

Memorandum

To	Alex Coe, Manager Operational and Contractual Performance	From	Michael Dooley, Strategic Operational Performance Coordinator
Date	21 November 2014		
Subject	QCA Draft report November – GCDP chemicals (OTW)		

CH2MHill Comment (p 123)	As outlined earlier in this section, chemical expenditure for the 2013/2014 period at the Tugan desalination plant was \$367,656 with a total volume produced of 1860 ML equating to \$197.66 per ML of water treated. For the forecasted 2014/2015 period the Tugan desalination plant is forecasted to produce a reduced volume of 1241 ML with an associated chemical cost of \$552,323 equating to \$445.06 per ML of water treated. This equates to an increase of \$184,666 or an additional \$247.40 per ML. Upon review of the additional information supplied by Seqwater in relation to the chemical expenditure at the Tugan desalination plant, CH2M HILL recommend that \$306,527 be reduced from the \$552,323 to reflect the comparative reduction in flow demand and in keeping with the \$197.66 per ML that this plant has efficiently operated at in 2013/14 year for chemical costs. There was insufficient information to justify a 50% increase in chemical costs at the Tugan Desalination plant.
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Response

As displayed in the 'Reconciliation' lines below that the P&E assessment understates the Seqwater estimate by \$129k per annum from 2014-15.

Tugan Desalination		2013-14	2014-15	2015-16	2016-17	2017-18	Comments
Chemical Usage Analysis							
Chemical Expenditure	CH2 Report	\$367,656	\$552,323	\$552,323	\$552,323	\$552,323	
Annual Increase (\$)	CH2 Report		\$184,667	\$0	\$0	\$0	
Actual or Demand	CH2 Report	1,860	1,241	1,241	1,241	1,241	Actual and Demand figures are not quite correct. Veolia June 2014 claim confirmed production for 2013-14 of 1,438ML.
Flow (ML)*	CH2 Report	\$197.66	\$445.06	\$445.06	\$445.06	\$445.06	The Cost per ML figures are misleading due to inaccuracies in the cost and production data.
% Annual Change	CH2 Report		125%	0%	0%	0%	The apparent percentage change is extreme and misleading due to the inaccuracies in the cost and production data.
Seqwater Confirmed - Q0							
Chemical Expenditure	Seqwater Confirmed - Q0	\$367,656	\$552,323	\$552,323	\$552,323	\$552,323	
Chemical Expenditure	Seqwater Q1 - Reduced Production Variation		-\$184,000	-\$184,000	-\$184,000	-\$184,000	Additional Seqwater information provided an explanation for \$184,000 reduction in 2014-15 chemical cost.
Chemical Expenditure	Seqwater Q1 - Cleaning Chemical Variation		\$6,677	\$6,677	\$6,677	\$6,677	
Total Chemical Expenditure	Seqwater Confirmed - Q1 Total Chemicals	\$367,656	\$375,000	\$375,000	\$375,000	\$375,000	Additional Seqwater information provided explained that chemical expenditure at GCDP during 14/15 estimated was \$375,000.
	Remove Cleaning Chemicals for comparative purpose only		-\$36,000	-\$36,000	-\$36,000	-\$36,000	Need for cleaning chemicals for cleaning trains was able to be deferred until 2014-15 - remove for comparative purposes.
Chemical Expenditure	Seqwater Confirmed - Q1	\$367,656	\$339,000	\$339,000	\$339,000	\$339,000	
Annual Change (\$)	Seqwater Confirmed		-\$28,656	\$0	\$0	\$0	Year on year comparison.
Actual or Demand	Seqwater Confirmed	1,438	1,248	1,248	1,248	1,248	Veolia Claim June 2014 confirmed actual production FY 2013-14 was 1,438 ML and that production reduced to 2 x 12 ML p.w from August 2013. Estimated FY 2014-15 (2 x 12ML p.w. x 52 = 1,248ML)
Flow (ML)*	Seqwater Confirmed	\$255.67	\$271.63	\$271.63	\$271.63	\$271.63	
% Annual Change	Seqwater Confirmed		6%	0%	0%	0%	The modest increase of 6% in chemical costs between 2013-14 and 2014-15 is realistic and attributable to chemical price increases.
Reconciliation of CH2 and Seqwater Assessment Chemicals							
Chemical Expenditure	CH2 Base Figures	\$367,656	\$552,323	\$552,323	\$552,323	\$552,323	
Annual Increase (\$)	CH2 Proposed correction		-\$306,527	-\$306,527	-\$306,527	-\$306,527	
Actual or Demand	CH2 Assessment - Base	\$367,656	\$245,796	\$245,796	\$245,796	\$245,796	
Chemical Expenditure	Seqwater Assessment	\$367,656	\$375,000	\$375,000	\$375,000	\$375,000	
Under Assessment		\$0	-\$129,204	-\$129,204	-\$129,204	-\$129,204	Reconciliation - the CH2 assessment of chemical costs potentially understates the Seqwater estimates by \$129K from 2014-15.

The problem between the two assessments essentially stems from the differential between the 'Actual' production for 2013-14 used in the assessments, i.e. QCA report of 1,860ML whereas Veolia report actual production of 1,438ML. Veolia confirm that production reduced to 2 x 12ML per week from August 2013.

Please note that the QCA report production figure for 2013-14 of 1,860ML is close to the assumption of 3 x 12 ML per week production, i.e. $3 \times 12 \times 52 = 1,872$ ML. The figure of 1,860ML may have been provided at some point as a budgeted demand level of production but it does not align with actual production for 2013-14, which was 1,438ML. Using actual production together with actual chemical costs for 2013-14 in the calculation makes significant difference to the analysis with the result being close alignment between 2013-14 and 2014-15 figures.

A component of the \$375K proposed expenditure from 2014/15 onwards includes \$36k of chemicals for cleaning of the reverse osmosis membranes. There are 17,000 membranes in the plant inventory of which a small proportion are periodically replaced on a scheduled program. The assumptions made in relation to the replacement program are based on pressure limits as opposed to quality constraints, assuming flux and salt decline with time are held constant. Cleaning of the reverse osmosis membranes is a regular activity that is independent of production volume or replacement activity. Until 2014/15 cleaning of the membranes was not required because the membranes undergo a non-cleaning chemical permeate flush as part of the hot standby mode twice weekly. However, permeate flushing is not a long-term preventative maintenance solution for the membranes and regular chemical cleaning is required in perpetuity going forward.

The resulting cost increase that remains is 6%, which is driven by beyond CPI increases to chemical unit rate prices. The major cause of this increase is because a hot standby operating model causes procurement of chemicals to be both (i) low in volume and (ii) sporadic. Veolia have cited, with our endorsement, three reasons for the increase from 2013/14 actuals to 2014/15 forecast –

- Some long-term contracts reflective of higher production mode have now expired and renegotiated on lower volume discounts
- Transport charges for each shipment remain a fixed component despite volume being delivered
- One chemical could no longer be sourced within Australia and was required to be sourced overseas.

While Veolia's active management of procurement activities have ensured cost escalation is curtailed, Seqwater has instructed Veolia that the 2014/15 forecast should be a level of expenditure commensurate with current hot standby operation which will ensure future increases are capped.