IN THE ENVIRONMENT COURT OF NEW ZEALAND CHRISTCHURCH REGISTRY

I TE KŌTI TAIAO O AOTEAROA ŌTAUTAHI ROHE

ENV-2020-CHC-127

UNDER the Resource Management Act 1991 (RMA)

IN THE MATTER of the Water Permits Plan Change - PLan Change 7, being part of a proposal of national significance directed by the Minister for the Environment to be referred to the Environment Court under section 142(2)(b) of the RMA

BETWEEN OTAGO REGIONAL COUNCIL

Applicant

STATEMENT OF EVIDENCE OF ANTONIUS HUGH SNELDER ON BEHALF OF THE OTAGO REGIONAL COUNCIL 19 February 2021

Judicial Officer: Judge Borthwick

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WYNNWILLIAMS

Introduction

- 1 My full name is Antonius Hugh Snelder.
- 2 I am a director of Land Water People Limited and consultant/researcher in the field of water and land resources management.
- I hold a bachelor of agricultural engineering degree from the University of Canterbury, a post graduate diploma in hydrology from the University of New South Wales (Australia) and a PhD in environmental management from Lincoln University. I have 31 years of experience in the field of water resource management including 14 years as a water resources scientist at the National Institute of Water and Atmosphere (NIWA), and prior positions in regional councils and in consultancies as a water resources engineer. I am a specialist in the field of water quality.
- 4 In my current and previous positions, I have led many projects that have assessed water quality in freshwater environments and the association between water quality and land use at regional and national scales. I have written several guidelines for the management of water guality and quantity and developed several tools for water management purposes. I have authored or co-authored 50 scientific publications in the field of water resources management, including those that address water quality. I led or contributed to a sequence of studies (2002, 2003 and 2010, 2015, 2018) that analysed and reported on river and lake water quality state and trends at the national scale for MFE and Statistics New Zealand. I regularly undertake analysis of water guality data for regional councils and have been involved in the development of methods of water quality analysis. I am also a specialist in water quality modelling. I led the development of the River Environment Classification (REC). The REC classifies all New Zealand's rivers into types that differ with respect to their natural characteristics, including water quality and ecological communities, and their sensitivities to resource use. The REC has been used extensively across New Zealand as a framework for both regional and national-level policy and environmental reporting.
- 5 I have been engaged by the Otago Regional Council (**Council**) to prepare evidence for these proceedings.

Code of Conduct

I confirm that I have read the Code of Conduct for expert witnesses as contained in the Environment Court Practice Note 2014. I confirm that I have read and am familiar with the Code of Conduct for expert witnesses contained in the Environment Court Practice Note 2014. I agree to comply with that Code. Other than where I state that I am relying on the evidence of another person, my evidence is within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.

Scope of evidence

- 7 At paragraph 14 of his Statement of Evidence in Chief dated 5 February 2021, Dr Olsen for the Otago Water Resources User Group Inc states that the Council's State of Environment (**SoE**) monitoring programme also needs to reflect the requirements of national regulations, such as the National Policy Statement for Freshwater Management 2020 (**NPSFM**).
- 8 Given the recent changes to the NPSFM, the Council engaged Land Water People Limited to undertake a study of water quality state at river and lake monitoring sites in the Otago Region using the most up to date available data. The scope of the study was to evaluate water quality state and to grade each site into relevant attribute bands designated in Appendix 2A and 2B of the NPSFM.
- 9 The document entitled State of Lake and River Water Quality in the Otago Region was prepared by Caroline Fraser from Land Water People Limited and reviewed by me. The document presents the results of the study. It does not provide an interpretation of the results. The document was provided to the Council in late January 2021.

10 The document, and two spreadsheets containing lake and river quality data respectively, are attached as **Appendix A** to **C** respectively.

Dated this 19th day of February 2021

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Dr Ton Snelder

Appendix A

State of Lake and River Water Quality in the Otago Region



State of Lake and River Water Quality in the Otago Region

For records up to 30 June 2020

January 2021

Prepared By:

Caroline Fraser

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LWP Client Report Number:	2021-01
Report Date:	January 2021
LWP Project:	2021-01

Quality Assurance Statement

Version	Reviewed By	
Final	Ton Snelder	April



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1 Introduction

This report details a study of water quality state at river and lake monitoring sites in the Otago Region using the most up to date available data. The scope of the study was to evaluate water quality state and to grade each site into relevant attribute bands designated in Appendix 2A and 2B of the National Policy Statement – Freshwater Management (NZ Government, 2020).

The scope of this study does not include interpretation of the results of the state assessments or the attribute gradings. Therefore, this report only describes the methodology used and the structure of supplementary files, which contain a complete set of analytical outputs.

2 Data

The data used in this assessment were collected and provided by Otago Regional Council (ORC). Full details about data preparation (i.e., removal of duplicates, correcting censor inequalities and taking summaries of multiple observations in a day) and data availability can be found in the most recent trend evaluation report prepared for ORC (Fraser and Snelder, 2021). In addition to the data preparation performed for the trend assessments, the data were summarised to ensure that there was no more than one observation within a month; this was done to prevent biases in statistics to periods where brief periods of more intensive data collection were conducted. The water quality data were also supplied with metadata information about the sites. In particular the metadata included the River Environment Classification (REC; Snelder and Biggs, 2002) class for each river monitoring site that is required to assign the attribute grades for the periphyton and suspended fine sediment attributes.

3 Water quality state analyses

3.1 Grading of monitoring sites

The water quality state for river and lake monitoring sites is graded based on attributes and associated attribute state bands defined by the National Objectives Framework (NOF) of the National Policy Statement – Freshwater Management (NPS-FM) (Ministry for the Environment, 2020) (Table 1).

Each table of appendix 2 of the NPS-FM (2020) represents an **attribute** that must be used to define an objective that provides for a particular environmental **value**. For example, Appendix 2A, Table 6 defines the nitrate toxicity attribute, which is defined by nitrate-nitrogen concentrations that will ensure an acceptable level of support for "Ecosystem health (Water quality)" value. Objectives are defined by one or more **numeric attribute states** associated with each attribute. For example, for the nitrate-nitrogen attribute there are two numeric attribute states defined by the annual median and the 95th percentile concentrations.

For each numeric attribute, the NOF defines categorical numeric attribute states as four (or five) **attribute bands**, which are designated A to D (or A to E, in the case of the *E. coli* attribute). The attribute bands represent a graduated range of support for environmental values from high (A band) to low (D or E band). The ranges for numeric attribute states that define each attribute band are defined in Appendix 2 of the NPS-FM (2020). For most attributes, the D band represents a condition that is unacceptable (with the threshold between the C and the D band being referred to as "**bottom line**") in any waterbody nationally. In the



case of the Nitrate (toxicity) and Ammonia (toxicity) attributes in the 2020 NPS-FM, the C band is unacceptable, and for the DRP attribute, no bottom line is specified.

The primary aim of the attribute bands designated in the NPS-FM is as a basis for objective setting as part of the NOF process. The attribute bands are intended to be simple shorthand for communities and decision makers to discuss options and aspirations for acceptable water quality and to define objectives. Attribute bands avoid the need to discuss objectives in terms of technically complicated numeric attribute states and associated numeric ranges. Each band is associated with a narrative description of the outcomes for values that can be expected if that attribute band is chosen as the objective. However, it is also logical to use attribute bands to provide a grading of the current state of water quality; either as a starting point for objective setting or to track progress toward objectives.

A site can be **graded** for each attribute by assigning it to attribute bands (e.g., a site can be assigned to the A band for the Nitrate toxicity attribute). A site grading is done by using the numeric attribute state (e.g., annual median nitrate-nitrogen) as a **compliance statistic**. The value of the compliance statistic for a site is calculated from a record of the relevant water quality variable (e.g., the median value is calculated from the observed monthly nitrate-nitrogen concentrations). The site's compliance statistic is then compared against the numeric ranges associated with each attribute band and a grade assigned for the site (e.g., an annual median nitrate-nitrogen concentration of 1.3 mg/l would be graded as "B-band", because it lies in the range >1.0 to ≤2.4 mg/l). Note that for attributes with more than one numeric attribute state, we have provided a grade for each numeric attribute state (e.g., for the Nitrate (toxicity) attribute, grades are defined for both the median and 95th percentile concentrations).



NPS-FM Reference – NOF Attribute	Water body type	Calculation guidance	Numeric attribute state description	Units
A2A; Table 1 – Phytoplankton	Lakes		Median of phytoplankton chlorophyll-a	mg chl-a m ⁻³
			Annual maximum of phytoplankton chlorophyll-a	mg chl-a m ⁻³
A2A; Table 2 – Periphyton	Rivers	Minimum of 3 years of data	92nd percentile of periphyton chlorophyll- <i>a</i> for default river class ²	mg chl-a m ⁻²
			83rd percentile of periphyton chlorophyll- <i>a</i> for productive river class ¹	mg chl-a m ⁻²
A2A; Table 3 – Total Nitrogen	Lakes		Median concentration of total nitrogen	mg m⁻³
A2A; Table 4 – Total Nitrogen	Lakes		Median concentration of total phosphorus	mg m ⁻³
A2A; Table 5 - Ammonia	Lakes and		Median concentration of Ammoniacal-N	mg l ⁻¹
	Rivers		Maximum concentration of Ammoniacal-N	mg l ⁻¹
A2A; Table 6 - Nitrate	Rivers		Median concentration of Nitrate	mg l ⁻¹
			95th percentile concentration of Nitrate	mg l ⁻¹
A2A.; Table 8 - Suspended fine sediment	Rivers	Median of 5 years of at least monthly samples (at least 60 samples)	Median visual clarity	m
A2A; Table 9 - Escherichia coli	Rivers and	minimum of 60 samples over a	% exceedances over 260 cfu 100 mL ⁻¹	%
	Lakes	maximum of 5 years,	% exceedances over 540 cfu 100 mL ⁻¹	%
			Median concentration of <i>E. coli</i>	cfu 100 ml ⁻¹
			95th percentile concentration of E. coli	cfu 100 ml ⁻¹
A2B; Table 14 - Macroinvertebrates	Rivers	State calculated as 5 year median	Median MCI score	-
A2B; Table 15 - Macroinvertebrates	Rivers		Median ASPM score	-
A2B; Table 20 - DRP	Rivers		Median concentration of DRP	mg l ⁻¹
			95th percentile concentration of DRP	mg l ⁻¹

Table 1: Details of the NOF attributes used to grade the state of the river and lake monitoring sites.

1. Classes are streams and rivers defined according to types in the River Environment Classification (REC; Snelder and Biggs, 2002). The Productive periphyton class is defined by the combination of REC "Dry" Climate categories (i.e. Warm-Dry (WD) and Cool-Dry (CD)) and REC Geology categories that have naturally high levels of nutrient enrichment due to their catchment geology (i.e. Soft-Sedimentary (SS), Volcanic Acidic (VA) and Volcanic Basic (VB)).



3.2 Handling censored values

Censored values were replaced by imputation for the purposes of calculating the compliance statistics. Left censored values (values below the detection limit(s)) were replaced with imputed values generated using ROS (Regression on Order Statistics; Helsel, 2012), following the procedure described in Larned *et al.* (2015). The ROS procedure produces estimated values for the censored data that are consistent with the distribution of the uncensored values and can accommodate multiple censoring limits. When there are insufficient non-censored data to evaluate a distribution from which to estimate values for the censored observations, censored values are replaced with half of their reported value.

Censored values above the detection limit were replaced with values estimated using a procedure based on "survival analysis" (Helsel, 2012). A parametric distribution is fitted to the uncensored observations and then values for the censored observations are estimated by randomly sampling values larger than the censored values from the distribution. The survival analysis requires a minimum number of observations for the distribution to be fitted; hence in the case that there were fewer than 24 observations, censored values above the detection limit were replaced with 1.1* the detection limit. The supplementary file outputs provide details about whether and how imputation was conducted for each site by criteria assessment.

3.3 Time period for assessments

When grading sites based on NPS-FM attributes, it is general practice to define consistent time periods for all sites and to define the acceptable proportion of missing observations (i.e., data gaps) and how these are distributed across sample intervals so that site grades are assessed from comparable data. The time period, acceptable proportion of gaps and representation of sample intervals by observations within the time period are commonly referred to as site inclusion or filtering rules (e.g., (Larned *et al.*, 2018).

The grading assessments were made for the 5-year time period to end of June 2020. The start and end dates for this period were determined by the availability of quality assured data provided by ORC, ORC reporting time periods and consideration of statistical precision of the compliance statistics used in the grading of sites. The statistical precision of the compliance statistics depends on the variability in the water quality observations and the number of observations. For a given level of variability, the precision of a compliance statistic increases with the number of observations. This is particularly important for sites that are close to a threshold defined by an attribute band because the confidence that the assessment of state is 'correct' (i.e., that the site has been correctly graded) increases with the precision of the rate of increase in the precision of compliance statistics slows for sample sizes greater than 30 (i.e., there are diminishing returns on increasing sample size with respect to precision (and therefore confidence in the assigned grade) above this number of observations; McBride, 2005).

In this study, a period of five years represented a reasonable trade-off for most of the attributes because it yielded a sample size of 30 or more observations for many sites and attribute combinations. The five-year period for the state analyses is also consistent with national waterquality state analyses (e.g., Larned *et al.*, 2015, 2018), as well as guidance for a number of specific attributes within the NPS-FM (2020) (Table 1). Where no guidance was provided, we used a default filtering rule that required at least 30 observations in the 5-year time period. For annually sampled macroinvertebrate variables, which are generally less variable than physical



or chemical water quality variables, the nominated minimum sample size requirement was reduced to 5.

For grading the suspended fine sediment and *E. coli* attributes, the NPS-FM requires 60 observations over 5 years. For monthly monitoring, this requires collection of all monthly observations (i.e., no missing data). All ORC records have at least one missing observation associated with the national COVID-19 lockdown in April 2020, and so no sites met this requirement for the selected time periods. For this study, we relaxed the rule to require observations for 90% of months over the 5-year period (54 observations). Both this relaxation and our default sample number are subjective choices. Therefore, within the supplementary files we provide state assessments for all sites regardless of whether they meet the filtering rules, as well as details about the number of observations and number of years with observations. This will allow ORC to apply tighter or more lenient filtering rules as required.

3.4 Calculation of water clarity

The NPS-FM suspended fine sediment attribute is based on observations of visual clarity. The ORC river monitoring programme does not include visual clarity but does routinely collect turbidity observations. Franklin et al. (2020) define a relationship between median clarity and median turbidity, based on a regression of 582 sites across New Zealand as:

$$ln(CLAR) = 1.21 - 0.72 ln(TURB)$$

where CLAR is site median visual clarity (m) and TURB is site median turbidity (NTU). In this study, we first calculated median turbidity values over the 5 year time period, and then calculated median clarity using the above relationship in order to grade the sites against the NPS-FM suspended find sediment attribute.

3.5 pH Adjustment of Ammonia

Ammonia is toxic to aquatic animals and is directly bioavailable. When in solution, ammonia occurs in two forms: the ammonium cation (NH_4^+) and unionised ammonia (NH_3); the relative proportions of the forms are strongly dependent on pH (and temperature). Unionised ammonia is significantly more toxic to fish than ammonium, hence the total ammonia toxicity increases with increasing pH (and/or temperature) (ANZECC, 2000). Standards related to ammoniacal-N concentrations in freshwater typically require a correction to account for pH and temperature. We applied a pH correction to NH_4 -N to adjust values to equivalent pH 8 values, following the methodology outlined in Hickey (2014). For pH values outside the range of the correction relationship (pH 6-9), the maximum (pH<6) and minimum (pH>9) correction ratios were applied.

3.6 Evaluation of compliance statistics

For compliance statistics specified and "Annual" (maximum, median, 95th percentile) in the NPS-FM, we have calculated these compliance statistics over the entire 5 year state period.



4 **Results**

The results for the state assessment are provided in the supplementary files: "ORCRiverState_092015to092020.xlsx" and "ORCLakeState_072015to072020.xlsx". In each spreadsheet there is one sheet per relevant NPS-FM attribute (Appendix 2 of the NPS-FM 2020).

Column Name	Explanation
sID	Site Name
npID	Variable name
N.values	Number of observations
N.years	Number of years with at least one observation
N.Leftcensored	Number of left censored values (below detection limit)
N.Rightcensored	Number of right censored values (above reporting limit)
DL	The detection limit
AL	The reporting limit
nOK	Number of observations meets the minimum number of observations required

Common to all attributes are the following results:

In addition, the sheets include a column containing the compliance statistics (numeric attribute states as listed in Table 1 and using the same units). Each sheet also has columns of the NOF grade assignments for each numeric attribute state at each site.



Acknowledgements

Thanks to Jason Augsperger, Hugo Borges, Tom De Pelsemaeker, Rachel Ozanne and Karen Warrington for provision of data, site information, reviews, and advice of various types during the study.



References

- ANZECC, A., 2000. Australian and New Zealand Guidelines for Fresh and Marine Water Quality. Australian and New Zealand Environment and Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand, Canberra:1–103.
- Franklin, P., D. Booker, and R. Stoffels, 2020. Contract 23184: Task 2 Turbidity and Visual Clarity Threshold Conversion. NIWA. https://www.mfe.govt.nz/sites/default/files/media/Fresh%20water/technical-report-2-comparison-of-clarity-and-turbidity-bottom-lines.pdf.
- Helsel, D.R., 2012. Reporting Limits. Statistics for Censored Environmental Data Using Minitab and R. John Wiley & Sons, pp. 22–36.
- Hickey, C., 2014. Derivation of Indicative Ammoniacal Nitrogen Guidelines for the National Objectives Framework. Memo prepared for Ms Vera Power, Ministry for the Environment, by NIWA.
- Larned, S., T. Snelder, M. Unwin, G. McBride, P. Verburg, and H. McMillan, 2015. Analysis of Water Quality in New Zealand Lakes and Rivers. Prepared for the Ministry for the Environment. Wellington: Ministry for the Environment.
- Larned, S., A. Whitehead, C.E. Fraser, T. Snelder, and J. Yang, 2018. Water Quality State and Trends in New Zealand Rivers. Analyses of National-Scale Data Ending in 2017. prepared for Ministry for the Environment, NIWA.
- McBride, G.B., 2005. Using Statistical Methods for Water Quality Management: Issues, Problems and Solutions. John Wiley & Sons.
- Ministry for Environment and Ministry of Health, 2003. Microbiological Water Quality Guidelines for Marine and Freshwater Recreational Areas. Ministry for the Environment. https://www.mfe.govt.nz/sites/default/files/microbiological-qualityjun03.pdf.
- NZ Government, 2020. National Policy Statement for Freshwater Management 2020.
- Snelder, T.H. and B.J.F. Biggs, 2002. Multi-Scale River Environment Classification for Water Resources Management. Journal of the American Water Resources Association 38:1225–1240.



Appendix B

State of Lake and River Water Quality in the Otago Region: spreadsheet of lake water quality data

							•	Table 1 P	hytoplankt	on				
sID	sID npID N.values N.years N.Leftcensored N.Rightcensored								AnnMax	ImputedLower	ImputedUpper	NOFband_median	NOFband_max	nOK
Lake Dunstan at Dead Mans Point	Chlorophyll a	58	5	3	0	0.6		1.2	2.8999999	Imputed	No censored - no imputation required	А	А	TRUE
Lake Hawea North Open Water 10m	Chlorophyll a	13	4	0	0			0.00042	0.00139	No censored - no imputation required	No censored - no imputation required	А	А	FALSE
Lake Hawea Outflow at Dam	Chlorophyll a	35	3	13	0	0.79		0.4	1.7	Imputed	No censored - no imputation required	А	А	TRUE
Lake Hawea South Open Water 10m	Chlorophyll a	42	4	0	0			0.415	1.3	No censored - no imputation required	No censored - no imputation required	А	А	TRUE
Lake Hayes at Bendemeer Bay	Chlorophyll a	35	3	2	0	0.6		4.8	39	Imputed	No censored - no imputation required	В	с	TRUE
Lake Hayes at Mid Lake 10m	Chlorophyll a	41	4	0	0			16	84	No censored - no imputation required	No censored - no imputation required	D	D	TRUE
Lake Johnson at South Beach huts	Chlorophyll a	35	3	1	0	0.6		12	130	Imputed	No censored - no imputation required	с	D	TRUE
Lake Onslow at Boat Ramp	Chlorophyll a	47	5	1	0	0.5		3	6.5	Imputed	No censored - no imputation required	В	А	TRUE
Lake Tuakitoto at Outlet	Chlorophyll a	56	6	3	0	1		5.85	103	Imputed	No censored - no imputation required	с	D	TRUE
Lake Waihola at End of jetty	Chlorophyll a	34	3	0	0			6.15	33	No censored - no imputation required	No censored - no imputation required	с	с	TRUE
Lake Waihola at Waihola Mid	Chlorophyll a	17	4	0	0			9	21	No censored - no imputation required	No censored - no imputation required	с	В	FALSE
Lake Wakatipu at Frankton Arm 10m	Chlorophyll a	41	4	0	0			0.00051	0.00116	No censored - no imputation required	No censored - no imputation required	А	А	TRUE
Lake Wakatipu at Outflow	Chlorophyll a	35	3	7	0	0.6		0.6	4.2	Imputed	No censored - no imputation required	A	A	TRUE
Lake Wakatipu Open Water 10m	Chlorophyll a	42	4	0	0			0.42	1.14	No censored - no imputation required	No censored - no imputation required	А	А	TRUE
Lake Wanaka at Outlet	Chlorophyll a	35	3	6	0	0.6		0.8	3.8	Imputed	No censored - no imputation required	А	A	TRUE
Lake Wanaka Open Water 10m	Chlorophyll a	44	4	0	0			0.695	1.6	No censored - no imputation required	No censored - no imputation required	А	А	TRUE

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sID	npID	N.values	N.years	N.Leftcensored	N.Rightcensored	DL	AL	Median	ImputedLower	ImputedUpper	NOFband_median	nOK
Lake Dunstan at Dead Mans Point	Total Nitrogen	57	5	1	0	0.01		0.075	Imputed	No censored - no imputation required	А	TRUE
Lake Hawea North Open Water 10m	Total Nitrogen	13	4	0	0			0.036	No censored - no imputation required	No censored - no imputation required	А	FALSE
Lake Hawea Outflow at Dam	Total Nitrogen	35	3	3	0	0.01		0.036	Imputed	No censored - no imputation required	А	FALSE
Lake Hawea South Open Water 10m	Total Nitrogen	42	4	0	0			0.031	No censored - no imputation required	No censored - no imputation required	А	FALSE
Lake Hayes at Bendemeer Bay	Total Nitrogen	35	3	0	0			0.29	No censored - no imputation required	No censored - no imputation required	А	FALSE
Lake Hayes at Mid Lake 10m	Total Nitrogen	41	4	0	0			0.35	No censored - no imputation required	No censored - no imputation required	А	FALSE
Lake Johnson at South Beach huts	Total Nitrogen	35	3	0	0			0.86	No censored - no imputation required	No censored - no imputation required	А	FALSE
Lake Onslow at Boat Ramp	Total Nitrogen	48	5	0	0			0.25	No censored - no imputation required	No censored - no imputation required	А	TRUE
Lake Tuakitoto at Outlet	Total Nitrogen	59	6	0	0			1.05	No censored - no imputation required	No censored - no imputation required	А	TRUE
Lake Waihola at End of jetty	Total Nitrogen	34	3	0	0			0.46	No censored - no imputation required	No censored - no imputation required	А	FALSE
Lake Waihola at Waihola Mid	Total Nitrogen	17	4	0	0			0.53	No censored - no imputation required	No censored - no imputation required	А	FALSE
Lake Wakatipu at Frankton Arm 10m	Total Nitrogen	41	4	0	0			0.049	No censored - no imputation required	No censored - no imputation required	А	FALSE
Lake Wakatipu at Outflow	Total Nitrogen	35	3	1	0	0.01		0.046	Imputed	No censored - no imputation required	А	FALSE
Lake Wakatipu Open Water 10m	Total Nitrogen	42	4	0	0			0.053	No censored - no imputation required	No censored - no imputation required	А	FALSE
Lake Wanaka at Outlet	Total Nitrogen	35	3	0	0			0.065	No censored - no imputation required	No censored - no imputation required	А	FALSE
Lake Wanaka Open Water 10m	Total Nitrogen	44	4	0	0			0.054	No censored - no imputation required	No censored - no imputation required	А	FALSE

						Та	ble 4	ΙТΡ				
sID	npID	N.values	N.years	N.Leftcensored	N.Rightcensored	DL	AL	Median	ImputedLower	ImputedUpper	NOFband_median	nOK
Lake Dunstan at Dead Mans Point	Total Phosphorus	58	5	32	0	0.004		0.0037	Imputed	No censored - no imputation required	А	TRUE
Lake Hawea North Open Water 10m	Total Phosphorus	13	4	5	0	0.001		0.001	Not Imputed - model fit failed	No censored - no imputation required	А	FALSE
Lake Hawea Outflow at Dam	Total Phosphorus	36	3	18	0	0.004		0.00349	Imputed	No censored - no imputation required	А	TRUE
Lake Hawea South Open Water 10m	Total Phosphorus	42	4	20	0	0.004		0.001	Imputed	No censored - no imputation required	А	TRUE
Lake Hayes at Bendemeer Bay	Total Phosphorus	36	3	0	0			0.0265	No censored - no imputation required	No censored - no imputation required	А	TRUE
Lake Hayes at Mid Lake 10m	Total Phosphorus	36	4	0	0			0.039	No censored - no imputation required	No censored - no imputation required	А	TRUE
Lake Johnson at South Beach huts	Total Phosphorus	36	3	0	0			0.0455	No censored - no imputation required	No censored - no imputation required	А	TRUE
Lake Onslow at Boat Ramp	Total Phosphorus	48	5	0	0			0.023	No censored - no imputation required	No censored - no imputation required	А	TRUE
Lake Tuakitoto at Outlet	Total Phosphorus	59	6	0	0			0.11	No censored - no imputation required	No censored - no imputation required	А	TRUE
Lake Waihola at End of jetty	Total Phosphorus	34	3	0	0			0.042	No censored - no imputation required	No censored - no imputation required	А	TRUE
Lake Waihola at Waihola Mid	Total Phosphorus	17	4	0	0			0.045	No censored - no imputation required	No censored - no imputation required	А	FALSE
Lake Wakatipu at Frankton Arm 10m	Total Phosphorus	40	4	21	0	0.004		0.001	Imputed	No censored - no imputation required	А	TRUE
Lake Wakatipu at Outflow	Total Phosphorus	36	3	32	0	0.004		0.002	Not Imputed - model fit failed	No censored - no imputation required	А	TRUE
Lake Wakatipu Open Water 10m	Total Phosphorus	41	4	16	0	0.004		0.001	Imputed	No censored - no imputation required	А	TRUE
Lake Wanaka at Outlet	Total Phosphorus	36	3	22	0	0.004		0.00225	Imputed	No censored - no imputation required	А	TRUE
Lake Wanaka Open Water 10m	Total Phosphorus	43	4	19	0	0.004		0.001	Imputed	No censored - no imputation required	А	TRUE

						Table	5 Ar	mmonia						
			N.year	N.Leftcensore	N.Rightcensore		A	Media				NOFband_	NOFband	
sID	npID	N.values	5	d	d	DL	L	n	AnnMax	ImputedLower	ImputedUpper	median	_max	nOK
	Ammoniacal Nitrogen					0.00860		0.0010	0.03558930		No censored - no imputation			
Lake Dunstan at Dead Mans Point	(adjusted)	58	5	42	0	9		5	9	Imputed	required	А	А	TRUE
Lake Hawea North Open Water	Ammoniacal Nitrogen					0.00304		0.0012		All censored - cannot	No censored - no imputation			
10m	(adjusted)	9	3	9	0	8		6	0.00152421	impute	required	А	А	FALSE
Lake Hawea South Open Water	Ammoniacal Nitrogen					0.00304		0.0012		All censored - cannot	No censored - no imputation			
10m	(adjusted)	28	3	28	0	8		7	0.00152421	impute	required	А	А	FALSE
	Ammoniacal Nitrogen							0.0168	0.12210121		No censored - no imputation			
Lake Hayes at Bendemeer Bay	(adjusted)	35	3	13	0	0.025		8	5	Imputed	required	А	В	TRUE
	Ammoniacal Nitrogen							0.0062	0.10218761	Not Imputed - model fit	No censored - no imputation			
Lake Hayes at Mid Lake 10m	(adjusted)	24	3	15	0	0.025		8	8	failed	required	A	В	FALSE
	Ammoniacal Nitrogen					0.02215			0.23818166		No censored - no imputation			
Lake Johnson at South Beach huts	(adjusted)	35	3	6	0	2		0.055	5	Imputed	required	В	В	TRUE
	Ammoniacal Nitrogen					0.00195		0.0013	0.00586301		No censored - no imputation			
Lake Onslow at Boat Ramp	(adjusted)	44	5	28	0	4		7	3	Imputed	required	A	А	TRUE
	Ammoniacal Nitrogen							0.0232			No censored - no imputation			
Lake Tuakitoto at Outlet	(adjusted)	59	6	7	0	0.025		7	0.165	Imputed	required	А	В	TRUE
	Ammoniacal Nitrogen					0.00276		0.0039	0.01524383		No censored - no imputation			
Lake Waihola at End of jetty	(adjusted)	34	3	12	0	2		6	3	Imputed	required	А	А	TRUE
	Ammoniacal Nitrogen					0.00276		0.0013	0.01972732	Not Imputed - model fit	No censored - no imputation			
Lake Waihola at Waihola Mid	(adjusted)	7	2	4	0	2		8	7	failed	required	А	А	FALSE
Lake Wakatipu at Frankton Arm	Ammoniacal Nitrogen					0.00340		0.0013	0.02228151	Not Imputed - model fit	No censored - no imputation			
10m	(adjusted)	25	3	23	0	2		8	1	failed	required	А	А	FALSE
	Ammoniacal Nitrogen					0.00384			0.01075659	Not Imputed - model fit	No censored - no imputation			
Lake Wakatipu at Outflow	(adjusted)	35	3	27	0	2		0.0017	1	failed	required	А	А	TRUE
	Ammoniacal Nitrogen					0.00276		0.0012	0.00303497	Not Imputed - model fit	No censored - no imputation			
Lake Wakatipu Open Water 10m	(adjusted)	26	3	25	0	2		6	3	failed	required	А	А	FALSE
	Ammoniacal Nitrogen					0.01057		0.0036	0.03073311		No censored - no imputation			
Lake Wanaka at Outlet	(adjusted)	36	3	18	0	8		7	8	Imputed	required	А	А	TRUE
	Ammoniacal Nitrogen					0.00252		0.0006	0.00276208	Not Imputed - model fit	No censored - no imputation			
Lake Wanaka Open Water 10m	(adjusted)	28	3	27	0	9		9	5	failed	required	А	А	FALSE

										Table	e 9 E. coli								
		N.valu	N.yea	N.Leftcensor	N.Rightcenso		A	Media						NOFG2	NOFG5	NOFm	NOFp	NOFs	
sID	npID	es	rs	ed	red	DL	L	n	Q95	G540	G260	ImputedLower	ImputedUpper	60	40	ed	95	wim	nOK
Lake Dunstan at Dead										0.0172413	0.0172413		No censored - no imputation						
Mans Point	E-Coli MPN	58	5	19	0	10		3	47.2	79	79	Imputed	required	А	A	A	А	А	TRUE
Lake Hawea North Open													No censored - no imputation						,
Water 10m	E-Coli MPN	9	3	9	0	1		0.5	0.5	0	0	All censored - cannot impute	required	А	А	А	А	А	FALSE
Lake Hawea Outflow at						3.							No censored - no imputation						,
Dam	E-Coli MPN	36	3	31	0	5		0.8	1.925	0	0	Not Imputed - model fit failed	required	А	А	А	А	А	FALSE
Lake Hawea South Open						0.							No censored - no imputation						
Water 10m	E-Coli MPN	28	3	23	0	5		0.25	1	0	0	Not Imputed - model fit failed	required	А	A	A	А	А	FALSE
Lake Hayes at Bendemeer										0.0571428	0.0571428		No censored - no imputation						
Вау	E-Coli MPN	35	3	8	0	10		4.9	565	57	57	Imputed	required	А	В	А	В	В	FALSE
Lake Hayes at Mid Lake													No censored - no imputation						
10m	E-Coli MPN	25	3	9	0	1		1	4.5	0	0	Imputed	required	А	A	А	А	А	FALSE
Lake Johnson at South											0.0285714		No censored - no imputation						
Beach huts	E-Coli MPN	35	3	12	0	10		2	60	0	29	Imputed	required	А	A	A	А	А	FALSE
Lake Onslow at Boat						1.							No censored - no imputation						,
Ramp	E-Coli MPN	44	5	13	0	7		1.8	26	0	0	Imputed	required	А	A	А	А	А	FALSE
										0.0677966	0.0847457	No censored - no imputation	No censored - no imputation						
Lake Tuakitoto at Outlet	E-Coli MPN	59	6	0	0			48	875	1	63	required	required	А	В	А	В	В	TRUE
Lake Waihola at End of						1.				0.0571428	0.0571428		No censored - no imputation						
jetty	E-Coli MPN	35	3	2	0	6		29	647.5	57	57	Imputed	required	А	В	А	В	В	FALSE
Lake Waihola at Waihola									384.5		0.1176470	No censored - no imputation	No censored - no imputation						
Mid	E-Coli MPN	17	4	0	0			39	5	0	59	required	required	А	A	А	А	А	FALSE
Lake Wakatipu at													No censored - no imputation						
Frankton Arm 10m	E-Coli MPN	25	3	18	0	1		0.5	2	0	0	Not Imputed - model fit failed	required	А	A	А	А	А	FALSE
													No censored - no imputation						
Lake Wakatipu at Outflow	E-Coli MPN	35	3	11	0	10		2	33.5	0	0	Imputed	required	А	А	А	А	А	FALSE
Lake Wakatipu Open													No censored - no imputation						
Water 10m	E-Coli MPN	26	3	23	0	1		0.5	1.2	0	0	Not Imputed - model fit failed	required	А	А	А	А	А	FALSE
								0.321					No censored - no imputation						
Lake Wanaka at Outlet	E-Coli MPN	36	3	23	0	10		45	73.6	0	0	Imputed	required	А	А	А	А	А	FALSE

Appendix C

State of Lake and River Water Quality in the Otago Region: spreadsheet of river water quality data

					Та	ble 2	Peri	iphyton						
sID	npID	N.values	N.years	N.Leftcensored	N.Rightcensored	DL	AL	Q83	Q92	ImputedLower	ImputedUpper	Peri_class	NOFband	nOK
12 Mile Creek at Glenorchy Queenstown Road	Chlorophyll a	8	2	0	0			2.452	3.748	No censored - no imputation required	No censored - no imputation required	Default	А	FALSE
25 Mile Creek at Glenorchy Queenstown Road	Chlorophyll a	10	2	0	0			4.48	5.44	No censored - no imputation required	No censored - no imputation required	Default	А	FALSE
Akatore Creek at Akatore Creek Road	Chlorophyll a	8	2	0	0			184.381	311.569	No censored - no imputation required	No censored - no imputation required	Productive	с	FALSE
Arrow at Morven Ferry Road	Chlorophyll a	9	2	0	0			30.04	30.712	No censored - no imputation required	No censored - no imputation required	Default	А	FALSE
Blackcleugh Burn at Rongahere Road	Chlorophyll a	8	2	0	0			19.441	25.309	No censored - no imputation required	No censored - no imputation required	Default	А	FALSE
Bullock Creek at Dunmore Street Footbridge	Chlorophyll a	9	2	0	0			99.947	492.986	No censored - no imputation required	No censored - no imputation required	Default	D	FALSE
Cardrona at Mt Barker	Chlorophyll a	10	3	0	0			18.3	38.8	No censored - no imputation required	No censored - no imputation required	Default	А	FALSE
Dart at The Hillocks	Chlorophyll a	8	2	0	0			7.964	13.436	No censored - no imputation required	No censored - no imputation required	Default	А	FALSE
Dunstan Creek at Beattie Road	Chlorophyll a	12	3	0	0			54.324	78.678	No censored - no imputation required	No censored - no imputation required	Default	В	FALSE
Greenstone at Greenstone Station Road	Chlorophyll a	10	2	0	0			11.94	17.8	No censored - no imputation required	No censored - no imputation required	Default	А	FALSE
Kaikorai Stream at Brighton Road	Chlorophyll a	8	2	0	0			507.154	533.146	No censored - no imputation required	No censored - no imputation required	Productive	D	FALSE
Kakanui at Clifton Falls Bridge	Chlorophyll a	7	3	0	0			131.719	197.806	No censored - no imputation required	No censored - no imputation required	Default	с	FALSE
Kakanui at McCones	Chlorophyll a	36	5	4	0	0.6		349.748	461.334	Imputed	No censored - no imputation required	Default	D	TRUE
Kauru at Ewings	Chlorophyll a	2	1	0	0			8.9	8.9	No censored - no imputation required	No censored - no imputation required	Default	А	FALSE
Kye Burn at SH85 Bridge	Chlorophyll a	11	3	0	0			9.961	38.794	No censored - no imputation required	No censored - no imputation required	Default	А	FALSE
Lindis at Ardgour Road	Chlorophyll a	12	3	0	0			148.534	210.796	No censored - no imputation required	No censored - no imputation required	Default	D	FALSE
Lindis at Lindis Peak	Chlorophyll a	2	1	0	0			88.9	88.9	No censored - no imputation required	No censored - no imputation required	Default	В	FALSE
Luggate Creek at SH6 Bridge	Chlorophyll a	13	3	0	0			96.794	105.568	No censored - no imputation required	No censored - no imputation required	Default	В	FALSE
Manuherikia at Blackstone Hill	Chlorophyll a	10	2	0	0			50.64	59.12	No censored - no imputation required	No censored - no imputation required	Default	В	FALSE
Manuherikia at Galloway	Chlorophyll a	15	3	0	0			85.71	169.05	No censored - no imputation required	No censored - no imputation required	Default	с	FALSE
Manuherikia at Ophir	Chlorophyll a	14	3	0	0			129.876	131.9	No censored - no imputation required	No censored - no imputation required	Default	С	FALSE
Motatapu at Wanaka Mt Aspiring Road	Chlorophyll a	12	3	0	0			19.99	30.088	No censored - no imputation required	No censored - no imputation required	Default	А	FALSE
Oamaru Creek at SH1	Chlorophyll a	11	2	0	0			451.801	484.466	No censored - no imputation required	No censored - no imputation required	Productive	D	FALSE
Owaka at Katea Road	Chlorophyll a	9	2	0	0			114.6055	161.02	No censored - no imputation required	No censored - no imputation required	Default	С	FALSE
Pomahaka at Burkes Ford	Chlorophyll a	1	1	0	0			116.9	116.9	No censored - no imputation required	No censored - no imputation required	Default	В	FALSE
Precipice Creek at Glenorchy Paradise Road	Chlorophyll a	10	2	0	0			9.2	15.15	No censored - no imputation required	No censored - no imputation required	Default	А	FALSE
Shag at Craig Road	Chlorophyll a	2	1	0	0			421.8	421.8	No censored - no imputation required	No censored - no imputation required	Default	D	FALSE
Shag at Goodwood Pump	Chlorophyll a	13	3	0	0			158.364	195.736	No censored - no imputation required	No censored - no imputation required	Default	с	FALSE
Silverstream at Taieri Depot	Chlorophyll a	9	2	0	0			93.557	94.034	No censored - no imputation required	No censored - no imputation required	Default	В	FALSE
Tahakopa at Tahakopa	Chlorophyll a	10	2	0	0			13.04	26.71	No censored - no imputation required	No censored - no imputation required	Default	А	FALSE
Taieri at Outram	Chlorophyll a	5	2	0	0			9.9	13.4	No censored - no imputation required	No censored - no imputation required	Default	А	FALSE
Taieri at Sutton	Chlorophyll a	2	2	0	0			35.2	35.2	No censored - no imputation required	No censored - no imputation required	Default	А	FALSE
Taieri at Waipiata	Chlorophyll a	4	2	0	0			66.162	75	No censored - no imputation required	No censored - no imputation required	Default	В	FALSE
The Neck Creek at Meads Road	Chlorophyll a	11	2	0	0			6.126	11.408	No censored - no imputation required	No censored - no imputation required	Default	А	FALSE
Tuapeka at 700m u/s bridge	Chlorophyll a	1	1	0	0			63	63	No censored - no imputation required	No censored - no imputation required	Default	В	FALSE
Turner Creek at Kinloch Road	Chlorophyll a	9	2	0	0			39.8015	48.491	No censored - no imputation required	No censored - no imputation required	Default	А	FALSE
Upper Pomahaka at Aitchison Runs Road	Chlorophyll a	10	2	0	0			25.35	33.89	No censored - no imputation required	No censored - no imputation required	Default	А	FALSE
Waianakarua at Browns	Chlorophyll a	13	3	0	0			154.673	181.528	No censored - no imputation required	No censored - no imputation required	Default	с	FALSE
Waianakarua at South Branch SH1	Chlorophyll a	2	1	0	0			245.4	245.4	No censored - no imputation required	No censored - no imputation required	Default	D	FALSE
Waipahi at Waipahi	Chlorophyll a	8	2	0	0			16.632	19.368	No censored - no imputation required	No censored - no imputation required	Default	A	FALSE
Waitahuna at Tweeds Bridge	Chlorophyll a	8	2	0	0			33.074	54.026	No censored - no imputation required	No censored - no imputation required	Default	В	FALSE

			_		Ta	ble 5	5 Am	nmonia		-				
		N.value	N.year	N.Leftcensore	N.Rightcensore	D	A	Media				NOFband_media	NOFband_	
sID	npID	S	S	d	d	L	L	n	AnnMax	ImputedLower	ImputedUpper	n	max	nOK
12 Mile Creek at Glenorchy Queenstown	Ammoniacal Nitrogen							0.0012	0.00303497	Not Imputed - model fit	No censored - no imputation			
Road	(adjusted)	20	3	19	0	0		2	3	failed	required	A	Α	FALSE
25 Mile Creek at Glenorchy Queenstown	Ammoniacal Nitrogen							0.0015	0.00758743	Not Imputed - model fit	No censored - no imputation			
Road	(adjusted)	20	3	18	0	0		2	3	failed	required	A	Α	FALSE
	Ammoniacal Nitrogen							0.0011	0.00493722	Not Imputed - model fit	No censored - no imputation			
Akatore Creek at Akatore Creek Road	(adjusted)	20	2	13	0	0		7	5	failed	required	A	Α	FALSE
	Ammoniacal Nitrogen							0.0019	0.00254377	All censored - cannot	No censored - no imputation			
Arrow at Morven Ferry Road	(adjusted)	22	3	22	0	0		2	5	impute	required	A	Α	FALSE
	Ammoniacal Nitrogen							0.0102	0.28490283		No censored - no imputation			
Awamoko at SH83	(adjusted)	55	6	28	0	0		2	4	Imputed	required	A	В	TRUE
	Ammoniacal Nitrogen							0.0024	0.02543775		No censored - no imputation			
Bannockburn at Lake Dunstan	(adjusted)	58	6	41	0	0		9	3	Imputed	required	A	A	TRUE
	Ammoniacal Nitrogen							0.0051	0.01526265		No censored - no imputation			
Benger burn at SH8	(adjusted)	34	4	10	0	0		3	2	Imputed	required	A	A	TRUE
	Ammoniacal Nitrogen							0.0011	0.00305733	Not Imputed - model fit	No censored - no imputation			
Blackcleugh Burn at Rongahere Road	(adjusted)	19	3	18	0	0		7	3	failed	required	A	A	FALSE
Buckler Burn at Glenorchy Queenstown	Ammoniacal Nitrogen							0.0016		All censored - cannot	No censored - no imputation			
Road	(adjusted)	20	3	20	0	0		8	0.00192082	impute	required	A	Α	FALSE
Bullock Creek at Dunmore Street	Ammoniacal Nitrogen							0.0015	0.00994350	Not Imputed - model fit	No censored - no imputation			
Footbridge	(adjusted)	21	3	20	0	0		2	7	failed	required	A	А	FALSE
	Ammoniacal Nitrogen							0.0016	0.02789703		No censored - no imputation			
Cardrona at Mt Barker	(adjusted)	58	6	41	0	0		7	9	Imputed	required	A	А	TRUE
	Ammoniacal Nitrogen							0.0034	0.05316367		No censored - no imputation			
Catlins at Houipapa	(adjusted)	59	6	23	0	0		9	8	Imputed	required	А	В	TRUE
	Ammoniacal Nitrogen										No censored - no imputation			
Contour Channel at No. 4 Bridge	(adjusted)	59	6	14	0	0		0.0086	0.0910492	Imputed	required	А	В	TRUE
	Ammoniacal Nitrogen							0.0015	0.00816498	Not Imputed - model fit	No censored - no imputation			
Craig Burn at SH6	(adjusted)	19	3	18	0	0		2	7	failed	required	A	А	FALSE
	Ammoniacal Nitrogen							0.0096	0.13680362		No censored - no imputation			
Crookston Burn at Kelso Road	(adjusted)	57	6	10	0	0		1	9	Imputed	required	А	В	TRUE
	Ammoniacal Nitrogen		1					0.0016	0.02789703		No censored - no imputation			1
Dart at The Hillocks	(adjusted)	55	6	40	0	0		6	9	Imputed	required	А	А	TRUE
	Ammoniacal Nitrogen								0.00853557		No censored - no imputation			
Deep Stream at SH87	(adjusted)	58	6	42	0	0		0.0012	9	Imputed	required	А	А	TRUE
	Ammoniacal Nitrogen							0.0013		All censored - cannot	No censored - no imputation			
Dundas Creek at Mill Flat	(adjusted)	19	3	19	0	0		8	0.00192082		required	А	А	FALSE
	Ammoniacal Nitrogen					-		0.0008	0.01517486	F	No censored - no imputation			
Dunstan Creek at Beattie Road	(adjusted)	59	6	46	0	0		2	7	Imputed	required	А	А	TRUE
	Ammoniacal Nitrogen					-		0.0010	0.00252767	Not Imputed - model fit	No censored - no imputation			
Fraser at Old Man Range	(adjusted)	22	3	19	0	0		9	4	failed	required	А	А	FALSE
	Ammoniacal Nitrogen		-			-		0.0011	0.00144926	All censored - cannot	No censored - no imputation			
Greenstone at Greenstone Station Road	(adjusted)	19	3	19	0	0		7	5	impute	required	А	А	FALSE
	Ammoniacal Nitrogen		, , , , , , , , , , , , , , , , , , ,			- Ū				Not Imputed - model fit	No censored - no imputation			
Hawea at Camphill Bridge	(adjusted)	58	6	48	0	0		0.0017	0.04	failed	required	А	А	TRUE
	Ammoniacal Nitrogen		Ű			Ŭ		0.0106	0.06171531	lanca	No censored - no imputation			
Heriot Burn at Park Hill Road	(adjusted)	57	6	9	0	0		0.0100	0.001/1551	Imputed	required	A	в	TRUE
	Ammoniacal Nitrogen	57	0		0	0		0.0010	0.05284818	Not Imputed - model fit	No censored - no imputation	<u></u>		TROL
Hills Creek at SH85	(adjusted)	22	3	21	0	0		9	0.05284818	failed	required	А	в	FALSE
	Ammoniacal Nitrogen		5	21	0	0		0.0066	0.01341305	Talleu	No censored - no imputation	~	0	TALSE
Horn Crock at Queenstown Bay	(adjusted)	22	3	6	0	0		0.0000	0.01341303	Imputed	required	А	А	FALSE
Horn Creek at Queenstown Bay	Ammoniacal Nitrogen		- 3	0	0			+ - '	0.00219606	All censored - cannot	No censored - no imputation		~	TALJE
Invincible Creek at Poor Vallay Pood	-	10	3	10	0	0		0.0017	0.00219606				^	FALSE
Invincible Creek at Rees Valley Road	(adjusted)	19	5	19	0				1.93253689	impute	required	A	A	FALSE
Kaikarai Stroom at Brichten Deed	Ammoniacal Nitrogen			10				0.0109		Imputed	No censored - no imputation			TOUL
Kaikorai Stream at Brighton Road	(adjusted)	58	6	16	0	0		· ·	4	Imputed	required	A	С	TRUE
Kelvaha Gradi et CU1	Ammoniacal Nitrogen	10	_					0.0104	0.12351686	l las autori	No censored - no imputation			FALCE
Kakaho Creek at SH1	(adjusted)	18	3	3	0	0		8	2	Imputed	required	A	В	FALSE
	Ammoniacal Nitrogen		-		-			0.0011	0.01922149	Lange de la companya de la	No censored - no imputation			
Kakanui at Clifton Falls Bridge	(adjusted)	55	J 6	41	0	0		9	8	Imputed	required	A	A	TRUE

	Ammoniacal Nitrogen	1 1						0.01932536		No censored - no imputation			
Kakanui at McCones	(adjusted)	55	6	26	0	0	0.0025	0.01932330	Imputed	required	А	А	TRUE
Rakallul at Miccolles	Ammoniacal Nitrogen	55	0	20	0	0	 0.0023	0.02847144	Imputed	No censored - no imputation	A	A	TROL
Kauru at Ewings	(adjusted)	55	6	35	0	0	0.0018	0.02847144	Imputed	required	А	А	TRUE
Raulu at Ewiligs	Ammoniacal Nitrogen		0	55	0	0	0.0013	0.00809326	Imputed	No censored - no imputation	A	A	TRUE
Kuo Durp at SURE Dridge	_	59	6	43	0	0	0.0013	0.00809520	Imputed			•	TRUE
Kye Burn at SH85 Bridge	(adjusted) Ammoniacal Nitrogen	59	0	43	0	0	 0.0015	2	Imputed All censored - cannot	required	Α	Α	TRUE
Leaving During at Manalus Mt Assisting Dead	-	20	2	20	0		0.0015	0.00102002		No censored - no imputation			FALCE
Leaping Burn at Wanaka Mt Aspiring Road	(adjusted)	20	3	20	0	0	 2	0.00192082	impute	required	A	A	FALSE
	Ammoniacal Nitrogen			24			0.0061	0.22839072		No censored - no imputation			
Leith at Dundas Street Bridge	(adjusted)	57	6	21	0	0	5	4	Imputed	required	A	В	TRUE
	Ammoniacal Nitrogen						0.0014		Not Imputed - model fit	No censored - no imputation			
Lindis at Ardgour Road	(adjusted)	58	6	48	0	0	5	0.01054111	failed	required	A	A	TRUE
	Ammoniacal Nitrogen						0.0015		Not Imputed - model fit	No censored - no imputation			
Lindis at Lindis Peak	(adjusted)	58	6	50	0	0	2	0.01701039	failed	required	A	A	TRUE
	Ammoniacal Nitrogen						0.0074	0.08541434		No censored - no imputation			
Lindsays Creek at North Road Bridge	(adjusted)	58	6	11	0	0	8	2	Imputed	required	A	В	TRUE
	Ammoniacal Nitrogen						0.0056	0.02751599		No censored - no imputation			
Lovells Creek at Station Road	(adjusted)	58	6	18	0	0	1	5	Imputed	required	А	A	TRUE
	Ammoniacal Nitrogen						0.0017	0.01088664		No censored - no imputation			
Luggate Creek at SH6 Bridge	(adjusted)	58	6	47	0	0	3	9	Imputed	required	А	А	TRUE
	Ammoniacal Nitrogen						0.0030	0.01004552		No censored - no imputation			
Maclennan at Kahuiku School Road	(adjusted)	22	3	7	0	0	3	2	Imputed	required	А	А	FALSE
	Ammoniacal Nitrogen						0.0012	0.00170103	All censored - cannot	No censored - no imputation			
Makarora at Makarora	(adjusted)	21	3	21	0	0	6	9	impute	required	А	А	FALSE
	Ammoniacal Nitrogen		-		-		0.0011	0.03692550	Not Imputed - model fit	No censored - no imputation			
Manuherikia at Blackstone Hill	(adjusted)	59	6	50	0	0	7	9	failed	required	Α	А	TRUE
	Ammoniacal Nitrogen	33		50	•	Ŭ	 ,	5		No censored - no imputation			
Manuherikia at Galloway	(adjusted)	59	6	36	0	0	0.0025	0.01692506	Imputed	required	А	А	TRUE
	Ammoniacal Nitrogen			50	0		0.0025	0.03836067	Imputed	No censored - no imputation		~	INOL
Manuherikia at Ophir	(adjusted)	59	6	25	0	0	0.0033	0.03830007	Imputed	required	А	А	TRUE
		55	0	23	0	0	0.0010	0	All censored - cannot		A	A	TROL
Manuherikia downstream of Fork	Ammoniacal Nitrogen	22	4	22	0		0.0010	0.00192082		No censored - no imputation		•	TRUE
Manunerikia downstream of Fork	(adjusted)	33	4	33	0	0	9		impute	required	A	A	TRUE
	Ammoniacal Nitrogen						0.0000	0.02202797		No censored - no imputation			54165
Meggat Burn at Berwick Road	(adjusted)	22	3	8	0	0	 0.0036	2	Imputed	required	A	A	FALSE
	Ammoniacal Nitrogen						0.0040			No censored - no imputation			
Mill Creek at Fish Trap	(adjusted)	58	6	32	0	0	6	0.03601546	Imputed	required	A	A	TRUE
	Ammoniacal Nitrogen						0.0015	0.00219606	All censored - cannot	No censored - no imputation			
Motatapu at Wanaka Mt Aspiring Road	(adjusted)	21	3	21	0	0	 2	5	impute	required	A	A	FALSE
	Ammoniacal Nitrogen						0.0017	0.01403439		No censored - no imputation			
Nenthorn at Mt Stoker Road	(adjusted)	58	6	34	0	0	3	4	Imputed	required	A	A	TRUE
	Ammoniacal Nitrogen						0.0004	0.06804155		No censored - no imputation			
Nevis at Wentworth Station	(adjusted)	57	6	44	0	0	4	9	Imputed	required	A	В	TRUE
	Ammoniacal Nitrogen									No censored - no imputation			
Oamaru Creek at SH1	(adjusted)	21	3	8	0	0	0.0173	0.1469741	Imputed	required	А	В	FALSE
	Ammoniacal Nitrogen						0.0041	0.02245371		No censored - no imputation			
Owaka at Katea Road	(adjusted)	56	6	22	0	0	8	4	Imputed	required	А	А	TRUE
	Ammoniacal Nitrogen							0.00614662	Not Imputed - model fit	No censored - no imputation			
Ox Burn at Rees Valley Road	(adjusted)	19	3	18	0	0	0.0017	4	failed	required	А	А	FALSE
·	Ammoniacal Nitrogen						0.0019	0.01712492	Not Imputed - model fit	No censored - no imputation			
Pleasant at Patterson Road Ford	(adjusted)	21	3	12	0	0	2	9	failed	required	А	А	FALSE
	Ammoniacal Nitrogen							0.03144685		No censored - no imputation			
Pomahaka at Burkes Ford	(adjusted)	57	6	18	0	0	0.0061	1	Imputed	required	А	А	TRUE
	Ammoniacal Nitrogen		-		-		0.0019			No censored - no imputation			
Pomahaka at Glenken	(adjusted)	57	6	32	0	0	5	0.01692506	Imputed	required	А	А	TRUE
	Ammoniacal Nitrogen	+ +	-			-	0.0038	0.02919646	P	No censored - no imputation			
Poolburn at Cob Cottage	(adjusted)	33	4	12	0	0	7	2	Imputed	required	А	А	TRUE
Precipice Creek at Glenorchy Paradise	Ammoniacal Nitrogen			12	0	5	/	2	All censored - cannot	No censored - no imputation			
Road	(adjusted)	20	3	20	0	0	0.0017	0.00192082	impute	required	А	Λ	FALSE
ιυαυ	Ammoniacal Nitrogen	20	3	20	U	U			Not Imputed - model fit	No censored - no imputation	A	Α	FALSE
Quartz Crook at Maungawara Vallay Baad	-	17	3	10	•		0.0015	0.01280336					FALCE
Quartz Creek at Maungawera Valley Road	(adjusted)	17	3	16	0	0	2	8	failed	required	A	A	FALSE
	Ammoniacal Nitrogen						0.0019	0.00537829	Not Imputed - model fit	No censored - no imputation			
Quartz Reef Creek at SH8	(adjusted)	22	3	20	0	0	2	6	failed	required	A	A	FALSE

	Ammoniacal Nitrogen						1	0.0015		Not Imputed - model fit	No censored - no imputation			
Rees at Glenorchy Paradise Road Bridge	(adjusted)	20	3	19	0	0		2	0.00386692	failed	required	А	А	FALSE
	Ammoniacal Nitrogen		-					0.0013		All censored - cannot	No censored - no imputation			
Roaring Meg at SH6	(adjusted)	22	3	22	0	0		8	0.00192082	impute	required	А	А	FALSE
	Ammoniacal Nitrogen		5		<u> </u>	L .		0.0006	0.00252914	Not Imputed - model fit	No censored - no imputation	~		171202
Scott Creek at Routeburn Road	(adjusted)	20	3	19	0			3	0.00252514	failed	required	А	А	FALSE
Scoll Cleek at Roulebuilt Road		20	3	19	0	0		-		Talleu		A	A	FALSE
	Ammoniacal Nitrogen		<i>c</i>					0.0022	0.02478561		No censored - no imputation			
Shag at Craig Road	(adjusted)	58	6	39	0	0		1	5	Imputed	required	A	A	TRUE
	Ammoniacal Nitrogen							0.0030	0.01360831		No censored - no imputation			
Shag at Goodwood Pump	(adjusted)	57	6	25	0	0		3	2	Imputed	required	A	A	TRUE
	Ammoniacal Nitrogen							0.0033	0.31501446		No censored - no imputation			
Silverstream at Taieri Depot	(adjusted)	59	6	28	0	0		1	1	Imputed	required	А	В	TRUE
•	Ammoniacal Nitrogen							0.0019	0.00254377	All censored - cannot	No censored - no imputation			
Silverstream at Three Mile Hill Road	(adjusted)	22	3	22	0	0		2	5	impute	required	А	А	FALSE
	Ammoniacal Nitrogen					Ť		0.0010	0.00329148	Not Imputed - model fit	No censored - no imputation			171202
Sutton Stream at SH87	-	31	3	29	0			0.0010	0.00329148	failed	-			TRUE
Sullon Stream at SH87	(adjusted)		3	29	0	0		3			required	A	A	IKUE
	Ammoniacal Nitrogen							0.0035	0.00654938		No censored - no imputation			
Tahakopa at Tahakopa	(adjusted)	22	3	8	0	0		1	4	Imputed	required	A	A	FALSE
	Ammoniacal Nitrogen							0.0046			No censored - no imputation			
Taieri at Allanton Bridge	(adjusted)	58	6	20	0	0		4	0.075	Imputed	required	А	В	TRUE
	Ammoniacal Nitrogen								0.02139649		No censored - no imputation			
Taieri at Linnburn Runs Road	(adjusted)	59	6	34	0	0		0.0013	7	Imputed	required	А	А	TRUE
				54	Ŭ	F	+	-	0.01524210	Imputed	•	~		INCE
	Ammoniacal Nitrogen		<i>c</i>					0.0021			No censored - no imputation			-
Taieri at Outram	(adjusted)	59	6	36	0	0		5	5	Imputed	required	A	A	TRUE
	Ammoniacal Nitrogen							0.0017	0.01747047		No censored - no imputation			
Taieri at Stonehenge	(adjusted)	59	6	34	0	0		1	3	Imputed	required	А	A	TRUE
	Ammoniacal Nitrogen							0.0019	0.02136771		No censored - no imputation			
Taieri at Sutton	(adjusted)	57	6	37	0	0		2	3	Imputed	required	А	А	TRUE
	Ammoniacal Nitrogen		-					0.0024	0.01011657		No censored - no imputation			
Taieri at Tiroiti	(adjusted)	59	6	36	0	6		0.0024	8	Imputed	required	А	А	TRUE
			0	50	0	0		/		Imputed		A	A	TRUE
	Ammoniacal Nitrogen							0.0026	0.06804155		No censored - no imputation			
Taieri at Waipiata	(adjusted)	59	6	28	0	0		2	9	Imputed	required	A	В	TRUE
	Ammoniacal Nitrogen								0.00699300	Not Imputed - model fit	No censored - no imputation			
Teviot at Bridge Huts Road	(adjusted)	22	3	17	0	0		0.0009	7	failed	required	A	A	FALSE
	Ammoniacal Nitrogen							0.0015		All censored - cannot	No censored - no imputation			
The Neck Creek at Meads Road	(adjusted)	21	3	21	0	0		2	0.00192082	impute	required	А	А	FALSE
	Ammoniacal Nitrogen		-		-			0.0044	0.05058288		No censored - no imputation			
Thomsons Creek at SH85	_	58	6	18	0	6		9	9	Imputed	required	А	в	TRUE
THOMSONS CLEEK at SH65	(adjusted)	56	0	10	0	0		<u> </u>		Imputed	•	A	D	TRUE
	Ammoniacal Nitrogen							0.0006	0.00276208		No censored - no imputation			
Timaru at Peter Muir Bridge	(adjusted)	20	3	19	0	0		9	5		required	A	A	FALSE
	Ammoniacal Nitrogen							0.0082	0.06253880		No censored - no imputation			
Tokomairiro at Blackbridge	(adjusted)	57	6	8	0	0		1	2	Imputed	required	А	В	TRUE
	Ammoniacal Nitrogen							0.0060	0.01347456		No censored - no imputation			
Tokomairiro at Lisnatunny	(adjusted)	34	4	10	0	0		2	7	Imputed	required	А	А	TRUE
	Ammoniacal Nitrogen		-	10	Ŭ	F	+	0.0032	0.01572342		No censored - no imputation	~		INCL
Takana dalar at Most Deserate Delas	-		6	20										TRUE
Tokomairiro at West Branch Bridge	(adjusted)	57	6	20	0	0		7	6		required	A	A	TRUE
	Ammoniacal Nitrogen							0.0055	0.09527266		No censored - no imputation			
Trotters Creek at Mathesons	(adjusted)	57	6	13	0	0		6	6	Imputed	required	А	В	TRUE
	Ammoniacal Nitrogen							0.0047	0.02316799		No censored - no imputation			
Tuapeka at 700m u/s bridge	(adjusted)	52	5	23	0	0		1	9	Imputed	required	А	А	TRUE
	Ammoniacal Nitrogen		-		-			0.0010	-	All censored - cannot	No censored - no imputation			
Turner Creek at Kinloch Road	(adjusted)	20	3	20	0			0.0010	0.00120192	impute	required	А	А	FALSE
		20	5	20	0	0		9				A	A	FALSE
	Ammoniacal Nitrogen		_	-	-	_			0.00219606		No censored - no imputation		.	
Upper Cardrona at Tuohys Gully Road	(adjusted)	21	3	21	0	0	-	0.0017	5	impute	required	A	A	FALSE
	Ammoniacal Nitrogen							0.0011	0.00138104	All censored - cannot	No censored - no imputation			
Upper Pomahaka at Aitchison Runs Road	(adjusted)	22	3	22	0	0		3	3	impute	required	А	А	FALSE
	Ammoniacal Nitrogen					1	1		0.02377768	Not Imputed - model fit	No censored - no imputation		1	
Upper Shag at SH85 Culvert	(adjusted)	22	3	18	0	l n		0.0017	4	failed	required	А	А	FALSE
opper shug at shios curvert	Ammoniacal Nitrogen		5	10	0	F	-		0.01585178					- ALSL
Main alarma at Duama			_		_			0.0016			No censored - no imputation			
Waianakarua at Browns	(adjusted)	56	6	37	0	0	_	/	9	Imputed	required	A	A	TRUE
	Ammoniacal Nitrogen	20						0.0014	0.00552417		No censored - no imputation			
Waianakarua at South Branch SH1	(adjusted)		3	13	0			5	1	failed	required		1	FALSE

	Ammoniacal Nitrogen						0.0140			No censored - no imputation			
Waiareka Creek at Taipo Road	(adjusted)	54	6	18	0	0	4	0.16134887	Imputed	required	А	В	TRUE
	Ammoniacal Nitrogen						0.0038	0.02020379		No censored - no imputation			
Waikouaiti at Confluence d/s	(adjusted)	35	4	14	0	0	4	5	Imputed	required	А	А	TRUE
	Ammoniacal Nitrogen						0.0070	0.02267031		No censored - no imputation			
Waipahi at Cairns Peak	(adjusted)	57	6	12	0	0	4	6	Imputed	required	А	А	TRUE
	Ammoniacal Nitrogen						0.0047	0.05025561		No censored - no imputation			
Waipahi at Waipahi	(adjusted)	57	6	21	0	0	6	2	Imputed	required	А	В	TRUE
	Ammoniacal Nitrogen						0.0011	0.01029188		No censored - no imputation			
Waipori at Waipori Falls Reserve	(adjusted)	59	6	38	0	0	9	9	Imputed	required	А	А	TRUE
	Ammoniacal Nitrogen						0.0170	0.10800689		No censored - no imputation			
Wairuna at Millar Road	(adjusted)	57	6	12	0	0	8	9	Imputed	required	А	В	TRUE
	Ammoniacal Nitrogen						0.0056	0.03197953		No censored - no imputation			
Waitahuna at Tweeds Bridge	(adjusted)	57	6	18	0	0	1	3	Imputed	required	А	А	TRUE
	Ammoniacal Nitrogen						0.0027			No censored - no imputation			
Waitati at Mt Cargill Road	(adjusted)	57	6	37	0	0	5	0.195	Imputed	required	А	В	TRUE
	Ammoniacal Nitrogen							0.03987275		No censored - no imputation			
Waiwera at Maws Farm	(adjusted)	59	6	18	0	0	0.0068	9	Imputed	required	А	А	TRUE
	Ammoniacal Nitrogen						0.0010	0.00126457	All censored - cannot	No censored - no imputation			
Whare Creek at Whare Flat Road	(adjusted)	22	3	22	0	0	9	2	impute	required	А	А	FALSE

						Та	ble	6 Nitrate						
		N.value	N.year	N.Leftcensore	N.Rightcensore	D	A					NOFband_medi	NOFband_	
sID	npID	S	S	d	d	L	L	Median	Q95	ImputedLower	ImputedUpper	an	Q95	nOK
12 Mile Creek at Glenorchy Queenstown	Nitrite/Nitrate							0.0022			No censored - no imputation			
Road	Nitrogen	20	3	4	0	0		5	0.0086	Imputed	required	A	A	FALS
25 Mile Creek at Glenorchy Queenstown	Nitrite/Nitrate								0.0115		No censored - no imputation			
Road	Nitrogen	20	3	4	0	0		0.0045	2	Imputed	required	A	A	FALS
	Nitrite/Nitrate								0.1518	No censored - no imputation	No censored - no imputation			
3 OClock Stream at Hindon	Nitrogen	37	4	0	0			0.026	5	required	required	А	А	TRUE
	Nitrite/Nitrate									No censored - no imputation	No censored - no imputation			
Akatore Creek at Akatore Creek Road	Nitrogen	20	2	0	0			0.215	1.87	required	required	А	В	FALSE
	Nitrite/Nitrate									No censored - no imputation	No censored - no imputation			
Arrow at Morven Ferry Road	Nitrogen	22	3	0	0			0.0835	0.1218	required	required	А	А	FALSE
,	Nitrite/Nitrate										No censored - no imputation			-
Awamoko at SH83	Nitrogen	55	6	1	0	0		0.46	1.1725	Imputed	required	А	А	TRUE
	Nitrite/Nitrate			-	<u> </u>			0.10	1.1725		No censored - no imputation			
Bannockburn at Lake Dunstan	Nitrogen	58	6	45	0	0		0.0004	0.0073	Imputed	required	А		TRUE
Baimockburn at Lake Dunstan	•	50	0	45	0			0.0004	0.0075			A	A	INUE
Densen hum et CUO	Nitrite/Nitrate	25		0				0.20	1 4 2	No censored - no imputation	No censored - no imputation			TOUL
Benger burn at SH8	Nitrogen	35	4	0	0			0.26	1.43	required	required	A	А	TRUE
	Nitrite/Nitrate								0.0884	No censored - no imputation	No censored - no imputation			
Blackcleugh Burn at Rongahere Road	Nitrogen	19	3	0	0			0.048	5	required	required	A	A	FALSE
Buckler Burn at Glenorchy Queenstown	Nitrite/Nitrate								0.0332	No censored - no imputation	No censored - no imputation			
Road	Nitrogen	20	3	0	0			0.0176	5	required	required	A	A	FALSE
	Nitrite/Nitrate									No censored - no imputation	No censored - no imputation			
Bullock Creek at Dunmore Street Footbridge	Nitrogen	21	3	0	0			0.66	0.7735	required	required	A	А	FALSE
	Nitrite/Nitrate									No censored - no imputation	No censored - no imputation			
Cardrona at Mt Barker	Nitrogen	58	6	0	0			0.076	0.1976	required	required	А	А	TRUE
	Nitrite/Nitrate		-							No censored - no imputation	No censored - no imputation			
Catlins at Houipapa	Nitrogen	59	6	0	0			0.4	0.7055	required	required	А	А	TRUE
	Nitrite/Nitrate				<u> </u>			0.1	0.7055		No censored - no imputation			
Contour Channel at No. 4 Bridge	Nitrogen	59	6	-	0			0.24	0.758	Imputed	required	^		TRUE
Contour chainer at No. 4 Bridge	v	59	0	/	0			0.24		Imputed	•	A	A	INUE
Cruite Duran et Cluc	Nitrite/Nitrate	10		_				0.000	0.0126	Increased	No censored - no imputation			FALCE
Craig Burn at SH6	Nitrogen	19	3	/	0	0		0.003	2	Imputed	required	A	A	FALSE
	Nitrite/Nitrate									No censored - no imputation	No censored - no imputation			
Crookston Burn at Kelso Road	Nitrogen	57	6	0	0			1.44	2.465	required	required	В	В	TRUE
	Nitrite/Nitrate								0.0472	No censored - no imputation	No censored - no imputation			
Dart at The Hillocks	Nitrogen	55	6	0	0			0.027	5	required	required	A	A	TRUE
	Nitrite/Nitrate							0.0009			No censored - no imputation			
Deep Stream at SH87	Nitrogen	58	6	33	0	0		5	0.1266	Imputed	required	A	А	TRUE
	Nitrite/Nitrate								0.0547	No censored - no imputation	No censored - no imputation			
Dundas Creek at Mill Flat	Nitrogen	19	3	0	0			0.032	5	required	required	А	А	FALSE
	Nitrite/Nitrate									No censored - no imputation	No censored - no imputation			
Dunstan Creek at Beattie Road	Nitrogen	59	6	0	0			0.067	0.1656	required	required	А	А	TRUE
	Nitrite/Nitrate							0.0031			No censored - no imputation			-
Fraser at Old Man Range	Nitrogen	22	3	1	0	0		5	0.0127	Imputed	required	А	А	FALSE
	Nitrite/Nitrate			-	<u> </u>				0.0256		No censored - no imputation			
Greenstone at Greenstone Station Road	Nitrogen	19	3	1	0			0.0119	5	Imputed	required	А	А	FALSE
dieenstone at dieenstone Station Road	Nitrite/Nitrate	19	3	1	0			0.0119	5	Inputed	No censored - no imputation	A	A	FALSL
Usures at Carenabill Dridge	-	50						0.0142	0.0202	lasa da d				TDUE
Hawea at Camphill Bridge	Nitrogen	58	b b	2	0	0		0.0142	0.0362	Imputed	required	A	A	TRUE
	Nitrite/Nitrate										No censored - no imputation			
Hayes Creek at SH6	Nitrogen	10	1	8	0	0		0.0005	0.026	Not Imputed - model fit failed	required	Α	A	FALSE
	Nitrite/Nitrate									No censored - no imputation	No censored - no imputation			
Heriot Burn at Park Hill Road	Nitrogen	57	6	0	0			1.42	2.051	required	required	В	В	TRUE
	Nitrite/Nitrate									No censored - no imputation	No censored - no imputation			
Hills Creek at SH85	Nitrogen	22	3	0	0			0.0315	0.1852	required	required	А	А	FALSE
	Nitrite/Nitrate									No censored - no imputation	No censored - no imputation			
Horn Creek at Queenstown Bay	Nitrogen	22	3	0	0			0.148	0.2	required	required	А	А	FALSE
	Nitrite/Nitrate								0.0236		No censored - no imputation			1
Invincible Creek at Rees Valley Road	Nitrogen	19	3	2	0		1	0.0095		Imputed	required	А	1	FALS

	Nitrite/Nitrate								No censored - no imputation	No censored - no imputation			
Kaikorai Stream at Brighton Road	Nitrogen	58	6	0	0		0.4	1.136		required	A	A	TRUE
	Nitrite/Nitrate	10	2		0			1 100	No censored - no imputation	No censored - no imputation			FALCE
Kakaho Creek at SH1	Nitrogen	18	3	0	0		0.18	5 1.106	required	required	A	A	FALSE
Kalenni at Clifton Falla Dridan	Nitrite/Nitrate		~	1	0			0.125	lucestal	No censored - no imputation			TRUE
Kakanui at Clifton Falls Bridge	Nitrogen	55	6	1	0	0	0.017	0.125	•	required	A	A	TRUE
	Nitrite/Nitrate		~		0			0.000	No censored - no imputation	No censored - no imputation			TDUE
Kakanui at McCones	Nitrogen	57	6	0	0		0.2	0.689	required	required	A	A	TRUE
Kenne et Fusie es	Nitrite/Nitrate		~	2	0	0		0 1025	lucestal	No censored - no imputation			TRUE
Kauru at Ewings	Nitrogen	55	6	2	0	0	0.010		Imputed	required	A	A	TRUE
	Nitrite/Nitrate	50	6		0		0.04	0.2261	No censored - no imputation	No censored - no imputation			TOUL
Kye Burn at SH85 Bridge	Nitrogen	59	6	0	0		0.04	-	required	required	A	A	TRUE
Looping Durp at Manaka Mt Achiring Dood	Nitrite/Nitrate	21	3	0	0		0.02	0.0387	No censored - no imputation	No censored - no imputation			FALSE
Leaping Burn at Wanaka Mt Aspiring Road	Nitrogen Nitrite/Nitrate	21	5	0	0		0.02	2	required	required	A	A	FALSE
Leith at Dundas Street Bridge	Nitrogen	57	c	0	0		0.5	0.993	No censored - no imputation required	No censored - no imputation required			TRUE
Leith at Dunuas Street Bluge	Nitrite/Nitrate	57	0	0	0		0.5	0.995	lequiled		A	Α	
Lindic at Ardgour Poad	Nitrogen	58	c	2	0		0.03	0.13	Imputed	No censored - no imputation required	А		TRUE
Lindis at Ardgour Road	Nitrite/Nitrate	50	0	2	0		0.05	0.15	Imputed	No censored - no imputation	A	A	
Lindis at Lindis Peak		58	c	2	0	0	0.016	0.0834	Imputed	required			TRUE
	Nitrogen	58	0	3	0	0	0.010	0.0834	Imputed		Α	A	TRUE
Lindsons Crock at North Dood Dridge	Nitrite/Nitrate	58	c	1	0	0		1 1 2 6	Imputed	No censored - no imputation			TRUE
Lindsays Creek at North Road Bridge	Nitrogen	58	0	1	0	0	0.6	1.26		required	A	A	TRUE
Levelle Creek et Station Deed	Nitrite/Nitrate	50	~	0	0		0.8	2.22	No censored - no imputation	No censored - no imputation			TDUE
Lovells Creek at Station Road	Nitrogen	58	0	0	0		0.8	0.0154	required	required	Α	В	TRUE
Lugante Creek et CLC Dridee	Nitrite/Nitrate	50	~	10	0				lucestal	No censored - no imputation			TDUE
Luggate Creek at SH6 Bridge	Nitrogen	58	6	19	0	0	0.002	8	Imputed	required	A	A	TRUE
Madagen at Kabuilus Cabaal Daad	Nitrite/Nitrate	22	3	0	0		0.021		No censored - no imputation	No censored - no imputation			FALCE
Maclennan at Kahuiku School Road	Nitrogen	22	3	0	0		0.021	0.0558	required	required	A	A	FALSE
	Nitrite/Nitrate	21	2		0				No censored - no imputation	No censored - no imputation			FALCE
Makarora at Makarora	Nitrogen	21	3	0	0		0.04		required	required	A	A	FALSE
Manual and the stable states at 1111	Nitrite/Nitrate		6	12	0			0.0756	I second and	No censored - no imputation			TOUL
Manuherikia at Blackstone Hill	Nitrogen	59	6	12	0	0	0.00	5	Imputed	required	A	A	TRUE
Manufactilia et Celleure	Nitrite/Nitrate		6	2	0				I second and	No censored - no imputation			TOUL
Manuherikia at Galloway	Nitrogen	59	6	3	0	0	0.0	3 0.2		required	A	A	TRUE
	Nitrite/Nitrate	50							No censored - no imputation	No censored - no imputation			
Manuherikia at Ophir	Nitrogen	59	6	0	0		0.05		required	required	A	A	TRUE
Manula division of Fault	Nitrite/Nitrate	22		9	0			0.0127	lucestal	No censored - no imputation			TDUE
Manuherikia downstream of Fork	Nitrogen	33	4	9	0	0	0.00	2 2	Imputed	required	A	A	TRUE
Managet During at Damaiala Dagad	Nitrite/Nitrate	22	2		0		0.075	0.420	No censored - no imputation	No censored - no imputation			FALCE
Meggat Burn at Berwick Road	Nitrogen	22	3	0	0		0.075	0.438	required	required	A	A	FALSE
Mill Construct Fish Turn	Nitrite/Nitrate	50	6		0				No censored - no imputation	No censored - no imputation			TOUL
Mill Creek at Fish Trap	Nitrogen	59	6	0	0		0.3		required	required	A	A	TRUE
National Aller the N4t Assister Deed	Nitrite/Nitrate	24	2		0			0.0463	No censored - no imputation	No censored - no imputation			FALCE
Motatapu at Wanaka Mt Aspiring Road	Nitrogen	21	3	0	0		0.02		required	required	A	A	FALSE
	Nitrite/Nitrate			22			0.000			No censored - no imputation			
Nenthorn at Mt Stoker Road	Nitrogen	58	6	33	0	0		4	Imputed	required	A	A	TRUE
	Nitrite/Nitrate			10			0.001			No censored - no imputation			
Nevis at Wentworth Station	Nitrogen	58	6	19	0	0		5 4	Imputed	required	A	A	TRUE
	Nitrite/Nitrate								No censored - no imputation	No censored - no imputation			
Oamaru Creek at SH1	Nitrogen	21	3	0	0		0.6	1.2185	required	required	A	A	FALSE
	Nitrite/Nitrate								No censored - no imputation	No censored - no imputation			
Owaka at Katea Road	Nitrogen	56	6	0	0		1.19	5 2.27	required	required	В	В	TRUE
	Nitrite/Nitrate								No censored - no imputation	No censored - no imputation			
Owhiro Stream at Riverside Rd	Nitrogen	37	4	0	0		0.3	0.902	required	required	A	A	TRUE
	Nitrite/Nitrate		_		-					No censored - no imputation		.	
Ox Burn at Rees Valley Road	Nitrogen	19	3	1	0	0	0.015	0.026	Imputed	required	A	A	FALSE
	Nitrite/Nitrate									No censored - no imputation			
Pleasant at Patterson Road Ford	Nitrogen	21	3	1	0	0	0.04	5 1.267	Imputed	required	A	A	FALSE
	Nitrite/Nitrate								No censored - no imputation	No censored - no imputation			
Pomahaka at Burkes Ford	Nitrogen	57	6	0	0		0.6	2.1145	required	required	A	В	TRUE
	Nitrite/Nitrate									No censored - no imputation			
Pomahaka at Glenken	Nitrogen	57	6	5	0	0	0.0	0.3865	Imputed	required	A	A	TRUE

	Nitrite/Nitrate										No censored - no imputation			
Poolburn at Cob Cottage	Nitrogen	33	4	2	0	0		0.04	0.356	Imputed	required	A	А	TRUE
	Nitrite/Nitrate							0.0066	0.0143		No censored - no imputation			
Precipice Creek at Glenorchy Paradise Road	Nitrogen	20	3	3	0	0		5	5	Imputed	required	А	А	FALSE
	Nitrite/Nitrate								0.1779	No censored - no imputation	No censored - no imputation			
Quartz Creek at Maungawera Valley Road	Nitrogen	17	3	0	0			0.057	5	required	required	А	А	FALSE
	Nitrite/Nitrate							0.0124			No censored - no imputation			
Quartz Reef Creek at SH8	Nitrogen	22	3	1	0	0		5	0.059	Imputed	required	А	А	FALSE
	Nitrite/Nitrate										No censored - no imputation			
Rees at Glenorchy Paradise Road Bridge	Nitrogen	20	3	2	0	0		0.0133	0.0245	Imputed	required	А	А	FALSE
· · ·	Nitrite/Nitrate									· ·	No censored - no imputation			-
Roaring Meg at SH6	Nitrogen	22	3	1	0	0		0.0114	0.0416	Imputed	required	А	А	FALSE
	Nitrite/Nitrate									No censored - no imputation	No censored - no imputation			
Scott Creek at Routeburn Road	Nitrogen	20	3	0	0			0.023	0.036	required	required	А	А	FALSE
	Nitrite/Nitrate		-		-					No censored - no imputation	No censored - no imputation			
Shag at Craig Road	Nitrogen	58	6	0	0			0.1015	0.4936	required	required	А	А	TRUE
	Nitrite/Nitrate	50	Ŭ	0	0			0.1015	0.4550	required	No censored - no imputation	~		
Shag at Goodwood Pump	Nitrogen	57	6	1	0	6		0.21	0.733	Imputed	required	А		TRUE
	, v	57	0	1	0	0		0.21	0.755	1	No censored - no imputation	A	A	
Cilverstream at Taiari Danat	Nitrite/Nitrate	59	c	0	0			0.39	0.774	No censored - no imputation	'			TRUE
Silverstream at Taieri Depot	Nitrogen	59	0	0	0			0.39	0.774	required	required	A	A	
	Nitrite/Nitrate		_		•			0.0496	0.0750		No censored - no imputation			54165
Silverstream at Three Mile Hill Road	Nitrogen	22	3	2	0	0		0.0126	0.0756	Imputed	required	A	A	FALSE
	Nitrite/Nitrate								0.0650		No censored - no imputation			
Sutton Stream at SH87	Nitrogen	31	3	9	0	0		0.0051	5	Imputed	required	A	A	TRUE
	Nitrite/Nitrate									No censored - no imputation	No censored - no imputation			
Tahakopa at Tahakopa	Nitrogen	22	3	0	0			0.325	0.606	required	required	A	A	FALSE
	Nitrite/Nitrate										No censored - no imputation			
Taieri at Allanton Bridge	Nitrogen	58	6	1	0	0		0.062	0.276	Imputed	required	А	Α	TRUE
	Nitrite/Nitrate								0.0599		No censored - no imputation			
Taieri at Creamery Road bridge	Nitrogen	37	4	11	0	0		0.0058	5	Imputed	required	А	А	TRUE
	Nitrite/Nitrate								0.0116		No censored - no imputation			
Taieri at Linnburn Runs Road	Nitrogen	59	6	17	0	0		0.0026	9	Imputed	required	А	А	TRUE
	Nitrite/Nitrate								0.2371		No censored - no imputation			
Taieri at Outram	Nitrogen	59	6	1	0	0		0.05	5	Imputed	required	А	А	TRUE
	Nitrite/Nitrate	1							0.0192	•	No censored - no imputation			
Taieri at Patearoa Maniototo Road	Nitrogen	37	4	15	0	0		0.0026	5	Imputed	required	А	А	TRUE
	Nitrite/Nitrate								0.0280	•	No censored - no imputation			
Taieri at Puketoi	Nitrogen	37	4	15	0	0		0.0037	5	Imputed	required	А	А	TRUE
	Nitrite/Nitrate				-	-					No censored - no imputation			
Taieri at Stonehenge	Nitrogen	59	6	13	0	0		0.006	0 045	Imputed	required	А	А	TRUE
	Nitrite/Nitrate		, , , , , , , , , , , , , , , , , , ,	10	C C			0.000	0.0.10	patea	No censored - no imputation			
Taieri at Sutton	Nitrogen	57	6	7	0	0		0.032	0.166	Imputed	required	А	А	TRUE
	Nitrite/Nitrate	57	0	,	0			0.052	0.1082	Imputeu	No censored - no imputation	<u></u>	<u> </u>	
Taieri at Tiroiti	Nitrogen	59	6	8	0	0		0.025	5	Imputed	required	А	А	TRUE
	Nitrite/Nitrate	55	0	0	0	0		0.025	5	Impated	No censored - no imputation	~	~	
Taieri at Waipiata	Nitrogen	59	c (6	0	0		0.0143	0.0712	Imputed	required	А		TRUE
		59	0	0	0	0		0.0145	0.0112	Imputed		A	A	
Taudat et Duides Hute Daard	Nitrite/Nitrate	22	2	2	0			0.0044		Increase de la constante de la	No censored - no imputation			FALCE
Teviot at Bridge Huts Road	Nitrogen	22	3	3	0	0	+	0.0041	4	Imputed	required	A	A	FALSE
	Nitrite/Nitrate								0.0133		No censored - no imputation			
The Neck Creek at Meads Road	Nitrogen	21	3	3	0	0		0.0026	3	Imputed	required	A	A	FALSE
	Nitrite/Nitrate									No censored - no imputation	No censored - no imputation			
Thomsons Creek at SH85	Nitrogen	58	6	0	0			0.1825	0.478	required	required	A	A	TRUE
	Nitrite/Nitrate								0.0203		No censored - no imputation			
Timaru at Peter Muir Bridge	Nitrogen	20	3	4	0	0		0.006	5	Imputed	required	A	A	FALSE
	Nitrite/Nitrate									No censored - no imputation	No censored - no imputation			
Tokomairiro at Blackbridge	Nitrogen	57	6	0	0			0.39	2.56	required	required	A	В	TRUE
	Nitrite/Nitrate									No censored - no imputation	No censored - no imputation			
Tokomairiro at Lisnatunny	Nitrogen	35	4	0	0			0.27	1.0575	required	required	А	А	TRUE
										No censored - no imputation	No censored - no imputation			
· · ·	Nitrite/Nitrate	1 1											1	I
Tokomairiro at West Branch Bridge	Nitrogen	57	6	0	0			0.28	1.172	required	required	A	A	TRUE
		57	6	0	0			0.28	1.172	required	required No censored - no imputation	A	A	TRUE

	Nitrite/Nitrate									No censored - no imputation			
Tuapeka at 700m u/s bridge	Nitrogen	52	5	1	0	0	0.225	1.282	Imputed	required	А	А	TRUE
· · ·	Nitrite/Nitrate					1			No censored - no imputation	No censored - no imputation			
Turner Creek at Kinloch Road	Nitrogen	20	3	0	0		0.0425	0.054	required	required	А	А	FALSE
	Nitrite/Nitrate							0.0577	No censored - no imputation	No censored - no imputation			
Upper Cardrona at Tuohys Gully Road	Nitrogen	21	3	0	0		0.024	5	required	required	А	А	FALSE
	Nitrite/Nitrate									No censored - no imputation			
Upper Pomahaka at Aitchison Runs Road	Nitrogen	22	3	1	0	0	0.0144	0.0522	Imputed	required	А	А	FALSE
	Nitrite/Nitrate						0.0154		No censored - no imputation	No censored - no imputation			
Upper Shag at SH85 Culvert	Nitrogen	22	3	0	0		5	0.0894	required	required	А	А	FALSE
	Nitrite/Nitrate								No censored - no imputation	No censored - no imputation			
Waianakarua at Browns	Nitrogen	56	6	0	0		0.25	0.527	required	required	А	А	TRUE
	Nitrite/Nitrate								No censored - no imputation	No censored - no imputation			
Waianakarua at South Branch SH1	Nitrogen	20	3	0	0		0.35	0.605	required	required	А	А	FALSE
	Nitrite/Nitrate									No censored - no imputation			
Waiareka Creek at Taipo Road	Nitrogen	54	6	2	0	0	0.61	2	Imputed	required	А	В	TRUE
	Nitrite/Nitrate								No censored - no imputation	No censored - no imputation			
Waikouaiti at Confluence d/s	Nitrogen	36	4	0	0		0.0095	0.336	required	required	А	А	TRUE
	Nitrite/Nitrate								No censored - no imputation	No censored - no imputation			
Waipahi at Cairns Peak	Nitrogen	57	6	0	0		0.73	1.649	required	required	А	В	TRUE
	Nitrite/Nitrate									No censored - no imputation			
Waipahi at Waipahi	Nitrogen	57	6	1	0	0	1.17	2.565	Imputed	required	В	В	TRUE
	Nitrite/Nitrate									No censored - no imputation			
Waipori at Waipori Falls Reserve	Nitrogen	59	6	3	0	0	0.02	0.1022	Imputed	required	А	A	TRUE
	Nitrite/Nitrate									No censored - no imputation			
Wairuna at Millar Road	Nitrogen	57	6	1	0	0	1.3	5.555	Imputed	required	В	С	TRUE
	Nitrite/Nitrate								No censored - no imputation	No censored - no imputation			
Waitahuna at Tweeds Bridge	Nitrogen	57	6	0	0		0.159	1.2545	required	required	А	A	TRUE
	Nitrite/Nitrate									No censored - no imputation			
Waitati at Mt Cargill Road	Nitrogen	57	6	5	0	0	0.042	0.4095	Imputed	required	А	А	TRUE
	Nitrite/Nitrate									No censored - no imputation			
Waiwera at Maws Farm	Nitrogen	59	6	1	0	0	0.89	2.61	Imputed	required	А	В	TRUE
	Nitrite/Nitrate								No censored - no imputation	No censored - no imputation			
Welcome Creek at Steward Road	Nitrogen	30	4	0	0		1.525	3.5	required	required	В	В	TRUE
	Nitrite/Nitrate								No censored - no imputation	No censored - no imputation			
Whare Creek at Whare Flat Road	Nitrogen	22	3	0	0		0.0365	0.087	required	required	А	А	FALSE

						Table	e 8 C	larity						
		N.value	N.year	N.Leftcensore	N.Rightcensore		A	Media				Sed_clas	NOFban	
sID	npID	S	S	d	d	DL	L	n	Median_Clar	ImputedLower	ImputedUpper	S	d	nOK
12 Mile Creek at Glenorchy Queenstown	Turbidity [Turbidity		2						7.97937764	No censored - no imputation	No censored - no imputation			FALS
Road	(X)]	20	3	0	0			0.3	5	required	required	1	A	E
25 Mile Creek at Glenorchy Queenstown	Turbidity [Turbidity								7.14113644	No censored - no imputation	No censored - no imputation			FALS
Road	(X)]	20	3	0	0			0.35	5	required	required	3	A	E
	Turbidity [Turbidity								3.76976863	No censored - no imputation	No censored - no imputation			FALS
3 OClock Stream at Hindon	(X)]	37	4	0	0			0.85	4	required	required	3	A	E
	Turbidity [Turbidity								3.76976863	No censored - no imputation	No censored - no imputation			FALS
3 OClock Stream at Hindon	(X)]	37	4	0	0			0.85	4	required	required	3	А	E
	Turbidity [Turbidity								3.06125355	No censored - no imputation	No censored - no imputation			FALS
Akatore Creek at Akatore Creek Road	(X)]	20	2	0	0			1.135	7	required	required	2	A	E
	Turbidity [Turbidity								2.61853607	No censored - no imputation	No censored - no imputation			FALS
Arrow at Morven Ferry Road	(X)]	22	3	0	0			1.41	8	required	required	1	А	E
	Turbidity [Turbidity								3.85167362	No censored - no imputation	No censored - no imputation			
Awamoko at SH83	(X)]	54	6	0	0			0.825	9	required	required	2	А	TRUE
	Turbidity [Turbidity								3.30601027	No censored - no imputation	No censored - no imputation			
Bannockburn at Lake Dunstan	(X)]	58	6	0	0			1.02	8	required	required	3	А	TRUE
	Turbidity [Turbidity								2.03589195	No censored - no imputation	No censored - no imputation			FALS
Benger burn at SH8	(X)]	35	4	0	0			2	5	required	required	3	D	E
	Turbidity [Turbidity								3.42784104	No censored - no imputation	No censored - no imputation			FALS
Blackcleugh Burn at Rongahere Road	(X)]	19	3	0	0			0.97	3	required	required	3	Α	F
	Turbidity [Turbidity	15	,	0	Ŭ			0.57	1.22497917	No censored - no imputation	No censored - no imputation		~	FALS
Buckler Burn at Glenorchy Queenstown Road	(X)]	20	3	0	0			4.05	1.22457517	required	required	1	D	E
Buckler Burn at Glenorchy Queenstown Road	Turbidity [Turbidity	20	5	0	0			4.05	7.79320146	No censored - no imputation	No censored - no imputation	1		FALS
Bullack Crock at Dupmare Street Feetbridge		21	3	0	0			0.31				1		
Bullock Creek at Dunmore Street Footbridge	(X)] Turkiditu (Turkiditu	21	5	0	0			0.31	6	required	required	1	A	
	Turbidity [Turbidity		6					4 9 4 5	2.70904536	No censored - no imputation	No censored - no imputation			-
Cardrona at Mt Barker	(X)]	58	6	0	0			1.345	9	required	required	3	В	TRUE
	Turbidity [Turbidity								1.45140407	No censored - no imputation	No censored - no imputation			
Catlins at Houipapa	(X)]	59	6	0	0			3.2	/	required	required	4	D	TRUE
	Turbidity [Turbidity								1.52043906	No censored - no imputation	No censored - no imputation			
Contour Channel at No. 4 Bridge	(X)]	59	6	0	0			3	6	required	required	1	С	TRUE
	Turbidity [Turbidity								4.47427285	No censored - no imputation	No censored - no imputation			FALS
Craig Burn at SH6	(X)]	19	3	0	0			0.67	5	required	required	3	A	E
	Turbidity [Turbidity								1.10048940	No censored - no imputation	No censored - no imputation			
Crookston Burn at Kelso Road	(X)]	57	6	0	0			4.7	4	required	required	1	D	TRUE
	Turbidity [Turbidity								0.43608695	No censored - no imputation	No censored - no imputation			
Dart at The Hillocks	(X)]	55	6	0	0			17	9	required	required	3	D	TRUE
	Turbidity [Turbidity								4.10557998	No censored - no imputation	No censored - no imputation			
Deep Stream at SH87	(X)]	58	6	0	0			0.755	9	required	required	3	А	TRUE
	Turbidity [Turbidity									No censored - no imputation	No censored - no imputation			FALS
Dundas Creek at Mill Flat	(X)]	19	3	0	0			0.17	12.0108322	required	required	3	А	E
	Turbidity [Turbidity					0.			3.93796210		No censored - no imputation			
Dunstan Creek at Beattie Road	(X)]	59	6	1	0	1		0.8	4	Imputed	required	3	А	TRUE
	Turbidity [Turbidity								4.54781287	No censored - no imputation	No censored - no imputation			FALS
Fraser at Old Man Range	(X)]	22	3	0	0			0.655	8	required	required	1	А	E
5	Turbidity [Turbidity								7,79320146	No censored - no imputation	No censored - no imputation			FALS
Greenstone at Greenstone Station Road	(X)]	19	3	0	0			0.31	6	required	required	3	А	E
	Turbidity [Turbidity			-					6.73057446	No censored - no imputation	No censored - no imputation			<u> </u>
Hawea at Camphill Bridge	(X)]	58	6	0	0			0.38	5	required	required	1	А	TRUE
	Turbidity [Turbidity			0	Ŭ			0.50	3.73815614	No censored - no imputation	No censored - no imputation		~	FALS
Hayes Creek at SH6	(X)]	10	1	0	0			0.86	5.75015014	required	required	3	А	E
Hayes elected ono	Turbidity [Turbidity	10	1	0	0			0.00	1.02323153	No censored - no imputation	No censored - no imputation			+
Heriot Burn at Park Hill Road	(X)]		c	0	0			гn	1.02323153		-	1		TDUF
HEHUL DUHH AL PAIK TIII KUdu	1.12	57	0	0	0			5.2		required	required		D	TRUE
Hills Creak at \$1105	Turbidity [Turbidity		_	-				4 00	2.74588972	No censored - no imputation	No censored - no imputation	_		FALS
Hills Creek at SH85	(X)]	22	3	0	0			1.32	9	required	required	3	В	E
	Turbidity [Turbidity		_	-					2.16185962	No censored - no imputation	No censored - no imputation	-		FALS
Horn Creek at Queenstown Bay	(X)]	22	3	0	0			1.84	4	required	required	3	D	E
	Turbidity [Turbidity								1.96561487	No censored - no imputation	No censored - no imputation			FALS
Invincible Creek at Rees Valley Road	(X)]	19	3	0	0			2.1	9	required	required	3	D	E

	Turbidity [Turbidity						1.50245142	No censored - no imputation	No censored - no imputation			
Kaikorai Stream at Brighton Road	(X)]	58	6	0	0	3.05	1	required	required	2	A	TRUE
Kakaho Creek at SH1	Turbidity [Turbidity (X)]	18	3	0	0	2.7	1.64026649	No censored - no imputation required	No censored - no imputation required	2	A	FALS
	Turbidity [Turbidity	10				2.7	1	No censored - no imputation	No censored - no imputation	2	~	
Kakanui at Clifton Falls Bridge	(X)]	55	6	0	0	0.4	6.48654043	required	required	3	A	TRUE
Rakandi at Cinton Fails Druge	Turbidity [Turbidity	55		0	0	0.4	4.84425975	No censored - no imputation	No censored - no imputation		~	TROL
Kakanui at McCones	(X)]	55	6	0	0	0.6	4.04425975	-	required	3	A	TRUE
Rakallul at McColles	Turbidity [Turbidity		0	0	0	0.0	9	required No censored - no imputation		5	A	TRUE
Kours at Euripes			c	0	0		6 49654042		No censored - no imputation		٨	
Kauru at Ewings	(X)]	55	0	0	0	0.4	6.48654043	required	required	3	A	TRUE
	Turbidity [Turbidity						3.28286876	No censored - no imputation	No censored - no imputation			-
Kye Burn at SH85 Bridge	(X)]	59	6	0	0	1.03	1	required	required	3	A	TRUE
	Turbidity [Turbidity							No censored - no imputation	No censored - no imputation			FALS
Leaping Burn at Wanaka Mt Aspiring Road	(X)]	21	3	0	0	0.4	6.48654043	required	required	3	A	E
	Turbidity [Turbidity						1.96561487	No censored - no imputation	No censored - no imputation			
Leith at Dundas Street Bridge	(X)]	57	6	0	0	2.1	9	required	required	1	A	TRUE
	Turbidity [Turbidity							No censored - no imputation	No censored - no imputation			
Lindis at Ardgour Road	(X)]	58	6	0	0	1.48	2.5287616	required	required	3	С	TRUE
	Turbidity [Turbidity						2.15343951	No censored - no imputation	No censored - no imputation			
Lindis at Lindis Peak	(X)]	58	6	0	0	1.85	8	required	required	3	D	TRUE
	Turbidity [Turbidity						1.64026649	No censored - no imputation	No censored - no imputation			
Lindsays Creek at North Road Bridge	(X)]	58	6	0	0	2.7	1	required	required	1	В	TRUE
	Turbidity [Turbidity						1.48496392	No censored - no imputation	No censored - no imputation			
Lovells Creek at Station Road	(X)]	58	6	0	0	3.1	6	required	required	1	С	TRUE
	Turbidity [Turbidity						3.13107585	No censored - no imputation	No censored - no imputation			
Luggate Creek at SH6 Bridge	(X)]	58	6	0	0	1.1	9	required	required	1	А	TRUE
	Turbidity [Turbidity		-		-		2.20074597	No censored - no imputation	No censored - no imputation			FALS
Maclennan at Kahuiku School Road	(X)]	22	3	0	0	1.795	9	required	required	1	Δ	F
	Turbidity [Turbidity				Ŭ	1.755	3.17271614	No censored - no imputation	No censored - no imputation			FALS
Makarora at Makarora	(X)]	21	3	0	0	1.08	9.17271014	required	required	3	A	E
	Turbidity [Turbidity	21		0	0	1.00	1.55800829	No censored - no imputation	•		~	
Manuherikia at Blackstone Hill		50	6	0	0	2.9	1.55800829		No censored - no imputation		D	TRUE
	(X)]	59	0	0	0	2.9	2	required	required	3	D	TRUE
	Turbidity [Turbidity						4 605 4406	No censored - no imputation	No censored - no imputation			-
Manuherikia at Galloway	(X)]	59	6	0	0	2.6	1.6854486	required	required	3	D	TRUE
	Turbidity [Turbidity		-				1.55800829	No censored - no imputation	No censored - no imputation		_	
Manuherikia at Ophir	(X)]	59	6	0	0	2.9	2	required	required	3	D	TRUE
	Turbidity [Turbidity						8.84535998	No censored - no imputation	No censored - no imputation			FALS
Manuherikia downstream of Fork	(X)]	33	4	0	0	0.26	9	required	required	1	A	E
	Turbidity [Turbidity						1.57764041	No censored - no imputation	No censored - no imputation			FALS
Meggat Burn at Berwick Road	(X)]	22	3	0	0	2.85	7	required	required	3	D	E
	Turbidity [Turbidity						1.23598479	No censored - no imputation	No censored - no imputation			
Mill Creek at Fish Trap	(X)]	59	6	0	0	4	8	required	required	3	D	TRUE
	Turbidity [Turbidity						4.20633505	No censored - no imputation	No censored - no imputation			FALS
Motatapu at Wanaka Mt Aspiring Road	(X)]	21	3	0	0	0.73	9	required	required	1	A	E
	Turbidity [Turbidity						3.27144234	No censored - no imputation	No censored - no imputation			
Nenthorn at Mt Stoker Road	(X)]	58	6	0	0	1.035	8	required	required	3	A	TRUE
	Turbidity [Turbidity							No censored - no imputation	No censored - no imputation			
Nevis at Wentworth Station	(X)]	58	6	0	0	0.865	3.72258588	required	required	1	A	TRUE
	Turbidity [Turbidity						1.55800829	No censored - no imputation	No censored - no imputation			FALS
Oamaru Creek at SH1	(X)]	21	3	0	0	2.9	2	required	required	2	A	F
	Turbidity [Turbidity						1.90086814	No censored - no imputation	No censored - no imputation	-		-
Owaka at Katea Road	(X)]	56	6	0	0	2.2	6	required	required	4	D	TRUE
	Turbidity [Turbidity	50		0		2.2	0.41355334	No censored - no imputation	No censored - no imputation		0	FALS
Owhiro Stream at Riverside Rd	(X)]	37	л	0	0	18.3	0.413555554	required	required	1	D	E
	Turbidity [Turbidity	57				10.5	1.21420480	No censored - no imputation	No censored - no imputation		<u> </u>	FALS
Ov Burn at Poor Valley Pood		10	2				1.21420460	-			D	
Ox Burn at Rees Valley Road	(X)]	19	3	0	0	4.1	2	required	required	3	D	
	Turbidity [Turbidity						4 22220 462	No censored - no imputation	No censored - no imputation			FALS
Pleasant at Patterson Road Ford	(X)]	21	3	0	0	3.6		required	required	2	A	E
	Turbidity [Turbidity						1.28248452	No censored - no imputation	No censored - no imputation		_	
Pomahaka at Burkes Ford	(X)]	57	6	0	0	3.8	5	required	required	1	D	TRUE
	Turbidity [Turbidity						2.22308245	No censored - no imputation	No censored - no imputation		_	
Pomahaka at Glenken	(X)]	57	6	0	0	1.77	6	required	required	3	С	TRUE

	Turbidity [Turbidity			1			1.73372222	No censored - no imputation	No censored - no imputation			FALS
Poolburn at Cob Cottage	(X)]	33	4	0 0		2.5	1./55/2222	required	required	3	D	E
	Turbidity [Turbidity						4.75889628	No censored - no imputation	No censored - no imputation		_	FALS
Precipice Creek at Glenorchy Paradise Road	(X)]	20	3	0 0		0.615	3	required	required	1	А	E
	Turbidity [Turbidity						8.38576215	No censored - no imputation	No censored - no imputation			FALS
Quartz Creek at Maungawera Valley Road	(X)]	17	3	0 0		0.28	8	required	required	3	А	E
	Turbidity [Turbidity						1.87035872	No censored - no imputation	No censored - no imputation			FALS
Quartz Reef Creek at SH8	(X)]	22	3	0 0		2.25	6	required	required	3	D	E
Deep at Clansweby Davadice Deed Drides	Turbidity [Turbidity	20	2	0 0		0.55	0 715 20764	No censored - no imputation	No censored - no imputation			FALS
Rees at Glenorchy Paradise Road Bridge	(X)] Turbidity [Turbidity	20	3	0 0		8.55	0.71528764 3.69190506	required No censored - no imputation	required No censored - no imputation	1	D	E FALS
Roaring Meg at SH6	(X)]	22	3	0 0		0.875	5.09190500	required	required	1	^	E
	Turbidity [Turbidity	22	5	0 0	$\left \right $	0.875	5.93541299	No censored - no imputation	No censored - no imputation		~	FALS
Scott Creek at Routeburn Road	(X)]	20	3	0 0		0.4525	2	required	required	3	А	E
	Turbidity [Turbidity		-				4.52298023	No censored - no imputation	No censored - no imputation			-
Shag at Craig Road	(X)]	57	6	0 0		0.66	1	required	required	3	А	TRUE
	Turbidity [Turbidity				0.		4.67704046		No censored - no imputation			
Shag at Goodwood Pump	(X)]	57	6	1 0	1	0.63	6	Imputed	required	1	А	TRUE
	Turbidity [Turbidity						3.05158049	No censored - no imputation	No censored - no imputation			
Silverstream at Taieri Depot	(X)]	59	6	0 0		1.14	4	required	required	1	А	TRUE
	Turbidity [Turbidity						5.09097475	No censored - no imputation	No censored - no imputation			FALS
Silverstream at Three Mile Hill Road	(X)]	22	3	0 0		0.56	7	required	required	1	A	E
	Turbidity [Turbidity	24				1.02	3.28286876	No censored - no imputation	No censored - no imputation			FALS
Sutton Stream at SH87	(X)]	31	3	0 0		1.03	1	required	required	1	A	E
Tabakana at Tabakana	Turbidity [Turbidity	22	3	0 0			1.23598479	No censored - no imputation	No censored - no imputation	4		FALS F
Tahakopa at Tahakopa	(X)] Turbidity [Turbidity	22	3	0 0	$\left \right $	4	a 1.12649201	required No censored - no imputation	required No censored - no imputation	4	D	
Taieri at Allanton Bridge	(X)]	58	6	0 0		4.55	1.12049201	required	required	3	D	TRUE
	Turbidity [Turbidity	58	0	0 0		4.55		No censored - no imputation	No censored - no imputation		0	FALS
Taieri at Creamery Road bridge	(X)]	37	4	0 0		2.3	1.84099361	required	required	3	D	E
	Turbidity [Turbidity	37		<u> </u>		2.5	2.70181749	No censored - no imputation	No censored - no imputation			
Taieri at Linnburn Runs Road	(X)]	59	6	0 0		1.35	7	required	required	3	В	TRUE
	Turbidity [Turbidity		-				1.59787403	No censored - no imputation	No censored - no imputation			
Taieri at Outram	(X)]	59	6	0 0		2.8	8	required	required	3	D	TRUE
	Turbidity [Turbidity						1.90086814	No censored - no imputation	No censored - no imputation			FALS
Taieri at Patearoa Maniototo Road	(X)]	37	4	0 0		2.2	6	required	required	3	D	E
	Turbidity [Turbidity							No censored - no imputation	No censored - no imputation			FALS
Taieri at Puketoi	(X)]	37	4	0 0		1.9	2.11248547	required	required	3	D	E
	Turbidity [Turbidity						2.85575610	No censored - no imputation	No censored - no imputation		_	
Taieri at Stonehenge	(X)]	59	6	0 0		1.25	4	required	required	3	В	TRUE
Taiari at Cuttor	Turbidity [Turbidity		6			2.0	1.25872195	No censored - no imputation	No censored - no imputation			TRUE
Taieri at Sutton	(X)] Turbidity [Turbidity	57	0	0 0		3.9	1	required No censored - no imputation	required No censored - no imputation	1	D	TRUE
Taieri at Tiroiti	(X)]	59	6	0 0		3.6	1.33339408	required	required	3	D	TRUE
	Turbidity [Turbidity	55	0	0 0		5.0	1.59787403	No censored - no imputation	No censored - no imputation		0	
Taieri at Waipiata	(X)]	59	6	0 0		2.8	1.55767405	required	required	3	D	TRUE
	Turbidity [Turbidity			<u> </u>			1.17327288	No censored - no imputation	No censored - no imputation			FALS
Teviot at Bridge Huts Road	(X)]	22	3	0 0		4.3	8	required	required	3	D	E
	Turbidity [Turbidity							No censored - no imputation	No censored - no imputation			FALS
The Neck Creek at Meads Road	(X)]	21	3	0 0		0.17	12.0108322	required	required	3	А	E
	Turbidity [Turbidity						1.07587612	No censored - no imputation	No censored - no imputation			
Thomsons Creek at SH85	(X)]	58	6	0 0		4.85	8	required	required	3	D	TRUE
	Turbidity [Turbidity						1.19331976	No censored - no imputation	No censored - no imputation			FALS
Timaru at Peter Muir Bridge	(X)]	20	3	0 0		4.2	5	required	required	1	D	E
	Turbidity [Turbidity						1.02323153	No censored - no imputation	No censored - no imputation			
Tokomairiro at Blackbridge	(X)]	57	6	0 0		5.2	4	required	required	1	D	TRUE
	Turbidity [Turbidity							No censored - no imputation	No censored - no imputation			FALS
Tokomairiro at Lisnatunny	(X)]	35	4	0 0		3.6	1.33339408	required	required	2	A	E
Tokomairiro at West Branch Bridge	Turbidity [Turbidity	E 7	6	0 0		2.6	1.6854486	No censored - no imputation	No censored - no imputation	1		TRUE
Tokomairiro at West Branch Bridge	(X)] Turbidity [Turbidity	57	0	0		2.0	2.28861689	required	required	1	В	IKUE
Trotters Creek at Mathesons	(X)]	57	6	0 0		1.7	2.28861689	No censored - no imputation required	No censored - no imputation	2	Δ	TRUE
	(^)]	5/	U	0	1	1./	5	required	required	2	А	INUE

	Turbidity [Turbidity						1.36071549	No censored - no imputation	No censored - no imputation		FALS
Tuapeka at 700m u/s bridge	(X)]	52	5	0	0	3.5	8	required	required	1 C	E
	Turbidity [Turbidity						8.38576215	No censored - no imputation	No censored - no imputation		FALS
Turner Creek at Kinloch Road	(X)]	20	3	0	0	0.28	8	required	required	3 A	E
	Turbidity [Turbidity						2.17893825	No censored - no imputation	No censored - no imputation		FALS
Upper Cardrona at Tuohys Gully Road	(X)]	21	3	0	0	1.82	5	required	required	3 D	E
	Turbidity [Turbidity						3.24887194	No censored - no imputation	No censored - no imputation		FALS
Upper Pomahaka at Aitchison Runs Road	(X)]	22	3	0	0	1.045	6	required	required	3 A	E
	Turbidity [Turbidity						8.38576215	No censored - no imputation	No censored - no imputation		FALS
Upper Shag at SH85 Culvert	(X)]	22	3	0	0	0.28	8	required	required	3 A	E
	Turbidity [Turbidity						5.64627818	No censored - no imputation	No censored - no imputation		
Waianakarua at Browns	(X)]	56	6	0	0	0.485	3	required	required	3 A	TRUE
	Turbidity [Turbidity						7.06857562	No censored - no imputation	No censored - no imputation		FALS
Waianakarua at South Branch SH1	(X)]	20	3	0	0	0.355	7	required	required	1 A	E
	Turbidity [Turbidity						2.06572236	No censored - no imputation	No censored - no imputation		
Waiareka Creek at Taipo Road	(X)]	54	6	0	0	1.96	6	required	required	2 A	TRUE
	Turbidity [Turbidity						3.73815614	No censored - no imputation	No censored - no imputation		FALS
Waikouaiti at Confluence d/s	(X)]	36	4	0	0	0.86	5	required	required	3 A	E
	Turbidity [Turbidity						1.19331976	No censored - no imputation	No censored - no imputation		
Waipahi at Cairns Peak	(X)]	57	6	0	0	4.2	5	required	required	2 A	TRUE
	Turbidity [Turbidity						1.78543576	No censored - no imputation	No censored - no imputation		
Waipahi at Waipahi	(X)]	57	6	0	0	2.4	1	required	required	4 D	TRUE
	Turbidity [Turbidity						2.19634277	No censored - no imputation	No censored - no imputation		
Waipori at Waipori Falls Reserve	(X)]	59	6	0	0	1.8	3	required	required	1 A	TRUE
	Turbidity [Turbidity							No censored - no imputation	No censored - no imputation		
Wairuna at Millar Road	(X)]	57	6	0	0	8.2	0.73714063	required	required	1 D	TRUE
	Turbidity [Turbidity						1.25872195	No censored - no imputation	No censored - no imputation		
Waitahuna at Tweeds Bridge	(X)]	57	6	0	0	3.9	1	required	required	1 D	TRUE
	Turbidity [Turbidity						2.39072672	No censored - no imputation	No censored - no imputation		
Waitati at Mt Cargill Road	(X)]	57	6	0	0	1.6	1	required	required	1 A	TRUE
	Turbidity [Turbidity						1.64026649	No censored - no imputation	No censored - no imputation		
Waiwera at Maws Farm	(X)]	59	6	0	0	2.7	1	required	required	2 A	TRUE
	Turbidity [Turbidity						4.84425975	No censored - no imputation	No censored - no imputation		FALS
Welcome Creek at Steward Road	(X)]	28	4	0	0	0.6	9	required	required	1 A	E
	Turbidity [Turbidity						4.10557998	No censored - no imputation	No censored - no imputation		FALS
Whare Creek at Whare Flat Road	(X)]	22	3	0	0	0.755	9	required	required	2 A	E

sIDnpl12 Mile Creek at GlenorchyE-ColiQueenstown RoadMPN25 Mile Creek at GlenorchyE-ColiQueenstown RoadMPN3 OClock Stream at HindonE-Coli3 OClock Stream at HindonMPNAkatore Creek at Akatore Creek RoadMPNArrow at Morven Ferry RoadMPNE-ColiE-ColiAwamoko at SH83MPN		u N.yea rs 20 3 37 4 20 2	red 3 2	N.Rightcenso red 0	DL 1	AL	G260	G540	Medi an	Q95			NOFG2 60	NOFG5 40	NOFm ed	NOFp 95	NOFwi	
12 Mile Creek at Glenorchy E-Coli Queenstown Road MPN 25 Mile Creek at Glenorchy E-Coli Queenstown Road MPN 3 OClock Stream at Hindon MPN Akatore Creek at Akatore Creek Road MPN Arrow at Morven Ferry Road E-Coli Awamoko at SH83 MPN	ID es Ii 2 Ii 2 Ii 2 Iii 2	rs 20 3 20 3 20 3 20 3 20 3 20 4	red 3 2 3 0	<i>red</i> 0	<i>DL</i> 1	AL		G540		095								
12 Mile Creek at Glenorchy E-Coli Queenstown Road MPN 25 Mile Creek at Glenorchy E-Coli Queenstown Road MPN 25 Mile Creek at Glenorchy E-Coli 3 OClock Stream at Hindon MPN Akatore Creek at Akatore Creek Road MPN E-Coli E-Coli Akatore Creek at Akatore Creek Road MPN E-Coli E-Coli Arrow at Morven Ferry Road MPN Awamoko at SH83 MPN		20 <u>3</u> 20 <u>3</u> 87 <u>4</u>	3 2 3 0	0	1	712		0340	un		ImputedLower	ImputedUpper					m	nOK
Queenstown RoadMPN25 Mile Creek at Glenorchy Queenstown RoadE-Coli3 OClock Stream at HindonE-Coli3 OClock Stream at HindonMPNAkatore Creek at Akatore Creek RoadMPNArrow at Morven Ferry RoadE-ColiAwamoko at SH83MPN	2 i 2	20 3 37 4	3 0		1		0			455	impatedeower	No censored - no imputation	00	40	Cu	55		FALS
Queenstown RoadMPN3 OClock Stream at HindonE-ColiAkatore Creek at Akatore Creek RoadMPNAkatore Creek at Akatore Creek RoadMPNArrow at Morven Ferry RoadMPNAwamoko at SH83MPN	2 i 3 i 2 i	37 2		0			0	0	4	52.5	Imputed	required	А	А	А	А	А	E
3 OClock Stream at Hindon E-Coli 3 OClock Stream at Hindon E-Coli Akatore Creek at Akatore Creek Road MPN Arrow at Morven Ferry Road MPN Awamoko at SH83 MPN	li 3	37 2		0							No censored - no imputation	No censored - no imputation						FALS
3 OClock Stream at Hindon MPN Akatore Creek at Akatore Creek Road E-Coli Akrow at Morven Ferry Road MPN Awamoko at SH83 MPN	3 i 2 2		4 3				0	0	15	33.5	required	required	А	А	А	А	А	Е
Akatore Creek at Akatore Creek Road E-Coli Akatore Creek at Akatore Creek Road MPN E-Coli E-Coli Arrow at Morven Ferry Road MPN E-Coli MPN Awamoko at SH83 MPN	li 2 2		4 3	1			0.0270	0.0270				No censored - no imputation						FALS
Akatore Creek at Akatore Creek Road MPN E-Coli E-Coli Arrow at Morven Ferry Road MPN E-Coli E-Coli Awamoko at SH83 MPN	2 i 2	20 2		0	1.7		27	27	15	201	Imputed	required	А	A	А	А	А	E
Arrow at Morven Ferry Road E-Coli Arrow at Morven Ferry Road MPN E-Coli Awamoko at SH83 MPN	li I 2	20 2									No censored - no imputation	No censored - no imputation						FALS
Arrow at Morven Ferry Road MPN E-Coli Awamoko at SH83 MPN	2		2 0	0			0.25	0.2	166	3780	required	required	В	С	D	D	D	E
E-Coli Awamoko at SH83 MPN							0.0454					No censored - no imputation						FALS
Awamoko at SH83 MPN		2 3	3 1	0	1		55	0	9	316.8	Imputed	required	A	A	A	A	A	E
							0.4181	0.2181		8272.	No censored - no imputation	No censored - no imputation			_	_	_	TRU
		56	<u>6</u> 0	0			82	82	160	5	required	required	D	D	D	D	D	E
E-Coli							0.0517		20	250.0	Increase and	No censored - no imputation						TRU
Bannockburn at Lake Dunstan MPN		68 6	5 6	0	1.7		24	0	29	256.6	Imputed	required	A	A	A	A	A	E
E-Coli Benger burn at SH8 MPN		34 4	1 0	0			0.2647	0.1176	105	10800	No censored - no imputation	No censored - no imputation	в	с	А		D	FALS E
Benger burn at SH8 MPN E-Coli		64 4	+ 0	0		-	06	47	105	10800	required	required No censored - no imputation	В	L	A	D	D	FALS
Blackcleugh Burn at Rongahere Road MPN		.9 3	1	0	1		0	0	10	41.7	Imputed	required	Α	А	А	А	А	E
Buckler Burn at Glenorchy E-Coli		.9 :		0	10.		0.0526	0.0526	10	318.0	Imputed	No censored - no imputation	A	А	A	А	A	FALS
Queenstown Road MPN		9	3 5	0	10.		32	32	5	510.0	Imputed	required	Α	в	А	А	в	E
Bullock Creek at Dunmore Street E-Coli			<u>, </u>	0			52	52	5	1251.	No censored - no imputation	No censored - no imputation	-	D	~	~	D	FALS
Footbridge MPN		20 3	3 0	0			0.35	0.25	162.5	1251.	required	required	D	D	D	D	D	E
E-Coli			, <u> </u>	0			0.0689	0.0344	102.5	5		No censored - no imputation			D		D	TRU
Cardrona at Mt Barker MPN		58 6	5 3	0	1.7		66	83	44	392.6	Imputed	required	А	А	А	Δ	Δ	E
E-Coli			<u> </u>	<u> </u>	1.7		0.1864	0.1016		552.0	No censored - no imputation	No censored - no imputation		~		~	~	TRU
Catlins at Houipapa MPN		59 e	5 0	0			41	95	120	1057	required	required	А	с	А	С	С	E
E-Coli			<u> </u>	<u> </u>			0.4067	0.2881		2007	No censored - no imputation	No censored - no imputation		•				TRU
Contour Channel at No. 4 Bridge MPN		i9 e	5 0	0			8	36	167	1610	required	required	D	D	D	D	D	E
E-Coli										139.9	No censored - no imputation	No censored - no imputation						FALS
Craig Burn at SH6 MPN		7 3	3 0	0			0	0	19	75	required	required	А	А	А	А	А	E
E-Coli	li						0.7636	0.4545			No censored - no imputation	No censored - no imputation						TRU
Crookston Burn at Kelso Road MPN	1 5	5 6	5 0	0			36	45	490	4150	required	required	E	E	E	D	E	E
E-Coli	li						0.1481	0.0555				No censored - no imputation						TRU
Dart at The Hillocks MPN	5	54 E	5 17	0	10		48	56	4.5	617.6	Imputed	required	А	В	А	В	В	E
E-Coli	li						0.0344	0.0172			No censored - no imputation	No censored - no imputation						TRU
Deep Stream at SH87 MPN		58 6	5 0	0			83	41	51	236	required	required	А	Α	А	А	А	E
E-Coli	li											No censored - no imputation						FALS
Dundas Creek at Mill Flat MPN	1	.8 3	3 8	0	1.5		0	0	1.5	13	Not Imputed - model fit failed	required	А	А	А	А	А	E
E-Coli							0.0677	0.0677		1024.		No censored - no imputation						TRU
Dunstan Creek at Beattie Road MPN		i9 6	5 1	0	1.6		97	97	38	15	Imputed	required	А	В	А	С	С	E
E-Coli												No censored - no imputation						FALS
Fraser at Old Man Range MPN		2 3	3 5	0	1		0	0	3	29.6	Imputed	required	A	A	A	A	A	E
Greenstone at Greenstone Station E-Coli											No censored - no imputation	No censored - no imputation						FALS
Road MPN		.8 3	3 0	0			0	0	21	120	required	required	A	A	A	A	A	E
E-Coli		_		_			0.0175	_		a		No censored - no imputation	.			.		TRU
Hawea at Camphill Bridge MPN		57 6	5 20	0	3		44	0	1.6	34.85	Imputed	required	A	A	A	A	A	E
E-Coli				-				_		4=0	No censored - no imputation	No censored - no imputation						FALS
Hayes Creek at SH6 MPN		.0 1	1 0	0	<u> </u>	<u> </u>	0	0	15	150	required	required	A	A	A	A	A	E
E-Coli			_	_			0.6607	0.4464	455	2254	No censored - no imputation	No censored - no imputation		-	-		-	TRU
Heriot Burn at Park Hill Road MPN		6 6	5 0	0			14	29	455	2354	required	required	E	E	E	D	E	E
E-Coli							0.2727	0.1363	440	13559	No censored - no imputation	No censored - no imputation						FALS
Hills Creek at SH85 MPN		2 3	3 0	0			27	64	148	.6	required	required	В	С	D	D	D	E
Horn Crock at Queenstown Pay				_			0.2272	0.0454	00 5	E 40 0	No censored - no imputation	No censored - no imputation	Б		^	Б	Б	FALS
Horn Creek at Queenstown Bay MPN		2 3	3 0	0			73	55	99.5	540.2	required	required	В	A	A	В	В	E
E-Coli Invincible Creek at Rees Valley Road MPN		.8 3	3 6	0	4		0	0		5.4	Imputed	No censored - no imputation required	А	А	A	А	А	FALS E

	E-Coli	<u> </u>					0.8035	0.4821	1	1	No censored - no imputation	No censored - no imputation	<u> </u>			1		TRU
Kaikorai Stream at Brighton Road	MPN	56	6	0	0		0.8033	43	525	3906	required	required	F	F	F	D	F	E
	E-Coli	50	Ű				0.4444	0.2777	525	15752	No censored - no imputation	No censored - no imputation			-			FALS
Kakaho Creek at SH1	MPN	18	3	0	0		44	78	183	0	required	required	D	D	D	D	D	E
	E-Coli						0.2545	0.1636		1769.		No censored - no imputation						TRU
Kakanui at Clifton Falls Bridge	MPN	55	6	1	0	1.6	45	36	124	5	Imputed	required	В	С	А	D	D	E
	E-Coli						0.2181	0.1090		1101.		No censored - no imputation						TRU
Kakanui at McCones	MPN	55	6	1	0	1.6	82	91	93	5	Imputed	required	В	С	А	С	С	E
	E-Coli						0.1818	0.0727				No censored - no imputation						TRU
Kauru at Ewings	MPN	55	6	2	0	1.6	18	27	79.1	727	Imputed	required	А	В	А	В	В	E
	E-Coli						0.0508	0.0169				No censored - no imputation						TRU
Kye Burn at SH85 Bridge	MPN	59	6	2	0	1.6	47	49	43	267.5	Imputed	required	А	Α	Α	А	А	E
Leaping Burn at Wanaka Mt Aspiring	E-Coli											No censored - no imputation						FALS
Road	MPN	20	3	1	0	1	0.1	0.05	29.75	1157	Imputed	required	A	В	А	С	С	E
	E-Coli										No censored - no imputation	No censored - no imputation						TRU
Leith at Dundas Street Bridge	MPN	56	6	0	0		0.75	0.5	524	3824	required	required	E	E	E	D	E	E
	E-Coli						0.0877	0.0350		478.6		No censored - no imputation						TRU
Lindis at Ardgour Road	MPN	57	6	1	0	1.7	19	88	33	5	Imputed	required	A	A	A	A	A	E
	E-Coli						0.0877	0.0350		496.7		No censored - no imputation						TRU
Lindis at Lindis Peak	MPN	57	6	6	0	10	19	88	25	5	Imputed	required	A	A	A	A	A	E
	E-Coli		_	_			0.6842	0.4035			No censored - no imputation	No censored - no imputation		-		_		TRU
Lindsays Creek at North Road Bridge	MPN	57	6	0	0		11	09	387	2800	required	required	<u> E</u>	E	E	D	E	E
	E-Coli				_		0.4827	0.2413		1711.	No censored - no imputation	No censored - no imputation						TRU
Lovells Creek at Station Road	MPN	58	6	0	0		59	79	245	6	required	required	D	D	D	D	D	E
	E-Coli						0.0862	0.0344				No censored - no imputation						TRU
Luggate Creek at SH6 Bridge	MPN	58	6	2	0	1.6	07	83	27	296.2	Imputed	required	A	A	A	A	A	E
	E-Coli						0.1818	0.1818				No censored - no imputation						FALS
Maclennan at Kahuiku School Road	MPN	22	3	1	0	1	18	18	54	777	Imputed	required	A	С	A	В	С	E
	E-Coli	20	2	0	0		0.05	0.05	105	2239.	No censored - no imputation	No censored - no imputation						FALS
Makarora at Makarora	MPN	20	3	0	0		0.05	0.05	16.5	5	required	required	A	В	A	D	D	E
Manukarikia at Disekatang Hill	E-Coli	50		2	0	10	0.1186	0.0508	42	726.1	las autori	No censored - no imputation						TRU
Manuherikia at Blackstone Hill	MPN	59	6	2	0	10	44	47	42	5	Imputed	required	A	В	A	В	В	E
Manuharikia at Calloway	E-Coli MPN	59	c	0	0		0.1864	0.1016	40	1016	No censored - no imputation	No censored - no imputation		с	A	D	D	TRU
Manuherikia at Galloway	E-Coli	59	0	0	0		0.2881	0.1694	48	1916	required No censored - no imputation	required No censored - no imputation	A		A	U		
Manuherikia at Ophir	MPN	59	6	0	0		36	92	124	3280	required	required	в	с	A	D	D	E
	E-Coli	55	0	0	0		0.0303	92	124	202.9	required	No censored - no imputation			A			FALS
Manuherikia downstream of Fork	MPN	33	4	6	0	7.5	0.0503	0	6	202.9	Imputed	required	Α	A	А	А	А	E
	E-Coli	55	4	0	0	7.5	0.3181	0.0909	0	1335.	No censored - no imputation	No censored - no imputation	<u> </u>	-	^			FALS
Meggat Burn at Berwick Road	MPN	22	3	0	0		82	0.0505	163.5	8		required	с	в	D	D	D	E
	E-Coli			0	•		0.2068	0.0689	105.5			No censored - no imputation	<u> </u>					TRU
Mill Creek at Fish Trap	MPN	58	6	1	0	10	97	66	100	698.2	Imputed	required	в	в	Α	в	в	E
Motatapu at Wanaka Mt Aspiring	E-Coli								25.87	510.7		No censored - no imputation						FALS
Road	MPN	20	3	1	0	1	0.05	0.05	5	5	Imputed	required	A	в	А	А	В	E
	E-Coli						0.0862					No censored - no imputation	1	-			-	TRU
Nenthorn at Mt Stoker Road	MPN	58	6	2	0	1.7	07	0	34.5	384.2	Imputed	required	А	А	А	А	А	E
	E-Coli		-						-	İ		No censored - no imputation	1	1	1	1	1	TRU
Nevis at Wentworth Station	MPN	57	6	10	0	10	0	0	5	131.3	Imputed	required	А	А	А	А	А	E
	E-Coli					1	0.5238	0.3809			No censored - no imputation	No censored - no imputation	1	1			1	FALS
Oamaru Creek at SH1	MPN	21	3	0	0		1	52	291	40755	required	required	E	E	E	D	E	E
	E-Coli							0.2181		2513.	No censored - no imputation	No censored - no imputation	1	1				TRU
Owaka at Katea Road	MPN	55	6	0	0		0.4	82	180	25	required	required	D	D	D	D	D	E
	E-Coli						0.7027	0.4864			No censored - no imputation	No censored - no imputation					1	FALS
Owhiro Stream at Riverside Rd	MPN	37	4	0	0	L	03	86	530	3490	required	required	E	E	E	D	E	Е
	E-Coli											No censored - no imputation	Τ					FALS
Ox Burn at Rees Valley Road	MPN	18	3	2	0	1	0	0	4.5	18.6	Imputed	required	А	А	А	А	А	E
	E-Coli						0.2380	0.1428			No censored - no imputation	No censored - no imputation	T					FALS
Pleasant at Patterson Road Ford	MPN	21	3	0	0		95	57	91	39630	required	required	В	С	А	D	D	E
	E-Coli										No censored - no imputation	No censored - no imputation	T					TRU
Pomahaka at Burkes Ford	MPN	56	6	0	0		0.25	0.125	97.5	1600	required	required	В	С	А	D	D	E
							0.3392	0.0892			No censored - no imputation	No censored - no imputation						TRU
	E-Coli						0.5592	0.0092			no censored no imputation	No censored no imputation						-

	E Cali						0 2222	0 21 21	1	4127	No concerned the intervention	No concerned the importation						
Poolburn at Cob Cottage	E-Coli MPN	33	4	0	0		0.3333	0.2121 21	111	4127. 45	No censored - no imputation required	No censored - no imputation required	с	D	А	D	D	FALS E
Precipice Creek at Glenorchy Paradise	E-Coli		4	0	0		0.0526	21		182.6		No censored - no imputation			-		-	FALS
Road	MPN	19	3	1	0	1	32	0	7	25	Imputed	required	A	А	A	А	А	E
Quartz Creek at Maungawera Valley	E-Coli						0.1333	0.0666		3691.	No censored - no imputation	No censored - no imputation	-				-	FALS
Road	MPN	15	3	0	0		33	67	46	25	required	required	А	В	А	D	D	E
	E-Coli										No censored - no imputation	No censored - no imputation						FALS
Quartz Reef Creek at SH8	MPN	22	3	0	0		0	0	43	230.6	required	required	А	А	А	А	А	E
Rees at Glenorchy Paradise Road	E-Coli						0.0526	0.0526		9887.		No censored - no imputation						FALS
Bridge	MPN	19	3	2	0	1	32	32	12	85	Imputed	required	A	В	A	D	D	E
	E-Coli										No censored - no imputation	No censored - no imputation						FALS
Roaring Meg at SH6	MPN	22	3	0	0		0	0	10	106.4	required	required	A	A	A	A	A	E
	E-Coli	10		2			0.0526		_	236.8		No censored - no imputation						FALS
Scott Creek at Routeburn Road	MPN	19	3	2	0	1	32	0	/	5	Imputed	required	A	A	A	A	A	E
Chag at Craig Dood	E-Coli MPN	56	6	1	0	1.6	0.125	0.0357	44.5	488	Imputed	No censored - no imputation						TRU
Shag at Craig Road	E-Coli	50	0	1	0	1.6		14 0.0363	44.5	488	Imputed	required	A	A	A	A	A	TRU
Shag at Goodwood Pump	MPN	55	6	2	0	10 0	0.1636	64	66	491.2	Imputed	No censored - no imputation required	Α	А	А	Α	Α	E
	E-Coli	55	0	2	0		0.2881	0.2203	00	5	No censored - no imputation	No censored - no imputation	<u> </u>	-		-	-	TRU
Silverstream at Taieri Depot	MPN	59	6	0	0		36	39	110	2355	required	required	в	D	Α	D	D	E
Siverstream at rater bepot	E-Coli	55		0			0.0454	0.0454	110	2355		No censored - no imputation		-	~			FALS
Silverstream at Three Mile Hill Road	MPN	22	3	1	0	1	55	55	26	312.6	Imputed	required	А	Α	А	А	Α	E
	E-Coli		Ű			-	0.4193	0.1290		857.0	No censored - no imputation	No censored - no imputation						FALS
Sutton Stream at SH87	MPN	31	3	0	0		55	32	230	5	required	required	D	с	D	в	D	E
	E-Coli						0.3809	0.2380		4045.	No censored - no imputation	No censored - no imputation	+	+	+			FALS
Tahakopa at Tahakopa	MPN	21	3	0	0		52	95	166	5	required	required	D	D	D	D	D	E
	E-Coli						0.2241	0.1379			No censored - no imputation	No censored - no imputation		-				TRU
Taieri at Allanton Bridge	MPN	58	6	0	0		38	31	100.5	1852	required	required	В	с	А	D	D	E
	E-Coli						0.1621	0.0540			No censored - no imputation	No censored - no imputation						FALS
Taieri at Creamery Road bridge	MPN	37	4	0	0		62	54	94	542.5	required	required	А	В	А	В	В	E
	E-Coli						0.1864	0.0677			No censored - no imputation	No censored - no imputation						TRU
Taieri at Linnburn Runs Road	MPN	59	6	0	0		41	97	50	825	required	required	А	В	А	В	В	E
	E-Coli						0.0847	0.0338			No censored - no imputation	No censored - no imputation						TRU
Taieri at Outram	MPN	59	6	0	0		46	98	40	456.5	required	required	A	А	А	А	А	E
	E-Coli						0.1621	0.0810			No censored - no imputation	No censored - no imputation						FALS
Taieri at Patearoa Maniototo Road	MPN	37	4	0	0		62	81	110	754.5	required	required	A	В	A	В	В	E
	E-Coli						0.1081					No censored - no imputation						FALS
Taieri at Puketoi	MPN	37	4	1	0	10	08	0	46	306.5	Imputed	required	A	A	A	A	A	E
- · · · · · ·	E-Coli						0.0508	0.0338		202	No censored - no imputation	No censored - no imputation						TRU
Taieri at Stonehenge	MPN	59	6	0	0		47	98	39	282		required	A	A	A	A	A	
Taiari at Cuttor	E-Coli			0	0		0.1578	0.0526	1	c 07 0	No censored - no imputation	No censored - no imputation						TRU
Taieri at Sutton	MPN	57	6	0	0		95	32	110	697.3 333.7	required	required No censored - no imputation	A	В	A	В	В	E TRU
Taieri at Tiroiti	E-Coli MPN	59	6	0	0		0.0847	0	78	555.7	No censored - no imputation required	required	A	A	А			
	E-Coli	55	0	0	0		0.1016	0.0508		672.6	No censored - no imputation	No censored - no imputation			A	A		TRU
Taieri at Waipiata	MPN	59	6	0	0		95	47	90	5	required	required	Δ	в	А	в	в	F
	E-Coli			5	0		0.1363	0.0909		1487.	No censored - no imputation	No censored - no imputation	+	+		+	+	FALS
Teviot at Bridge Huts Road	MPN	22	3	0	0		64	0.0505	27.5	1407.	required	required	А	в	А	D	D	F
	E-Coli											No censored - no imputation	+	+		-	+	FALS
The Neck Creek at Meads Road	MPN	20	3	2	0	1	0.05	0	4	268	Imputed	required	А	А	А	А	А	E
	E-Coli		-				0.5172	0.3793	318.2		No censored - no imputation	No censored - no imputation	+	1	1		1	TRU
Thomsons Creek at SH85	MPN	58	6	0	0		41	1	5	3490	required	required	E	E	E	D	E	E
-	E-Coli		-						_			No censored - no imputation	1	1	1		1	FALS
Timaru at Peter Muir Bridge	MPN	19	3	3	0	1	0	0	3	12.2	Imputed	required	А	А	А	А	А	E
-	E-Coli						0.7894	0.6666			No censored - no imputation	No censored - no imputation	1	1				TRU
Tokomairiro at Blackbridge	MPN	57	6	0	0	L	74	67	687	8895	required	required	E	E	E	D	E	E
	E-Coli					Γ	0.3714	0.1714				No censored - no imputation						FALS
Tokomairiro at Lisnatunny	MPN	35	4	1	0	10	29	29	190	977.5	Imputed	required	D	С	D	В	D	E
	E-Coli						0.3684	0.2807		3131.		No censored - no imputation	Τ					TRU
Tokomairiro at West Branch Bridge	MPN	57	6	1	0	1	21	02	160	5	Imputed	required	D	D	D	D	D	E
		· ·			· · · · · · · · · · · · · · · · · · ·	1	0.2262	0.1090	1	899.7		No censored - no imputation		1			1	TRU
Trotters Creek at Mathesons	E-Coli MPN	55				1.6	0.2363	0.1090	110	035.7		No censoreu - no imputation		с				

	E-Coli							0.4615			3618.	No censored - no imputation	No censored - no imputation						FALS
Tuapeka at 700m u/s bridge	MPN	52	5	0	0			38	0.25	238	6	required	required	D	D	D	D	D	E
· · · ·	E-Coli	1										· ·	No censored - no imputation						FALS
Turner Creek at Kinloch Road	MPN	19	3	3	0	1		0	0	4	42.4	Imputed	required	А	А	А	А	А	E
	E-Coli							0.0952	0.0476		1257.	No censored - no imputation	No censored - no imputation						FALS
Upper Cardrona at Tuohys Gully Road	MPN	21	3	0	0			38	19	51	3	required	required	А	А	А	D	D	E
Upper Pomahaka at Aitchison Runs	E-Coli						242	0.1363	0.0909			No censored - no imputation							FALS
Road	MPN	22	3	0	1		0	64	09	80	1477	required	Increased by 10%	А	В	А	D	D	E
	E-Coli							0.0454				No censored - no imputation	No censored - no imputation						FALS
Upper Shag at SH85 Culvert	MPN	22	3	0	0			55	0	29	264.8	required	required	А	А	А	А	А	E
	E-Coli							0.1666	0.0740				No censored - no imputation						TRU
Waianakarua at Browns	MPN	54	6	4	0	10		67	74	78	1280	Imputed	required	А	В	А	D	D	E
	E-Coli										3681.	No censored - no imputation	No censored - no imputation						FALS
Waianakarua at South Branch SH1	MPN	20	3	0	0			0.2	0.15	102	5	required	required	В	С	А	D	D	E
	E-Coli							0.4629	0.2407			No censored - no imputation	No censored - no imputation						TRU
Waiareka Creek at Taipo Road	MPN	54	6	0	0			63	41	170	1214	required	required	D	D	D	D	D	E
	E-Coli						600	0.1142	0.0571			No censored - no imputation							FALS
Waikouaiti at Confluence d/s	MPN	35	4	0	1		0	86	43	27	545	required	Imputed	А	В	А	В	В	E
	E-Coli							0.3684	0.2456			No censored - no imputation	No censored - no imputation						TRU
Waipahi at Cairns Peak	MPN	57	6	0	0			21	14	185	2285	required	required	D	D	D	D	D	E
	E-Coli							0.2280	0.0701		672.0	No censored - no imputation	No censored - no imputation						TRU
Waipahi at Waipahi	MPN	57	6	0	0			7	75	120	5	required	required	В	В	А	В	В	E
	E-Coli												No censored - no imputation						TRU
Waipori at Waipori Falls Reserve	MPN	59	6	3	0	1.6		0	0	10	53.55	Imputed	required	А	А	А	А	А	E
	E-Coli							0.8070	0.4736		3722.	No censored - no imputation	No censored - no imputation						TRU
Wairuna at Millar Road	MPN	57	6	0	0			18	84	517	5	required	required	E	E	E	D	E	E
	E-Coli							0.6315	0.2982			No censored - no imputation	No censored - no imputation						TRU
Waitahuna at Tweeds Bridge	MPN	57	6	0	0			79	46	330	3145	required	required	E	D	E	D	E	E
	E-Coli							0.1428	0.0714			No censored - no imputation	No censored - no imputation						TRU
Waitati at Mt Cargill Road	MPN	56	6	0	0			57	29	83	696.4	required	required	А	В	А	В	В	E
	E-Coli							0.3559	0.1525			No censored - no imputation	No censored - no imputation						TRU
Waiwera at Maws Farm	MPN	59	6	0	0			32	42	200	1553	required	required	D	С	D	D	D	E
	E-Coli							0.1785	0.1785			No censored - no imputation	No censored - no imputation						FALS
Welcome Creek at Steward Road	MPN	28	4	0	0			71	71	44	2120	required	required	А	С	А	D	D	E
	E-Coli											No censored - no imputation	No censored - no imputation						FALS
Whare Creek at Whare Flat Road	MPN	22	3	0	0			0	0	8	100	required	required	А	А	А	А	А	E

						Т	able :	14 MCI				
sID	npID	N.values	N.years	N.Leftcensored	N.Rightcensored	DL	AL	Median	ImputedLower	ImputedUpper	NOFband_median	nOK
12 Mile Creek at Glenorchy Queenstown Road	MCI	2	2	0	0			122.59	No censored - no imputation required	No censored - no imputation required	В	FALSE
25 Mile Creek at Glenorchy Queenstown Road	MCI	2	2	0	0			111.93	No censored - no imputation required	No censored - no imputation required	В	FALSE
Akatore Creek at Akatore Creek Road	MCI	2	2	0	0			102.565	No censored - no imputation required	No censored - no imputation required	с	FALSE
Arrow at Morven Ferry Road	MCI	2	2	0	0			118.95	No censored - no imputation required	No censored - no imputation required	В	FALSE
Blackcleugh Burn at Rongahere Road	MCI	2	2	0	0			120.11	No censored - no imputation required	No censored - no imputation required	В	FALSE
Bullock Creek at Dunmore Street Footbridge	MCI	2	2	0	0			102.58	No censored - no imputation required	No censored - no imputation required	с	FALSE
Cardrona at Mt Barker	MCI	5	5	0	0			104.44	No censored - no imputation required	No censored - no imputation required	с	TRUE
Catlins at Houipapa	MCI	3	3	0	0			107.69	No censored - no imputation required	No censored - no imputation required	с	FALSE
Dart at The Hillocks	MCI	1	1	0	0			117.78	No censored - no imputation required	No censored - no imputation required	В	FALSE
Dunstan Creek at Beattie Road	MCI	5	5	0	0			120	No censored - no imputation required	No censored - no imputation required	В	TRUE
Greenstone at Greenstone Station Road	MCI	2	2	0	0			112.98	No censored - no imputation required	No censored - no imputation required	В	FALSE
Heriot Burn at Park Hill Road	MCI	3	3	0	0			103.2	No censored - no imputation required	No censored - no imputation required	с	FALSE
Kaikorai Stream at Brighton Road	MCI	5	5	0	0			68	No censored - no imputation required	No censored - no imputation required	D	TRUE
Kakanui at Clifton Falls Bridge	MCI	3	3	0	0			104	No censored - no imputation required	No censored - no imputation required	с	FALSE
Kakanui at McCones	MCI	5	5	0	0			89.17	No censored - no imputation required	No censored - no imputation required	D	TRUE
Kauru at Ewings	MCI	3	3	0	0			109.52	No censored - no imputation required	No censored - no imputation required	с	FALSE
Kye Burn at SH85 Bridge	MCI	5	5	0	0			105	No censored - no imputation required	No censored - no imputation required	с	TRUE
Leith at Dundas Street Bridge	MCI	4	3	0	0			90	No censored - no imputation required	No censored - no imputation required	D	FALSE
Lindis at Ardgour Road	MCI	5	5	0	0			101.25	No censored - no imputation required	No censored - no imputation required	с	TRUE
Lindsays Creek at North Road Bridge	MCI	4	3	0	0			89.09	No censored - no imputation required	No censored - no imputation required	D	FALSE
Luggate Creek at SH6 Bridge	MCI	5	5	0	0			106.32	No censored - no imputation required	No censored - no imputation required	с	TRUE
Manuherikia at Blackstone Hill	MCI	5	5	0	0			98.4	No censored - no imputation required	No censored - no imputation required	С	TRUE
Manuherikia at Galloway	MCI	2	2	0	0			108.63	No censored - no imputation required	No censored - no imputation required	С	FALSE
Manuherikia at Ophir	MCI	4	4	0	0			110.265	No censored - no imputation required	No censored - no imputation required	В	FALSE
Mill Creek at Fish Trap	MCI	3	3	0	0			85	No censored - no imputation required	No censored - no imputation required	D	FALSE
Motatapu at Wanaka Mt Aspiring Road	MCI	2	2	0	0			106.86	No censored - no imputation required	No censored - no imputation required	С	FALSE
Oamaru Creek at SH1	MCI	2	2	0	0			82.135	No censored - no imputation required	No censored - no imputation required	D	FALSE
Owaka at Katea Road	MCI	6	5	0	0			92.205	No censored - no imputation required	No censored - no imputation required	С	TRUE
Precipice Creek at Glenorchy Paradise Road	MCI	2	2	0	0			111.455	No censored - no imputation required	No censored - no imputation required	В	FALSE
Shag at Craig Road	MCI	3	3	0	0			94	No censored - no imputation required	No censored - no imputation required	С	FALSE
Shag at Goodwood Pump	MCI	5	5	0	0			83.64	No censored - no imputation required	No censored - no imputation required	D	TRUE
Silverstream at Taieri Depot	MCI	5	5	0	0			90.43	No censored - no imputation required	No censored - no imputation required	С	TRUE
Tahakopa at Tahakopa	MCI	2	2	0	0			107.905	No censored - no imputation required	No censored - no imputation required	С	FALSE
Taieri at Outram	MCI	1	1	0	0			98.1	No censored - no imputation required	No censored - no imputation required	С	FALSE
Taieri at Sutton	MCI	1	1	0	0			97.39	No censored - no imputation required	No censored - no imputation required	С	FALSE
Taieri at Waipiata	MCI	1	1	0	0			97.89	No censored - no imputation required	No censored - no imputation required	С	FALSE
The Neck Creek at Meads Road	MCI	2	2	0	0			119.83	No censored - no imputation required	No censored - no imputation required	В	FALSE
Tokomairiro at West Branch Bridge	MCI	5	5	0	0			107.59	No censored - no imputation required	No censored - no imputation required	с	TRUE
Trotters Creek at Mathesons	MCI	3	3	0	0			82.07	No censored - no imputation required	No censored - no imputation required	D	FALSE
Turner Creek at Kinloch Road	MCI	2	2	0	0			114.54	No censored - no imputation required	No censored - no imputation required	В	FALSE
Upper Pomahaka at Aitchison Runs Road	MCI	2	2	0	0			118.46	No censored - no imputation required	No censored - no imputation required	В	FALSE
Waianakarua at Browns	MCI	5	5	0	0			105.6	No censored - no imputation required	No censored - no imputation required	с	TRUE

Waiareka Creek at Taipo Road	MCI	3	3	0	0		74.44	No censored - no imputation required	No censored - no imputation required	D	FALSE
Waikouaiti at Confluence d/s	MCI	3	3	0	0		92	No censored - no imputation required	No censored - no imputation required	с	FALSE
Waipahi at Cairns Peak	MCI	3	3	0	0		106	No censored - no imputation required	No censored - no imputation required	с	FALSE
Waipahi at Waipahi	MCI	5	5	0	0		89.09	No censored - no imputation required	No censored - no imputation required	D	TRUE
Waipori at Waipori Falls Reserve	MCI	4	3	0	0		95.495	No censored - no imputation required	No censored - no imputation required	с	FALSE
Wairuna at Millar Road	MCI	3	3	0	0		84	No censored - no imputation required	No censored - no imputation required	D	FALSE
Waitahuna at Tweeds Bridge	MCI	5	5	0	0		100	No censored - no imputation required	No censored - no imputation required	с	TRUE
Waiwera at Clutha confluence u/s 1km	MCI	3	3	0	0		84.55	No censored - no imputation required	No censored - no imputation required	D	FALSE

						Tal	ble 1	5 APSM				
sID	npID	N.values	N.years	N.Leftcensored	N.Rightcensored	DL	AL	Median	ImputedLower	ImputedUpper	NOFband_median	nOK
12 Mile Creek at Glenorchy Queenstown Road	ASPM	2	2	0	0			0.58	No censored - no imputation required	No censored - no imputation required	В	FALSE
25 Mile Creek at Glenorchy Queenstown Road	ASPM	2	2	0	0			0.435	No censored - no imputation required	No censored - no imputation required	В	FALSE
Akatore Creek at Akatore Creek Road	ASPM	2	2	0	0			0.53	No censored - no imputation required	No censored - no imputation required	В	FALSE
Arrow at Morven Ferry Road	ASPM	2	2	0	0			0.57	No censored - no imputation required	No censored - no imputation required	В	FALSE
Blackcleugh Burn at Rongahere Road	ASPM	2	2	0	0			0.56	No censored - no imputation required	No censored - no imputation required	В	FALSE
Bullock Creek at Dunmore Street Footbridge	ASPM	2	2	0	0			0.395	No censored - no imputation required	No censored - no imputation required	с	FALSE
Cardrona at Mt Barker	ASPM	5	5	0	0			0.48	No censored - no imputation required	No censored - no imputation required	В	TRUE
Catlins at Houipapa	ASPM	3	3	0	0			0.58	No censored - no imputation required	No censored - no imputation required	В	FALSE
Dart at The Hillocks	ASPM	1	1	0	0			0.54	No censored - no imputation required	No censored - no imputation required	В	FALSE
Dunstan Creek at Beattie Road	ASPM	5	5	0	0			0.65	No censored - no imputation required	No censored - no imputation required	А	TRUE
Greenstone at Greenstone Station Road	ASPM	2	2	0	0			0.575	No censored - no imputation required	No censored - no imputation required	В	FALSE
Heriot Burn at Park Hill Road	ASPM	2	2	0	0			0.48	No censored - no imputation required	No censored - no imputation required	В	FALSE
Kaikorai Stream at Brighton Road	ASPM	6	5	0	0			0.145	No censored - no imputation required	No censored - no imputation required	D	TRUE
Kakanui at Clifton Falls Bridge	ASPM	3	3	0	0			0.48	No censored - no imputation required	No censored - no imputation required	В	FALSE
Kakanui at McCones	ASPM	5	5	0	0			0.31	No censored - no imputation required	No censored - no imputation required	с	TRUE
Kauru at Ewings	ASPM	3	3	0	0			0.48	No censored - no imputation required	No censored - no imputation required	В	FALSE
Kye Burn at SH85 Bridge	ASPM	5	5	0	0			0.55	No censored - no imputation required	No censored - no imputation required	В	TRUE
Leith at Dundas Street Bridge	ASPM	2	2	0	0			0.26	No censored - no imputation required	No censored - no imputation required	D	FALSE
Lindis at Ardgour Road	ASPM	5	5	0	0			0.42	No censored - no imputation required	No censored - no imputation required	В	TRUE
Lindsays Creek at North Road Bridge	ASPM	3	3	0	0			3.13	No censored - no imputation required	No censored - no imputation required	А	FALSE
Luggate Creek at SH6 Bridge	ASPM	5	5	0	0			0.47	No censored - no imputation required	No censored - no imputation required	В	TRUE
Manuherikia at Blackstone Hill	ASPM	5	5	0	0			0.55	No censored - no imputation required	No censored - no imputation required	В	TRUE
Manuherikia at Galloway	ASPM	2	2	0	0			0.57	No censored - no imputation required	No censored - no imputation required	В	FALSE
Manuherikia at Ophir	ASPM	4	4	0	0			0.56	No censored - no imputation required	No censored - no imputation required	В	FALSE
Mill Creek at Fish Trap	ASPM	3	3	0	0			0.26	No censored - no imputation required	No censored - no imputation required	D	FALSE
Motatapu at Wanaka Mt Aspiring Road	ASPM	2	2	0	0			0.555	No censored - no imputation required	No censored - no imputation required	В	FALSE
Oamaru Creek at SH1	ASPM	2	2	0	0			0.2	No censored - no imputation required	No censored - no imputation required	D	FALSE
Owaka at Katea Road	ASPM	5	5	0	0			0.41	No censored - no imputation required	No censored - no imputation required	В	TRUE
Precipice Creek at Glenorchy Paradise Road	ASPM	2	2	0	0			0.395	No censored - no imputation required	No censored - no imputation required	С	FALSE
Shag at Craig Road	ASPM	3	3	0	0			0.37	No censored - no imputation required	No censored - no imputation required	С	FALSE
Shag at Goodwood Pump	ASPM	4	4	0	0			0.41	No censored - no imputation required	No censored - no imputation required	В	FALSE
Silverstream at Taieri Depot	ASPM	5	5	0	0			0.28	No censored - no imputation required	No censored - no imputation required	D	TRUE
Tahakopa at Tahakopa	ASPM	2	2	0	0			0.575	No censored - no imputation required	No censored - no imputation required	В	FALSE
Taieri at Outram	ASPM	1	1	0	0			0.49	No censored - no imputation required	No censored - no imputation required	В	FALSE
Taieri at Sutton	ASPM	1	1	0	0			0.46	No censored - no imputation required	No censored - no imputation required	В	FALSE
The Neck Creek at Meads Road	ASPM	2	2	0	0			0.48	No censored - no imputation required	No censored - no imputation required	В	FALSE
Tokomairiro at West Branch Bridge	ASPM	5	5	0	0			0.48	No censored - no imputation required	No censored - no imputation required	В	TRUE
Trotters Creek at Mathesons	ASPM	3	3	0	0			0.22	No censored - no imputation required	No censored - no imputation required	D	FALSE
Turner Creek at Kinloch Road	ASPM	2	2	0	0			0.445	No censored - no imputation required	No censored - no imputation required	В	FALSE
Upper Pomahaka at Aitchison Runs Road	ASPM	2	2	0	0			0.59	No censored - no imputation required	No censored - no imputation required	В	FALSE
Waianakarua at Browns	ASPM	4	4	0	0			0.495	No censored - no imputation required	No censored - no imputation required	В	FALSE
Waiareka Creek at Taipo Road	ASPM	3	3	0	0			0.15	No censored - no imputation required	No censored - no imputation required	D	FALSE

Waikouaiti at Confluence d/s	ASPM	2	2	0	0	0.265	No censored - no imputation required	No censored - no imputation required	D	FALSE
Waipahi at Cairns Peak	ASPM	3	3	0	0	0.39	No censored - no imputation required	No censored - no imputation required	с	FALSE
Waipahi at Waipahi	ASPM	5	5	0	0	0.36	No censored - no imputation required	No censored - no imputation required	с	TRUE
Waipori at Waipori Falls Reserve	ASPM	3	3	0	0	0.36	No censored - no imputation required	No censored - no imputation required	с	FALSE
Waitahuna at Tweeds Bridge	ASPM	4	4	0	0	0.495	No censored - no imputation required	No censored - no imputation required	В	FALSE
Waiwera at Clutha confluence u/s 1km	ASPM	3	3	0	0	0.3	No censored - no imputation required	No censored - no imputation required	D	FALSE

				-	Table 20	DRF	>			-				
sID	npID	N.value	N.year	N.Leftcensore	N.Rightcensore	D	A	Media	Q95	Imputed over	ImputedUpper	NOFband_media	NOFband_ Q95	nOK.
	Dissolved Reactive	S	S	u	u	L	L	n	Q95	ImputedLower	1 11	n	Q95	nOK
12 Mile Creek at Glenorchy Queenstown	Phosphorus	20	3	10	0	0		0.002	0.004	Not Imputed model fit failed	No censored - no imputation			EALCE
Road		20	3	10	0	0		0.002	0.004	Not Imputed - model fit failed	required	A	A	FALSE
25 Mile Creek at Glenorchy Queenstown	Dissolved Reactive	20						0.000	0.0050		No censored - no imputation			
Road	Phosphorus	20	3	10	0	0		0.002	5	Not Imputed - model fit failed	required	A	A	FALSE
	Dissolved Reactive								0.0076		No censored - no imputation			
3 OClock Stream at Hindon	Phosphorus	37	4	6	0	0		0.004	5	Imputed	required	A	A	TRUE
	Dissolved Reactive							0.0036	0.0080		No censored - no imputation			
Akatore Creek at Akatore Creek Road	Phosphorus	20	2	8	0	0		1	5	Imputed	required	A	А	FALSE
	Dissolved Reactive							0.0005			No censored - no imputation			
Arrow at Morven Ferry Road	Phosphorus	22	3	16	0	0		8	0.002	Not Imputed - model fit failed	required	A	А	FALSE
	Dissolved Reactive							0.0537		No censored - no imputation	No censored - no imputation			
Awamoko at SH83	Phosphorus	54	6	0	0			5	0.191	required	required	D	D	TRUE
	Dissolved Reactive							0.0038			No censored - no imputation			
Bannockburn at Lake Dunstan	Phosphorus	58	6	16	0	0		5	0.008	Imputed	required	А	А	TRUE
	Dissolved Reactive		Ű	10					0.0427		No censored - no imputation			
Benger burn at SH8	Phosphorus	35	4	0	0			0.015	5	required	required	C	с	TRUE
benger burn at 5118	Dissolved Reactive		4	0	0		$\left \right $	0.015	5				C	TROL
Dissipation of Descriptions Description		10						0.010	0.024	No censored - no imputation	No censored - no imputation			FALCE
Blackcleugh Burn at Rongahere Road	Phosphorus	19	3	0	0			0.012	0.021	required	required	С	A	FALSE
Buckler Burn at Glenorchy Queenstown	Dissolved Reactive										No censored - no imputation			
Road	Phosphorus	20	3	14	0	0		0.0006	0.0023	Not Imputed - model fit failed	required	A	A	FALSE
Bullock Creek at Dunmore Street	Dissolved Reactive								0.0018		No censored - no imputation			
Footbridge	Phosphorus	21	3	11	0	0		0.0005	4	Not Imputed - model fit failed	required	A	А	FALSE
	Dissolved Reactive							0.0022	0.0046		No censored - no imputation			
Cardrona at Mt Barker	Phosphorus	58	6	22	0	0		1	4	Imputed	required	А	А	TRUE
	Dissolved Reactive								0.0185	No censored - no imputation	No censored - no imputation			
Catlins at Houipapa	Phosphorus	59	6	0	0			0.0115	5	required	required	с	А	TRUE
	Dissolved Reactive		Ű	<u> </u>				0.0115	5		No censored - no imputation			
Contour Channel at No. 4 Bridge	Phosphorus	59	6	2	0	0		0.0162	0.0441	Imputed	required	с	с	TRUE
Contour channer at No. 4 Bridge			0	2	0		$\left \right $	0.0102		Inputed			C	TROL
	Dissolved Reactive	10						0.0000	0.0055		No censored - no imputation			
Craig Burn at SH6	Phosphorus	19	3	8	0	0		0.0023	1	Imputed	required	A	A	FALSE
	Dissolved Reactive									No censored - no imputation	No censored - no imputation			
Crookston Burn at Kelso Road	Phosphorus	56	6	0	0			0.03	0.0641	required	required	D	D	TRUE
	Dissolved Reactive										No censored - no imputation			
Dart at The Hillocks	Phosphorus	55	6	22	0	0		0.0023	0.005	Imputed	required	A	А	TRUE
	Dissolved Reactive										No censored - no imputation			
Deep Stream at SH87	Phosphorus	58	6	20	0	0		0.003	0.0056	Imputed	required	A	А	TRUE
	Dissolved Reactive								0.0045		No censored - no imputation			
Dundas Creek at Mill Flat	Phosphorus	19	3	8	0	0		0.0023	5	Imputed	required	А	А	FALSE
	Dissolved Reactive							0.0032	0.0068		No censored - no imputation			
Dunstan Creek at Beattie Road	Phosphorus	59	6	16	0	0		1	6.0000	Imputed	required	А	А	TRUE
	Dissolved Reactive		0	10	0				0.0040	Inputed			~	TROL
Fracor at Old Man Pango		22	3	10	_			0.002	0.0040	Not Imputed model fit failed	No censored - no imputation			EALCE
Fraser at Old Man Range	Phosphorus Discological Departies	22	3	12	0	0		0.002	0.0000	Not Imputed - model fit failed	required	A	A	FALSE
	Dissolved Reactive								0.0020		No censored - no imputation			
Greenstone at Greenstone Station Road	Phosphorus	19	3	16	0	0		0.0006	4	Not Imputed - model fit failed	required	A	A	FALSE
	Dissolved Reactive								0.0031		No censored - no imputation			
Hawea at Camphill Bridge	Phosphorus	58	6	35	0	0		0.002	1	Imputed	required	A	А	TRUE
	Dissolved Reactive										No censored - no imputation			
Hayes Creek at SH6	Phosphorus	9	1	3	0	0		0.002	0.038	Not Imputed - model fit failed	required	А	С	FALSE
	Dissolved Reactive									No censored - no imputation	No censored - no imputation			
Heriot Burn at Park Hill Road	Phosphorus	56	6	0	0			0.029	0.0567	required	required	D	D	TRUE
	Dissolved Reactive				1	1		0.0022		1	No censored - no imputation		1	
Hills Creek at SH85	Phosphorus	22	3	10	0	0		9	0.0092	Imputed	required	А	А	FALSE
			3	10				3	0.0092	Inputcu				
Have Gradient Constructions 5	Dissolved Reactive			_	_			0.0070	0.0420	Incrusted	No censored - no imputation			FALCE
Horn Creek at Queenstown Bay	Phosphorus	22	3	2	0	0		0.0072	0.0128	Imputed	required	В	А	FALSE
	Dissolved Reactive							0.0005	0.0020		No censored - no imputation			
Invincible Creek at Rees Valley Road	Phosphorus	19	3	14	0	0		2	6	Not Imputed - model fit failed	required	A	А	FALSE
	Dissolved Reactive								0.0216		No censored - no imputation			
Kaikorai Stream at Brighton Road	Phosphorus	57	6	4	0	0		0.0092	5	Imputed	required	В	В	TRUE

	Dissolved Reactive								No censored - no imputation	No censored - no imputation			
Kakaho Creek at SH1	Phosphorus	18	3	0	0		0.021		required	required	D	D	FALSE
	Dissolved Reactive						0.0026			No censored - no imputation			
Kakanui at Clifton Falls Bridge	Phosphorus	54	6	20	0	0	8	0.01	Imputed	required	A	A	TRUE
	Dissolved Reactive						0.0036			No censored - no imputation			
Kakanui at McCones	Phosphorus	54	6	9	0	0	2	0.0138	Imputed	required	A	А	TRUE
	Dissolved Reactive						0.0027			No censored - no imputation			
Kauru at Ewings	Phosphorus	54	6	15	0	0	1	0.0084	Imputed	required	А	А	TRUE
	Dissolved Reactive									No censored - no imputation			
Kye Burn at SH85 Bridge	Phosphorus	59	6	16	0	l o l	0.004	0.007	Imputed	required	А	А	TRUE
	Dissolved Reactive							0.0016		No censored - no imputation			
Leaping Burn at Wanaka Mt Aspiring Road	Phosphorus	21	3	17	0	0	0.0005		Not Imputed - model fit failed	required	А	А	FALSE
	Dissolved Reactive	21		17	0		0.0003	- °	No censored - no imputation	No censored - no imputation		<u></u>	TALSE
Leith at Dundas Street Bridge	Phosphorus	56	6	0	0		0.0185	0.0327		required	D	с	TRUE
Leith at Dundas Street Bridge		50	0	0	0	+	0.0185		required	•		C	TROL
Lindia at Andrews Dated	Dissolved Reactive			22	0		0.000	0.0054	Law and a d	No censored - no imputation			TRUE
Lindis at Ardgour Road	Phosphorus	57	6	22	0	0	0.003	_	Imputed	required	A	A	TRUE
	Dissolved Reactive							0.0066		No censored - no imputation		_	
Lindis at Lindis Peak	Phosphorus	57	6	19	0	0	0.0027	5	Imputed	required	A	A	TRUE
	Dissolved Reactive								No censored - no imputation	No censored - no imputation			
Lindsays Creek at North Road Bridge	Phosphorus	57	6	0	0		0.017	0.028	required	required	С	В	TRUE
	Dissolved Reactive	I T	Γ			ΙT				No censored - no imputation			
Lovells Creek at Station Road	Phosphorus	58	6	2	0	0	0.01	0.024	Imputed	required	В	В	TRUE
	Dissolved Reactive						0.0097			No censored - no imputation			
Luggate Creek at SH6 Bridge	Phosphorus	58	6	2	0	l o l	5	0.0136	Imputed	required	в	А	TRUE
	Dissolved Reactive						0.0081	0.0123		No censored - no imputation			
Maclennan at Kahuiku School Road	Phosphorus	22	3	1	0	0	5.0001	2	Imputed	required	в	А	FALSE
	Dissolved Reactive							0.0040	imputed	No censored - no imputation	5		TALSE
Makarora at Makarora	Phosphorus	21	3	12	0	0	0.002		Not Imputed - model fit failed	required	А	А	FALSE
		21	5	12	0		0.002	_	Not imputed - model nt failed		A	A	FALSE
	Dissolved Reactive			45				0.0105		No censored - no imputation			
Manuherikia at Blackstone Hill	Phosphorus	59	6	15	0	0	0.0039	5	Imputed	required	A	A	TRUE
	Dissolved Reactive									No censored - no imputation			
Manuherikia at Galloway	Phosphorus	59	6	3	0	0	0.009	0.0263	Imputed	required	В	В	TRUE
	Dissolved Reactive									No censored - no imputation			
Manuherikia at Ophir	Phosphorus	59	6	3	0	0	0.011	0.0363	Imputed	required	C	С	TRUE
	Dissolved Reactive									No censored - no imputation			
Manuherikia downstream of Fork	Phosphorus	33	4	6	0	0	0.0046	0.008	Imputed	required	A	А	TRUE
	Dissolved Reactive							0.0127	No censored - no imputation	No censored - no imputation			
Meggat Burn at Berwick Road	Phosphorus	22	3	0	0		0.0079	6	required	required	в	А	FALSE
	Dissolved Reactive						0.0044			No censored - no imputation			
Mill Creek at Fish Trap	Phosphorus	58	6	15	0	0	8	0.0086	Imputed	required	А	А	TRUE
	Dissolved Reactive			15	0		0.0006		imputed	No censored - no imputation	~~~~~		THOL
Motatany at Manaka Mt Achiring Road	Phosphorus	21	3	20	0	0	0.0000	0.0014	Not Imputed - model fit failed	required			FALSE
Motatapu at Wanaka Mt Aspiring Road		21	5	20	0			5	Not imputed - model nt failed		A	Α	FALSE
	Dissolved Reactive			_				0.000		No censored - no imputation			
Nenthorn at Mt Stoker Road	Phosphorus	58	6	7	0	0	0.0066		Imputed	required	В	В	TRUE
	Dissolved Reactive							0.0066		No censored - no imputation			
Nevis at Wentworth Station	Phosphorus	57	6	19	0	0	0.0036	5	Imputed	required	A	A	TRUE
	Dissolved Reactive								No censored - no imputation	No censored - no imputation			
Oamaru Creek at SH1	Phosphorus	21	3	0	0		0.23	0.4545	required	required	D	D	FALSE
	Dissolved Reactive									No censored - no imputation			
Owaka at Katea Road	Phosphorus	56	6	1	0	0	0.016	0.0247	Imputed	required	С	В	TRUE
	Dissolved Reactive	1						0.0539	No censored - no imputation	No censored - no imputation			
Owhiro Stream at Riverside Rd	Phosphorus	37	4	0	0		0.027		required	required	D	с	TRUE
	Dissolved Reactive		· ·	3						No censored - no imputation			
Ox Burn at Rees Valley Road	Phosphorus	19	3	12	0	0	0.001	0.0031	Not Imputed - model fit failed	required	А	А	FALSE
en sum at nees valley noud	Dissolved Reactive			12	0		0.0030	_	not inputed model it failed	No censored - no imputation			171656
Diascant at Dattorson Doad Ford		21	_	0			0.0030		Imputed			D	FALCE
Pleasant at Patterson Road Ford	Phosphorus Disastered Baseting	21	3	8	0	0		0.0235	Imputed	required	A	В	FALSE
	Dissolved Reactive			-	_					No censored - no imputation		_	
Pomahaka at Burkes Ford	Phosphorus	56	6	2	0	0	0.0115		Imputed	required	С	В	TRUE
	Dissolved Reactive							0.0167		No censored - no imputation			
Pomahaka at Glenken	Phosphorus	56	6	6	0	0	0.007	7	Imputed	required	В	A	TRUE
	Dissolved Reactive	<u> </u>								No censored - no imputation			
									Imputed				TRUE

Precipice Creek at Glenorchy Paradise	Dissolved Reactive	1 1						0.0005	0.0022		No censored - no imputation	1		[
Road	Phosphorus	20	3	13	0	0		0.0005	0.0022	Not Imputed - model fit failed	required	А		FALSE
Noau	Dissolved Reactive	20	5	15	0	0		0	0.0060	Not impated - model nt failed	No censored - no imputation		~ ~	TALSE
Quartz Creek at Maungawera Valley Road	Phosphorus	17	3	9	0	0		0.002	0.0000	Not Imputed - model fit failed	required	А	А	FALSE
Qualitz Cleek at Madligawera valley Noau	Dissolved Reactive	1/	5	5	0	0		0.0002	0.0031	Not impated - model nt failed	No censored - no imputation	A	~	TALSE
Quartz Reef Creek at SH8	Phosphorus	22	3	12	0	0	1 1	0.0008	0.0051	Not imputed model fit failed			А	FALSE
		22	3	12	0	0		2	0	Not Imputed - model fit failed	required	A	A	FALSE
Descrit Classes has Described Described	Dissolved Reactive	20	2	12	0			0.001	0.0000		No censored - no imputation			FALCE
Rees at Glenorchy Paradise Road Bridge	Phosphorus	20	3	13	0	0	+	0.001	0.0029	Not Imputed - model fit failed	required	A	A	FALSE
	Dissolved Reactive							0.0054	0.0076		No censored - no imputation			
Roaring Meg at SH6	Phosphorus	22	3	1	0	0		5	4	Imputed	required	A	A	FALSE
	Dissolved Reactive								0.0043		No censored - no imputation			
Scott Creek at Routeburn Road	Phosphorus	20	3	13	0	0		0.002	5	Not Imputed - model fit failed	required	A	A	FALSE
	Dissolved Reactive										No censored - no imputation			
Shag at Craig Road	Phosphorus	58	6	12	0	0		0.004	0.0118	Imputed	required	A	A	TRUE
	Dissolved Reactive								0.0136		No censored - no imputation			
Shag at Goodwood Pump	Phosphorus	57	6	10	0	0		0.005	5	Imputed	required	А	А	TRUE
	Dissolved Reactive										No censored - no imputation			
Silverstream at Taieri Depot	Phosphorus	59	6	15	0	0		0.005	0.0368	Imputed	required	A	С	TRUE
	Dissolved Reactive							0.0007	0.0026	· ·	No censored - no imputation			
Silverstream at Three Mile Hill Road	Phosphorus	22	3	14	0	0		8	2	Not Imputed - model fit failed	required	А	А	FALSE
	Dissolved Reactive								0.0091	•	No censored - no imputation			
Sutton Stream at SH87	Phosphorus	31	3	11	0	0		0.0037	8	Imputed	required	Α	А	TRUE
Sutton Stream at Shor	Dissolved Reactive	51			0			0.0037	0.0088	Impateu	No censored - no imputation	~	~	INCE
Tahakopa at Tahakopa	Phosphorus	22	3	1	0	0		0.006	0.0088	Imputed	required	А	А	FALSE
	Dissolved Reactive	22	5	1	0		+ $+$	0.000	2	Impated		A	A	FALSE
Taiari at Allantan Dridaa		50			0			0.01	0.022	lass wheel	No censored - no imputation		Б	TDUE
Taieri at Allanton Bridge	Phosphorus	58	6	4	0	0	+ $+$	0.01	0.022	Imputed	required	В	В	TRUE
	Dissolved Reactive								0.0546	No censored - no imputation	No censored - no imputation			
Taieri at Creamery Road bridge	Phosphorus	37	4	0	0			0.0182	5	required	required	D	D	TRUE
	Dissolved Reactive										No censored - no imputation			
Taieri at Linnburn Runs Road	Phosphorus	59	6	21	0	0		0.0027	0.009	Imputed	required	A	A	TRUE
	Dissolved Reactive								0.0185		No censored - no imputation			
Taieri at Outram	Phosphorus	59	6	5	0	0		0.008	5	Imputed	required	В	A	TRUE
	Dissolved Reactive								0.0388		No censored - no imputation			
Taieri at Patearoa Maniototo Road	Phosphorus	37	4	1	0	0		0.014	5	Imputed	required	C	С	TRUE
	Dissolved Reactive										No censored - no imputation			
Taieri at Puketoi	Phosphorus	37	4	2	0	0		0.008	0.0163	Imputed	required	В	А	TRUE
	Dissolved Reactive										No censored - no imputation			
Taieri at Stonehenge	Phosphorus	59	6	12	0	0		0.0059	0.011	Imputed	required	А	А	TRUE
5	Dissolved Reactive								0.0302	•	No censored - no imputation			
Taieri at Sutton	Phosphorus	57	6	3	0	0		0.009		Imputed	required	В	с	TRUE
	Dissolved Reactive				0	<u> </u>		0.000			No censored - no imputation			
Taieri at Tiroiti	Phosphorus	59	6	1	0	0		0.0107	0.0333	Imputed	required	с	с	TRUE
	Dissolved Reactive		0		0			0.0107	0.0508	Impateu	No censored - no imputation		C	INCL
Taieri at Waipiata	Phosphorus	59	6	1	0	0		0.017	0.0308	Imputed	required	с	с	TRUE
		59	0	1	0	0	+ $+$	0.017	-	Imputed		C	C	TRUE
To date the Diddee Histor Dated	Dissolved Reactive	22	2	10	0			0.000	0.0087	Net be weterd, one del 64 fe thed	No censored - no imputation			EALCE
Teviot at Bridge Huts Road	Phosphorus	22	3	16	0	0	+ $+$	0.002	6	Not Imputed - model fit failed	required	A	A	FALSE
	Dissolved Reactive						1 1	0.0007	0.0026		No censored - no imputation			
The Neck Creek at Meads Road	Phosphorus	21	3	13	0	0	+ $+$	2	8	Not Imputed - model fit failed	required	A	A	FALSE
	Dissolved Reactive										No censored - no imputation			
Thomsons Creek at SH85	Phosphorus	58	6	2	0	0		0.019	0.107	Imputed	required	D	D	TRUE
	Dissolved Reactive								0.0063		No censored - no imputation			
Timaru at Peter Muir Bridge	Phosphorus	20	3	7	0	0		0.0038	5	Imputed	required	A	А	FALSE
	Dissolved Reactive								0.0346	No censored - no imputation	No censored - no imputation			
Tokomairiro at Blackbridge	Phosphorus	57	6	0	0			0.017	5	required	required	С	С	TRUE
	Dissolved Reactive								0.0267	No censored - no imputation	No censored - no imputation			
Tokomairiro at Lisnatunny	Phosphorus	35	4	0	0			0.017	5	required	required	с	В	TRUE
	Dissolved Reactive				-				0.0153	-	No censored - no imputation		1	
Tokomairiro at West Branch Bridge	Phosphorus	57	6	4	0	0		0.009	2	Imputed	required	в	А	TRUE
	Dissolved Reactive			-	0	۲, T		0.000	-		No censored - no imputation			
Trotters Creek at Mathesons	Phosphorus	57	6	12	0	0		0.004	0.009	Imputed	required	A	А	TRUE
	Dissolved Reactive		0	12	0		+	0.004	0.009	No censored - no imputation	No censored - no imputation		- 12	INOL
Tuapeka at 700m u/s bridge	Phosphorus	52	5	0	0			0.0205	0 0267		-	D	с	TRUE
	I PHOSOHOFUS	1 52 1	5	U	0	1	1 1	0.0205	0.0367	required	required	ייו	I L	I IKUE

	Dissolved Reactive						0.0017			No censored - no imputation			
Turner Creek at Kinloch Road	Phosphorus	20	3	9	0	0	5	0.0032	Imputed	required	А	А	FALSE
	Dissolved Reactive						0.0006	0.0024		No censored - no imputation			
Upper Cardrona at Tuohys Gully Road	Phosphorus	21	3	16	0	0	8	8	Not Imputed - model fit failed	required	А	А	FALSE
	Dissolved Reactive						0.0040	0.0094		No censored - no imputation			
Upper Pomahaka at Aitchison Runs Road	Phosphorus	22	3	7	0	0	5	6	Imputed	required	А	А	FALSE
	Dissolved Reactive						0.0007	0.0025		No censored - no imputation			
Upper Shag at SH85 Culvert	Phosphorus	22	3	14	0	0	2	4	Not Imputed - model fit failed	required	A	А	FALSE
	Dissolved Reactive									No censored - no imputation			
Waianakarua at Browns	Phosphorus	56	6	11	0	0	0.0039	0.0117	Imputed	required	А	А	TRUE
	Dissolved Reactive									No censored - no imputation			
Waianakarua at South Branch SH1	Phosphorus	20	3	9	0	0	0.0026	0.0095	Imputed	required	A	А	FALSE
	Dissolved Reactive								No censored - no imputation	No censored - no imputation			
Waiareka Creek at Taipo Road	Phosphorus	53	6	0	0		0.147	0.35	required	required	D	D	TRUE
	Dissolved Reactive									No censored - no imputation			
Waikouaiti at Confluence d/s	Phosphorus	36	4	10	0	0	0.003	0.006	Imputed	required	А	А	TRUE
	Dissolved Reactive							0.0389		No censored - no imputation			
Waipahi at Cairns Peak	Phosphorus	57	6	1	0	0	0.013	5	Imputed	required	С	С	TRUE
	Dissolved Reactive									No censored - no imputation			
Waipahi at Waipahi	Phosphorus	57	6	1	0	0	0.013	0.028	Imputed	required	С	В	TRUE
	Dissolved Reactive						0.0025	0.0045		No censored - no imputation			
Waipori at Waipori Falls Reserve	Phosphorus	59	6	28	0	0	9	5	Imputed	required	А	А	TRUE
	Dissolved Reactive								No censored - no imputation	No censored - no imputation			
Wairuna at Millar Road	Phosphorus	57	6	0	0		0.03	0.133	required	required	D	D	TRUE
	Dissolved Reactive							0.0229	No censored - no imputation	No censored - no imputation			
Waitahuna at Tweeds Bridge	Phosphorus	57	6	0	0		0.013	5	required	required	С	В	TRUE
	Dissolved Reactive									No censored - no imputation			
Waitati at Mt Cargill Road	Phosphorus	56	6	11	0	0	0.006	0.0127	Imputed	required	А	А	TRUE
	Dissolved Reactive							0.0608		No censored - no imputation			
Waiwera at Maws Farm	Phosphorus	59	6	2	0	0	0.019	5	Imputed	required	D	D	TRUE
	Dissolved Reactive								No censored - no imputation	No censored - no imputation			
Welcome Creek at Steward Road	Phosphorus	30	4	0	0		0.0145	0.0315	required	required	С	С	TRUE
	Dissolved Reactive						0.0008	0.0032		No censored - no imputation			
Whare Creek at Whare Flat Road	Phosphorus	22	3	12	0	0	5	2	Not Imputed - model fit failed	required	А	А	FALSE