

**BEFORE THE CANTERBURY REGIONAL COUNCIL**

**In the Matter of**                      The Resource Management Act 1991

**Between**                                      CANTERBURY REGIONAL COUNCIL

**And**    ORARI WATER SOCIETY INCORPORATED  
Submitter

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**STATEMENT OF REBUTTAL EVIDENCE OF RICHARD TREVOR de JOUX  
HEARING THREE ORARI SUB CHAPTER**

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## **INTRODUCTION**

1. My name is Richard Trevor de Joux. I am the Managing Director of Environmental Consultancy Services Ltd. My qualifications and experience were outlined in my evidence in chief ('EIC') for Hearing 3.
2. I repeat the confirmation given in my evidence in chief that I have read and agree to comply with, the Code of Conduct for Expert Witnesses, as set out in the Environment Court's Consolidated Practice Note. I confirm, for completeness, that I have complied with the code in preparing this brief of evidence.

## **SCOPE OF EVIDENCE**

3. The purpose of this brief of evidence is to respond to the evidence of Mr James Norman Jollie relating to the Orari River.

## **BURDONS ROAD TO SH1 BRIDGE**

4. In section 6.1 of Mr Jollie's evidence he comments that "It is of concern that abstraction has increased the number of dry days (Ritson 2013) in the 14 Km. reach (Burdons Road to State Highway 1) that has most of the nesting colonies of black-fronted terns and black-billed gulls". Mr Jollie then uses that argument to suggest that higher minimum flows are required to avoid this.
5. Paragraphs 6 & 7 of my EIC show that I have reservations about the accuracy of the hydrological model prepared by Ms Ritson, and that it should not be used to attempt to predict river flows at various locations within the Orari River.
6. The fact that the Ritson model shows that abstraction has made the river dry up more frequently is of no surprise because the model is predicated on the assumptions that all "hydraulically connected" groundwater abstractions have a direct effect on the river.
7. Paragraph 27 of my EIC stated "The consequence of the above factors is that the model overstates the amount of effect that groundwater abstractions actually have on the River. This then overestimates the allocation within the catchment and leads to an overly optimistic expectation that restricting groundwater takes will ensure that there will be higher residual flows within the River"
8. The simple fact is that the only long term flow recorder site in the Orari Catchment is located at the Gorge outlet. There is no continuous flow record available for sites such as SH79 Bridge or SH1 Bridge, and the recorder site upstream of Ohapi Creek was only established in 2006. There is no flow data that can verify whether the river is dryer now in reaches than it was at some point in the past, or that the reaches dry up more often.
9. Paragraph 16 of my EIC stated in part "Ritson (document titled "Orari model assumptions 030412") shows that under usual flow conditions, approximately 6,000 l/s is lost from the Orari River between the Gorge and upstream of Ohapi Creek." Irrespective of whether groundwater abstractions are having a major impact on the surface water resource, it is clearly obvious that under natural conditions, the Orari River will be dry in its middle reaches whenever the Orari River flow at the Gorge is less than 6000 l/s.

## **SUMMARY**

10. There is no flow data available to be able to confirm whether groundwater abstractions have led to an increase in dry days within the Orari River between Burdons Road and SH1 Bridge.
11. The fact that the Ritson model shows that abstraction has made the river dry up more frequently is of no surprise because the model is predicated on the assumptions that all “hydraulically connected” groundwater abstractions have a direct effect on the river.
12. Under natural conditions, the Orari River will be dry in its middle reaches whenever the Orari River flow at the Gorge is less than 6000 l/s, therefore regardless of what minimum flow is set, the river will still be naturally dry in the reach that Mr Jollie is concerned about.

Richard de Joux  
22 May 2013.