

**Expert Statement**  
**Walkerville Retarding Basin**

Dr David Rendell

Dr Kathryn Robertson

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# EXPERT STATEMENT OF Dr. DAVID RENDELL and Dr. KATHRYN ROBERTSON

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## 1. Names and Addresses of Authors

David Keith **RENDELL**  
170 Mt Baimbridge Road  
**HAMILTON**, 3300

Kathryn Elise **ROBERTSON**  
60 Portland Road  
**HAMILTON**, 3300

## 2. Capability

### 2.1. Qualifications of Dr David Rendell

- 2.1.1. I have a Bachelor of Veterinary Science from the University of Melbourne
- 2.1.2. I am a member of the Australian and New Zealand College of Veterinary Scientists (ANZCVSc) by examination in the Medicine of Sheep
- 2.1.3. I also have a Masters of Business Administration (MBA) (Agribusiness) from University of New England

### 2.2. Experience of Dr David Rendell

- 2.2.1. I have 38 years of experience as a beef cattle and sheep veterinarian, based in South West Victoria, but consulting throughout Australia. Prior to retiring from Veterinary practice in December 2017 I was a Director of Grampians Animal Health, trading as Livestock Logic and Cox Street Vets. An eleven veterinarian practice and agricultural consultancy clinic that includes a livestock feed analysis laboratory parasitological laboratory, based in Hamilton Victoria
- 2.2.2. I have provided a joint expert witness report for a Queensland court in a case of alleged cattle water contamination
- 2.2.3. I have assisted Rural Industries Skill Training (RIST) in the development of a Lifetime Beef Management Course based on RIST's highly successful LTEM program. I have delivered three pilot groups for this program involving 20 participants
- 2.2.4. I have 12 years' experience as resident co-manager of Bellwyn Pastoral Co, a 2000 hectare property running 600 beef cows and 3000 sheep
- 2.2.5. I was the Animal Welfare Representative of the Victorian Division of the Australian Veterinary Association 2004- 2015

# EXPERT STATEMENT OF Dr. DAVID RENDELL and Dr. KATHRYN ROBERTSON

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## 2.3. Qualifications of Dr Kathryn Robertson

- 2.3.1. I have a Bachelor of Agricultural Science (hons) from The University of Melbourne
- 2.3.2. I have a Doctor of Veterinary Medicine (hons) from The University of Melbourne
- 2.3.3. I am a registered veterinary practitioner in the State of Victoria. My registration number is eight thousand two hundred and twenty one

## 2.4. Experience of Dr Kathryn Robertson

- 2.4.1. I am a livestock veterinarian at Grampians Animal Health trading as Livestock Logic and Cox Street Vets
- 2.4.2. I have been practicing as a veterinarian for over 3 years
- 2.4.3. I have 14 years experience in the Agricultural industry that included 3 years as an agronomist at Kerang, 3 years as for Agriculture Victoria Animal Health Officer in Hamilton and Grains Industry Development Officer. I have also had an ongoing, active involvement with the family farm

## 3. Purpose of Report.

- 3.1. We have been requested by Andrew Sherman to
  - 3.1.1. Review the water quality test results for the Walkerville Water Retention Storage (WWRS) from March 2016 until July 2017
  - 3.1.2. Provide an opinion as to the real risk or prospect of some form of health impact, long or short term, on cattle or sheep drinking water sourced from this retention storage
- 3.2. The work for the report was commenced by Dr David Rendell who has since retired. Therefore this report has been jointly authored by Dr Kathryn Robertson

#### **4. Source of WWRS water**

**4.1.** Tim Brown Environmental Health Officer from South Gippsland Shire reported on the 5<sup>th</sup> of September 2017 the source of WWRS water

4.1.1. The majority of water is stormwater drainage from Walkerville residential area

4.1.2. Also includes 1 legal discharge of greywater (bath, basins etc but not toilet waste) that is a significant distance from the WWRS. It also includes at least 1 permitted discharge of septic tank effluent after treatment through a sand-filter.

#### **5. WWRS water quality tests**

**5.1. Results Received;** 51 tests: August 2010 – July 2017

5.1.1. See appendix 1

**5.2. Sites Samples Collected from;** 3 sites, see attached map appendix 2

5.2.1. Site 1 Adjacent to where pump used by farmer to source water from WWRS up until September 2016

5.2.2. Site 2 Adjacent to storm water inlet to WWRS

5.2.3. Site 3 Adjacent to where pump used by farmer to source water from WWRS up until September 2016

#### **5.3. pH Results Analysis**

5.3.1. Range from 6.9 to 9.5, median 7.3 and 9% > pH 9

5.3.2. EPA (2003) guidelines<sup>1</sup> for livestock drinking water median 6 - 9

5.3.3. No health impact risk indicated

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<sup>1</sup> Guidelines for Environmental Managements: Use of Reclaimed Water EPA 2003  
Australian & New Zealand Environment & Conservation Council 2000) Australian & New Zealand Guidelines for Fresh & Marine Water Quality Vol 1 The Guidelines chap 1-7

**5.4. Biological Oxygen Demand 5 days mg/L Results Analysis**

- 5.4.1. 73% less than 2 and a maximum of 6
- 5.4.2. EPA (2003) guidelines for livestock drinking water median less than 20
- 5.4.3. No health impact indicated

**5.5. Suspended Solids at 104 +/- 2 ° C mg/L (SS) Results Analysis**

- 5.5.1. 66% less than 3 and a maximum of 20
- 5.5.2. EPA 2003 guidelines for livestock drinking water median less than 30
- 5.5.3. No health impact indicated

**5.6. E. coli Results Analysis** Number per 100ml of water

- 5.6.1. **Site 1 April – Sep 2016:** range of 270 – 920 median of 270 and 25% greater 400 (only 6 months). August 2016 result 920, next result 440 so changed pump out point to site 3 where result was 130
- 5.6.2. **All sites;** We were supplied with the results for 51 samples over a 7 year period (10 August 2010 to 18 July 2017). The median for all these test over this time period is 63. For 74 of the 83 months (89%) of testing the median for the previous 12 months was below 100. Four out of 51 samples (8%) were above 400. EPA (2003) guidelines for E. coli is a) the median of the E. coli numbers per 100ml over 12 months should be less than 100. b) suspend supply if two consecutive tests greater than 400
- 5.6.3. ANZECC (2000) Guidelines<sup>2</sup> less than 20% of results over at least 12 months are greater than 400
- 5.6.4. The E. coli test results at site 3 since September 2016 when commenced pumping water out of WWRS indicate on track to comply with both above guidelines at that site

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<sup>2</sup> Australian & New Zealand Environment & Conservation Council 2000) Australian & New Zealand Guidelines for Fresh & Marine Water Quality Vol 1 The Guidelines chap 1-7

**5.7. E. coli Results relevance to livestock health?** Whilst the presence of E coli in water usually indicates recent human or animal faecal contamination of the water, the real risk or prospect of a health impact on livestock drinking WWRS water cannot be determined or predicted by E. coli test results in the range observed in the tests conducted on WWRS water. This statement is supported by the following

5.7.1. Most E. coli strains are harmless inhabitants of the bowels that usually do not multiply in the environment. Only some are pathogenic (diseases causing). The water E. coli test does not differentiate between harmless and pathogenic strains or whether the source is human or animal faeces

5.7.2. As conceded by the ANZECC (2000) water quality guidelines the “test does not specifically indicate whether pathogenic (disease causing) organisms are present or not” The EPA (2003) guidelines are based on the ANZECC (2000) guidelines

5.7.3. There is no published study on the association of the level of water E. coli counts with any impact on health of livestock drinking that water.

5.7.4. A large USA study<sup>3</sup> observed no relationship between water coliform count and level of cattle exposure to pathogenic E. coli. They tested total coliform levels in water from 661 water tanks supplying drinking water to cattle in 66 feedlots. The median result was 53,000 and the range was 0 – 1.2 million coliforms, per 100ml. We note E. coli is the main bacteria in total coliform count and the total coliform counts are very high. Thus this study’s conclusion is most likely to also apply to the E coli level recorded from Walkerville water supply.

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<sup>3</sup> Sanderson et al (2005)

**5.8. Relative risk of storm water derived drinking water**

5.8.1. Based on our experience and discussion with Larry Walker<sup>4</sup>, and David Paynter<sup>5</sup> from Regional Lab Services (*laboratories that provide a water quality testing service for farmers*) E coli levels of over 400 per 100 ml a relatively common and above a 1000 is not unusual in livestock drinking water sourced from farm dams or natural water sources, such as creeks or water courses. A high proportion of which livestock and native birds and fauna walk through and defecate in, or near.

5.8.2. Yet in our experience this faecal contamination rarely impacts livestock health until the contamination reaches a level where it readily observable to the naked eye and/or an offensive smell. This will impact water intake and in summer that can have serious consequences. This will entail E. coli levels many times higher than seen in WWRS water results. Levels of up to 1000 E coli per 100 ml are unlikely to have any detectable odour.

5.8.3. The only case of E. coli mortalities in livestock where we have implicated contaminated water as the source of the infection was where young sheep were introduced to a new paddock with single water source, which was a trough with 18,000 E coli /100ml

**5.9. Helminths (Tape worms) Risk;** This is not a problem provided any septic effluent is treated through a sand-filter prior to discharge to the stormwater system. Untreated greywater is not considered a risk factor either. Even if some effluent does get through, it is unlikely to be a problem given retention time in the basin

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<sup>4</sup> Southern Scientific Water Quality Testing Laboratory, Port Fairy Rd Hamilton 3300

<sup>5</sup> Regional Laboratory Services Samari Road Benalla



**6. Real risk impact on stock health**

- 6.1.** For all the results over the 7 years we have been supplied with, both the overall median and the percentage of test results above 400 are within stated EPA (2003) and ANZECC (2000) guidelines
- 6.2.** These results provide no material evidence that the water from WWRS poses a risk to livestock drinking it and in our opinion these results indicate the water has most likely been satisfactory for livestock drinking water

**EXPERT STATEMENT OF Dr. DAVID RENDELL and Dr. KATHRYN ROBERTSON**

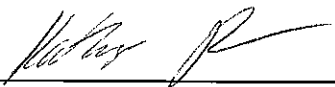
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**7. Declaration**

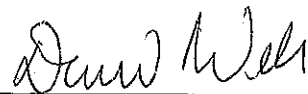
We declare that we have made all the inquiries which we believe are desirable and appropriate, and that no matters of significance which we regard as relevant have, to our knowledge been withheld from this statement.

We hereby acknowledge that this statement is true and correct and we make it in the belief that a person making a false statement is liable to the penalties of perjury.

Signed:



Dr Kathryn Robertson



Dr David Rendell

Acknowledgement taken and signature witnessed by me at

Livestock Logic, Hamilton

At 4:35 am/pm on 21<sup>st</sup> March 2018

Signed: 

Print Name: Claudia Neverauskas

Authority: Veterinarian, V9065

Address: 2029 Glenelg Highway Wannon Vic.

A witness under Schedule 3 of the *Criminal Procedure Act 2009*