date			01-Sep-11	16-Nov-11
Standard Water Analysis				
Conductivity	uS/cm		593.	595.
pH		6.5-8.5	7.13	7.13
Temperature	deg C		22.	22.
Total Hardness	mg/L as CaCO3		50.	50.
Temporary Hardness	mg/L as CaCo3		14.	20.
Alkalinity	mg/L CaCo3		14.	20.
Residual Alkalinity	meq/L		0.	0.
Silica	mg/L	80.	19.	19.
Total Dissolved Ions	mg/L		298.	301.
Total Dissolved Solids	mg/L	600.	309.	307.
True Colour	Hazen	15.	8.	6.
Turbidity	NTU	5.	4.	7.
pH (Saturation)*			10.	9.8
Saturation Index			-2.9	-2.7
Mole Ratio			4.4	4.2
Sodium Absorption Ratio			5.7	5.7
Figure of Merit			0.3	0.3
Sodium	mg/L	180.	92.	93.
Potassium	mg/L		0.7	0.6
Calcium	mg/L		2.	2.1
Magnesium	mg/L		11.	11.
Hydrogen	mg/L		0.	0.
Bicarbonate	mg/L		16.	24.
Carbonate	mg/L		0.	0.
Hydroxide	mg/L		0.	0.
Chloride	mg/L	250.	170.	160.
Fluoride	mg/L	**1.5**	< 0.1	0.06
Nitrate	mg/L	**50.**	0.8	<0.5
Sulphate	mg/L	**500.**	9.3	8.7
Iron	mg/L	0.3	0.07	0.07
Manganese	mg/L	**0.5**	0.03	<0.01
Zinc	mg/L	3.	0.01	0.02
Aluminium	mg/L	0.2	0.06	<0.05
Boron	mg/L	**4.**	0.08	0.09
Copper	mg/L	**2.**	<0.03	<0.03

Colour Key			
Health Parameters		**Aesthetic Parameters**	
	Not detected		Not detected
	Less than ADWG limit		Less than ADWG limit
	Above ADWG limit		Above ADWG limit

Kingaroy

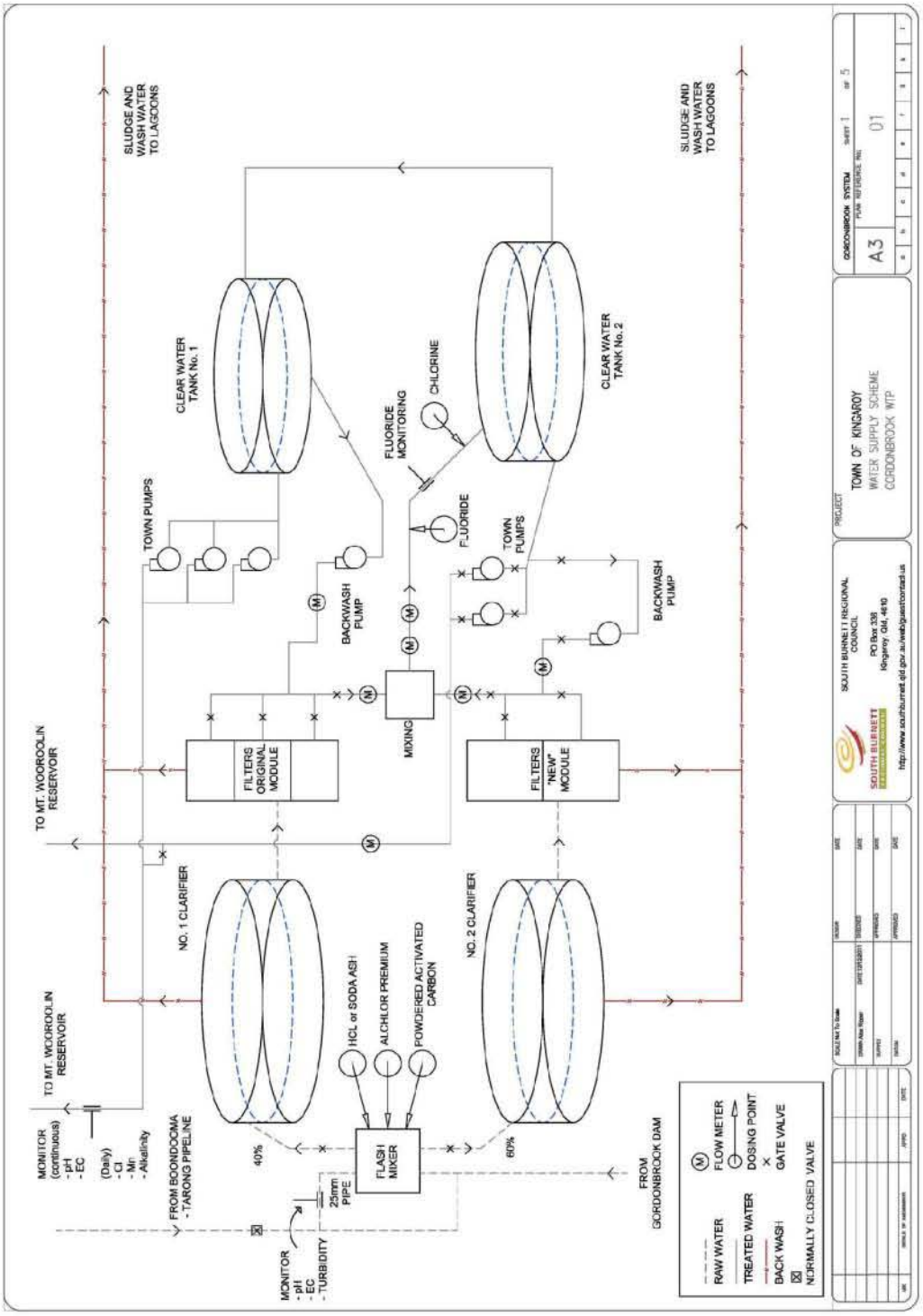
4 Kingaroy

4.1 Overall Schematic



Kingaroy

4.2 WTP (Gordonbrook) Schematic



Kingaroy

4.3 Infrastructure Details

Kingaroy		
Component		Details
Source 1	Name	Gordonbrook Dam, Stuart River
	Type	Shallow dam (3m), 6,500 ML
	% of supply	100%
	Reliability	90%
	Water quality issues	algae, manganese
Source Infrastructure	Type	Intake structure, destratification
	Description	submersible pump on pontoon
Source 2	Name	Boondooma Dam, Boyne River
	Type	SunWater Dam, 204,000 ML
	% of supply	Drought supply
	Reliability	100% with drought management
	Water quality issues	minimal
Source Infrastructure	Type	Supply pipeline to Gordonbrook WTP
	Description	SunWater asset
Treatment		All water undergoes treatment prior to supply
	Name	Gordonbrook WTP
	Process	Coagulation, clarification, filtration, disinfection, fluoridation
	Design Capacity (20 hr operation)	7.6 ML/d
	Daily flow range	0 to 7.6 ML/d
	Chemicals added	coagulant: Alchlor Premium, pH adj: soda ash or HCl, potassium permanganate and powered activated carbon as reqd, chlorine gas (to be changed to sodium hypochlorite in 2012), fluoride
	Standby chemical dosing facilities	Spare pumps, no automatic changeover
	Water sourced from and %	100% from Gordonbrook Dam
	% of average day demand provided	100%
	% of scheme supply Distribution area supplied	100%
	Bypasses / Variations	There is a bypass at the plant that can be opened to allow either Gordonbrook or Boondooma raw water to be pumped to town
Disinfection		All water undergoes disinfection prior to supply
	Location	Into pipe between filters and ground

Kingaroy

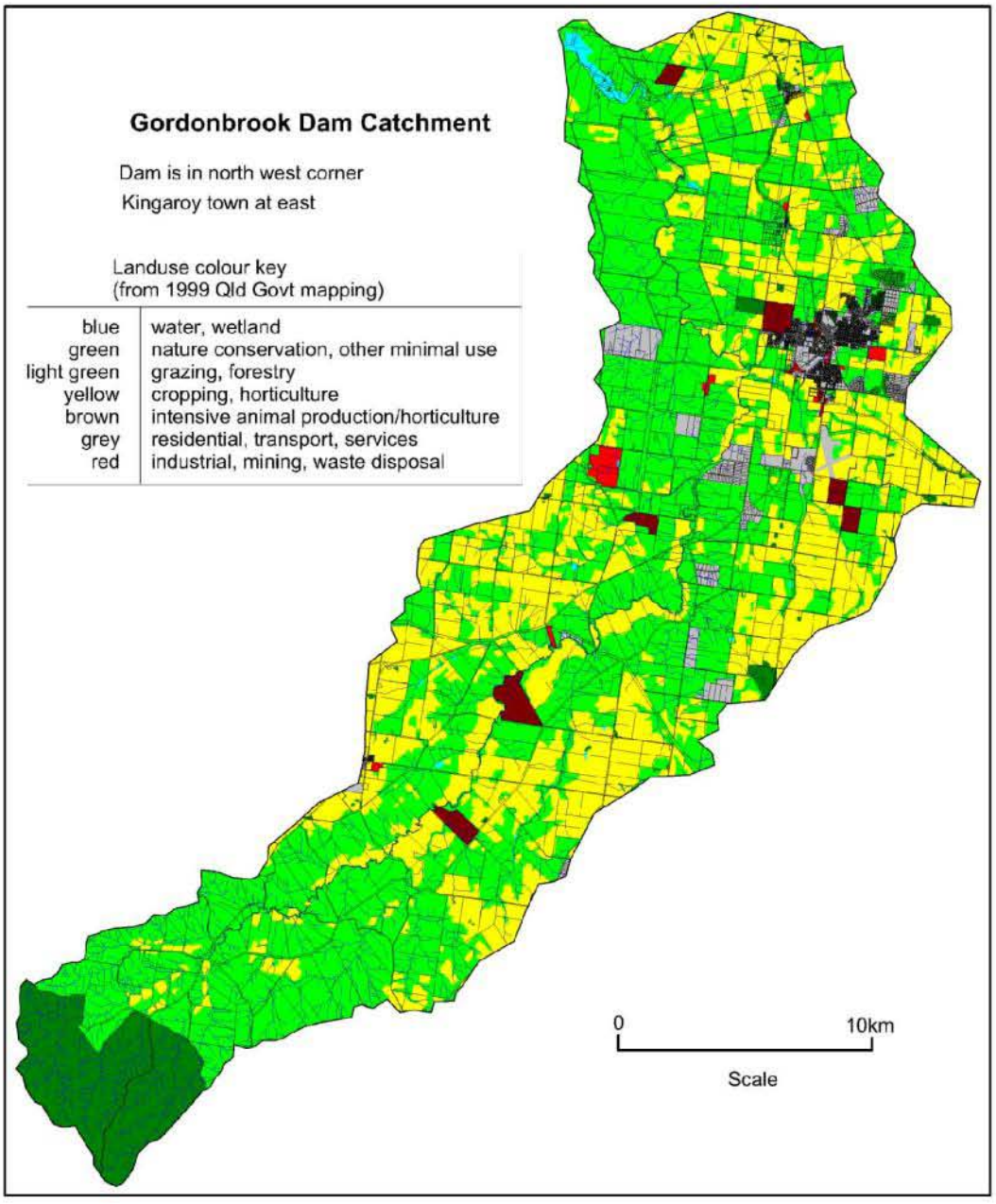
Kingaroy		
Component		**Details**
		level reservoirs
	Type	Chlorine gas changing to liquid hypo in 2012
	Dose rate	3.0 mg/L
	Target residual levels	2.0 mg/L
	Duty/standby	Yes
	Dosing arrangements	Manually set to run while plant is running
	Alarms	On-line monitoring of chlorine and pH on water pumped to town
	Auto shut-off arrangements	On plant shut-down
Distribution and Reticulation System	Pipe material	asbestos cement
	Age range	23 – 70 years
	Approx % of total length	40%
	Pipe material	cast iron
	Age range	39 – 71 years
	Approx % of total length	27%
	Pipe material	DICL
	Age range	7 to 34 years
	Approx % of total length	5%
	Pipe material	MSCL
	Age range	58 years
	Approx % of total length	4%
	Pipe material	polyethylene
	Age range	18 to 29 years
	Approx % of total length	4%
	Pipe material	PVC
	Age range	7 to 33 years
	Approx % of total length	20%
	Areas where potential long detention periods could be expected	several areas – which have been addressed by rechlorination stations.
	Areas where low water pressure (eg < 12 m) could be expected during peak or other demand periods)	nil significant
Reservoirs	**Ground (at WTP) No**	2
	Name	WTP clear water reservoirs
	Capacity (kL)	260 kL, 240 kL
	Roofed (Y/N)	Yes
	Vermin-proof (Y/N)	Yes
	Runoff directed off roof (Y/N)	Yes
	Ground Level Service Reservoirs	9
	Mt Wooroolin	2.23 ML concrete
	Orana	2.23 ML concrete
	Fisher St	1.14 ML concrete

Kingaroy

Kingaroy		
Component		Details
	Reservoir St	2 x 770 kL concrete
	Kingaroy Heights	2 x 280 kL galvanised steel
	Golf Course	45 kL poly
	Taabinga Heights	2 x 180 kL concrete
	Kingaroy Heights HL	10 kL galvanised steel
	Drive-in	85 kL galvanised steel
	Roofed (Y/N)	Yes
	Vermin-proof (Y/N)	Yes
	Runoff directed off roof (Y/N)	Yes
If supply is obtained from Boondooma (SunWater system) Council will liaise with SunWater staff regarding any water quality issues and if any take suitable measures.		

Kingaroy

4.4 Gordonbrook Dam Catchment



The Gordonbrook Dam catchment (Stuart River) rises 44 kilometres south-west of Kingaroy and extends to the dam 16 kilometres north-west of Kingaroy. The total catchment area is 588 square kilometres.

The land use in the catchment is predominantly a mix of low density grazing and cropping, with some conservation areas and some intensive animal/horticulture production sites. Generally it is to

be expected that the intensive production sites as well as the industrial and waste disposal sites will be operated under licence conditions which minimise contaminant discharge.

It is probably fair to assume that the most significant water quality hazard in the catchment is presented by the town of Kingaroy itself. There will be the usual range of nutrients and contaminants that can be expected from an urban centre of 11,000 people, including a sewage treatment plant and trunk highway. There are no other significant towns in the catchment.

The snapshot sampling undertaken in September 2011 included testing for 123 pesticides. The only pesticide chemicals found in Gordonbrook water were

- 0.06 micrograms per litre of Atrazine – less than half of one percent of the ADWG recommended health limit of 20 micrograms per litre, and
- 0.01 micrograms per litre of Desethyl Atrazine

These are traces which indicate that the pesticides are being used in the catchment, but at this level they present no health problem.

Kingaroy

4.5 Water Quality Summary Tables

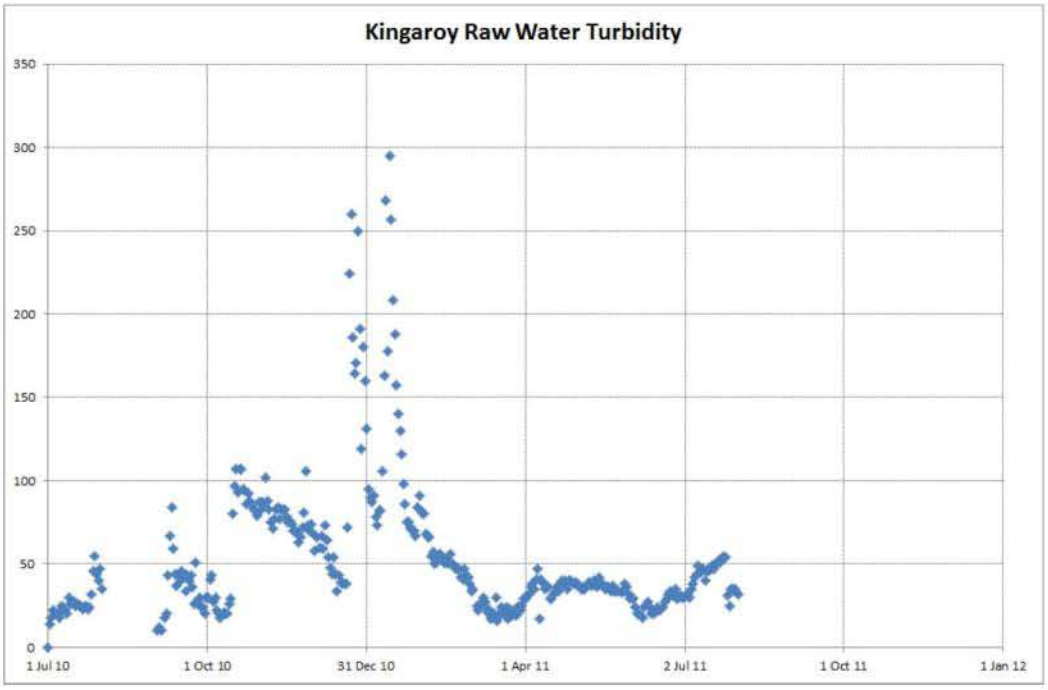
Kingaroy Raw Water							
Parameter	Sampling location	Time Period	No of samples	Summary of Results			Comments
				Max	Average	Min	
Turbidity (NTU)	WTP inlet	1 Jul 10 – 31 Jul 11	359	295	54	10	
pH	WTP inlet	1 Jul 10 – 31 Jul 11	365	8.9	7.6	6.4	
Colour	WTP inlet	1 Jul 10 – 31 Jul 11	362	3,074	410	34	
Conductivity	WTP inlet	1 Jul 10 – 31 Jul 11	365	1,310	662	90	

Kingaroy Treated Water									
Parameter	Sampling location	Time Period	No of samples	Summary of results			ADWG value	No of sample outside ADWG value	Comment
				Max	Average	Min			
Turbidity (NTU)	Town supply main	1 Jul 10 – 31 Jul 11	Turbidity was not recorded in this period because lime and entrapped air were causing false readings in the automatic sensor.						
pH	Town supply main	1 Jul 10 – 31 Jul 11	364	7.8	7.2	6.5	6.5 – 8.5	0	
Colour	Town supply main	1 Jul 10 – 31 Jul 11	289	33	2.4	0	15 (aesthetic)	9	
Free Chlorine residual	Town supply main	1 Jul 10 – 31 Jul 11	365	4.9	1.96	0.5	5	0	

Kingaroy Reticulation								
Parameter	Time Period	No of samples	Summary of Results			ADWG value	No of samples outside ADWG value	Comment
			Max	Average	Min			
Coliforms	1 Jan 11 – 1 May 12	653	>200	1.8	0	0	n/a	
E.coli	1 Jan 11 – 1 May 12	653	>200	0.3	0	0	6	>200 on 3 Feb 2011 other positives = 1
Free Chlorine residual	1 Jan 11 – 1 May 12	632	5.7	0.82	0.01	5.0	2	

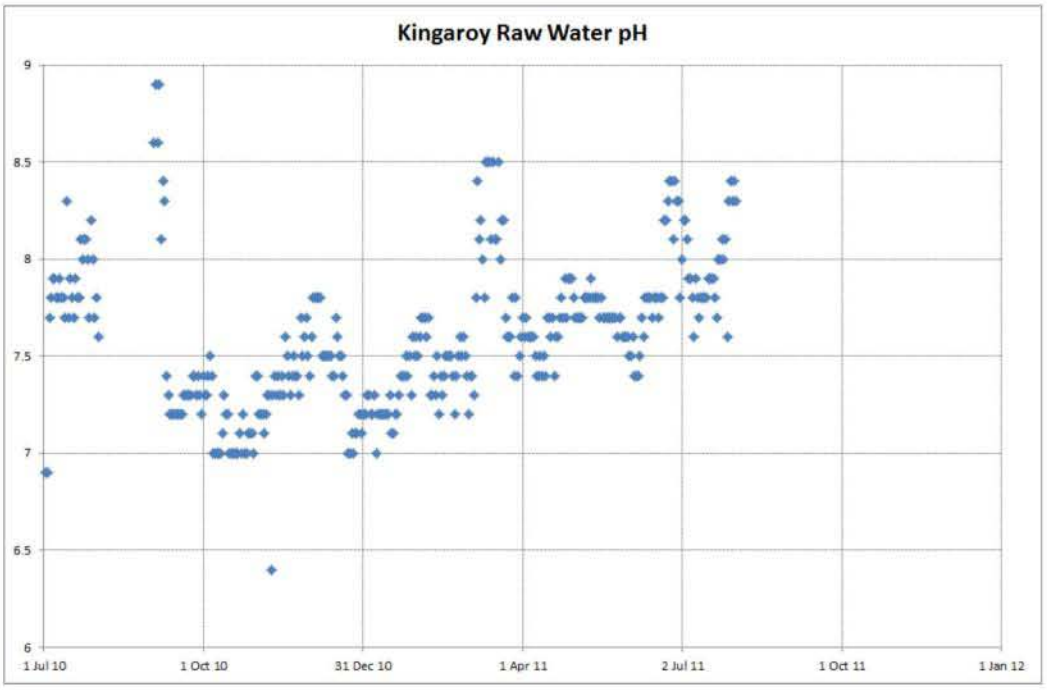
Kingaroy

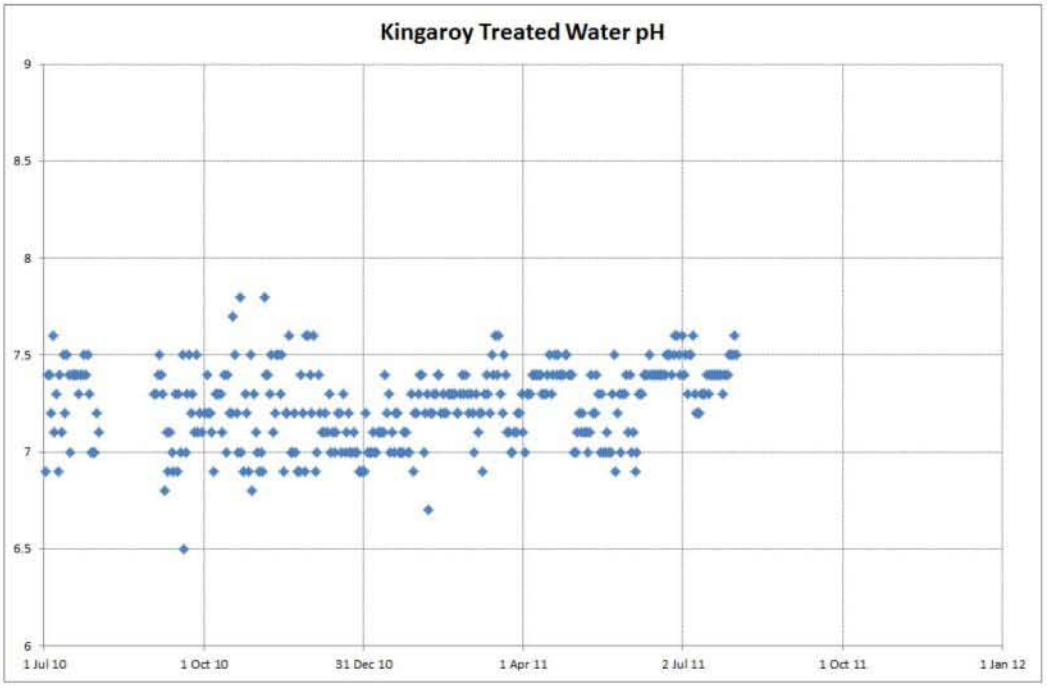
4.6 Water Quality Graphs



It can be seen that the turbidity rose to 300 during the major flood event in January 2010 – January 2011, but once the flow eased the turbidity settled down to 20 – 50 NTU.

Kingaroy

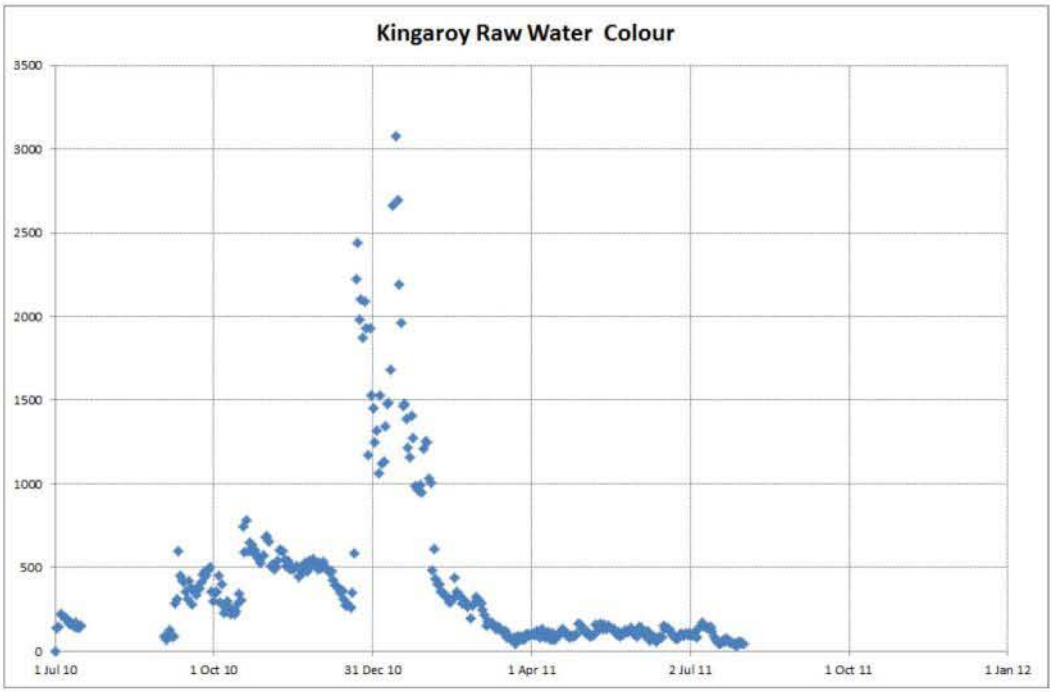


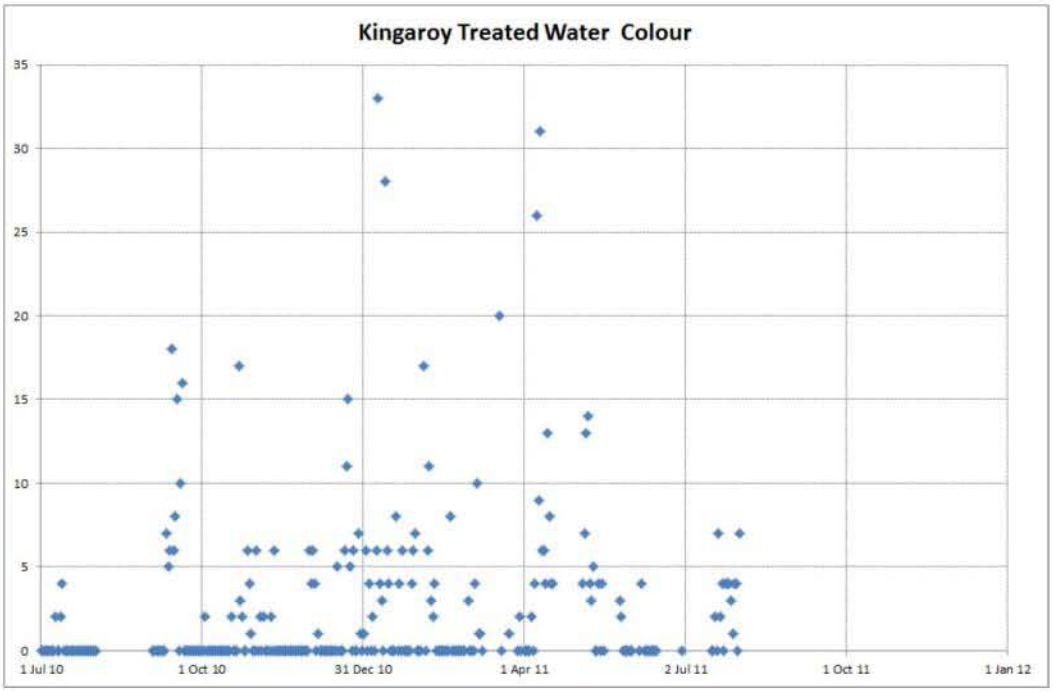


The treatment process is effectively stabilising pH in the range 7.0 to 7.5.

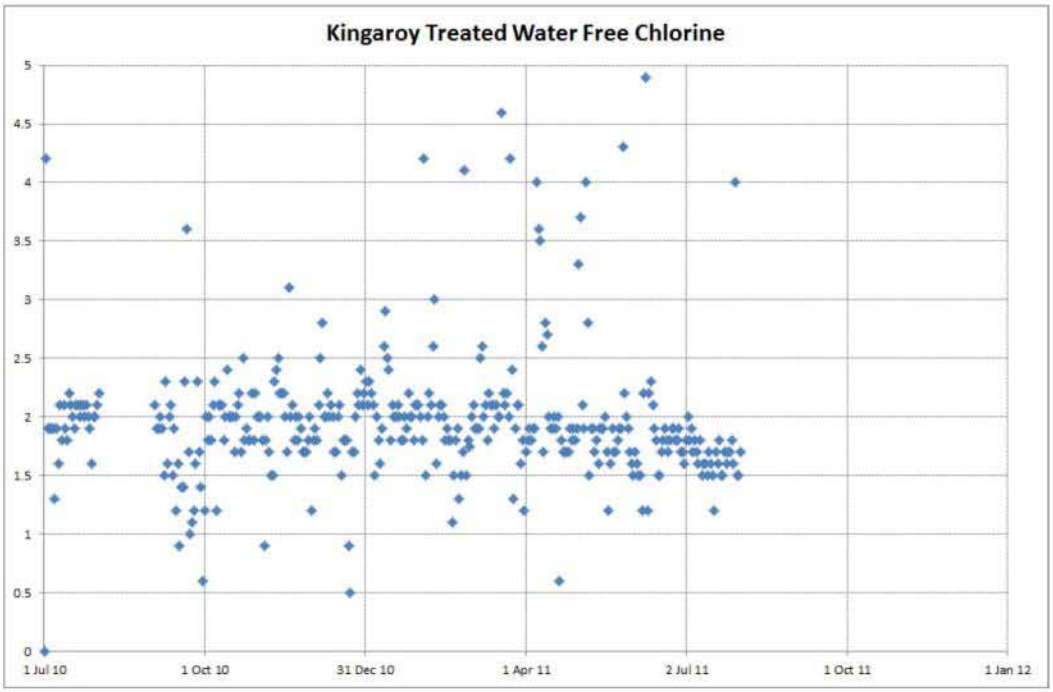
25

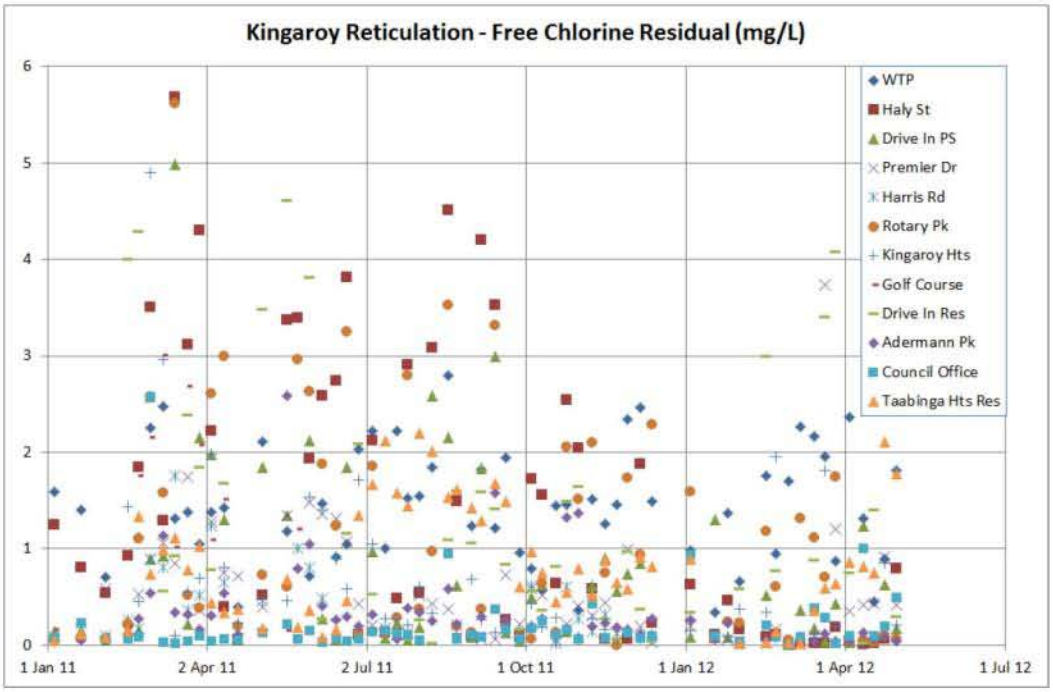
Kingaroy


Kingaroy Raw Water Colour
3500
3000
2500
2000
1500
1000
500
0
1 Jul 10
1 Oct 10
31 Dec 10
1 Apr 11
2 Jul 11
1 Oct 11
1 Jan 12

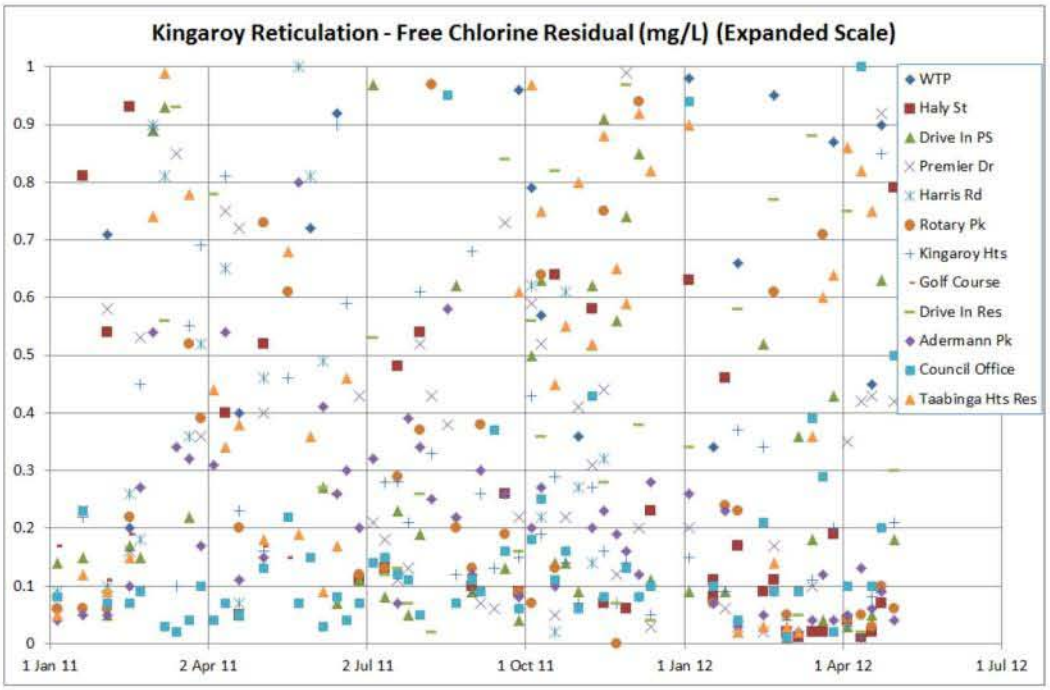

Kingaroy Treated Water Colour
35
30
25
20
15
10
5
0
1 Jul 10
1 Oct 10
31 Dec 10
1 Apr 11
2 Jul 11
1 Oct 11
1 Jan 12

Kingaroy

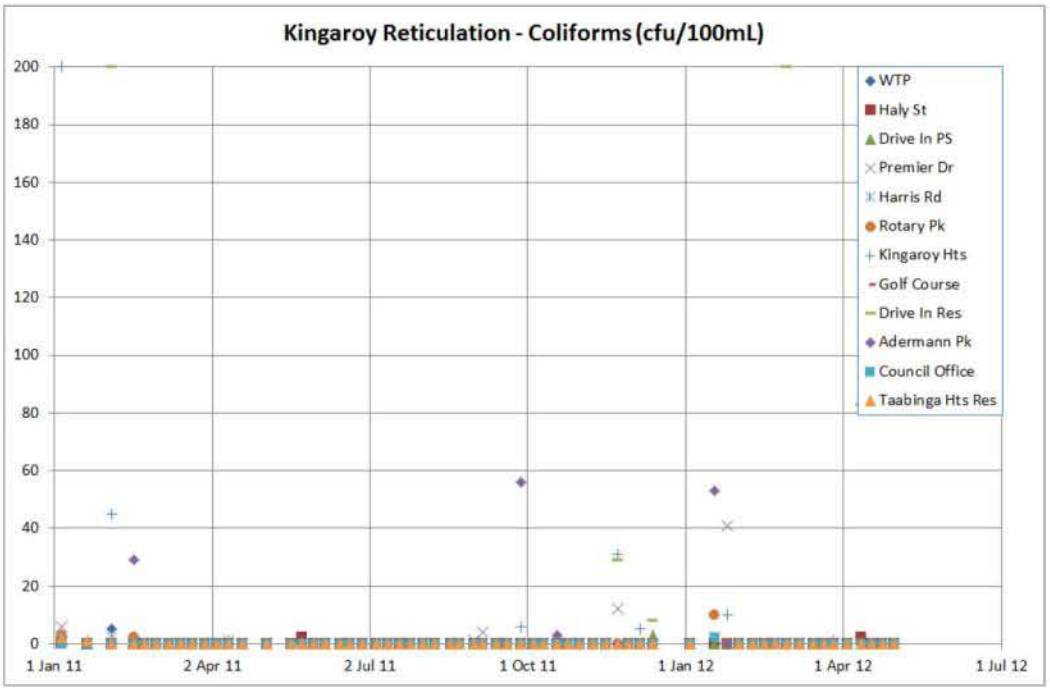

Kingaroy Treated Water Free Chlorine
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
1 Jul 10
1 Oct 10
31 Dec 10
1 Apr 11
2 Jul 11
1 Oct 11
1 Jan 12


Kingaroy Reticulation - Free Chlorine Residual (mg/L)
6
5
4
3
2
1
0
1 Jan 11
2 Apr 11
2 Jul 11
1 Oct 11
1 Jan 12
1 Apr 12
1 Jul 12
WTP
Haly St
Drive In PS
Premier Dr
Harris Rd
Rotary Pk
Kingaroy Hts
Golf Course
Drive In Res
Adermann Pk
Council Office
Taabinga Hts Res

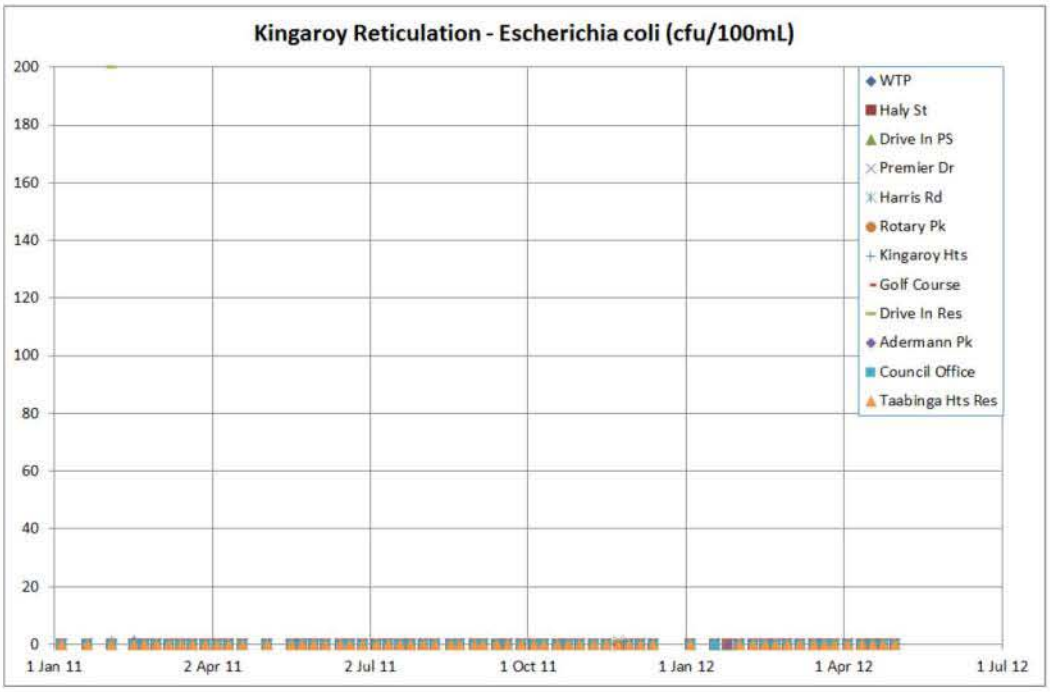
Kingaroy

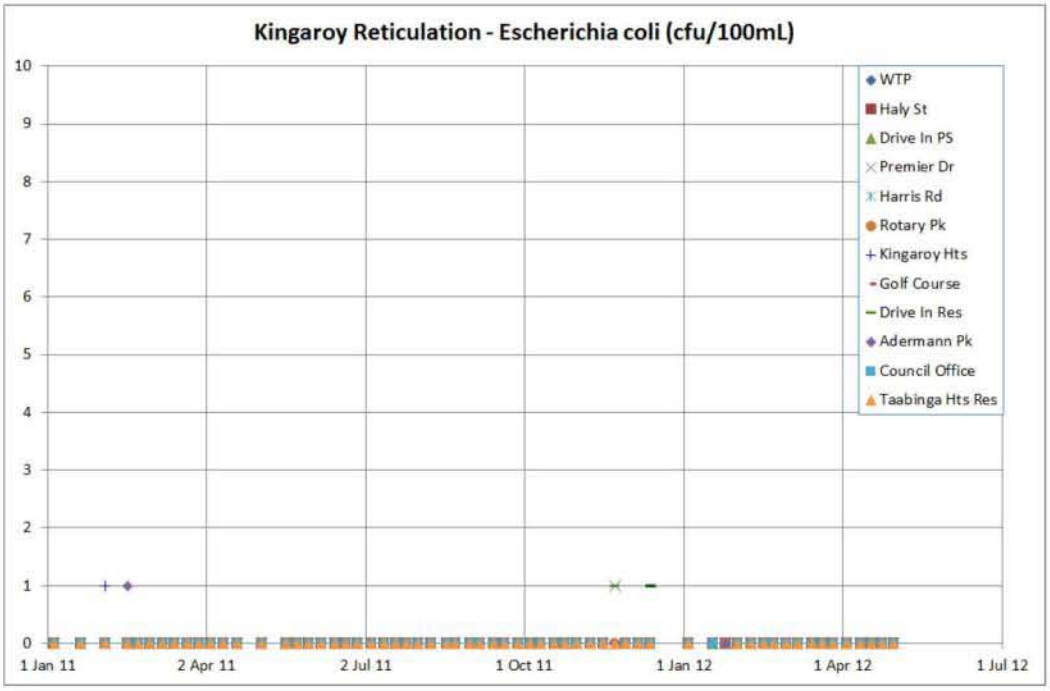


Expanding the scale to show just the chlorine readings less than 1mg/L in the reticulation shows that there are quite a number in this range, although very few at zero. Council is continually observing the operation of the rechlorination plants around the town of Kingaroy to improve the consistency of the chlorine levels.



Kingaroy





There was one recording of greater than 200 E.coli on 3 February 2011. Apart from that the only other positive tests recorded a single unit each.

Kingaroy

4.7 Snapshot Monitoring

Kingaroy Snapshot Monitoring				
Sample Description			Raw Water	
Collected Date			01-Sep-11	16-Nov-11
Metals				
Aluminium	mg/L	0.2	1.2	3.5
Antimony	mg/L	**0.003**	< 0.0001	< 0.0001
Arsenic	mg/L	**0.01**	< 0.0003	0.0007
Barium	mg/L	**2.**	0.082	0.12
Beryllium	mg/L	**0.06**	< 0.0001	0.0002
Boron	mg/L	**4.**	0.038	0.036
Cadmium	mg/L	**0.002**	< 0.0001	< 0.0001
Chromium	mg/L	**0.05**	0.0009	0.0052
Cobalt	mg/L		0.0008	0.0051
Copper	mg/L	**2.**	0.004	0.019
Iron	mg/L	0.3	0.64	4.4
Lead	mg/L	**0.01**	0.0005	0.0047
Manganese	mg/L	**0.5**	0.19	2.2
Molybdenum	mg/L	**0.05**	0.0002	0.0004
Nickel	mg/L	**0.02**	0.0033	0.0096
Selenium	mg/L	**0.01**	< 0.0010	0.001
Silver	mg/L	**0.1**	< 0.001	< 0.001
Stronium	mg/L		0.55	0.3
Thallium	mg/L		< 0.0001	< 0.0001
Titanium	mg/L		0.008	0.04
Uranium	mg/L	**0.017**	< 0.0001	0.0004
Vanadium	mg/L		0.0017	0.008
Zinc	mg/L	3.	0.022	0.11

Colour Key			
Health Parameters		**Aesthetic Parameters**	
	Not detected		Not detected
	Less than ADWG limit		Less than ADWG limit
	Above ADWG limit		Above ADWG limit

It is suspected that the high manganese level indicated in the November snapshot sample was an aberration, perhaps caused by low flow/stagnation in the sample pipe. Council routinely tests for manganese in the risk periods and there was no significant concentration in either raw or treated water manganese levels at that time.

Council destratifies the lake when needed to help control manganese, and has the capability to dose potassium permanganate into the flash mixer if required to control manganese.

Kingaroy

Kingaroy Snapshot Monitoring				
Sample Description			Raw Water	
Collected Date			01-Sep-11	16-Nov-11
Standard Water Analysis				
Conductivity	uS/cm		1340.	785.
pH		6.5-8.5	7.84	7.31
Temperature	deg C		22.	22.
Total Hardness	mg/L as CaCO3		346.	188.
Temporary Hardness	mg/L as CaCo3		147.	84.
Alkalinity	mg/L CaCo3		147.	84.
Residual Alkalinity	meq/L		0.	0.
Silica	mg/L	80.	5.	10.
Total Dissolved Ions	mg/L		753.	435.
Total Dissolved Solids	mg/L	600.	668.	392.
True Colour	Hazen	15.	8.	14.
Turbidity	NTU	5.	38.	36.
pH (Saturation)*			7.6	8.
Saturation Index			0.3	-0.7
Mole Ratio			2.8	3.3
Sodium Absorption Ratio			3.	2.4
Figure of Merit			1.2	1.2
Sodium	mg/L	180.	129.	74.
Potassium	mg/L		6.8	6.
Calcium	mg/L		56.	33.
Magnesium	mg/L		50.	26.
Hydrogen	mg/L		0.	0.
Bicarbonate	mg/L		177.	102.
Carbonate	mg/L		0.9	0.2
Hydroxide	mg/L		0.	0.
Chloride	mg/L	250.	320.	190.
Fluoride	mg/L	1.5	< 0.20	0.21
Nitrate	mg/L	50.	<5.0	1.3
Sulphate	mg/L	500.	<20	6.8
Iron	mg/L	0.3	<0.01	<0.01
Manganese	mg/L	0.5	0.01	<0.01
Zinc	mg/L	3.	<0.01	<0.01
Aluminium	mg/L	0.2	<0.05	<0.05
Boron	mg/L	4.	0.04	0.04
Copper	mg/L	2.	<0.03	<0.03

Colour Key			
Health Parameters		**Aesthetic Parameters**	
	Not detected		Not detected
	Less than ADWG limit		Less than ADWG limit
	Above ADWG limit		Above ADWG limit

Kingaroy

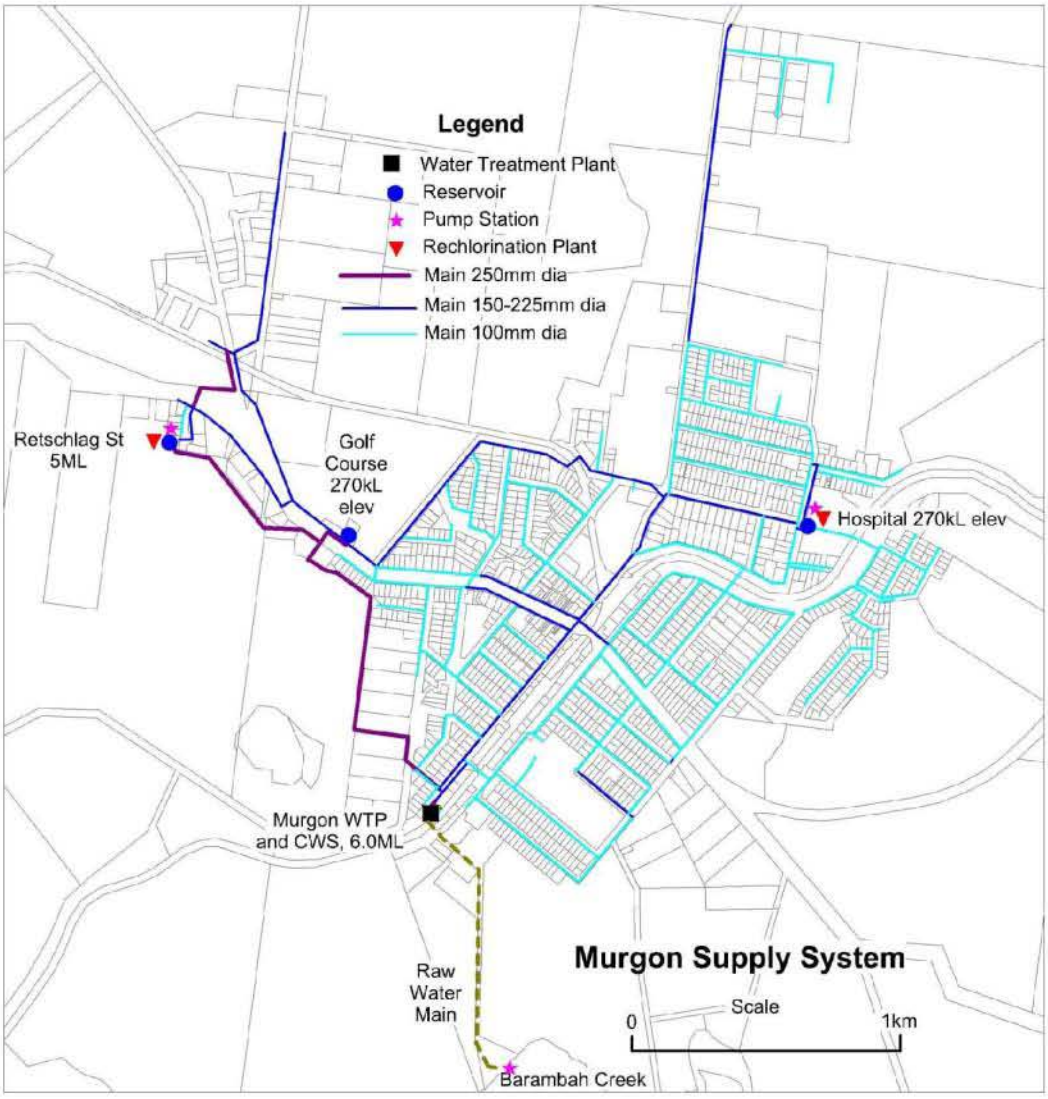
PESTICIDES			
Parathion ethyl (OP)	ug/L	0.7	< 0.1
Parathion methyl (OP)	ug/L	0.7	< 0.1
Phorate (OP)	ug/L	.	< 0.1
Phosmet (OP)	ug/L	.	< 0.1
Pirimiphos methyl (OP)	ug/L	90	< 0.1
Profenofos (OP)	ug/L	0.3	< 0.1
Prothiofos (OP)	ug/L	.	< 0.1
Pyrazophos (OP)	ug/L	20	< 0.1
Tetrachlorvinphos (OP)	ug/L	100	< 0.1
Terbufos (OP)	ug/L	0.9	< 0.1
Diclofop methyl (HGCMS)	ug/L	5	< 0.1
Haloxyfop-2-etotyl (HGCMS)	ug/L	.	< 0.1
Haloxyfop methyl (HGCMS)	ug/L	.	< 0.1
Metribuzin (HGCMS)	ug/L	70	< 0.1
Oxyfluorfen (HGCMS)	ug/L	.	< 0.1
Pendimethalin (HGCMS)	ug/L	400	< 0.1
Propanil (HGCMS)	ug/L	700	< 0.1
Propazine (HGCMS)	ug/L	50	< 0.1
Terbuthylazine (HGCMS)	ug/L	10	< 0.1
Tri-allate (HGCMS)	ug/L	.	< 0.1
Trifluralin (HGCMS)	ug/L	90	< 0.1
Ametryn (HLCMS)	ug/L	70	< 0.01
Atrazine (HLCMS)	ug/L	20	0.06
Desethyl Atrazine (HLCMS)	ug/L	.	0.01
Desisopropyl Atrazine (HLCMS)	ug/L	.	< 0.01
Diuron (HLCMS)	ug/L	20	< 0.01
Fluometuron (HLCMS)	ug/L	70	< 0.01
Hexazinone (HLCMS)	ug/L	400	< 0.01
Prometryn (HLCMS)	ug/L	.	< 0.01
Simazine (HLCMS)	ug/L	20	< 0.01
Tebuthiuron (HLCMS)	ug/L	.	< 0.01
Bromacil (LCMS)	ug/L	400	< 0.01
Metolachlor (LCMS)	ug/L	300	< 0.01
Terbutryn (LCMS)	ug/L	400	< 0.01
Benalaxyl (OTHER)	ug/L	.	< 0.1
Bitertinol (OTHER)	ug/L	.	< 0.1
Carbaryl (OTHER)	ug/L	30	< 0.1
Dichlorfluanid (OTHER)	ug/L	.	< 0.1

The snapshot sampling identified trace concentrations of two Atrazine chemicals in September 2011, as shown in the extract above. All 121 other pesticides were not present at detection concentrations.

Murgon

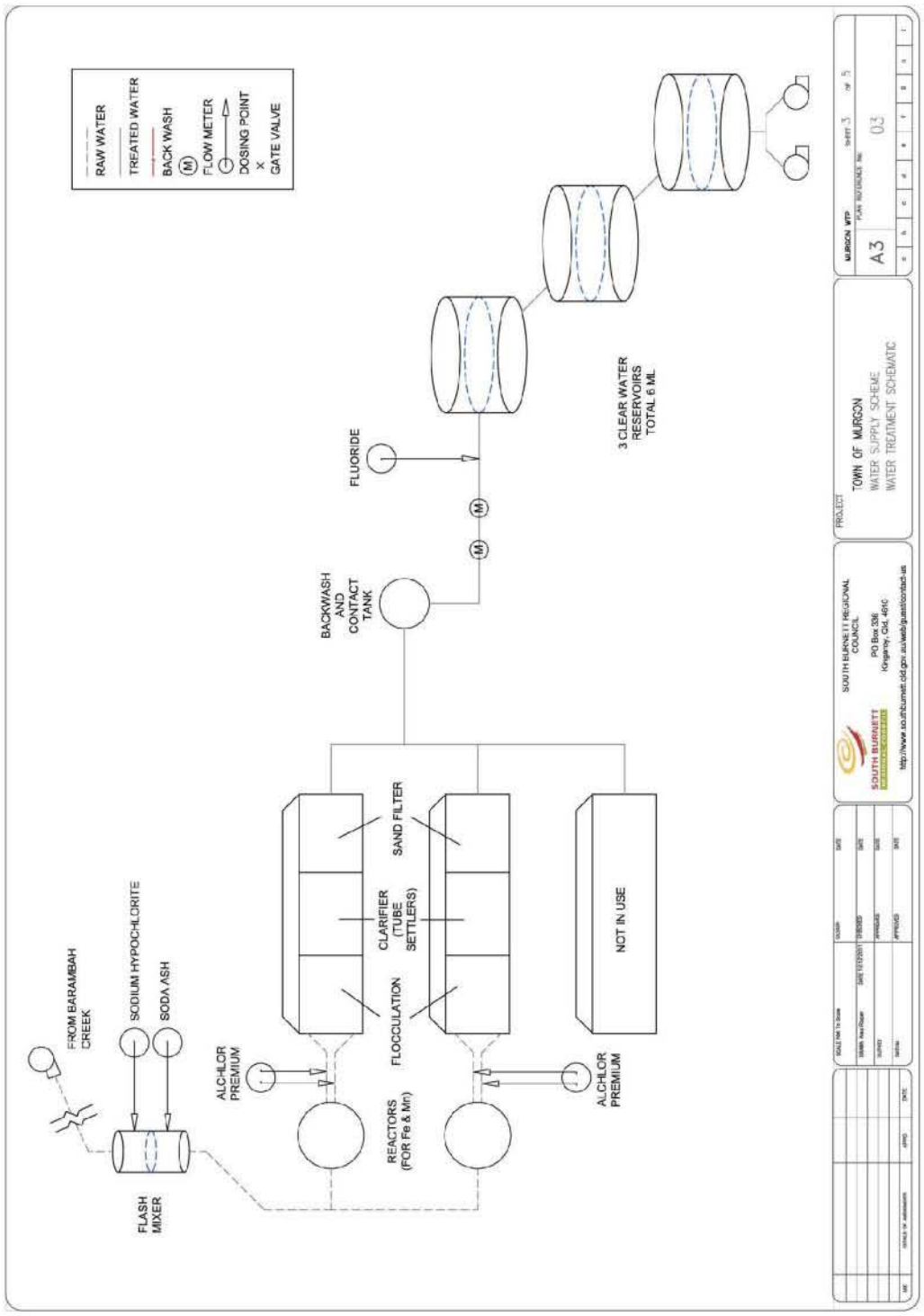
5 Murgon

5.1 Overall Schematic



Murgon

5.2 WTP Schematic



Murgon

5.3 Infrastructure Details

Murgon		
Component		**Details**
Source 1	Name	Barambah Creek weir
	Type	surface water
	% of supply	100%
	Reliability	100% - weir is replenished by releases from Bjelke Peterson Dam (SunWater) when required
	Water quality issues	hardness
Source Infrastructure	Type	raw water pumps in dry well, flooded in 2011, temporary submersible on pontoon in use Jan 2012
	Description	
Treatment		All water undergoes treatment prior to supply
	Name	Murgon WTP
	Process	Coagulation, flocculation, clarification, filtration, disinfection, fluoridation
	Design Capacity (20 hr operation)	6.4 ML/d
	Daily flow range	0 – 6.4 ML/d
	Chemicals added	coagulant: Alchlor Premium pH adjustment: soda ash fluoride
	Standby chemical dosing facilities	All dose pumps have duty/standby
	Water sourced from and %	100% from Barambah Creek
	% of average day demand provided	100%
	% of scheme supply Distribution area supplied	100%
	Bypasses / Variations	No bypasses available
Disinfection		All water undergoes disinfection prior to supply
	Location	Into flash mixer
	Type	Sodium hypochlorite
	Dose rate	as required
	Target residual levels	2.2 mg/L
	Duty/standby	Yes
	Dosing arrangements	Manually set depending on hypo strength and level
	Alarms	nil for chlorine
	Auto shut-off arrangements	On plant shut-down
Distribution and Reticulation System	Pipe material	AC
	Age range	47 years
	Approx % of total length	53%
	Pipe material	PVC

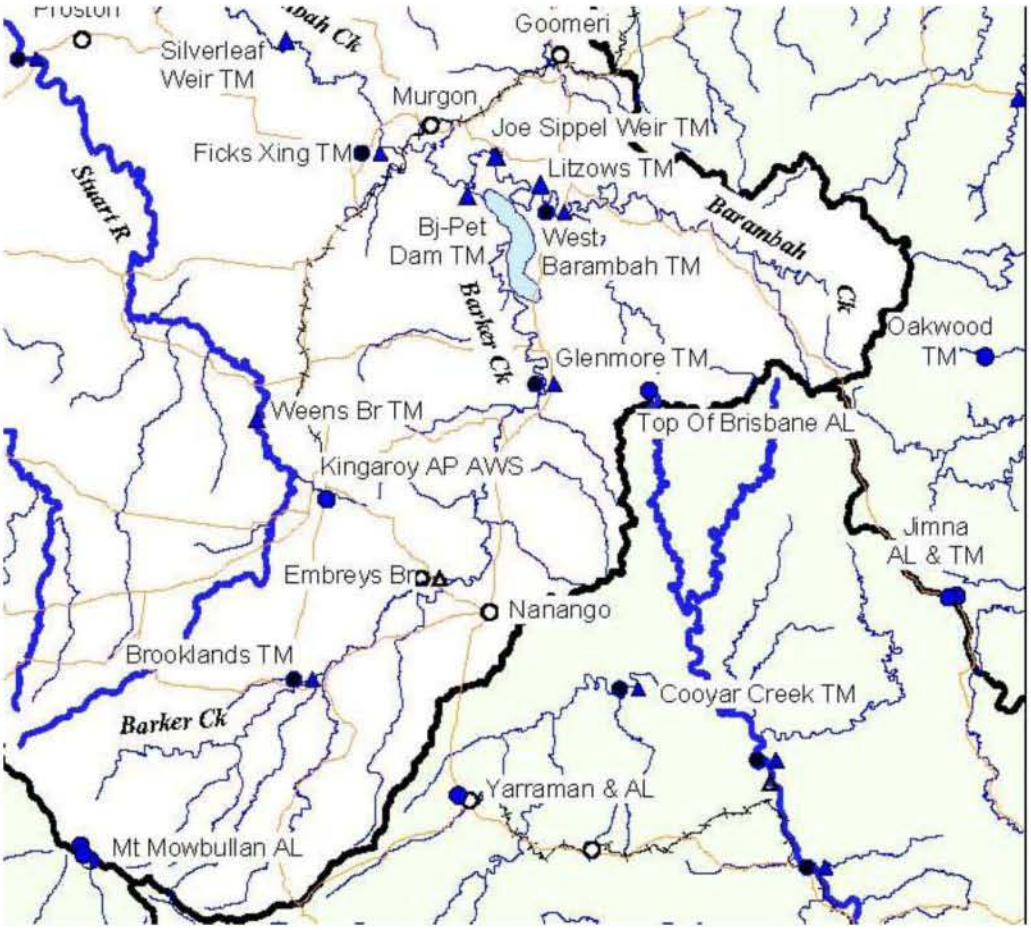
35

Murgon

Murgon		
Component		**Details**
	Age range	17 to 20 years
	Approx % of total length	47%
	Areas where potential long detention periods could be expected	Retschlag St reservoir and its industrial supply area northwest of Murgon; rural res area north of town
	Areas where low water pressure (eg < 12 m) could be expected during peak or other demand periods)	nil significant
Reservoirs	**Ground (No)**	3
	Name	WTP clear water storage
	Capacity (kL)	6.0 ML
	Roofed (Y/N)	Yes
	Vermin-proof (Y/N)	Yes
	Runoff directed off roof (Y/N)	Yes
	Ground (No)	1
	Name	Retschlag St
	Capacity (kL)	5.0 ML
	Roofed (Y/N)	Yes
	Vermin-proof (Y/N)	Yes
	Runoff directed off roof (Y/N)	Yes
	Elevated (No)	2
	Name	Hospital; Golf Course
	Capacity (kL)	270 kL each
	Roofed (Y/N)	Yes
	Vermin-proof (Y/N)	Yes
	Runoff directed off roof (Y/N)	Yes
SunWater operates the Bjelke Petersen Dam which is effectively the bulk source storage.		

Murgon

5.4 Barambah Creek Catchment



Murgon draws its water supply from Barambah Creek adjacent to the town. Barambah Creek is joined by a major tributary, Barker Creek above Murgon's intake. Barker Creek rises some 80 kilometres south-west of Murgon while Barambah Creek rises40 kilometres to the east.

The predominant land use in the catchment is grazing, while there is also cropping on the alluvial flats of Barambah Creek and upper Barker Creek. There are also substantial conservation areas in the catchments.

Barker Creek is controlled by Bjelke-Petersen Dam just above the confluence with Barambah Creek. This is important in providing surety of supply but it also serves a purpose in diluting any contaminants that may enter the creek upstream.

Some catchment features that could pose a hazard to the water quality at Murgon are:

- Tarong power station and coal mine in the upper Barker Creek catchment
- the town of Nanango approximately 40 kilometres above Bjelke-Petersen Dam
- the aboriginal community of Cherbourg (1,100 people), below the confluence of Barambah and Barker, and 8 kilometres upstream from the Murgon intake.

Murgon

It is important to the water quality at Murgon that all these upstream uses comply with their environmental approvals.

None of the 123 pesticides tested for in the snapshot monitoring in September 2011 was above the detection limit.

Murgon

5.5 Water Quality Summary Tables

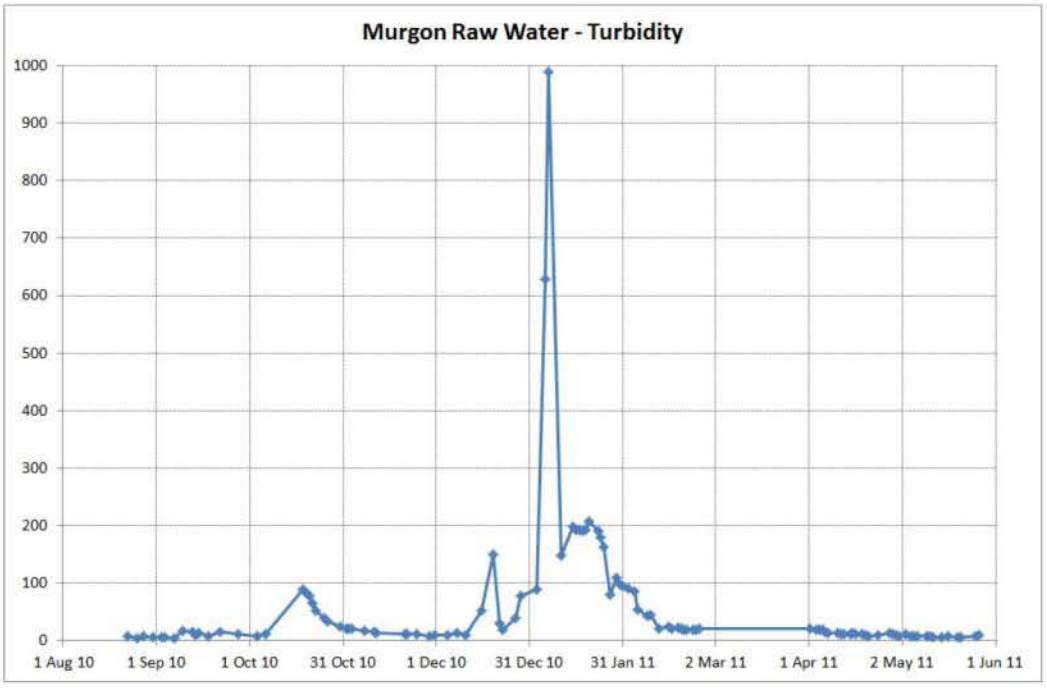
Murgon Raw Water							
Parameter	Sampling location	Time Period	No of samples	Summary of Results			Comments
				Max	Average	Min	
Turbidity (NTU)	WTP inlet	21 Aug 10 – 27 May 11	109	990	55	3.7	
pH	WTP inlet	21 Aug 10 – 27 May 11	110	9.2	7.3	6.6	
Colour	WTP inlet	21 Aug 10 – 27 May 11	95	452	117	1.6	

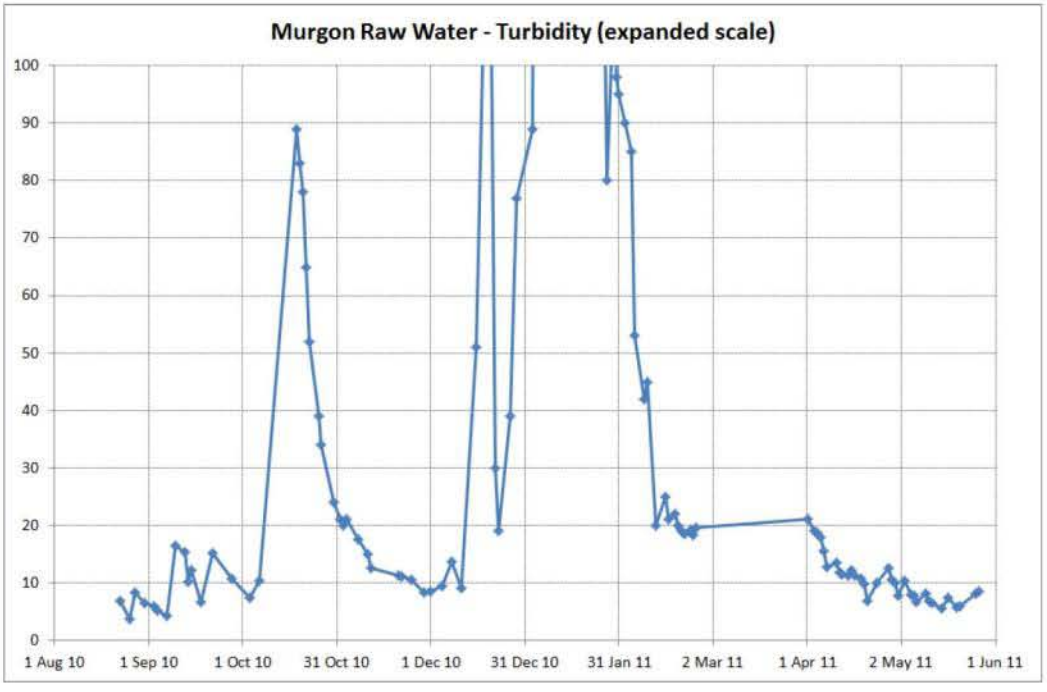
Murgon Treated Water									
Parameter	Sampling location	Time Period	No of samples	Summary of results			ADWG value	No of sample outside ADWG value	Comment
				Max	Average	Min			
Turbidity (NTU)	WTP GL Res	21 Aug 10 – 27 May 11	245	6.1	2.9	0	1.0 (for disinfection)	236	No E.coli in 2011&12
pH	WTP GL Res	21 Aug 10 – 27 May 11	245	8.2	7.3	6.95	6.5 – 8.5	0	
Colour	WTP GL Res	21 Aug 10 – 27 May 11	245	24	2.95	0		0	
Free Chlorine residual	WTP GL Res	21 Aug 10 – 27 May 11	241	3.05	1.77	0.05	5	0	

Murgon Reticulation								
Parameter	Time Period	No of samples	Summary of Results			ADWG value	No of samples outside ADWG value	Comment
			Max	Average	Min			
Coliforms	1 Jan 11 – 2 May 12	300	24	0.3	0	n/a		
E.coli	1 Jan 11 – 2 May 12	300	0	0	0	0	0	
Free Chlorine residual	1 Jan 11 – 2 May 12	323	5.0	1.5	0.02	5	0	

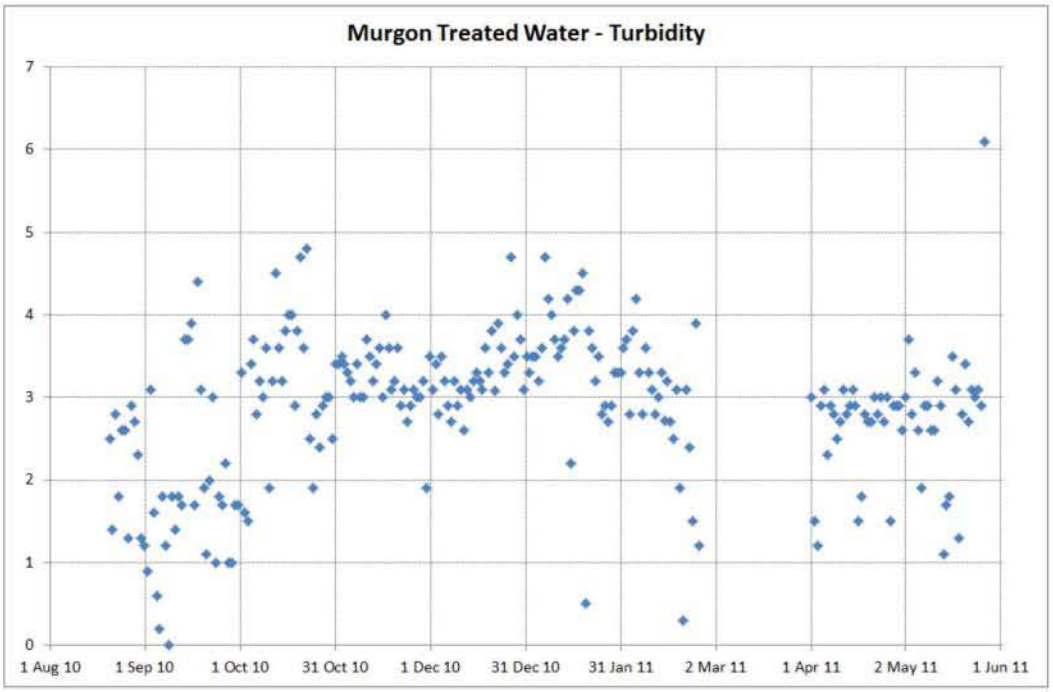
Murgon

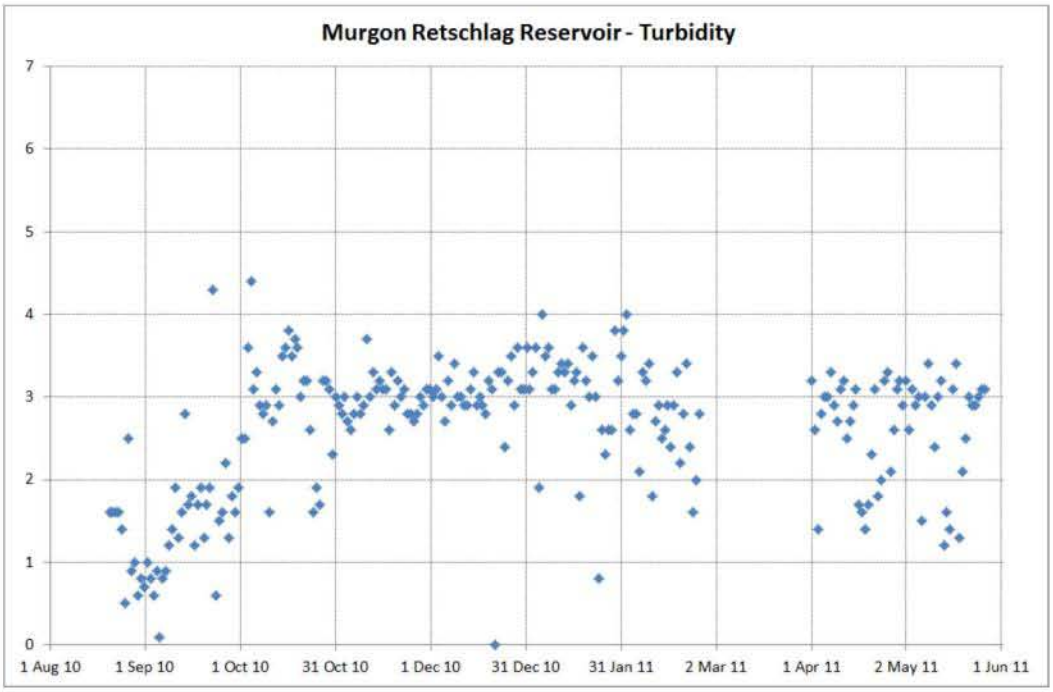
5.6 Water Quality Graphs



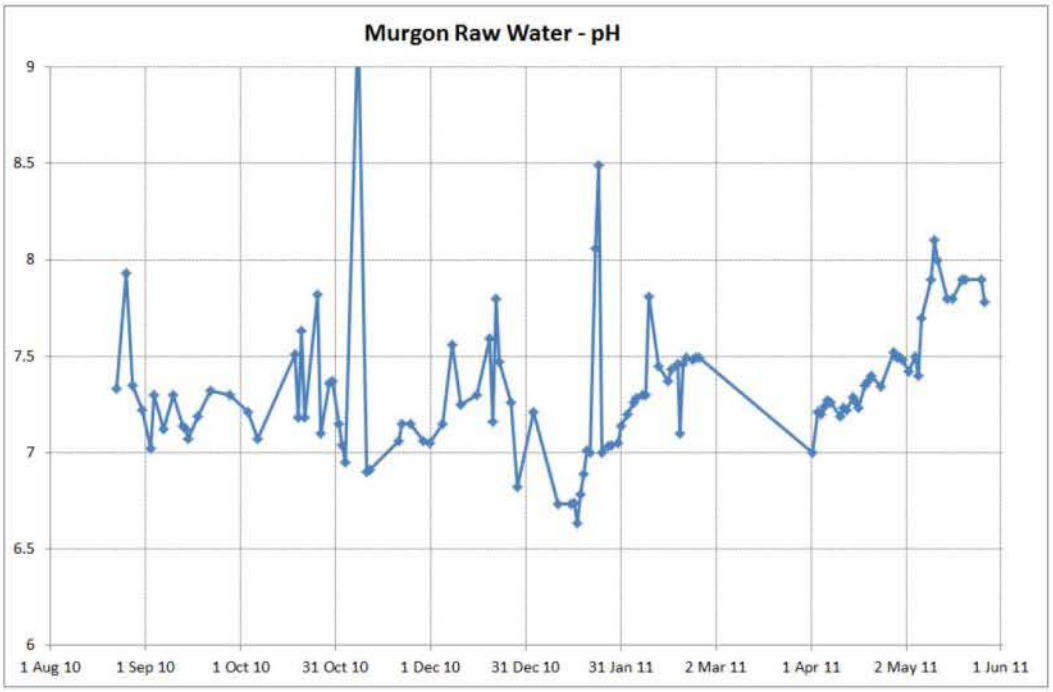


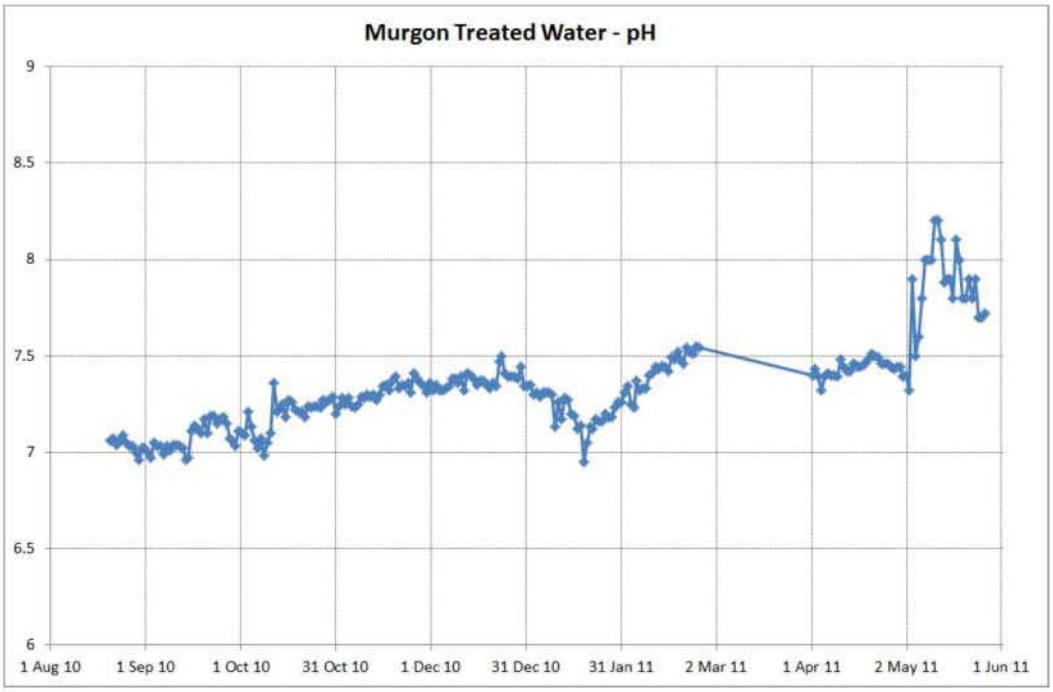
Murgon


Murgon Treated Water - Turbidity
7
6
5
4
3
2
1
0
1 Aug 10
1 Sep 10
1 Oct 10
31 Oct 10
1 Dec 10
31 Dec 10
31 Jan 11
2 Mar 11
1 Apr 11
2 May 11
1 Jun 11

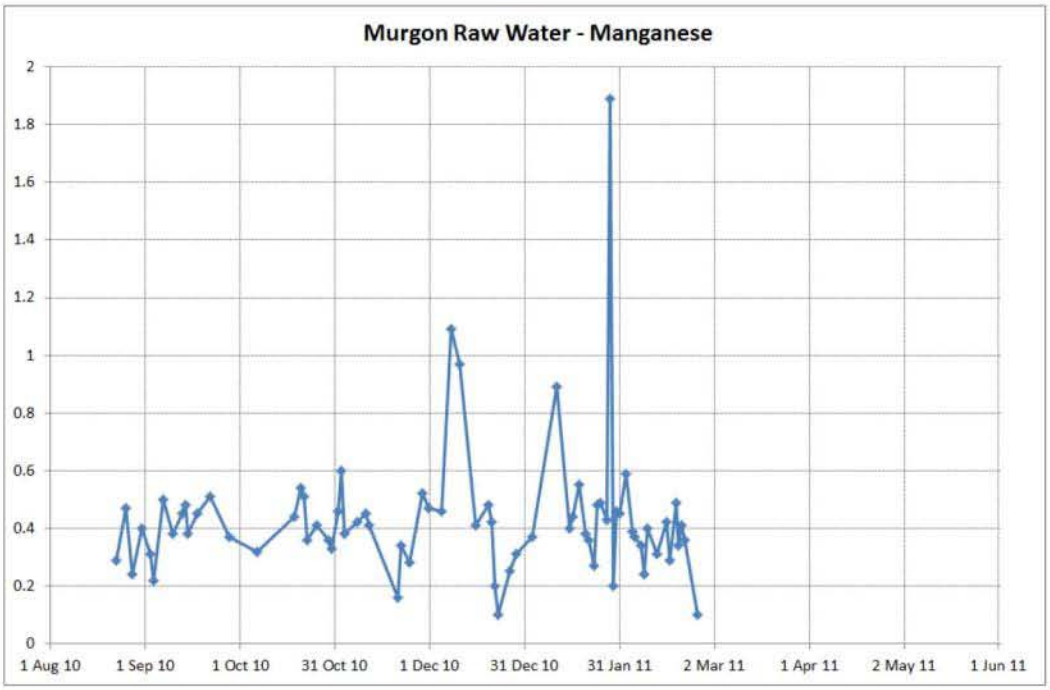

Murgon Retschlag Reservoir - Turbidity
7
6
5
4
3
2
1
0
1 Aug 10
1 Sep 10
1 Oct 10
31 Oct 10
1 Dec 10
31 Dec 10
31 Jan 11
2 Mar 11
1 Apr 11
2 May 11
1 Jun 11

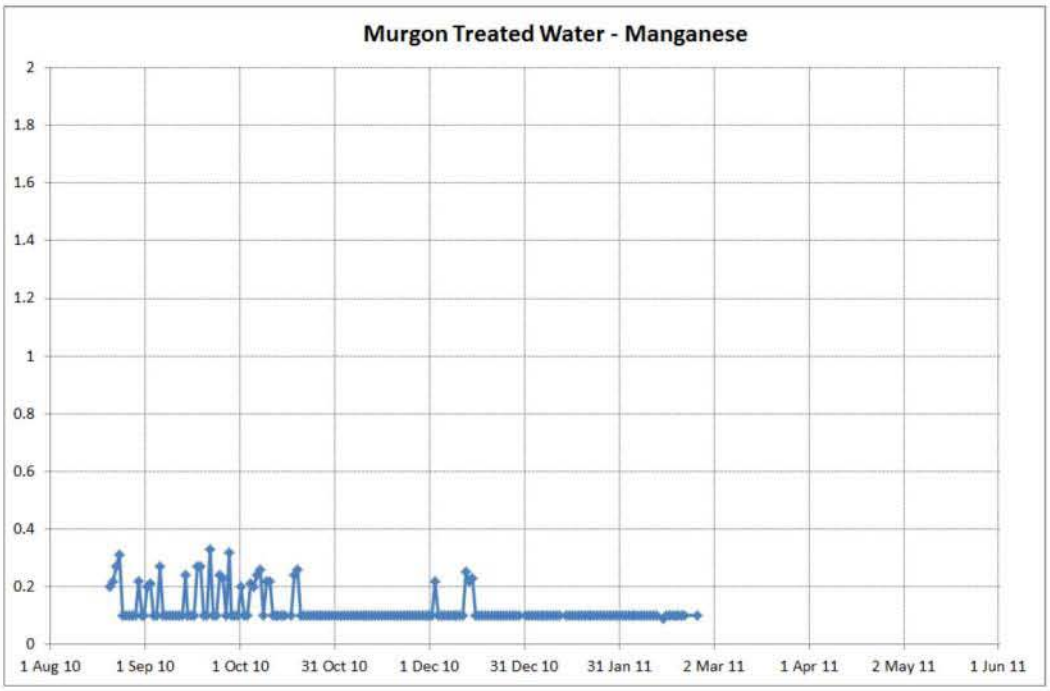
Murgon


Murgon Raw Water - pH
9
8.5
8
7.5
7
6.5
6
1 Aug 10
1 Sep 10
1 Oct 10
31 Oct 10
1 Dec 10
31 Dec 10
31 Jan 11
2 Mar 11
1 Apr 11
2 May 11
1 Jun 11

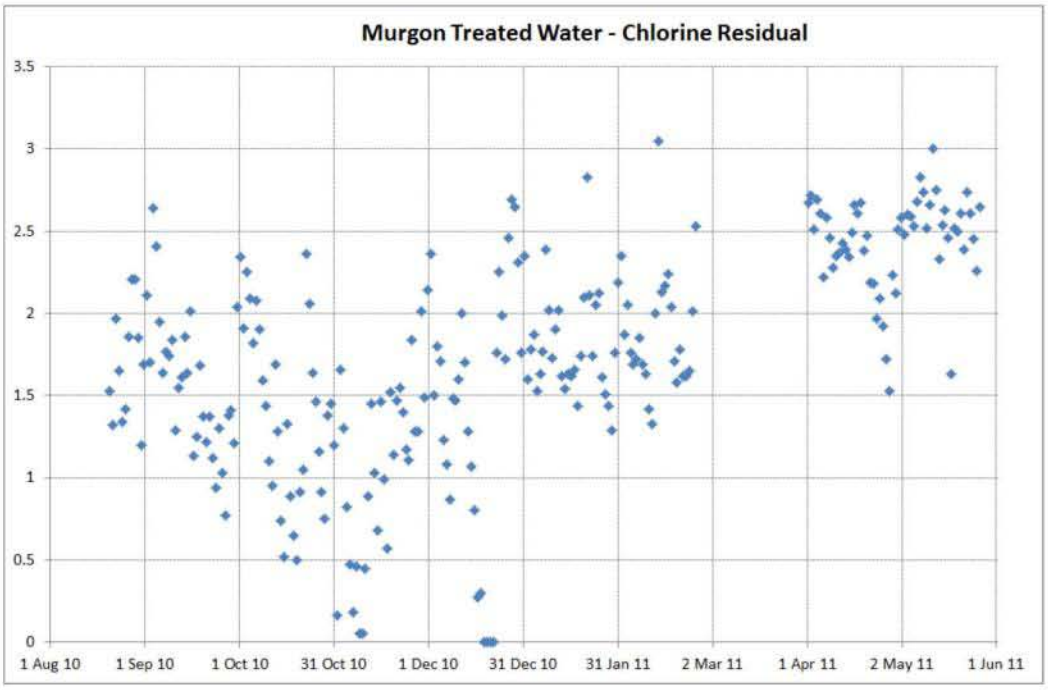

Murgon Treated Water - pH
9
8.5
8
7.5
7
6.5
6
1 Aug 10
1 Sep 10
1 Oct 10
31 Oct 10
1 Dec 10
31 Dec 10
31 Jan 11
2 Mar 11
1 Apr 11
2 May 11
1 Jun 11

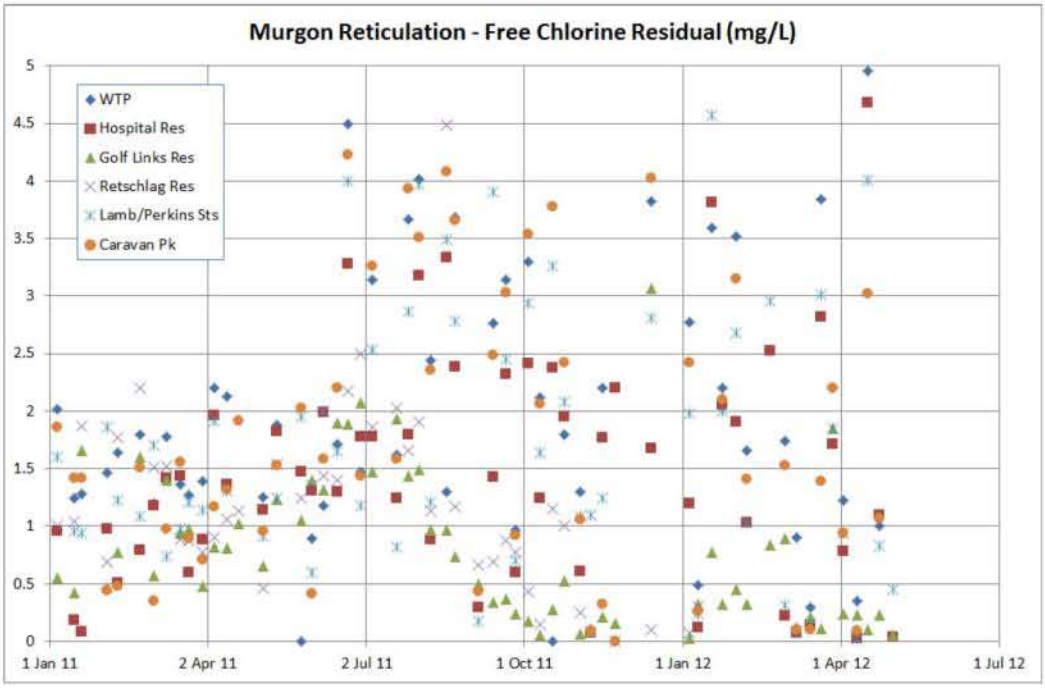
Murgon


Murgon Raw Water - Manganese
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
1 Aug 10
1 Sep 10
1 Oct 10
31 Oct 10
1 Dec 10
31 Dec 10
31 Jan 11
2 Mar 11
1 Apr 11
2 May 11
1 Jun 11

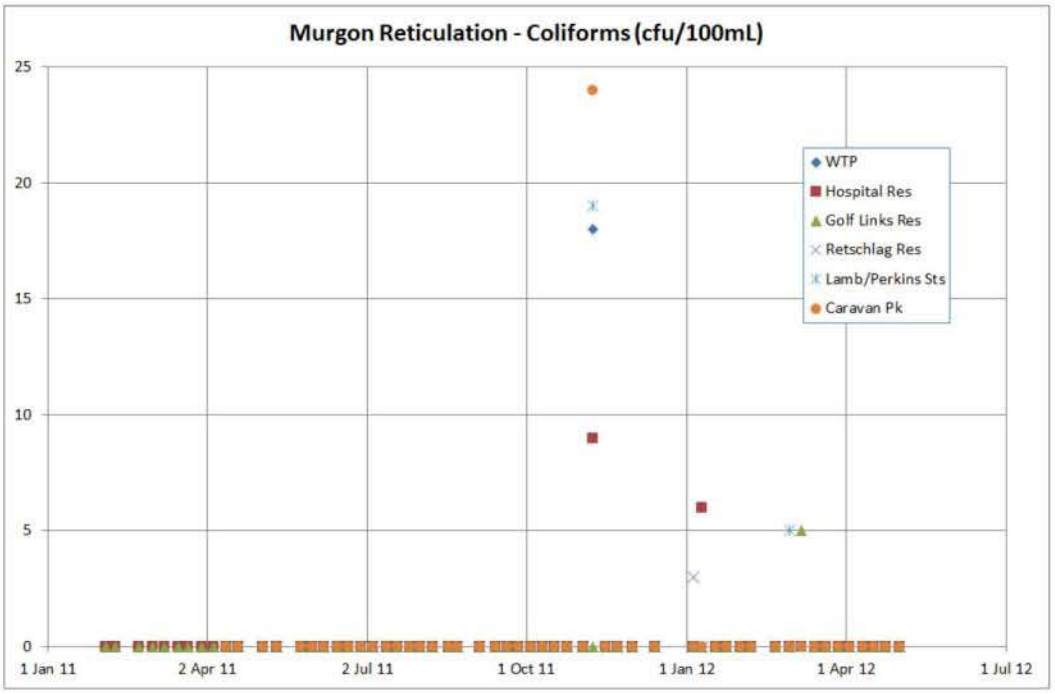

Murgon Treated Water - Manganese
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
1 Aug 10
1 Sep 10
1 Oct 10
31 Oct 10
1 Dec 10
31 Dec 10
31 Jan 11
2 Mar 11
1 Apr 11
2 May 11
1 Jun 11

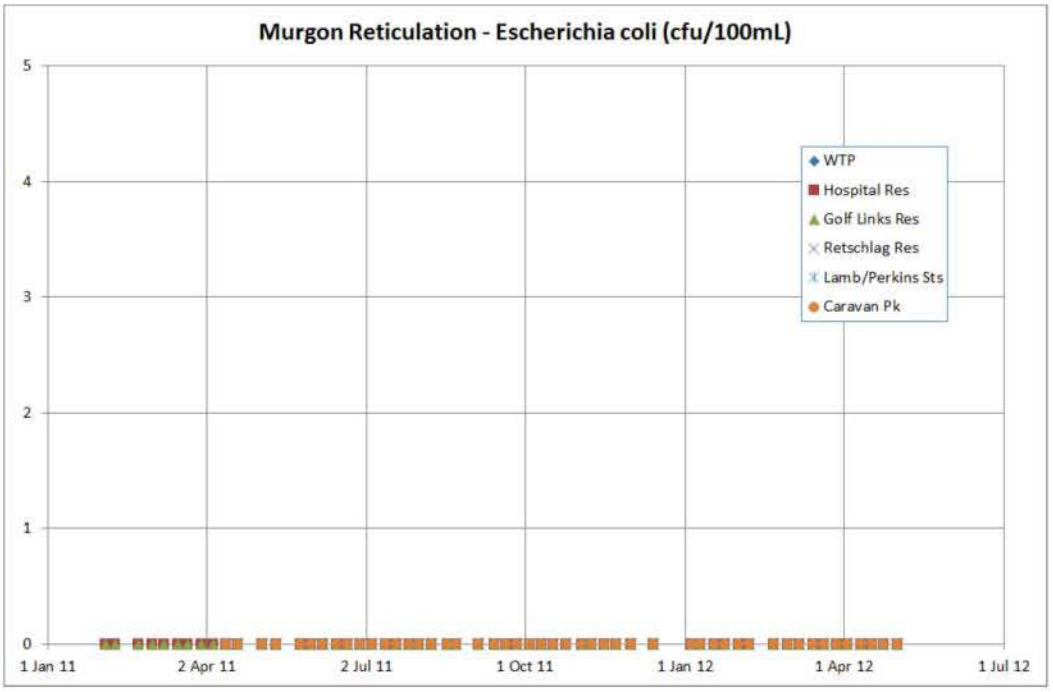
Murgon


Murgon Treated Water - Chlorine Residual
3.5
3
2.5
2
1.5
1
0.5
0
1 Aug 10
1 Sep 10
1 Oct 10
31 Oct 10
1 Dec 10
31 Dec 10
31 Jan 11
2 Mar 11
1 Apr 11
2 May 11
1 Jun 11


Murgon Reticulation - Free Chlorine Residual (mg/L)
WTP
Hospital Res
Golf Links Res
Retschlag Res
Lamb/Perkins Sts
Caravan Pk
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
1 Jan 11
2 Apr 11
2 Jul 11
1 Oct 11
1 Jan 12
1 Apr 12
1 Jul 12

Murgon


Murgon Reticulation - Coliforms (cfu/100mL)
25
20
15
10
5
0
1 Jan 11
2 Apr 11
2 Jul 11
1 Oct 11
1 Jan 12
1 Apr 12
1 Jul 12
WTP
Hospital Res
Golf Links Res
Retschlag Res
Lamb/Perkins Sts
Caravan Pk


Murgon Reticulation - Escherichia coli (cfu/100mL)
5
4
3
2
1
0
1 Jan 11
2 Apr 11
2 Jul 11
1 Oct 11
1 Jan 12
1 Apr 12
1 Jul 12
WTP
Hospital Res
Golf Links Res
Retschlag Res
Lamb/Perkins Sts
Caravan Pk

Murgon

5.7 Snapshot Monitoring

Murgon Snapshot Monitoring				
Sample Description			Raw Water	
Collected Date			01-Sep-11	16-Nov-11
Metals				
Aluminium	mg/L	0.2	0.092	0.036
Antimony	mg/L	**0.003**	< 0.0001	< 0.0001
Arsenic	mg/L	**0.01**	0.0014	0.0023
Barium	mg/L	**2.**	0.13	0.062
Beryllium	mg/L	**0.06**	< 0.0001	< 0.0001
Boron	mg/L	**4.**	0.03	0.034
Cadmium	mg/L	**0.002**	< 0.0001	< 0.0001
Chromium	mg/L	**0.05**	0.0002	0.0003
Cobalt	mg/L		0.0002	0.0002
Copper	mg/L	**2.**	0.096	0.11
Iron	mg/L	0.3	0.17	0.085
Lead	mg/L	**0.01**	< 0.0001	< 0.0001
Manganese	mg/L	**0.5**	0.069	0.09
Molybdenum	mg/L	**0.05**	0.0004	0.0005
Nickel	mg/L	**0.02**	0.0012	0.0016
Selenium	mg/L	**0.01**	< 0.0010	< 0.0010
Silver	mg/L	**0.1**	< 0.001	< 0.001
Stronium	mg/L		1.3	0.49
Thallium	mg/L		< 0.0001	< 0.0001
Titanium	mg/L		0.003	< 0.001
Uranium	mg/L	**0.017**	< 0.0001	0.0003
Vanadium	mg/L		0.0043	0.0034
Zinc	mg/L	3.	0.003	0.008

Colour Key			
Health Parameters		**Aesthetic Parameters**	
	Not detected		Not detected
	Less than ADWG limit		Less than ADWG limit
	Above ADWG limit		Above ADWG limit

Murgon

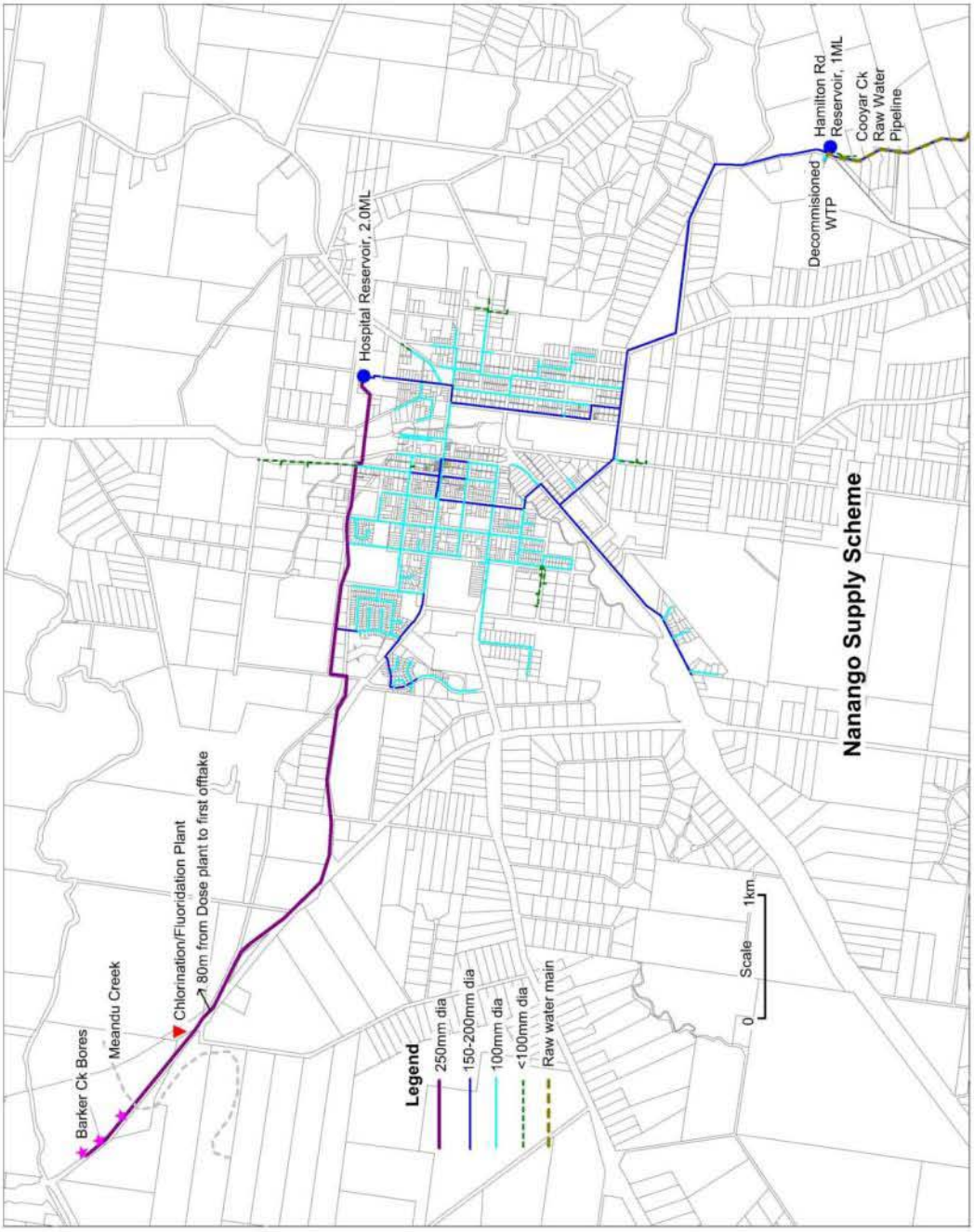
Murgon Snapshot Monitoring				
Sample Description			Raw Water	
Collected Date			01-Sep-11	16-Nov-11
Standard Water Analysis				
Conductivity	uS/cm		1860.	763.
pH		6.5-8.5	8.42	7.69
Temperature	deg C		22.	22.
Total Hardness	mg/L as CaCO3		597.	217.
Temporary Hardness	mg/L as CaCo3		305.	127.
Alkalinity	mg/L CaCo3		305.	127.
Residual Alkalinity	meq/L		0.	0.
Silica	mg/L	80.	13.	14.
Total Dissolved Ions	mg/L		1160.	454.
Total Dissolved Solids	mg/L	600.	995.	389.
True Colour	Hazen	15.	19.	19.
Turbidity	NTU	5.	4.	3.
pH (Saturation)*			7.	7.8
Saturation Index			1.5	-0.1
Mole Ratio			2.	2.7
Sodium Absorption Ratio			2.8	1.9
Figure of Merit			1.7	1.6
Sodium	mg/L	180.	159.	63.
Potassium	mg/L		4.1	4.7
Calcium	mg/L		111.	40.
Magnesium	mg/L		78.	29.
Hydrogen	mg/L		0.	0.
Bicarbonate	mg/L		358.	154.
Carbonate	mg/L		6.7	0.5
Hydroxide	mg/L		0.	0.
Chloride	mg/L	250.	410.	150.
Fluoride	mg/L	**1.5**	< 0.20	0.18
Nitrate	mg/L	**50.**	<5.0	<0.5
Sulphate	mg/L	**500.**	<20	9.9
Iron	mg/L	0.3	<0.01	<0.01
Manganese	mg/L	**0.5**	<0.01	0.02
Zinc	mg/L	3.	<0.01	<0.01
Aluminium	mg/L	0.2	<0.05	<0.05
Boron	mg/L	**4.**	0.03	0.04
Copper	mg/L	**2.**	0.08	0.08

Colour Key			
Health Parameters		**Aesthetic Parameters**	
	Not detected		Not detected
	Less than ADWG limit		Less than ADWG limit
	Above ADWG limit		Above ADWG limit

Nanango

6 Nanango

6.1 Overall Schematic



Nanango

6.2 WTP

Nanango does not have a water treatment plant. The turbidity of the bore water is such that further treatment is not considered to be warranted.

Approximately one kilometre from the bores there is a dosing plant that injects sodium hypochlorite into the delivery main when the bore pumps are running at a dose rate set by the operator.

In 2011 fluoridation was implemented and a dosing plant was installed at the chlorination site. Nanango has a fluoride dosing module similar to the others installed by Council, using a sodium fluoride saturator controlled by dual water flow meters with an on-line fluoride sensor that shuts down dosing if concentration exceeds 1.0 mg/L.

Nanango

6.3 Infrastructure Details

Nanango		
Component		Details
Source	Name	Barker Creek Bores
	Type	3 bores 20-25m deep in creek alluvium
	% of supply	100%
	Reliability	100% with drought management
	Water quality issues	TDS, hardness, intermittent issues such as manganese with no treatment available
Source Infrastructure	Type	3 bore pumps
	Description	submersible
Source	Name	McCauley Weir on Cooyar Creek
	Type	300 ML capacity
	% of supply	This source includes a treatment plant (clarifier and sand filter) but has not been used for potable supply for years and would require some restoration before it could be used.
	Reliability	not known
	Water quality issues	iron, manganese, TDS, hardness
Source Infrastructure	Type	pumps, treatment plant
	Description	treatment plant not servicable
Treatment		
	Name	Bore water disinfection plant
	Process	disinfection, fluoridation
	Design Capacity (20 hr operation)	1.9 ML/d
	Daily flow range	0 to 1.9 ML/d
	Chemicals added	chlorine – currently gas, to be changed to sodium hypo in 2012 fluoride
	Standby chemical dosing facilities	dosing pumps have duty and standby with automatic changeover
	Water sourced from and %	100% from Barker Creek bores
	% of average day demand provided	100%
	% of scheme supply Distribution area supplied	100%
	Bypasses / Variations	
Disinfection		All water undergoes disinfection prior to supply
	Location	Into trunk supply main approx 1km from bores and 3km from town
	Type	Gas in Jan 2012, to be changed to sodium hypochlorite in 2012
	Dose rate	2.0 mg/L

50

Nanango

Nanango		
Component		**Details**
	Target residual levels	1.5 mg/L
	Duty/standby	Yes
	Dosing arrangements	Manually set depending on bores flow rate
	Alarms	nil
	Auto shut-off arrangements	nil
Distribution and Reticulation System	Pipe material	Asbestos cement
	Age range	30 - 58 years
	Approx % of total length	70%
	Pipe material	Cast iron
	Age range	58 years
	Approx % of total length	2%
	Pipe material	PVC
	Age range	2 - 30 years
	Approx % of total length	28%
	Areas where potential long detention periods could be expected	normal ends of reticulation
	Areas where low water pressure (eg < 12 m) could be expected during peak or other demand periods)	nil significant
Reservoirs	**Ground (No)**	2
	Name	Hospital
	Capacity (ML)	2.0 ML
	Roofed (Y/N)	Yes
	Vermin-proof (Y/N)	Yes
	Runoff directed off roof (Y/N)	Yes
	Name	Hamilton Rd (WTP)
	Capacity (ML)	1.1 ML
	Roofed (Y/N)	Yes
	Vermin-proof (Y/N)	Yes
	Runoff directed off roof (Y/N)	Yes
There are no water quality responsibility changes		

Nanango

6.4 Nanango Water Supply Catchment

The Nanango water supply is drawn from three bores adjacent to Barker Creek. The bores are relatively shallow, 20 to 25 metres deep, and are sited in the alluvium on the creek flat between Barker Creek and Meandu Creek. (Meandu joins Barker two kilometres downstream of the bores.)

While subsurface water does not have a catchment in the same sense as surface water, the shallow bores are no doubt replenished by seepage from the creeks and are potentially subject to contamination therefrom.

The catchment of the creeks is indicated in the aerial photograph above. The landuse in the upper catchment of Barker Creek is predominantly grazing and state forest. The alluvial flats in the lower half are used for cropping. At the top of the Meandu Creek catchment are the Tarong power station and coal mine, with grazing and some rural residential properties in the lower half.

None of the 123 pesticides tested for in the snapshot monitoring in August 2011 was above the detection limit.

Nanango

6.5 Water Quality Summary Tables

Chemical analysis of the water from the three bores has been undertaken on a monthly basis. The results indicate there is little difference in quality between the different bores, and a summary of the results is contained in the table below.

Chemical Parameters for Nanango Water (Jan 2009 - Feb 2011)

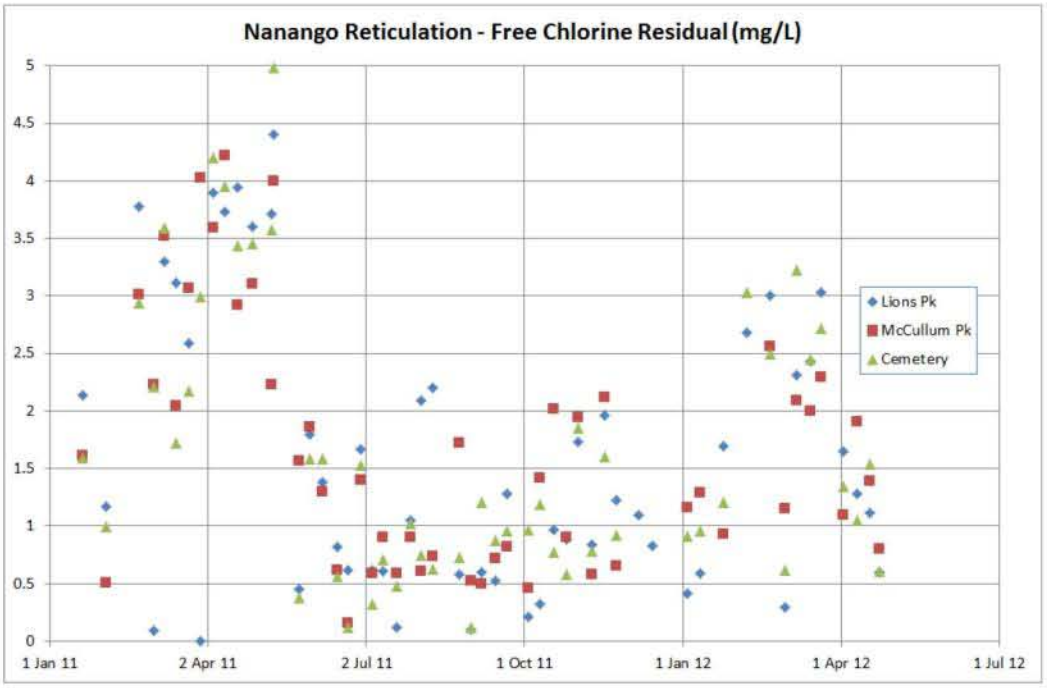
Parameter	Average Value	Max Recorded	Min Recorded	Current Month February 2011
Conductivity (µS/cm)	1761	2030	1580	1690
pH (@ 23°)	7.32	7.79	6.93	7.05
Saturation Index	0.10	0.70	-0.40	-0.3
Turbidity (NTU)	<1	4	<1	2
	mg/L	**mg/L**	**mg/L**	
Total Hardness (CaCO3)	479	579	437	468
TDS	982	982	982	961
Cations				
Na^+	173	195	143	162
K^+	2.37	2.80	2.00	2.5
Ca^{2+}	89.85	106.00	81.00	89
Mg^{2+}	62.00	76.00	55.00	60
Anions				
HCO_3^-	260	387	187	205
CO_3^{2-}	0.43	0.43	0.43	0.2
Cl^-	385	452	345	390
Other				
Fe	0.01	0.1	<0.01	<0.01
Mn	0.15	0.53	0.01	<0.01
Zn	<0.01	0.32	0.01	0.03
Al	<0.05	---	---	<0.05
B	0.05	0.07	0.02	0.05
Cu	0.08	1.4	0.03	0.04

Nanango Reticulation

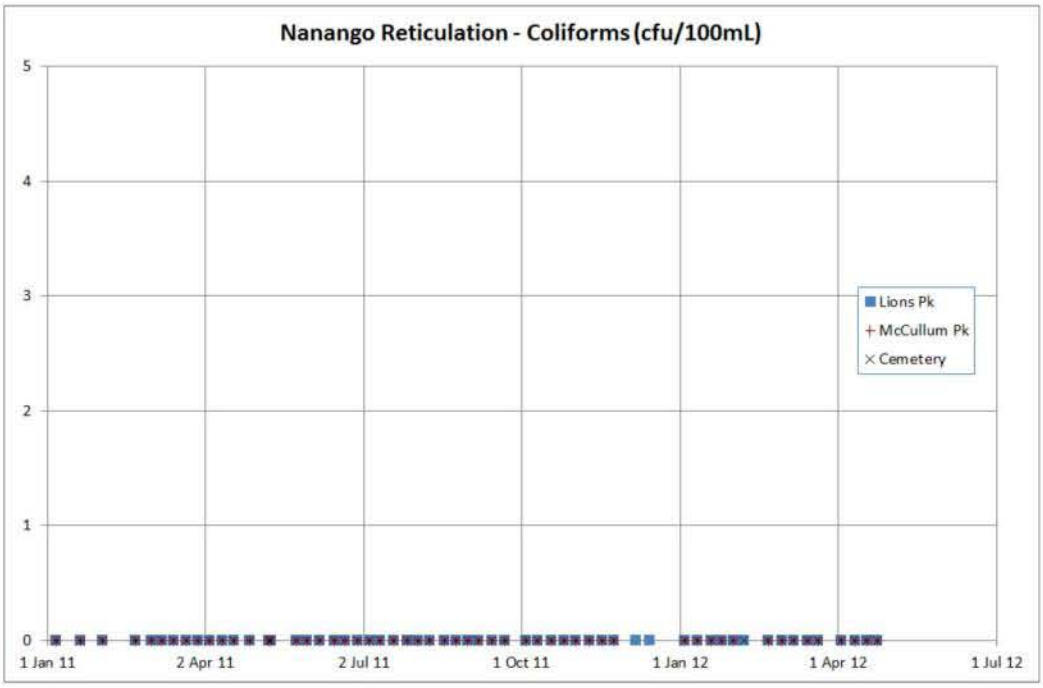
Parameter	Time Period	No of samples	Summary of Results			ADWG value	No of samples outside ADWG value	Comment
			Max	Average	Min			
Coliforms	1 Jan 11 – 2 May 12	171	0	0	0	n/a		
E.coli	1 Jan 11 – 2 May 12	171	0	0	0	0	0	
Free Chlorine residual	1 Jan 11 – 2 May 12	158	5.0	1.6	0.09	5	0	

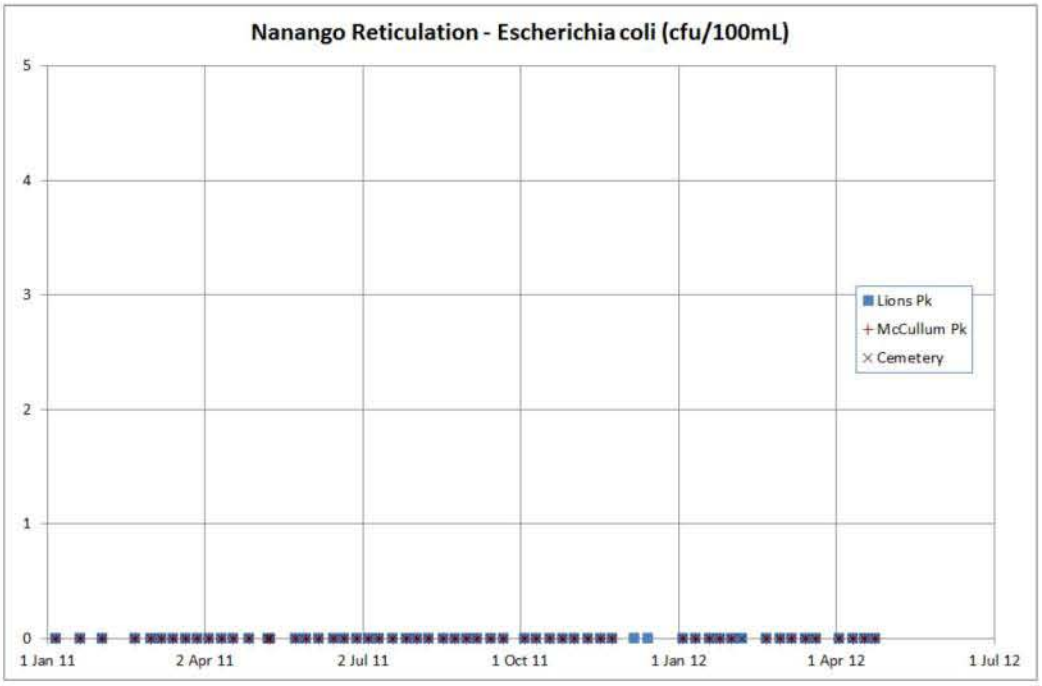
Nanango

6.6 Water Quality Graphs



Nanango


Nanango Reticulation - Coliforms (cfu/100mL)
5
4
3
2
1
0
1 Jan 11
2 Apr 11
2 Jul 11
1 Oct 11
1 Jan 12
1 Apr 12
1 Jul 12
Lions Pk
McCullum Pk
Cemetery


Nanango Reticulation - Escherichia coli (cfu/100mL)
5
4
3
2
1
0
1 Jan 11
2 Apr 11
2 Jul 11
1 Oct 11
1 Jan 12
1 Apr 12
1 Jul 12
Lions Pk
McCullum Pk
Cemetery

Nanango

6.7 Snapshot Monitoring

Nanango Snapshot Monitoring				
Sample Description			Raw Water	
Collected Date			01-Sep-11	16-Nov-11
Metals				
Aluminium	mg/L	0.2	< 0.003	0.005
Antimony	mg/L	**0.003**	< 0.0001	< 0.0001
Arsenic	mg/L	**0.01**	< 0.0003	< 0.0001
Barium	mg/L	**2.**	0.17	0.16
Beryllium	mg/L	**0.06**	< 0.0001	< 0.0001
Boron	mg/L	**4.**	0.065	0.027
Cadmium	mg/L	**0.002**	< 0.0001	0.0002
Chromium	mg/L	**0.05**	< 0.0001	< 0.0001
Cobalt	mg/L		0.0014	< 0.0001
Copper	mg/L	**2.**	0.037	0.012
Iron	mg/L	0.3	0.14	< 0.005
Lead	mg/L	**0.01**	0.031	0.0004
Manganese	mg/L	**0.5**	0.49	0.0019
Molybdenum	mg/L	**0.05**	0.0002	0.0006
Nickel	mg/L	**0.02**	0.0017	0.0003
Selenium	mg/L	**0.01**	< 0.0010	< 0.0010
Silver	mg/L	**0.1**	< 0.001	< 0.001
Stronium	mg/L		0.93	0.96
Thallium	mg/L		< 0.0001	< 0.0001
Titanium	mg/L		< 0.001	< 0.001
Uranium	mg/L	**0.017**	< 0.0001	0.0014
Vanadium	mg/L		0.0023	0.0032
Zinc	mg/L	3.	0.015	0.004

Colour Key			
Health Parameters		**Aesthetic Parameters**	
	Not detected		Not detected
	Less than ADWG limit		Less than ADWG limit
	Above ADWG limit		Above ADWG limit

Lead was detected at three times the guideline limit in September, but in the November sampling it had dropped to one hundredth of the September concentration and was only 4% of the guideline limit. Similar reductions occurred in the levels of iron and manganese and generally all metals were less in November.

It could be that the September sample was an aberration, but the fluctuation in quality merits further monitoring.

Nanango

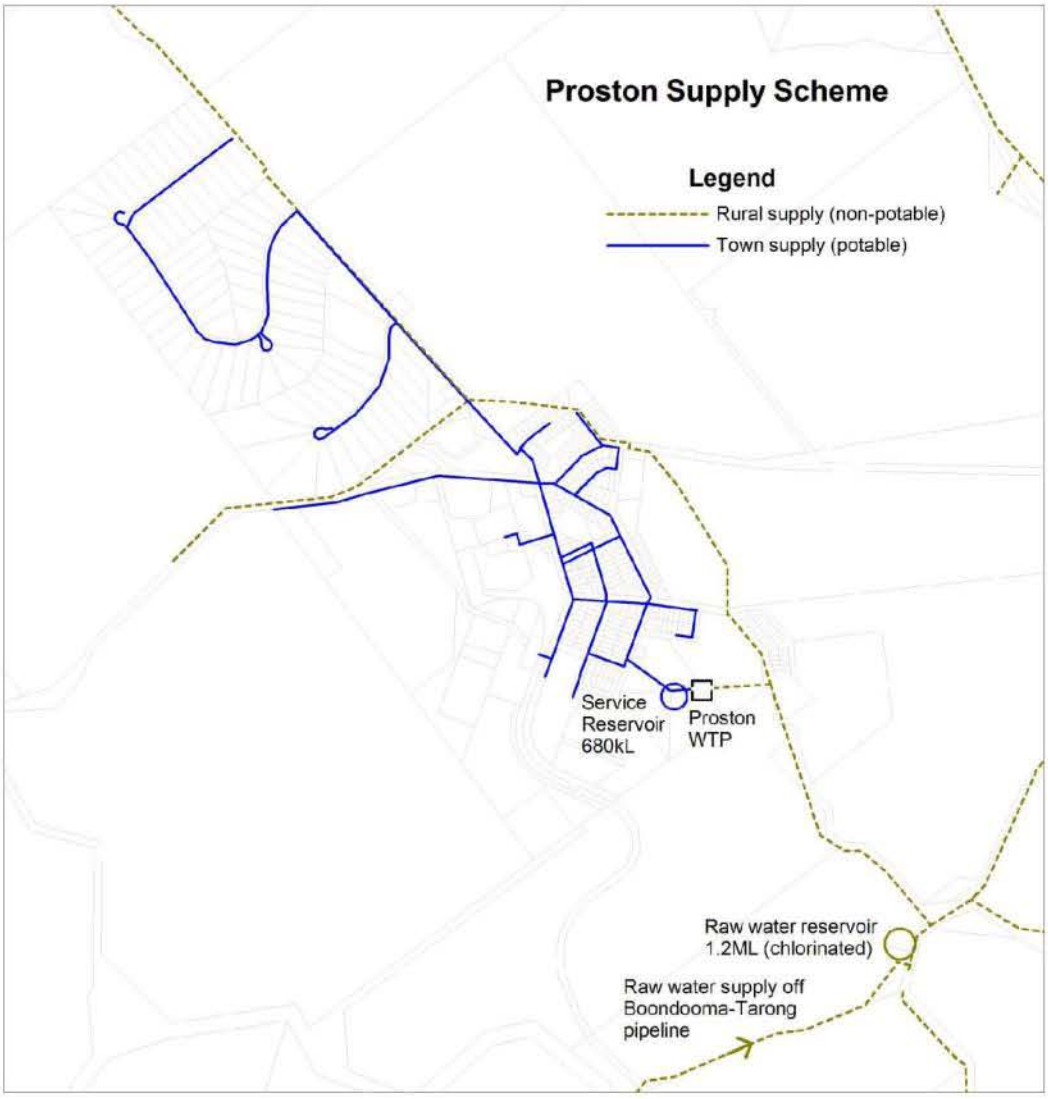
Nanango Snapshot Monitoring				
Sample Description			Raw Water	
Collected Date			01-Sep-11	16-Nov-11
Standard Water Analysis				
Conductivity	uS/cm		1820.	1750.
pH		6.5-8.5	7.7	7.22
Temperature	deg C		22.	22.
Total Hardness	mg/L as CaCO3		483.	473.
Temporary Hardness	mg/L as CaCo3		172.	287.
Alkalinity	mg/L CaCo3		172.	287.
Residual Alkalinity	meq/L		0.	0.
Silica	mg/L	80.	51.	51.
Total Dissolved Ions	mg/L		1080.	1080.
Total Dissolved Solids	mg/L	600.	1020.	955.
True Colour	Hazen	15.	3.	<1
Turbidity	NTU	5.	<1	<1
pH (Saturation)*			7.3	7.1
Saturation Index			0.4	0.1
Mole Ratio			3.	3.3
Sodium Absorption Ratio			3.6	3.5
Figure of Merit			1.2	1.2
Sodium	mg/L	180.	182.	175.
Potassium	mg/L		2.2	2.5
Calcium	mg/L		89.	91.
Magnesium	mg/L		64.	60.
Hydrogen	mg/L		0.	0.
Bicarbonate	mg/L		208.	350.
Carbonate	mg/L		0.6	0.3
Hydroxide	mg/L		0.	0.
Chloride	mg/L	250.	400.	370.
Fluoride	mg/L	**1.5**	< 0.20	0.2
Nitrate	mg/L	**50.**	<5.0	<5.0
Sulphate	mg/L	**500.**	<20	32.
Iron	mg/L	0.3	<0.01	<0.01
Manganese	mg/L	**0.5**	0.48	<0.01
Zinc	mg/L	3.	0.01	0.01
Aluminium	mg/L	0.2	<0.05	<0.05
Boron	mg/L	**4.**	0.06	0.03
Copper	mg/L	**2.**	<0.03	<0.03

Colour Key			
Health Parameters		**Aesthetic Parameters**	
	Not detected		Not detected
	Less than ADWG limit		Less than ADWG limit
	Above ADWG limit		Above ADWG limit

Proston

7 Proston

7.1 Overall Schematic

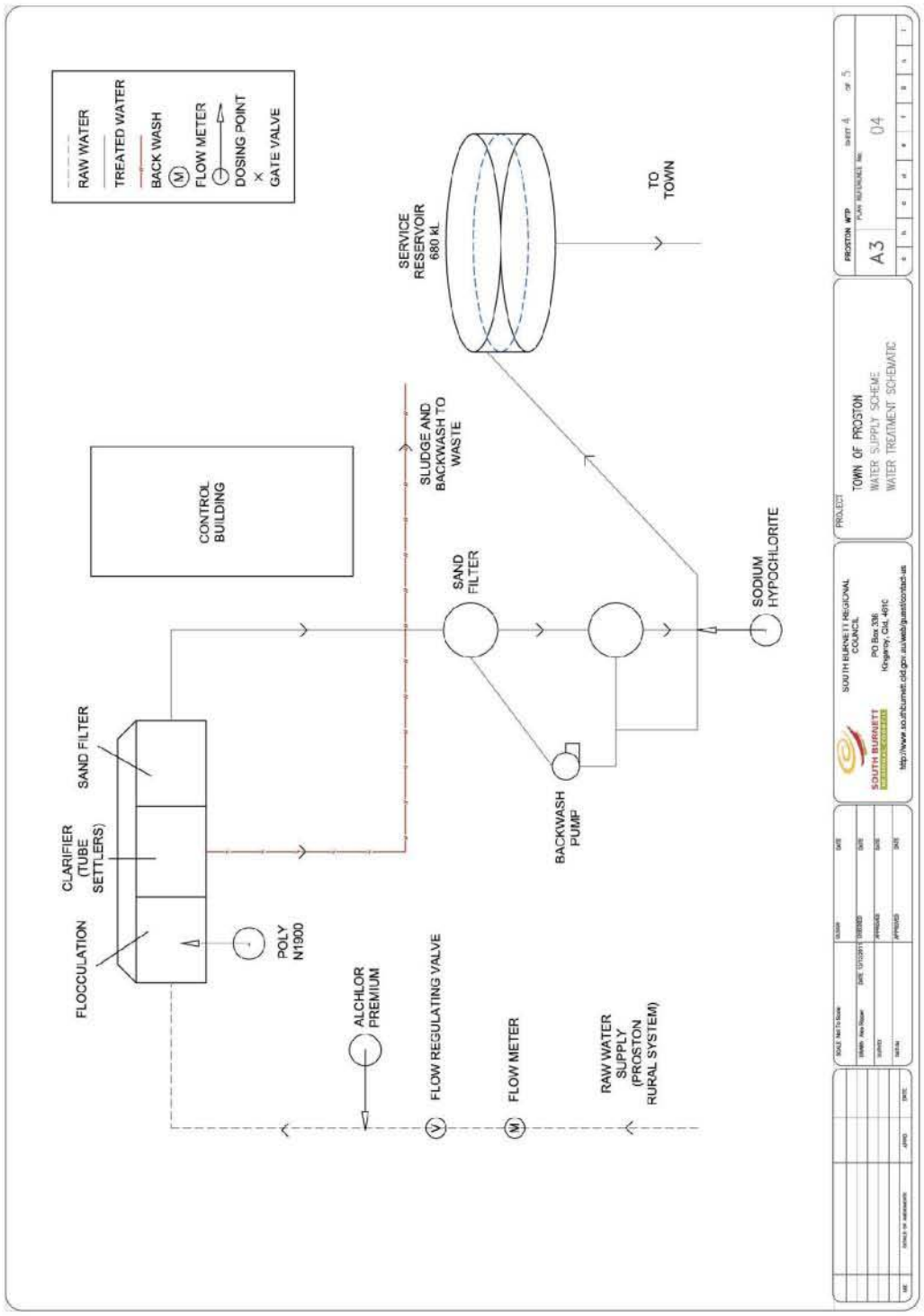


Council operates a non-potable rural supply scheme over an area 40 kilometres long in the Proston district. The non-potable scheme draws from the SunWater pipeline from Boondooma to Tarong. The raw water is chlorinated at a 1.2 ML hill-top reservoir south-east of Proston in order to control growths in the rural distribution pipework.

The Proston water treatment plant draws its supply from one of the rural supply distribution mains.

Proston

7.2 WTP Schematic



Proston

7.3 Infrastructure Details

Proston		
Component		Details
Source	Name	Boondooma Dam ex Boondooma – Tarong pipeline (SunWater)
	Type	surface water
	% of supply	100%
	Reliability	100% with drought management
	Water quality issues	normal surface water issues
Source Infrastructure	Type	pressurised off-take from SunWater main
	Description	200mm main to 1.2 ML raw water reservoir which supplies rural non-potable scheme as well as the Proston WTP
Treatment		All water undergoes treatment prior to supply
	Name	Proston WTP
	Process	Coagulation, flocculation, clarification, filtration
	Design Capacity (20 hr operation)	300 kL/d
	Daily flow range	0 - 300 kL/d
	Chemicals added	Coagulant: Alchlor Premium Poly: Hardman N1900
	Standby chemical dosing facilities	nil
	Water sourced from and %	100% from rural raw water reservoir
	% of average day demand provided	100%
	% of scheme supply Distribution area supplied	100%
	Bypasses / Variations	nil
Disinfection		All water undergoes disinfection prior to supply
	Location	Into pipe between balancing tank and clear water reservoir
	Type	Sodium hypochlorite
	Dose rate	as required
	Target residual levels	3.0 mg/L
	Duty/standby	no
	Dosing arrangements	Manually set depending on hypo strength and concentration in CWR
	Alarms	nil
	Auto shut-off arrangements	On plant shut-down
Distribution and	Pipe material	AC
	Age range	28 - 60 years

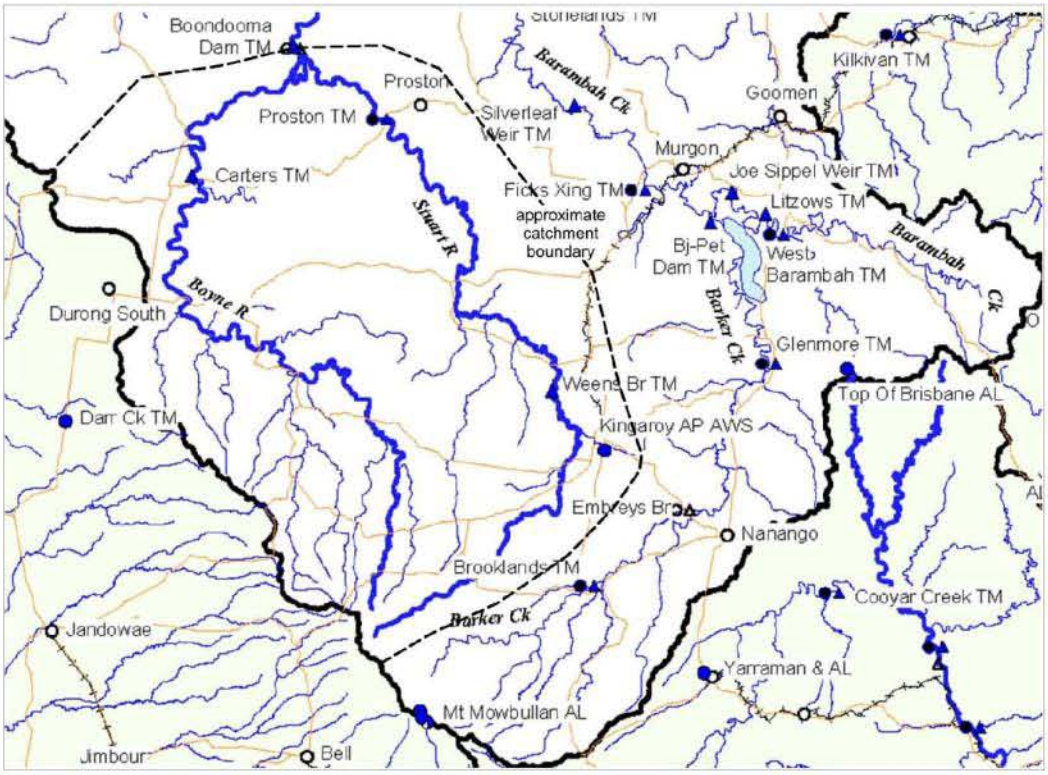
60

Proston

Proston		
Component		**Details**
Reticulation System	Approx % of total length	99%
	Pipe material	PVC
	Age range	15 years
	Approx % of total length	1%
	Areas where potential long detention periods could be expected	nil significant
	Areas where low water pressure (eg < 12 m) could be expected during peak or other demand periods)	nil significant
Reservoirs	**Ground (No)**	1
	Name	WTP clear water reservoir
	Capacity (kL)	680 kL
	Roofed (Y/N)	Yes
	Vermin-proof (Y/N)	Yes
	Runoff directed off roof (Y/N)	Yes
Boondooma Dam water quality has been consistently satisfactory to date. Informal communications exist between SunWater and Council operating staff in the event of any issues.		

Proston

7.4 Boondooma Dam Catchment



Boondooma Dam is at the junction of the Boyne and Stuart Rivers.

The Gordonbrook Dam that supplies Kingaroy is on the Stuart River, slightly over half-way upstream from the Boondooma Dam. As described in the Kingaroy section, the upper Stuart River catchment contains substantial areas of cropping together with some intensive animal production sites and the town of Kingaroy.

The balance of the Boondooma Dam catchment is less developed, comprising mainly low density grazing and conservation areas.

Boondooma Dam is owned and operated by SunWater.

Traces of atrazine and metolachlor were detected in the snapshot monitoring in September 2011. These are herbicides and probably arise from runoff from the crop areas in the catchment. None of the other 121 pesticides covered by the snapshot testing was above the detection limit.

Proston

7.5 Water Quality Summary Tables

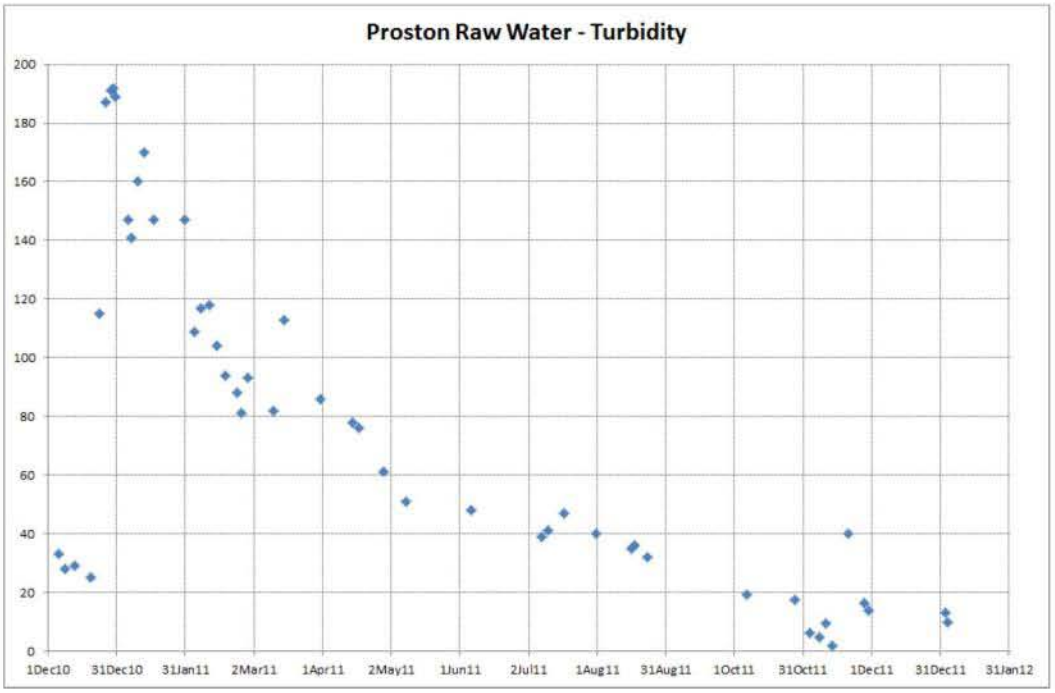
Proston Raw Water							
Parameter	Sampling location	Time Period	No of samples	Summary of Results			Comments
				Max	Average	Min	
Turbidity (NTU)	WTP inlet	1 Dec 10 – 31 Jan 12	49	192	76	1.9	
pH	WTP inlet	1 Dec 10 – 31 Jan 12	12	7.6	7.3	6.97	
Chlorine residual	WTP inlet	1 Dec 10 – 31 Jan 12	9	0.11	0.04	0.01	

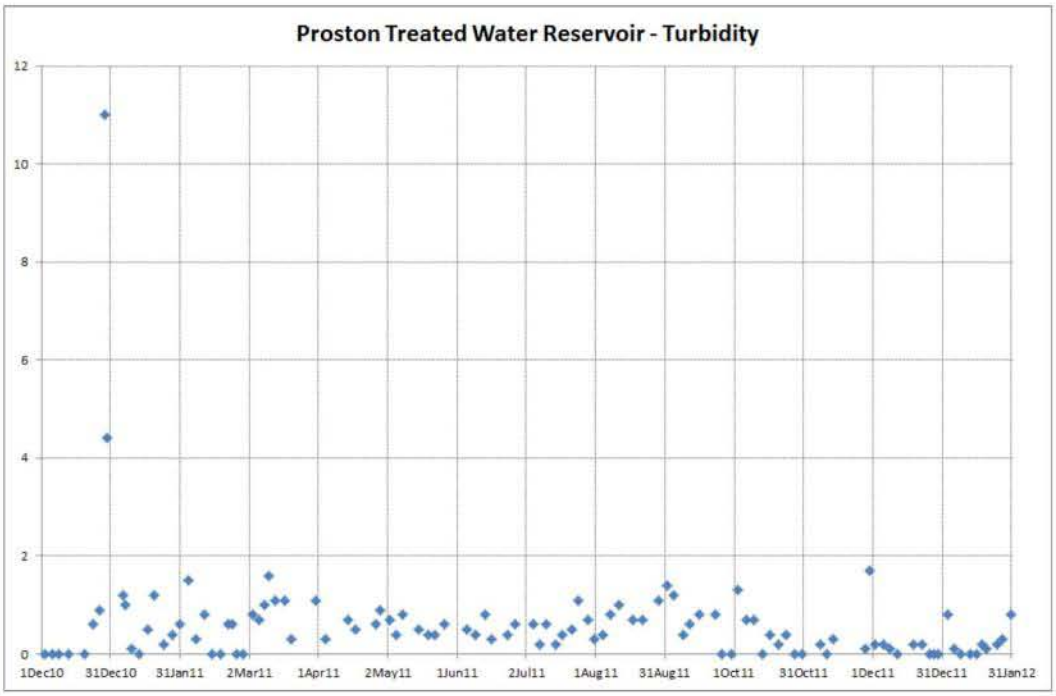
Proston Treated Water									
Parameter	Sampling location	Time Period	No of samples	Summary of results			ADWG value	No of sample outside ADWG value	Comment
				Max	Average	Min			
Turbidity (NTU)	WTP GL Res	1 Dec 10 – 31 Jan 12	109	11	0.62	0	1.0 (for disinfection)	15	
pH	WTP GL Res	1 Dec 10 – 31 Jan 12	106	8.0	7.5	7.0	6.5 – 8.5	0	
Free Chlorine residual	WTP GL Res	1 Dec 10 – 31 Jan 12	110	5.8	3.1	0.01	5	12	

Proston Reticulation								
Parameter	Time Period	No of samples	Summary of Results			ADWG value	No of samples outside ADWG value	Comment
			Max	Average	Min			
Coliforms	1 Jan 11 – 2 May 12	34	>200	12	0	n/a		
E.coli	1 Jan 11 – 2 May 12	34	5	0.26	0	0	2	
Free Chlorine residual	1 Jan 11 – 2 May 12	32	4.3	1.7	0	5	0	

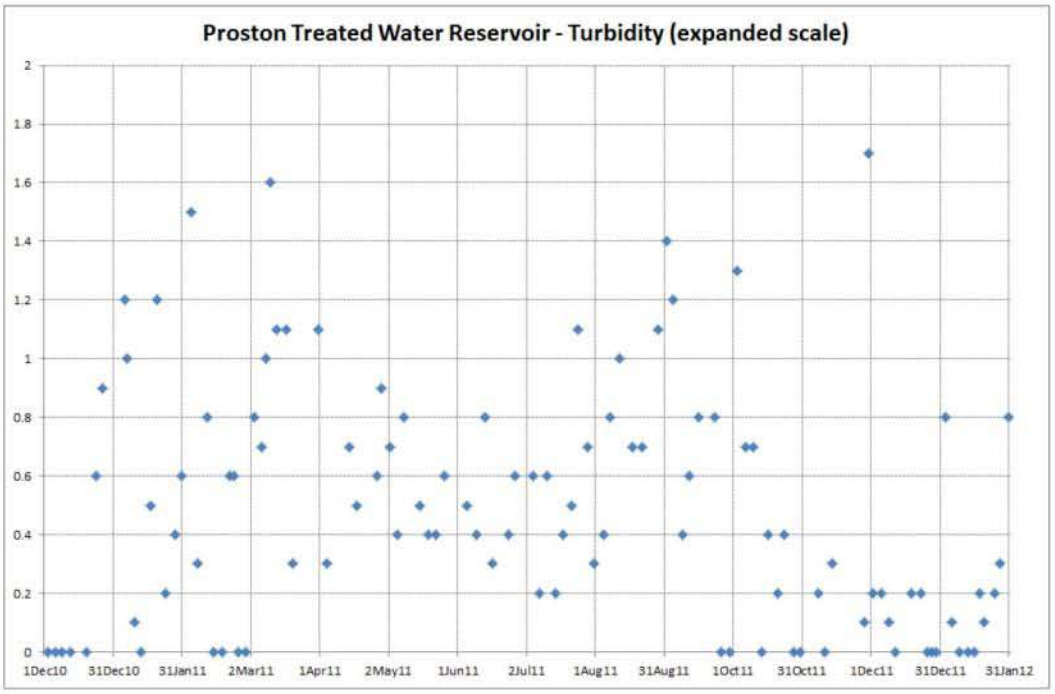
Proston

7.6 Water Quality Graphs

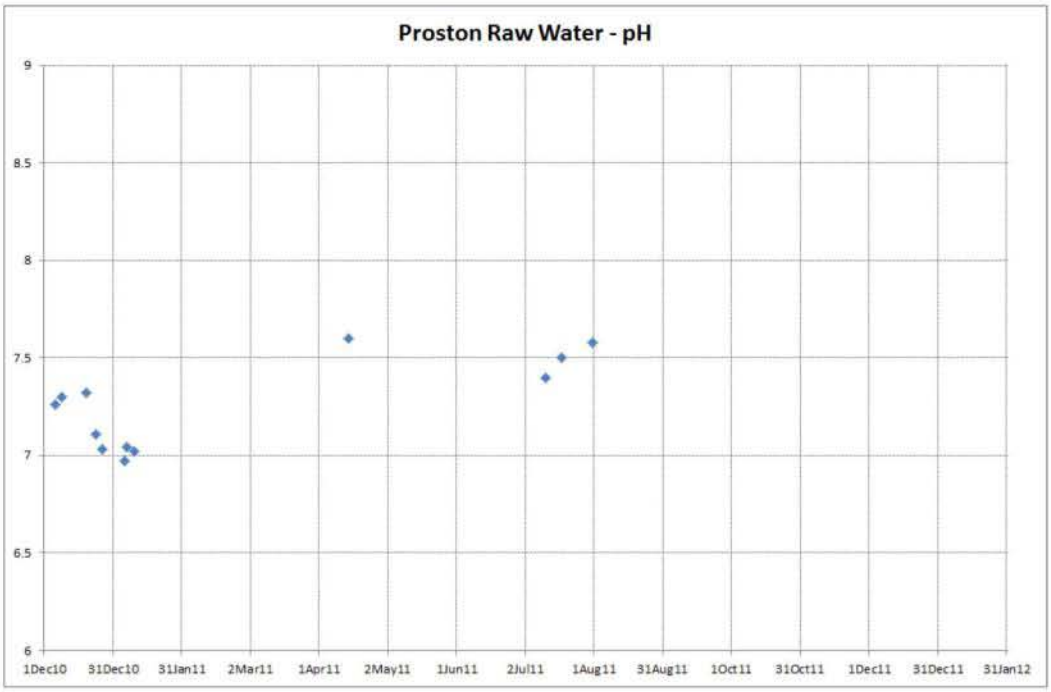


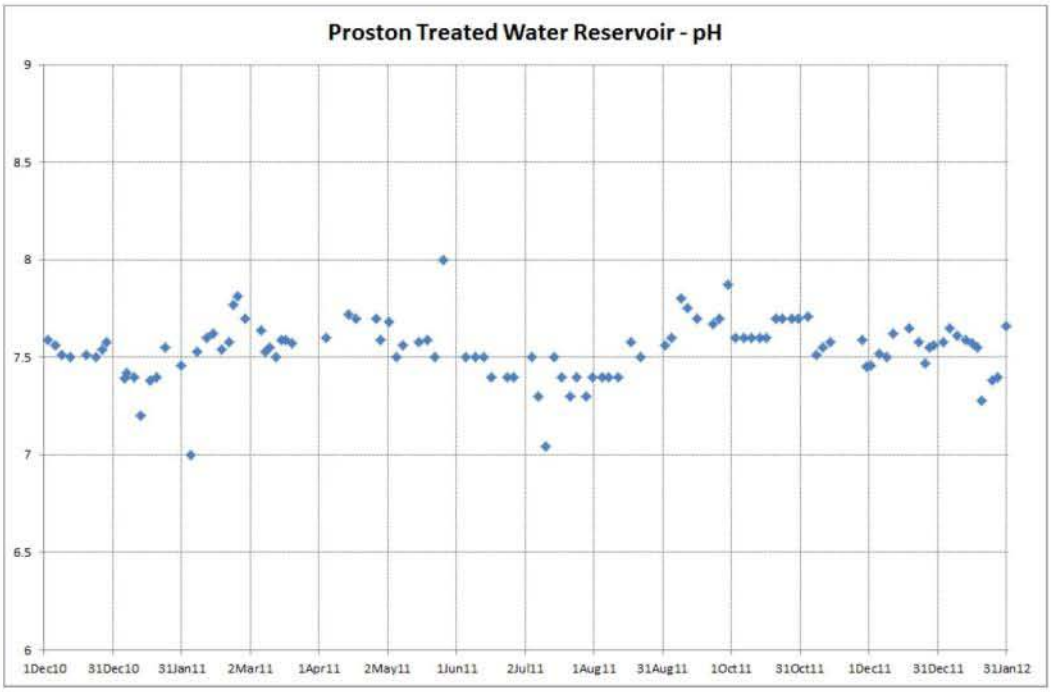


Proston

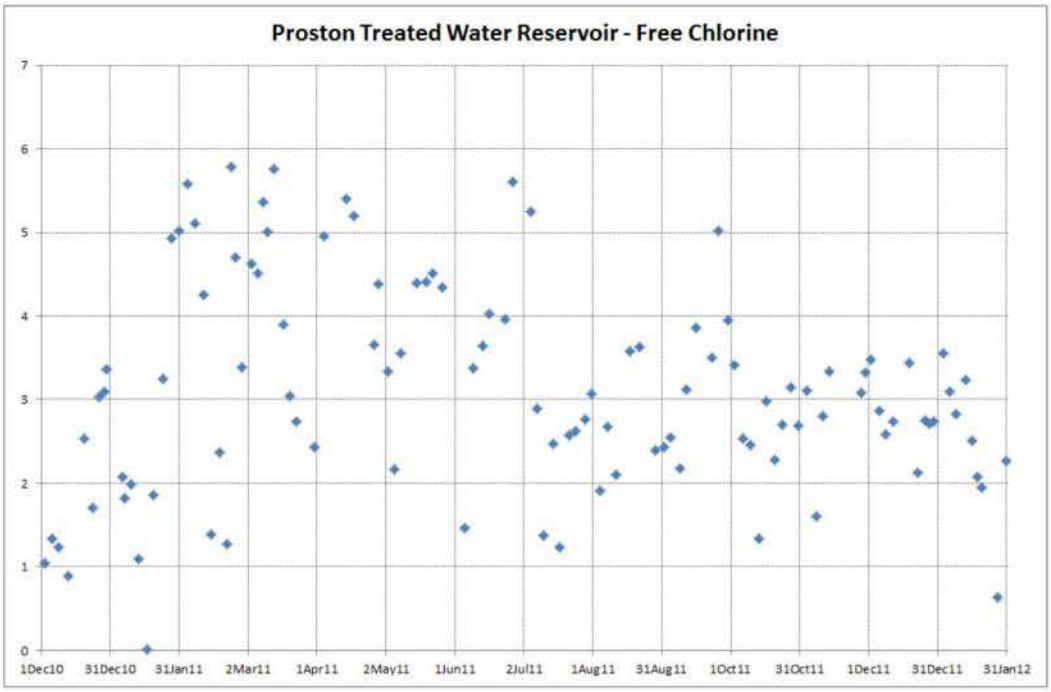

Proston Treated Water Reservoir - Turbidity (expanded scale)
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
1Dec10
31Dec10
31Jan11
2Mar11
1Apr11
2May11
1Jun11
2Jul11
1Aug11
31Aug11
1Oct11
31Oct11
1Dec11
31Dec11
31Jan12

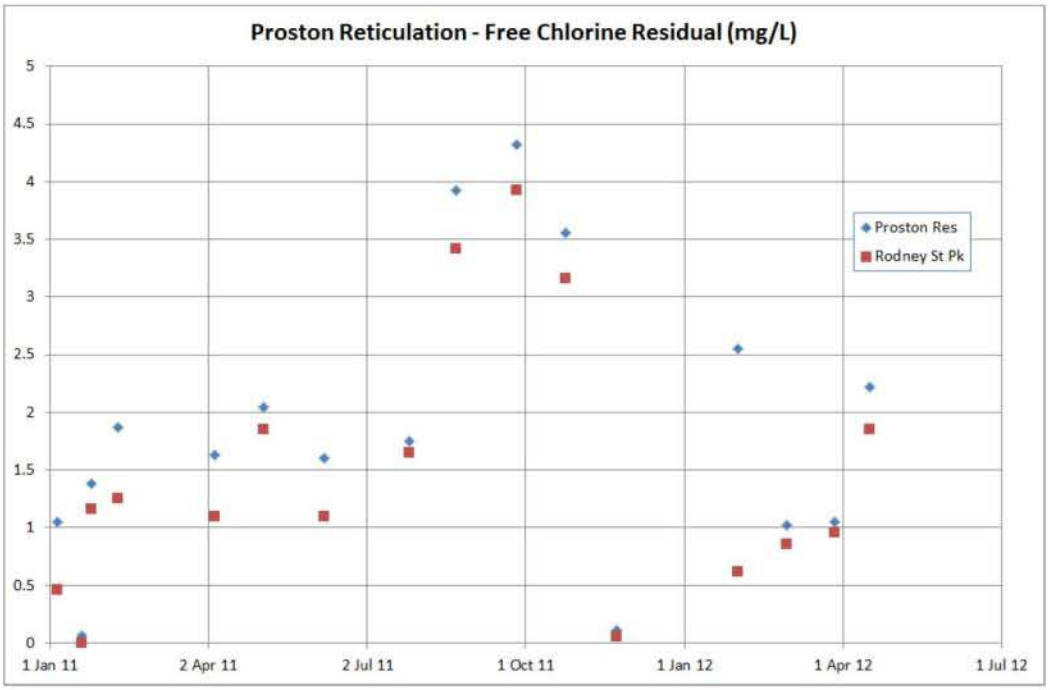
Proston


Proston Raw Water - pH
9
8.5
8
7.5
7
6.5
6
1Dec10
31Dec10
31Jan11
2Mar11
1Apr11
2May11
1Jun11
2Jul11
1Aug11
31Aug11
1Oct11
31Oct11
1Dec11
31Dec11
31Jan12

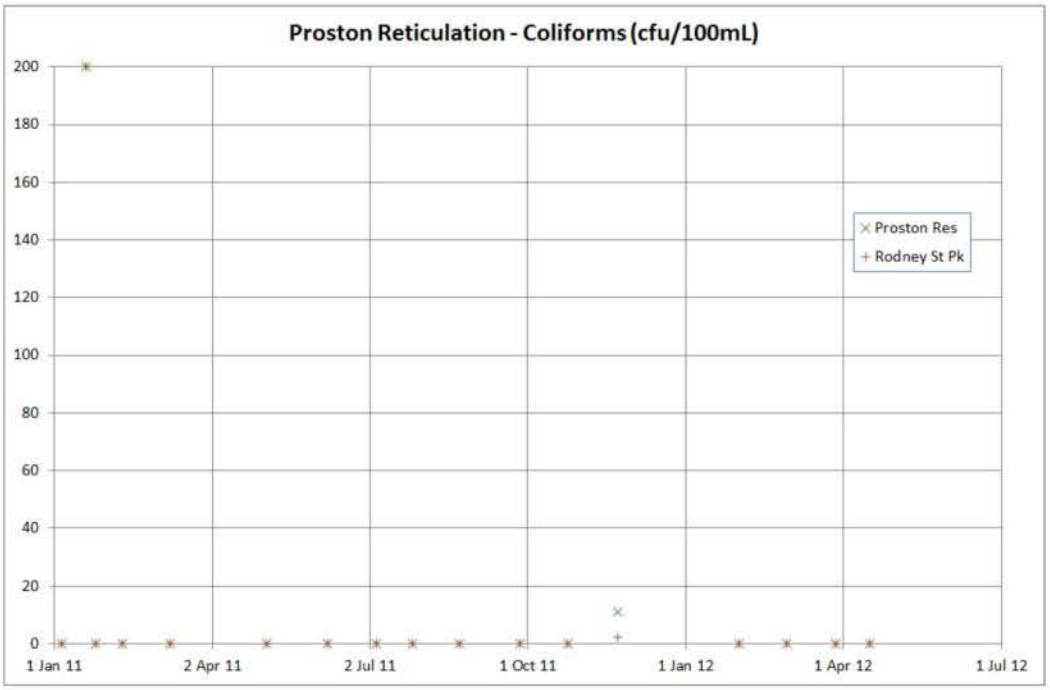

Proston Treated Water Reservoir - pH
9
8.5
8
7.5
7
6.5
6
1Dec10
31Dec10
31Jan11
2Mar11
1Apr11
2May11
1Jun11
2Jul11
1Aug11
31Aug11
1Oct11
31Oct11
1Dec11
31Dec11
31Jan12

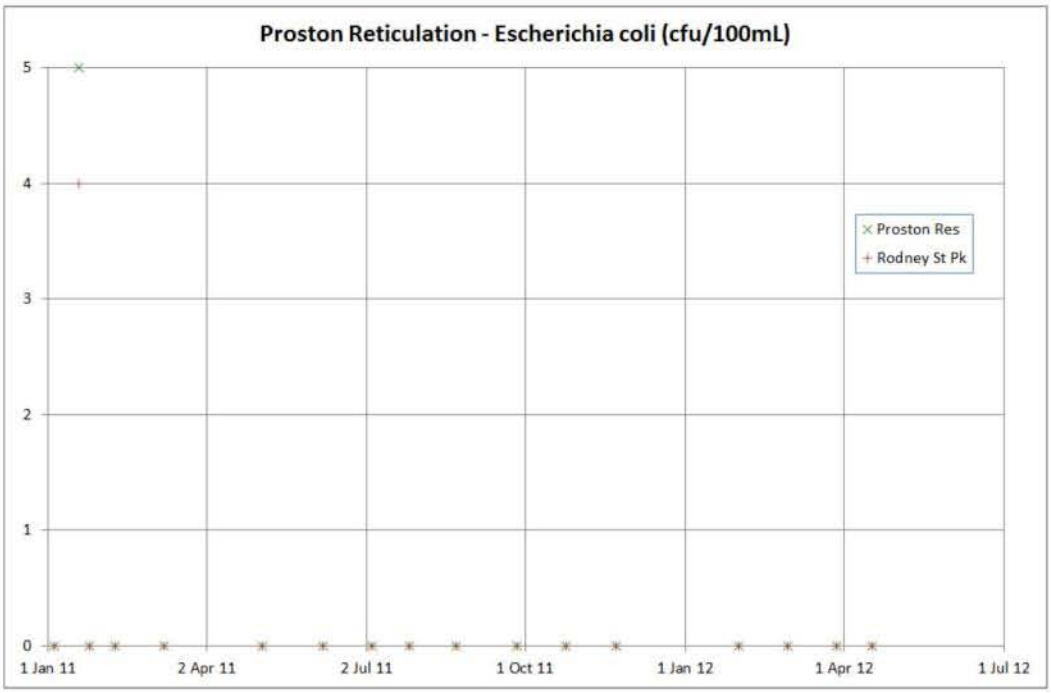
Proston


Proston Treated Water Reservoir - Free Chlorine
7
6
5
4
3
2
1
0
1Dec10
31Dec10
31Jan11
2Mar11
1Apr11
2May11
1Jun11
2Jul11
1Aug11
31Aug11
1Oct11
31Oct11
1Dec11
31Dec11
31Jan12


Proston Reticulation - Free Chlorine Residual (mg/L)
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
1 Jan 11
2 Apr 11
2 Jul 11
1 Oct 11
1 Jan 12
1 Apr 12
1 Jul 12
Proston Res
Rodney St Pk

Proston


Proston Reticulation - Coliforms (cfu/100mL)
200
180
160
140
120
100
80
60
40
20
0
1 Jan 11
2 Apr 11
2 Jul 11
1 Oct 11
1 Jan 12
1 Apr 12
1 Jul 12
Proston Res
Rodney St Pk


Proston Reticulation - Escherichia coli (cfu/100mL)
5
4
3
2
1
0
1 Jan 11
2 Apr 11
2 Jul 11
1 Oct 11
1 Jan 12
1 Apr 12
1 Jul 12
Proston Res
Rodney St Pk

Proston

7.7 Snapshot Monitoring

Proston Snapshot Monitoring				
Sample Description			Raw Water	
Collected Date			01-Sep-11	16-Nov-11
Metals				
Aluminium	mg/L	0.2	0.75	0.72
Antimony	mg/L	**0.003**	< 0.0001	< 0.0001
Arsenic	mg/L	**0.01**	0.0011	0.0009
Barium	mg/L	**2.**	0.045	0.059
Beryllium	mg/L	**0.06**	< 0.0001	< 0.0001
Boron	mg/L	**4.**	0.034	0.03
Cadmium	mg/L	**0.002**	< 0.0001	< 0.0001
Chromium	mg/L	**0.05**	0.0013	0.0012
Cobalt	mg/L		0.0003	0.0003
Copper	mg/L	**2.**	0.01	0.004
Iron	mg/L	0.3	1.3	1.1
Lead	mg/L	**0.01**	0.001	0.0009
Manganese	mg/L	**0.5**	0.017	0.028
Molybdenum	mg/L	**0.05**	0.0002	0.0002
Nickel	mg/L	**0.02**	0.002	0.0022
Selenium	mg/L	**0.01**	< 0.0010	< 0.0010
Silver	mg/L	**0.1**	< 0.001	< 0.001
Stronium	mg/L		0.19	0.18
Thallium	mg/L		< 0.0001	< 0.0001
Titanium	mg/L		0.024	0.019
Uranium	mg/L	**0.017**	< 0.0001	0.0003
Vanadium	mg/L		0.0038	0.0031
Zinc	mg/L	3.	0.005	0.018

Colour Key			
Health Parameters		**Aesthetic Parameters**	
	Not detected		Not detected
	Less than ADWG limit		Less than ADWG limit
	Above ADWG limit		Above ADWG limit

Proston

Proston Snapshot Monitoring				
Sample Description			Raw Water	
Collected Date			01-Sep-11	16-Nov-11
Standard Water Analysis				
Conductivity	uS/cm		364.	384.
pH		6.5-8.5	7.98	7.39
Temperature	deg C		22.	22.
Total Hardness	mg/L as CaCO3		88.	92.
Temporary Hardness	mg/L as CaCo3		68.	72.
Alkalinity	mg/L CaCo3		68.	72.
Residual Alkalinity	meq/L		0.	0.
Silica	mg/L	80.	18.	16.
Total Dissolved Ions	mg/L		224.	236.
Total Dissolved Solids	mg/L	600.	200.	207.
True Colour	Hazen	15.	32.	37.
Turbidity	NTU	5.	31.	16.
pH (Saturation)*			8.4	8.4
Saturation Index			-0.4	-1.
Mole Ratio			2.3	2.9
Sodium Absorption Ratio			1.7	1.7
Figure of Merit			1.1	1.1
Sodium	mg/L	180.	36.	38.
Potassium	mg/L		4.8	4.6
Calcium	mg/L		16.	16.
Magnesium	mg/L		11.	12.
Hydrogen	mg/L		0.	0.
Bicarbonate	mg/L		82.	88.
Carbonate	mg/L		0.6	0.1
Hydroxide	mg/L		0.	0.
Chloride	mg/L	250.	68.	71.
Fluoride	mg/L	**1.5**	0.12	0.13
Nitrate	mg/L	**50.**	1.4	1.3
Sulphate	mg/L	**500.**	3.8	3.6
Iron	mg/L	0.3	0.57	0.2
Manganese	mg/L	**0.5**	<0.01	<0.01
Zinc	mg/L	3.	<0.01	0.01
Aluminium	mg/L	0.2	0.74	0.18
Boron	mg/L	**4.**	0.03	0.04
Copper	mg/L	**2.**	<0.03	<0.03

Colour Key			
Health Parameters		**Aesthetic Parameters**	
	Not detected		Not detected
	Less than ADWG limit		Less than ADWG limit
	Above ADWG limit		Above ADWG limit

Proston

PESTICIDES			
Parathion ethyl (OP)	ug/L	0.7	< 0.1
Parathion methyl (OP)	ug/L	0.7	< 0.1
Phorate (OP)	ug/L	.	< 0.1
Phosmet (OP)	ug/L	.	< 0.1
Pirimiphos methyl (OP)	ug/L	90	< 0.1
Profenofos (OP)	ug/L	0.3	< 0.1
Prothiofos (OP)	ug/L	.	< 0.1
Pyrazophos (OP)	ug/L	20	< 0.1
Tetrachlorvinphos (OP)	ug/L	100	< 0.1
Terbufos (OP)	ug/L	0.9	< 0.1
Diclofop methyl (HGCMS)	ug/L	5	< 0.1
Haloxyfop-2-etotyl (HGCMS)	ug/L	.	< 0.1
Haloxyfop methyl (HGCMS)	ug/L	.	< 0.1
Metribuzin (HGCMS)	ug/L	70	< 0.1
Oxyfluorfen (HGCMS)	ug/L	.	< 0.1
Pendimethalin (HGCMS)	ug/L	400	< 0.1
Propanil (HGCMS)	ug/L	700	< 0.1
Propazine (HGCMS)	ug/L	50	< 0.1
Terbuthylazine (HGCMS)	ug/L	10	< 0.1
Tri-allate (HGCMS)	ug/L	.	< 0.1
Trifluralin (HGCMS)	ug/L	90	< 0.1
Ametryn (HLCMS)	ug/L	70	< 0.01
Atrazine (HLCMS)	ug/L	20	0.03
Desethyl Atrazine (HLCMS)	ug/L	.	< 0.01
Desisopropyl Atrazine (HLCMS)	ug/L	.	< 0.01
Diuron (HLCMS)	ug/L	20	< 0.01
Fluometuron (HLCMS)	ug/L	70	< 0.01
Hexazinone (HLCMS)	ug/L	400	< 0.01
Prometryn (HLCMS)	ug/L	.	< 0.01
Simazine (HLCMS)	ug/L	20	< 0.01
Tebuthiuron (HLCMS)	ug/L	.	< 0.01
Bromacil (LCMS)	ug/L	400	< 0.01
Metolachlor (LCMS)	ug/L	300	0.02
Terbutryn (LCMS)	ug/L	400	< 0.01
Benalaxyl (OTHER)	ug/L	.	< 0.1
Bitertinol (OTHER)	ug/L	.	< 0.1
Carbaryl (OTHER)	ug/L	30	< 0.1
Dichlorfluanid (OTHER)	ug/L	.	< 0.1
Dichloran (OTHER)	ug/L	.	< 0.1

Traces of the herbicides atrazine and metolachlor were detected in the September 2011 snapshot monitoring, as shown in the extract from the test results above. This is consistent with the detection of atrazine in Gordonbrook Dam which is upstream on the Stuart River.

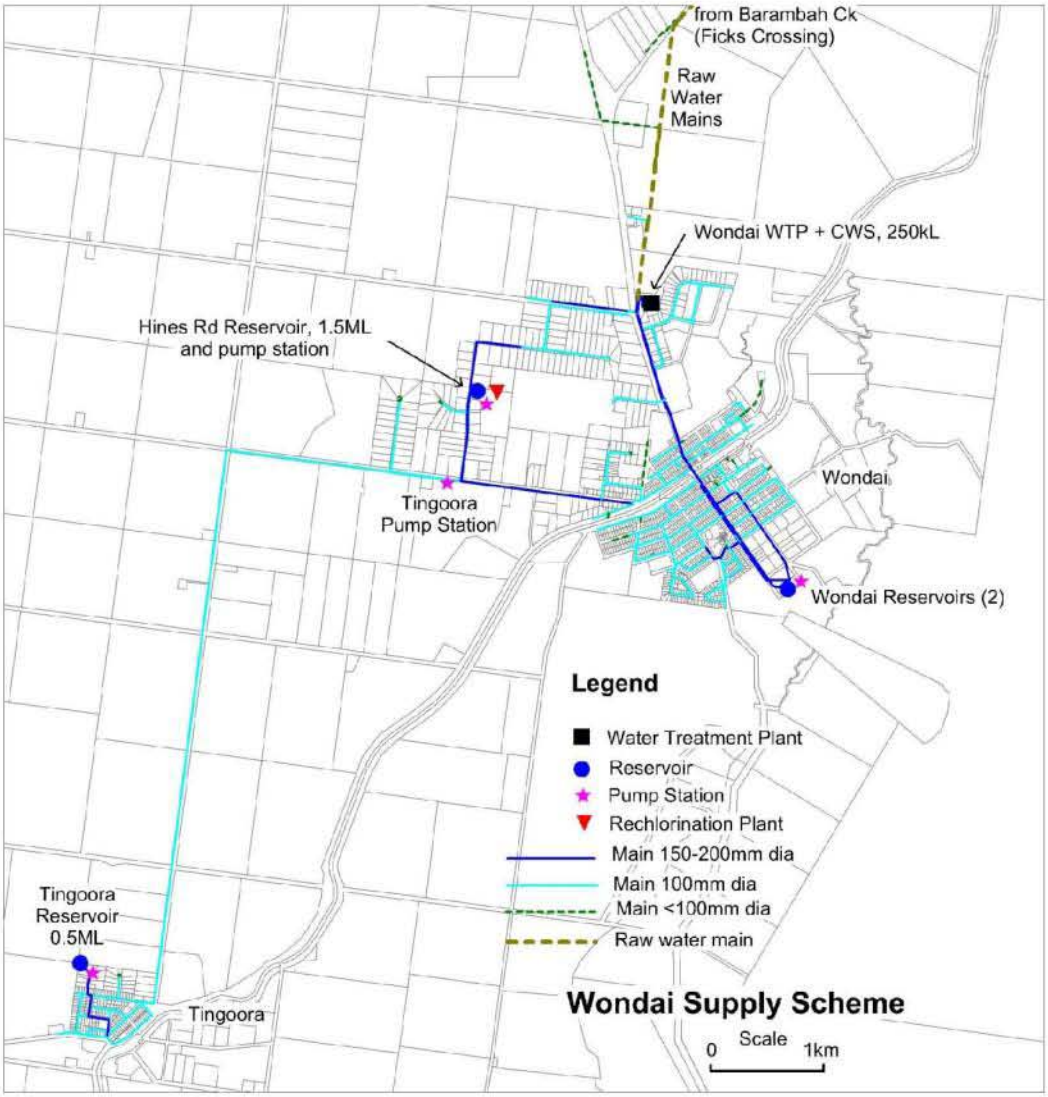
The concentrations of these herbicides are a minute fraction of the ADWG guideline health limits, but they do indicate that there is some effect from vegetation control activities in the catchment.

None of the other 121 pesticides analysed for were detected.

Wondai

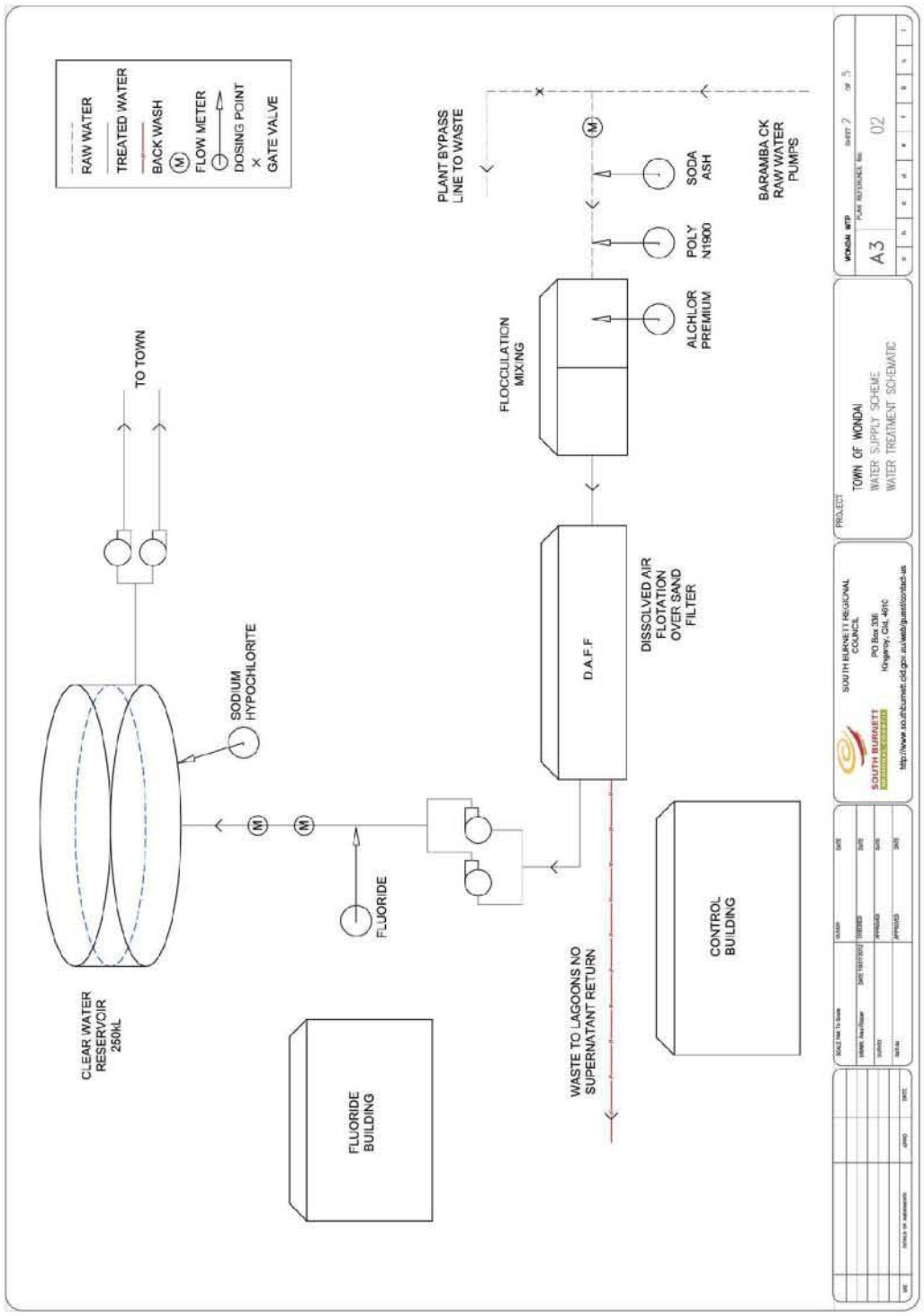
8 Wondai

8.1 Overall Schematic



Wondai

8.2 WTP Schematic



Wondai

8.3 Infrastructure Details

Wondai		
Component		**Details**
Source 1	Name	Barambah Creek weir (at Ficks Crossing)
	Type	surface water
	% of supply	100%
	Reliability	100% - weir is replenished by releases from Bjelke Peterson Dam (SunWater) when required
	Water quality issues	hardness
Source Infrastructure	Type	raw water pumps off jetty structure
	Description	submersible
Treatment		All water undergoes treatment prior to supply
	Name	Wondai WTP
	Process	Coagulation, flocculation, dissolved air flotation, filtration, disinfection, fluoridation
	Design Capacity (20 hr operation)	2.6 ML/d
	Daily flow range	0 – 2.6 ML/d
	Chemicals added	coagulant: Alchlor Premium pH adjustment: soda ash poly: Hardman N1900 fluoride
	Standby chemical dosing facilities	All dose pumps have duty/standby
	Water sourced from and %	100% from Barambah Creek
	% of average day demand provided	100%
	% of scheme supply Distribution area supplied	100%
	Bypasses / Variations	No bypasses available
Disinfection		All water undergoes disinfection prior to supply
	Location	into filter
	Type	Sodium hypochlorite
	Dose rate	as required
	Target residual levels	1.3 mg/L
	Duty/standby	Yes
	Dosing arrangements	Manually set depending on hypo strength and level
	Alarms	nil for chlorine
	Auto shut-off arrangements	On plant shut-down
Distribution and Reticulation System	Pipe material	AC
	Age range	23 - 62 years
	Approx % of total length	53%
	Pipe material	cast iron

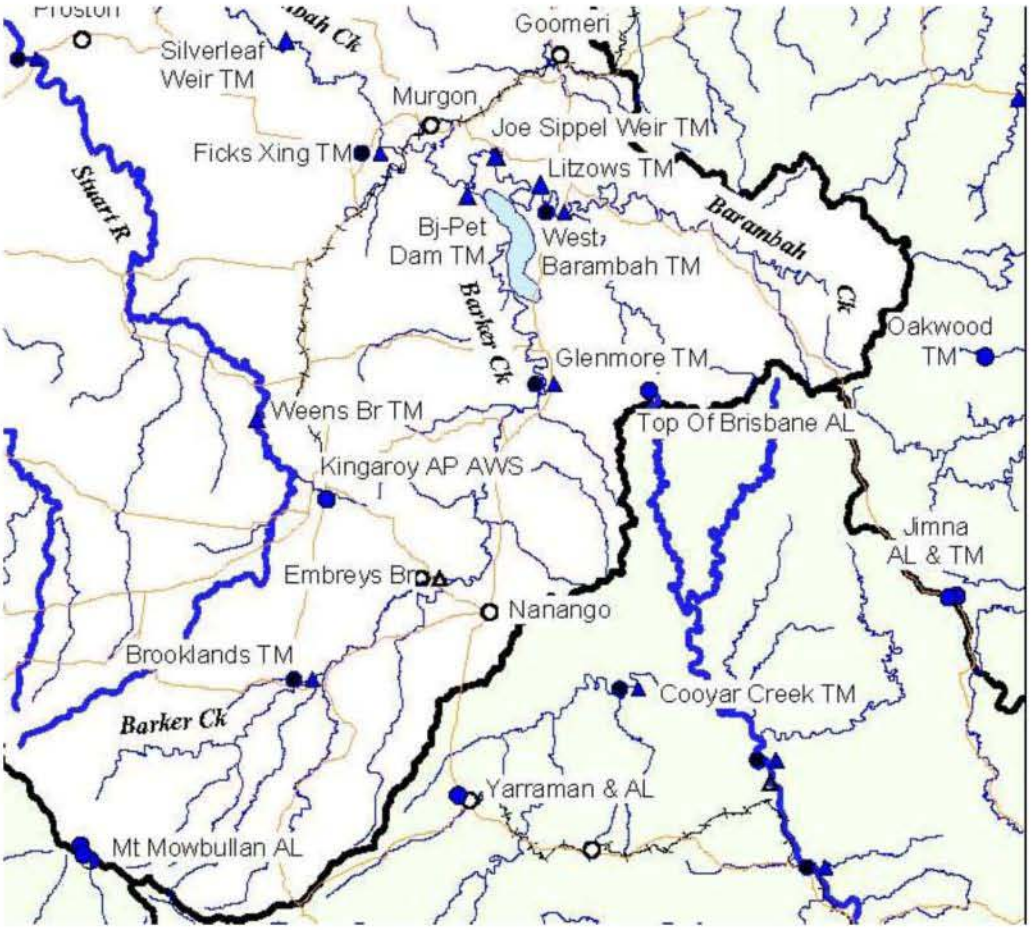
74

Wondai

Wondai		
Component		**Details**
	Age range	62 years
	Approx % of total length	8%
	Pipe material	DICL
	Age range	14 - 18 years
	Approx % of total length	1%
	Pipe material	PVC
	Age range	5 - 36 years
	Approx % of total length	37%
	Pipe material	steel
	Age range	14 years
	Approx % of total length	1%
	Areas where potential long detention periods could be expected	Tingoora
	Areas where low water pressure (eg < 12 m) could be expected during peak or other demand periods)	nil significant
Reservoirs	**Ground (No)**	3
	Name	**WTP clear water storage**
	Capacity (kL)	250 kL
	Roofed (Y/N)	Yes
	Vermin-proof (Y/N)	Yes
	Runoff directed off roof (Y/N)	Yes
	Name	**Hines Rd**
	Capacity (kL)	1.5 ML
	Roofed (Y/N)	Yes
	Vermin-proof (Y/N)	Yes
	Runoff directed off roof (Y/N)	Yes
	Name	**Tingoora High Level**
	Capacity (kL)	500 kL
	Roofed (Y/N)	Yes
	Vermin-proof (Y/N)	Yes
	Runoff directed off roof (Y/N)	Yes
SunWater operates the Bjelke Petersen Dam which is effectively the bulk source storage.		

Wondai

8.4 Barambah Creek Catchment



Wondai draws its water supply from Barambah Creek at Ficks Crossing, some 8 kilometres north of Wondai. This is 7 kilometres downstream of the point where Murgon draws its supply. Barambah Creek is also used for crop irrigation. Consequently for much of the year water supply is maintained by releases from Bjelke-Petersen Dam by SunWater. Thus the raw water catchment and quality for Wondai is substantially the same as that for Murgon. The comments on the Murgon catchment are repeated here for completeness.

The predominant land use in the catchment is grazing, while there is also cropping on the alluvial flats of Barambah Creek and upper Barker Creek. There are also substantial conservation areas in the catchments.

Barker Creek is controlled by Bjelke-Petersen Dam just above the confluence with Barambah Creek. This is important in providing surety of supply but it also serves a purpose in diluting any contaminants that may enter the creek upstream.

Some catchment features that could pose a hazard to the water quality at Wondai are:

- Tarong power station and coal mine in the upper Barker Creek catchment
- the town of Nanango approximately 40 kilometres above Bjelke-Petersen Dam

Wondai

- the aboriginal community of Cherbourg (1,100 people), below the confluence of Barambah and Barker, and 15 kilometres upstream from the Wondai intake
- the town of Murgon, 8 kilometres upstream from the Wondai intake.

It is important to the water quality at Wondai that all these upstream uses comply with their environmental approvals.

None of the 123 pesticides tested for in the snapshot monitoring in September 2011 was above the detection limit.

Wondai

8.5 Water Quality Summary Tables

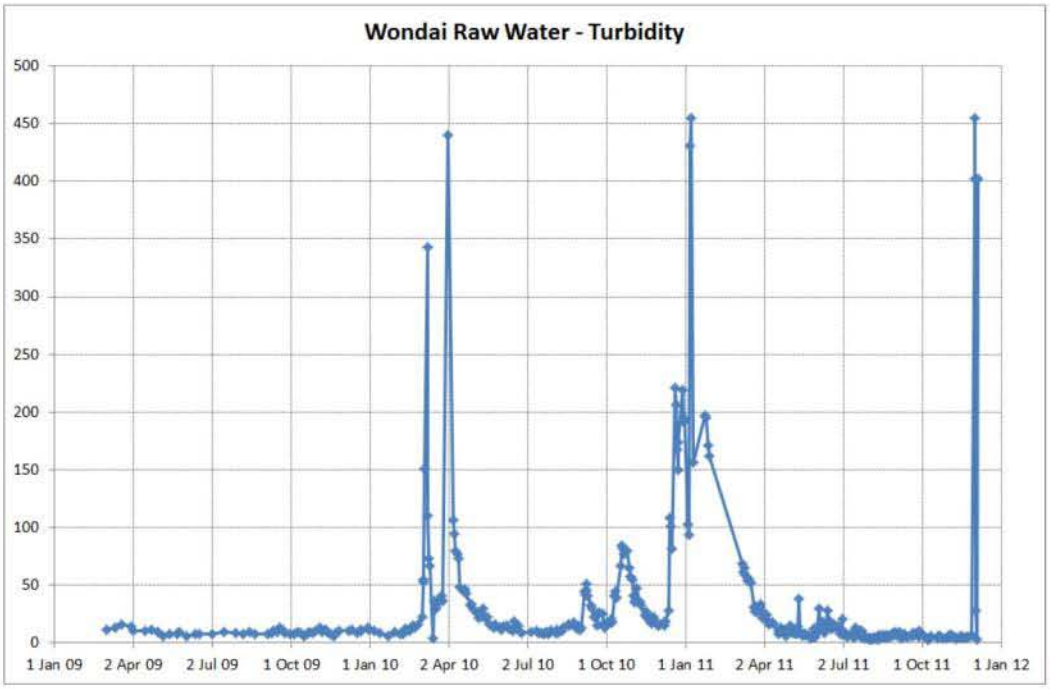
Wondai Raw Water							
Parameter	Sampling location	Time Period	No of samples	Summary of Results			Comments
				Max	Average	Min	
Turbidity (FTU)	WTP inlet	1 Mar 09 – 30 Nov 11	402	455	28	2.5	
pH	WTP inlet	1 Mar 09 – 30 Nov 11	398	8.16	7.55	6.8	
Colour	WTP inlet	1 Mar 09 – 30 Nov 11	398	276	54	12	

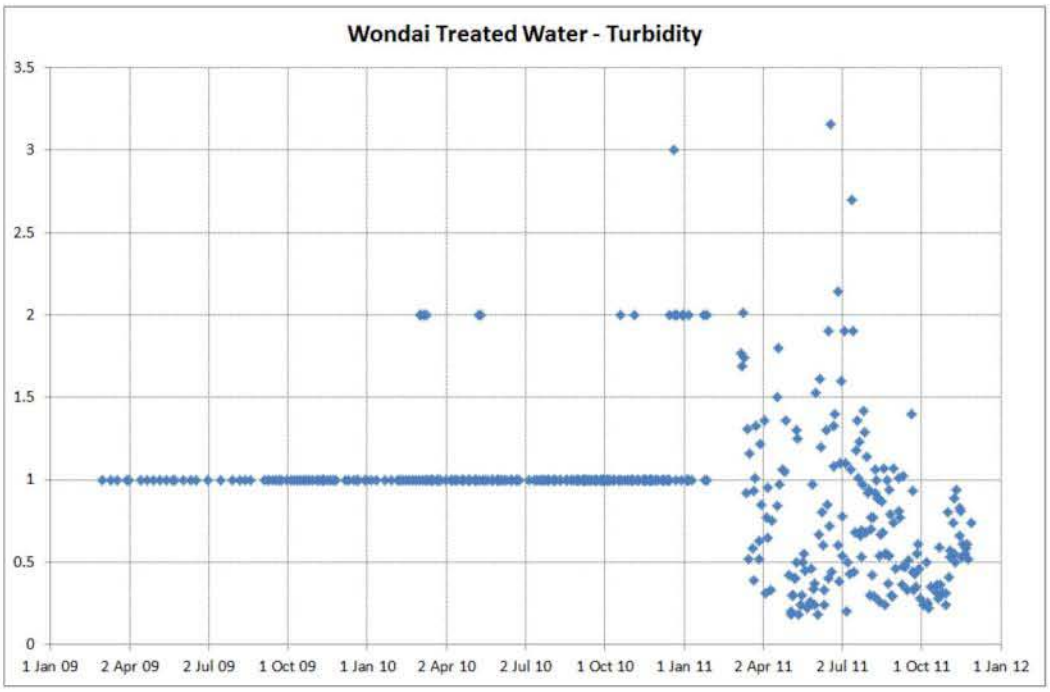
Wondai Treated Water									
Parameter	Sampling location	Time Period	No of samples	Summary of results			ADWG value	No of sample outside ADWG value	Comment
				Max	Average	Min			
Turbidity (FTU)	WTP GL Res	1 Mar 09 – 30 Nov 11	404	3.16	0.94	0.18	1.0 (for disinfection)	65	
pH	WTP GL Res	1 Mar 09 – 30 Nov 11	400	8.15	7.7	6.9	6.5 – 8.5	0	
Colour	WTP GL Res	1 Mar 09 – 30 Nov 11	401	47	4	0	15 (aesthetic)	11	
Free Chlorine residual	WTP GL Res	1 Mar 09 – 30 Nov 11	399	2.94	1.42	0.33	5	0	

Wondai Reticulation								
Parameter	Time Period	No of samples	Summary of Results			ADWG value	No of samples outside ADWG value	Comment
			Max	Average	Min			
Coliforms	1 Jan 11 – 2 May 12	352	>200	1.9	0	n/a		
E.coli	1 Jan 11 – 2 May 12	352	2	0.01	0	0	2	at WTP contact tank only - insufficient time
Free Chlorine residual	1 Jan 11 – 2 May 12	343	5.3	1.06	0.02	5	1	

Wondai

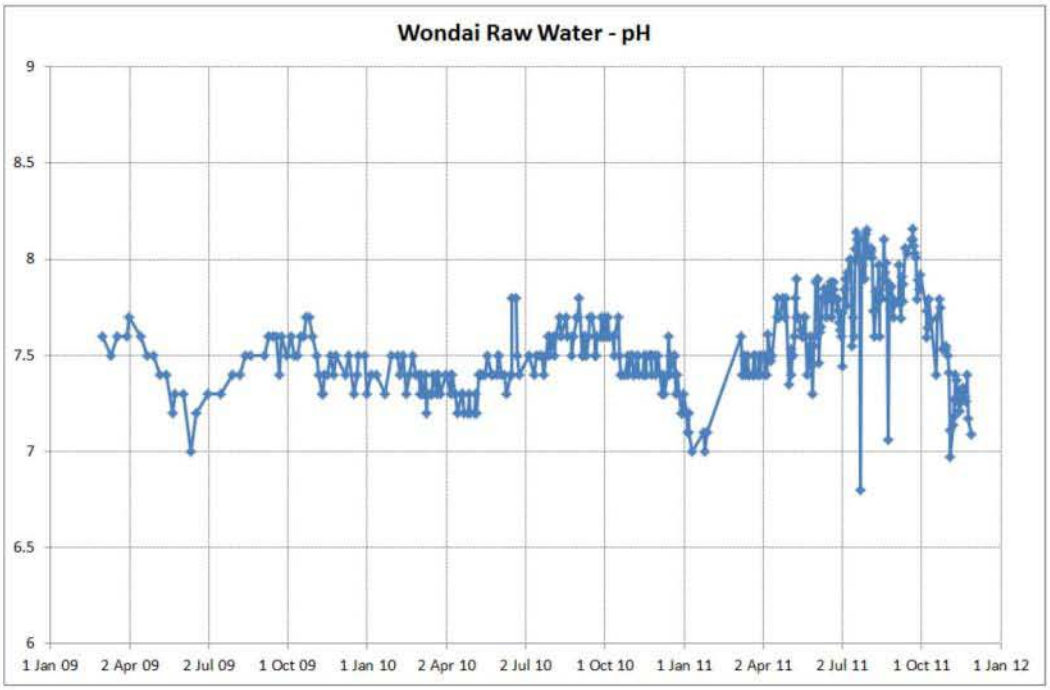
8.6 Water Quality Graphs

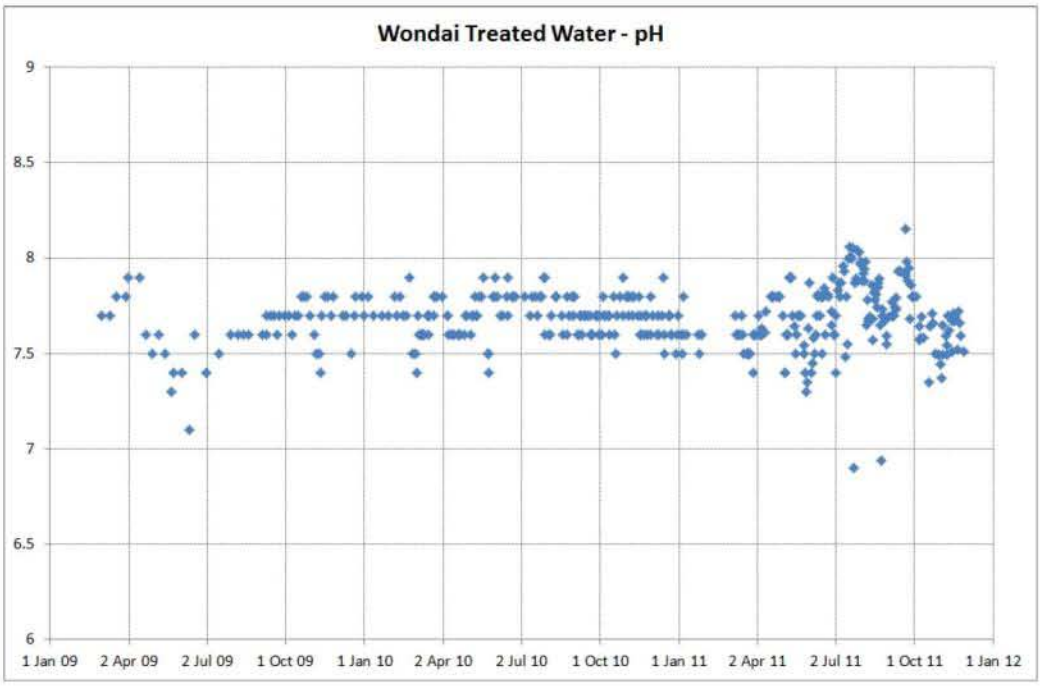




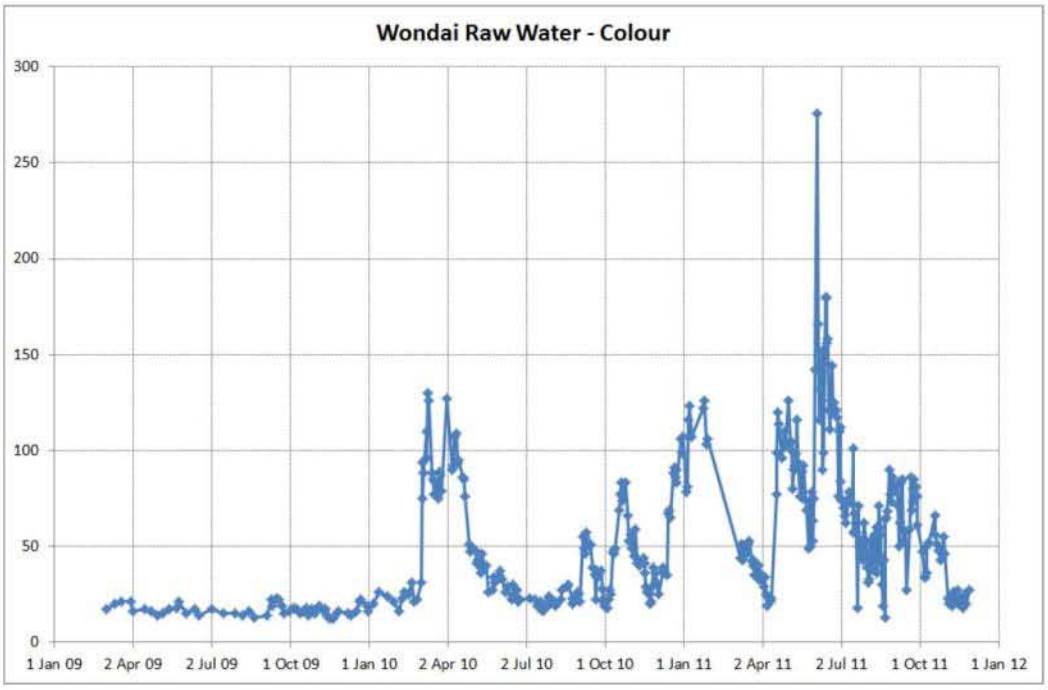
The improved information provided by a higher resolution meter after January 2011 is evident.

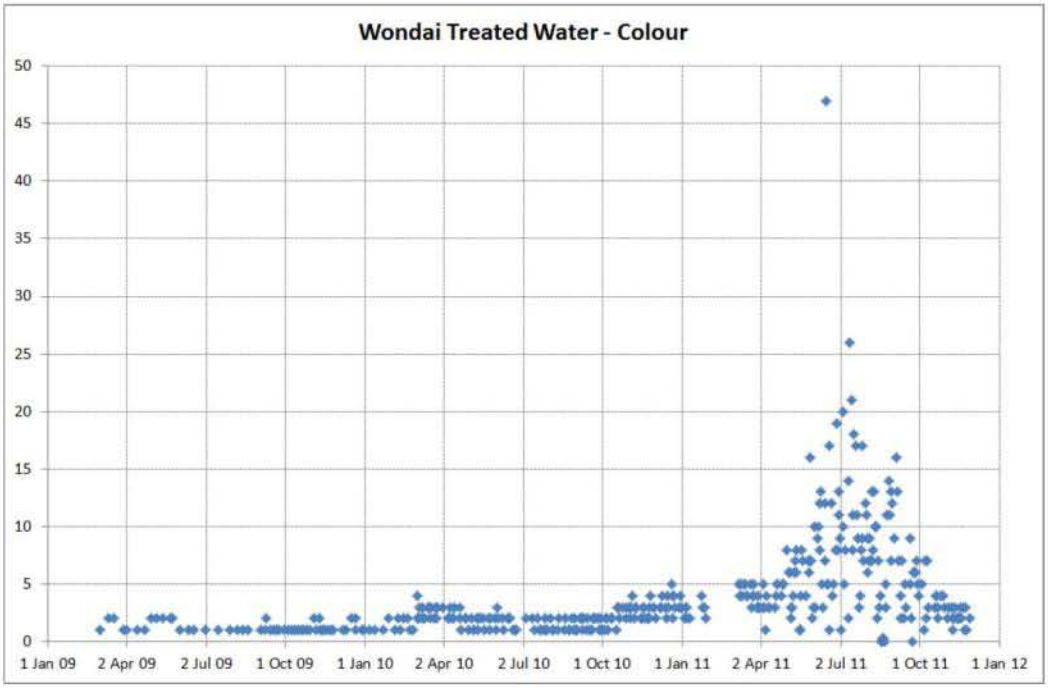
Wondai


Wondai Raw Water - pH
9
8.5
8
7.5
7
6.5
6
1 Jan 09
2 Apr 09
2 Jul 09
1 Oct 09
1 Jan 10
2 Apr 10
2 Jul 10
1 Oct 10
1 Jan 11
2 Apr 11
2 Jul 11
1 Oct 11
1 Jan 12

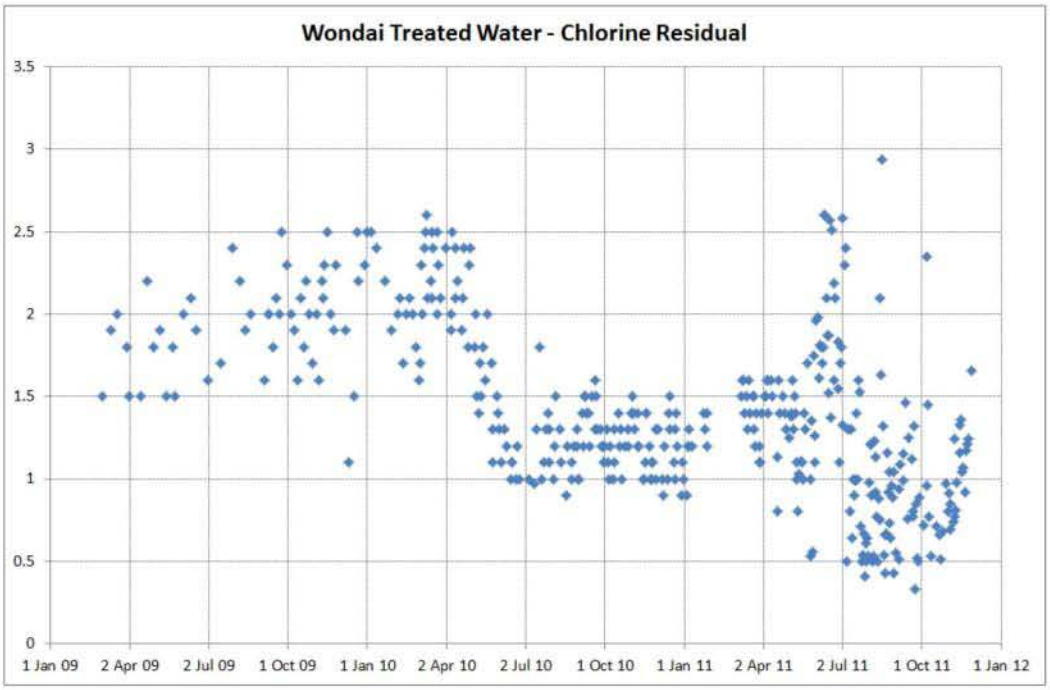

Wondai Treated Water - pH
9
8.5
8
7.5
7
6.5
6
1 Jan 09
2 Apr 09
2 Jul 09
1 Oct 09
1 Jan 10
2 Apr 10
2 Jul 10
1 Oct 10
1 Jan 11
2 Apr 11
2 Jul 11
1 Oct 11
1 Jan 12

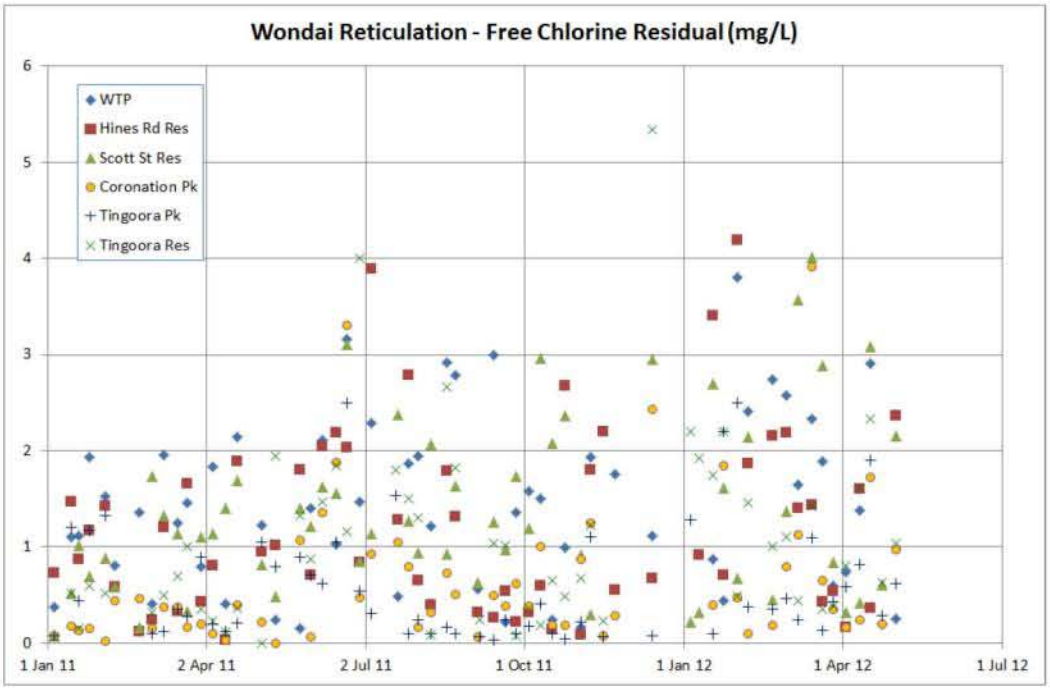
Wondai


Wondai Raw Water - Colour
300
250
200
150
100
50
0
1 Jan 09
2 Apr 09
2 Jul 09
1 Oct 09
1 Jan 10
2 Apr 10
2 Jul 10
1 Oct 10
1 Jan 11
2 Apr 11
2 Jul 11
1 Oct 11
1 Jan 12

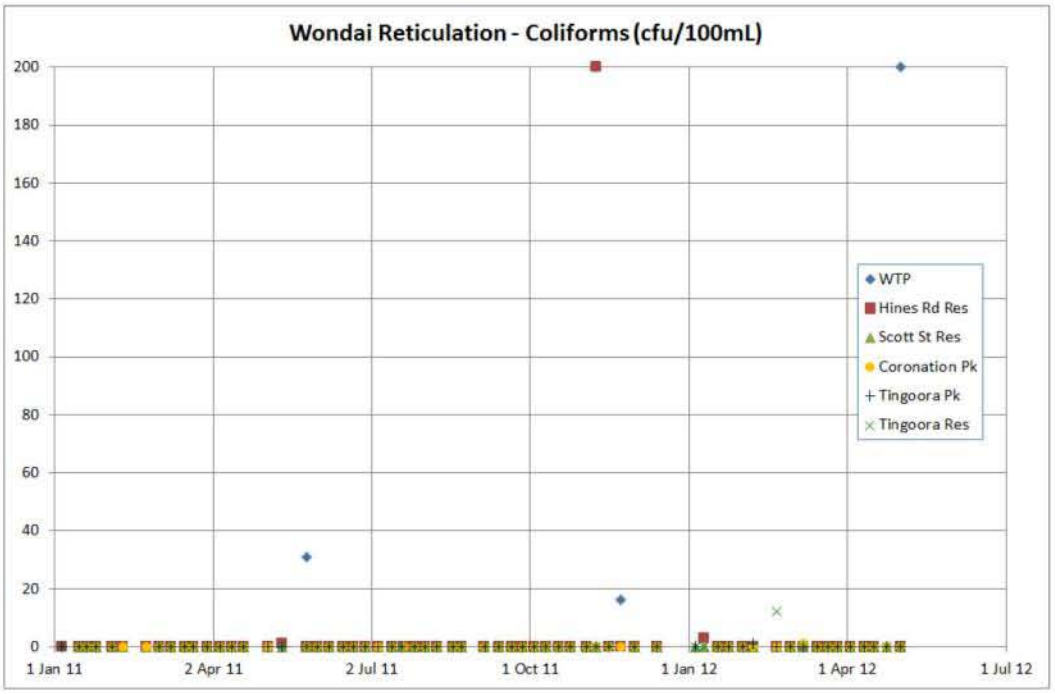

Wondai Treated Water - Colour
50
45
40
35
30
25
20
15
10
5
0
1 Jan 09
2 Apr 09
2 Jul 09
1 Oct 09
1 Jan 10
2 Apr 10
2 Jul 10
1 Oct 10
1 Jan 11
2 Apr 11
2 Jul 11
1 Oct 11
1 Jan 12

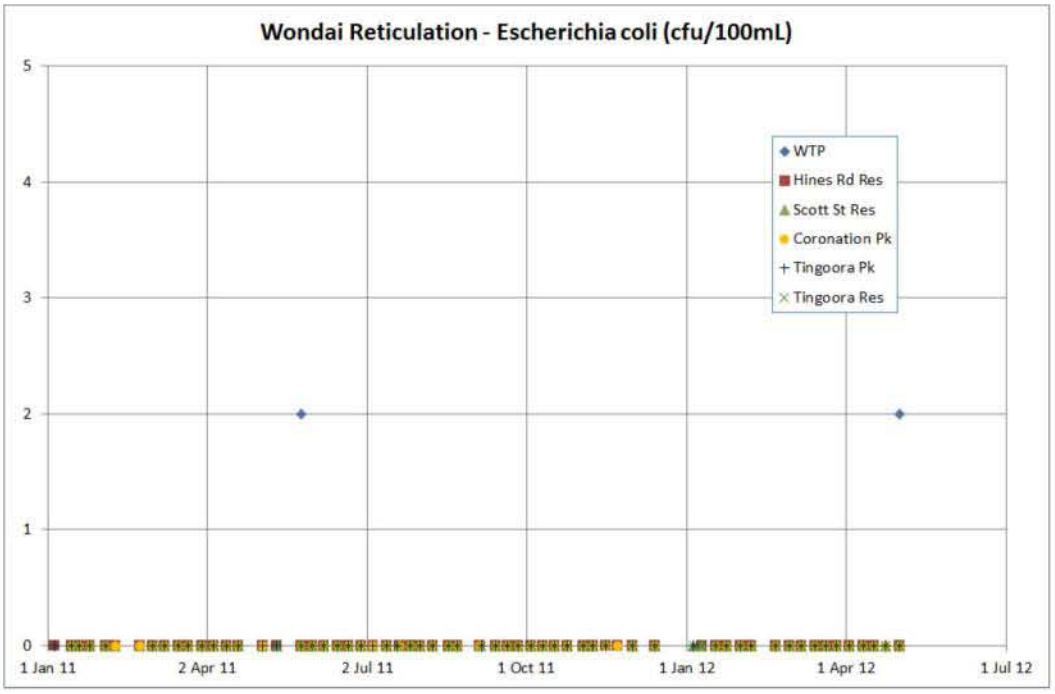
Wondai


Wondai Treated Water - Chlorine Residual
3.5
3
2.5
2
1.5
1
0.5
0
1 Jan 09
2 Apr 09
2 Jul 09
1 Oct 09
1 Jan 10
2 Apr 10
2 Jul 10
1 Oct 10
1 Jan 11
2 Apr 11
2 Jul 11
1 Oct 11
1 Jan 12


Wondai Reticulation - Free Chlorine Residual (mg/L)
WTP
Hines Rd Res
Scott St Res
Coronation Pk
Tingoora Pk
Tingoora Res
6
5
4
3
2
1
0
1 Jan 11
2 Apr 11
2 Jul 11
1 Oct 11
1 Jan 12
1 Apr 12
1 Jul 12

Wondai


Wondai Reticulation - Coliforms (cfu/100mL)
200
180
160
140
120
100
80
60
40
20
0
1 Jan 11
2 Apr 11
2 Jul 11
1 Oct 11
1 Jan 12
1 Apr 12
1 Jul 12
WTP
Hines Rd Res
Scott St Res
Coronation Pk
Tingoora Pk
Tingoora Res


Wondai Reticulation - Escherichia coli (cfu/100mL)
5
4
3
2
1
0
1 Jan 11
2 Apr 11
2 Jul 11
1 Oct 11
1 Jan 12
1 Apr 12
1 Jul 12
WTP
Hines Rd Res
Scott St Res
Coronation Pk
Tingoora Pk
Tingoora Res

Wondai

8.7 Snapshot Monitoring

Wondai Snapshot Monitoring				
Sample Description			Raw Water	
Collected Date			01-Sep-11	16-Nov-11
Metals				
Aluminium	mg/L	0.2	0.1	0.051
Antimony	mg/L	**0.003**	< 0.0001	< 0.0001
Arsenic	mg/L	**0.01**	0.001	0.0015
Barium	mg/L	**2.**	0.11	0.072
Beryllium	mg/L	**0.06**	< 0.0001	< 0.0001
Boron	mg/L	**4.**	0.035	0.034
Cadmium	mg/L	**0.002**	< 0.0001	< 0.0001
Chromium	mg/L	**0.05**	0.0003	0.0002
Cobalt	mg/L		0.0003	0.0002
Copper	mg/L	**2.**	0.067	0.15
Iron	mg/L	0.3	0.24	0.15
Lead	mg/L	**0.01**	< 0.0001	0.0004
Manganese	mg/L	**0.5**	0.092	0.06
Molybdenum	mg/L	**0.05**	0.0004	0.0005
Nickel	mg/L	**0.02**	0.0013	0.0014
Selenium	mg/L	**0.01**	< 0.0010	< 0.0010
Silver	mg/L	**0.1**	< 0.001	< 0.001
Stronium	mg/L		1.	0.55
Thallium	mg/L		< 0.0001	< 0.0001
Titanium	mg/L		0.005	0.001
Uranium	mg/L	**0.017**	< 0.0001	0.0004
Vanadium	mg/L		0.0028	0.0033
Zinc	mg/L	3.	0.001	0.007

Colour Key			
Health Parameters		**Aesthetic Parameters**	
	Not detected		Not detected
	Less than ADWG limit		Less than ADWG limit
	Above ADWG limit		Above ADWG limit

Wondai

Wondai Snapshot Monitoring				
Sample Description			Raw Water	
Collected Date			01-Sep-11	16-Nov-11
Standard Water Analysis				
Conductivity	uS/cm		1730.	929.
pH		6.5-8.5	8.11	7.59
Temperature	deg C		22.	22.
Total Hardness	mg/L as CaCO3		536.	271.
Temporary Hardness	mg/L as CaCo3		224.	144.
Alkalinity	mg/L CaCo3		224.	144.
Residual Alkalinity	meq/L		0.	0.
Silica	mg/L	80.	12.	12.
Total Dissolved Ions	mg/L		1020.	552.
Total Dissolved Solids	mg/L	600.	897.	475.
True Colour	Hazen	15.	15.	22.
Turbidity	NTU	5.	5.	3.
pH (Saturation)*			7.2	7.6
Saturation Index			0.9	0.
Mole Ratio			2.4	2.9
Sodium Absorption Ratio			2.6	2.
Figure of Merit			1.8	1.6
Sodium	mg/L	180.	140.	76.
Potassium	mg/L		4.4	4.7
Calcium	mg/L		87.	48.
Magnesium	mg/L		78.	37.
Hydrogen	mg/L		0.	0.
Bicarbonate	mg/L		267.	175.
Carbonate	mg/L		2.7	0.4
Hydroxide	mg/L		0.	0.
Chloride	mg/L	250.	410.	200.
Fluoride	mg/L	1.5	< 0.20	0.18
Nitrate	mg/L	50.	<5.0	<0.5
Sulphate	mg/L	500.	<20	12.3
Iron	mg/L	0.3	<0.01	<0.01
Manganese	mg/L	0.5	<0.01	<0.01
Zinc	mg/L	3.	<0.01	<0.01
Aluminium	mg/L	0.2	<0.05	<0.05
Boron	mg/L	4.	0.03	0.04
Copper	mg/L	2.	0.09	0.12

Colour Key			
Health Parameters		**Aesthetic Parameters**	
	Not detected		Not detected
	Less than ADWG limit		Less than ADWG limit
	Above ADWG limit		Above ADWG limit

9 Key Stakeholders

Initially inspections were undertaken of all the water treatment facilities by a group comprising the Council treatment management staff and external adviser Peter Robbins together with the relevant local operators and their supervisors.

Most of the operators have experience in more than one of the Council treatment plants. To enable water supply operations to continue smoothly, risk management workshops were conducted in two parts, the first in Nanango on 31 January 2012 and the second in Wondai on 1 and 2 February 2012.

The stakeholders who were engaged in the risk management analysis are listed in the following tables.

9.1 Nanango/Blackbutt Workshop, 31 January 2012

Organisation	Contact Name and Details	Relevance to management of drinking water quality	How the stakeholder is engaged in the DWQMP
South Burnett Regional Council	Barry Green Councillor	Experienced Councillor	Risk management participant
South Burnett Regional Council	Steve Allen Manager Treatment	Manager	Project Manager, WTPs assessments, risk management participant
South Burnett Regional Council	Andrew Watson WTP operator Kingaroy	WTP Operator	WTP assessment, risk management participant
South Burnett Regional Council	Steve Halliday WTP operator Nanango	WTP Operator	WTP assessment, risk management participant
South Burnett Regional Council	Chris Mathews WTP operator Blackbutt	WTP Operator	WTP assessment, risk management participant
Wide Bay Water	Peter Robbins Consulting engineer	Experienced water engineer	Facilitator, documenter

9.2 Kingaroy/Wondai/Murgon/Proston Workshop, 1-2 February 2012

Organisation	Contact Name and Details	Relevance to management of drinking water quality	How the stakeholder is engaged in the DWQMP
South Burnett Regional Council	Cheryl Dalton Councillor	Councillor with water portfolio	Risk management participant
South Burnett Regional Council	Allen Christensen Manager Water and Sewerage	Manager	Experienced engineer, risk management participant
South Burnett Regional Council	Cameron Ansell Technical Officer	Treatment Tech Officer	WTP assessment, risk management participant
South Burnett Regional Council	John McAleer WTP operator Gordonbrook	WTP Operator	WTP assessment, risk management participant
South Burnett Regional Council	Tom Ward WTP operator Gordonbrook	WTP Operator	WTP assessment, risk management participant
South Burnett Regional Council	Shane McDowall WTP operator Murgon	WTP Operator	WTP assessment, risk management participant
South Burnett Regional Council	Ross Trevor WTP operator Wondai	WTP Operator	WTP assessment, risk management participant
South Burnett Regional Council	Lenny Wilson WTP operator Proston	WTP Operator	WTP assessment, risk management participant
Wide Bay Water	Peter Robbins Consulting engineer	Experienced water engineer	Facilitator, documenter

10 Risk Assessment

10.1 Methodology

The methodology used for the risk assessment is outlined in the following tables.

Likelihood	Descriptors
Rare	May occur in exceptional circumstances, say 50 to 100 years
Unlikely	Rare but may happen every 5 to 10 years and may require a combination of factors
Possible	Unlikely, but could happen once a year
Likely	Likely to occur several times a year
Almost Certain	Likely to occur at least once a month

Consequence	Descriptors
Insignificant	Negligible injury or health effects, isolated complaints related to aesthetic parameters
Minor	Minor illness, no hospitalisations
Moderate	Small outbreaks and some hospitalisations reported
Major	Major outbreaks and large number of hospitalisations
Catastrophic	One or more fatalities

Likelihood	Consequence				
	Insignificant	Minor	Moderate	Major	Catastrophic
Almost certain	Medium (5)	High (10)	Extreme (15)	Extreme (20)	Extreme (25)
Likely	Medium (4)	High (8)	High (12)	Extreme (16)	Extreme (20)
Possible	Low (3)	Medium (6)	High (9)	Extreme (12)	Extreme (15)
Unlikely	Low (2)	Low (4)	Medium (6)	High (8)	Extreme (10)
Rare	Low (1)	Low (2)	Medium (3)	High (4)	High (5)

10.2 Uncertainty

Level of Uncertainty	Definition
Certain	There is 5 years of continuous monitoring data, which has been trended and assessed, with at least daily monitoring; or The processes involved are thoroughly understood.
Confident	There is 5 years of continuous monitoring data, which has been collated and assessed, with at least weekly monitoring or for the duration of seasonal events; or There is a good understanding of the processes involved.
Reliable	There is at least a year of continuous monitoring data available, which has been assessed; or There is reasonable understanding of the processes involved.
Estimate	There is limited monitoring data available; or There is limited understanding of the processes involved.
Uncertain	There is limited or no monitoring data available; or The processes are not well understood.

10.3 Catchment

Catchment Risk Assessment

1	2	3	4	5	6	7	8	9	10	11	12	
Scheme Component / Sub-component	Hazardous Event	Hazard	Maximum Risk			Existing Preventive Measures / Barriers.	Residual risk			Uncertainty	Comments/ Proposed Further Risk Reduction Actions	Imp Plan Ref
			Consequence	Likelihood	Risk level		Consequence	Likelihood	Risk level			
Source	chemical use (pesticides, fertilisers)	Pesticides	Minor	Unlikely	Low (4)		Minor	Unlikely	Low (4)	Estimate	Herbicide traces detected in Gordonbrook and Boondooma. Investigate annual testing	1
	major spills and accidental spillage	Harmful substances (not identified)	Moderate	Unlikely	Medium (6)	Streams generally ephemeral - allows time for clean-up. Alternative source available Blackbutt and Kingaroy	Moderate	Rare	Medium (3)	Estimate	Check adequacy of Emergency Response Plan	2
	public roads	Harmful substances (not identified)	Minor	Unlikely	Low (4)	Normal run-off insignificant. Spills as per previous item	Minor	Rare	Low (2)	Estimate	Check adequacy of Emergency Response Plan	2
	urban run-off	Harmful substances (not identified)	Minor	Possible	Medium (6)	Dilution, WTP, average filtered turbidity < 1, pH < 8, Free Cl > 2	Minor	Rare	Low (2)	Estimate		
	sewerage spill, discharge	Bacteria, viruses, protozoa	Moderate	Possible	High (9)	WTP, average filtered turbidity < 1, pH < 8, Free Cl > 2	Minor	Unlikely	Low (4)	Estimate	Investigate periodic monitoring of bacto in raw water	3
	wildlife (native and feral)	Bacteria	Moderate	Likely	High (12)	WTP, average filtered turbidity < 1, pH < 8, Free Cl > 2	Insignificant	Unlikely	Low (2)	Reliable	Average turbidity at Murgon is 2.9 - investigate operational improvement. But note that no E.coli have been detected in Murgon reticulation in 2011 and 2012	M2
	soil erosion	turbidity	Insignificant	Unlikely	Low (2)	WTP, average filtered turbidity < 1, pH < 8, Free Cl > 2	Insignificant	Unlikely	Low (2)	Reliable		
	bushfires	turbidity	Insignificant	Likely	Medium (4)	WTP, average filtered turbidity < 1, pH < 8, Free Cl > 2	Insignificant	Rare	Low (1)	Reliable		
	unrestricted livestock	bacteria	Moderate	Possible	High (9)	WTP, average filtered turbidity < 1, pH < 8, Free Cl > 2	Minor	Rare	Low (2)	Reliable		
		protozoa	Minor	Possible	Medium (6)	Alternative sources, oocyst settlement in storages	Minor	Unlikely	Low (4)	Uncertain	Generally low density grazing in catchment, run-off from feed lots regulated	
	stratification	manganese	Insignificant	Likely	Medium (4)	Destratification, potassium permanganate dosing (Gordonbrook), pre-chlorination (Murgon)	Insignificant	Possible	Low (3)	Uncertain	Customer complaints if above aesthetic limit of 0.1 mg/L (staining) practically guarantee that health limit of 0.5 will never be exceeded. Monitor customer complaints to see if action is warranted.	
	sabotage	Harmful substances (not identified)	Moderate	Unlikely	Medium (6)	Facilities locked when operator(s) not in attendance	Moderate	Rare	Medium (3)	Uncertain	Risk of serious harm considered extremely low, impractical to reduce.	
	climatic variations (heavy rain, drought)	Turbidity	Moderate	Likely	High (12)	WTP, average filtered turbidity < 1, pH < 8, Free Cl > 2	Insignificant	Rare	Low (1)	Reliable		
		Loss of supply	Moderate	Possible	High (9)	DMP, SunWater irrigation restrictions, alternative source - Boondooma Dam	Minor	Rare	Low (2)	Reliable		
	algal blooms (cyanobacteria)	cyanobacteria	Moderate	Possible	High (9)	Destratification (Gordonbrook), alternative source (Blackbutt and Kingaroy), PAC dosing	Minor	Unlikely	Low (4)	Reliable	Sufficient options are available. eg Boondooma Dam water, powdered activated carbon dosing would be possible. Seek meeting with SunWater reps to see if Council can routinely receive their relevant water test data	4

10.4 Blackbutt

Blackbutt Risk Assessment

1	2	3	4	5	6	7	8	9	10	11	12	
Scheme Component / Sub-component	Hazardous Event	Hazard	Maximum Risk			Existing Preventive Measures / Barriers.	Residual risk			Uncertainty	Comments/ Proposed Further Risk Reduction Actions	Imp Plan Ref
			Consequence	Likelihood	Risk level		Consequence	Likelihood	Risk level			
Treatment plant (Blackbutt)	chemical dosing failures equipment malfunctions failure of alarms and monitoring equipment	Turbidity	Moderate	Possible	High (9)	Back-up equipment, operator in attendance regularly while plant is running	Minor	Possible	Medium (6)	Estimate	Investigate on-line monitoring of treated water pH, turbidity and chlorine with appropriate alarms	A1
		Chlorine	Moderate	Possible	High (9)	Back-up equipment, operator in attendance regularly while plant is running, 1:3 dilution in clear water reservoirs	Minor	Unlikely	Low (4)	Estimate		
		Fluoride high	Moderate	Possible	High (9)	Safeguards in accordance with Code of Practice, dilution in clear water reservoirs	Minor	Unlikely	Low (4)	Uncertain	Fluoride equipment is new and drops out frequently on high fluoride, resulting in recurring low fluoride levels - awaiting return of contractor to rectify.	B1
		Fluoride low	Insignificant	Likely	Medium (4)	1:3 dilution in clear water reservoirs	Insignificant	Possible	Low (3)	Estimate		
	ineffective disinfection	bacteria, viruses	Minor	Possible	Medium (6)	Duty/spare dose pumps, daily checks, 1:3 mixing in clear water reservoirs	Minor	Unlikely	Low (4)	Reliable		
	power failures	loss of supply	Moderate	Possible	High (9)	Plant shuts down, clear water storage sufficient for 2 days	Insignificant	Unlikely	Low (2)	Reliable		
	sabotage and natural disasters	Harmful substances (not identified)	Moderate	Rare	Medium (3)	Secure keys, plant building and clear water storage alarmed to security company	Minor	Rare	Low (2)	Estimate		
	chlorination	disinfection byproducts	Minor	Possible	Medium (6)	Chlorination after treatment	Minor	Unlikely	Low (4)	Estimate	Formalise sodium hypochlorite storage protocols Try reducing chlorine dose rate, eg to obtain 0.2 residual in return line to WTP	A2
	significant flow variations through water treatment system (Boondooma source)	inappropriate dosing	Minor	Possible	Medium (6)	Operator monitor and control	Insignificant	Unlikely	Low (2)	Uncertain	Boondooma water not used recently - operator will be in attendance to refine control procedures if and when it is used.	
	unapproved or contaminated treatment chemicals and materials	Harmful substances (not identified)	Minor	Possible	Medium (6)	Purchase from reputable suppliers	Insignificant	Unlikely	Low (2)	Estimate	Check on batch certificate eg soda ash	A3
	inadequate filter operation and backwash recycling	turbidity, etc	Moderate	Possible	High (9)	Backwash at least daily, backwash water to lagoons with supernatant to dam	Insignificant	Possible	Low (3)	Reliable	Existing procedures are considered satisfactory	

10.5 Kingaroy

Kingaroy Risk Assessment

1	2	3	4	5	6	7	8	9	10	11	12	
Scheme Component / Sub-component	Hazardous Event	Hazard	Maximum Risk			Existing Preventive Measures / Barriers.	Residual risk			Uncertainty	Comments/ Proposed Further Risk Reduction Actions	Imp Plan Ref
			Consequence	Likelihood	Risk level		Consequence	Likelihood	Risk level			
Treatment plant (Gordonbrook)	incapable equipment or unit processes	salinity, algae	Minor	Likely	High (8)	alternative source (Boondooma Dam)	Minor	Unlikely	Low (4)	Reliable	Additional cost of Boondooma water is a deterrant. DAF pre-treatment has been proposed and needs to be thoroughly investigated.	K1
	inadequate backup (eg operators)	turbidity, bacteria etc	Moderate	Possible	High (9)	3 operators	Minor	Possible	Medium (6)	Reliable	Plant currently requires constant operator attendance. Upgrades scheduled for 2012 will include some automation and duty/standby and SCADA alarms	K2
	chemical dosing failures	turbidity, bacteria etc	Major	Possible	Extreme (12)	Operator in attendance whenever plant is running	Minor	Rare	Low (2)	Uncertain	Treated water turbidity is not currently monitored because (dosed) lime and entrained air were giving misleading/false readings. Lime dosing no longer occurs. Reposition sample point to avoid air and monitor turbidity, incorporating high level alarms.	K3
		Chlorine high	Moderate	Unlikely	Medium (6)	Back-up equipment, operator in attendance while plant is running	Insignificant	Unlikely	Low (2)	Reliable		
		Fluoride high	Moderate	Possible	High (9)	Safeguards in accordance with Code of Practice, dilution in clear water reservoirs	Minor	Unlikely	Low (4)	Reliable		
		Fluoride low	Insignificant	Likely	Medium (4)	averaging in clear water reservoirs	Insignificant	Possible	Low (3)	Reliable		
	ineffective disinfection	bacteria	Major	Possible	Extreme (12)	Operator in attendance whenever plant is running, averaging in clear water storage	Minor	Rare	Low (2)	Estimate	Investigate on-line monitoring of treated water pH, turbidity and chlorine with appropriate alarms	A1
	failure of alarms and monitoring equipment	turbidity, bacteria etc	Major	Possible	Extreme (12)	Operator in attendance whenever plant is running	Minor	Rare	Low (2)	Reliable	New equipment to be installed in 2012 should be configured to alarm on failure.	K2
	power failures	loss of supply	Moderate	Likely	High (12)	Operator in attendance whenever plant is running, clear water service reservoirs near town	Minor	Rare	Low (2)	Estimate		
		Boondooma water may continue to flow	Moderate	Possible	High (9)	Boondooma valve fails closed. Operator in attendance.	Insignificant	Rare	Low (1)	Uncertain		
	sabotage and natural disasters	Harmful substances (not identified)	Catastrophic	Rare	High (5)	Operator in attendance whenever plant is running	Moderate	Rare	Medium (3)	Reliable		
	chlorination	disinfection byproducts - THMs, chlorate	Minor	Possible	Medium (6)	Filtration before chlorination, currently gas to be changed to sod hypo stored in shade	Minor	Unlikely	Low (4)	Uncertain		
	significant flow variations through water treatment system	turbidity, bacteria etc	Major	Unlikely	High (8)	Operator in attendance whenever plant is running	Minor	Rare	Low (2)	Estimate		
	unapproved or contaminated treatment chemicals and materials	Harmful substances (not identified)	Moderate	Rare	Medium (3)	Purchase from reputable supplier	Minor	Rare	Low (2)	Estimate	Check specs with supplier(s)	A3
	poor reliability of processes (eg thermal currents in clarifiers)	turbidity etc	Minor	Likely	High (8)	Raw water temp rise in afternoon - destratification reduces effect	Insignificant	Likely	Medium (4)	Estimate	Clarifiers have been modified from original design - review operation. Investigate shade covers.	K4

10.6 Murgon

Murgon Risk Assessment

1	2	3	4	5	6	7	8	9	10	11	12	Imp Plan Ref
Scheme Component / Sub-component	Hazardous Event	Hazard	Maximum Risk			Existing Preventive Measures / Barriers.	Residual risk			Uncertainty	Comments/ Proposed Further Risk Reduction Actions	
			Consequence	Likelihood	Risk level		Consequence	Likelihood	Risk level			
Treatment plant (Murgon)	incapable equipment or unit processes, ie ability to remove algae	turbidity, taste	Minor	Possible	Medium (6)	nil	Minor	Possible	Medium (6)	Estimate	New intake structure planned for 2012. Investigate upgrade options, eg DAF	M1
	incapable equipment or unit processes, ie treated turbidity >1 NTU	ineffective disinfection	Minor	Likely	High (8)	Extended chlorine contact time	Minor	Unlikely	Low (4)		Investigate operational improvement especially filter operation/media	M2
	inadequate backup	turbidity, bacteria etc	Moderate	Possible	High (9)	Operator visits twice per day. Spare dose pumps available. Mixing in 5ML CWS	Minor	Unlikely	Low (4)	Estimate		
	chemical dosing failures	turbidity, bacteria etc	Moderate	Possible	High (9)	Operator visits twice per day. Spare dose pumps available. Mixing in 5ML CWS	Minor	Possible	Medium (6)	Estimate	Investigate duty/standby and/or on-line monitoring equipment for pH, turbidity and Cl including alarms. Investigate on-site computer for entry of WTP log data	A1 A4
		Chlorine high	Minor	Possible	Medium (6)	Operator in attendance twice per day, 1:5 dilution in clear water reservoirs	Insignificant	Unlikely	Low (2)	Reliable		
		Fluoride high	Moderate	Possible	High (9)	Safeguards in accordance with Code of Practice, 1:5 dilution in clear water reservoirs	Minor	Unlikely	Low (4)	Reliable	New fluoride dosing system still under contract maintenance	
		Fluoride low	Insignificant	Likely	Medium (4)	1:5 mixing in clear water reservoirs	Insignificant	Possible	Low (3)	Reliable		
	ineffective disinfection	bacteria	Moderate	Possible	High (9)	Operator visits twice per day. Spare dose pumps available. Averaging in 5ML CWS	Minor	Possible	Medium (6)	Estimate	Investigate on-line monitoring equipment for pH, turbidity and Cl including alarms.	A1
	failure of alarms and monitoring equipment - water levels	overflows, loss of supply	Minor	Possible	Medium (6)	Operator visits twice per day	Minor	Unlikely	Low (4)	Estimate		
	failure of equipment as a result of insufficient preventive maintenance	turbidity, bacteria etc	Moderate	Possible	High (9)	operator identifies problems	Moderate	Unlikely	Medium (6)	Estimate	Investigate scheduled preventive maintenance program and resources	M3
	power failures	turbidity, bacteria etc. loss of supply	Moderate	Possible	High (9)	Inlet valves at plant shuts and prevents raw water pumps from running. 2 water towers =445kL	Minor	Rare	Low (2)	Estimate	Investigate plant shut down if no flow through flow meter	M4
	sabotage and natural disasters	Harmful substances (not identified)	Catastrophic	Rare	High (5)	Security fence, locked gate 1:5 dilution in 3 clear water reservoirs in series	Moderate	Rare	Medium (3)	Reliable		
	chlorination	disinfection byproducts - THMs, chlorate	Moderate	Likely	High (12)	sodium hypochlorite stored inside with minimal safe holding	Minor	Likely	High (8)	Uncertain	Existing treatment uses chlorination of raw water for manganese control. Investigate alternative means of manganese removal. (Manganese was below aesthetic limit in raw water samples Sept and Nov 2011.)	M5
	unapproved or contaminated treatment chemicals and materials	Harmful substances (not identified)	Moderate	Rare	Medium (3)	Purchase from reputable supplier	Minor	Rare	Low (2)	Estimate	Check specs with supplier(s)	A3
	inadequate mixing	reduced process effectiveness	Minor	Possible	Medium (6)	nil	Minor	Possible	Medium (6)	Estimate	Investigate alternative dosing/mixing	M6
	inadequate filter operation and backwash recycling	turbidity, algae cells	Minor	Possible	Medium (6)	nil	Minor	Possible	Medium (6)	Estimate	Investigate filter operation incl backwash rates and replacement of filter media incl layer of granular activated carbon	M2

10.7 Nanango Bores

Nanango Groundwater Risk Assessment

1	2	3	4	5	6	7	8	9	10	11	12	
Scheme Component / Sub-component	Hazardous Event	Hazard	Maximum Risk			Existing Preventive Measures / Barriers.	Residual risk			Uncertainty	Comments/ Proposed Further Risk Reduction Actions	Imp Plan Ref
			Consequence	Likelihood	Risk level		Consequence	Likelihood	Risk level			
Bore Source (3)	industrial discharges (Tarong Power Stn)	Harmful substances (not identified)	Moderate	Unlikely	Medium (6)	nil by Council	Moderate	Unlikely	Medium (6)	Uncertain	Seek meeting with Tarong reps to discuss measures in place	N1
		lead	Minor	Possible	Medium (6)	nil by Council, but water is unpalatable and reportedly few residents drink it	Minor	Unlikely	Low (4)	Estimate	Snapshot monitoring showed lead at 0.3mg/L on 1 Sept 2011 and 0.004mg/L on 16 Nov 2011. (NHMRC Health limit 0.1) Undertake further sampling to establish whether high level is a recurring problem and whether a particular bore is the source of the high level.	N2
	historical waste disposal sites (cattle dips)	Harmful substances (eg arsenic)	Minor	Rare	Low (2)	nil	Minor	Rare	Low (2)	Estimate	Arsenic was not detected in the snapshot monitoring in Sept or Nov 2011 - not likely to suddenly become health issue	
	mining	Harmful substances (not identified)	Minor	Rare	Low (2)	nil	Minor	Rare	Low (2)	Uncertain	There is a coal mine supplying Tarong in the creek catchment. Possible WQ issues are turbidity and TDS. Snapshot monitoring indicates turbidity <1 but TDS of approx 1000.	N1
	chemical use (pesticides, fertilisers)	pesticides	Insignificant	Rare	Low (1)	nil	Insignificant	Rare	Low (1)	Uncertain	Not tested in snapshot monitoring, Sept 2011. Consider snapshot test.	N3
	groundwater under direct influence of surface water	bacteria, etc	Moderate	Likely	High (12)	Chlorine disinfection	Minor	Rare	Low (2)	Reliable	Shallow bores (20-25m) in Barker Creek alluvium	
	major spills and accidental spillage	Harmful substances (not identified)	Moderate	Rare	Medium (3)	Emergency response as required	Insignificant	Rare	Low (1)	Uncertain	Check existing Emergency Response procedures to ensure they cover potential water supply issues	2
	public roads	Harmful substances (not identified)	Moderate	Rare	Medium (3)	Emergency response as required	Insignificant	Rare	Low (1)	Uncertain		
	inadequate well head protection natural disasters (flooding)	bacteria, turbidity, etc	Moderate	Possible	High (9)	Flush affected water to waste after event, dilution in 2ML reservoir	Minor	Unlikely	Low (4)	Uncertain	Investigate improved sealing of boreheads	N4
	sabotage	Harmful substances, loss of supply	Moderate	Unlikely	Medium (6)	Security fencing around facilities, locked gates	Moderate	Rare	Medium (3)	Uncertain	Not possible to protect against a determined sabateur - all practical measures have been taken	
	climatic variations (drought)	Loss of supply	Major	Rare	High (4)	Drought Management Plan, alternative source - McCauley Weir	Minor	Rare	Low (2)	Uncertain		
	chemical contamination (manganese, etc)	Manganese	Minor	Possible	Medium (6)	Chlorination, settlement in reservoir	Insignificant	Possible	Low (3)	Uncertain	Mn 0.49mg/L in Sept 2011, 0.002mg/L in Nov 2011 - similar trend to lead - include Mn in further sampling investigation.	N2

10.8 Nanango Treatment

Nanango Treatment Risk Assessment

1	2	3	4	5	6	7	8	9	10	11	12	
Scheme Component / Sub-component	Hazardous Event	Hazard	Maximum Risk			Existing Preventive Measures / Barriers.	Residual risk			Uncertainty	Comments/ Proposed Further Risk Reduction Actions	Imp Plan Ref
			Consequence	Likelihood	Risk level		Consequence	Likelihood	Risk level			
Treatment	incapable equipment or unit processes	Turbidity	Minor	Unlikely	Low (4)	nil	Minor	Unlikely	Low (4)			
		Manganese	Insignificant	Likely	Medium (4)	nil	Insignificant	Likely	Medium (4)	Uncertain	Mn is an intermittent aesthetic problem - in view of treatment cost no further action is proposed at this stage.	
	inadequate backup	bacteria	Moderate	Possible	High (9)	Spare equipment and short changeover time	Minor	Possible	Medium (6)	Estimate	Chlorine dosing system to be changed to sodium hypo in 2012 with duty/standby including alarms	
	failure of dosing equipment	bacteria	Moderate	Possible	High (9)	Duty/spare dose pumps, daily checks, 1:1 averaging in clear water reservoirs	Minor	Possible	Medium (6)	Estimate	Chlorine dosing system to be changed to sodium hypo in 2012 with duty/standby including alarms	
		Chlorine	Minor	Possible	Medium (6)	Dilution in reservoir	Minor	Possible	Medium (6)		Chlorine dosing system to be changed to sodium hypo in 2012 with duty/standby including alarms	
		Fluoride high	Moderate	Possible	High (9)	Safeguards in accordance with Code of Practice, dilution in clear water reservoirs	Minor	Unlikely	Low (4)		Fluoridation system is new - no further action proposed at this stage.	
		Fluoride low	Insignificant	Likely	Medium (4)	1:1 averaging in clear water reservoirs	Insignificant	Possible	Low (3)		Fluoridation system is new - no further action proposed at this stage.	
	ineffective disinfection	bacteria, etc	Moderate	Possible	High (9)	Duty/spare dose pumps, daily checks, 1:1 averaging in clear water reservoirs	Minor	Possible	Medium (6)	Estimate	Chlorine dosing system to be changed to sodium hypo with duty/standby including alarms. Check that alarms include low free chlorine residual. Investigate on-line turbidity meter in conjunction with upgrade.	A1
	failure of alarms and monitoring equipment (fluoride)	bacteria, etc	Minor	Unlikely	Low (4)	Comms failure alarms, Daily check	Insignificant	Unlikely	Low (2)			
	power failures (power available at bores but not at dosing plant)	bacteria, etc	Moderate	Possible	High (9)	Daily checks, dilution	Minor	Possible	Medium (6)		Upgrade includes SCADA to shut down bore pumps if power failure at dosing plant	N5
	sabotage and natural disasters	Harmful substances, loss of supply	Moderate	Unlikely	Medium (6)	Security fencing around facilities, locked gates	Moderate	Rare	Medium (3)	Uncertain	Not possible to protect against a determined sabateur - all practical measures have been taken. Natural disasters addressed in Emergency Response Plan.	
	disinfection	disinfection byproducts	Minor	Likely	High (8)	nil	Minor	Unlikely	Low (4)		Establish storage protocol to minimise chlorate generation from sodium hypochlorite and minimise dose rate to provide satisfactory residual throughout the system.	A2
	significant flow variations through water treatment system (eg one bore pump failure and chlorine dose continues)	Chlorine	Minor	Possible	Medium (6)	Daily check, Dilution in reservoir	Minor	Unlikely	Low (4)		Chlorine dosing system to be changed to sodium hypo with duty/standby including alarms for high residual	

10.9 Proston

Proston Risk Analysis

1	2	3	4	5	6	7	8	9	10	11	12	
Scheme Component / Sub-component	Hazardous Event	Hazard	Maximum Risk			Existing Preventive Measures / Barriers.	Residual risk			Uncertainty	Comments/ Proposed Further Risk Reduction Actions	Imp Plan Ref
			Consequence	Likelihood	Risk level		Consequence	Likelihood	Risk level			
Treatment Plant (Proston)	inadequate backup - no dose pump spares	turbidity, bacteria etc loss of supply	Moderate	Possible	High (9)	5 days clear water storage	Insignificant	Possible	Low (3)	Reliable		
	chemical dosing failures	turbidity, bacteria etc	Moderate	Possible	High (9)	Plant runs 3 days/wk. Operators visits the plant on days when it runs and samples clear water etc. Dilution in CWS	Minor	Unlikely	Low (4)	Estimate	Investigate on-line monitoring equipment for pH, turbidity and Cl	A1
		Chlorine high	Minor	Possible	Medium (6)	Plant runs 3 days/wk. Operators visits the plant on days when it runs and samples clear water etc. Dilution in CWS	Minor	Unlikely	Low (4)	Reliable		
	algae growth on tube settlers	turbidity	Minor	Almost Certain	High (10)	Drain and clean clarifier every 3 weeks	Insignificant	Almost Certain	Medium (5)	Reliable	Install shade cloth over clarifier	P1
	ineffective disinfection	bacteria	Moderate	Possible	High (9)	Plant runs 3 days/wk. Operators visits the plant on days when it runs and samples clear water etc. Mixing in CWS	Minor	Possible	Medium (6)	Reliable	Investigate on-line monitoring equipment for pH, turbidity and Cl. Residual chlorine concentration in reservoir varies depending on town consumption rate - difficult to control with dosing ex WTP. Investigate chlorination within reservoir or at outlet.	P2
	lack of alarms and monitoring equipment - water levels	turbidity, bacteria	Minor	Possible	Medium (6)	Plant runs 3 days/wk. Operators visits the plant on days when it runs and samples clear water etc. Mixing in CWS	Minor	Unlikely	Low (4)	Reliable	Investigate alarms for treated water turbidity, pH and chlorine and reservoir water level	A1
	failure of raw water supply while plant is running	chemical overdosing	Minor	Possible	Medium (6)	Operator awareness and rectification	Minor	Possible	Medium (6)	Reliable	Install switch to shut down plant when raw water flow drops below design rate	P3
	failure of equipment as a result of insufficient preventive maintenance	turbidity, bacteria etc	Moderate	Possible	High (9)	reasonable preventive maintenance already in operation	Minor	Rare	Low (2)	Estimate		
	power failures	turbidity, bacteria etc. loss of supply	Minor	Likely	High (8)	plant shuts down, 5 days CWS	Insignificant	Rare	Low (1)	Estimate		
	sabotage and natural disasters	Harmful substances (not identified)	Major	Unlikely	High (8)	Security fence, locked gate reservoir roofed and locked	Major	Rare	High (4)	Estimate	All reasonable security measures for this location have been taken	
	chlorination	disinfection byproducts THMs, chlorate	Minor	Likely	High (8)	mimimise dose rate in raw water system. sod hypo stored in shade	Minor	Likely	High (8)	Uncertain	Raw water is obtained from untreated rural water distribution system - which is chlorinated to minimise aquatic growth in the system. Check level of THMs and investigate options if necessary	P4
	inadequate filter operation and backwash recycling	turbidity	Minor	Possible	Medium (6)	Plant runs 3 days/wk. Operators visits the plant on days when it runs and samples clear water etc. Mixing in CWS. Filter bypass has been plated off.	Minor	Rare	Low (2)	Reliable		

10.10 Wondai

Wondai Risk Assessment

1	2	3	4	5	6	7	8	9	10	11	12	
Scheme Component / Sub-component	Hazardous Event	Hazard	Maximum Risk			Existing Preventive Measures / Barriers	Residual risk			Uncertainty	Comments/ Proposed Further Risk Reduction Actions	Imp Plan Ref
			Consequence	Likelihood	Risk level		Consequence	Likelihood	Risk level			
Treatment plant (Wondai)	incapable equipment or unit processes - cannot treat high turbidity	turbidity, inadequate supply	Minor	Likely	High (8)	nil	Minor	Likely	High (8)	Reliable	Existing DAFF plant struggles with turbid raw water. Investigate upgrade options such as a Lamella Separator to reduce incoming turbidity	W1
	inadequate backup	turbidity, bacteria etc	Moderate	Possible	High (9)	duty standby dosing equip	Minor	Unlikely	Low (4)	Reliable	Upgrades scheduled for 2012 will include duty/standby and SCADA alarms	W2
	chemical dosing failures	turbidity, bacteria etc	Major	Possible	Extreme (12)	Operator visits twice per day, dilution in 250kL CWS	Minor	Possible	Medium (6)	Estimate	Investigate on-line monitoring equipment for pH, turbidity and Cl	A1
		Chlorine high	Minor	Possible	Medium (6)	Operator in attendance twice per day, dilution in clear water reservoir	Minor	Unlikely	Low (4)	Estimate		
		Fluoride high	Moderate	Possible	High (9)	Safeguards in accordance with Code of Practice, dilution in clear water reservoir	Minor	Unlikely	Low (4)	Reliable	New equipment, still under contract maintenance	
		Fluoride low	Insignificant	Likely	Medium (4)	dilution in clear water reservoirs	Insignificant	Possible	Low (3)	Reliable		
	ineffective disinfection	bacteria	Major	Possible	Extreme (12)	Operator visits twice per day, dilution in 250kL CWS	Minor	Rare	Low (2)	Estimate	Investigate on-line monitoring equipment for pH, turbidity and Cl	A1
	failure of alarms and monitoring equipment - water levels	overflows, loss of supply	Minor	Possible	Medium (6)	Operator visits twice per day	Minor	Unlikely	Low (4)	Estimate		
	power failures eg at WTP but not at creek	turbidity, bacteria etc	Moderate	Possible	High (9)	Inlet valve at plant shuts and prevents raw water pumps from running	Minor	Rare	Low (2)	Estimate		
	sabotage and natural disasters	Harmful substances (not identified)	Major	Rare	High (4)	Security fence, locked gate, building is alarmed	Moderate	Rare	Medium (3)	Reliable	All reasonable security measures are in place	
	chlorination	disinfection byproducts THMs, chlorate	Minor	Possible	Medium (6)	filtration before chlorination, minimal storage of sod hypo	Minor	Unlikely	Low (4)	Uncertain	Investigate shade for sod hypo storage	A2
	unapproved or contaminated treatment chemicals and materials	Harmful substances (not identified)	Moderate	Rare	Medium (3)	Purchase from reputable supplier	Minor	Rare	Low (2)	Estimate	Check specs with supplier(s)	A3

10.11 System

System Risk Assessment

1	2	3	4	5	6	7	8	9	10	11	12	
Scheme Component / Sub-component	Hazardous Event	Hazard	Maximum Risk			Existing Preventive Measures / Barriers	Residual risk			Uncertainty	Comments/ Proposed Further Risk Reduction Actions	Imp Plan Ref
			Consequence	Likelihood	Risk level		Consequence	Likelihood	Risk level			
System	Staff turnover	Loss of knowledge	Major	Unlikely	High (8)	Each Operator works in and is familiar with more than one plant	Moderate	Unlikely	Medium (6)	Estimate	Provide training and support for operators. Review O&M manuals to ensure they are sufficient for the purpose	A5
	Water Quality history not complete	No check on treated water quality	Insignificant	Likely	Medium (4)		Insignificant	Likely	Medium (4)		Formalise data management system, investigate computers at each WTP to allow operators to enter data	A4

11 Operation and Maintenance Procedures

Council has a copy of the generic O&M procedures prepared by Cardno for LGAQ in 2004 and listed below.

NUMBER	AREA	TITLE
GEN001	General	Centrifugal Pump Maintenance
GEN002	General	Electric Motor Routine Maintenance
GEN003	General	Switchboard Maintenance
GEN004	General	Outline for the O&M Manuals of Treatment Plants
GEN005	General	Customer Complaints – Water and Sewage
SEW001	Sewer	Sewer Blockages, Overflows and Spills
SEW002	Sewer	Sewer Cleaning (Jetting)
SEW003	Sewer	Maintenance of Wet Wells
SEW004	Sewer	Submersible Sewage Pump – Routine Maintenance
WAT001	Water	Operation and Maintenance of Bores
WAT002	Water	Reservoir Maintenance
WAT003	Water	Trunk Main Shut Down – Planned Maintenance
WAT004	Water	Water Main Flushing
WAT005	Water	Super Chlorination of Water Mains
WAT006	Water	Notification of Water Supply Interruptions – Programmed Works
WAT007	Water	Hydrant Maintenance
WAT008	Water	Valve Maintenance
WAT009	Water	Hydrant Flow and Pressure Tests
WAT010	Water	Water Main Repair – Reactive Maintenance
WAT011	Water	Outline Water Supply Contamination Contingency Plan

In addition Council has contract specifications to ensure that water quality is protected during construction and commissioning of new work.

The O&M manuals for the water treatment plants have not been reviewed since the plants were constructed and would be more useful if updated to reflect operational experience since then as well as the changes that have been made to plant operation, chemicals used, etc. This has been included as an item for improvement.

12 Incidents and Emergencies

Sample Water Quality Incident/Emergency Events

Incident / Emergency level	Description of level
Level 5	• Widespread outbreak of waterborne disease • Declared disaster • Major loss of supply likely, eg >24 hours over wide area • Gross exceedence of ADWG health guideline values for a chemical parameter (e.g. more than five times the ADWG health guideline limit).
Level 4	• High level of E. coli (e.g. > 5 CFU/ 100 mL) or any pathogens detected in reticulation • Failure of supply infrastructure (severe or emergency level supply restrictions required to maximise continuity of supply)
Level 3	• Detection of 1-5 CFU/100 mL E. coli in reticulation • Failure of supply infrastructure (ability to supply water compromised – short term water restrictions may be required) • Minor exceedence of ADWG health guideline value for chemical parameter (determined value is close to guideline value).
Level 2	• Failure of infrastructure or source supply (water quality or supply unlikely to be compromised - alternate process available to provide drinking water) • Abnormal exceedence of ADWG aesthetic guideline (customer complaints possible)
Level 1	• Exceedence of operational limit managed through operational and maintenance procedures

The following abbreviations are used in the following Incident Action Plan:

CEO Chief Executive Officer
GMI General Manager Infrastructure
MWS Manager Water Supply and Sewerage
MT Treatment Manager
EHO Environmental Health Officer
TPO Water Treatment Plant Operator
CSO Customer Service Officer

In the event of any doubt about action that should be taken in response to a water supply incident, contact the Office of the Water Supply Regulator, phone 1300 596 709 for advice.

Incident/Emergency Action Plan

Level	Incident or emergency	Summary of actions to be taken (with documented procedure listed)	Position/s responsible for Action/s
5	Waterborne disease	Ensure CEO, GMI, MWS and EHO are alerted	
		Report details to OWSR - phone 1300 596 709 and Qld Health within 3 hours and Part 1 Incident Form within 24 hours - dwreporting@derm.qld.gov.au	MT
		Determine potentially affected area, isolate if possible. Issue Boil Water alert or other precautions required.	MT
		Provide additional/temporary chlorine dosing if practical and test for residual in reticulation	MT
		Undertake comprehensive contamination investigation and take necessary corrective actions	MT
		Upon resolution, provide written report to regulator (Part 2 incident form)	MT
	Declared disaster	Ensure CEO, GMI, MWS and EHO are alerted	
		Liaise with Disaster Management centre to monitor potential effect on water supply and sewerage services	MT, RWS
		If water supply is affected take actions according to the relevant section(s) of this plan	MT, RWS
	Loss of Supply	Ensure CEO, GMI, MWS and EHO are alerted	
		Report details to OWSR - phone 1300 596 709 within 3 hours and Part 1 Incident Form within 24 hours - dwreporting@derm.qld.gov.au	MT
		Determine potentially affected area. Advise affected consumers via local radio and television including temporary restrictions if appropriate.	MT
		Make temporary supply arrangements if practical	MT
		Rectify the problem	MT
		Investigate options to avoid any recurrence	MT
		Upon resolution, provide written report to regulator (Part 2 incident form)	MT
	Gross exceedence of ADWG	Ensure CEO, GMI, MWS and EHO are alerted	
		Check with laboratory to confirm result (a sudden gross	MT

Level	Incident or emergency	Summary of actions to be taken (with documented procedure listed)	Position/s responsible for Action/s
	health limit	exceedence, ~5 times, is only likely to occur as the result of sabotage or an unreported spill)	
		Report details to OWSR - phone 1300 596 709 immediately and Part 1 Incident Form within 24 hours - dwreporting@derm.qld.gov.au	MT
		Determine potentially affected area. Advise affected consumers via local radio and television not to drink town water.	CEO
		Make temporary supply arrangements including bottled potable water if practical	MT
		Rectify the problem	MT
		Investigate options to avoid any recurrence	MT
		Upon resolution, provide written report to regulator (Part 2 incident form)	MT
4	High level of E.coli	Alert CEO, GMI, MWS	
		Determine potentially affected area, adjust chlorine level if necessary, flush mains. Consider Boil Water alert.	MT
		Report detection to OWSR - phone 1300 596 709 within 3 hours and Part 1 Incident Form within 24 hours - dwreporting@derm.qld.gov.au	MT
		Resample for E. coli and disinfectant residual in potentially affected infrastructure	RWS
		Undertake comprehensive contamination investigation	RWS, TPO
		Undertake necessary corrective actions	MT
		Upon resolution, provide written report to regulator (Part 2 incident form)	MT
	Failure of supply infrastructure (restrictions required)	Ensure CEO, GMI, MWS and EHO are alerted	
		Determine potentially affected area	MT
		Obtain authorisation for restrictions and advise affected consumers via local radio and television	CEO
		Commence street patrols to ensure restrictions are known and observed	MT

Level	Incident or emergency	Summary of actions to be taken (with documented procedure listed)	Position/s responsible for Action/s
		Report details to OWSR - phone 1300 596 709 within 3 hours and Part 1 Incident Form within 24 hours - dwreporting@derm.qld.gov.au	MT
		Make temporary supply arrangements if practical	MT
		Rectify the problem	MT
		Investigate options to avoid any recurrence	MT
		Upon resolution, provide written report to regulator (Part 2 incident form)	MT
3	Detection of 1-5 CFU/100mL E.coli in reticulation	Alert CEO, GMI, MWS	
		Determine potentially affected area, adjust chlorine level if necessary, flush mains. Consider Boil Water alert.	MT
		Report detection to OWSR - phone 1300 596 709 within 3 hours and Part 1 Incident Form within 24 hours - dwreporting@derm.qld.gov.au	MT
		Resample for E. coli and disinfectant residual in potentially affected infrastructure	RWS
		Undertake comprehensive contamination investigation	RWS, TPO
		Undertake necessary corrective actions	MT
		Upon resolution, provide written report to regulator (Part 2 incident form)	MT
	Failure of supply infrastructure (minor restrictions indicated)	Ensure CEO, GMI, MWS and EHO are alerted	
		Determine potentially affected area	MT
		Obtain authorisation for restrictions and advise affected consumers via local radio and television	CEO
		Commence street patrols to ensure restrictions are known and observed	MT
		Report details to OWSR - phone 1300 596 709 within 3 hours and Part 1 Incident Form within 24 hours - dwreporting@derm.qld.gov.au	MT
		Make temporary supply arrangements if practical	MT

Level	Incident or emergency	Summary of actions to be taken (with documented procedure listed)	Position/s responsible for Action/s
		Rectify the problem	MT
		Investigate options to avoid any recurrence	MT
		Upon resolution, provide written report to regulator (Part 2 incident form)	MT
	Minor exceedence of ADWG health guideline	Ensure CEO, GMI, MWS and EHO are alerted	
		Report details to OWSR - phone 1300 596 709 within 3 hours and Part 1 Incident Form within 24 hours - dwreporting@derm.qld.gov.au	MT
		Estimate whether quality can be corrected, time and resources required	MT
		Consult with OWSR and Qld Health to determine whether public alert is warranted – eg not likely in the case of chronic health effect	MT
		Advise consumers and make temporary supply arrangements including bottled potable water if warranted	MT
		Rectify the problem or inform consumers of ongoing water quality limitation	MT
		Upon resolution, provide written report to regulator (Part 2 incident form)	MT
4	Failure of infrastructure (supply unlikely to be compromised	Ensure CEO, GMI, MWS and EHO are alerted	
		Monitor the situation to provide warning if supply may be compromised – initiate appropriate action if so	MT
		Rectify the problem	MT
	Abnormal exceedence of ADWG aesthetic guideline (customer complaints possible	Alert CEO, GMI, MWS and Customer Service	MT
		Estimate time to rectify and inform Customer Service	MT
		Inform concerned customers of the details of the incident and anticipated progress	CSOs
5	Exceedence of operational limit	If simple adjustment required, make the adjustment and record in plant log	TPO
		If more substantial system change is required, eg to overcome recurrent problem, advise MT	TPO

Level	Incident or emergency	Summary of actions to be taken (with documented procedure listed)	Position/s responsible for Action/s
		Organise the change or list for capital works as appropriate	MT

13 Risk Management Improvement Program

Ref	Hazard/ Hazardous Event	Actions	Priority	Target Date	Estimated Cost	Respons-ibility
Catchment Management						
1	Pesticides	Investigate annual testing	medium	31 Dec 12	2,000	MT
2	Major spills, accidental spillage	Check adequacy of emergency response plan	medium	31 Dec 12	-	MT
3	Sewerage spill, discharge	Investigate periodic monitoring of bacto in raw water	high	30 Sep 12	10,000/yr	MT
4	Any adverse water quality issues in SunWater storages	Seek meeting with SunWater reps to see if Council can routinely receive their relevant water test data	medium	31 Dec 12	-	MT
Treatment Plants General						
A1	Treatment plant failure (various causes)	Investigate purchase and installation of on-line monitors for treated turbidity, free chlorine and pH with alarms and history at each plant (incl Nanango)	high	31 Dec 12	100,000	MT
A2	Disinfection by-products (chlorate)	Develop and adopt sodium hypochlorite storage protocols to minimise chlorate generation. Use minimal chlorine dose rate to achieve effective disinfection and system residual	medium	31 Dec 12	10,000	MT
A3	Uncertain quality of water treatment chemicals	Obtain and check copy of specifications from suppliers	medium	31 Dec 12	-	MT
A4	Complete WTP log data not available	Formalise data management system, investigate computers at each WTP to allow operators to enter data	medium	31 Dec 12	10,000	MT
A5	Loss of key staff, operational knowledge	Formalise data management system, investigate computers at each WTP to allow operators to enter data	medium	31 Dec 12	10,000	MT
Blackbutt						
B1	Fluoridation high level cut-out	Review operation after contract maintenance period	medium	30 Sep 12	-	MT
Kingaroy						
K1	Capability of Gordonbrook WTP to handle high algal loads	Finalise investigation on upgrade such as DAF pre-treatment	medium	30 Jun 13	20,000	MT
K2	Gordonbrook WTP requires constant operator attendance	Check that upgrades done in 2012 achieve the required benefit	high	31 Dec 12	-	MT
K3	Treated water turbidity is not monitored	Reposition sample point as required so that turbidity can be monitored	high	30 Sep 12	5,000	MT
K4	Variable effectiveness of Gordonbrook clarifiers (thermal currents?)	Review operation of clarifiers and investigate need for shade covers	medium	30 Jun 13	10,000	MT

Ref	Hazard/ Hazardous Event	Actions	Priority	Target Date	Estimated Cost	Respons-ibility
Murgon						
M1	Incapable equipment - temporary raw water pump cannot select intake depth	Investigate new intake structure/system	medium	30 Jun 13	tba	MT
M2	Incapable equipment - average treated water turbidity is 2.9 NTU	Investigate filter operation incl backwash rates and replacement of filter media incl feasibility of layer of granular activated carbon (filter may not be deep enough)	medium	30 Jun 13	20,000	MT
M3	Failure of equipment as a result of insufficient preventive maintenance	Investigate scheduled preventive maintenance program and resources	medium	30 Jun 13	5,000	MT
M4	Plant continues to run if river pump fails	Investigate plant shut-down if no flow through flow meter	low	30 Jun 13	2,000	MT
M5	Chlorination by-products as a result of pre-chlorination for manganese control	Avoid prechlorination when Mn level is satisfactory. Investigate alternative means of manganese removal	medium	30 Jun 13	50,000	MT
M6	Inadequate mixing in existing mixer	Investigate alternative dosing/mixing	medium	30 Jun 13	5,000	MT
Nanango Bores						
N1	Industrial discharges (Tarong mine and power station)	Seek meeting with Tarong reps to discuss measures in place	medium	31 Dec 12	-	MWS
N2	Metals in groundwater	Undertake further sampling to establish whether high level of lead and manganese is a recurring problem and whether a particular bore is the source of the high level.	medium	31 Dec 12	-	MT
N3	Chemical use (pesticides, fertilisers)	Consider snapshot test.	medium	31 Dec 12	-	MT
N4	Inadequate well-head protection	Investigate improved sealing of boreheads	medium	30 Jun 13	5,000	MT
Nanango Treatment						
N5	Power failure at treatment plant but bores still run	Confirm that current upgrade includes SCADA to shut down bore pumps if power failure at dosing plant	high	31 Dec 12	-	MT

Ref	Hazard/ Hazardous Event	Actions	Priority	Target Date	Estimated Cost	Respons-ibility
Proston						
P1	Algae growth on tube settlers	Install shade cloth over clarifier	medium	31 Dec 12	2,000	MT
P2	Inconsistent chlorine residual depending on town consumption and resudence time in reservoir	Investigate (re-)chlorination within reservoir or at outlet	medium	31 Dec 12	10,000	MT
P3	Failure of raw water supply while plant is running - chemical overdosing etc	Install switch to shut down plant when raw water flow drops below design rate	high	31 Dec 12	1,000	MT
P4	Disinfection by-products (THMs etc) from chlorination of raw water	Check level of THMs and investigate options if necessary	medium	31 Dec 12	1,000	MT
Wondai						
W1	WTP cannot treat high turbidity raw water	Investigate upgrade options such as a Lamella Separator to reduce incoming turbidity	high	31 Dec 13	100,000	MT
W2	Inadequate back-up	Confirm that the upgrades scheduled for 2012 will include duty/standby and SCADA alarms	medium	31 Dec 12	-	MT

14 Information Management

All the water quality test data obtained from operational monitoring is entered into the treatment plant logs. To date these have not all been collated and archived in Council's record system but one of the improvements proposed in this DWQMP is that this system be formalised to ensure that data is not lost and is readily available for analysis and planning purposes..

Test results from external laboratories are scanned (if not received in digital form), stored in Council's Management Information System and distributed to the relevant operational staff.

Operational Manuals are currently held in hard copy form at the relevant water treatment plants. As these documents are reviewed it is proposed that the digital master copy will be retained in the Council Management Information System.

15 Monitoring

15.1 Operational Monitoring

A schedule of the operational monitoring carried out in the South Burnett region is set out on the following two pages.

Preventive measure	Operational monitoring parameter	How is it monitored	Where	When	Who is responsible	Which limit	Limit value	Corrective action
Source selection	**cryptosporidium risk**	first run of the stream (= probable significant concentration	weir/ intake	after rain in catchment	TPO	Target	3 weeks settling time before use	Use alternative source (off stream storage)
						Alert	2 weeks settling time before use	Use alternative source (off stream storage)
						Critical	<2 weeks settling time before use	minimise filtered turbidity
BG algae detection	**raw water pH**	grab sample	plant inlet	daily	TPO	Target	< 8.5	
						Alert	> 9.0	Commence blue green testing program
						Critical		
BG algae treatment	**blue green cell count**	grab sample	raw water reservoir	daily	TPO	Target	< 2,000 cells/mL	
						Alert	> 15,000 cells/mL	Dose with PAC
						Critical	> 1 ug/L	Dose with PAC, monitor treated water for toxins
Fencing to exclude animals from off-stream storages	**fence integrity**	visual inspection of perimeter fence and grounds	off-stream storages	monthly	TPO	Target	fence secure, grounds clear	
						Alert	fence not secure, signs of animal access	repair fence, remove animals
						Critical		

110

Preventive measure	Operational monitoring parameter	How is it monitored	Where	When	Who is responsible	Which limit	Limit value	Corrective action
Filtration	**turbidity**	on-line turbidity meter (Longreach only)	combined filtered flow	continuously	TPO	Target	< 1.0 NTU	
						Alert	2.0 - 5.0 NTU	backwash filter, jar test
						Critical	> 5.0 NTU	shut down and investigate
Filtration	**turbidity**	grab sample	ground level reservoir	daily (if practical)	TPO	Target	< 1.0 NTU	
						Alert	2.0 - 5.0 NTU	backwash filter, jar test
						Critical	> 5.0 NTU	shut down and investigate
Disinfection	**free chlorine residual**	grab sample	ground level reservoir	daily (if practical)	TPO	Target	1 mg/L	
						Alert	<0.5 or >2.5 mg/L	change dose rate to adjust residual
						Critical	<0.2 mg/L	manually dose into reservoir
							>5.0 mg/L	flush reservoir and reduce dose rate until corrected
Water main construction repair works	**compliance with specification/ procedure**	random audit	on site	once during contract, approx annual	DIS	Target	compliance	
						Alert	non-compliance	warn contractor, retrain staff, follow up
						Critical	serious non-compliance	shut down and investigate
Backflow prevention	**devices installed where required and tested**	review of test certificates	Council office	annually	plumbing inspector	Target	compliance	
						Alert	non-compliance	backwash filter, jar test
						Critical	non-compliance > 3 months	restrict supply

15.2 Verification Monitoring

Longreach Regional Council undertakes verification monitoring through sampling from test points throughout the reticulation systems as per the following table.

Sample Location	Parameter	Sample Type	Frequency
Blackbutt			
Muller Park, Blackbutt	Free chlorine	grab	monthly
Settlers Park, Benarkin	Coliforms		
	E.coli		
Kingaroy			
Water Treatment Plant	Free chlorine Coliforms E.coli	grab	weekly
Haly St Pump Station			
Drive-In Pump Station			
Premier Drive Pump Station			
Rotary Park Tap			
Drive-In Reservoir			
Adermann Park			
Council Office			
Taabinga Heights Reservoir			
Murgon			
Water Treatment Plant	Free chlorine Coliforms E.coli	grab	weekly
Hospital Reservoir			
Golf Links Reservoir			
cnr Lamb and Perkins Streets			
Caravan Park			
Nanango			
Lions Park	Free chlorine	grab	weekly
Reg McCullum Park	Coliforms		
Cemetery	E.coli		
Proston			
Proston Reservoir	Free chlorine	grab	monthly
Rodney Street Park	Coliforms		
	E.coli		
Wondai			
Water Treatment Plant	Free chlorine Coliforms E.coli	grab	weekly
Hines Road Reservoir			
Scott Street Reservoir			
Coronation Park			
Tingoora Park			
Tingoora Reservoir			

Resolution:

Moved Cr BL Green, seconded Cr KA Duff.

That the Officer's Recommendation be adopted.

Carried 6/0
FOR VOTE - Councillors voted unanimously
ABSENT. DID NOT VOTE - Cr DJ Palmer

12.2 Water & Wastewater Portfolio Report

Cr BL Green addressed council with Water and Wastewater portfolio report.

Motion:

Moved Cr BL Green, seconded Cr KM Campbell.

That the report be received.

Carried 6/0
FOR VOTE - Councillors voted unanimously
ABSENT. DID NOT VOTE - Cr DJ Palmer

13. Finance & Information Services

13.1 Information Services

Nil.

13.2 Financial Operations

13.2.1 FO - 1208972 - WT & AA Andress - Requesting that Council provide a reduction in water consumption charges for property at 88 Drayton Street Nanango

Summary

A request has been received from WT & AA Andress, to reduce the water usage bill for his rental property due to a leaking toilet.

It is recommended that although the leak was repaired immediately after it was noticed, Council not agree to provide a rate reduction.

Officer's Recommendation

That Council not agree to reduce the water usage charges.

Resolution:

Moved Cr KM Campbell, seconded Cr CD Dalton.

That the Officer's Recommendation be adopted.

Lost 2/4
FOR VOTE - Cr KM Campbell, Cr CD Dalton
AGAINST VOTE - Cr DW Kratzmann (Mayor), Cr KA Duff, Cr BL Green, Cr DP Tessmann
ABSENT. DID NOT VOTE - Cr DJ Palmer

Resolution:

Moved Cr DW Kratzmann, seconded Cr KA Duff.

That Council grant a remission of $428.19.

Carried 4/2
FOR VOTE - Cr DW Kratzmann (Mayor), Cr KA Duff, Cr BL Green, Cr DP Tessmann
AGAINST VOTE - Cr KM Campbell, Cr CD Dalton
ABSENT. DID NOT VOTE - Cr DJ Palmer

13.2.2 FO - 1280391 - Greenidge Pty Ltd - Requesting that Council waive interest charges raised since 2010 on a number of properties situated in Buckingham & Logan Streets, Kingaroy and Greenidge Court Kingaroy

Summary

A request has been received from the Director of Greenidge Pty Ltd seeking the waiving of interest charges on overdue rates for his subdivided land in Kingaroy due to a dramatic slowdown in market sales.

It is recommended that Council not agree to waive interest charges.

Officer's Recommendation

That Council not agree to waive interest charges.

Resolution:

Moved Cr KM Campbell, seconded Cr CD Dalton.

That the Officer's Recommendation be adopted.

Carried 6/0
FOR VOTE - Councillors voted unanimously
ABSENT. DID NOT VOTE - Cr DJ Palmer

13.3 Financial Planning

13.3.1 FP- 1307063 - South Burnett Regional Council Monthly Capital Works

Summary

The following information provides a snapshot of Council's Capital Works as at 6 August 2012.

Officer's Recommendation

That the South Burnett Regional Council's Monthly Capital Works Report as at 6 August 2012 be received and noted.

Resolution:

Moved Cr KM Campbell, seconded Cr KA Duff.

That the South Burnett Regional Council's Monthly Capital Works Report as at 6 August 2012 be received and noted.

Carried 6/0
FOR VOTE - Councillors voted unanimously
ABSENT. DID NOT VOTE - Cr DJ Palmer

13.3.2 FP - 1307042 - Monthly Financial Statements

Summary

The following information provides a snapshot of Council's Financial Position as at 6 August 2012.

Officer's Recommendation

That the Monthly Financial Report as at 6 August 2012 be received and noted.

Resolution:

Moved Cr KM Campbell, seconded Cr BL Green.

That the Monthly Financial Report as at 6 August 2012 be received and noted.

Carried 6/0
FOR VOTE - Councillors voted unanimously
ABSENT. DID NOT VOTE - Cr DJ Palmer

13.4 Financial and Information Services Portfolio Report

Cr KM Campbell addressed council with Finance and Information Services portfolio report.

Motion:

Moved Cr KM Campbell, seconded Cr CD Dalton.

That the report be received.

Carried 6/0
FOR VOTE - Councillors voted unanimously
ABSENT. DID NOT VOTE - Cr DJ Palmer

14. Executive Services

14.1 Executive

14.1.1 E - 1269469 - Native Title Determination Application - Wulli Wulli People # 2 Federal Court Application No.QUD311/11

Summary

Council has an opportunity to become a party to the Native Title Determination Application made by the Wulli Wulli People #2. This will give Council an opportunity to be part of mediation having its interests taken into account when the Federal Court makes its determination. If Council wishes to become a party to the application it must write to the Federal Court on or before 12 September 2012.

The area subject to this application covers about 10,746 square kilometres and is located between the Burnett Highway, the Leichardt Highway and the Warrego Highway about 65 kilometres north east of Chinchilla. The area covers the western parts of the South Burnett Regional Council boundaries.

Officer's Recommendation

That Council become a party to the Native Title Determination Application for the Wulli Wulli People #2 referred to as Federal Court Application QUD311/11.

Resolution:

Moved Cr KA Duff, seconded Cr BL Green.

That the Officer's Recommendation be adopted.

Carried 6/0
FOR VOTE - Councillors voted unanimously
ABSENT. DID NOT VOTE - Cr DJ Palmer

14.1.2 E - 1269468 - Native Title Determination Application Wakka Wakka People # 5 Federal Court Application No. QUD93/12

Summary

Council has an opportunity to become a party to the Native Title Determination Application made by the Wakka Wakka People #5. This will give Council an opportunity to be part of mediation having its interests taken into account when the Federal Court makes its determination. If Council wishes to become a party to the application it must write to the Federal Court on or before 12 September 2012.

The area subject to this application covers about 8,464 square kilometres and is located in the vicinity of Murgon and Kingaroy west of Kilkivan extending from Gayndah in the north to Bell in the south. The major localities within the South Burnett Regional Council boundaries which relate to the application are Kingaroy, Nanango, Wondai and Murgon.

Officer's Recommendation

That Council become a party to the Native Title Determination Application for the Wakka Wakka People #5 referred to as Federal Court Application QUD93/12.

Resolution:

Moved Cr KA Duff, seconded Cr CD Dalton.

That the Officer's Recommendation be adopted

Carried 6/0
FOR VOTE - Councillors voted unanimously
ABSENT. DID NOT VOTE - Cr DJ Palmer

14.1.3 E - 1269470 - Native Title Determination Application Wakka Wakka People # 3 Federal Court Application No. QUD621/11

Summary

Council has an opportunity to become a party to the Native Title Determination Application made by the Wakka Wakka People #3. This will give Council an opportunity to be part of mediation having its interests taken into account when the Federal Court makes its determination. If Council wishes to become a party to the application it must write to the Federal Court on or before 12 September 2012.

The area subject to this application covers about 10,746 square kilometres and is located between the Burnett Highway, the Leichardt Highway and the Warrego Highway about 65 kilometres north east of Chinchilla. The area covers the western parts of the South Burnett Regional Council boundaries.

Officer's Recommendation

That Council become a party to the Native Title Determination Application for the Wakka Wakka People #3 referred to as Federal Court Application QUD621/11.

Resolution:

Moved Cr BL Green, seconded Cr KM Campbell.

That the Officer's Recommendation be adopted

Carried 6/0
FOR VOTE - Councillors voted unanimously
ABSENT. DID NOT VOTE - Cr DJ Palmer

14.1.4 E - 1306831 - Authorisation for the Chief Executive Officer to appoint an Acting Chief Executive Officer during periods of absence

Summary

Under the Local Government (Beneficial Enterprises and Business Activities) Regulation 2010 there is a requirement to appoint an Acting Chief Executive Officer at points in time as follows:

> **63 Appointing an acting chief executive officer**
> The board may appoint a person to act as the chief executive officer when the chief executive officer—
> (a) is absent from duty; or
> (b) can not, for another reason, perform the duties of chief executive officer.

Officer's Recommendation

That Council authorise the Chief Executive Officer to appoint an Acting Chief Executive Officer during periods of absence from Senior Management Team of the South Burnett Regional Council.

Resolution:

Moved Cr KM Campbell, seconded Cr DP Tessmann.

That the Officer's Recommendation be adopted.

Carried 6/0
FOR VOTE - Councillors voted unanimously
ABSENT. DID NOT VOTE - Cr DJ Palmer

14.1.5 E - 1301094 - The Hon Jarrod Bleijie MP - Requesting Council advise by Friday 31 August 2012 the date for an Appointment of a Special Holiday for 2013

Summary

For a number of years now, Council has requested the Monday of the Brisbane Exhibition to be gazetted as the show holiday for the South Burnett Regional Council area. As no requests to the contrary have been received, it is suggested that we request the Exhibition Monday as the Show Holiday for the South Burnett Regional Council area.

Officer's Recommendation

That Council apply for the Monday of the 2013 Royal National Exhibition, Brisbane as the 2013 Show Holiday for the South Burnett Regional Council area.

Resolution:

Moved Cr KM Campbell, seconded Cr CD Dalton.

That the Officer's Recommendation be adopted.

Carried 6/0
FOR VOTE - Councillors voted unanimously
ABSENT. DID NOT VOTE - Cr DJ Palmer

14.2 Human Resources

Nil.

14.3 Governance

Nil.

14.4 Strategic Projects & Grants

Nil.

14.5 Governance Portfolio Report

Nil.

15. Information Section

15.1 IS - 1308546 - Reports for the Information of Council

Summary

Workplace Health & Safety Report
Water & Wastewater Information Report
Delegated Authority Report
Listing of correspondence pending completion of assessment report

Officer's Recommendation

That the reports be received.

Resolution:

Moved Cr KA Duff, seconded Cr BL Green.

That the reports be received.

Carried 6/0
FOR VOTE - Councillors voted unanimously
ABSENT. DID NOT VOTE - Cr DJ Palmer

16. General Section

Nil.

8.2 Waste (Cont'd)

PROCEDURE:

Motion:

Moved Cr KA Duff, seconded Cr CD Dalton.

That the following matter be taken from the table and considered.

Carried 6/0
FOR VOTE - Councillors voted unanimously
ABSENT. DID NOT VOTE - Cr DJ Palmer

8.2.1 W - 1306940 - Wondai - Murgon Transfer Stations Opening Hours - August 2012

Summary

Update on the opening of the Wondai and Murgon Transfer Stations.

Officer's Recommendation

That Council:

- Approve the Wondai Waste facility to open between the hours of 8:00am and 12:00 noon Wednesday to Monday (being closed Tuesday as well as Good Friday and Christmas day) while the Murgon Waste Facility is open between the hours of 1:00pm and 5:00pm Wednesday to Sunday and 8.00am and 12.00 noon Tuesday (being closed Monday as well as Good Friday and Christmas day).

- Monitor the opening hours arrangements over a three (3) month period and report back to Council for consideration.

Resolution:

Moved Cr CD Dalton, seconded Cr KA Duff.

- Approve the Wondai Waste facility to open between the hours of 8:00am and 12:00 noon Wednesday to Monday (being closed Tuesday as well as Good Friday and Christmas day) while the Murgon Waste Facility is open between the hours of 1:00pm and 5:00pm Wednesday to Monday. (being closed Tuesday as well as Good Friday and Christmas day).

Carried 6/0
FOR VOTE - Councillors voted unanimously
ABSENT. DID NOT VOTE - Cr DJ Palmer

CLOSED SESSION:

Motion:

Moved Cr BL Green, seconded Cr KA Duff.

That the meeting be closed to the public for Council discussions in accordance with Section 72(1) (e) contracts proposed to be made by it, of the Local Government (Operations) Regulation 2010.

Carried 6/0
FOR VOTE - Councillors voted unanimously
ABSENT. DID NOT VOTE - Cr DJ Palmer

ATTENDANCE:

Cr BL Green left the meeting at 12:24 PM

Cr BL Green has returned from temporary absence at 12:27 PM

OPEN COUNCIL:

Motion:

Moved Cr DP Tessmann, seconded Cr KA Duff.

That the meeting resume in Open Council.

Carried 6/0
FOR VOTE - Councillors voted unanimously
ABSENT. DID NOT VOTE - Cr DJ Palmer

ADJOURNMENT:

Motion:

Moved Cr DP Tessmann, seconded Cr BL Green.

That the meeting adjourn for lunch.

Carried 6/0
FOR VOTE - Councillors voted unanimously
ABSENT. DID NOT VOTE - Cr DJ Palmer

RESUMPTION:

Motion:

Moved Cr KM Campbell, seconded Cr KA Duff.

That the meeting resume at 1.16pm with attendance as previous to the adjournment.

Carried 6/0
FOR VOTE - Councillors voted unanimously
ABSENT. DID NOT VOTE - Cr DJ Palmer

CLOSED SESSION:

Motion:

Moved Cr DP Tessmann, seconded Cr KA Duff.

That the meeting be closed to the public for Council discussions in accordance with Section 72(1)(e) contracts proposed to be made by it, of the Local Government (Operations) Regulation 2010.

Carried 6/0
FOR VOTE - Councillors voted unanimously
ABSENT. DID NOT VOTE - Cr DJ Palmer

OPEN COUNCIL:

Motion:

Moved Cr KA Duff, seconded Cr DP Tessmann.

That the meeting resume in Open Council.

Carried 6/0
FOR VOTE - Councillors voted unanimously
ABSENT. DID NOT VOTE - Cr DJ Palmer

Report:

The Mayor reported that whilst in Closed Session, in accordance with Section *72(1)(e) contracts proposed to be made by it,* of the Local Government (Operations) Regulation 2010, Council considered matters concerning banking operations.

Motion:

Moved Cr DW Kratzmann, seconded Cr CD Dalton.

That the Mayor's report be received

Carried 6/0
FOR VOTE - Councillors voted unanimously
ABSENT. DID NOT VOTE - Cr DJ Palmer

17. Confidential Section

17.1 CONF - 1307289 - Consideration of provision of Banking services for Councils Operational Banking

Reason for Confidentiality

This report is **CONFIDENTIAL** in accordance with Section 72(1)(e) of the Local Government (Operations) Regulation 2010, which permits the meeting to be closed to the public for business relating to the following:

(e) contracts proposed to be made by it

Recommendation

That the tender of Operational Banking Services (excluded investments) be awarded to the National Australia Bank for a period of three years commencing 3 September 2012 and concluding on 2 September 2015.

Resolution:

Moved Cr KM Campbell, seconded Cr BL Green.

That the Officer's Recommendation be adopted

Carried 5/1
FOR VOTE - Cr DW Kratzmann (Mayor), Cr KM Campbell, Cr CD Dalton, Cr BL Green, Cr DP Tessmann
AGAINST VOTE - Cr KA Duff
ABSENT. DID NOT VOTE - Cr DJ Palmer

There being no further business the meeting was declared closed at 1.34 pm.

Confirmed before me this …….. day of ……2012

…… **MAYOR**

THIS PAGE HAS BEEN LEFT BLANK INTENTIONALLY