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**Report 02.385**

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Report to Rural Services and Wairarapa Committee  
from Graham Sevicke-Jones, Section Leader, Resource Investigations

## **Groundwater Quality of the Riversdale Shallow Aquifer**

### **1. Purpose**

To inform the Committee of the completion of the report: Groundwater Quality of the Riversdale Shallow Aquifer, and to summarise its key findings.

### **2. Background**

- 2.1 The report presents the results of the bacteriological water quality survey of the groundwater at the Riversdale Beach settlement.
- 2.2 The aim of this survey was to determine the current status of the aquifer in terms of microbial contamination and to ascertain the degree to which the current sanitary system may be affecting the groundwater quality in the area. The survey also presented an opportunity for Wellington Regional Council (WRC) to learn something about the use of groundwater in this area, the number and type of wells in operation, and the impact a small community can have on groundwater in a coastal environment.
- 2.3 Masterton District Council also carried out a complementary survey on the performance of septic tanks and disposal systems. Twelve systems were inspected, (10 domestic systems, the public toilets, and one commercial property), in accordance with methodology from the Environment BOP Septic Tank Certification Manual.
- 2.4 Both of these surveys were undertaken to assist the Riversdale Sewage Steering Committee in determining an appropriate level of wastewater treatment for the Riversdale community.

### **3. Riversdale**

- 3.1 Riversdale is a small coastal settlement of approximately 260 properties. The settlement was developed on sand dunes between terraced hills and the beach foredune. Riversdale has no reticulated sewerage system or water supply. Household wastewater and sewage is treated on-site by individual septic tank systems.
- 3.2 Rainwater comprises the majority of the domestic water supply but in many cases this is supplemented by groundwater abstraction. Well water is most often utilised outdoors and is not widely used for drinking due to its odour, taste and potential for bacterial contamination.
- 3.3 Only a small proportion of Riversdale's dwellings are permanently occupied (around 20%), the majority used as holiday homes. As a result, the greatest demands are placed on the individual water supply and wastewater disposal systems during the holiday periods, especially during the Christmas holiday season.

### **4. Methodology**

To determine the extent and spread of contamination of contamination in the aquifer a number of techniques were employed.

- Chemical analysis of a selected number of bores,
- Bacteriological of a selected number of bores, and
- Faecal Sterol and Fluorescent Whitening Agent tests (to assist in identifying origin of contamination).

### **5. Significant Findings**

- 5.1 The findings of this study clearly show that the groundwater at Riversdale is contaminated by faecal material. This contamination is almost entirely human in origin and the most likely source of the pollution is seepage from malfunctioning and overflowing septic tank systems.
- 5.2 The water is generally characterised by high conductivities suggesting the presence of organic enrichment. The presence of this type of contamination is consistent with the poor well head protection present throughout the settlement and failed septic tank disposal systems.
- 5.3 The condition of the existing septic tank systems at Riversdale is considered a primary cause of the poor bacteriological quality of the groundwater in this area.
- 5.4 Results of the faecal sterol and FWA analysis show:
  - Low level of contamination identified throughout the Riversdale aquifer
  - Faecal contamination appears not to be of recent origin

- Faecal contamination appears to be predominantly of human origin
- Only RB4 contained FWA's indicative of grey water input.

5.5 Findings of the Masterton District Council tank survey identify:

- Two of the systems inspected were flooded, with a third marginal.
- That 11 of 12 installations discharge effluent to soak holes rather than appropriately configured soakage trenches. Of the 10 domestic systems inspected none met the methodology criteria in respect of soakage field type, proximity to fixed objects, borewater, groundwater or a combination of these.
- Six also failed to meet the capacity requirements

## **6. Future Activity**

The Steering Committee has sought scoping proposals from a range of wastewater consultants to progress an appropriate wastewater system for Riversdale.

At its next meeting towards the end of July, the selected consultant will present their proposals.

## **7. Communication**

Copies of the report are available to councillors on request. The report will be sent to the District Councils, Public Health, Iwi and interested community groups.

Residents involved in the survey and the Masterton District Council have already received copies of the results. Residents have been reminded that the taking of groundwater as a potable supply without treatment is not recommended due to the potential risk of contamination. This follows on from previous advice from the Masterton District Council to the residents of Riversdale.

## **8. Acknowledgement**

The assistance of Riversdale residents is gratefully appreciated. Raelene Hurdell is commended for her work in undertaking the field work, analysis, and writing the final report.

## 9. Recommendation

*That the report be received and its contents noted.*

Report prepared by:

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