FINAL REPORT

NICOLA RIVER WATERSHED PRESENT AND FUTURE WATER DEMAND STUDY

Prepared for:

Prepared by:

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ENVIRONMENTAL CONSULTANTS LTD. ISO 9001 AND 14001 CERTIFIED

June 7, 2007

Reference: 466-01.02

Nicola Watershed Community Round Table Box 400 Merritt, B.C. V1K 1B8

Attention Elizabeth Salomon-de-Friedberg

Re: Final Report: Nicola River Watershed Present and Future Water Demand Study

Summit Environmental Consultants Ltd. is pleased to provide the final report on the above-noted study. The report summarizes current water demands and actual use (where available) in the Nicola River watershed and compares these values with currently licenced quantities. Future water demands in the basin have also been estimated based on three assumed scanarios at two dates (2020s and 2050s).

We trust this completes the assignment to your satisfaction. Please call me if you have any questions.

Yours truly,

Summit Environmental Consultants Ltd.

Lars Uunila, M.Sc., P.Geo., P.H. Geoscientist

Attachments: Final Report

EXECUTIVE SUMMARY

The Nicola River Watershed Present and Future Water Demand Study is intended to support the development of the Nicola Water Use Management Plan (WUMP). The principal objectives of the study are to:

- Quantify current (2006) water demand by sub-basin and sector on an annual, monthly and weekly basis (August and September only) within the Nicola watershed;
- Compare water demands with licensed quantities in the watershed in order to identify potential water licensing issues;
- Evaluate irrigation efficiency in the watershed; and
- Develop future projections of water demand taking into account expected growth and climate change.

This report summarizes the methods used in the study and the assumptions that were necessary in order to develop water demand estimates, compile water licence information, and actual use data. An evaluation of this information was the principal task of this study.

Agriculture demands the greatest volume of water (76%) annually in the Nicola watershed. By comparison, the industrial and domestic sectors represent about 11% and 8% of total annual demand in Nicola watershed, respectively. Water demand from the business/commercial, institutional, and recreation resort sectors represent the remaining 5%.

Overall, 99% of the agricultural water used is for irrigation in the Nicola watershed. If irrigation efficiencies are assumed to be consistent with the literature (i.e. MAFF 2005), it appears that the current surface water licences are sufficient to meet the total irrigation requirement in all but the Middle Nicola (and Clapperton) sub-basins. In the Middle Nicola and Clapperton sub-basins (as well as other sub-basins) groundwater is used to meet irrigation requirements.

Comparison of demands and licensed quantities in the non-agricultural sectors is not straightforward and is generally precluded by the overlapping water use between sectors and sub-basins and the relatively greater use of groundwater in these sectors.

To assess future water demand, three (3) scenarios and two (2) time periods were modeled. Descriptions of each of the adopted scenarios are provided and the results are tabulated in order to

facilitate direct comparison with the current (2006) demand estimates. The following highlights the projected future water demands in the watershed:

- By 2020, total annual water demand in the Nicola watershed is expected to be 4% higher than it is currently if "low" growth and no climate change were assumed (Scenario A). If climate change is accounted for (Scenario B), total annual water demand is projected to increase by 10%. If climate change and "high" growth were experienced across the basin (Scenario C), total annual water demand is projected to increase by 43%.
- By 2050, "low" growth alone (Scenario A) is expected to increase total annual water demand by 14%. With the effects of climate change (Scenario B), total annual water demand is projected to increase by 22%. Under the influence of climate change and high projected growth, total annual water demands are expected to be 124% higher than it is currently.

It is expected that by converting to more efficient irrigation practices it may be possible for the agricultural sector to reduce water use by 10% overall. Also, through a focussed demand management program up to a 30% reduction in water demand in the domestic, recreation and resort and institutional sectors could be achieved. Currently, a 30% reduction in these sectors would represent only a 4.0% savings overall. However, by 2050 a 30% reduction in water use by the domestic, recreation and resort and institutional sectors could represent a 10% savings overall. Potential savings in the industrial and business and commercial sectors is also possible, but since each business and commercial sector activity is unique, improvements in estimates for water use efficiency can only be made accurately on a case by case basis.

The information presented in this report is intended to provide basic information necessary to develop a comprehensive Water Use Management Plan for the Nicola watershed. Before such a plan is developed, it will also be necessary to evaluate water supply and develop a better understanding of groundwater processes – tasks which are being initiated under the WUMP process.

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1.0 INTRODUCTION

1.1 **PROJECT BACKGROUND**

As a result of projected economic and population growth, increased water demand, recent drought conditions, and the projected impacts of climate change, it is becoming evident that there are increasing pressures on the water resources of the Nicola River watershed ("the Nicola watershed"; Figure 1.1). In order to understand and alleviate these pressures, and avoid conflicts between various water users, the residents of the Nicola watershed have endorsed the development of a Water Use Management Plan (WUMP) that balances social, economic, traditional, and ecological values (NWCRT 2006).

A phased approach to developing the WUMP was adopted at the outset of the process in November 2004. Phase 1 in fall 2005 involved development of the planning process and workshops to determine knowledge gaps. One of the identified knowledge gaps is detailed information on water demand (and actual water use) in the Nicola watershed. Up-to-date information on water demand (and water supply¹) in the Nicola watershed is required to assess water availability for licensing and allocation and to balance future population and economic development as well as traditional and ecological values.

On April 26, 2006 the Nicola Watershed Community Round Table (NWCRT) issued a Request for Proposals (RFP) to conduct a "Present and Future Water Demand Study" (WUMP-2006-S01). A contract for this study was subsequently awarded to Summit Environmental Consultants Ltd. (Summit) on July 19, 2006. This report presents the findings of the study.

¹ Assessment of water supply is beyond the scope of this study.



Figure 1.1 Location of the Nicola watershed and selected sub-basins.

Section 1.0 of this report outlines the background and objectives of the study. Section 2.0 summarizes the methods used and the information compiled. To provide context to the study, Sections 3.0 and 4.0 briefly describe the Nicola watershed and the land use patterns among its sub-basins, respectively. Descriptions of off-stream water demand (and water use where available), organized by sub-basin and sector are provided in Section 5.0. Information on water licences for instream flows and recommended instream flows developed by the Ministry of Environment are presented in Section 6.0. A brief description of future water pressures in the watershed is presented in Section 7.0. This leads into Section 8.0, where estimates of water demand for a select number of scenarios are presented. An evaluation of the available data and discussion of confidence in the estimates provided is presented in Section 9.0. Study conclusions and recommendations are presented in Sections 10.0 and 11.0, respectively.

In order to facilitate effective communication among various parties, a glossary of technical terms relevant to this study is provided in Section 13.0. Of particular importance are the definitions of water *demand*, actual use and estimated use adopted for this study. *Demand* refers to the quantity of water that is required to satisfy the needs of an average water user over a defined period. Within the agricultural sector, crop water *demand* is the optimal quantity of water required to meet the needs of a crop. Water *use* within the agricultural sector represents the quantity of water obtained or withdrawn from the source (i.e. surface water and/or groundwater). Measurements of the quantity of water obtained from the source (e.g. by water metering, weir, etc.) provide information on actual use. Estimated use in the agricultural sector refers to any estimate of the quantity of water withdrawn from the source, which is usually based on demand and assumptions of *irrigation efficiency*. The definition of *irrigation efficiency* used in this study is the percentage of the water withdrawn from the source that is beneficially used by the crop. Irrigation efficiency reflects water losses due to distribution system losses (e.g. leaks), evaporation, and poor irrigation practices (e.g. over-watering). Irrigation efficiency increases as water losses are reduced.

For all other sectors assessed in this study (Industrial, Business/Commercial, Domestic, Institutional, and Resorts and Recreation), *demand* is defined as the quantity of water required to optimally maintain their respective activities. *Demand* in this context is extremely difficult if not impossible to quantify. For example, it is not possible to define what quantity of water is actually *needed* by a domestic water user. What is needed would vary widely by user and would depend on lifestyle and many other factors. Instead, we can determine what quantity is *used*, either through measuring (i.e. water meters) or estimating using expected water use rates for specific types of facilities. The former would be termed *actual use*, and the latter would be termed *estimated use*.

As in the agricultural sector, *water use* in the non-agricultural sectors reflects the quantity of water withdrawn from the source and includes losses through the distribution system and potential consumption of water in excess of what is actually needed. Given the difficulty in defining what quantity is actually needed, in practice, *estimated use* and *demand* in the non-agricultural sectors are often considered analogous. Therefore, for this study *demand* and *estimated use* in the non-agricultural sectors can be considered to be equivalent unless noted otherwise.

1.2 PROJECT OBJECTIVES

The general objective of this study is to determine current (2006) and future (2020s and 2050s) demand (and actual use where available) for water in the Nicola watershed.

Specific objectives of the study include the following:

- 1 To quantify and compare current demand, actual use (if available) and licensed quantities in the Nicola watershed by sub-basin and sector at annual, monthly, and weekly (August and September only) time scales;
- 2 To identify where (i.e. in which sub-basins and sectors) discrepancies between current demand, actual use, and licensed quantities occur;
- 3 To estimate the capacity for improving irrigation water use efficiency in the agricultural sector; and

4 To estimate future (2020s and 2050s) demand by sub-basin and sector, and identify uncertainties related to future demand from climate change, changes in land use, and water conservation practices.

Whereas in-stream water use information was compiled for this study, an assessment of in-stream flow requirements was beyond the scope of this study.

2.0 METHODS

2.1 ORGANIZATION

The Nicola WUMP process uses a committee structure consisting of a Planning Team, Multi-Stakeholder Committee (MSC), and various sub-committees and advisory groups. The Nicola Watershed Community Roundtable provides administrative support to the process and acts as the main contact (NWCRT 2006). Table 2.1 outlines the responsibilities of key individuals in the Nicola WUMP process that provided guidance to the Present and Future Water Demand Study. Collectively, these individuals formed the "working group" for the study.

Table 2.1	Key individuals that provided guidance to the Present and Future Wate	er
	Demand Study.	

Responsibility	Name		
Program Manager - Nicola WUMP Planning Team	Katherine Gizikoff		
Administrative Support – Nicola Watershed	Elizabeth Salomon-de-Friedberg		
Community Round Table			
Multi-stakeholder Advisory Committee (MSAC)	George Armstrong, resident		
	Bob Hamaguchi, Highland Valley Copper		
	Gene Huber, rancher		
Technical Advisory Group (TAG)	Jeptha Ball, Ministry of Environment		
	Craig Beeson, Ministry of Environment		
	Mike Edwards, Ministry of Environment		
	Bruce McFarlane, Ministry of Environment		
	Jeff Guerin, Fisheries and Oceans Canada		

2.2 PROCESS

Summit met with the working group in person in June 2006. At that time, the Program Manager approved a timeline for the completion of the study. Maps, data, reports, and other relevant information needed to complete the work were assembled beginning in

July 2006. The process of information collection, assembly, and review is outlined in Section 2.0.

On July 19, 2006 a start-up meeting was held in Merritt between Summit and the working group. During this meeting, Lars Uunila, P.Geo. of Summit presented an overview of the methods to be used in the study and solicited input from the group on data sources, sub-basin delineation, and major water users (by sector) in the Nicola watershed. The list of major water users developed during this meeting was the basis on which the study team developed a consultation strategy with stakeholders to obtain information for the study.

On August 14, 2006, the NWCRT issued a news release for publication in the Merritt Herald. This news release is reproduced in Appendix A. The purpose of the news release was to solicit information from water users and stakeholders and inform them of the study in advance of direct communication (with selected water users) by the Program Manager and Summit.

On September 22, 2006 Summit submitted Progress Report #1 to the working group in Merritt. The purpose of this meeting was to discuss the progress of the study, discuss issues facing the study team, and revise the schedule. In addition, a list of definitions was reviewed with the goal of maintaining clear effective communication among the working group and Summit.

Summit presented Progress Report #2 to the working group on November 30, 2006 in Merritt. The key item of discussion during this meeting was the development of scenarios to assess future (2020s and 2050s) water demand in the Nicola watershed. The scenarios adopted by the group are discussed in Section 8.0 of this report.

Following technical analyses, draft and final reports summarizing the study were prepared.

2.3 STUDY TASKS

The study terms-of-reference outlines 11 main tasks for the study:

- 1. Review background information;
- 2. Consult with key water users/stakeholders;
- Determine current demand and water use (where available) by sub-basin, sector, and source on an annual, monthly and weekly basis (for August and September²);
- 4. Summarize water licences by sub-basin and sector;
- Summarize water licences for instream use (i.e. conservation) by sub-basin (monthly basis, plus weekly basis for August and September)
- 6. Convert all quantities to m^3 and m^3/s ;
- Compare water demands and actual use (if available) with licensed quantities to determine where discrepancies may exist;
- 8. Conduct an agricultural GIS mapping exercise and field study to support demand calculations. Identify the following:
 - a. area of currently irrigated land by sub-basin;
 - b. types of irrigation methods used and their efficiencies; and
 - c. number of ranches using each type of irrigation method;
- 9. Analyze water demand changes as a result of implementing irrigation efficiencies and water conservation practices;
- Develop future demand scenarios by sector and sub-basin (3 scenarios for 2 time periods); and
- 11. Evaluate confidence in the data, potential for improvement, compare optional approaches and recommend the best means to reduce uncertainty.

 $^{^{2}}$ For both August and September, five (5) weeks were defined for this study. Weeks 1 though 4 in each month consist of seven (7) days. Week 5 in August consists of three (3) days, while week 5 in September consists of 2 days.

Methods used to complete the above-noted tasks are summarized in Sections 2.4 through 2.8.

2.4 INFORMATION REVIEW

Section 2.4 summarizes the work done to obtain and review relevant information and identify data gaps and weaknesses. These weaknesses are highlighted within Section 2.4 and are summarized in Section 9.0.

2.4.1 Types of Information Reviewed

There is a great deal of existing information that was useful in completing this study. The following list outlines the major types of information reviewed:

- Terrain Resource Inventory Mapping (TRIM) of the watershed;
- Digital orthophotos (2004) of the watershed;
- Climate data;
- Soils mapping;
- Water licence information;
- Groundwater well records;
- Present and projected land use information from several sources;
- Water use records available from water utilities;
- Previous water demand and water supply studies; and
- Reports on water management and climate change in the B.C. Southern Interior.

In analyzing the issues affecting water in the Nicola watershed, we relied heavily on the results of discussions among the working group, and consultation with stakeholders. Although the working group provided information on a broad range of topics, some interests may not have been represented in the group. The size and diversity of the watershed make it difficult to represent all interests on a working group. Nonetheless, the authors of this report are confident that the majority of the water users in the Nicola watershed have been identified.

2.4.2 Information Sources

Information for the study was compiled from a large number of sources. Based on discussion with the working group, a list of key water users in all sectors was developed. Since water use in the Nicola watershed is dominated by the agricultural sector, Summit developed a strategy to consult with 27 of these key users. The strategy also included consultation with First Nations and key users in other sectors. Section 2.5 outlines the consultation conducted for the study.

In addition to key water users, federal, provincial, and local agencies and others were contacted during the course of the study. These included:

- Thompson Nicola Regional District;
- Ministry of Environment (MOE);
- Ministry of Agriculture, Food and Fisheries;
- Fisheries and Oceans Canada;
- Indian and Northern Affairs Canada;
- Statistics Canada;
- City of Merritt;
- District of Logan Lake;
- Major and minor water utilities;
- Lower Nicola Indian Band;
- School District No. 58;
- Local business representatives in the Forestry, Retail, Services, and Mining sectors; and
- Community Futures Development Corporation.

2.4.3 Specific Information Reviewed

This section highlights the relevant information that was compiled for the study and the key gaps in information that was identified.

Background Reports

During the start-up meeting, the working group and Summit identified a number of directly relevant background reports for the study. These included the following:

- Nicola Basin Strategic Plan Technical Document (MOE 1983);
- Nicola River Basin Management Strategy Phase 1 Scoping Study (Urban Systems 2005);
- Report on Phase 1 of the Process Leading to a Nicola Water Use Management Plan (NWCRT 2005);
- The Water Quality of the Tributaries of Nicola Lake (Holmes 1988);
- City of Merritt Water Conservation Strategy Final Report (Urban Systems 2003);
- Engineering Feasibility Study on Rebuilding outlet of Nicola Lake (Bergman 1983);
- Coldwater River Watershed Recovery Plan (Nelson et al. 2001);
- Conflicts Between People and Fish for Water: Two British Columbia Salmon and Steelhead Rearing Streams in Need of Flow (Rosenau et al. 2003);
- Environmental Impact Assessment of Basal Aquifer Dewatering Project (Summit 2002); and
- Trepanier Landscape Unit Water Management Plan (Summit 2004).

Based on a review of these documents, MOE (1983) provides the most relevant information for the present study. Like the present study, MOE (1983) provides an analysis of water demands on a watershed-scale. However, the information is outdated and may not accurately reflect current conditions. Furthermore, a number of assumptions, particularly associated with irrigation, may not be accurate. The assumed area under irrigation, for example, appears to be 30% more than the area identified in this study and by Statistics Canada (see Section 2.6.1). For these reasons, the MOE (1983) estimates should be interpreted cautiously.

Water Licences

The analysis of licensed quantities of water required the compilation of all water licences in the Nicola watershed and determination of their precise location. Licence data, organized by stream hierarchy, was obtained from hardcopy output from the Water Licence Information System (WLIS) provided by the Ministry of Environment. However, most seepages and springs are omitted from this dataset since they are not included within the stream hierarchy. Therefore, it was necessary to cross-reference digital point-of-diversion (POD) files and the online water licence database to identify missing licences. Given the format of the water licence dataset, it is possible for several points-of-diversion under a single licence to each have a licensed quantity attributed to it. Therefore, in order to avoid counting a licence more than once, it was particularly important that the data was screened for multiple points-of-diversion. To simplify comparison, all water use (provided in various units) was converted to metric units (i.e. m³).

A summary of the current water licences (both for offstream and instream use) by subbasin and sector on an annual basis is provided in Appendix D. Estimation of licensed water quantities on a monthly time-scale and weekly time scale (for August and September) was based on the conditions of the licences (i.e. period over which withdrawals are permitted) and assumptions on licence apportionment. These assumptions were developed and refined based on published information, agency input, consultation with licence holders on water use patterns, and analysis of factors (i.e. potential evapotranspiration rates) that directly influence water use patterns.

In addition to the water licence database, we compiled a list of the current water allocation restrictions in the watershed (Appendix I). This list identifies the streams that the Ministry of Environment has identified as having some concern associated with water licensing.

Groundwater Data

To determine the distribution between groundwater and surface water used in each sector, data was obtained from the following sources:

- BC MOE water wells database;
- Municipal water utilities including Merritt, Logan Lake, and Lower Nicola Indian Band;
- Agriculture questionnaires; and
- Industries and businesses.

The BC MOE water wells database provides the location of drilled water wells, and basic information on the installation of the well, the geology as reported by the driller, and the intended use of the water well. Additional information is also provided in a "notes" section. The well use categories include:

- Domestic;
- Commercial and Industrial;
- Irrigation;
- Municipal;
- Institutional;
- Unknown;
- Abandoned; and
- Observation (Other).

Wells in the MOE database were categorized by sub-basin and by well use by importing the geographic coordinates of each well onto a base map using GIS software (Table 2.2 and Tables E-1 and E-2 of Appendix E). The following rules were applied in assigning well use to the land use sectors for this study:

- Wells with irrigation use are considered to be in the agricultural sector;
- Wells with commercial and industrial use were considered either one or the other sector depending on sub-basin specific factors;

• Wells with "unknown" use were considered as either domestic or irrigation because over 80% of the wells on the data base are either for domestic (70%) or irrigation use (10%). To determine which category applies, we have applied the following rule: if a well is within 150 m of an irrigated area and had a high yield, then the well was assigned to an irrigation use; if the well was further than 150 m from an irrigated area, then it was assigned to a domestic use.

A major deficiency of the database is that it includes only about half the actual number of wells, according to Rod Zimmerman, Manager of the Water Wells Database, Ministry of Environment. Mr. Zimmerman has concluded from case studies throughout the province that in general only 50% of all water wells that are drilled are listed in the database. This is due to many factors including the fact that submission of logs by well drillers is on a volunteer basis, well logs are incomplete, well records may be out of date, and staff shortage issues at the MOE. Also, if a well was drilled since 2000, it is likely not to have been imported into the database. To estimate the number of wells, we have doubled the number of wells on the MOE database to account for the under-representation of the actual number of drilled wells.

Sub-basin		Number of v	vells reported ¹	Estimated actual number of wells ²			
	Domestic Use	Unknown use; assumed Domestic ³	Irrigation	Unknown use; assumed irrigation ⁴	Domestic	Irrigation	Estimated Number of people supplied by groundwater for domestic use ⁵
Clapperton	3	3	0	0	12	0	29
Coldwater	30	62	0	5	184	10	438
Guichon	22	22	0	1	88	2	209
Lower Nicola	56	22	5	17	156	44	371
Mid Nicola	21	12	4	10	66	28	157
Moore	2	0	0	1	4	2	10
Quilchena	6	3	0	0	18	0	43
Spius	7	7	0	2	28	4	67
Stump Lake	9	2	0	1	22	2	52
Upper Nicola	0	8	0	3	16	6	38
Entire Watershed	156	141	9	40	594	98	1414

Table 2.2Summary of domestic and irrigation wells per sub-basin.

Notes:

1. Number of wells reported on Ministry of Environment water wells database.

2. Doubled to correct for MOE database under representation.

3. Includes wells with unspecified use if greater than 150 m from an irrigated area.

4. Includes wells with unspecified use if less than 150 m from an irrigated area.

5. Multiplied by 2.38, number of persons per household based on 2001 Census data for Merritt.

For other land use sectors, the MOE database does not provide sufficient information to determine the amount of groundwater used. The agriculture questionnaires asked local farmers and ranchers to provide information regarding the distribution of water used by source (groundwater or surface water). From this information, we were able to obtain estimates of the distribution for the agricultural sector in some sub-basins. For other sectors, information regarding the distribution of groundwater and surface water was provided directly from the water purveyors, such as the City of Merritt, District of Logan Lake, Lower Nicola Water District, small private water utilities, and individual businesses and industries.

Land Use Data

In order to develop water demand estimates, an analysis of land use in the Nicola watershed was conducted. This included assembling detailed land use information, and where possible data on typical water use in each sector. For the purpose of this study land use was divided into the following six (6) main sectors:

- 1. Agriculture;
- 2. Industry;
- 3. Business and Commercial;
- 4. Domestic;
- 5. Institutions; and
- 6. Recreation and Resorts.

First Nations could be considered an additional category within the Nicola watershed. However, since water use by First Nations may include one or more of the above-noted main sectors, we have classified water use by First Nations into the appropriate sector listed above.

The land use analysis also included the compilation of information on where, when, and how much urban, economic, and resource development is expected to occur in the watershed in the future (to the 2020s and 2050s). Land use data were somewhat problematic as some of the required information is not available for the entire study area, not available for the periods of interest, or are not available in a convenient format (i.e. data is not typically organized by sub-basin or watershed but rather by an administrative unit). Information on projected land use beyond the 2020s is generally unavailable. Therefore, the population projections to the 2050s were based on assumed continuous growth in urban areas at presently projected rates, assuming no change in the overall land use distribution. This is further discussed in Section 7.0.

Population Data

Population data for the Nicola watershed was obtained from the following sources:

- Thompson Nicola Regional District;
- City of Merritt;
- District of Logan Lake;
- BC Stats;
- Small water purveyors; and
- Community Futures.

The majority of the people in the Nicola watershed reside in the City of Merritt and the District of Logan Lake. Combined, these two (2) urban areas have a population of 10,300. The City of Merritt straddles the Coldwater and Middle Nicola sub-basins (as well as a minor portion in Lower Nicola sub-basin). Therefore, it was necessary to estimate the distribution of population between the sub-basins. This estimate was facilitated by consultation with City of Merritt public works staff and a review of maps and orthophotos.

Indian reserve populations were obtained from the BC Stats Indian Reserve Census (BC Stats 2006). Population data for 2001 was available for 12 out of 33 of the reserves. Typically, data is not available for the small reserves for confidentiality reasons (Pliezier 2006). So we assumed zero population on the 21 reserves with no information. Therefore, it is possible estimates underestimate the actual First Nation population.

The population in rural areas could not be calculated from census data because the census boundaries do not correspond with watershed boundaries; therefore, within each subbasin populations were estimated by summing the estimated number of ranches and the number of households in rural areas. The population residing in rural sub-divisions was estimated based on information from water utility managers from Harmon Estates, Lower Nicola Improvement District, Brookmere Water Users, and Ridgemark Estates Water Users. The number of individual rural households was estimated by summing individual domestic groundwater wells identified in the BC MOE water well database (Section 2.4.2) and the estimated number of households with a domestic surface water licence.

The sum of the ranches and rural households was then multiplied by 2.38 persons per household to obtain the population in rural areas in each sub-basin. The value of 2.38 persons per household is based on 2001 Census data from Merritt, and is close to the provincial average of 2.5 persons per household in BC (Statistics Canada 2006).

Based on the information compiled, the estimated total population in the Nicola watershed is 15,045 (Table 2.3). This is slightly lower than the population estimate by Urban System (2005) of 16,000. Potential reasons for this discrepancy may be due to the following:

- The Urban Systems estimate may have been rounded up to the nearest thousand;
- No population data or number of households was available from at least four (4) rural sub-divisions. We were not successful in contacting representatives from Lower Nicola Water Society, Lookout Road Water Users, Lac Le Jeune Conservation Association, and Nicola Lakeshore Developments;
- No population information was available for 21 of the 33 reserves. However, it is likely that few or no persons live on some of these reserves; and
- It is possible that some rural households do not hold water licences. These would therefore not be accounted for.

Sub-basin	Estimated 2006 Population
Coldwater	7,364
Guichon	3,300
Lower Nicola	1,867
Middle Nicola	1,822
Upper Nicola	303
Stump Lake	111
Spius	91
Clapperton	67
Quilchena	62
Moore	58
NICOLA WATERSHED (Total)	15,045

Table 2.3Estimated population by sub-basin in the Nicola River Watershed.

Key Information Gaps

Based on the information compiled and reviewed, the following key information gaps and challenges were identified:

- Digital soil mapping in a format that could be used for GIS analysis was unavailable;
- Very little information on groundwater use is available;
- Groundwater information available from the MOE database is incomplete (and likely represents only 50% of the actual wells);
- The variation in sub-basin delineation in the Nicola watershed makes direct comparison between sub-basins used in this study with those in other studies challenging;
- Water supply and use information from First Nations was unavailable;
- Population data is generally unavailable at the scale of this study. Furthermore, such data is based on administrative boundaries and not sub-basins as used in this study; and
- Very little actual water use information is available, particularly in the agricultural sector, which is a dominant water user in the watershed.

2.5 CONSULTATION WITH WATER USERS

Key Water Users

In an effort to obtain accurate estimates of water demand and use in the Nicola watershed, Summit developed a strategy to consult with the key water users in the basin. In total 52 key water users were identified by the working group and Summit. While this list was not intended to be exhaustive, it does provide a reasonable distribution of water users by sub-basin and by sector.

News Release and Introduction to Study

Prior to contacting key water users, a news release was prepared by the Nicola WUMP administrator and published in the Merritt News and Merritt Herald (Appendix A). This was followed by phone calls to a select number of key water users by the Nicola WUMP Program Manager. These water users were informed of the study, and were asked if they would be willing to provide information to the study team. A list of those who expressed a willingness to participate was developed and provided to Summit.

Water Use Questionnaires

Two (2) separate questionnaires were developed by Summit in consultation with the Nicola WUMP Program Manager and the Administrator. The first questionnaire was developed for the agricultural sector (Appendix B), and the second was developed for First Nations (Appendix C). The questions were aimed at guiding the user to provide relevant information that would facilitate the best possible estimate of yearly, monthly, and weekly (in August and September) total water demand and use.

A total of 23 questionnaires were mailed out to the key agricultural users on August 15, 2006 and follow up calls were made to all recipients over the following months. At the time of reporting, a total of 14 questionnaires had been returned to Summit for evaluation in the study.

A total of seven (7) First Nation questionnaires were passed out in person to First Nations key users by staff of the Nicola Tribal Association in early November, 2006. At the time of reporting, no questionnaires had been received by Summit.

Phone Calls

In addition to follow-up calls to all recipients of agricultural questionnaires, all reasonable attempts were made by Summit to call identified key water users in the other major sectors. In total, attempts were made to contact 29 key water users from sectors other than agriculture. Receiving prompt responses to our calls was problematic throughout the course of the study. Useful information was obtained from approximately 12 of the identified water users. This information is detailed in Section 5.0.

2.6 ESTIMATION OF CURRENT WATER DEMAND

The analysis of water demand by sub-basin and sector is the core of this study. The methods used to develop water demands varied by sector, and are described below. The results are provided by sub-basin and sector in Section 5.0.

2.6.1 Agriculture

The main use of water in the agricultural sector is for irrigation of crops such as grass and alfalfa to support ranching operations of beef cattle (Urban Systems 2005). To identify the volume of water needed to satisfy the needs of a crop and the irrigation efficiencies, several tasks were performed:

- The area currently under irrigation and the areas of dominant soil types were identified in each sub-basin using high resolution orthophotos and GIS software;
- Irrigation demands were estimated by calculating the soil moisture deficit (SMD) for each sub-basin; and
- A field reconnaissance was conducted to review the irrigation methods in use in the watershed, and assess the potential for irrigation expansion.

Further details on the methods used in the study to determine agricultural water demands are provided below.

GIS Analysis

The following outlines tasks completed in the GIS analysis:

- Currently irrigated areas were mapped visually on 2004 high resolution orthophotos. Irrigated areas were identified based on the colour, change in shape/pattern from surrounding areas (e.g. circles for centre pivot irrigation methods) and location. Valley bottoms, zones of agricultural land reserve (ALR) and private land, gentle or level terrain (0-2%), cleared land, and points of water diversion and well locations were used as guides to assist the identification of irrigated land;
- The total irrigated area per sub-basin was calculated using ArcGIS software. The results of this analysis are summarized in Table 2.4.
- A comparison of the irrigated areas obtained through this analysis with areas obtained using other methods was made. The values using GIS are lower than that reported in MOE (1983) but compared well with the 2001 Census of Agriculture. The MOE (1983) reported 10,240 ha and the 2001 Census of Agriculture reported 6,439 Ha. The 1983 MOE report provides a footnote that states that the area of irrigable lands was estimated by Y. Barhard and Ministry of Environment. The report does not provide any other information regarding the methodology.

 Table 2.4
 Estimated areas under irrigation as of 2004 by sub-basin in the Nicola watershed

 Estimated area currently under irrigation (ha)

Sub-basin	irrigation (ha)
Clapperton	0
Coldwater	442
Guichon	824
Lower Nicola	1,035
Middle Nicola	1,269
Moore	34
Quilchena	375
Spius	75
Stump Lake	510
Upper Nicola	1,485
NICOLA WATERSHED (Total)	6,049

Estimation of Irrigation Demands

Irrigation demands were estimated in each sub-basin according to the procedure outlined in the BC Irrigation Management Guide (Ministry of Agriculture, Food and Fisheries 2005). The Soil Moisture Deficit (SMD), which is the difference between the Climatic Moisture Deficit (CMD) and the Soil Water Storage (SWS) was calculated to the month of April. In the other months, SMD equals the CMD. The SWS is relevant only to the month of April because in that month water stored over winter is available in the soil.

Climatic Moisture Deficit (CMD) is defined as the negative difference between effective precipitation and potential evapotranspiration (PET). "Effective precipitation" is described as the amount of precipitation that is actually added and stored in the soil. To convert from precipitation to effective precipitation, the following rules were adopted (as recommended in the BC Irrigation Management Guide), these rules are consistent with those employed by the Farmwest website:

- Effective precipitation equals zero if daily rainfall is less than or equal to 5 mm; and
- Effective precipitation equals 75% of the actual precipitation in excess of 5 mm (Ministry of Agriculture, Food and Fisheries 2005).

In general, total effective precipitation in the Nicola watershed is low during the irrigation season. Our calculations indicate that it ranges between 17% and 27% of the total precipitation for months April to October.

To calculate potential evapotranspiration (PET) in each sub-basin the Priestly-Taylor Equation (Shuttleworth 1993)³ was used with the following assumptions and data:

- Sunshine hours were based on data from the Kamloops Environment Canada climate station. Kamloops is the closest climate station to the watershed with sunshine hour data. Use of this data is acceptable given that Kamloops and the Nicola watershed are located adjacent to one another and are in similar biogeoclimatic regions;
- Other climate data (monthly mean temperature, maximum temperature, minimum temperature, and precipitation) were determined for the center of the irrigated zone in each sub-basin using ClimateBC software. The ClimateBC model extracts and downscales monthly climate data for the 1961-1990 reference period, and calculates seasonal and annual climate variables for specific locations based on latitude, longitude and elevation using climate stations across the province and PRISM bilinear interpolation and elevation adjustment (ClimateBC 2006). The model was generated by the Centre for Forest Gene Conservation at the University of British Columbia. Articles on ClimateBC have been accepted by the International Journal of Climatology (2005 and 2006), and Agricultural and Forest Meteorology (2005) and the model is publicly available for use as a resource management tool. An evaluation of the results derived from the model was completed. We compared the climate data modelled using ClimateBC with the historical normal climate data (1961 1990) for the Merritt Station and

³ The Priestley-Taylor equation is a simplified version of the Penman-Monteith equation that is suitable where data are limited to standard meteorological measurements (ie: max, min, and mean daily temperature; sunshine hours). It is considered reasonable at spatial scales of a few kilometers, but is not sufficiently accurate to estimate PET at the field scale.

compared the different sub-basins. We concluded that the modelled data was a realistic interpolation;

- An albedo of 0.23 was assumed. This is the estimate albedo for grass and pasture (Shuttleworth 1993);
- Priestly-Taylor equation coefficient of 1.74 for arid areas (i.e.: relative humidity <60% in July) was assumed;
- The daily climate data needed to calculate weekly values for August and September is not available from the ClimateBC model. The nearest climate station with daily data is located in Merritt. Therefore, average daily temperature and precipitation data were determined based on available records to 2000 (Environment Canada 2001). Based on this data, monthly and daily PET values were calculated for Merritt using the Priestley-Taylor equation. The weekly distribution of PET (as a percentage of the monthly value) for August and September was determined for Merritt. This distribution was then assumed similar for all sub-basins in the Nicola watershed;
- The PET calculations were checked against the PET values posted on the Farmwest web site (Farmwest 2007) for the stations in the Nicola River watershed (i.e. Douglas Lake, Mamit Lake, Quilchena, and Spius Creek) and reference evapotranspiration value for Merritt (MAFF 2005) to confirm they were reasonable. The calculated PET was between 85% and 102% of reference values, which are considered reasonable given differences between elevation and location between calculated locations and measured stations.

As noted above, Soil Moisture Deficit (SMD) is the difference between the climatic soil deficit (CMD), and the soil water storage (SWS) in April. SWS is defined as the total amount of water that is stored in the soil within the plant's root zone and is calculated by multiplying the effective rooting depth by the available water storage capacity (AWSC). The effective rooting depth is defined as 50% of the distance from the soil surface to the bottom of the rooting depth. The AWSC is defined as the amount of soil water retained in the soil between the field capacity and the permanent wilting point, and varies

depending on soil texture and rooting depth. Finer soils hold more water than coarser soils. To determine the SWS, the following tasks were performed:

- The distribution of soil types for each irrigated area was estimated based on available soil maps (Department of Agriculture 1972 and 1976).
- Soil types were estimated by colour coding soil polygons within irrigated boundaries on map sheets that covered an area of about 12 km by 8 km each by soil type, and then visually estimating the percent per soil type per map sheet.
- The percent of each soil type per map sheet was then converted to hectares by multiplying by the area for each map sheet calculated by GIS. If more than one sub-basin was present on each map sheet, then the map sheet and soil polygons were estimated within each sub-basin.
- Once the area of each soil type per map sheet was known, the soil types were classified into dominant soil texture using the texture description for each soil name and number of hectares per texture per sub-basin totalled.
- An AWSC was then assigned to each soil texture based on the BC Irrigation Management Guide Table 2 – Water Conservation Fact Sheet (MAFF 2005).
- To convert to SWS, the average rooting depth is estimated at 45 cm, which corresponds to the crop grass (Van der Gulik pers. comm. 2007). It is important to remember that, as reported above, the SWS was only applied in April calculations because it is a calculation of water stored in the soil over the winter that becomes available for plant use in spring; therefore, soil types only effect PET calculations for the month of April. If the average rooting depth was larger, for example, 1.2 m for alfalfa, the amount of water stored from winter that plants could use at start of the growing season would be larger and therefore, a lower PET value for the year would result. Table 2.5 presents a summary of soil types per sub-basin.
Table 2.5Distribution of soil classes and the corresponding available water storage
capacity (AWSC).

Sub-basin	Appro	oximate Area by Soil Texture Class	Water Storage Capacity (mm water/ m soil)	Soil Name(s) ¹	Texture Description ¹
	50%	fine sandy loam	142	Riddell, Frances	Moderately coarse and medium
	17%	loam	175	Tunkwa	Medium
Caldruster	14%	sand	83	Glossey	Coarse
Coldwater	10%	clay loam	200	Manning	Moderately fine
	6%	loamy sand	100	Chasm	Coarse and moderately coarse
	3%	loam to clay loam	188	Timber	Medium and moderately fine
	45%	sand	83	Glossey	Coarse
Cuichan	22%	loamy sand	100	Gisborne	Coarse & moderately coarse
Guichon	17%	loam to clay loam	188	Tracchyte	Medium and moderately fine
	16%	loam	175	Tunkwa	Medium
	47%	sand	83	Godey, Glossey	Coarse textured
	25%	fine sandy loam	142	Frances	Moderately coarse and medium
Lower Nicola	23%	loomy sond	100	Fleet Creek, Ayimer, and	Coarse and moderately coarse
	5%	loam to clay loam	188	Tullee	Medium and moderately fine
	12%	fine sandy loam	142	Cache Creek Frances	Moderately coarse and medium
	39%	loam to clay loam	188	Lac du Bois Trann Lake	Medium and moderately fine
Mid Nicola	14%	sand	83	Commonage	Coarse
	<u>1470</u>	clay loam	200	Lundbom	Moderately fine
Moore Creek	100%	sand	83	Godey	Coarse textured
Moore creek	79%	fine sandy loam	142	Frisken Frances	Moderately Coarse and medium
Quilchena	21%	sand	83	Godey	Coarse
	34%	loamy sand	100	Fleet Creek	Coarse and moderately coarse
Spius	34%	loam to clay loam	188	Timber	Medium and moderately fine
~	32%	sand	83	Glossey	Coarse
	44%	loam to clay loam	188	Tullee	Medium and moderately fine
Stump Lake	35%	fine sandy loam	142	Frances	Moderately coarse and medium
	21%	sand	83	Godey, Gwenn	Coarse
	49%	fine sandy loam	142	Frisken, Frances	Moderately coarse and medium
Unner Nicola	40%	loamy sand	100	Glimpse	Coarse and moderately coarse
opper Meona	7%	sand	83	Godey	Coarse
	3%	loam to clay loam	188	Trapp Lake	Medium and moderately fine

1. Based on Department of Agriculture (1972 and 1976).

Based on the above-noted methods, irrigation demands over the irrigation season (late April to October) were calculated to range from 622 mm to 712 mm across the Nicola River watershed, with an overall spatially weighted average of 664 mm.

To estimate the volumetric demand (in m³) for irrigation, irrigation demands (on a depth of water basis) were multiplied by the areas currently under irrigation.

Example Calculation

An example of the agriculture demand calculation is presented here, for the Coldwater sub-basin. As a reminder, the terms are defined as follows:

- Soil Moisture Deficit (SMD) = Climatic Moisture Deficit (CMD) (except for April)
- SMD = CMD (Available Water Storage Capacity (AWSC) X Rooting Depth of 0.45 m) (for month of April only)
- CMD = Absolute value of Effective Precipitation (EP) Potential Evapotranspiration (PET).

The calculation CMD and SMD for each month are shown in the following table:

	EP	PET^1	CMD	SMD in mm per soil type (C)					
	(A)	(B)	(A-B)		(See Table 2.5 for AWSC for April)				
						fine		loam to	
					loamy	sandy		clay	clay
Month	(mm)	(mm)	(mm)	sand	sand	loam	loam	loam	loam
April	4.14	72.62	68.48	31.13	23.48	4.58	0.00	0.00	0.00
May	5.52	122.52	117.00	117.00	117.00	117.00	107.00	101.00	95.00
June	8.02	149.35	141.33	141.33	141.33	141.33	141.33	141.33	141.33
July	8.77	175.94	167.17	167.17	167.17	167.17	167.17	167.17	167.17
August	5.83	146.32	140.48	140.48	140.48	140.48	140.48	140.48	140.48
Sept	6.70	81.05	74.35	74.35	74.35	74.35	74.35	74.35	74.35
Oct	6.82	29.89	23.07	23.07	23.07	23.07	23.07	23.07	23.07
Sum	45.80	777.68	731.88	694.53	686.88	667.98	653.40	647.40	641.40

Notes:

1. Based on Priestley-Taylor Coefficient of 1.74 (arid areas).

2. For the purposes of this example, values are presented to two decimal places.

3. The values presented are considered significant to the nearest mm.

In July, for example (bolded in the above table), effective precipitation is just 9 mm compared to a PET of 176 mm, yielding a CMD of 167 mm. None of the moisture stored in the soil during the previous winter is available to plants, so the SMD is equal to the CMD. This means that 167 mm would need to be irrigated over the month of July to satisfy a grass crop (or 1,670 m^3 /ha).

Moving up to a sub-basin scale, we introduce the irrigated areas obtained through GIS analysis. The SMD for each soil texture is multiplied by the area of each soil texture of irrigated land, and summed for the whole sub-basin, as presented in the following tables for the Coldwater sub-basin:

Area of irrigated land by soil type in the Coldwater sub-basin (m ²) (D)							
loamy fine sandy loam to clay							
sand	sand sand loam loam loam clay loam						
608,279.8	Sund Sund Journ J						

Notes:

1. For the purposes of this example, values are presented to one decimal place.

2. The values presented are considered significant to the nearest $1,000 \text{ m}^2$.

	Volumetric water deficit by soil type in the Coldwater sub basin (m ³) (C/1000 X D)						
		loamy	fine sandy		loam to clay		
Month	sand	sand	loam	loam	loam	clay loam	Total
April	18,933	5,882	9,980	0	0	0	34,795
May	71,169	29,315	255,190	80,428	15,091	45,685	496,879
June	85,966	35,410	308,248	106,230	21,117	67,964	624,934
July	101,687	41,886	364,619	125,657	24,979	80,392	739,220
Augus	85,452	35,199	306,407	105,596	20,991	67,558	621,202
Sept	45,227	18,629	162,170	55,888	11,110	35,756	328,780
Oct	14,034	5,781	50,321	17,342	3,447	11,095	102,019
Total	422,468	172,101	1,456,935	491,140	96,735	308,450	2,947,829

Notes:

1. Minor errors are due to rounding.

2. For the purposes of this example, values are presented to the nearest m^3 .

3. The values presented are considered significant to the nearest $1,000 \text{ m}^3$.

As highlighted in the above table, for the month of July, a total of 739,220 m³ would need to be irrigated in the Coldwater sub-basin to meet demands of a grass crop. The crop water demand in the Coldwater sub-basin for the entire year is the sum of the irrigation

demands for months April to October, and is 2,947,829 m^3 , as shown in italics in the above table. Some rounding errors are incorporated into the equations; therefore, the result is considered precise to the nearest 1,000 m^3 (i.e. 2,948,000 m^3/yr).

The results for all watersheds are provided in Section 5.0 and Appendix F. The outcome of the irrigation demand analysis indicates the amount of irrigation required to meet the needs of a grass/pasture crop in a normal year (i.e.: the average based on 30 years of data). The calculated irrigation demand is an <u>estimate</u> of the volume of irrigation that would be "just right" considering the soil texture class, climate, and the assumed grass/pasture crop. It does not account for distribution losses or for losses due to over irrigation. Discussion of these topics is provided in Section 5.13 of the report. As noted earlier, these estimates are appropriate for sub-basin scale investigations and may over or underestimate values for specific farm fields.

Field Reconnaissance

A reconnaissance-level field survey was completed in October 2006 and the information from this provided a basis to develop estimates of irrigation efficiency throughout the watershed, and to identify the potential for future expansion of irrigated areas. Summit conducted the survey by driving the major routes as follows:

- Highway 8 from Merritt to Spences Bridge;
- Meadow Creek Road from Logan Lake to Lac Le Jeune;
- Highway 97C from Logan Lake to Merritt;
- Highway 5A from Merritt to Stump Lake;
- Douglas Lake Road from Quilchena to Chapperon Lake;
- Coldwater Road from Merritt to the Kingsvale Interchange;
- Forest Service Road from Kingsvale Interchange to the Highway 5A intersection near Corbett Lake; and
- Highway 5A from near Corbett Lake to Merritt.

Based on the field reconnaissance, base maps of irrigated areas were refined, and the method(s) of irrigation used in each irrigated area was specified. While some information on which the methods of irrigation used by each ranch was obtained during the field reconnaissance, the lack of base mapping available showing land ownership precluded a full assessment of this.

Review of Irrigation Efficiency

Irrigation efficiency is defined as the total volume of water used "consumptively" (i.e. evapotranspiration) divided by the amount of water obtained from the irrigation source (Hillel 1998). Any result less than 100% indicates that water was lost during conveyance and distribution and/or was drained below the rooting zone. Once the GIS and reconnaissance field survey was completed, an evaluation of irrigation efficiencies was completed with reference to application efficiencies published in the BC Irrigation Management Guide (MOA 2005). An assessment of the potential for gains in irrigation efficiency, and the potential resulting reduction in water use was then made. The results are summarized in Section 5.13.

2.6.2 Industry

Industrial water users were interviewed regarding their actual water use, and if this information was not available, their industrial practices. Actual water use information was provided by Tolko Industries Ltd., Craigmont Mines, Highland Valley Copper, and Norgaard. Aspen Planers Mill, and NMV Lumber provided information regarding their industrial practices and information from these companies was assumed to represent forestry sector businesses. The Lower Nicola Indian Band provided information regarding small industrial practices on their reserves.

To account for the remaining (generally smaller) industrial activity, information on the number of employees within the industrial sector was obtained from Statistics Canada, Community Futures and company websites, as well as interviews with staff from the City of Merritt and District of Logan Lake. For example, small businesses that we considered as industries included gravel pit operations, wood product operations, towing and salvage operations. Care was taken not to double count employment numbers from different sources. For the Middle Nicola and Coldwater sub-basins, Darrell Finnigan, City of Merritt, Waste Water Treatment Plant Operator, identified that approximately 65% percent of businesses in Merritt are located in Coldwater sub-basin and 35% are located in Middle Nicola sub-basin. This proportion was applied to apportion industrial employment numbers by sub-basin.

To calculate water demand from industrial business where actual use was not obtained, the number of employees was multiplied by an assumed water use rate per employee. These rates are based on the BC Sewerage Standard Practice Manual (MOH 2006) assuming wastewater production is equivalent to water use. The rates identified by MOH (2006) are considered minimum flow rates that must be designed for when determining indoor plumbing requirements and include a safety factor. Therefore these values likely slightly overestimate actual values of water use, but in general should be reasonable.

Based on MOH (2006), it was assumed that water use per employee for an industrial building (without showers) is 45 litres/day. The daily rate was applied for 365 days per year unless known otherwise from interviews. When truck washing was known to occur, it was also estimated that trucks take about 1 hour to wash. Truck washes use on average 378 litres/truck (MOH 2006).

2.6.3 Business and Commercial

A list of businesses was compiled from Statistics Canada, Community Futures, City of Merritt and District of Logan Lake. Information regarding individual business practices, size of the business, and other relevant information useful for estimating water demand, was obtained by searching business websites, as well as interviewing individual business owners, staff from the City of Merritt, District of Logan Lake, and Lower Nicola Indian Band. As with the industrial sector, we have assumed that 65% of businesses in the City of Merritt fall within the Coldwater sub-basin and 35% lie within the Middle Nicola subbasin (Finnigan pers. comm. 2007). Google Maps (2006) was used to locate some individual industries.

Generally, the size of the business, and thus, water use is represented by the number of employees; however, other factors are important including the number of seats in a restaurant, the number of machines in a Laundromat, or the number of sites at a campground. To calculate water demand in the business and commercial sector, the number of relevant "units" that characterize each business was multiplied by an assumed water use rate per unit (Table 2.6). These rates are based on the BC Sewerage Standard Practice Manual (MOH 2006) assuming wastewater production is equivalent to water use.

Type of Facility	Unit	Assumed water demand (litres/day)
Restaurant	seat	31
Laundromat	wash	168
Large supermarket & meat department	square meter of store space	3
Small dry goods store	each	379
Automobile gas station	island	2000
Car wash	car	189
Motel full housekeeping	person	118
Campgrounds non year round	site	365
Double occupancy cabin resort (applied to B&Bs, guest	person	128
houses)		
Year round Camping (applied to RV parks)	site	545
Coffee Shop (applied to food and beverage services sub- sector)	employee	36
Department store	employee	36
Office no cafeteria	employee	50
Town offices (applied to finance, insurance, and real	employee	57
estate – other sub-sector)		
Warehouse	employee	132
Shopping Centre	employee	5

Table 2.6Assumed unit water demands in the business and commercial sector.

Source: BC Sewerage Standard Practice Manual (MOH 2006).

Unless otherwise noted, all businesses were assumed to be operational all year. Some businesses were noted to have a seasonal trend and therefore seasonal scaling factors were applied based on interviews. For example, some campgrounds are only open for summer months. In this case, the daily values were only calculated for those months. Furthermore, hotels, motels, and bed and breakfast operations are typically 75% booked in winter months (Best Western 2006); we have assumed that in the summer they are 100% booked. All rooms were considered double occupancy. If no information could be found on a business, it was assumed to be comparable to others in the area. Public utilities were considered part of the Business and Commercial sector; however government offices were considered part of the Institutional sector.

2.6.4 Domestic

Total domestic water demand was based on estimating the population of each sub-basin (Section 2.4.3) and identifying a representative per capita domestic water demand. All known major and minor water utilities were contacted for relevant information. The City of Merritt provided population data as well as daily water use data from 1998 to 2006⁴. The District of Logan Lake provided population data as well as seasonal water use estimates. Most water utilities did not provide useful information; however, Ridgemark Estates Water Users Society (in the Guichon sub-basin) did provide actual water use estimates and three (3) water utilities provided population data. We were unsuccessful at contacting five (5) water utilities. Note that existing and proposed resort developments (that include domestic use) were assessed under the sector "Recreation and Resorts".

The estimated per capita water use was calculated based on water use data collected by the City of Merritt. The City of Merritt provided daily water use data from 1998-2006. We have assumed this data is representative of current (2006) water use. To determine domestic water use in the city, the total calculated demand from all other sectors was subtracted from the water use data; as a result, the annual per capita domestic use for the

⁴ The City of Merritt water use data is recorded near the source (i.e. wells). It therefore is a good measure of the water used or extracted from the source. As in most other municipal water supply systems, there are water losses throughout the distribution system. While they were not confirmed in this study, typical losses are on the order of 10% (Beecher 2002). For the purposes of this report, such losses have been

City of Merritt was determined to be 770 litres/person/day (Table 2.7). This value is similar to other communities in the southern interior of British Columbia that are not metered:

- Kamloops (unmetered): 820 litres/day;
- Kelowna (prior to metering): 775 litres/day;
- Vernon (prior to metering): 700 litres/day; and
- Trepanier Landscape Unit (near Westbank): 789 litres/day (Summit 2004).

Table 2.7 indicates the pattern in domestic water use for the City of Merritt throughout the year and identifies the indoor and outdoor portions of total use based on the assumption that outdoor use is effectively zero between November and March. The per capita domestic water use presented in Table 2.7 and the estimated population by subbasin presented in Table 2.3 were the basis for developing domestic demand estimates for the whole Nicola watershed.

The proportion of groundwater versus surface water used in the domestic sector was determined by estimating the population supported by each source. In several sub-basins, the source could not be confirmed for all of the population. It was therefore assumed that the proportion of the population *known* to be supported by each source (based on the available information) was representative of the actual proportion of the population supported by each source.

ignored; thus unless noted otherwise, the domestic water demand and the actual water used or extracted from the source are assumed to be equal.

	Total domestic water use (L/person/day)	Indoor domestic water use (L/nerson/day)	Outdoor domestic water use
IAN	(L/person/day) 450	450	(L/person/day)
FEB	418	430	0
MAR	439	439	0
APR	749	446	303
MAY	951	432	520
JUN	1033	446	587
JUL	1456	432	1025
AUG	1352	432	921
SEP	875	446	429
OCT	573	432	142
NOV	455	455	0
DEC	447	447	0
ANNUAL	770	440	330
Aug Week 1	1448	432	1017
Aug Week 2	1481	432	1050
Aug Week 3	1410	432	979
Aug Week 4	1251	432	819
Aug Week 5	1120	432	688
Sept Week 1	1041	446	595
Sept Week 2	993	446	547
Sept Week 3	844	446	398
Sept Week 4	771	446	325
Sept Week 5	720	446	274

Table 2.7Per capita water use for domestic purposes based on City of Merritt (1999-
2005) data.

Information on the groundwater/surface water distribution was obtained or estimated from the following:

- Municipal utilities (i.e. City of Merritt, District of Logan Lake); and
- Small utilities;
- Individual households supplied by groundwater (as determined in Table 2.2); and
- Individual surface water licence holders.

To estimate the population in individual households supported by groundwater the number of individual domestic wells was multiplied by 2.38 people/household⁵. A similar procedure was done to estimate the population in individual households supported by surface water. The number of surface water licenses issued to individual users was multiplied by 2.38 to determine a population supported by that source.

Table E-3 in Appendix E presents a summary of the domestic groundwater/surface water distribution estimates by sub-basin.

2.6.5 Institutions

Institutions include facilities that are municipal, provincial, and federal governmentfunded or non-profit, including medical offices/hospitals, schools, firehalls, city and provincial parks and campgrounds, a fish hatchery, government offices, churches, town convention centres, recreation centres, arenas, ice rinks, municipal swimming pools, townhalls, bandhalls, band offices, curling rinks, civic centres, day cares, and colleges.

Generating a list of these facilities and their employment or other details was completed by researching the following sources:

- Merritt Service Directory;
- Merritt and Logan Lake websites;
- BC Parks websites;
- Community Futures data;
- Interviews with school personnel;
- Interviews with recreation centre personnel; and
- Interviews with Lower Nicola Indian Band members.

To determine the water demand for all institutional facilities (except parks) we multiplied the number of units (for example, number of students, beds in a hospital, seating capacity

⁵ The estimate of 2.38 persons per household is based on 2001 Census data for Merritt (discussed below

of a townhall, number of campsites, number of visitors at a visitor centre) by an assumed water use rate based on the BC Sewerage Standard Practice Manual (MOH 2006) using a similar methodology as in the Industrial and Business and Commercial sectors. Each business was classified by the categories in MOH (2006) as presented in Table 2.8. The assumed daily water use rate was applied for 365 days per year unless known otherwise from interviews or other sources. For government operated campsites, we adjusted estimates for seasonal use. For day-use sites with picnic table facilities, we assumed each picnic table would be used by 10 people per day for three months of the year.

Type of Facility	Unit	Assumed water demand (litres/day)
Medical Clinic	employee	273
Dental Clinic	chair	757
Senior citizen home	resident	136
Office no cafeteria	employee	50
Town Hall	seat	19
Elementary school	student	26
Day care	employee	73
High School	student	45
Church with kitchen	seat	9
Non year round campground	site	365
Ice Rink	seat	11
Fitness Room/Gym	person	38
Fire Station	person	19
Hospital	bed	409
Junior High School	student	34
Visitor Centre	visitor	23

Table 2.8Assumed unit water demands in the institutional sector.

Source: BC Sewerage Standard Practice Manual (MOH 2006).

For parks with irrigation requirements, water demand varies throughout the year. It was assumed that the water demand for irrigated parks is similar to that of agriculture, using the same climate data for each sub-basin, and using an average soil texture for parks within each sub-basin. The area of parks was estimated using GIS software and high

under "Population data".

resolution orthophotos. Park irrigation requirements were estimated by multiplying the calculated average soil moisture deficit by the estimated area of irrigated park land.

2.6.6 Recreation and Resorts

Water users in this category include current and near-future developments and private recreational facilities such as golf courses, Merritt Mountain Music Festival, Merritt Speedway, fishing resorts, spas, and ski resorts. Current restaurants, bed and breakfast operations, motels, and hotels (which are generally in an urban setting) are not included in this sector; rather, they are considered as part of the business and commercial sector. A list of the main recreation facilities and resorts was compiled during the Nicola WUMP October 1, 2005 Issue Workshop 1 minutes (2005), supplemented by researching the City of Merritt website.

Except for golf courses and the domestic portion of resort developments, water demand numbers for this sector were calculated based on MOH (2006) in a similar way as for the industrial, business and commercial and institutional sectors. Each facility identified within the recreation and resorts sector was classified into three (3) categories developed by MOH (2006) (Table 2.9). Information on the size of the facility was collected by researching individual development websites or by phoning facility operators directly.

When information on the size of a certain resort development was unknown, a comparable operation was used as a surrogate. For Juliet Creek and Active Mountain golf course developments, the golf courses were assumed to be the same size as Merritt Golf and Country Club. For cabins, four (4) persons per cabin were assumed. For proposed spa developments, pools were considered to be half the size of Merritt's aquatic centre. For Active Mountain's proposed auto repair facility it was estimated that there would be four (4) employees. If the facility was used for a portion of the year, this was also considered. For the Active Mountain Raceway, it was estimated that there would be the same number of weekend races as at the existing Merritt Speedway.

Type of Facility	Unit	Assumed water use (litres/day)
Picnic and fairgrounds with showers (applied to Rodeo	person	38
Grounds)		
Industrial Building (applied to Active Mountain	employee	75
proposed Auto facility)		
Unspecific Office Space (applied to proposed	square metre	613
commercial space)		

Table 2.9Assumed unit water demands in the recreation and resort sector.

Source: BC Sewerage Standard Practice Manual (MOH 2006).

Water demand requirements for golf courses were treated similar to that of parks and irrigated fields as no actual use values were available from Merritt Golf and Country (Wahnschaff pers. comm. 2007). The area of golf courses, determined from orthophotos using GIS software, was multiplied by the calculated soil moisture deficit to determine volumetric water demands.

Water demand for recreational lots was calculated as for domestic use by multiplying the population by the per capita domestic water use rate identified from the analysis of City of Merritt water use data. If population estimates were not available, it was assumed that each proposed recreational lot would have one (1) household. The population was estimated based on multiplying number of proposed lots by 2.38 people per household.

2.7 ESTIMATION OF FUTURE WATER DEMAND

Future water demand is related to projected pressures (e.g. population growth, land use change) on water within each sector (see Section 7.0). Since there are many possible changes that could occur within each sector in the future, there are a limitless number of possible future scenarios. The process used to identify a number of realistic scenarios and the projections based on these scenarios is outlined in Section 8.0.

2.8 EVALUATION OF DATA

The general goal of evaluating the water demand/use data was to identify where confidence in the demand/use data and therefore overall water balance to be developed

under other WUMP activities can be improved. In our evaluation of the available information we reviewed the quality of the data and importantly the rationale and assumptions used in estimating the data. Where different approaches were possible, we compared these and identified which options reduced uncertainties and improved overall confidence. All methods used to determine present and future water demand were assessed and evaluated for improvements. This analysis is summarized in Section 9.0.

3.0 BRIEF DESCRIPTION OF THE NICOLA RIVER WATERSHED

3.1 LOCATION AND PHYSIOGRAPHY

The Nicola Basin is a part of the Thompson Plateau and lies in the south-central portion of British Columbia covering an area of 7,220 square kilometers. The major centres in the Nicola Basin are Merritt, Logan Lake, Quilchena, and Douglas Lake. Highways that transect the basin include Highways 5, 8, and 97C.

The physiography of the Nicola River watershed is characterized by predominantly mountainous terrain in the southwestern portion (Cascade Mountains), high elevation grasslands in the northeastern portion, and a large u-shaped valley and tributaries transecting the watershed. The watershed ranges in elevation from about 210 m to 2,170 m. The Nicola River is the principal stream in the watershed flowing west towards the Thompson River, with many tributary streams and more than 200 lakes. Four (4) of the largest lakes in the Nicola basin are Nicola Lake, Douglas Lake, Chapperon Lake, and Stump Lake.

3.1.1 Clapperton

The Clapperton sub-basin is the smallest sub-basin identified for this study and is predominantly forested with some grasslands. Clapperton Creek flows into the Nicola River near the outlet of Nicola Lake. There is a small population living in the Clapperton sub-basin as well as few ranching operations, but no irrigated lands were identified in the sub-basin. Highway 5 bisects the sub-basin.

3.1.2 Coldwater

The Coldwater sub-basin is the most southerly sub-basin consisting of mainly rugged forested terrain with some irrigated land in the valley bottoms. Lakes are scattered across the basin and the main water sources are the Coldwater River and its tributaries. The southern half of the City of Merritt is located within the Coldwater sub-basin.

3.1.3 Guichon

The Guichon sub-basin is the most northerly sub-basin in the Nicola watershed and is characterized by broad valleys, rounded hills, and a few scattered lakes. Logan Lake is located near Highway 97C and is the major urban centre within the sub-basin. Guichon Creek flows into the Nicola River near the community of Lower Nicola. Water use in the sub-basin is primarily for ranching, domestic use by Logan Lake, and industrial use by Highland Valley Copper.

3.1.4 Lower Nicola

The Lower Nicola sub-basin consists mainly of forested and irrigated lands with several ranching operations. The Lower Nicola sub-basin includes the community of Lower Nicola and Craigmont Mine as well as the lower reaches of the Nicola River.

3.1.5 Middle Nicola

The Middle Nicola sub-basin consists mainly of irrigated land with some forested land and rolling hills. Nicola Lake and the northern half of the City of Merritt are located within the Middle Nicola sub-basin. Highway 5A parallels the south edge of Nicola Lake within the sub-basin.

3.1.6 Moore

The Moore sub-basin is a small sub-basin located upslope of Nicola Lake consisting largely of rangeland and forests. Relatively little irrigation occurs within the sub-basin. However, a portion of the water obtained from the sub-basin may be diverted for irrigation in the adjacent Stump Lake sub-basin.

3.1.7 Quilchena

The Quilchena sub-basin consists largely of rangeland and forested areas with rolling hills. The sub-basin has a number of small lakes and the lower elevations include

considerable areas of agricultural lands. Highway 97C transects the south portion of the sub-basin.

3.1.8 Spius

The Spius sub-basin is largely a forested valley with a relatively small land base for agriculture. Water obtained from Spius Creek may be used within the Lower Nicola sub-basin.

3.1.9 Stump Lake

The Stump Lake sub-basin consists mainly of high elevation plateau and forested land with many lakes, including Stump Lake. Stump Lake Creek flows to Nicola Lake; however, for at least the last several years, water has rarely flowed down the creek into the Nicola Lake as a result of declining water levels in Stump Lake (Gizikoff, pers. comm. 2007). Relatively small areas are irrigated northeast of Stump Lake.

3.1.10 Upper Nicola

The Upper Nicola is the largest sub-basin and consists mainly of grazing lands and some forested areas. Grasslands are found at lower elevations and forests cover the higher elevation plateau. Three major lakes, Douglas, Chapperon, and Pennask, and several smaller lakes are located in the Upper Nicola sub-basin.

3.3 OVERVIEW OF CLIMATIC REGIME

The Nicola watershed has a continental climate with warm dry summers and cool dry winters. Given the elevation differences and the climatic gradient between the Coast Mountains and the B.C. interior, annual precipitation in the watershed ranges from about 236 mm to 336 mm (Environment Canada 2006). Temperatures also vary across the watershed depending on location and elevation. At the City of Merritt, mean annual temperature is 7.1°C (Environment Canada 2006). Based on ClimateBC model output (Wang et al. 2006), the range in mean annual temperature across the watershed is likely

modest, from about 4 to 7° C. The daily average temperature at Merritt in July is 18.2° C. In January the average daily temperature at Merritt is -5.2° C. Again, modest differences (i.e. a few degrees difference) in these numbers are expected across the watershed.

3.4 OVERVIEW OF HYDROLOGIC REGIME

According to Obedkoff (1998), the Nicola watershed encompasses four (4) hydrologic zones which reflect the hydrologic gradient from the relatively wetter Coast Mountains to the drier interior plateau. These zones include:

- Zone 25 Eastern South Coast Mountains;
- Zone 17 Northern Thompson Plateau;
- Zone 24 Southern Thompson Plateau; and
- Zone 15 Fraser Plateau.

In general, the natural annual hydrographs for streams in the Nicola watershed are dominated by snowmelt in the spring. Following spring freshet, streamflows steadily decline towards a baseflow through summer, fall, and winter. In the drier eastern portion of the watershed, occasional rainstorms are common, but typically produce only minor peaks in the annual hydrograph. In the western portions (i.e. Coldwater and Spius subbasins), it is common for large fall floods associated with rainstorms and rain on snow events.

Given the long history of water use in the watershed, several streams are affected by water storage and withdrawals; the hydrographs of these streams tend to be characterized by relatively lower peak flows in spring and increased base flows in summer and fall. The increased base flow however is largely lost from streams because of withdrawals principally for irrigation.

3.5 **OVERVIEW OF GROUNDWATER RESOURCES**

The main aquifers are located in the valley bottoms in thick layers of glacially-deposited sands and gravels overlying bedrock. According to Ministry of Environment files, a total

of 398 wells are located in the Nicola watershed. Over half of these are drilled in the glacially deposited unconsolidated deposits (MOE 2006).

The highest yielding wells in the area are near Douglas Lake, Guichon Creek, the lower portion of the Moore Creek sub-basin, and on the north side of Nicola Lake, yielding up to 128 L/s. Near Logan Lake there is an artesian aquifer approximately 30 m thick (MOE 2006). There are three (3) known aquifers in the Merritt area: two (2) confined aquifers located about 60 m to 100 m below ground surface, and a third, shallow but discontinuous aquifer (within unconsolidated deposits), with reports of yields up to 120 L/s.

In the other areas, the majority of the drilled wells are located in the river valleys and it is believed that some of the wells may be extracting river water or some groundwater under the influence of surface water (Urban Systems 2005).

4.0 LAND USE IN THE NICOLA RIVER WATERSHED

4.1 INTRODUCTION

The Nicola River Watershed supports a wide range of land uses including agriculture, industry, business and commercial activity, institutions, and recreation and resorts. An overview of these land uses is provided in this section. Details on land use in each subbasin are presented in Section 5.0.

4.2 AGRICULTURE

Agriculture accounts for the largest use of water in the Nicola River Watershed. Based on discussion with the Nicola WUMP Technical Advisory Group, we estimate there are approximately 45 large ranches within the Nicola River watershed including the largest privately held cattle ranch in Canada, Douglas Lake Ranch (Douglas Lake Cattle Company 2003). The majority of the water used is to irrigate fields in support of cattle ranching.

4.3 INDUSTRY

Industrial activity in the watershed falls largely within the mining and forestry sectors. Processing and milling activities for these sectors are concentrated near the major urban center at Merritt and at Highland Valley Copper near Logan Lake.

Forestry

There are four (4) lumber mills operating in the City of Merritt. Although lumber mills are concentrated in the city centre, forestry operations are carried out throughout the watershed.

Mining

There are two (2) open-pit mines in the Nicola River Watershed, Highland Valley Copper and Craigmont Mines, situated in the Guichon and Lower Nicola sub-basins, respectively.

4.4 BUSINESS AND COMMERCIAL ACTIVITY

Business and commercial activity is largely concentrated in Merritt and Logan Lake. Business and commercial activity in Merritt supports not only the city but also residents throughout the Nicola watershed as well as tourists traveling though BC's southwestern Interior. Logan Lake businesses are mainly focused on servicing residents of Logan Lake and local surrounding areas.

4.5 **DOMESTIC**

Water for domestic purposes is used by rural and urban households in the watershed. The primary urban areas include Merritt and Logan Lake; both of these areas have their own water utility. In rural areas, there are a few water utilities, but most households are serviced by individual wells and surface water licences.

Waterworks

The major urban domestic water utilities are the City of Merritt and the District of Logan Lake. Several other water purveyors or associations located within the Nicola watershed were identified serving rural areas or sub-divisions (Table 4.1). One water utility (Westbank Irrigation District) meets some of their water requirements by diverting water from the Nicola watershed for use in the Okanagan.

 Table 4.1
 List of existing water purveyors and associations identified in the Nicola watershed.

Sub-basin	Water Utility
Coldwater	City of Merritt
	Brookmere Water Users Community
Guichon	District of Logan Lake
	Ridgemark Estate Water Users Society
	Lookout Road Water Users Association
	Lac le Jeune Conservation Association
Lower Nicola	Lower Nicola Waterworks District
	Miller Estates Water Society
Middle Nicola	City of Merritt
	Harmon Estates
Moore	-
Quilchena	-
Spius	-
Stump Lake	Peter Hope Resorts
Upper Nicola	Westbank Irrigation District

First Nations

First Nations populations are mainly concentrated in the Guichon, Coldwater, Lower Nicola and Upper Nicola sub-basins. The Guichon sub-basin has the largest First Nation population with 36% of the total population in the Nicola basin.

Individual Users

Rural residences are scattered throughout the Nicola watershed.

4.6 INSTITUTIONS

Institutions are concentrated in Merritt and Logan Lake mainly to support local populations. Some First Nation band offices and town halls are also located in other sub-basins, including Upper Nicola, and Lower Nicola.

4.7 **RECREATION AND RESORTS**

Recreational activity and resorts are located throughout the watershed. Recreational destinations include golf courses, ski resorts, recreational property developments, winter activity destinations other than skiing, spa destinations, summer activity (including

horseback riding/ranching) destinations, fishing destinations, rodeo grounds, motor sport destinations, and events such as the Merritt Mountain Music Festival.

The Nicola basin has a small number of existing resorts as well as several proposed small to large-scale resorts. For the purposes of this study, we have assumed the proposed resorts will be developed in the near-future and therefore we have included all known proposals in current water demand calculations.

Golf Courses

There are three (3) existing golf courses in the Nicola watershed, located in the Middle Nicola, Guichon, and Quilchena sub-basins. There are four (4) proposed golf courses: two (2) in the Coldwater sub-basin and two (2) in the Middle Nicola sub-basin.

Ski Resorts

There is one (1) existing ski tour operation and one (1) proposed ski resort in the Nicola River Watershed: Topnotch Tours Inc., located in the Spius sub-basin, is a small heli-skiing and cat-skiing operation⁶ and Juliet Creek Resort, located in the Coldwater sub-basin, is a proposed development of a ski area and complex.

Other Development

Fishing and other summer and winter activity destinations are located in the Coldwater, Quilchena, Upper Nicola, Guichon, and Stump Lake sub-basins. Recreational activities such as rodeo, spa, motor sports, and events are concentrated mainly in Coldwater and Lower Nicola sub-basins.

4.8 FIRST NATIONS

There are seven (7) First Nations Bands and 33 Reserves located in the Nicola watershed. Table 4.1 lists these bands and their respective reserves and estimates of their population.

⁶ It has come to our attention that Top Notch may not be operational at the time this report was prepared; however, as it is a minor water user, we have included it in our calculation.

For purposes of this study water demand on reserves has been estimated within six (6) principal sectors noted above.

			Estimated				Estimated
Band	I.R. No.	I.R. Name	population	Band	I.R. No.	I.R. Name	population
COLDWATER	1	COLDWATER	245	NOOAITCH	10	NOOAITCH	117
	2	PAUL'S BASIN	13		9	NOOAITCH GRASS	-
	3	GWEN LAKE	-	SHACKAN	11	SHACKAN	71
COOK'S FERRY	1	KUMCHEEN	43		12	SOLDATQUO	-
	7	KLOKLOWUCK	13		13	PAPSILQUA	-
LOWER NICOLA	1	NICOLA MAMEET	507	UPPER	1	NICOLA LAKE	172
	14	ZOHT	-		2	HAMILTON CREEK	0
	2	JOEYASKA	34		3	DOUGLAS LAKE	160
	3	PIPSEUL	-		4	SPAHOMIN CREEK	-
	4	ZOHT	33		5	CHAPPERON LAKE	-
	5	ZOHT	-		6	CHAPPERON CREEK	-
	6	LOGAN'S	-		8	SPAHOMIN CREEK	-
	7	HAMILTON CREEK	-	TOTAL			1,408
	8	SPEOUS	-				
NICOMEN	10	SQUIANNY	-				
	11	ENHALT	-				
	12	SKAYNANEICHST	-				
	13	NAYKIKOULTH	-				
	9	SKEIKUT	-				

Table 4.2List of First Nations and reserves within the Nicola watershed.

Source: BC Stats (2006) - denotes no information available

5.0 PRESENT WATER USE IN THE NICOLA RIVER WATERSHED

5.1 INTRODUCTION

The following section is organized by sub-basin and land use sector. Within each sector, there is a brief discussion of the major users and the population known to be supported by surface water or groundwater⁷, the current water demand estimate, actual use information (if it was available), summary of licensed quantities (from surface source), and estimated proportion of total water demand sourced from groundwater.

Table D.1 and Figure D.1 of Appendix D summarize all water licences by sub-basin and sector. Table F.1 and Figure F.1 of Appendix F summarize all estimated current (2006) water demand by sub-basin and sector. It should be noted that other than for the agricultural sector, direct comparison between the licence and demand totals may not be valid and should be made cautiously. There are several reasons for this, including:

- Licensed quantities include only surface water. Some portion of demand is from groundwater;
- A considerable portion of the industrial, business and commercial, institutional, and recreation and resort demand may be supplied by water purveyors who hold waterworks licences these licences have been included under "domestic"; and
- There may be situations where water demand by one sector (e.g. recreation and resorts) is supported by licences for other uses (e.g. domestic).

However, within the agricultural sector, the comparison is generally valid since there is relatively little overlap with water use from other sectors. In addition, based on results from agriculture surveys completed by ranchers as part of this study, groundwater distribution the component of agricultural water demand sourced from groundwater is estimated to be relatively low (19%) in the Nicola watershed.

⁷ In many cases, the source of water could only be identified for a portion of the population in a sub-basin. Therefore, the number of persons known to be supported by either surface water or groundwater presented in Section 5.0 for each sub-basin may differ from the total sub-basin population presented in Table 2.3. As

5.2 CLAPPERTON

5.2.1 Agriculture

Based on the GIS analysis, there is no irrigated land within the Clapperton sub-basin.

Water Users

Based on surface water licence data, we have identified a total of nine (9) agricultural water users sourcing water from the Clapperton sub-basin. The major ranch identified as a "key user" is the Coquihalla Developments Corporation (Nicola Ranch).

There are eight (8) additional operations with irrigation and/or stockwatering water licences including the Lower Nicola Indian Band.

Because there is no agricultural land in Clapperton, water is likely being withdrawn out of the sub-basin and used downstream in the Middle Nicola sub-basin, where agricultural activities occur.

Licensed Quantities (from surface sources)

The annual quantity of water licensed in the sub-basin for agricultural purposes totals $6,240,367 \text{ m}^3$. Irrigation water accounts for 99.9%, while stockwatering accounts for the remainder. It is likely that all of the licensed quantity is used in the Middle Nicola sub-basin. In order to compare licensed quantities and estimated demands, it is recommended that Clapperton values be combined with Middle Nicola values; this is presented in Section 5.13.

5.2.2 Industrial

There are no known industrial water users in the Clapperton sub-basin.

described in Section 2.6.4, the total estimated sub-basin population (shown in Table 2.3) was used in determining total water demand.

5.2.3 Business and Commercial

There are no known water users for business or commercial purposes in the Clapperton sub-basin.

5.2.4 Domestic

Water Users

There is an estimated population of 67 in the Clapperton sub-basin. This population includes approximately 33 persons living on Zoht IR4 (BC Stats 2006). Of the total population in the sub-basin, 29 are served by individual groundwater wells and 12 are served by surface water licences for individual domestic use. The source of the water could not be determined for the 26 people or 39% of the total sub-basin population.

Demand Estimate

The annual demand estimate for domestic use in the Clapperton sub-basin is 18,820 m³ per year.

Actual Use

No information on actual water use for domestic purposes in the Clapperton sub-basin was identified.

Licensed Quantities (from surface sources)

Domestic water licences in the sub-basin account for 4,148 m³ per year. This quantity is held entirely by a few individual households. No licences for waterworks in the sub-basin exist.

Groundwater Use

We estimate 71% of domestic water supply in the Clapperton sub-basin is likely supplied by groundwater (Table E-3). An estimated 2% of all domestic water wells in the Nicola watershed are located in the Clapperton sub-basin.

5.2.5 Institutions

Water Users

There are no known institutional water users in the Clapperton sub-basin.

5.2.6 Recreation and Resorts

There are no known water users in the recreation and resort sector in the Clapperton subbasin.

5.3 COLDWATER

5.3.1 Agriculture

Water Users

Based on surface water licence information, we have identified a total of 18 agricultural water users in the Coldwater sub-basin. The following is a list of key users identified in the Coldwater sub-basin:

- John Anderson;
- Jon Peachey;
- Marilyn and Louis Cooke;
- Philip Chambers;
- Country Line Property Developments Corp;
- Alden and Louise Rushton;
- William C Strande;
- Hoigaard and Carey Iver; and
- The Coquihalla Developments Corporation.

There are nine (9) additional operations with stockwatering and irrigation water licences, including the Coldwater Indian Band, the Lower Nicola Indian Band, and the Active Mountain Entertainment Corporation.

Demand Estimate

Based on the GIS analysis, there are 442 ha of irrigated land in Coldwater, which is 7% of the total irrigated land in the Nicola watershed. The total annual crop water demand estimate is 2,947,829 m³, i.e. 7% of crop water demand in the Nicola watershed.

Actual Use

Information on actual agricultural water use was obtained in two (2) responses to the agriculture questionnaires. Estimates of irrigation demand based on these responses range from 171 mm to 762 mm per year. While the lower estimate is considerably lower

than our independent demand calculations (and seems erroneous), the upper estimate is reasonably consistent with our estimate of the total irrigation season soil moisture deficit in the Coldwater sub-basin (659 mm).

Licensed Quantities (from surface sources)

The annual quantity of water licensed in the sub-basin for agricultural purposes totals $6,637,436 \text{ m}^3$. Irrigation water accounts for over 99.9%, while stockwatering accounts for the remainder. The total licensed quantity is considerably higher than our demand estimate suggesting either a relatively low irrigation efficiency (see Section 5.13 for discussion), or more likely that some of the licensed quantity is not actively being used (or is not available to be used).

Groundwater Use

We estimate a total of 10 wells support irrigation in the Coldwater sub-basin, meaning that about 10 ranches/farms may be using groundwater wells as an irrigation water source.

One key agricultural water user in the Coldwater sub-basin who completed the questionnaire reported that 23% of water used was sourced from groundwater, and 77% from surface water.

5.3.2 Industrial

Water Users

Four (4) industrial companies were identified as being key water users in Coldwater subbasin:

- Tolko Industries Ltd.;
- Aspen Planers (site 1 and part of site 2);
- NMV Lumber; and
- Ardew Wood Products.

Tolko Industries Ltd., Merritt

There are 250 full time employees at the mill, in operation 250 days per year (Beech pers. comm. 2006).

Aspen Planers, Merritt

Aspen Planers operates on two (2) sites and is situated in both the Coldwater and Middle Nicola sub-basin. There are 150 full time employees at the mill, in operation 365 days a year (Marshall pers. comm. 2006). Water is only used for domestic purposes and is not used for industrial activities (Marshall pers. Comm. 2006). Truck washing is completed off-site by contractors.

NMV Lumber

NMV employs about 25 people, and does not use water in their industrial processes, except for some truck washing averaging 3 hours a week (Sandur, pers. comm. 2006). We have assumed this equals 1 truck per day. Truck washing is common at lumber mills and the number of trucks generally increases with the number of employees (Sandhur, pers. comm. 2006).

Ardew Wood Products, Merritt

Ardew employs approximately 75 people (Community Futures 2006). In addition to domestic water use, it was estimated that 2 trucks per day are washed.

Including the above key users, there are 208 people employed in the Forestry and Logging sector, 101 in the Mining and Oil and Gas sectors, and 78 in the Manufacturing sector in the Coldwater sub-basin⁸ (Statistics Canada 2006).

Demand Estimate

The demand estimate for industrial water use within the Coldwater sub-basin is 79,601 m³. This estimate consists of the actual water use information obtained from Tolko and

⁸ Refer to Section 2.6.2 for methodology of estimation of employment figures

adding to this figure an estimate for the rest of the companies that make up the industrial sector.

Actual Use

Tolko provided actual water use data. From information provided by Beech pers. comm. (2006), 187.4 m³ of water is used per day based on nine (9) months of water meter data.

Licensed Quantities (from surface sources)

There are no active water licences specifically for industrial purposes in the sub-basin. Water required by businesses and commercial activity in the sub-basin (located in the City of Merritt) is supplied by the City of Merritt water utility.

Groundwater Use

The industries listed above are all supported by City of Merritt. The City of Merritt is supplied 100% by groundwater so 100% of industrial water use in Coldwater sub-basin is likely sourced by groundwater.

5.3.3 Business and Commercial

Water Users

There are about 250 businesses in the Coldwater basin, highlighted by the following main sub-sectors (Community Futures 2006):

- Services: 260 employees in food and beverage services, 14 motels and a number of B&B and guesthouses with a estimated total of 405 rooms, and 2 private campgrounds with about 80 full-service year round RV pads;
- Construction: 196 employees;
- Wholesale and retail trade: 190 employees including 70 employees at Cooper's Foods and 30 employees at Pharmasave;
- Transportation, Warehousing, and Public Utilities: 150 employees; and
- Finance, Insurance, Real Estate, and Leasing: 95 employees, including 25 employees at Interior Savings.

Demand Estimate

The estimated water demand for Coldwater business and commercial sector is $83,000 \text{ m}^3/\text{year}$.

Actual Use

There is no known actual water use data for business and commercial activity in the Coldwater sub-basin. The City of Merritt does meter and record water use, but only near the source (i.e. well), not the customer/water user.

Licensed Quantities (from surface sources)

There are no active water licences specifically for business or commercial purposes in the sub-basin. Water required by businesses and commercial activity in the sub-basin (located in the City of Merritt) is supplied by the City of Merritt water utility.

Groundwater Use

The majority of businesses in the Coldwater sub-basin occur within city limits and the City of Merritt water is supplied 100% by groundwater; therefore, business and commercial water use is 100% sourced by groundwater. Two (2) water wells were also reported on the MOE database for commercial and industrial use.

5.3.4 Domestic

Water Users

There is an estimated population of 7,364 in the Coldwater sub-basin. This includes the City of Merritt, Brookmere, four (4) Indian Reserves, and others in unincorporated areas.

The City of Merritt is the largest water user in the Nicola River watershed. Approximately 80% of the population of Merritt is in the Coldwater sub-basin, representing about 6,000 people (Finnigan pers. comm. 2006). The remainder is located in the Middle Nicola sub-basin. Merritt's source of water comes from four (4) deep wells and one (1) shallow well (Finnigan pers. comm. 2006).

The Brookmere Water Users Community consists of eight (8) families who live there year-round, with a few more in the summer. The community is not expected to grow significantly in the near future (Detrich pers. comm. 2006).

There are four (4) Indian Reserves in the Coldwater sub-basin: Coldwater IR1, Paul's Basin IR2, Gwen Lake IR3, and Joeyaska IR2 with an approximate total population of 335 (BC Stats 2006). Joeyaska IR2 crosses sub-basin boundaries and is approximately 60% in the Coldwater sub-basin and 40% in the Middle Nicola sub-basin. For the purposes of this study, we have assumed that all of the population of Joeyaska IR2 is included in the Coldwater sub-basin.

Of the total population in the sub-basin, 6,000 are served by municipal groundwater wells, 438 by individual groundwater wells, 171 by surface water licences for domestic use, and 19 by surface water licences for waterworks. The source of the water could not be determined for 736 people or 10% of the total sub-basin population.

Demand Estimate

The estimated domestic water demand in the Coldwater sub-basin is 2,068,485 m³/year.

Actual Use

The City of Merritt distributes water to residential areas, as well as 380 businesses, five (5) lumber mills, and one (1) ready-mix plant (Finnigan, pers. comm. 2006). While water meters have been installed at businesses and industrial operations, only the latter have been recorded to date (Finnigan, pers. comm. 2006). We have calculated daily domestic water use by subtracting actual use information (where available) and the calculated water demand for all non-domestic sectors within the City of Merritt from the average total water use in the city. The daily per capita (indoor & outdoor) domestic water use in

Merritt ranges from a low of 418 litres/person/day in February to a high of 1,456 litres/person/day in July (Table 2.6).

Licensed Quantities (from surface sources)

Water licences for individual domestic users in the sub-basin total 82,546 m³. An additional 3,294,852 m³ is licensed annually for waterworks (domestic use being a large component), with 98% of the licensed quantity held by the City of Merritt, with Brookmere Water Users and the Coldwater Indian Band holding the remaining 2%. However, none of the licensed quantity held by the City is currently being utilized, as water is currently being sourced entirely from groundwater wells (Finnigan pers. comm. 2006).

Groundwater Use

Coldwater is 97% sourced by groundwater (Table E-3). We have no information on the domestic water source for First Nations in Coldwater sub-basin.

5.3.5 Institutions

Water Users

The following is a summary of main institutions identified in the study, organized by subsector:

- Medical (City of Merritt 2006):
 - Gillis House extended care: 25 beds;
 - o Coquihalla House intermediate care: 31 beds; and
 - Nicola Valley Senior's Residence with 73 units.
- Government (Community Futures 2006):
 - o Government: 343 employees; and
 - Band firehall: 25 employees.
- Halls/Churches (Community Futures 2006): 491 combined maximum capacity/seating (includes Coldwater Band Hall);
- Schools (Community Futures 2006):
- Coldwater Elementary Band School: 50 students;
- Daycares: 5 locations (we estimated 5 employees per location);
- Coldwater Resource Tech: 50 students;
- N'Kwala Elementary/Secondary Band School: 100 students;
- o 2 elementary schools: 356 students; and
- o 1 high school: 600 students.

The estimated water demand by institutions in the Coldwater sub-basin is 213,472 m^3 /year.

Actual Use

No information on actual water use for institutional purposes in the Coldwater sub-basin was identified.

Licensed Quantities (from surface sources)

There are no active water licences for institutional purposes in the sub-basin. Water required by institutions in the sub-basin (located in the City of Merritt) is supplied by the City of Merritt.

Groundwater Use

Given that the City of Merritt supplies most if not all of the institutional water demand in the Coldwater sub-basin, an estimated 100% of the water demand is supplied from groundwater.

5.3.6 Recreation and Resorts

Water Users

The following is a list of water users in the recreation and resort sector in the Coldwater sub-basin, along with details relevant to water demand:

• Golf and Ski:

- Juliet Creek A proposed ski and golf development located 55 km southwest of Merritt with 2,500 dwelling units, an 18-hole golf course, a club house, an aquatic centre, a ski hill with a carrying capacity of 7,000 skiers per day, 651 square meters of commercial space, and a parking lot for 2,500 vehicles (Westscapes Development 2006). Based on this number, we estimate that an average of 1,200 persons would visit per day year round (50% capacity); and
- Active Mountain Lodge and Spa, with 71 residential lots, an 18-hole golf course, a conference facility with a capacity of 2,000, a lodge capacity of 300 units (we estimated 75% capacity in winter months), and a restaurant with capacity of 150 (Active Mountain 2006).
- Other
 - Active Mountain Raceway, with a 5,000 capacity motor raceway, and a campground with an unknown number of sites (Active Mountain 2006).
 We assumed it is of a similar size to a nearby existing Claybanks campground with 39 sites;
 - Merritt Mountain Music Festival, a five (5) day event in July with 150,000 visitors per year (Active Mountain 2006);
 - Nicola Valley Pro Rodeo Association Rodeo Grounds, with 6,800 visitors per year during 5 weekend events in July, August, and September (Nicola Valley Rodeo Association 2006);
 - Marshall Springs residential and spa resort with a residence with 178 homes (Marshall Springs Resort and Spa 2006) with a population of 6,664, conference facilities, and two (2) pools. We estimated the pools would cover an area of 250 square meters (Marshall Springs Resort and Spa 2006); and
 - Country Pine Estates with a proposed residential development with a population of 238 (City of Merritt 2006).

The estimated water demand for recreation and resort activities in the Coldwater subbasin is $636,560 \text{ m}^3/\text{year}$.

Actual Use

No information on actual use in the recreation and resort sector in the Coldwater subbasin was identified.

Licensed Quantities (from surface sources)

There are no known active water licences for resort or recreational purposes in the subbasin. It is possible licences may be under other categories (e.g. domestic).

Groundwater Use

While there are no surface water licences or groundwater wells identified under recreation or resort use, it is possible they are included under other purposes (i.e. domestic). Therefore, there is no information available to determine the source of water used in the sub-basin for recreation and resort use. For the purposes of this study we have made the assumption that half of the demand is from groundwater and half from surface water.

5.4 GUICHON

5.4.1 Agriculture

Water Users

We have identified a total of 30 agricultural water users in the Guichon sub-basin. The following is a list of major ranches that were identified as key users:

- Gardens Creek Ranch Ltd;
- Gordon Garthwaite;
- Indian Gardens Ranch;
- Gail Sahara;
- Mino and Nellie Kuiper; and
- Anthony Anderson.

There are 24 additional operations with irrigation and stockwatering water licences including the Lower Nicola Indian Band, Jocko Creek Land and Timber, and Accommodation and Real Estate Services.

Demand Estimate

Based on the GIS analysis, there are 824 ha of irrigated land in the Guichon sub-basin, or 14% of total irrigated land in the Nicola watershed. The total annual crop water demand is estimated at 5,292,398 m³/year, representing 14% of crop water demand in the Nicola watershed.

Actual Use

Some information on actual agricultural water use was obtained from the information received in the agriculture questionnaires. We received an estimate of annual water use from one (1) key agricultural water user in the Guichon sub-basin who completed the questionnaire. This estimate suggests that 762 mm of water is irrigated annually. This compares to our estimated irrigation season soil moisture deficit of 642 mm.

Licensed Quantities (from surface sources)

The annual quantity of water licensed in the sub-basin for agricultural purposes totals $11,144,927 \text{ m}^3$. Irrigation water accounts for 99.9%, while stockwatering accounts for the remainder. This value represents approximately double the estimated irrigation demand suggesting that some of the licensed volume may not be used, and/or some portion of the volume withdrawn from the source is lost (see Section 5.13).

Groundwater Use

There is one (1) reported well with an unknown use that is within 150 m of irrigated area and may be used for irrigation. From the questionnaire that was completed, groundwater was not reportedly used. Based on this limited information, we estimate groundwater to be the source of about 5% of agricultural water demand in Guichon.

5.4.2 Industrial

Water Users

Highland Valley Copper (HVC) is the major industrial user in the Guichon sub-basin. The mine employs 1,000 people and operates 365 days a year (Scott 2006). The HVC mine site uses the water for potable water, mineral processing and agricultural purposes. Most of the agricultural licenses were attached to ranchland purchased by the mine and are held for potential future irrigation of hay fields on reclaimed land after decommissioning. There is currently no irrigation on reclaimed lands within the Nicola Watershed (Dick, pers. comm. 2007).

The HVC mine site straddles the Guichon sub-basin in the Nicola basin and the Pukaist Creek watershed that drains into the Thompson River to the west. According to Adema (2006), water used by the mine is sourced from the following sites:

- H-H deep wells;
- Highmont water system;
- Lornex Pit;
- Plant area run-off;

- Thompson River (via the Spatsum pump station);
- Shula Flats wells; and
- Valley Pit deep wells and surface water.

Based on Summit (2002), the groundwater divide bisects the mine area just east of the valley pit, and west of Bethlehem Pits; therefore, the water sources that are within Guichon Creek sub-basin include the following:

- Highmont Water System: The Highmont water system is made up of one-third groundwater and two-thirds surface water. The groundwater is sourced by a series of wells, or well fields. The surface water is from Highmont Creek and the Highmont tailings pond, which has been re-seeded and is considered surface water, not reclaimed water;
- Lornex pit: The Lornex Pit source is 100% surface water. There are a couple of shallow wells, but the water that is pumped from the wells is collected from close to the surface, and is considered surface water (Scott 2007);
- Plant Area run-off: The Plant Area run-off is surface water; and,
- Shula Flats wells: The Shula Flat wells are a series of groundwater wells at the upper end of Witches Brook. Potable water for the 1,000 employees comes from here.

Besides HVC, there are two (2) other identified industrial water users in the Guichon sub-basin:

- Peters Brothers Gravel pit employs about five (5) people. It is reported that well water is used as a cooling agent in asphalt production, however, no other information could be found and so groundwater demand for asphalt production was not added to the demand estimate calculation (Dick 2006); and
- Seventeen (17) small industries with business licences in the District of Logan Lake. We estimated this employed 20 people as many of them appeared to be small.

Industrial demand for water in the Guichon sub-basin is estimated to be 5,596,428 m³/year. This value is based largely on actual water use data supplied by HVC (see below).

Actual Use

Based on data from 2005, the total water use by HVC within the Guichon sub-basin is $5,595,826 \text{ m}^3/\text{year}$ (Adema 2006), which is 27% of the water used at the HVC mine site (not including reclaimed water). The remaining water that HVC uses is from sources outside of the Guichon sub-basin.

Licensed Quantities (from surface sources)

Highland Valley Copper holds all industrial licences for surface water in the Guichon sub-basin. These licences total 8,789,722 m³ annually. The licenses (on many streams) are for more than their existing use to provide a backup in the event of drought and low surface water or ground water flows. HVC can also pump water from the Thompson River, an assured but expensive source of water (Scott 2007).

Groundwater Use

Highland Copper Mine (HVC) is the major industrial water user and groundwater accounts for an estimated 57% of water sourced from the Guichon sub-basin (Scott 2007).

5.4.3 Business and Commercial

Water Users

Water used for business and commercial purposes in the Guichon sub-basin occurs primarily in the District of Logan Lake. The following lists the major sub-sectors identified:

- Food Service: 7 restaurants/pubs: we estimated the average capacity at 30 seats;
- Hospitality Service: 4 motels with an assumed 20 rooms each, double occupancy;

- Retail-Service: approximately 5% of the population, or 115 people, are employed in the service industry (Lainchbury 2006). There are about 69 business licences for retail services. Key water users included in this sub-sector are:
 - o 1 car wash: we estimated 40 cars are washed per day;
 - 2 gas stations: we estimated 2 islands each;
 - 1 laundromat with 72 machines: we estimated each machine does 10 loads a day (one per hour of operation).

The estimated water demand for Guichon business and commercial sector is 64,229 m³/year.

Actual Use

No information on actual water use in the business and commercial sector in the Guichon sub-basin is available. Actual use information was provided by the District of Logan Lake, but this value lumps use from all customers/water users.

Licensed Quantities (from surface sources)

Annual licences for business or commercial purposes in the sub-basin total 29,917 m³. Most of this amount is licensed from Lac Le Jeune.

Groundwater Use

The District of Logan Lake derives all of its water from three (3) municipal wells that draw groundwater from the Guichon aquifer (Lainchbury 2006). On the BC MOE water wells database, 11 wells are categorized as "commercial and industrial use". Three (3) of these specified "Lornex Mining", which is now part of HVC. The remaining wells may also be used by HVC or other unknown industrial/commercial users. We estimate that 100% of water used in the business and commercial sector in the Guichon sub-basin is sourced from groundwater.

5.4.4 Domestic

Water Users

The Guichon sub-basin supports an estimated population of 3,300 and includes those living in the District of Logan Lake, Ridgemark Estates, three (3) Indian Reserves, and other unincorporated areas.

The District of Logan Lake is the major urban domestic center in the Guichon Creek watershed. The population of Logan Lake is approximately 2,300 (Lainchbury pers. comm. 2006).

Ridgemark Estate is on Lac Le Jeune and has a population of about 50 year round residents (Schock 2006) that is supplied with surface water. There are approximately nine (9) other water systems that supply surface water to roughly 65 people.

There are three (3) Indian Reserves in the sub-basin: Enquocto IR14, Squetankilhats IR15, and Pipseul IR3 with an approximate population of 507 (BC Stats 2006).

Of the total population in the sub-basin, 2,300 are served by municipal groundwater wells, 209 by individual groundwater wells, 169 by surface water licences for individual domestic use, and 125 by surface water licences for waterworks. The source of the water could not be determined for 497 people or 15% of the total sub-basin population.

Demand Estimate

The demand estimate for water by the domestic sector in the Guichon sub-basin is $926,942 \text{ m}^3/\text{year}$.

Actual Use

The District of Logan Lake fall/winter water usage is $30,000 \text{ m}^3/\text{month}$ and 80,000 to 90,000 m³/month in the summer. Water is supplied to 2,300 residences in Logan Lake, 69 businesses, a golf course, school yards, and several municipal parks (Lainchbury pers.

comm. 2006). Since irrigation is not required in the winter, actual domestic use can be calculated by subtracting the sum of business and commercial, industrial, and institutional (not including city parks) demand estimates located within District of Logan Lake from the total District of Logan Lake winter water usage value. The estimated winter (indoor) domestic use in the District of Logan Lake is 350 litres/person/day. This is 21% less than Merritt's indoor domestic use of 442 litres/person/day (Table 2.6). Logan Lake's summer (indoor and outdoor) value is over three times their winter value, at 1,200 litres/person/day. These summer values are within the range of the City of Merritt's, which is 993 litres/person/day in September to 1,456 litres/person/day in July. Unfortunately, water use data from Logan Lake is unavailable on a weekly or monthly basis. If the fall/winter rate of 30,000 m^3 /month is applied for six (6) months of the year, and the summer rate is applied to the other six (6) months of the year, then the total annual estimated actual domestic use in Logan Lake is roughly 510,000 m³/year. However, since the City of Merritt per capita data is daily, and averaged over several years we have adopted these per capita domestic water use rates (Table 2.6) in developing the domestic demand estimate for the Guichon sub-basin.

Licensed Quantities (from surface sources)

Individual domestic users hold licences in the sub-basin that total 87,113 m³ annually. An additional 290,633 m³ is licensed annually for waterworks, with 90% held by Lower Nicola Waterworks, and the Ridgemark Estates Water Users Society holding the remaining 10%. We have no information what portion of these licences is actually being used.

Groundwater Use

Of the 3,300 residents in the Guichon sub-basin, it is estimated that 90% obtain their domestic water from groundwater (Table E-3). This includes the residents within the District of Logan Lake (2,300 people) and individual households with water wells. Surface water users include Ridgemark Estates who sources their water from Lac le Jeune and individual surface water licence holders. The water source for the remaining

population is unknown due to the limited information obtained from First Nations and small water utilities.

5.4.5 Institutions

Water Users

The main water use for institutional purposes in the Guichon sub-basin occurs in Logan Lake in the following areas (District of Logan Lake 2006):

- Medical: 1 medical centre with 15 employees;
- Churches/Halls: 3 churches, 1 convention centre with a capacity of 180;
- Government: 5% of the population, or 115 employees;
- Recreation Centre: curling and ice hockey area with capacity of 185, and fitness room with an average of 80 people a day;
- Schools:
 - o 1 high school, 105 students; and
 - o 1 elementary school, 127 students.
- Parks
 - o Logan Lake Municipal Parks, 12.8 ha;
 - o Logan Lake Municipal Campground, 34 sites;
 - Tunkwa Lake Provincial Park, 286 sites; and
 - o Lac le Jeune Provincial Park, 144 sites (BC Parks 2006).

Demand Estimate

The estimated water demand by the institutional sector in the Guichon sub-basin is $352,985 \text{ m}^3/\text{year}$.

Actual Use

No information on actual water use by the institutional sector in the Guichon sub-basin was identified. While some water use information is available from the District of Logan Lake, it includes water used by all sectors.

Licensed Quantities (from surface sources)

There are no active water licences for institutional purposes in the Guichon sub-basin.

Groundwater Use

The District of Logan Lake derives all of its water from three (3) municipal wells that draw groundwater from the Guichon aquifer (Lainchbury pers. comm. 2006). On the BC MOE water wells database, five (5) wells are categorized as "municipal". These may be referring to the three (3) District of Logan Lake wells, plus two (2) others, possibly the District of Logan Lake parks or BC Parks. Since there are no surface water licences for institutional purposes, and because most of the institutional water users are located within the District of Logan Lake or BC Parks, we estimate that 100% of the institutional sector in Guichon is derived from groundwater sources.

5.4.6 Recreation and Resorts

Water Users

The known water users for recreation and resort purposes in the Guichon sub-basin are as follows:

- Golf: Logan Lake Golf Course, 9-holes with an estimated irrigated area of 9.21 ha;
- Fishing and other:
 - Mile High Resort, 8 cabins;
 - o Dominic Lake Resort, 10 cabins;
 - Surrey Lake Fishing Resort, 10 cabins;
 - o Tunkwa Lake Resort, 5 cabins, 30 campsites, year-round hook-up; and
 - Lac Le Jeune Resort: 28 cabins.

Demand Estimate

The estimated water demand for the Guichon recreation and resort sector is 91,035 m^3 /year.

Actual Use

No information on actual water use in the recreation and resort sector in the Guichon subbasin was identified.

Licensed Quantities (from surface sources)

A relatively small quantity of water (74,009 m³) is licensed annually to the District of Logan Lake for Land Improvement purposes. District of Logan Lake currently operates municipal water wells to provide water to the district and no surface water is used.

Groundwater Use

While there are no surface water licences or groundwater wells identified under recreation or resort use, it is possible they are included under other purposes (i.e. domestic). Therefore, there is no information available to determine the source of water used in the sub-basin for recreation and resort use. For the purposes of this study we have made the assumption that half of the demand is from groundwater and half from surface water.

5.5 LOWER NICOLA

5.5.1 Agriculture

Water Users

We have identified a total of 79 agricultural water users in the Lower Nicola sub-basin. The following is a list of major ranches that were identified as key water users. These ranches are operated by:

- John Anderson;
- Jon Peachey;
- Lloyd Gavelin;
- Pat and Bill Gormley;
- Mino Kuiper;
- Jens Larsen;
- Ralph Thomsen; and
- Shulus Cattle Company.

There are 71 additional operations with irrigation and stockwatering water licences, including the Cooks Ferry Indian Band, Jaw Enterprises Ltd., and the Ministry of Forests (Merritt Forest District).

Demand Estimate

The estimated area currently irrigated in the Lower Nicola is 1,035 ha, the third largest irrigated area of all the sub-basins. The estimated water demand for Lower Nicola agriculture sector is $7,369,746 \text{ m}^3$ /year, which represents 18% of the agricultural water demand in the Nicola watershed.

Actual Use

No information on actual water use for agricultural purposes in the Lower Nicola subbasin was identified.

Licensed Quantities (from surface sources)

The annual quantity of water licensed in the sub-basin for agricultural purposes totals $13,804,321 \text{ m}^3$. Irrigation water accounts for 99.9%, while stockwatering accounts for the remainder. This value is nearly double the estimated demand indicating that some of the water licensed may not be used (or may not be available) and/or some is lost during irrigation (see Section 5.13).

Groundwater Use

There are five (5) reported wells classified for irrigation use and a further 22 wells that have unknown use but are within 150 m of an irrigated area and therefore may be used for irrigation. Doubling these values to adjust for MOE water wells database under-representation, we estimate 44 wells for irrigation use. Comparing the number of irrigation wells to the number of ranches with surface water licenses (79), we estimate that no more than 35% of agricultural water use in Lower Nicola is sourced by groundwater. However, this is assuming that all 44 irrigation wells are in use and at a similar rate to the surface water licences, which is unlikely based on the large volume of surface water licences for irrigation purposes.

We received one completed questionnaire from the Lower Nicola sub-basin, which indicated that 100% of irrigation water was sourced from surface water. The respondent is responsible for about 40% of the agricultural land. Based on the results of the MOE well database and the agricultural questionnaire results, about 35% of the agricultural water used in the Lower Nicola sub-basin is likely sourced from groundwater.

5.5.2 Industrial

Water Users

There are three (3) identified industrial water users in the Lower Nicola sub-basin:

- Craigmont Mines a magnetite tailings recovery operation with enough reserves to feed the plant to 2010 (Hermann 2007);
- Lower Nicola Band, Rick Cebriy Construction: 5 employees (Dick, 2006);

• Lower Nicola Band, Mojo Enterprises: 20 employees (Dick 2006).

Demand Estimate

The demand estimate for the industrial sector in the Lower Nicola sub-basin, including actual water use information obtained from Craigmont Mines, is 190,407 m³/year.

Actual Use

The actual water use (not including reclaimed water) from the Craigmont Mine in 2005 is $189,942 \text{ m}^3/\text{year}$ (Hermann pers. comm. 2007).

Licensed Quantities (from surface sources)

One water licence for withdrawal from the Nicola River in the Lower Nicola sub-basin is held by Craigmont Mines. This licence totals 2,157,077 m³ annually, which is over 11 times the current annual use.

Groundwater Use

The source of the water (not including reclaimed water) for Craigmont Mines is 33% groundwater and 66% surface water (from the Nicola River) (Hermann pers. comm. 2007). There are no reported wells for industrial/commercial use in Lower Nicola on the MOE database; however, Craigmont Mines accounts for 99.7% of the industrial water demand for the sub-basin, therefore, the source of water for Lower Nicola industrial use is estimated to be 33% from groundwater.

5.5.3 Business and Commercial

Water Users

There are two (2) known business and commercial water users in the Lower Nicola:

- Lower Nicola Corner Store; and
- Lower Nicola Band Gas Station (Johnny's) with two pump islands (Dick pers. comm. 2006).

The demand estimate for the business and commercial sector in the Lower Nicola subbasin is $1,598 \text{ m}^3/\text{year}$.

Actual Use

No information on actual water use by the business and commercial sector in the Lower Nicola sub-basin was identified.

Licensed Quantities (from surface sources)

Only one (1) active water licence is held for commercial purposes in the Lower Nicola for a total of 830 m^3 per year.

Groundwater Use

There are no reported wells for commercial/industrial use in Lower Nicola. Based on surface water licence volume compared to overall business and commercial demand in the sub-basin, we estimate that 50% of water for business and commercial use is sourced from groundwater.

5.5.4 Domestic

Water Users

The Lower Nicola sub-basin has an estimated population of 1,867. This includes residents served by the Lower Nicola Waterworks District, those on nine (9) Indian Reserves, and other unincorporated areas.

The Lower Nicola Waterworks District serves about 1,200 persons, with approximately five (5) new water connections added each year (Wagner pers. comm. 2006). Water is sourced from three (3) deep wells that in three (3) different aquifers (Wagner pers. comm. 2006).

There are nine (9) reserves in the Lower Nicola sub-basin, Enhalt IR11, Skynaneichst IR12, Naykikoulth IR13, Skeigut IR9, Nooaitch IR10, Nooaitch Grass IR9, Shackan IR11, Soldqutquo IR12, and Papsilqua IR13. Combined these reserves have an approximate population of 188 (BC Stats 2006).

Of the total estimated population in the sub-basin, 1,200 are served by groundwater wells operated by a water utility, 371 are served by individual groundwater wells, and 48 are served by surface water licences for individual domestic use. The source of the water could not be determined for 248 people or 13% of the total sub-basin population.

Demand Estimate

The demand estimate for domestic water use in Lower Nicola is 524,425 m³/year.

Actual Use

No information on actual water use for domestic purposes in the Lower Nicola sub-basin was identified.

Licensed Quantities (from surface sources)

Individual domestic users hold licences in the sub-basin that total 81,471 m³/year. No water is licensed for waterworks.

Groundwater Use

The estimated number of domestic groundwater wells in the Lower Nicola sub-basin is 156. This represents 27% of all domestic groundwater wells in the Nicola River watershed, the second largest number after Coldwater sub-basin. We estimate that 97% of the domestic water used in the Lower Nicola sub-basin is supplied by groundwater (Table E-3).

5.5.5 Institutions

The following are key water users for institutional purposes in the Lower Nicola subbasin (Dick pers. comm. 2006):

- Parks with irrigated areas cover an estimated 1.29 ha;
- Schools:
 - o 1 elementary school with 160 students;
 - o Lower Nicola Band High School with 50 students; and
 - Lower Nicola Band Elementary School with 56 students.
- Recreation Centres: Lower Nicola Band Arena, 600 seat capacity;
- Government Offices:
 - o Lower Nicola Band Main office with 25 employees;
 - o Lower Nicola Band Fire Department, 1 employee; and
 - Nuaitch/Shakan Band Firehall, 5 employees.
- Halls:
 - Shulus Hall, 125 seat capacity;
 - o Nooaitch Bandhall, 140 seat capacity; and
 - Shackan Bandhall, 140 seat capacity.

Demand Estimate

The demand estimate for institutional water use in Lower Nicola is 66,351 m³/year.

Actual Use

No information on actual water use by the institutional sector in the Lower Nicola subbasin was identified.

Licensed Quantities (from surface sources)

No water is licensed for institutional water use in the sub-basin.

Groundwater Use

There is one (1) reported institutional well in Lower Nicola, associated with the Lower Nicola School. The Lower Nicola Band has groundwater wells and is responsible for supplying water to band residences as well as business and commercial operations, the schools, churches, band halls and office (Dick pers. comm. 2006). We estimate that groundwater supplies about 75% of the water for institutions in Lower Nicola.

5.5.6 Recreation and Resorts

There are two (2) known water users in the recreation and resort sector in the Lower Nicola sub-basin:

- Cook's Ferry Campground; 25 sites used only in summer (Dick 2006); and
- Merritt Speedway: 300 seat capacity and 10 events per year (May to October) (Merritt Speedway 2007).

Demand Estimate

The demand estimate for the recreation and resort sector in Lower Nicola is 2,373 m^3 /year.

Actual Use

No information on actual water use by the recreation and resort sector in the Lower Nicola sub-basin was identified.

Licensed Quantities (from surface sources)

There is one licence for 2,232,495 m³ annually to supply pond(s) in the sub-basin.

Groundwater Use

The MOE groundwater database does not have a use titled "recreation and resort"; however based on the large licensed quantity, it is estimated that 95% of water used is sourced from surface water.

5.6 MIDDLE NICOLA

5.6.1 Agriculture

Water Users

We have identified a total of 12 agricultural water users in the Middle Nicola sub-basin. The following is a list of major ranches that were identified as key users:

- Chutter Ranch;
- Coquihalla Developments Corporation;
- Gene Huber;
- Douglas Lake Cattle Company;
- Gordon Garthwaite;
- Gerard Guichon Ranch;
- Quilchena Cattle Company Ltd.; and
- River Ranch.

There are four (4) additional operations with irrigation and stockwatering water licences, including School District 58 and the Ministry of Forests and Range.

Demand Estimate

The estimated area irrigated in the Middle Nicola is 1,269 ha, or 21% of the irrigated area in the Nicola watershed. This is the second largest area of irrigated land of all the subbasins after Upper Nicola. The estimated water demand for the Middle Nicola agricultural sector is $8,579,012 \text{ m}^3$ /year, the second highest agricultural water demand of all the sub-basins.

Actual Use

Based on responses to the agriculture questionnaires, an estimated 725 mm to 913 mm of water is applied annually for irrigation. This compares with an estimated irrigation season soil moisture deficit of 669 mm. The difference in values may reflect irrigation

losses through the distribution system and/or irrigation practices (e.g. possible over irrigation). See Section 5.13 for discussion.

Licensed Quantities (from surface sources)

Licences for agricultural water use in the sub-basin total 6,408,698 m³ annually. Over 99% of this value is for irrigation with the remainder for stockwatering. This value alone is insufficient to supply the estimated crop water demand in the basin. However, it is expected that the volume of water licensed from the Clapperton sub-basin (totalling 6,240,367 m³) is also used in the Middle Nicola sub-basin. As a result, the annual licensed quantity available for irrigation in the Middle Nicola sub-basin is 12,721,065 m³. Therefore, the estimated crop water demand in the Middle Nicola and Clapperton sub-basin combined is 67% of the total licences available.

Groundwater Use

There are four (4) reported irrigation water wells in the Middle Nicola sub-basin, and another ten (10) reported wells with unknown use that are within 150 m of an irrigated area. Doubling this number to account for the under-representation of the MOE water wells database results in an estimate of 28 irrigation water wells in the Middle Nicola sub-basin, or 29% of all irrigation wells in the Nicola watershed. Half of the agricultural water users who responded to the questionnaire reported having some portion of water coming from groundwater and half reported that surface water was 100% of the irrigation water used. Based on this information it is estimated that about 25% of irrigation water is sourced from groundwater.

5.6.2 Industrial

Water Users

Key industries in the Middle Nicola include:

• Mining and Oil and Gas:

- Norgaard Ready Mix: Norgaard Ready Mix is a concrete business that employs approximately 10 people and operates 251 days a year (Melody pers. comm. 2006). They source their water from the City of Merritt; and
 Other: 54 employees (Stats Canada 2001).
- Forestry and Logging: 112 employees not including Aspen Planers (about one quarter of the Aspen Planers site is located in the Middle Nicola sub-basin, therefore, our study considers Aspen Planers as being in the Coldwater sub-basin); and
- Manufacturing: 42 employees (Community Futures 2006).

The demand estimate for the industrial sector in Middle Nicola is 19,145 m³/year.

Actual Use

Actual use values were provided by Norgaard Ready Mix. Water use in the summer months is approximately 1,281 m³ per month (Norgaard, pers. comm. 2006). Water use in the winter is less (likely about 75% of summer use) (Norgaard, pers. comm. 2006); however, actual water use numbers were not available.

Licensed Quantities (from surface sources)

There are no active water licences specifically for industrial purposes in the sub-basin.

Groundwater

The City of Merritt supplies water to industries that are located within the City of Merritt boundaries, including Norgaard Ready Mix. Since the City of Merritt sources its water entirely from groundwater it is expected that 100% of industrial water in the Middle Nicola sub-basin is sourced from groundwater.

5.6.3 Business and Commercial

Water Users

There are approximately 133 businesses in the Middle Nicola sub-basin (Finnigan pers. comm. 2006). The key water users in the business and commercial sector are listed by sub-sector:

- Service:
 - Food and Beverage Services: 260 employees;
 - Finance, Insurance, Real Estate & Leasing: 70 employees; and
 - Transportation, Warehousing & Public Utilities: 81 employees.
- Retail Trade:
 - Wal-Mart: 125 employees;
 - Canadian Tire: 25 employees;
 - Extra Foods: 85 employees, 4,000 square meter supermarket and meat department;
 - Wholesale trade (other): 90 employees; and
 - Wagon West Travel Plaza: 45 employees.
- Motels/Hotels/B&Bs:
 - o 14 motels with 36 person occupancy; and
 - B&Bs, and guest houses with 68 person occupancy (Community Futures 2006; Merritt & Chamber of Commerce 2006; and City of Merritt 2006).

Demand Estimate

The demand estimate for the business and commercial sector in the Middle Nicola subbasin is $69,521 \text{ m}^3/\text{year}$.

Actual Use

No information on actual water use by the business and commercial sector in the Middle Nicola sub-basin was identified. Most water used by business and commercial activity in the Middle Nicola sub-basin is supplied by the City of Merritt. While they have good records on total water use, they do not currently meter and record water use by individual customers.

Licensed Quantities (from surface sources)

Water licences for business or commercial purposes total 54,757 m³ annually.

Groundwater Use

There are two (2) reported commercial/industrial use wells in Middle Nicola. Moreover, most of the businesses are located within the City of Merritt which is supplied by groundwater; therefore, 100% of business and commercial water use is sourced by groundwater.

5.6.4 Domestic

Water Users

There are an estimated 1,822 persons living in the Middle Nicola sub-basin. This includes:

- Roughly 20% of the population (i.e., 1,600) of the City of Merritt all of whom are served by groundwater (Finnigan pers. comm. 2006);
- About 15 year-round and 15 part-time residents in Harmon Estates, all of whom are served by groundwater (Lamb pers. comm. 2006);
- First Nations members on Joeyaska IR2⁹ and Nicola Lake IR 1; and
- Others located in unincorporated areas.

Of the total estimated population in the Middle Nicola sub-basin, 1,600 are served by municipal groundwater wells, 157 are served by individual groundwater wells, 15 are served by groundwater wells managed by small water utilities, and 21 are served by surface water licences for individual domestic use. The source of the water could not be determined for 29 people or 2% of the total sub-basin population.

Based on the estimated City of Merritt per capita water use, domestic water demand in the Middle Nicola sub-basin is estimated to be $511,784 \text{ m}^3/\text{year}$.

Actual Use

Actual domestic use in the Middle Nicola sub-basin was determined in a similar way as for the Coldwater sub-basin using City of Merritt water use data, which is presented in Section 2.6.4 and summarized in Table 2.6.

Licensed Quantities (from surface sources)

Individual domestic water licences in the sub-basin total 15,846 m^3 . An additional 16,593 m^3 is licensed annually from Nicola Lake by the Upper Nicola Indian Band waterworks.

Groundwater Use

We estimate that 99% of domestic water is being sourced by groundwater in the Middle Nicola sub-basin (Table E-3).

5.6.5 Institutions

Water Users

The key users identified as institutions in the basin are listed below by sub-sector:

- Medical:
 - 2 medical clinics with 10 employees;
 - o 1 vet clinic;
 - o 2 dental clinics; and
 - Nicola Valley Health Centre: 225 employees (City of Merritt and Community Futures 2006).

⁹ Joeyaska IR2 crosses sub-basin boundaries and is also in the Coldwater sub-basin. The population for Joeyaska IR2 has been included in the Coldwater sub-basin.

- Government:147 employees;
- Halls/Churches: 555 seat capacity total (Community Futures 2006);
- Recreation centres:
 - Curling rink: 100 seat capacity;
 - Arena: 176 seat capacity; and
 - o Merritt Civic Centre: 520 seat capacity (City of Merritt 2006).
- Parks:
 - 4 city parks, totaling an estimated 15.3 ha; and
 - Monck Provincial Park: 120 sites, 40 day-use picnic tables (BC Parks 2006).
- Schools:
 - Daycares: 9 cares, 45 employees;
 - o 2 elementary schools, 380 students;
 - o 1 middle school, 319 students; and
 - 1 post secondary technical school, 604 students (Community Futures 2006 and Nicola Valley Institute of Technology 2007).

The institutional sector demand estimate in Middle Nicola is 580,637 m³/year.

Actual Use

No information on actual use by the institutional sector in the Middle Nicola sub-basin was identified. Actual water use information from the City of Merritt is available but only total volumes used by all sectors are provided.

Licensed Quantities (from surface sources)

There are no active water licences for institutional purposes in the sub-basin. Water required by institutions in the sub-basin (located in the City of Merritt) is supplied by the City of Merritt.

Groundwater Use

There are no reported institutional use water wells in the Middle Nicola sub-basin on the MOE database, however the major institutional water users are located within City of Merritt; therefore, 100% of water use is sourced from groundwater.

5.6.6 Recreation and Resorts

The key recreation and resort water users identified in the basin are listed by sub-sector as follows:

- Puttz Golf Course: a proposed development includes a 9-hole golf course, assumed to be half the size of Merritt Golf and Country Club because no information was found (City of Merritt 2006);
- Merritt Golf and Country Club, 18-hole golf course with a estimated irrigated area of 21 ha;
- Quilchena Golf Portion within the Middle Nicola sub-basin: 7.7 ha; and
- Sagebrush Golf and Sporting Club (south of Quilchena Hotel): a proposed development with a marina, a lodge with 20 rooms, a restaurant with 40 seats, a clubhouse and fitness room, a residential development to support a population of 657, and an 18-hole championship golf course (Sagebrush Golf and Sporting Club 2007).
- Nicola Lakeshore Estates (2007): a proposed development to support a population of 74;
- Quilchena on the Lake (2007): a proposed development to support a population of 114;
- Grandview Heights: a proposed developed to support a population of 48 (Nicola Water Use Management Plan 2005);
- Ponderosa: a proposed developed to support a population of 476 (Nicola Water Use Management Plan 2005);
- RND Developments: a proposed developed to support a population of 66 (Nicola Water Use Management Plan 2005); and

• Coyote Bluffs: a proposed developed to support a population of 500 (Coyote Bluffs 2006).

There may be other minor lakefront sites that are not included such as N'Kwala and yacht club (Gizikoff, pers. comm., 2007); however, no other information was provided.

Demand Estimate

The recreation and resort sector demand estimate in Middle Nicola is 428,887 m³/year.

Actual Use

No information on actual water use by the recreation and resort sector in the Middle Nicola sub-basin was identified.

Licensed Quantities (from surface sources)

There are no active water licences for the recreation and resort sector in the sub-basin. There is a possibility that some water use in this sector may have been included under domestic or irrigation (e.g. for golf courses).

Groundwater Use

There is no category for the recreation and resort sector in the MOE water wells database. The wells under this sector may have been reported under domestic or irrigation. If the development occurred since 2000, they likely will not be listed on the MOE database. A total of 95% of the recreation and resort estimate is from golf course irrigation and the current golf courses in Middle Nicola are sourced by surface water; therefore, we estimate that 95% of the water use of the recreation and resort sector in the Middle Nicola sub-basin is sourced by surface water and only 5% (i.e. residential developments and all other water uses) is sourced by groundwater.

5.7 MOORE

5.7.1 Agriculture

Water Users

We have identified a total of three (3) agricultural water users in the Moore sub-basin, all of which are identified as key water users:

- Stump Lake Ranch;
- Gerard Guichon Ranch; and
- Frolek Cattle Company.

Demand Estimate

The estimated area irrigated in the Moore sub-basin is 34 ha, the smallest irrigation area in any of the sub-basins. The estimated water demand for the agricultural sector in the Moore sub-basin is $236,000 \text{ m}^3/\text{year}$.

Actual Use

No information on actual water use for agricultural purposes in the Moore sub-basin was identified.

Licensed Quantities (from surface sources)

Licences for agricultural purposes total 4,030,513 m³ per year in the sub-basin. Over 99.7% of the total licensed quantity is for irrigation with the remainder for stockwatering. Given the discrepancy between the licensed quantity and demand, and the proximity of the Stump Lake sub-basin, it is likely much of the water licensed in the Moore sub-basin has been used in the Stump Lake sub-basin in the past¹⁰. In order to compare licensed quantities and estimated demand and evaluate irrigation efficiencies we recommend that Moore and Stump Lake sub-basins be combined (see Section 5.13).

¹⁰ We understand that Moore Creek is no longer diverted to Stump Lake (Ball pers. comm. 2007).

Groundwater Use

There is one (1) reported water well in the Moore sub-basin on the MOE database that is of unknown use but within 150 m of an irrigated area and was therefore considered as irrigation; however, because the surface water licence totals are large, we estimate that about 99% of water source is surface water.

5.7.2 Industrial

There are no known industrial water users in the Moore sub-basin.

5.7.3 Business and Commercial

There are no known business and commercial water users in the Moore sub-basin.

5.7.4 Domestic

Water Users

The Moore sub-basin has an estimated population of 58, however, we could only determine the source of water used by 15 people or 25% of the total sub-basin population. Of these 15 people, 10 are served by individual groundwater wells, and 5 by surface water licences for domestic use.

Demand Estimates

The estimated domestic demand in the Moore sub-basin is $16,292 \text{ m}^3/\text{year}$.

Actual Use

No information on actual water use by the domestic sector in the Moore sub-basin was identified.

Licensed Quantities (from surface sources)

Individual domestic water licences in the sub-basin total 16,593 m^3 . No licences are held for waterworks in the sub-basin.

Groundwater Use

Groundwater is estimated to be used by about 68% of domestic users in the sub-basin (Table E-3).

5.7.5 Institutions

No institutions were identified in the Moore sub-basin.

5.7.6 Recreation and Resorts

No information on actual water use by the recreation and resort sector in the Moore subbasin was identified.

5.8 QUILCHENA

5.8.1 Agriculture

Water Users

We have identified a total of eight (8) agricultural water users in the Quilchena sub-basin. The following is a list of major ranches that were identified as key users. These ranches are operated by:

- Douglas Lake Cattle Company;
- Quilchena Cattle Company;
- Coquihalla Developments Corporation; and
- Gene Huber.

There are four (4) additional operations with irrigation and/or stockwatering water licences, including the Lower Nicola Indian Band, the Upper Nicola Indian Band, and Ducks Unlimited.

Demand Estimate

The estimated size of irrigated land in the Quilchena sub-basin is 375 ha. The estimated water demand for the Quilchena agricultural sector is $2,584,171 \text{ m}^3/\text{year}$.

Actual Use

An indication of actual agricultural water use is based on information received in the agriculture questionnaires. We received an estimate of annual water use from one (1) agricultural water user in the Quilchena sub-basin. Based on this response, we estimate their typical annual irrigation is 577 mm. This compares with our estimate of irrigation-season soil moisture deficit of 688 mm. Discussion of this difference is provided in Section 5.13.

Licensed Quantities (from surface sources)

Agricultural water licences in the sub-basin total 5,758,890 m³ annually, 99.9% of which is for irrigation. The remaining 0.1% is for stockwatering.

Groundwater Use

There are no reported irrigation water wells in the Quilchena sub-basin on the MOE database. One (1) agricultural water user who completed the questionnaire reported having 30% sourced from groundwater. This user was responsible for the irrigation of about 60% of the sub-basin agricultural land. Therefore, we estimate that 20% of agricultural water use in the Quilchena sub-basin is sourced by groundwater.

5.8.2 Industrial

There are no known industrial water users in the Quilchena sub-basin.

5.8.3 Business and Commercial

Water Users

The Quilchena Hotel uses water for business and commercial purposes in the Quilchena sub-basin. It has 16 rooms, a restaurant/pub, a general store, and a gas station.

Demand Estimate

The estimated water demand for Quilchena business and commercial sector is 3,048 m³/year.

Actual Use

No information on actual water use by the business and commercial sector in the Quilchena sub-basin was identified.

Licensed Quantities (from surface sources)

The annual quantity licensed for business and commercial purposes totals 3,319 m³, all of which is held by the Douglas Lake Cattle Company.

Groundwater Use

Quilchena business and commercial water use is supplied by 100% groundwater wells (Quilchena Hotel 2007).

5.8.4 Domestic

Water Users

There are an estimated 62 people living in the Quilchena sub-basin. Of this total, there are 43 served by individual groundwater wells and 12 served by surface water licensed for domestic use. The source of water could not be determined for 7 persons or 11% of the sub-basin population.

Demand Estimate

The estimated water demand for the Quilchena domestic sector is 17,415 m³/year.

Actual Use

No information on actual water use for domestic purposes in the Quilchena sub-basin was identified.

Licensed Quantities (from surface sources)

Individual water licences for domestic purposes in the sub-basin total $14,060 \text{ m}^3$ annually. There are no licences for waterworks in the sub-basin. The difference between the licensed quantity and estimated demand is likely made up by groundwater.

Groundwater Use

Based on the population served by individual groundwater wells and surface water licenses, groundwater is the source for 78% of individual domestic supply in the Quilchena sub-basin.

5.8.5 Institutions

Kentucky Alleyne Provincial Park is located in the Quilchena sub-basin and has 58 campsites (BC Parks 2006).

Demand Estimate

The estimated water demand for Quilchena institution sector is $5,151 \text{ m}^3/\text{year}$.

Actual Use

No information on actual water use by the institutional sector in the Quilchena sub-basin was identified.

Licensed Quantities (from surface sources)

There are no water licences for institutional purposes in the sub-basin.

Groundwater Use

No surface water licences or water wells associated with institutional use (i.e. the park) were identified. According to BC Parks (2007), potable water in the Kentucky Alleyne Provincial Park is supplied by three (3) hand pumps. Therefore, 100% of water used for institutional purposes in Quilchena sub-basin is likely sourced by groundwater.

5.8.6 Recreation and Resorts

Water Users

Key water users identified in the recreation and resort sectors in the Quilchena sub-basin are as follows:

- Quilchena Golf Course: 9-hole golf course with an estimated irrigated area of about 11 ha (there is also 7.7 ha in the Mid Nicola sub-basin included in the Middle Nicola demand estimate);
- Corbett Lake Resort: a fishing resort with 26 beds;
- Corbett Lake: a proposed residential development to support a population of 88.
Demand Estimate

The estimated water demand in Quilchena recreation and resort sector is 76,973 m³/year.

Actual Use

No information on actual water use for recreation and resort purposes in the Quilchena sub-basin was identified.

Licensed Quantities (from surface sources)

Several water licences are held by the Douglas Lake Cattle Company to supply ponds in the sub-basin. The annual quantity of these licences totals 1,912,401 m³.

Groundwater Use

The MOE water wells database does not have a category for recreation and resort. If the development was recent (since 2000), it is unlikely to be listed on the database. Golf courses are the main water user for this sector, and Quilchena irrigates with surface water, therefore, groundwater is estimated to be the source of 5% or less of the recreational water demand.

5.9 SPIUS

5.9.1 Agriculture

Water Users

We have identified a total of 23 agricultural water users in the Spius sub-basin. The following is a list of major ranches that were identified as key users:

- James Creek Ranch;
- Dick Post;
- John Robbins; and
- David Swoboda.

There are 19 additional ranch operations with irrigation and/or stockwatering water licences.

Demand Estimate

The estimated area irrigated in the Spius sub-basin is 75 ha. The estimated agricultural water demand in the Spius sub-basin is $512,491 \text{ m}^3/\text{year}$.

Actual Use

No information on actual water use by the agricultural sector in the Spius sub-basin was identified.

Licensed Quantities (from surface sources)

Water licences for agricultural purposes in the sub-basin total 1,917,215 m³ annually, 99.7% of which is for irrigation with the remainder for stockwatering. Given the large discrepancy between the licensed quantity and demand, and the proximity of irrigated fields in the Lower Nicola sub-basin, it is possible that some of the water licensed in the Spius sub-basin is used in the Lower Nicola sub-basin and vice versa. Therefore, in order to compare demands and licensed quantities and evaluate irrigation efficiencies it is recommended values from Spius and Lower Nicola sub-basins be combined (see Section 5.13).

Groundwater Use

There are no water wells identified for irrigation use in the MOE database; however, there are two (2) wells with unknown use within 150 m of an irrigated area. Doubling this value provides an estimate of four (4) irrigation water wells. No questionnaires reported a distribution between groundwater and surface water. Because of the large amount of surface water licensed, we estimate that groundwater is a source for 5% or less of the crop water demand.

5.9.2 Industrial

There are no known industrial water users in the Spius sub-basin.

5.9.3 Business and Commercial

There are no known business and commercial water users in the Spius sub-basin.

5.9.4 Domestic

Water Users

The Spuis Creek sub-basin has an estimated population of 91. Individual groundwater wells support 67 people, while surface water licences for domestic use support the remaining 24.

Demand Estimate

The estimated water demand for Spius domestic sector is 25,561 m³/year.

Actual Use

No information on actual water use for domestic purposes in the Spius sub-basin was identified.

Licensed Quantities (from surface sources)

Individual domestic water licences in the sub-basin total 12,859 m³ annually. There are no licences for waterworks in the sub-basin.

Groundwater Use

We estimate 74% of domestic water is sourced from groundwater (Table E-3).

5.9.5 Institutions

The Spius Fish Hatchery receives 1,000 tourists per year (Graf, pers. comm. 2007).

Demand Estimate

The estimated water demand for Spius institutional sector is 23 m³/year.

Actual Use

No information on actual water use for the institution sector in the Spius sub-basin was identified.

Licensed Quantities (from surface sources)

There are no reported water licences for institutional use in the sub-basin.

Groundwater Use

There are no reported wells used for institutional purposes in the MOE database. They are likely included in the domestic use category. Since there are no surface water licences reported in this sector, we estimate that 100% is sourced by groundwater.

5.9.6 Recreation and Resorts

Topnotch Tours Inc. has operated a cat- and heli-skiing operation in the Spius sub-basin, with 25 employees¹¹. We estimated that there would be 4 clients per employee and that facilities include a cabin to accommodate clients and employees during winter months.

Demand Estimate

The estimated water demand for Spius recreation and resort sector is 2,902 m³/year.

Actual Use

No information on actual water use by the recreation and resort sector in the Spius subbasin was identified.

Licensed Quantities (from surface sources)

There are no reported water licences for recreation and resort use in the sub-basin.

Groundwater Use

Since there are no surface water licences reported in this sector, we estimate that 100% of the water used is sourced by groundwater.

¹¹ It has come to our attention that Top Notch may not be operational at the time this report was prepared; however, as it is a minor water user, we have included it in our calculation.

5.10 STUMP LAKE

5.10.1 Agriculture

Water Users

Based on surface water licence data, we identified a total of four (4) agricultural water users in the Stump Lake sub-basin. The following is a list of major ranches that were identified as key users:

- Stump Lake Ranch;
- Gerard Guichon Ranch; and
- Frolek Cattle Company.

There is one (1) additional operation with an irrigation water licence that was not identified as a key water user.

Demand Estimate

The estimated area irrigated in the Stump Lake sub-basin is 510 ha. The estimated water demand for the Stump Lake agricultural sector is $3,268,159 \text{ m}^3/\text{year}$.

Actual Use

No information on actual water use for agricultural purposes in the Stump Lake sub-basin was obtained.

Licensed Quantities (from surface sources)

Agricultural water licences total 2,973,866 m³ per year. Over 99% of this is allocated for irrigation, with the remainder for stockwatering. Given the discrepancy between the licensed quantity and demand, and the proximity of the Moore sub-basin, it is possible some of the water licensed in the Moore sub-basin is used in the Stump Lake sub-basin. Although we understand this has not occurred for a number of years (Gizikoff, pers. comm. 2007). Therefore, in order to compare licensed quantities and estimated demand

and evaluate irrigation efficiencies it is recommended that Moore and Stump Lake subbasins be combined (see Section 5.13).

Groundwater Use

We estimate there are two (2) irrigation wells in the Stump Lake sub-basin. One (1) questionnaire from Stump Lake reported 100% surface water source, which accounts for one third of the irrigated area. We estimate 25% of the crop water demand is sourced by groundwater in the Stump Lake sub-basin.

5.10.2 Industrial

There are no known industrial water users in the Stump Lake sub-basin.

5.10.3 Business and Commercial

There are no known business and commercial water users in the Stump Lake sub-basin.

5.10.4 Domestic

Water Users

The Stump Lake sub-basin has an estimated population of 111. Of this total population, 52 persons are served by individual groundwater wells and 10 are served by surface water licensed for domestic use. The source of water could not be determined for 49 persons or 45% of the sub-basin population.

Demand Estimate

The estimated water demand for the Stump Lake domestic sector is 25,561 m³/year.

Actual Use

No information on actual water use for domestic purposes in the Stump Lake sub-basin was identified.

Licensed Quantities (from surface sources)

Annual water licences held by individual households for domestic purposes total 10,782 m³. There are no waterworks licences in the sub-basin.

Groundwater Use

We estimate that 85% of domestic water is sourced from groundwater (Table E-3).

5.10.5 Institutions

There are no known institutional water users in the Stump Lake sub-basin.

5.10.6 Recreation and Resorts

The Peter Hope Lake Resorts development is located on Peter Hope Lake in the Stump Lake sub-basin. It is a small fishing resort consisting of a few cabins and a 15 vehicle BCFS campsite with a boat launch (Peter Hope Lake 2006). There is a proposal to develop 30 more cabins.

Demand Estimate

The estimated water demand for the Stump Lake recreation and resort sector is 7,621 m^3 /year.

Actual Use

No information on actual water use by the recreation and resort sector in the Stump Lake sub-basin was identified.

Licensed Quantities (from surface sources)

No water licences for recreation or resort use were identified in the sub-basin.

Groundwater Use

No information on groundwater use for recreation and resorts is available on the MOE database, and any drilled wells in this sector may be included under domestic use, of

which there are an estimated 22 wells. It is likely that some proportion of domestic use is sourced by groundwater. Given the considerable uncertainty, for the purposes of this report we have assumed half of the recreation/resort demand is sourced from groundwater and half from surface water.

5.11 UPPER NICOLA

5.11.1 Agriculture

Water Users

We have identified a total of six (6) agricultural water users in the Coldwater sub-basin. The following is a list of ranches that were identified as key users:

- Douglas Lake Cattle Company,
- Quilchena Cattle Company; and
- John Lauder.

There are three (3) additional operations with irrigation and/or stockwatering water licences, including the Upper Nicola Indian Band, Telcor Investments, and the Westbank Irrigation District. It is noteworthy that the Westbank Irrigation District diverts water near the headwaters of the Upper Nicola sub-basin into the Okanagan Basin, so while they hold licences in the Nicola watershed, all demand for this water occurs in the Okanagan.

Demand Estimate

The estimated area irrigated in the Upper Nicola sub-basin is 1,485 ha, or 25% of irrigated area in the Nicola watershed. The estimated water demand for Upper Nicola agricultural sector is $9,694,408 \text{ m}^3/\text{year}$. This does not include the crop water demand associated with water diverted to the Okanagan by the Westbank Irrigation District.

At 24% of the crop water demand estimate for the entire Nicola watershed, Upper Nicola has the highest agricultural water demand after the Lower Nicola sub-basin.

Actual Use

Based on the one (1) respondent to the agricultural questionnaires in the Upper Nicola sub-basin, it is estimated that 670 mm of irrigation water is applied annually. This compares closely with our independent estimate of a soil moisture deficit of 653 mm over the irrigation season in the Upper Nicola sub-basin.

Licensed Quantities (from surface sources)

The total quantity of water licensed in the sub-basin for agricultural purposes is $17,761,667 \text{ m}^3/\text{year}$. Over 99.9% of this quantity is allocated for irrigation, with the remainder for stockwatering. Note that of this total, the Westbank Irrigation District holds a total licensed quantity of 585,908 m³ for irrigation purposes in the Okanagan Basin.

Groundwater Use

We estimate that there are six (6) irrigation wells in Upper Nicola, 6% of all reported irrigation water wells in the Nicola watershed. Responses to two (2) questionnaires were received from water users in Upper Nicola indicates surface water source. Based on this information, we estimate groundwater is used for 5% or less of the total crop water demand.

5.11.2 Industrial

Water Users

There are no known industrial water users in the Upper Nicola sub-basin.

5.11.3 Business and Commercial

Water Users

The main users identified in the business and commercial sector in the Upper Nicola Subbasin are the Upper Nicola Band general store and gas station (Dick 2006), and Douglas Lake General Store (Douglas Lake Cattle Company 2006).

Demand Estimate

The estimated water demand for business and commercial sector is 1,598 m³/year.

Actual Use

No information on actual use in the Upper Nicola sub-basin for business and commercial purposes was identified.

Licensed Quantities (from surface sources)

There is one licence for business and commercial purposes in the sub-basin totalling $1,659 \text{ m}^3$ per year.

Groundwater Use

We estimate that there are eight (8) commercial/industrial wells in Upper Nicola, 4% of all reported commercial/industrial water wells in the Nicola watershed. Since there are no industrial water users identified, these wells are more likely related to a commercial operation than an industrial one. However, there is a surface water licence for this sector, so we have assumed that groundwater sources 50% of the total water demand.

5.11.4 Domestic

Water Users

The Upper Nicola sub-basin has an estimated population of 303. The source of water could only be determined for 55 persons or 18% of the population. Of these 55 people, 38 are served by individual groundwater wells and 17 are served by surface water licensed for domestic use. There are a considerable number of First Nation members within the sub-basin (primarily within Douglas Lake IR 3), however their domestic source of water could not be confirmed.

The Westbank Irrigation District is also a key user in the Upper Nicola sub-basin. However, this water is not used within the Nicola watershed, but is diverted into the Okanagan Basin. Demands associated with this inter-basin diversion have not been included in the demand estimates of the Upper Nicola sub-basin.

Demand Estimate

The estimated water demand by the domestic sector in the Upper Nicola sub-basin is $85,054 \text{ m}^3/\text{year}$.

Actual Use

No information on actual water use for domestic purposes in the Upper Nicola sub-basin was identified.

Licensed Quantities (from surface sources)

Individual water licences for domestic purposes in the sub-basin total 45,630 m^3 annually. In addition to this, the Westbank Irrigation District holds water licences to divert up to 3,085,279 m^3 annually for waterworks purposes in the Okanagan.

Groundwater Use

An estimated 70% of individuals source their domestic water from groundwater (Table E-3).

5.11.5 Institutions

Water Users

The Upper Nicola Indian Band has an institutional water licence. The following are the known key institutional water users:

- Upper Nicola Band Office: 25 employees;
- Upper Nicola Band Firehall: 1 employee;
- Upper Nicola Band Catholic Church: 140 seat capacity;
- Upper Nicola Band Hall: 140 seat capacity; and
- Upper Nicola Band School: 56 students.

Demand Estimate

The estimated water demand for the institutional sector in the Upper Nicola sub-basin is $1,962 \text{ m}^3/\text{year}$.

Actual Use

No information on actual water use in the institution sector in the Upper Nicola sub-basin was identified.

Licensed Quantities (from surface sources)

The Upper Nicola Indian Band holds institutional water licences that total 33,186 m³ annually.

Groundwater Use

There are no institutional use water wells in the Upper Nicola sub-basin on the MOE database. However, based on conversations with a Lower Nicola Indian Band representative, the Upper Nicola Indian Band has wells to source their facilities (Dick pers. comm. 2006). We estimate Upper Nicola Institutions source 100% of their water from groundwater.

5.11.6 Recreation and Resorts

Water Users

Several lodges are operated by Douglas Lake Ranch, with a total estimated capacity of 20 rooms, or about 40 people (Douglas Lake 2006).

Demand Estimate

The estimated water demand for the recreation and resort sector in the Upper Nicola subbasin is $2,321 \text{ m}^3/\text{year}$.

Actual Use

No information on actual recreational and resort water use in the Upper Nicola sub-basin was identified.

Licensed Quantities (from surface sources)

There is one (1) licence associated with recreation and resort purposes in the sub-basin totalling 830 m^3 per year.

Groundwater Use

Neither the surface water licence nor the water wells database has a category for recreation and resorts. Furthermore, if the development was recent (since 2000), it is unlikely to be listed on the well database. Therefore, for the purpose of this report we have assumed that groundwater is a source for half of the water used in the recreation/resort sector and surface water for the other half.

5.12 SUMMARY OF DEMAND, USE AND LICENSED QUANTITIES

One objective of this study was to identify in which sectors and sub-basins there is a discrepancy between water demand (or actual use) and licensed quantities. Identification of this discrepancy could suggest sub-basins and sectors where there may be shortfalls or insufficient water licensed to meet demands. However, until water supply estimates are made (in a future phase of the WUMP process), it is not possible to identify whether there is enough water *actually* available to meet demands.

Summaries of the estimated annual water demand, estimated annual water use, annual licensed quantity and the estimated distribution of water demand or use between groundwater and surface water are provided in Table 5.1. In Table 5.2, this information is presented by sector.

Table 5.1Estimated annual water demand, annual water use, annual licensed
quantity, and the distribution of water demand or use sourced from
groundwater and surface water, organized by sub-basin.

Sub-basin	Estimated annual water	Estimated annual water	Annual licensed quantity (m ³)	Percentage of annual water	Percentage of annual water
	demand ¹ (m ³)	$use^2 (m^3)$	1) ()	demand or use	demand or use
				sourced from	sourced from
				groundwater (%)	surface water (%)
Clapperton	19,000	21,000	6,245,000	71	29
Coldwater	6,029,000	7,758,000	10,015,000	56	44
Guichon	12,324,000	14,965,000	20,416,000	39	61
Lower Nicola	8,155,000	11,872,000	18,276,000	39	61
Middle Nicola	10,189,000	13,382,000	6,568,000	33	67
Moore	252,000	432,000	4,047,000	5	95
Quilchena	2,687,000	3,754,000	7,689,000	20	80
Spius	541,000	797,000	1,930,000	8	92
Stump Lake	3,307,000	5,777,000	2,985,000	26	74
Upper Nicola	9,785,000	15,489,000	20,928,000	6	94
NICOLA	53,288,000	74,247,000	99,099,000	31	69
WATERSHED					
(TOTAL)					

Notes:

All estimates have been rounded to the nearest 1,000 m³

- 1. Within the agricultural sector, estimated annual demand refers to crop water demand.
- 2. Estimated annual use refers to the volume of water extracted from the source. It is assumed in this table that overall losses in the agricultural sector are 33% (i.e. 67% irrigation efficiency) (see Section 5.13), and the overall losses in all other sectors are 10%.

Table 5.2Estimated annual water demand, actual water use, annual licensed
quantity, and the distribution of water demand or use sourced from
groundwater or surface water, organized by sector.

Sector	Estimated annual water demand ¹ (m ³)	Estimated annual water use ² (m ³)	Annual licensed quantity (m ³)	Percentage of annual water demand or use sourced from groundwater (%)	Percentage of annual water demand or use sourced from surface water (%)
Agriculture	40,484,000	60,020,000	76,750,000	19	81
Industrial	5,886,000	6,540,000	10,947,000	57	43
Business /				99	1
Commercial	223,000	248,000	90,000		
Domestic ³	4,226,000	4,696,000	7,058,000	95	5
Institutional	1,221,000	1,356,000	33,000	99	1
Recreation /				32	68
Resorts	1,248,000	1,387,000	4,221,000		
TOTAL (All sectors)	53,288,000	74,247,000	99,099,000	31	69

Notes:

All estimates have been rounded to the nearest 1,000 m³

- 1. Within the agricultural sector, estimated annual demand refers to crop water demand.
- 2. Estimated annual use refers to the volume of water extracted from the source. It is assumed in this table that overall losses in the agricultural sector are 33% (i.e. 67% irrigation efficiency) (see Section 5.13), and the overall losses in all other sectors are 10%.
- 3. Annual licensed quantity includes waterworks licences, including those held by the City of Merritt.

It is difficult in most sectors to draw solid conclusions on possible shortfalls based on the information in Tables 5.1 and 5.2. This stems from the fact that in the Nicola watershed, water use overlaps between sectors and between sub-basins and a considerable portion of water used is sourced from groundwater. While we have provided estimates of groundwater use they are based on several assumptions and should be considered first approximations. Furthermore, with the exception of some water purveyors (e.g. City of Merritt), actual water use (either from surface water or groundwater) is generally not well known.

Table 5.3 summarizes the overall confidence we have in the values presented in Section 5.0 of this report. In all sectors we have high confidence in the demand estimates provided. Estimated demands account for the expected water use in each sector

regardless of source. We have strived to provide a comprehensive estimation of water demand in each sector in order to provide a solid basis for comparison between subbasins and sectors and to provide a base upon which future demand estimates can be made.

Information on actual water use was generally scant overall. Useful data on water use was provided by some of the major water utilities, industrial companies, and a few key agricultural water users. This information was utilized to develop and refine our demand estimates. However, since available actual use data generally did not reflect total water use in any given sector and/or sub-basin, our resulting confidence in this data to reflect basin-wide or sector-wide water use is low.

We have high confidence in the water licence information presented in this study. Efforts were made to ensure the data is comprehensive and as accurate as possible. However, since in most sectors there is a possibility that water may be supplied from licences that fall within other sectors (e.g. recreation and resorts may be supported by domestic licences and the business and commercial and industrial sectors may be supported by waterworks licences that fall within the domestic sector) a comparison between demand and licensed quantity within a sector has little value. The only sector where a comparison between demand and licensed quantity is of benefit is the agricultural sector. Within the agricultural sector the comparison of demand and licensed quantity is complicated however, by (unlicensed) groundwater use, which is generally not well known. However, based on our analysis groundwater use for agriculture is likely to be relatively small (i.e. about 19% of total crop water demand) overall.

Table 5.3Estimated confidence in the demand, actual use and licensed quantity
values for each sector and factors that should be considered when
comparing these values in this report.

Sector	Demand	Actual Use	Licensed Quantity (from surface water
	Estimate		sources)
Agriculture	High	Low (Very little information is available; information that is available may be suspect unless supported by water meters or other methods of measurement)	High (Must keep in mind that licensed surface water may not be the sole source of agricultural water)
Industry	High	Moderate (Only a portion of the industrial users are represented by the data available)	High (Must keep in mind that licensed surface water may not be the sole source of industrial water; in some sub-basins a considerable portion of water used is supplied by groundwater from private wells or from municipal waterworks)
Business / commercial	High	Low (Very little information is available)	High (Must keep in mind that licensed surface water may not be the sole source of business and commercial water; in some sub-basins a considerable portion of water used is supplied by groundwater from municipal waterworks)
Domestic	High	Moderate (Only a portion of the domestic users are represented in the data; furthermore, in order to obtain domestic use, assumptions on other sector water use was required)	High (Must keep in mind that licensed surface water may not be the sole source of domestic water; in some sub-basins a considerable portion of water used is supplied by groundwater from private wells or from municipal waterworks)
Institutional	High	Low (Very little information is available)	High (Must keep in mind that licensed surface water may not be the sole source of institutional water; in some sub-basins a considerable portion of water used is supplied by groundwater from municipal waterworks)
Recreation and Resorts	High	Low (Very little information is available; no information is available for proposed developments)	Low (There is no specific water licence for recreation and resorts; often water used in the recreation and resort sector falls under other water licence categories, e.g. domestic).

Based on the information summarized in Table 5.3, it is recommended that conclusions based on comparisons between demand and licensed quantity be drawn only for the agricultural sector, and then only when groundwater contributions to actual use are considered. Section 5.13 summarizes this comparison, which leads into an evaluation of irrigation efficiency.

5.13 CURRENT IRRIGATION WATER DEMAND AND EFFICIENCY

As noted in Section 5.12, based on the nature of the data compiled, valid conclusions may be drawn from the comparison of agricultural water demand and licensed quantities. Given that irrigation comprises over 99% of the total crop water demand in the watershed, effectively all water used by the agricultural sector is for irrigation. This provides a means to develop estimates of irrigation efficiency at the sub-basin and watershed level.

Two (2) main factors must be considered in an evaluation of irrigation water use and efficiency in the watershed:

- 1. Groundwater contribution to total irrigation use; and
- 2. Inter-basin movement of water (i.e. water sourced from one sub-basin and used in another).

To address the first factor above, we have developed estimates of the proportion of total irrigation water sourced from groundwater (presented in Section 5.0). To address the second consideration, we have identified where inter-basin transfer of water is likely to occur. These include:

- Water sourced from the Clapperton sub-basin is used in the Middle Nicola sub-basin;
- Water sourced from the Guichon Creek sub-basin is diverted to Tunkwa Lake (outside the Nicola watershed);
- Water sourced from the Spius sub-basin is used in the Lower Nicola sub-basin (and vice versa); and
- Water sourced from the Upper Nicola sub-basin is diverted to the Okanagan Basin (i.e. outside the Nicola watershed) by the Westbank Irrigation District.

Given these inter-basin transfers of water, to properly evaluate irrigation water use, we have combined the results for each of the following sub-basins:

• Clapperton and Middle Nicola;

- Spius and Lower Nicola; and
- Moore and Stump Lake.

Furthermore, licensed water quantities held by the Westbank Irrigation District were omitted from the analysis.

5.13.1 Current Irrigation Methods

Irrigation methods and their respective efficiencies vary considerably across the Nicola watershed. As shown in Table 5.4, the most common methods of irrigation in the watershed are handmove and wheelmove sprinklers (52%), both of which have an application efficiency of between 60-75%, and a typical application efficiency of 72% (MAFF 2005). The second most common method (30%) is wild or controlled flooding, which is generally the least efficient. Such practices are located in five (5) sub-basins, and is common in Stump Lake (& Moore) sub-basins, providing roughly 67% of the irrigation demand in the those sub-basins. Flood irrigation also is known to occur in the Upper Nicola, Lower Nicola (and Spius), Coldwater, and Quilchena sub-basins. Centerpivot sprinkler or spray heads account for roughly 10% of the area irrigated in the waterhsed, while centre-pivot drop tubes account for about 6%. Travelling or stationary guns are used to irrigated about 2% of the irrigated lands in the watershed.

	Irrigation method (% of total irrigated area)						
Sub-basin	Handmove or Wheelmove Sprinklers (typical efficiency 72%)	Traveling or Stationary Guns (typical efficiency 65%)	Centre Pivot Sprinkler or Spray Heads (typical efficiency 72%)	Centre Pivot Drop Tubes (typical efficiency 80%)	Controlled or Wild (spring) Flooding (typical efficiency 50%)		
Clapperton ¹	-	-	-	_	-		
Coldwater	67%	0%	15%	0%	17%		
Guichon	67%	0%	11%	22%	0%		
Lower Nicola (& Spius) ²	64%	12%	0%	5%	19%		
Middle Nicola (& Clapperton) ¹	75%	0%	0%	25%	0%		
Moore ³	-	-	-	-	-		
Quilchena	95%	0%	0%	0%	5%		
Spius ²	100%	0%	0%	0%	0%		
Stump Lake (& Moore) ³	8%	0%	25%	0%	67%		
Upper Nicola	43%	1%	14%	0%	43%		
NICOLA (TOTAL)	52%	2%	10%	6%	30%		

Table 5.4Irrigation methods used in the Nicola watershed.

Notes:

1. No irrigation apparently occurs in the Clapperton sub-basin. Water withdrawn from Clapperton is used in the Middle Nicola sub-basin. Therefore the value for Middle Nicola is summed with those in the Clapperton sub-basin.

2. Water withdrawn from Spius is used in the Lower Nicola sub-basin and vice versa. Therefore the values for Spius sub-basin are summed with the Lower Nicola sub-basin.

3. Water withdrawn from Moore may be used in the Stump Lake sub-basin. In order to compare values, Moore was combined with Stump Lake.

4. Irrigation efficiencies are based on MAFF (2005).

5.13.2 Irrigation Efficiency

In this study we have defined irrigation efficiency as the net amount of water added to the root zone (i.e. the crop water demand) divided by the amount of water *extracted* from a source (Section 13.0). The difference between the two amounts represents the loss incurred in conveyance and distribution as well as loss by poor irrigation practices (e.g. over-watering). Although we have reasonable estimates of crop water demand, there is currently little information on the amount of water extracted from the source. This precludes the direct estimation of irrigation efficiency in this study.

In order to provide a basis for comparison of irrigation demands and use with licensed surface water quantities by sub-basin, overall irrigation efficiencies were estimated for each sub-basin. Overall irrigation efficiencies for a sub-basin were calculated by weighting the typical irrigation efficiency of a given method according to MAFF (2005) by the percentage of that method used in a sub-basin (Table 5.4). Table 5.5 summaries the estimated annual crop water demand, the overall irrigation efficiency, the estimated annual water use (i.e. water extracted from the source), and annual quantity licensed for irrigation.

Overall in the Nicola watershed there is an estimated annual crop water demand of 40,484,000 m³. Assuming the typical irrigation efficiencies presented in MAFF (2005) are representative of practices the Nicola watershed, the overall irrigation efficiency is estimated to be 67%. As a result, the actual annual water used or extracted from the source is 60,020,000 m³; approximately 19% of this total is sourced from groundwater, and 81% from surface water. The total estimated water use from surface water sources represents 63% of the total surface water licences held in the watershed overall.

The results in Tables 5.5 suggest that in all sub-basins except for the Middle Nicola and Clapperton sub-basins the total annual licensed quantity of surface water exceeds the total annual water use. However, it is estimated that licenses in the Middle Nicola and Clapperton sub-basins exceed the portion of water extracted annually from surface sources.

We have assumed that the irrigation efficiencies presented in MAFF (2005) are representative of the irrigation practices in the Nicola watershed. Detailed investigation of irrigation practices in the watershed, such as that being conducted by the Ministry of Agriculture, Food and Fisheries (Van der Gulik pers. comm. 2007) may help determine the validity of this assumption. However, as noted previously it remains to be seen whether the *actual* supply of water meets these demands. For this to be determined, a water supply analysis is required.

Sub-basin	Estimated annual crop water demand	Overall irrigation efficiency ⁴	Est	Total annual quantity of surface water licensed for irrigation		
	(m ³)	(%)	Total (m ³)	Sourced from groundwater (% of total; m ³)	Sourced from surface water (% of total; m ³)	(m ³)
Clapperton ¹	-	-	-	-	-	-
Coldwater	2,948,000	68%	4,335,000	23% 997,000	77% 3,338,000	6,637,000
Guichon	5,292,000	74%	7,152,000	5% 358,000	95% 6,794,000	11,145,000
Lower Nicola (& Spius) ²	7,882,000	67%	11,764,000	33% 3,882,000	67% 7,882,000	15,722,000
Middle Nicola (& Clapperton) ¹	8,579,000	74%	11,593,000	25% 2,898,000	75% 8,695,000	9,721,000
Moore ³	-	-	-	-	-	-
Quilchena	2,584,000	71%	3,640,000	20% 728,000	80% 2,912,000	5,759,000
Spius ²	-	-	-	-	-	-
Stump Lake (& Moore) ³	3,505,000	57%	6,148,000	23% 1,414,000	77% 4,734,000	7,004,000
Upper Nicola	9,694,000	63%	15,388,000	5% 769,000	95% 14,619,000	17,762,000
NICOLA WATERSHED (TOTAL)	40,484,000	67%	60,020,000	19% 11,404,000	81% 48,616,000	76,750,000

Table 5.5Summary of irrigation demands in the Nicola watershed by sub-basin.

Notes:

All volumetric estimates are rounded to the nearest 1,000 m³.

Minor errors are due to rounding.

1. No irrigation apparently occurs in the Clapperton sub-basin. Water withdrawn from Clapperton subbasin is used in the Middle Nicola sub-basin. Therefore the value for the Middle Nicola sub-basin is summed with those in the Clapperton sub-basin.

2. Water withdrawn from the Spius sub-basin is used in the Lower Nicola sub-basin and vice versa. Therefore the values for the Spius sub-basin are summed with the Lower Nicola sub-basin.

3. Water withdrawn from the Moore sub-basin may be used in the Stump Lake sub-basin. In order to compare values, values from the Moore sub-basin were combined with the Stump Lake sub-basin.

4. Irrigation efficiencies are based on MAFF (2005) and the survey of irrigation methods used in the Nicola watershed (presented in Table 5.4).

6.0 INSTREAM FLOWS AND FISH REQUIREMENTS

6.1 LICENSED CONSERVATION FLOWS

Water licences for instream flows (conservation) in the Nicola watershed are summarized by sub-basin in Table G.1 of Appendix G and are presented in Figure 6.1. Table G.1 presents both the total volume of water licensed (m^3) and the volumetric rate of water licensed (m^3/s) annually, monthly, and weekly for August and September.

Based on this information, no flows are presently licensed for instream flows in three (3) sub-basins: Clapperton, Guichon, and Moore Creek sub-basins. The Nicola River within the Middle Nicola sub-basin accounts for approximately 72% of the total instream licensed quantity in the Nicola watershed. The remaining six (6) sub-basins account for between 1 and 8% of the total licensed quantity in the watershed.

6.2 INSTREAM FLOW GUIDELINES

Instream flows are managed in order to provide sufficient flows to support fish and fish habitat. The Ministry of Environment has developed instream flow guidelines for the Nicola Basin. Table G.2 in Appendix G provides a summary of these guidelines based on the Nicola Basin Strategic Plan (MOE 1983). Recommended flows in MOE (1983) were provided for Clapperton, Coldwater, Guichon, Lower Nicola, Middle Nicola, Quilchena, Spius Creek, and Upper Nicola sub-basins. This is the only comprehensive instream flow recommendations that were identified during the study. However, we understand that Fisheries and Oceans Canada (DFO) is currently conducting detailed assessments in support of developing revised instream flow guidelines for the major tributaries in the Nicola River watershed.



Figure 6.1 Total volume of water licensed for instream (conservation) use in the Nicola watershed.

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7.0 FUTURE WATER PRESSURES

Estimates of current water demand are summarized in Section 5.0. The pressures that currently affect water demand in the Nicola River watershed are projected to increase in the future. There are two (2) key factors that will influence water demand: climate change and population/land use change. These factors are introduced in this section.

7.1 CLIMATE CHANGE

Climate change will affect water demand for irrigation because the growing season will likely be longer, warmer, and drier. This will affect the agricultural sector primarily. But it will also affect the outdoor irrigation portion within the domestic, institutional, and recreation/resort sectors. For the purpose of this study we have assumed that climate change will not affect the industrial and business and commercial sectors since we did not identify significant outdoor portions to their total water use. The indoor portion of domestic use was also assumed to remain unchanged due to climate change.

In order to assess the impact of climate change, ClimateBC software (Wang et al. 2006) was used to characterize the change in monthly temperature and precipitation at Merritt between the 1961-1990 climate normal baseline period (i.e. the current conditions) and the 2020s and the 2050s. Based on discussion with David Spittlehouse, Research Climatologist for the Ministry of Forests and Range, there is only a small temperature and precipitation change gradient north or west across the province and it can be assumed that the change from current normals is independent of elevation¹². Therefore a single value for temperature and precipitation change for each month was used to adjust the current conditions for all sub-basins.

Climate BC provides projected monthly temperature and precipitation from two (2) global circulation models (Canadian global coupled model and United Kingdom's Hadley Centre model). Each of these models was run by the authors with three (3) emissions scenarios for

2020s and 2050s, for a total of six (6) possible climate change scenarios for each time period. Given that each scenario is equally plausible, for the purpose of this study we have used the average of the six (6) scenarios to characterize the projected future climate in the watershed. Figures 7.1 and 7.2 summarize the climate model results.

Based on the climate models, winter, summer, and annual temperatures are expected to increase steadily over the next several decades in the watershed. By the 2020s, the annual average temperature is projected to be 1 to 2°C warmer, by the 2050s, it is expected that temperatures will be 2 to 3 °C warmer than at present. This means that potential evapotranspiration rates will increase resulting in increased demand for irrigation water.

Seasonal precipitation values are expected to change as well with winter precipitation forecast to increase gradually by about 12% by the 2050s. Summer precipitation, on the other hand, is expected to decrease by 15% by the 2050s. Overall, the projected change in annual precipitation is less than 3%.

The increased winter precipitation combined with increased winter temperatures will mean that less precipitation will occur as snow, and the snow pack that does develop will be located at relatively higher elevations than it is currently. Summer months are expected to be warmer and drier than they are at present and cause additional pressure on water management in the Nicola watershed.

¹² The current climate conditions identified within each sub-basin to estimate agricultural irrigation demands are already adjusted for elevation.



PROJECTED MONTHLY TEMPERATURE: MERRITT (Source: ClimateBC)

Figure 7.1 Current and projected monthly mean, minimum and maximum temperatures for Merritt.



PROJECTED MEAN MONTHLY PRECIPITATION: MERRITT (Source: ClimateBC)

Figure 7.2 Current and projected mean monthly precipitation for Merritt.

7.2 LAND USE, POPULATION AND WATER USE CHANGES

7.2.1 Population

Future water demand will be affected by growth and development. Where available, sources of information on population growth and economic development were used. Where projections were not available, predictions were developed based on historical growth patterns. BC Stats states that between 2001 and 2031, the population of British Columbia will increase by 37%. However, southern regions of the province are expected to experience much higher growth rates than northern regions (BC Stats 2006). Merritt's annual growth rate has been 1.2% per year since 1971 (Community Futures 2006). This is consistent with BC Stats 2006). Based on these identified growth rates, we have assumed an annual growth rate of 1.2% per year to develop population projections to 2020 and 2050. We have defined this as the "low growth projection".

In order to provide a range of likely possibilities we have also identified a "high growth projection". The Report on Phase 1 of the Process Leading to a Nicola Water Use Management Plan prepared by the Nicola Watershed Community Round Table provides an estimate that the population of Merritt may grow from 20,000 to 40,000 residents from 2005 to 2015 (NWCRT 2005). This estimate was discussed by the working group for this study and it was agreed that this growth rate (i.e. about 10% per year) should be the basis for the "high growth projection".

Table 7.1 shows the low and high growth population projections for each sub-basin in the Nicola watershed. Based on Table 7.1, under the low growth projection, the total population of the Nicola watershed is projected to increase by 16.8% by 2020 and by 52.8% by 2050. Under the high growth projection, population will increase by 140% by 2020 and by 440% by 2050.

		Low Growth Projection		High Growth	Projection
Sub-basin	Estimated Current Population 2006 ¹	Projected Population in 2020 ²	Projected Population in 2050 ²	Projected Population in 2020 ³	Projected Population in 2050 ³
Clapperton	67	78	102	161	362
Coldwater	7,364	8,601	11,252	17,674	39,766
Guichon	3,300	3,854	5,042	7,920	17,820
Lower Nicola	1,867	2,181	2,853	4,481	10,082
Middle Nicola	1,822	2,128	2,784	4,373	9,839
Spius	91	106	139	218	491
Stump Lake	111	130	170	266	599
Upper Nicola	475	555	726	1140	2,565
Quilchena	62	72	95	149	335
Moore	58	68	89	139	313
TOTAL	15,217	17,773	23,252	36,521	82,172
% change from 2006	-	16.8	52.8	140	440

Table 7.1Current and projected population of the Nicola River watershed.

Notes:

1. From Table 2.2

2. Assumes a 1.2% increase per year as per the city of Merritt and BC Stats (2006).

3. Assumes a 10% increase per year as per (NWCRT 2005).

7.2.2 Agriculture

While the linkage between water use and economic growth in the agricultural sector is somewhat dubious, economic growth does provide a sense of the future conditions in the watershed, which are dominated currently by ranching (i.e. livestock production). BC Stats predicts an annual economic growth of 0.6% in the agricultural sector (average annual increase from 2005-2009) in the region (BC Stats 2006). However, Statistics Canada census data suggests that a 3% decrease in the livestock sector actually occurred between 2001 and 2005 (Statistics Canada 2006), which represents a 0.75% decrease on an annual basis. From discussion among the working group, there is likely to be only limited expansion of irrigation (i.e. what is irrigated now is what can be reasonably irrigated). Based on this information, we have assumed no growth under our "low growth projection".

It is understood that the potential to physically increase the area under irrigation is generally limited in the watershed. To quantify this potential, GIS analysis and field reconnaissance of

the watershed was conducted to identify areas with reasonable potential to be irrigated. These areas generally must be near a water source, have relatively gentle terrain, and have suitable soils. From our analysis, it is estimated there is between 5 and 10% potential for irrigation expansion in the watershed overall. Therefore, under the "high growth scenario" we have made the assumption that the area of land under irrigation will increase 5% by 2020 and 10% by 2050. This takes into account only the physical constraints and does not consider changes to agricultural practices, crop types or economics.

7.2.3 Industry

It is difficult to predict the future for any given business involved in the industrial sector. For the purposes of this study, we have adopted the projections developed by BC Stats for industrial activities (primarily mining and forestry) in the watershed (based on projected average annual increase from 2005-2009). The "low growth projection" based on BC Stats calls for an increase of 16% by 2020 and 51% by 2050. Under the "high growth projection", for all sectors other than agriculture, we have assumed 10% increase per year – consistent with the high growth population projection. By 2020, this means a 140% increase over current levels of water use by the industrial sector. By 2050, water use in the industrial sector is assumed to be 440% above current levels.

7.2.4 Business and Commercial Activity

The City of Merritt has a diversified economy that is expected to grow in the areas of transportation and home-based occupations (Community Futures 2006). Many recent and proposed developments have and will continue to contribute to the growth of business and commercial activity, including the Wagon West Travel Plaza, Canadian Tire, Extra Foods and Wal-Mart.

We have adopted the projections from BC Stats for the business and commercial sector (based on the average annual increase from 2005-2009). The "low growth projection" calls for an increase of 39% by 2020 and by 121% by 2050. Similar to the "high growth

projection" for the population, business and commercial water use is assumed to increase by 140% by 2020 and by 440% by 2050.

7.2.5 Institutions

Institutional growth is expected to follow the same general trends as population growth as community centres, government offices, and other facilities meet the needs of the growing population. Based on BC Stats projections (between 2005 and 2009), institutional growth will be just slightly higher than population growth, and increase by 21% by 2020, and by 66% by 2050. These values represent the "low growth projection". The "high growth projection" is assumed to be consistent with the population growth rate; increasing by 140% by 2020 and by 440% by 2050.

7.2.6 Recreation and Resorts

Tourism and recreation in Merritt has grown over the last 10 years and continues to become a major part of the local economy (Community Futures 2006). This is likely to result in an increase in resort and recreation activity in the watershed. Juliet Creek Resort, Active Mountain Resort, and Marshall Springs Resort are currently three (3) resorts in the Nicola basin that will contribute to the growth in this sector. These resorts have been included within the calculation of "current" water demand.

To project water demand as a result of recreation and resort growth, we have adopted the BC Stats projections for 2005 to 2009. Based on these projections, the "low growth projection" would result in an increase by 29% by 2020 and by 92% by 2050. As in all sectors (with the exception of agriculture) the "high growth projection" represents an increase in water demand of 140% by 2020 and 440% by 2050.

8.0 FUTURE WATER DEMAND SCENARIOS

8.1 OVERVIEW OF SCENARIOS AND ANALYSES

In order to evaluate future water demands in the Nicola watershed, it is necessary to define a number of scenarios that consider the future water pressures in the watershed. Since there are potentially an unlimited number of scenarios, the key is to identify a select number of scenarios that can be used to answer water management questions.

The process to identify future scenarios began with the proposal of three (3) population/land use projections for two (2) time periods (i.e. 2020s and 2050s) by Summit to the WUMP technical group at the November 30, 2006 meeting. The purpose of that meeting was to agree on the three (3) types of scenarios that would be developed. The three (3) types of scenarios would be used for both the 2020s and the 2050s projections and are as follows:

- Scenario A would assume the <u>expected values</u> for population and land use change (for all sectors) based on the best available information, but <u>not include</u> effects of climate change (Section 7.1);
- 2. Scenario B would be the same as Scenario A but <u>include</u> the effects of climate change; and
- Scenario C would assume an <u>upper</u> reasonable estimate of population and land use change (for all sectors), and would include the effects of climate change. Scenario C is intended to represent a likely "worst case" water demand.

Scenarios A and B are based as much as possible on published growth rates for the region, and are considered a reasonable representation of the future, however, some members of the technical working group argued it may be too conservative. In order to reflect a more aggressive population/land use growth rate, Scenario C was included. Its purpose is to provide a reasonably plausible future, but one based on considerably higher growth projections – many of which were assumed since they are not necessarily supported by past growth rates.

8.2 SCENARIO DESCRIPTIONS AND ASSUMPTIONS

Table 8.1 summarizes the six (6) future scenarios that were assumed for this study. A summary of demand estimates based on these scenarios is provided in Section 8.3.

Scenario:		2020-A	2020-В	2020-С	2050-A	2050-В	2050-С
Are effects of climate change considered? ¹		No	Yes	Yes	No	Yes	Yes
Assumed change in	Agriculture	0	0	+5	0	0	+10
water demand	Industry	+16	+16	+140	+51	+51	+440
associated only	Business and commercial	+39	+39	+140	+121	+121	+440
with <u>land use</u>	Domestic (population)	+17	+17	+140	+53	+53	+440
change from 2006	Institutional	+21	+21	+140	+66	+66	+440
(%) ² :	Recreation and Resorts	+29	+29	+140	+92	+92	+440

Table 0 1	Deservation	of future	annomina	adamtad	for this study	
	Description	of future	scenarios	auopieu	101 tills stud	٧.

Notes:

1. See Section 7.1 for assumed climate change effects.

2. See Section 7.2 for discussion on assumed change in water demand for each land use sector.

8.3 SUMMARY OF SCENARIO OUTPUT

Changes in water demand under each of the scenarios have been evaluated quantitatively by comparing each scenario (defined in Section 8.2) to current estimated demand (presented in Section 5.0 and Appendix F). The projected water demand organized by sub-basin and sector for each of the six (6) scenarios is presented in Tables H.1 through H.6 in Appendix H. A summary of the annual projected water demand for the Nicola watershed and sub-basins is presented in Table 8.2. Figure 8.1 graphically presents the annual water demand projections for the Nicola watershed overall. Figures H.1 through H.6 in Appendix H present the monthly projected water demands under each scenario for the Nicola watershed overall. This section identified some of the key findings.

By 2020, total annual water demand in the Nicola watershed is expected to be 4% higher than it is currently if "low" growth and no climate change are assumed (Scenario A). If climate change is accounted for (Scenario B), total water demand is projected to increase by 10%. If climate change and "high" growth were experienced across the basin (Scenario C), water demand is projected to increase by 43%.
By 2050, low growth alone (Scenario A) is expected to increase total annual water demand by 14%. With the effects of climate change (Scenario B), total annual water demand is projected to increase by 22%. Under the influence of climate change and high projected growth, total water demand is expected to be 124% higher than it is currently.

Table 8.2Summary of current and projected future annual water demand by sub-basin.

CLAPPERTON							
	Estimated volume	etric water demai	nd (m ³)				
Sector	Current (2006)	2020-A	2020-В	2020-С	2050-A	2050-В	2050-С
Agricultural	0	0	0	0	0	0	0
Industrial	0	0	0	0	0	0	0
Business/Commercial	0	0	0	0	0	0	0
Domestic	19,000	22,000	23,000	47,000	29,000	30,000	107,000
Institutional	0	0	0	0	0	0	0
Recreation/Resorts	0	0	0	0	0	0	0
Total Demand (all sectors)	19,000	22,000	23,000	47,000	29,000	30,000	107,000
Increase in total demand							
from 2006 (%)	-	16.9	22.2	149.7	54.1	59.4	468.6

COLDWATER								
	Estimated volumetric water demand (m ³)							
Sector	Current (2006)	2020-A	2020-В	2020-С	2050-A	2050-В	2050-С	
Agricultural	2,948,000	2,948,000	3,141,000	3,298,000	2,948,000	3,214,000	3,531,000	
Industrial	80,000	92,000	92,000	191,000	120,000	120,000	430,000	
Business/Commercial	83,000	115,000	115,000	199,000	183,000	183,000	448,000	
Domestic	2,068,000	2,420,000	2,499,000	5,127,000	3,165,000	3,318,000	11,710,000	
Institutional	213,000	258,000	263,000	523,000	354,000	364,000	1,185,000	
Recreation/Resorts	637,000	821,000	847,000	1,577,000	1,222,000	1,276,000	3,590,000	
Total Demand (all sectors)	6,029,000	6,654,000	6,957,000	10,915,000	7,992,000	8,475,000	20,894,000	
Increase in total demand								
from 2006 (%)	-	10.4	15.4	81.0	32.6	40.6	246.6	

GUICHON									
	Estimated volume	Estimated volumetric water demand (m ³)							
Sector	Current (2006)	2020-A	2020-В	2020-С	2050-A	2050-В	2050-С		
Agricultural	5,292,000	5,292,000	5,647,000	5,930,000	5,292,000	5,789,000	6,359,000		
Industrial	5,596,000	6,492,000	6,492,000	13,431,000	8,451,000	8,451,000	30,221,000		
Business/Commercial	64,000	89,000	89,000	154,000	142,000	142,000	347,000		
Domestic	927,000	1,085,000	1,120,000	2,297,000	1,418,000	1,487,000	5,248,000		
Institutional	353,000	427,000	455,000	902,000	586,000	635,000	2,067,000		
Recreation/Resorts	91,000	117,000	124,000	233,000	175,000	190,000	533,000		
Total Demand (all sectors)	12,323,000	13,502,000	13,927,000	22,947,000	16,064,000	16,694,000	44,775,000		
Increase in total demand									
from 2006 (%)	-	9.6	13.0	86.2	30.3	35.5	263.3		

Table 8.2 cont'd.

LOWER NICOLA							
	Estimated volume	tric water demand	l (m ³)				
Sector	Current (2006)	2020-A	2020-В	2020-С	2050-A	2050-В	2050-С
Agricultural	7,370,000	7,370,000	7,881,000	8,275,000	7,370,000	8,089,000	8,886,000
Industrial	190,000	221,000	221,000	457,000	288,000	288,000	1,028,000
Business/Commercial	2,000	2,000	2,000	4,000	4,000	4,000	9,000
Domestic	524,000	614,000	634,000	1,300,000	802,000	841,000	2,969,000
Institutional	66,000	80,000	85,000	168,000	110,000	119,000	388,000
Recreation/Resorts	2,000	3,000	3,000	6,000	5,000	5,000	13,000
Total Demand (all sectors)	8,154,000	8,290,000	8,826,000	10,210,000	8,579,000	9,346,000	13,293,000
Increase in total demand							
from 2006 (%)	-	1.7	8.2	25.2	5.2	14.6	63.0

MIDDLE NICOLA										
	Estimated volume	Estimated volumetric water demand (m ³)								
Sector	Current (2006)	2020-A	2020-В	2020-С	2050-A	2050-В	2050-С			
Agricultural	8,579,000	8,579,000	9,135,000	9,591,000	8,579,000	9,353,000	10,273,000			
Industrial	19,000	22,000	22,000	46,000	29,000	29,000	103,000			
Business/Commercial	70,000	97,000	97,000	167,000	154,000	154,000	375,000			
Domestic	512,000	599,000	618,000	1,268,000	783,000	821,000	2,897,000			
Institutional	581,000	703,000	728,000	1,445,000	964,000	1,011,000	3,288,000			
Recreation/Resorts	429,000	553,000	587,000	1,092,000	823,000	894,000	2,513,000			
Total Demand (all sectors)	10,190,000	10,553,000	11,187,000	13,609,000	11,332,000	12,262,000	19,449,000			
Increase in total demand										
from 2006 (%)	-	3.6	9.8	33.6	11.2	20.3	90.9			

MOORE							
	Estimated volume	etric water demar	nd (m ³)				
Sector	Current (2006)	2020-A	2020-В	2020-С	2050-A	2050-В	2050-С
Agricultural	236,000	236,000	253,000	253,000	236,000	260,000	260,000
Industrial	0	0	0	0	0	0	0
Business/Commercial	0	0	0	0	0	0	0
Domestic	16,000	19,000	20,000	40,000	25,000	26,000	92,000
Institutional	0	0	0	0	0	0	0
Recreation/Resorts	0	0	0	0	0	0	0
Total Demand (all sectors)	252,000	255,000	273,000	293,000	261,000	286,000	352,000
Increase in total demand							
from 2006 (%)	-	1.1	8.2	16.1	3.5	13.4	39.5

QUILCHENA									
	Estimated volumetric water demand (m ³)								
Sector	Current (2006)	2020-A	2020-В	2020-С	2050-A	2050-В	2050-С		
Agricultural	2,584,000	2,584,000	2,758,000	2,758,000	2,584,000	2,829,000	2,829,000		
Industrial	0	0	0	0	0	0	0		
Business/Commercial	3,000	4,000	4,000	7,000	7,000	7,000	16,000		
Domestic	17,000	20,000	21,000	43,000	27,000	28,000	99,000		
Institutional	5,000	6,000	6,000	13,000	9,000	9,000	30,000		
Recreation/Resorts	77,000	99,000	105,000	196,000	148,000	161,000	452,000		
Total Demand (all sectors)	2,686,000	2,713,000	2,894,000	3,017,000	2,775,000	3,034,000	3,426,000		
Increase in total demand									
from 2006 (%)	-	1.0	7.7	12.3	3.3	12.9	27.5		

Table 8.2 cont'd.

SPIUS							
	Estimated volum	etric water dema	and (m ³)				
Sector	Current (2006)	2020-A	2020-В	2020-С	2050-A	2050-В	2050-С
Agricultural	512,000	512,000	547,000	574,000	512,000	560,000	615,000
Industrial	0	0	0	0	0	0	0
Business/Commercial	0	0	0	0	0	0	0
Domestic	26,000	30,000	31,000	63,000	39,000	41,000	145,000
Institutional	0	0	0	0	0	0	0
Recreation/Resorts	3,000	4,000	4,000	7,000	6,000	6,000	16,000
Total Demand (all sectors)	541,000	546,000	582,000	644,000	557,000	607,000	776,000
Increase in total demand							
from 2006 (%)	-	0.9	7.6	19.0	3.0	12.2	43.4

STUMPLAKE							
	Estimated volume	etric water deman	d (m ³)				
Sector	Current (2006)	2020-A	2020-В	2020-С	2050-A	2050-В	2050-С
Agricultural	3,268,000	3,268,000	3,493,000	3,493,000	3,268,000	3,584,000	3,937,000
Industrial	0	0	0	0	0	0	0
Business/Commercial	0	0	0	0	0	0	0
Domestic	31,000	36,000	38,000	77,000	48,000	50,000	177,000
Institutional	0	0	0	0	0	0	0
Recreation/Resorts	8,000	10,000	10,000	18,000	15,000	15,000	41,000
Total Demand (all sectors)	3,307,000	3,314,000	3,541,000	3,588,000	3,331,000	3,649,000	4,155,000
Increase in total demand							
from 2006 (%)	-	0.2	7.1	8.5	0.7	10.3	25.6

UPPER NICOLA									
	Estimated volum	Estimated volumetric water demand (m ³)							
Sector	Current (2006)	2020-A	2020-В	2020-С	2050-A	2050-В	2050-С		
Agricultural	9,694,000	9,694,000	10,333,000	10,850,000	9,694,000	10,585,000	11,627,000		
Industrial	0	0	0	0	0	0	0		
Business/Commercial	2,000	2,000	2,000	4,000	4,000	4,000	9,000		
Domestic	85,000	100,000	103,000	211,000	130,000	136,000	482,000		
Institutional	2,000	2,000	2,000	5,000	3,000	3,000	11,000		
Recreation/Resorts	2,000	3,000	3,000	6,000	4,000	4,000	13,000		
Total Demand (all sectors)	9,785,000	9,801,000	10,443,000	11,076,000	9,835,000	10,732,000	12,142,000		
Increase in total demand									
from 2006 (%)	-	0.2	6.7	13.2	0.5	9.7	24.1		

NICOLA RIVER							
WATERSHED (TOTAL)							
	Estimated volume	etric water deman	d (m ³)				
Sector	Current (2006)	2020-A	2020-В	2020-С	2050-A	2050-В	2050-С
Agricultural	40,484,000	40,484,000	43,187,000	45,022,000	40,484,000	44,262,000	48,315,000
Industrial	5,886,000	6,827,000	6,827,000	14,125,000	8,887,000	8,887,000	31,782,000
Business/Commercial	223,000	310,000	310,000	535,000	493,000	493,000	1,204,000
Domestic	4,226,000	4,944,000	5,106,000	10,474,000	6,466,000	6,779,000	23,925,000
Institutional	1,221,000	1,477,000	1,540,000	3,054,000	2,026,000	2,142,000	6,969,000
Recreation/Resorts	1,248,000	1,611,000	1,684,000	3,135,000	2,397,000	2,550,000	7,171,000
Total Demand (all sectors)	53,288,000	55,653,000	58,654,000	76,345,000	60,753,000	65,113,000	119,366,000
Increase in total demand							
from 2006 (%)	-	4.4	10.1	43.3	14.0	22.2	124.0

Notes:

Values have been rounded to the nearest 1000 m³. Minor errors are due to rounding.
 Domestic water demand estimates for the Upper Nicola sub-basin do not include those associated with the Westbank Irrigation District.

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Figure 8.1 Projected future annual water demand in the Nicola watershed.

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8.4 EFFECTS OF ALTERNATIVE WATER MANAGEMENT

8.4.1 Crop Water Demand

While there is insufficient information available to develop accurate independent estimates of irrigation efficiency (Section 5.13), we have reasonable information on irrigation methods currently used across the watershed. Based on Table 5.4, the Nicola Basin is irrigated by the following methods:

- 52% is irrigated by handmove or wheelmove sprinklers (with a typical¹³ efficiency of 72%);
- 30% is irrigated by flooding (with a typical efficiency of 50%);
- 10% is irrigated by centre-pivot sprinkler or spray heads (with a typical efficiency of 72%);
- 6% is irrigated by centre-pivot drop tubes (with a typical efficiency of 80%); and
- 2% is irrigated by travelling or stationary guns (with a typical efficiency of 65%).

Based on Scenario 2050-C, an increase of 10% in irrigated area plus climate change will increase crop water demands by about 20% from 40 million m³ to 48 million m³ per year.

A considerable area of the basin is flood irrigated, and this method is particularly inefficient due to distribution losses by seepage and evaporation. By converting to a more efficient system (e.g. to sprinklers with an assumed 72% efficiency for example), it would be possible to improve overall irrigation efficiency in the watershed by nearly 7%. Conversion of the other methods to the highest possible efficiency would also be beneficial, but the gains in overall efficiency will not likely be as dramatic, possibly 3% overall.

¹³ "Typical" refers to values specified in MAFF (2005).

8.4.2 Demand in Other Sectors

Given that the population in the Nicola watershed is projected to grow over the next several decades, management of water demand will become increasingly important in order to facilitate continued economic growth and environmental sustainability.

The strong seasonal patterns of water use in the Nicola watershed suggest that reductions in water use are likely achievable. Whereas water use by industrial and business and commercial users likely has a limited seasonal component, domestic, recreation and resort, and portions of the institutional sector require much more water in the summer months.

Summit (2004) provides a synthesis of demand management options for the Trepanier Landscape Unit near Westbank. In that study four (4) approaches were outlined that could reduce demands in domestic, recreation/resort and institutional sectors. These include:

- Public education programs (to promote water conservation and to encourage changes such as xeriscaping and improvements in irrigation application techniques and irrigation scheduling);
- 2. Universal metering;
- 3. Financial incentives (use of a volume-based rate system and potentially other incentives); and
- 4. Regulations (including requiring water conserving fixtures, restrictions on water use in peak periods).

While not assessed by Summit (2004), these measures could also apply to agricultural users. The actual savings by implementing these measures have not been specifically assessed in this study of the Nicola watershed. In the Trepanier Landscape Unit it was expected a 30% savings in total water use could be attainable (Summit 2004). Assuming a savings of 30% in the domestic, recreation and resort, and institutional sectors, water use in the Nicola watershed could be reduced by about 4% overall (based on current demand estimates). Under future scenario 2050-C, a 30% savings in these sectors would represent a 10% reduction in overall water demand. This could serve to offset the increased demands

projected in the future based on population, land use change, and agricultural sector due to climate change.

Potential savings in the industrial and business and commercial sectors is also possible, but since each business and commercial sector activity is unique, improvements in water use efficiency can only be accurately determined on a case by case basis, which is beyond the scope of this study.

9.0 EVALUATION OF AVAILABLE DATA AND ESTIMATES

All efforts were made to compile the most accurate information. In addition to demand estimates based on land use, we attempted to obtain actual water use from representatives of many key users in the agriculture, domestic, industry, institution and recreation/resort sectors by contacting each key user directly and researching background information on the internet and in reports. Based on the information compiled, we have high confidence in the estimates of water demand. However, we did encounter several information gaps and areas of uncertainty where assumptions were required. These assumptions have been presented in Section 2.0 and 5.0. This section identifies some key issues in our analysis and discusses the potential for improvements.

9.1 AGRICULTURE

Actual water use data for agricultural users was difficult to obtain because we were either unable to contact key users or, when we were able to contact them, very few could report how much water they actually use. Six (6) out of the 14 completed agriculture questionnaires provided a "known" estimate of actual annual water use. However, unless meters (or other means to measure water use is used), data provided in the questionnaire responses are only estimates; often they reflected what individuals were licensed for, not actual water use. While this information was still considered valuable, our analysis could have been further refined if we had more information on actual water use throughout the watershed.

There are several assumptions in the agricultural water demand model that could affect the results, including the following:

- The Priestly-Taylor equation coefficient of 1.74 for arid areas was assumed. This coefficient directly affects the estimates of crop water demand. For more humid areas, the coefficient is lower and PET values would be lower, thus lowering the crop water demand;
- For the soil water storage (SWS) calculation, the assumed average effective rooting depth is 45 cm, which corresponds to grass (Van der Gulik, pers. comm. 2007). We

are aware that there are other crops including alfalfa that are also grown in the watershed. Alfalfa has an average effective rooting depth of 1.2 m and this would tend to increase the available water storage capacity (AWSC); however, because AWSC is relevant only to the month of April (because in that month water stored over winter is available in the soil rooting depths will only affect the crop water demand for April, which accounts about 5% of the total annual crop water demand. For the remainder of the irrigation season, water demands from alfalfa will tend to be higher than grass, due to the crop coefficient. Crop coefficients were not applied to the equation. The Priestley-Taylor equation is a simplified version of the Penman-Monteith equation that is suitable where data are limited to standard meteorological measurements (i.e.: max, min, and mean daily temperature; sunshine hours). It is considered reasonable at spatial scales of a few kilometres, but is not sufficiently accurate to estimate PET at the field scale. If water demands are being calculated for specific farm fields, we do not recommend applying the Penman-Monteith equation.

• Water losses through overland flow and through the soil horizon were not considered. Tensiometer testing of the soil horizon at a detailed level is the best way to determine whether or not ranchers/farmers are watering effectively. We are aware that the Ministry of Agriculture, Food and Fisheries is currently examining this topic on selected ranches in the watershed (Van der Gulick, pers. comm. 2007).

9.2 INDUSTRY

We have high confidence in the estimates of water demand and use by the industrial sector. We made all reasonable efforts to contact key industrial water users and were able to obtain valuable information from many of them, including Highland Valley Copper (the largest industrial user), Tolko Industries Ltd., Craigmont Mines, and Norgaard Ready Mix.

9.3 BUSINESS AND COMMERCIAL

We are aware that businesses in the City of Merritt are metered but currently the City does not record this information (Finnigan pers. comm. 2006). It was not practical in this study to attempt to obtain water use data from all businesses independently. Our demand estimates in the business and commercial sector were calculated by applying unit water demands assuming they were roughly equivalent to the typical rates of wastewater production. Rates of wastewater production were based on minimum design flow rates presented in the BC Sewerage Standard Practise Manual (MOH 2006). The design flow rates in MOH (2006) include a safety factor and are likely to be slightly higher than actual values. Our estimate of water demand could be more accurate if actual water use data was available for all businesses or at least a representative selection of businesses.

9.4 **DOMESTIC (POPULATION)**

We made all reasonable efforts to obtain an accurate population estimate for the entire study area. However, a large portion of the Nicola basin is rural and it was difficult to obtain accurate populations for all rural communities and all Indian Reserves. A major problem was the lack of responses from rural water users and First Nations. We attempted to contact all rural water utilities, however five (5) out of nine (9) rural water utilities did not return our calls and therefore population data for these communities was assumed to be zero. We also attempted to obtain population data for Indian reserves through the BC Stats Census data and contacts through Indian and Northern Affairs. Population data was unavailable for 21 out of 33 Indian Reserves, therefore, in these instances, the population was assumed to be zero. Also, where population data was available for the reserves, the most recent data was from 2001. This data was used to project the population to 2006 using the same growth rate or decline that occurred from the period 1996 to 2001. The actual 2006 populations were unavailable from BC Stats at the time of this study, and they may be different from the numbers that we projected.

We also attempted to contact First Nations by sending out questionnaires to all seven (7) First Nations Bands. However, at the time of reporting, no questionnaires had been completed.

It was difficult to assign populations to specific sub-basins. Some of the Indian Reserves straddled more than one sub-basin. In these instances, the population was included in the

sub-basin where the reserve land area was the largest. The City of Merritt also straddles two sub-basins: Coldwater and Middle Nicola. Staff from the City of Merritt provided us with estimates of the distribution of population and businesses, industries, institutions, and recreation areas in both sub-basins. This is however, an estimate, which has uncertainty associated with it.

Despite difficulties determining the population within the watershed and by sub-basin, our total estimate for the entire basin of 15,045 is close to two (2) sources that provided estimates for Nicola River Watershed. Community Futures estimates a trading area for Merritt of 15,000 (Community Futures 2006) and Urban System reports an estimated 16,000 in the Nicola River Basin in 2004 (Urban Systems 2006). Given that our population estimate is reasonably close to the estimates found in these references, we are fairly confident in our total population estimate and the distribution of population by sub-basin.

9.5 INSTITUTIONS

No actual water use data was available for the institutional sector. Despite efforts to contact individuals on our key user list, either no one was available for consultation or no one had this information. Water demand for this sector had to be estimated (methods for estimating water demand are outlined in section 2.6.5) with no reference to actual water use within our study area. Water demand estimates could be refined if actual water use from at least some of the key users in this sector was available.

9.6 **RECREATION & RESORTS**

No actual water use data was available for the recreation and resort sector. Despite efforts to contact individuals on our key user list, either no one was available for consultation or no one had this information. Water demand for this sector had to be estimated (methods for estimating water demand are outlined in section 2.6.6) with no reference to actual water use within our study area. Our estimate for current water demand would have been more accurate if we were able to obtain actual water use from at least some of the key users in this sector.

9.7 FUTURE SCENARIOS

Future projections for two of the three types of scenarios (A and B) were based on the best available information in all sectors. In most cases, this was BC Stats. BC Stats provided projections from 2005 to 2009. We took their average annual projected increase from 2005-2009 and projected this rate to 2020 and 2050 – a considerable leap forward in time.

BC Stats projections applied to business/commercial and industrial sectors are based on college regions. The college region boundaries are different from the Nicola watershed and therefore, the college region that most closely represented our study area was used - the Thompson Rivers College Region. It represents the following communities: Kamloops, Williams Lake, Merritt, Lillooet, Chase, Logan Lake, Ashcroft, 100 Mile House, Cache Creek, Clinton, Lytton and rural areas. Merritt and Logan Lake are in our study area. Kamloops, being the largest city in this region, would have the most influence on industry projections followed by Williams Lake. Due to the lack of other available sources, we have taken the Thompson Rivers College Region projections and applied them to our sector projections. Our projections would however be more accurate if projections were available that reflected our study area directly.

10.0 SUMMARY AND CONCLUSIONS

A principal task of this study was to quantify current (2006) demand for water by sub-basin and sector on an annual, monthly and weekly basis (August and September only). Details used to develop demand estimates are described in Section 2.0 and the assumptions and results of the demand analysis are provided in Section 5.0. A detailed table summarizing all current (2006) demand estimates is provided in Table F.1 of Appendix F.

Efforts were made throughout the study to compile actual use information in all sectors and sub-basins. However, water use data is simply not recorded universally in any sector or sub-basin, thus a solid evaluation of actual use patterns is precluded. Nevertheless, some water purveyors, industrial companies and others did provide actual use information that provided a sound basis to develop the demand estimates noted above.

Information on surface water licensed throughout the watershed was compiled and is presented in Section 5.0 and summarized in Table D.1 of Appendix D. Given the potential for overlap of water use between sectors and sub-basins, however, comparison between demand and licensed quantities should be made cautiously, as described in Section 5.12. Based on the nature of the information compiled, comparison between demand and licensed quantities is recommended only for the agricultural sector. These comparisons, which are summarized in Section 5.13, make assumptions on the likely irrigation efficiencies based on information published in MAFF (2005) and our survey of irrigation methods used. Based on this assumption it appears that the current surface water licences are sufficient to meet the total irrigation requirements in all but the Middle Nicola (and Clapperton) sub-basins. However if groundwater is considered, irrigation requirements are met in the Middle Nicola and Clapperton sub-basins. It remains to be seen however, whether *actual* water supply is sufficient to meet the irrigation requirements.

Despite this overall finding, a considerable amount of irrigation water is inefficiently being utilized, particularly where flood irrigation is being practiced. Conversion of this method to conventional sprinkling methods could improve irrigation efficiency by as much as 7%

overall. Improvements to other systems may provide an additional few percent savings, but overall improvements in irrigation efficiencies using standard practices are likely to be limited to about 10% overall.

To assess future water demand, three (3) scenarios and two (2) time periods were modeled in this study. Descriptions of each of the adopted scenarios are provided in Section 8.2 and the projected water demands by sub-basin and sector are summarized in Section 8.3 and in Tables H.1 through H.6 of Appendix H. The following highlights the projected future water demands in the watershed:

- By 2020, total annual water demand in the Nicola watershed is expected to be 4% higher than it is currently if "low" growth and no climate change were assumed (Scenario A). If climate change is accounted for (Scenario B), total annual water demand is projected to increase by 10%. If climate change and "high" growth were experienced across the basin (Scenario C), total annual water demand is projected to increase by 43%.
- By 2050, "low" growth alone (Scenario A) is expected to increase total annual water demand by 14%. With the effects of climate change (Scenario B), total annual water demand is projected to increase by 22%. Under the influence of climate change and high projected growth, total annual water demands are expected to be 124% higher than it is currently.

It is expected that by converting to more efficient irrigation practices it may be possible for the agricultural sector to reduce water use by 10% overall. Also, through a focussed demand management program (highlighted in Section 8.4.2) up to a 30% reduction in water demand in the domestic, recreation and resort and institutional sectors could be achieved. Currently, a 30% reduction in these sectors would represent only a 4.0% savings overall. However, in the future a 30% reduction in water use by the domestic, recreation and resort and institutional sectors could represent a 10% savings overall (under Scenario 2050-C). Potential savings in the industrial and business and commercial sectors is also possible, but

since each business and commercial sector activity is unique, improvements in water use efficiency can only be made accurately on a case by case basis.

11.0 **RECOMMENDATIONS**

The information presented in this report is intended to provide basic information necessary to develop a comprehensive Water Use Management Plan for the Nicola watershed. Before such a plan is developed, it will also be necessary to evaluate water supply both from surface and groundwater sources. We understand that such studies are being initiated under the Nicola WUMP process.

As discussed above, this study uses the best available information to arrive at the water demand estimates presented in this report. It is acknowledged that these estimates are based on many assumptions, and these assumptions have been identified throughout the report. With additional information and investigation, there is potential to refine these estimates. The following tasks would facilitate such refinements:

- Obtain detailed population, land use and water use information that was not obtained or available from the questionnaire survey;
- Confirm our assumption that unit water demands are well represented by the design wastewater flows adopted from MOH (2006);
- Refine our estimate and distribution of land use and population in the watershed through additional investigation;
- Encourage the City of Merritt to begin recording customer water use (by meters).
- Encourage universal metering in the watershed and submission of records to a central "data warehouse" in a standard format. Currently, actual water use information is scant, and where it is collected it is recorded to no set standard. It is recommended all proposed development be required to have water meters, and over a period this should also extend to existing water users (in all sectors); and
- Refine irrigation demand estimates through a program developed by the Ministry of Agriculture, Food and Fisheries (MAFF) (Van der Gulik pers. comm. 2007). Based on studies in the Lower Mainland and Okanagan, it is possible to refine the irrigation demand estimates by utilizing the following: 1) downscaled climate data for present and the future at a suitable grid size (e.g. 500 m by 500 m); and 2) detailed field-verified land use information, including information on crop type, irrigation method,

and irrigation practices). Furthermore, specific water use patterns for a representative selection of agricultural water users should be assessed using meters and/or tensionmeters. We understand that the Ministry of Agriculture, Food and Fisheries is currently working on these tasks (Van der Gulik pers. comm. 2007), and it would be beneficial for the Nicola WUMP to communicate with MAFF to coordinate activities and share information.

Since the vast majority of water used in the Nicola watershed is utilized by the agricultural sector, refinements to demand estimates in the watershed should begin with this sector. With this objective, the work being initiated by the MAFF is a logical next step and should prove worthwhile to the overall WUMP process. This study has been conducted at the watershed (and sub-basin) scales, and has made a number of appropriate assumptions at that scale that may tend to result in underestimation of irrigation demands in some areas (e.g., based on combining soils, crop type, etc.). We understand the MAFF study will investigate agricultural water demands at a smaller scale (e.g. down to individual fields). This will provide the opportunity to incorporate details not possible at the scope of this study, including detailed soil information, crop type, wind and other factors. Investigation of irrigation water demands at this smaller scale will provide additional detail on crop water use patterns, including those between grass, alfalfa and other crops. It is recommended the Nicola WUMP coordinate with MAFF on this and related work and provide support wherever possible.

This study has necessarily involved a large number of assumptions given a lack of actual use data. While we believe our assumptions are reasonable, confidence in the results could be increased with additional actual water use data. Therefore, it is strongly recommended that universal metering and recording of this information be considered throughout the watershed. Not only would metering be most beneficial for future refinements of water use estimates in the watershed, but it would also serve as a tool for water conservation.

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13.0 GLOSSARY

Term	Definition
Actual use	A measured quantity of water actually withdrawn from a source over a
	defined period. This quantity may be from a surface and/or groundwater
	source.
Current	The term "current" refers to the year 2006.
Demand	The quantity of water that is required to meet the needs of a water user
	over a defined period. For agricultural use, <i>demand</i> is the quantity that
	would meet the needs of a crop. Demand represents the amount of
	irrigation that is optimal for a specific soil, climate, and crop-of-interest.
	For industrial, business, commercial, institutional, and recreational water
	users, demand represents the optimal quantity of water required to
	maintain their respective activities. Given the difficulty in defining what
	quantity is <u>actually</u> needed, in practice, <i>demand</i> in the non-agricultural
	sectors is often considered analogous to <i>estimated use</i> .
Distribution losses	The quantity of water "lost" along the distribution system as water is
	conveyed between the <i>point-of-diversion</i> or <i>source</i> and the end-use. It
	Includes leakage and evaporative losses.
Estimated use	<i>Estimated use</i> in the agricultural sector refers to any estimate of the
	quantity of water withdrawn from the source, which is usually based on
	demand and assumptions of <i>irrigation efficiency</i> . In the non-agricultural
	sectors, estimated use is based on knowledge and/or assumptions on land
Easting at a m	use and typical rates of water use.
Extraction	Refers to the quantity of water diverted of removed from either a surface
Euturo	The term "future" refers to the periods 2020s and 2050s
Future	The term future fefers to the periods 2020s and 2030s.
Fully subscribed	Describes a stream where the quantity of water licensed meets or exceeds
Irrigation efficiency	Irrigation efficiency can be defined in several ways depending on the
inigation enterency	nature of inputs and outputs considered. Irrigation efficiency is defined
	here as the net amount of water added to the root zone divided by the
	amount of water <i>extracted</i> from a source. The difference between the two
	amounts represents the loss incurred in conveyance and distribution as
	well as loss by poor irrigation practices (e.g. over-watering).
Licensed quantity	The quantity of water over a defined period that is legally allocated to a
	water user in accordance with the <i>Water Act</i> .
Over-licensed	A stream where the supply of water is insufficient to meet the quantity of
stream	water licensed to water users.
Point-of-diversion	The location where water is diverted from a surface water source. Note
	that some water licences may be associated with multiple points-of-
	diversion.
Return flow	The quantity of water that is returned to a source following water use. The
	flow may or may not be returned to the original source of the water.
	Return flow includes but is not limited to groundwater discharge (as a

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	result of excessive irrigation), and sewage and wastewater outflows.					
Sector	Refers to the land use sectors for which water use will be characterized.					
	This includes: agricultural, industrial, business/commercial, urban					
	domestic, institutional, and recreation/resort development.					
Source	Refers to surface water or groundwater.					
Sub-basin	Refers to the sub-basins of the Nicola Watershed for which water use will					
	be characterized. This includes the Clapperton, Coldwater, Guichon,					
	Lower Nicola, Middle Nicola, Moore, Quilchena, Spius, Stump Lake, and					
	Upper Nicola sub-basins.					
Water use	The quantity of water obtained or withdrawn from the source. See <i>actual</i>					
	use and estimated use.					

Appendix A

NEWS RELEASE

NICOLA Water Use *Management* Plan

www.nicolawump.ca

c/o Nicola Watershed Community Round Table ♦ Box 400 ♦ Merritt ♦ British Columbia ♦ V1K 1B8 Telephone: (250) 378-4087 Fax: (250) 378-4098 E-mail: esalomon@mail.ocis.net

NEWS RELEASE – August 14, 2006

For the past year, the planning process for the Nicola Water Use Management Plan (Nicola WUMP) has focused its energy and resources on identifying the key knowledge gaps and securing funding to fill them through a number of studies and pilot projects.

Nicola WUMP recently awarded Summit Environmental Consultants Ltd. the contract to carry out a PRESENT AND FUTURE WATER DEMAND study. This study is one of three that will be completed in order to fill key knowledge gaps that were identified as critical steps to the completion of a water use management plan for the Nicola watershed.

The purpose of the PRESENT AND FUTURE WATER DEMAND study is to determine current (2006) water use by all sectors and estimate future (2020 and 2050) water demand in the Nicola watershed. The scope of the study will include carrying out a literature search as to past studies done on this topic, consultation with major water users from all sectors, estimation of current water use, and an analysis of current irrigation practices and how to improve efficiencies, and estimating future water demand in each of the sub-basins of the Nicola watershed.

As part of the information-gathering phase of the study, Summit will conduct a survey on water use in August. Individuals interested in participating in the survey or in providing information on water use to Summit Environmental Consultants are invited to contact Lars Uunila at (250) 545-3672 or via e-mail at <u>lu@summit-environmental.com</u>.

The planning process leading to a water use management plan for the Nicola watershed is making good progress and once the key knowledge gaps have been addressed, the plan will begin to take shape. In the months to come, there will be studies underway on surface and groundwater supply and interaction and additional storage sites. At the same time, other aspects of plan development will be discussed and decided.

Meetings of the Multi-Stakeholder Committee, the decision making body of Nicola WUMP, will start up again in September. Any resident of the watershed who has an interest in a sustainable supply of water that ensures a balance of social, economic, environmental, traditional and ecological values is welcome to attend. For more information about the Nicola water use management plan, visit the web site at <u>www.nicolawump.ca</u> or call 378-4087.

Contact: Elizabeth Salomon-de-Friedberg 378-4087

Appendix B

AGRICULTURAL WATER USE QUESTIONNAIRE



AGRICULTURE SECTOR WATER USE QUESTIONAIRE

We appreciate your assistance in filling out this water use questionnaire. It provides useful information in order to develop an understanding of current water use patterns within the Nicola River watershed and its sub-basins. Please answer the following questions to the best of your ability, and feel free to skip questions if the requested information is unknown or difficult to obtain. A representative of the study team may follow-up at a later date to discuss responses. If you have any questions regarding the <u>overall study</u> please contact Katherine Gizikoff (Program Manager for the Nicola River Watershed Present and Future Water Demand Study) at 250-378-2264. If you have <u>technical questions</u> regarding this questionnaire please contact Lars Uunila (Summit Environmental Consultants Ltd.) at 250-545-3672. If you wish <u>not</u> to be contacted at a later date please check here . Individual responses to the questionnaire <u>will not</u> be publicized, the information will be summarized at a watershed and sub-basin level. Thank-you.

CONTACT INFORMATION

Name:				
Address:				
Phone:	Email:			
Contact names (and heat day and/or time to contact for additional information.				

Contact person (and best day and/or time to contact for additional information: _____

If available, please provide a legal description or a copy of a plan or drawing of your property preferably showing roughly where irrigation occurs:

CROP TYPE AND NORMAL IRRIGATION SEASON

1. What crops are grown on your ranch or farm? Please check all that apply, estimate number of acres, and indicate normal irrigation season.

		Normal irri	gation season
Forage	acres	starts:	ends:
Irrigated Pasture	acres	starts:	ends:
Vegetables	acres	starts:	ends:
Ginseng	acres	starts:	ends:
Grain	acres	starts:	ends:
Tree fruits	acres	starts:	ends:
Berries	acres	starts:	ends:
Grapes	acres	starts:	ends:
Nursery	acres	starts:	ends:
Greenhouse	acres	starts:	ends:
Other	acres	starts:	ends:
Total	acres		

WATER SOURCE AND SUPPLY, IRRIGATION METHODS, AND ESTIMATED IRRIGATED AREAS

2. What is your source(s) of water? P	lease check all that	apply and	l estimate the propo	rtion of total water u	sed from each s	ource.
Irrigation district:			□	_% of total water use	ed	
Surface water [private intake	e(s)]		□	_% of total water use	ed	
Groundwater [private well(s)]			_% of total water us	ed	
Other:				_ % of total water us	ed	
3. Is any water treated?	🗌 Yes 🗌 No	lf yes, pl	ease estimate total	% of water used that	t is treated:	
4. Do you have storage reservoir(s)?	🗌 Yes 🗌 No	lf yes, pl	ease estimate stora	ige capacity:		
5. If surface and/or groundwater are u attach additional sheets if you use wate	sed, please provide er from more than s	the name ix sources	e or identification (e.g	g. groundwater well	identification) of	each source and please
Source 1:						
Describe the type of water supply syst	em (check all that a	ipply):	Gravity-fed	Pump	Other:	
How is water conveyed? (please chec	k all that apply):		Pipes	open channel/	ditches 🔲 (Other:
Are flow control valves present?	🗌 Yes 🗌 No	lf yes, w	here are they locate	ed? At or near the	e source 🔲 Ke	y distribution points
Are water meters or other flow measured	ring devices (e.g. w	eirs, flume	es) present?			
	🗌 Yes 🗌 No	lf yes, w	here are they locate	ed? At or near the	e source 🔲 Ke	y distribution points
Source 2:						
Describe the type of water supply syste	em (check all that a	pply):	Gravity-fed	Pump	Other:	
How is water conveyed? (please chec	k all that apply):		Pipes	open channel/	ditches 🔲 (Other:
Are flow control valves present?	🗌 Yes 🗌 No	lf yes, w	here are they locate	ed? At or near the	e source 🔲 Ke	y distribution points
Are water meters or other flow measured	ring devices (e.g. w	eirs, flume	es) present?			
	🗌 Yes 🗌 No	lf yes, w	here are they locate	ed? At or near the	e source 🔲 Ke	y distribution points

Source 3:					
Describe the type of water supply sy	stem (check all that app	oly): Gravity-fed	Pump	Othe	r:
How is water conveyed? (please che	eck all that apply):	Pipes	🗌 open chanı	nel/ditches	Other:
Are flow control valves present?	Yes No I	If yes, where are they locate	ed? At or near	r the source [Key distribution points
Are water meters or other flow measured	suring devices (e.g. weir	rs, flumes) present?			
				_	

Yes No If yes, where are they located? At or near the source Key distribution points

Source 4:						
Describe the type of water supply sy	ystem (check all that ap	ply):	Gravity-fed	Pump	🗌 Otł	ner:
How is water conveyed? (please ch	neck all that apply):		Pipes	🗌 open chann	el/ditches	Other:
Are flow control valves present?	🗌 Yes 🗌 No	lf yes,	where are they locate	ed? At or near	the source	Key distribution points
Are water meters or other flow mea	suring devices (e.g. we	irs, flum	nes) present?			
	Yes No	lf yes,	where are they locate	ed? At or near	the source	Key distribution points
Source 5:						
Describe the type of water supply sy	ystem (check all that app	ply):	Gravity-fed	Pump	🗌 Oth	ner:
How is water conveyed? (please ch	neck all that apply):		Pipes	🗌 open chann	el/ditches	Other:
Are flow control valves present?	🗌 Yes 🗌 No	lf yes,	where are they locate	ed? At or near	the source	Key distribution points
Are water meters or other flow mea	suring devices (e.g. we	irs, flum	nes) present?			
	Yes No	lf yes,	where are they locate	ed? At or near	the source	Key distribution points
Source 6:						
Describe the type of water supply sy	ystem (check all that app	ply):	Gravity-fed	Pump	🗌 Otł	ner:
How is water conveyed? (please ch	neck all that apply):		Pipes	🗌 open chann	el/ditches	Other:
Are flow control valves present?	🗌 Yes 🗌 No	lf yes,	where are they locate	ed? At or near	the source	Key distribution points
Are water meters or other flow mea	suring devices (e.g. we	irs, flum	nes) present?			
	🗌 Yes 🔲 No	lf yes,	where are they locate	ed? At or near	the source	Key distribution points

6. What types of irrigation methods are employed on your ranch or farm? Please check all that apply, estimate the number of acres irrigated, and identify the water sources for each method used.

Sprinkling	Handmove		acres	Source(s)			
	Wheelmove		acres	Source(s)			
	Solidset		acres	Source(s)			
	Micro-sprinkler		acres	Source(s)			
Guns	Travelling		acres	Source(s)			
	Stationary		acres	Source(s)			
Centre Pivot	Sprinkler		acres	Source(s)			
	Spray heads		acres	Source(s)			
	Drop tubes		acres	Source(s)			
Trickle Systems	Trickle		acres	Source(s)			
-	Drip-subsurface		acres	Source(s)			
	Microjet		acres	Source(s)			
Controlled Flood	ing		acres	Source(s)			
Wild (spring) Flo	oding		acres	Source(s)			
Other	5		acres	Source(s)			
Not irrigated			acres	()			
TOTAL IRRIGAT	_	acres					
ESTIMATED WATER USE	ESTIMATED WATER USE						
7. Do you have any estimat	es of the <u>actual</u> wat	er use on y	our farm or ranch?	🗌 Yes 🗌 No	If you answered no, skip questions 8-11.		
8. Please provide your best	estimate of the follo	owing (and	indicate units):				
Typical annual wa	ter use:						
Irrigation portion:					% of total annual water used		
Domestic portion:		% of total annual water used					
Other use (e.g. sto	ock watering, dust s	% of total annual water used					
9. Please estimate what percentage of the total irrigation water used is used each month (total should sum to 100%):							
Apr:	_%	Jul:	%	Oct:	%		
May:	_%	Aug:	%				
Jun:	_ %	Sep:	%				

11. Please estimate the quantity of water used on a typical summer day (and indicate units): 12. If you use a pump(s), do you have any of the following information available? If possible, please attach details. Pump low rates (i.e. pump curve usually provided by pump suppliers or manufacturer) \box{Yes} No Typical pump operating hours or pump power consumption (from hydro bill) \box{Yes} No 13. If you have sprinklers, do you have the following information available for each inrigated area? If possible, please attach details. Sprinkler nozzle flow rates (either using a pail and stopwatch or from supplier/manufacturer) \box{Yes} No 13. If you have sprinkler nozzles \box{Yes} No No PRESENT AND FUTURE CONCERNS \box{Yes} No 14. Is your current water supply modeling your present agricultural requirements? \box{Yes} No If you answered 'yes', do you have plans for future agricultural expansion requiring irrigation? Yes No If you answered 'yes', do you have plans for future agricultural expansion requiring irrigation? Yes No If you answered 'yes', do you have plans for future agricultural expansion requiring irrigation, please describe the size of the expansion, crop type, and water source anticipated (atlach additional sheets if necessary): \box{Yes} No 15. If you have any concerns related to water use at present or in the futu	10. Please estimate the quantity of water used on a peak day (and indicate units):	
12. If you use a pump(6), do you have any of the following information available? If possible, please attach details. Pump flow rates (i.e. pump curve usually provided by pump suppliers or manufacturer) \box{\box{\box{es}} & No Typical pump operating hours or pump power consumption (from hydro bill) \box{es} & No 13. If you have sprinklers, do you have the following information available for each inigiated area? If possible, please attach details. Sprinkler nozzle flow rates (either using a pail and stopwatch or from supplier/manufacturer) \box{es} & No How othen and how long you inigate each month of the irrigation season \box{es} & No PRESENT AND FUTURE CONCERNS No 14. Is your current water supply meeting your present agricultural requirements? \box{es} & No If you answered 'res', do you have plans for future agricultural expansion requiring irrigation? \box{es} & No If you answered 'ros', please indicate the reason(\$) you believe are the cause of the problem (attach additional sheets if necessary): \box{essary} 15. If you have any concerns related to water use at present or in the future that your'l like the study team for the Nicola River Watershed Preser and Future Water Demand Study to be aware of? \box{essary} to meet a later source and curvered 'yes' to question 16, please note these concerns below or check the box and we can discuss this by telephone at a late date.	11. Please estimate the quantity of water used on a typical summer day (and indicate units):	
Pump flow rates (ic. pump curve usually provided by pump suppliers or manufacturer) \refsilestimestimestimestimestimestimestimestim	12. If you use a pump(s), do you have any of the following information available? If possible, please attac	h details.
Pump horsepower \extrm{\scale pump operating hours or pump power consumption (from hydro bill) \extrm{\scale s} \ex	Pump flow rates (i.e. pump curve usually provided by pump suppliers or manufacturer)	Yes No
Typical pump operating hours or pump power consumption (from hydro bill) \refsiles \refsiles \no 13. If you have sprinklers, do you have the following information available for each irrigated area? If possible, please attach details. Sprinkler nozzle flow rates (either using a pail and stopwatch or from supplier/manufacturer) \refsiles \no Number of sprinkler nozzles \refsiles \no How often and how long you irrigate each month of the irrigation season \refsiles \no PRESENT AND FUTURE CONCERNS \refsiles \no 14. Is your current water supply meeting your present agricultural requirements? \refsiles \no If you answered 'nor', please indicate the reason(s) you believe are the cause of the problem (attach additional sheets if necessary):	Pump horsepower	🗌 Yes 🗌 No
13. If you have sprinklers, do you have the following information available for each irrigated area? If possible, please attach details. Sprinkler nozzle flow rates (either using a pail and stopwatch or from supplier/manufacturer) Yes No Number of sprinkler nozzles Yes No How often and how long you irrigate each month of the irrigation season Yes No PRESENT AND FUTURE CONCERNS Yes No 14. Is your current water supply meeting your present agricultural requirements? Yes No If you answered 'no', please indicate the reason(s) you believe are the cause of the problem (attach additional sheets if necessary):	Typical pump operating hours or pump power consumption (from hydro bill)	🗌 Yes 🗌 No
Sprinkler nozzle flow rates (either using a pail and stopwatch or from supplier/manufacturer) \red Yes No Number of sprinkler nozzles \red Yes No How often and how long you irrigate each month of the irrigation season \red Yes No PRESENT AND FUTURE CONCERNS \red Yes No 14. Is your current water supply meeting your present agricultural requirements? Yes No If you answered "yes", do you have plans for future agricultural expansion requiring irrigation? Yes No If you answered "no", please indicate the reason(s) you believe are the cause of the problem (attach additional sheets if necessary):	13. If you have sprinklers, do you have the following information available for each irrigated area? If possi	ible, please attach details.
Number of sprinkler nozzles Image: Sprinkler nozzles No How often and how long you irrigate each month of the irrigation season Image: Sprinkler nozzles No PRESENT AND FUTURE CONCERNS Image: Sprinkler nozzles No 14. Is your current water supply meeting your present agricultural requirements? Image: Sprinkler nozzles No If you answered 'no'', please indicate the reason(s) you believe are the cause of the problem (attach additional sheets if necessary): Image: Sprinkler nozzles No 15. If you have future plans for agricultural expansion requiring irrigation, please describe the size of the expansion, crop type, and water source anticipated (attach additional sheets if necessary): Image: Sprinkler nozzles Image: Sprinkler nozzles 16. Do you have any concerns related to water use at present or in the future that you'd like the study team for the Nicola River Watershed Preser and Future Water Demand Study to be aware of? Yes No If you answered 'yes' to question 16, please note these concerns below or check the box and we can discuss this by telephone at a late date. Image: Sprinkler nozzles Image: Sprinkler nozzles If you answered 'yes' to question 16, please note these concerns below or check the box and we can discuss this by telephone at a late date. Image: Sprinkler nozzles Image: Sprinkler nozzles If you answered 'yes' to question 16, please note these concerns below or check the box and we can discuss this by teleph	Sprinkler nozzle flow rates (either using a pail and stopwatch or from supplier/manufacturer)	Yes No
How often and how long you irrigate each month of the irrigation season Yes No PRESENT AND FUTURE CONCERNS Yes No 14. Is your current water supply meeting your present agricultural requirements? Yes No If you answered 'yes', do you have plans for future agricultural expansion requiring irrigation? Yes No If you answered 'no', please indicate the reason(s) you believe are the cause of the problem (attach additional sheets if necessary): Increase of the expansion, crop type, and water source anticipated (attach additional sheets if necessary): 15. If you have future plans for agricultural expansion requiring irrigation, please describe the size of the expansion, crop type, and water source anticipated (attach additional sheets if necessary): 16. Do you have any concerns related to water use at present or in the future that you'd like the study team for the Nicola River Watershed Preser and Future Water Demand Study to be aware of? If you answered 'yes' to question 16, please note these concerns below or check the box and we can discuss this by telephone at a late date. If you answered 'yes' to question 16, please note these concerns below or check the box and we can discuss this by telephone at a late date.	Number of sprinkler nozzles	🗌 Yes 🗌 No
PRESENT AND FUTURE CONCERNS 14. Is your current water supply meeting your present agricultural requirements? Image: Second Se	How often and how long you irrigate each month of the irrigation season	Yes No
14. Is your current water supply meeting your present agricultural requirements? Yes No If you answered "yes", do you have plans for future agricultural expansion requiring irrigation? Yes No If you answered "no", please indicate the reason(s) you believe are the cause of the problem (attach additional sheets if necessary):	PRESENT AND FUTURE CONCERNS	
If you answered "yes", do you have plans for future agricultural expansion requiring irrigation? If you answered "no", please indicate the reason(s) you believe are the cause of the problem (attach additional sheets if necessary): 	14. Is your current water supply meeting your present agricultural requirements?	🗌 Yes 🔲 No
If you answered "no", please indicate the reason(s) you believe are the cause of the problem (attach additional sheets if necessary):	If you answered "yes", do you have plans for future agricultural expansion requiring irrigation?	🗌 Yes 🔲 No
15. If you have future plans for agricultural expansion requiring irrigation, please describe the size of the expansion, crop type, and water source anticipated (attach additional sheets if necessary):	If you answered "no", please indicate the reason(s) you believe are the cause of the problem (att	ach additional sheets if necessary):
16. Do you have any concerns related to water use at present or in the future that you'd like the study team for the Nicola River Watershed Preser and Future Water Demand Study to be aware of? ☐ Yes ☐ No If you answered "yes" to question 16, please note these concerns below or check the box and we can discuss this by telephone at a late date.	15. If you have future plans for agricultural expansion requiring irrigation, please describe the size of the e anticipated (attach additional sheets if necessary):	expansion, crop type, and water source
	16. Do you have any concerns related to water use at present or in the future that you'd like the study tear and Future Water Demand Study to be aware of? ☐ Yes ☐ No	m for the Nicola River Watershed Present
Diagon contact mo to discuss	date.	

Appendix C

FIRST NATION QUESTIONNAIRE



FIRST NATION WATER USE QUESTIONNAIRE

We appreciate your assistance in filling out this water use questionnaire. It provides useful information in order to develop an understanding of current water use patterns within the Nicola River watershed and its sub-basins. Please answer the following questions to the best of your ability, and feel free to skip questions if the requested information is unknown or difficult to obtain. A representative of the study team may follow-up at a later date to discuss responses. If you have any questions regarding the overall study please contact Katherine Gizikoff (Program Manager for the Nicola River Watershed Present and Future Water Demand Study) at 250-378-2264. If you have technical questions regarding this questionnaire contact Catherine Piedt or Lars Uunila (Summit Environmental Consultants Ltd.) at 250-545-3672. If you wish not to be contacted at a later date please check here . Individual responses to the questionnaire will not be publicized; the information will be summarized at a watershed and sub-basin level. Thank-you.

First Nation:	Contact:	Address:
Phone:	Email:	Best day and/or time to contact for additional information:

PART 1. Domestic Water Use A. Please fill out as much of this table as best you can.

Reserve	Estimated population on reserve	Domestic Water Source	If available, estimate the total actual annual domestic water use (mark with a zero (0) where water is not used)
		\Box Groundwater \rightarrow number of wells	
		\Box Surface water \rightarrow stream name	
		\Box Groundwater \rightarrow number of wells	
		□ Surface water →stream name	
		\Box Groundwater \rightarrow number of wells	
		□ Surface water → stream name	
		\Box Groundwater \rightarrow number of wells	
		□ Surface water →stream name	
		Groundwater \rightarrow number of wells	
		□ Surface water →stream name	
		Groundwater \rightarrow number of wells	
		\Box Surface water \rightarrow stream name	
		Groundwater \rightarrow number of wells	
		□ Surface water → stream name	
		Groundwater \rightarrow number of wells	
		\Box Surface water \rightarrow stream name	
Total population of all reserves			

irrigated on reserve	number of acres currently irrigated	inguloi
		Wheel Hand m

B. Please provide an estimate of the annual population growth of the band if known.

PART 3. Other Water Use A. Please fill out as much of this table as best you can.

Reserve	Other water uses **	Description (e.g. if other use includes schools, please indicate how many schools and approximately how many students per school)

PART 4. Additional Comments

A. Is your current water supply meeting your present requirements?

If you answered "yes", do you have plans for future development requiring water?

If you answered "no", please indicate the reason(s) you believe are the cause of the problem (attach additional sheets if necessary):

B. Do you have any concerns related to water use at present or in the future that you'd like the study team for the Nicola River Watershed Present and Future Water Demand Study to be aware of?

** Other water uses could include businesses, stores, schools, community centers, commercial or industrial operations, or any other activity requiring water use other than domestic or agriculture.

PART 2. Agricultural Water Use

Type of crops

Reserve

Estimated

Nicola River Watershed Present and Future Water Demand Study Conducted by: Summit Environmental Consultants Ltd.

A. Please fill out as much of this table as best you can.

Irrigation method used	How many additional acres are planned or desired to be irrigated in the future (including areas historically irrigated)?	If available, estimate the total annual amount of water used for irrigation
 Wheel move Center pivot Hand move Stationary gun		
Wheel move Center pivot Hand move Stationary gun		
Wheel move Center pivot Hand move Stationary gun		
Wheel move Center pivot Hand move Stationary gun Other		
Wheel move Center pivot Hand move Stationary gun		
Wheel move Center pivot Hand move Stationary gun		
Wheel move Center pivot Hand move Stationary gun Other		
Wheel move Center pivot Hand move Stationary gun Other		

☐ Yes ☐ No

Yes No

Please contact me to discuss

Appendix D

SUMMARY OF WATER LICENCES IN THE NICOLA WATERSHED

TABLE D.1 OVERALL SUMMARY OF WATER LICENCES IN THE NICOLA WATERSHED BY SUB-BASIN AND SECTOR.

CLAPPERTON																							
	Total volume of water licensed for offstream use (m ³)																						
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	484	484	484	125,175	1,060,359	1,309,741	1,621,469	1,372,087	748,631	484	484	484	6,240,367	349,745	333,554	299,389	278,808	110,590	221,520	189,479	166,870	134,978	35,785
Industrial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Business/Commercial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Domestic (incl. waterworks)	206	172	198	336	492	460	640	597	377	260	203	206	4,148	144	148	141	125	48	105	100	85	77	21
Institutional	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Recreation/Resorts (and other)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Offstream Licences (all sectors)	690	656	682	125,511	1,060,851	1,310,202	1,622,110	1,372,684	749,008	744	687	690	6,244,515	349,889	333,702	299,530	278,933	110,638	221,624	189,578	166,955	135,056	35,805
Total Instream Licences (conservation)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

IIWAIER	

	Total volume of water licensed for offstream use (m ³)																						
Sector	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	484	484	484	147,998	1,324,758	1,525,816	1,599,802	1,333,481	702,677	484	484	484	6,637,436	339,904	324,169	290,965	270,963	107,479	207,922	177,848	156,627	126,693	33,588
Industrial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Business/Commercial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Domestic (incl. waterworks)	172,949	154,674	170,097	248,258	364,627	388,119	523,248	479,909	315,258	217,446	170,469	172,344	3,377,399	116,042	118,730	113,019	100,205	38,489	87,516	83,480	70,965	64,849	17,308
Institutional	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Recreation/Resorts (and other)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Offstream Licences (all sectors)	173,433	155,158	170,581	396,255	1,689,385	1,913,935	2,123,051	1,813,390	1,017,935	217,930	170,953	172,828	10,014,834	455,946	442,899	403,984	371,168	145,967	295,438	261,328	227,591	191,541	50,896
Total Instream Licences (conservation)	227,531	205,512	227,531	220,191	227,531	220,191	227,531	227,531	220,191	227,531	220,191	227,531	2,678,994	51,378	51,378	51,378	51,378	22,019	51,378	51,378	51,378	51,378	14,679

GUICHON																							
	Fotal volume of wa	volume of water licensed for offstream use (m ³)																					
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	975	975	975	216,751	2,100,995	2,537,301	2,721,654	2,303,053	1,256,548	3,750	975	975	11,144,927	587,048	559,872	502,526	467,980	185,626	371,813	318,032	280,085	226,556	60,063
Industrial	760,325	760,325	760,325	760,325	760,325	760,325	648,949	648,949	648,949	760,325	760,325	760,325	8,789,772	146,537	146,537	146,537	146,537	62,802	151,422	151,422	151,422	151,422	43,263
Business/Commercial	1,798	1,798	1,798	1,798	3,467	3,467	3,467	3,467	3,467	1,798	1,798	1,798	29,917	783	783	783	783	336	809	809	809	809	231
Domestic (incl. waterworks)	19,224	16,958	18,825	28,360	41,625	43,086	58,473	53,825	35,054	24,190	18,948	19,176	377,745	13,015	13,316	12,676	11,239	4,317	9,731	9,282	7,891	7,211	1,924
Institutional	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Recreation/Resorts (and other)	6,167	6,167	6,167	6,167	6,167	6,167	6,167	6,167	6,167	6,167	6,167	6,167	74,009	1,393	1,393	1,393	1,393	597	1,439	1,439	1,439	1,439	411
Total Offstream Licences (all sectors)	788,489	786,222	788,090	1,013,401	2,912,579	3,350,347	3,438,711	3,015,462	1,950,186	796,230	788,213	788,441	20,416,371	748,776	721,901	663,914	627,931	253,677	535,213	480,984	441,645	387,436	105,893
Total Instream Licences (conservation)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

LOWER NICOLA																							
Total volume of water licensed for offstream use (m ³)																							
Sector	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	1,438	1,438	1,438	281,761	2,387,697	2,948,437	3,617,350	2,969,380	1,590,735	1,771	1,438	1,438	13,804,321	756,895	721,856	647,919	603,378	239,332	470,699	402,615	354,575	286,810	76,037
Industrial	179,756	179,756	179,756	179,756	179,756	179,756	179,756	179,756	179,756	179,756	179,756	179,756	2,157,077	40,590	40,590	40,590	40,590	17,396	41,943	41,943	41,943	41,943	11,984
Business/Commercial	69	69	69	69	69	69	69	69	69	69	69	69	830	16	16	16	16	7	16	16	16	16	5
Domestic (incl. waterworks)	4,047	3,379	3,896	6,590	9,660	9,040	12,579	11,734	7,396	5,110	3,988	4,052	81,471	2,837	2,903	2,763	2,450	941	2,053	1,958	1,665	1,521	406
Institutional	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Recreation/Resorts (and other)	186,041	186,041	186,041	186,041	186,041	186,041	186,041	186,041	186,041	186,041	186,041	186,041	2,232,495	42,009	42,009	42,009	42,009	18,004	43,410	43,410	43,410	43,410	12,403
Total Offstream Licences (all sectors)	371,352	370,684	371,201	654,217	2,763,223	3,323,344	3,995,795	3,346,981	1,963,998	372,748	371,293	371,357	18,276,194	842,347	807,374	733,297	688,443	275,680	558,121	489,942	441,609	373,700	100,834
Total Instream Licences (conservation)	455,062	411,024	455,062	440,383	455,062	440,383	455,062	455,062	440,383	455,062	440,383	455,062	5,357,988	102,756	102,756	102,756	102,756	44,038	102,756	102,756	102,756	102,756	29,359

MIDDLE NICOLA																							
	Fotal volume of	al volume of water licensed for offstream use (m ³)																					
Sector	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	3,968	3,968	3,968	132,630	1,097,592	1,354,915	1,676,568	1,419,245	775,938	3,968	3,968	3,968	6,480,698	361,766	345,019	309,679	288,391	114,391	229,600	196,390	172,957	139,902	37,090
Industrial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Business/Commercial	4,563	4,563	4,563	4,563	4,563	4,563	4,563	4,563	4,563	4,563	4,563	4,563	54,757	1,030	1,030	1,030	1,030	442	1,065	1,065	1,065	1,065	304
Domestic (incl. waterworks)	1,638	1,419	1,595	2,499	3,666	3,666	5,017	4,639	2,988	2,063	1,614	1,636	32,439	1,122	1,148	1,092	969	372	830	791	673	615	164
Institutional	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Recreation/Resorts (and other)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Offstream Licences (all sectors)	10,169	9,951	10,126	139,692	1,105,820	1,363,144	1,686,149	1,428,447	783,489	10,595	10,146	10,167	6,567,894	363,918	347,197	311,802	290,390	115,205	231,494	198,246	174,694	141,581	37,558
Total Instream Licences (conservation)	4,550,620	4,110,238	4,570,340	4,403,826	4,550,620	4,403,826	4,550,620	4,550,620	4,403,826	4,550,620	4,403,826	4,550,620	53,599,602	1,027,559	1,027,559	1,027,559	1,027,559	440,383	1,027,559	1,027,559	1,027,559	1,027,559	293,588
TABLE D.1 Cont'd.

MOORE																							
	Total volume of wa	ater licensed for	[•] offstream use (m³)																			
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	830	830	830	81,241	684,324	845,147	1,046,175	885,352	483,297	830	830	830	4,030,513	225,676	215,229	193,184	179,904	71,359	143,007	122,322	107,727	87,138	23,102
Industrial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Business/Commercial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Domestic (incl. waterworks)	824	688	794	1,342	1,967	1,841	2,562	2,390	1,506	1,041	812	825	16,593	578	591	563	499	192	418	399	339	310	83
Institutional	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Recreation/Resorts (and other)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Offstream Licences (all sectors)	1,654	1,518	1,623	82,583	686,292	846,988	1,048,736	887,742	484,803	1,870	1,642	1,655	4,047,106	226,254	215,820	193,747	180,403	71,551	143,426	122,721	108,066	87,448	23,184
Total Instream Licences (conservation)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

QUILCHENA																							
	Total volume of wa	ater licensed for	r offstream use	(m³)																			
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	553	553	553	137,801	1,167,160	1,441,656	1,303,714	1,103,228	602,012	553	553	553	5,758,890	281,213	268,195	240,724	224,176	88,920	178,135	152,369	134,189	108,543	28,776
Industrial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Business/Commercial	277	277	277	277	277	277	277	277	277	277	277	277	3,319	62	62	62	62	27	65	65	65	65	18
Domestic (incl. waterworks)	453	379	436	837	1,921	2,049	2,643	2,351	1,371	720	447	454	14,060	568	582	554	491	189	381	363	309	282	75
Institutional	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Recreation/Resorts (and other)	82,049	82,049	82,049	550,775	550,775	281,555	12,335	12,335	12,335	82,049	82,049	82,049	1,912,401	2,785	2,785	2,785	2,785	1,194	2,878	2,878	2,878	2,878	822
Total Offstream Licences (all sectors)	83,332	83,257	83,315	689,689	1,720,132	1,725,536	1,318,968	1,118,190	615,995	83,599	83,325	83,332	7,688,670	284,629	271,624	244,126	227,514	90,329	181,459	155,675	137,440	111,768	29,692
Total Instream Licences (conservation)	56,535	56,535	56,535	56,535	56,535	56,535	56,535	56,535	56,535	56,535	56,535	56,535	678,419	12,766	12,766	12,766	12,766	5,471	13,191	13,191	13,191	13,191	3,769

SPIUS																							
	Total volume of	water licensed	or offstream us	e (m³)																			
Sector	Jan	Feb	Var	Apr	May J	un J	ul A	ug S	ep O	ct No	v De	ec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	311	311	311	39,784	333,462	411,776	489,621	414,391	226,315	311	311	311	1,917,215	105,628	100,738	90,420	84,204	33,400	66,966	57,280	50,446	40,805	10,818
Industrial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Business/Commercial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Domestic (incl. waterworks)	639	533	615	1,040	1,525	1,427	1,985	1,852	1,167	807	629	640	12,859	448	458	436	387	149	324	309	263	240	64
Institutional	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Recreation/Resorts (and other)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Offstream Licences (all sectors)	950	844	926	40,824	334,987	413,203	491,607	416,243	227,482	1,118	941	951	1,930,075	106,076	101,197	90,856	84,591	33,548	67,291	57,589	50,708	41,045	10,882
Total Instream Licences (conservation)	492,984	445,276	492,984	477,081	492,984	477,081	492,984	492,984	477,081	492,984	477,081	492,984	5,804,487	111,319	111,319	111,319	111,319	47,708	111,319	111,319	111,319	111,319	31,805

STUMP LAKE																							
	Total volume of w	ater licensed for	r offstream use ((m³)																			
Sector	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	1,798	1,798	1,798	66,496	543,098	670,192	728,889	617,029	337,378	1,798	1,798	1,798	2,973,866	157,281	150,000	134,636	125,380	49,733	99,830	85,390	75,202	60,829	16,127
Industrial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Business/Commercial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Domestic (incl. waterworks)	495	413	476	822	1,321	1,278	1,744	1,607	995	649	487	495	10,782	389	398	379	336	129	276	263	224	205	55
Institutional	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Recreation/Resorts (and other)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Offstream Licences (all sectors)	2,292	2,210	2,274	67,318	544,419	671,470	730,632	618,636	338,373	2,447	2,285	2,293	2,984,648	157,669	150,397	135,014	125,716	49,861	100,106	85,654	75,425	61,034	16,181
Total Instream Licences (conservation)	308,353	278,994	308,353	298,566	308,353	298,566	308,353	308,353	298,566	308,353	298,566	308,353	3,631,727	69,628	69,628	69,628	69,628	29,841	69,665	69,665	69,665	69,665	19,904

UPPER NICOLA																							
Т	otal volume of w	ater licensed fo	r offstream use ((m³)																			
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	1,175	1,175	1,175	309,039	3,193,092	3,937,070	4,463,206	3,776,740	2,060,574	16,070	1,175	1,175	17,761,667	962,691	918,125	824,085	767,433	304,405	609,724	521,531	459,302	371,521	98,495
Industrial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Business/Commercial	138	138	138	138	138	138	138	138	138	138	138	138	1,659	31	31	31	31	13	32	32	32	32	9
Domestic (incl. waterworks)	160,414	143,554	157,801	229,953	337,640	359,842	485,003	444,772	292,316	201,655	158,114	159,845	3,130,910	107,546	110,037	104,744	92,868	35,671	81,147	77,405	65,800	60,129	16,048
Institutional	2,765	2,765	2,765	2,765	2,765	2,765	2,765	2,765	2,765	2,765	2,765	2,765	33,186	624	624	624	624	268	645	645	645	645	184
Recreation/Resorts (and other)	69	69	69	69	69	69	69	69	69	69	69	69	830	16	16	16	16	7	16	16	16	16	5
Total Offstream Licences (all sectors)	164,563	147,703	161,949	541,965	3,533,705	4,299,885	4,951,182	4,224,485	2,355,863	220,697	162,262	163,993	20,928,252	1,070,908	1,028,833	929,500	860,973	340,364	691,564	599,630	525,796	432,345	114,742
Total Instream Licences (conservation)	227,531	205,512	227,531	220,191	227,531	220,191	227,531	227,531	294,983	227,531	220,191	227,531	2,753,786	51,378	51,378	51,378	51,378	22,019	68,829	68,829	68,829	68,829	19,666

NICOLA RIVER WATERSHED (TO	DTAL)																						
	Total volume of	water licensed f	or offstream use	(m ³)																			
Sector	yr Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec https://www.dow.dow.dow.dow.dow.dow.dow.dow.dow.														Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	12,016	12,016	12,016	1,538,675	13,892,536	16,982,050	19,268,449	16,193,985	8,784,105	30,019	12,016	12,016	76,749,900	4,127,847	3,936,758	3,533,528	3,290,618	1,305,235	2,599,217	2,223,257	1,957,977	1,583,774	419,880
Industrial	940,081	940,081	940,081	940,081	940,081	940,081	828,706	828,706	828,706	940,081	940,081	940,081	10,946,849	187,127	187,127	187,127	187,127	80,197	193,365	193,365	193,365	193,365	55,247
Business/Commercial	6,845	6,845	6,845	6,845	8,514	8,514	8,514	8,514	8,514	6,845	6,845	6,845	90,481	1,922	1,922	1,922	1,922	824	1,987	1,987	1,987	1,987	568
Domestic (incl. waterworks)	360,889	322,169	354,734	520,036	764,442	810,810	1,093,895	1,003,678	658,429	453,941	355,711	359,673	7,058,407	242,689	248,310	236,366	209,568	80,495	182,780	174,352	148,212	135,439	36,148
Institutional	2,765	2,765	2,765	2,765	2,765	2,765	2,765	2,765	2,765	2,765	2,765	2,765	33,186	624	624	624	624	268	645	645	645	645	184
Recreation/Resorts (and other)	274,327	274,327	274,327	743,052	743,052	473,833	204,613	204,613	204,613	274,327	274,327	274,327	4,219,735	46,203	46,203	46,203	46,203	19,801	47,743	47,743	47,743	47,743	13,641
Total Offstream Licences (all sectors)	1,596,923	1,558,203	1,590,768	3,751,455	16,351,391	19,218,053	21,406,942	18,242,261	10,487,131	1,707,978	1,591,745	1,595,707	99,098,558	4,606,413	4,420,945	4,005,771	3,736,063	1,486,820	3,025,736	2,641,348	2,349,929	1,962,952	525,668
Total Instream Licences (conservation)	6,318,616	5,713,089	6,338,335	6,116,774	6,318,616	6,116,774	6,318,616	6,318,616	6,191,565	6,318,616	6,116,774	6,318,616	74,505,004	1,426,784	1,426,784	1,426,784	1,426,784	611,479	1,444,699	1,444,699	1,444,699	1,444,699	412,771

TABLE D.1 Cont'd.

CLAPPERTON																							
	Volumetric rate	of water lic	ensed for c	ffstream us	e (m³/s)																		
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000	0.000	0.000	0.047	0.396	0.489	0.605	0.512	0.280	0.000	0.000	0.000	0.198	0.578	0.552	0.495	0.461	0.427	0.366	0.313	0.276	0.223	0.207
Industrial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Business/Commercial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Domestic (incl. waterworks)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Institutional	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Recreation/Resorts (and other)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Offstream Licences (all se	e 0.000	0.000	0.000	0.047	0.396	0.489	0.606	0.513	0.280	0.000	0.000	0.000	0.198	0.579	0.552	0.495	0.461	0.183	0.366	0.313	0.276	0.223	0.059
Total Instream Licences (conse	ei 0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

COLDWATER																							
	Volumetric rate	of water lic	ensed for o	ffstream us	se (m³/s)																		
Sector	Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec													Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000	0.000	0.000	0.055	0.495	0.570	0.597	0.498	0.262	0.000	0.000	0.000	0.210	0.562	0.536	0.481	0.448	0.415	0.344	0.294	0.259	0.209	0.194
Industrial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Business/Commercial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Domestic (incl. waterworks)	0.065	0.063	0.064	0.096	0.136	0.150	0.195	0.179	0.122	0.081	0.066	0.064	0.107	0.192	0.196	0.187	0.166	0.148	0.145	0.138	0.117	0.107	0.100
Institutional	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Recreation/Resorts (and other)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Offstream Licences (all se	0.065	0.064	0.064	0.151	0.631	0.719	0.793	0.677	0.384	0.081	0.066	0.065	0.318	0.754	0.732	0.668	0.614	0.241	0.488	0.432	0.376	0.317	0.084
Total Instream Licences (consei	0.085	0.084	0.085	0.085	0.085	0.085	0.085	0.085	0.085	0.085	0.085	0.085	0.085	0.085	0.085	0.085	0.085	0.085	0.085	0.085	0.085	0.085	0.085

GUICHON																							
	Volumetric rate	of water lice	ensed for o	ffstream us	e (m³/s)																		
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000	0.000	0.000	0.081	0.784	0.947	1.016	0.860	0.469	0.001	0.000	0.000	0.353	0.971	0.926	0.831	0.774	0.716	0.615	0.526	0.463	0.375	0.348
Industrial	0.284	0.312	0.284	0.293	0.284	0.293	0.242	0.242	0.250	0.284	0.293	0.284	0.279	0.242	0.242	0.242	0.242	0.242	0.250	0.250	0.250	0.250	0.250
Business/Commercial	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Domestic (incl. waterworks)	0.007	0.007	0.007	0.011	0.016	0.017	0.022	0.020	0.014	0.009	0.007	0.007	0.012	0.022	0.022	0.021	0.019	0.017	0.016	0.015	0.013	0.012	0.011
Institutional	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Recreation/Resorts (and other)	0.002	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Total Offstream Licences (all se	0.294	0.322	0.294	0.388	1.087	1.261	1.284	1.126	0.737	0.297	0.304	0.294	0.647	1.238	1.194	1.098	1.038	0.419	0.885	0.795	0.730	0.641	0.175
Total Instream Licences (conse	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

LOWER NICOLA																							
	Volumetric rate	of water lic	ensed for o	ffstream us	se (m³/s)																		
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.001	0.001	0.001	0.105	0.891	1.101	1.351	1.109	0.594	0.001	0.001	0.001	0.438	1.251	1.194	1.071	0.998	0.923	0.778	0.666	0.586	0.474	0.440
Industrial	0.067	0.074	0.067	0.069	0.067	0.069	0.067	0.067	0.069	0.067	0.069	0.067	0.068	0.067	0.067	0.067	0.067	0.067	0.069	0.069	0.069	0.069	0.069
Business/Commercial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Domestic (incl. waterworks)	0.002	0.001	0.001	0.003	0.004	0.003	0.005	0.004	0.003	0.002	0.002	0.002	0.003	0.005	0.005	0.005	0.004	0.004	0.003	0.003	0.003	0.003	0.002
Institutional	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Recreation/Resorts (and other)	0.069	0.076	0.069	0.072	0.069	0.072	0.069	0.069	0.072	0.069	0.072	0.069	0.071	0.069	0.069	0.069	0.069	0.069	0.072	0.072	0.072	0.072	0.072
Total Offstream Licences (all se	0.139	0.152	0.139	0.249	1.032	1.245	1.492	1.250	0.738	0.139	0.143	0.139	0.580	1.393	1.335	1.212	1.138	0.456	0.923	0.810	0.730	0.618	0.167
Total Instream Licences (conser	0.170	0.168	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170

MIDDLE NICOLA																							
	Volumetric rate	of water lie	censed for c	offstream us	se (m³/s)																		
Sector	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.001	0.001	0.001	0.050	0.410	0.506	0.626	0.530	0.290	0.001	0.001	0.001	0.206	0.598	0.570	0.512	0.477	0.441	0.380	0.325	0.286	0.231	0.215
Industrial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Business/Commercial	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Domestic (incl. waterworks)	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001
Institutional	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Recreation/Resorts (and other)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Offstream Licences (all se	0.004	0.004	0.004	0.052	0.413	0.509	0.630	0.533	0.293	0.004	0.004	0.004	0.208	0.602	0.574	0.516	0.480	0.190	0.383	0.328	0.289	0.234	0.062
Total Instream Licences (conse	1.70	1.68	1.71	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.699	1.699	1.699	1.699	1.699	1.699	1.699	1.699	1.699	1.699

TABLE D.1 Cont'd.

MOORE																							
	Volumetric rate	e of water lid	censed for c	offstream us	se (m³/s)																		
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Νον	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000	0.000	0.000	0.030	0.255	0.316	0.391	0.331	0.180	0.000	0.000	0.000	0.128	0.373	0.356	0.319	0.297	0.275	0.236	0.202	0.178	0.144	0.134
Industrial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Business/Commercial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Domestic (incl. waterworks)	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000
Institutional	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Recreation/Resorts (and other)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Offstream Licences (all s	e 0.001	0.001	0.001	0.031	0.256	0.316	0.392	0.331	0.181	0.001	0.001	0.001	0.128	0.374	0.357	0.320	0.298	0.118	0.237	0.203	0.179	0.145	0.038
Total Instream Licences (conse	ei 0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

QUILCHENA																							
	Volumetric rate	of water lic	ensed for o	ffstream us	e (m³/s)																		
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000	0.000	0.000	0.051	0.436	0.538	0.487	0.412	0.225	0.000	0.000	0.000	0.183	0.465	0.443	0.398	0.371	0.343	0.295	0.252	0.222	0.179	0.167
Industrial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Business/Commercial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Domestic (incl. waterworks)	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000
Institutional	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Recreation/Resorts (and other)	0.031	0.034	0.031	0.212	0.206	0.109	0.005	0.005	0.005	0.031	0.032	0.031	0.061	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Total Offstream Licences (all se	0.031	0.034	0.031	0.264	0.642	0.648	0.492	0.417	0.230	0.031	0.032	0.031	0.244	0.471	0.449	0.404	0.376	0.149	0.300	0.257	0.227	0.185	0.049
Total Instream Licences (conse	0.021	0.023	0.021	0.022	0.021	0.022	0.021	0.021	0.022	0.021	0.022	0.021	0.022	0.021	0.021	0.021	0.021	0.021	0.022	0.022	0.022	0.022	0.022

SPIUS																								
	Volumetric	rate of	water lice	ensed for o	ffstream us	se (m³/s)																		
Sector	Jan	Feb	M	ar A	pr N	May J	Jun .	Jul /	Aug S	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.0	000	0.000	0.000	0.015	0.125	0.154	0.183	0.155	0.084	0.000	0.000	0.000	0.061	0.175	0.167	0.150	0.139	0.129	0.111	0.095	0.083	0.067	0.063
Industrial	0.0	000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Business/Commercial	0.0	000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Domestic (incl. waterworks)	0.0	000	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000
Institutional	0.0	000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Recreation/Resorts (and other)	0.0	000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Offstream Licences (all se	0.0	00	0.000	0.000	0.015	0.125	0.154	0.184	0.155	0.085	0.000	0.000	0.000	0.061	0.175	0.167	0.150	0.140	0.055	0.111	0.095	0.084	0.068	0.018
Total Instream Licences (conse	0.1	84	0.182	0.184	0.184	0.184	0.184	0.184	0.184	0.184	0.184	0.184	0.184	0.184	0.184	0.184	0.184	0.184	0.184	0.184	0.184	0.184	0.184	0.184

STUMP LAKE																							
	Volumetric rate	of water lic	ensed for o	ffstream us	e (m³/s)																		
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Νον	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.001	0.001	0.001	0.025	0.203	0.250	0.272	0.230	0.126	0.001	0.001	0.001	0.094	0.260	0.248	0.223	0.207	0.192	0.165	0.141	0.124	0.101	0.093
Industrial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Business/Commercial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Domestic (incl. waterworks)	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000
Institutional	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Recreation/Resorts (and other)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Offstream Licences (all se	0.001	0.001	0.001	0.025	0.203	0.251	0.273	0.231	0.126	0.001	0.001	0.001	0.095	0.261	0.249	0.223	0.208	0.082	0.166	0.142	0.125	0.101	0.027
Total Instream Licences (conser	0.115	0.114	0.115	0.115	0.115	0.115	0.115	0.115	0.115	0.115	0.115	0.115	0.115	0.115	0.115	0.115	0.115	0.115	0.115	0.115	0.115	0.115	0.115

UPPER NICOLA																							
	Volumetric rate	of water lic	ensed for o	ffstream us	se (m³/s)																		
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000	0.000	0.000	0.115	1.192	1.470	1.666	1.410	0.769	0.006	0.000	0.000	0.563	1.592	1.518	1.363	1.269	1.174	1.008	0.862	0.759	0.614	0.570
Industrial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Business/Commercial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Domestic (incl. waterworks)	0.060	0.059	0.059	0.089	0.126	0.139	0.181	0.166	0.113	0.075	0.061	0.060	0.099	0.178	0.182	0.173	0.154	0.138	0.134	0.128	0.109	0.099	0.093
Institutional	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Recreation/Resorts (and other)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Offstream Licences (all se	0.061	0.060	0.060	0.205	1.319	1.610	1.849	1.577	0.883	0.082	0.063	0.061	0.664	1.771	1.701	1.537	1.424	0.563	1.143	0.991	0.869	0.715	0.190
Total Instream Licences (conse	0.085	0.084	0.085	0.085	0.085	0.085	0.085	0.085	0.114	0.085	0.085	0.085	0.087	0.085	0.085	0.085	0.085	0.085	0.114	0.114	0.114	0.114	0.114

NICOLA RIVER WATERSH	ED (TOTAL	.)																					
	Volumetric rate	of water lic	ensed for c	offstream us	se (m³/s)																		
Sector	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.004	0.004	0.004	0.574	5.187	6.340	7.194	6.046	3.280	0.011	0.004	0.004	2.434	6.825	6.509	5.842	5.441	5.036	4.298	3.676	3.237	2.619	2.430
Industrial	0.351	0.385	0.351	0.363	0.351	0.363	0.309	0.309	0.320	0.351	0.363	0.351	0.347	0.309	0.309	0.309	0.309	0.309	0.320	0.320	0.320	0.320	0.320
Business/Commercial	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Domestic (incl. waterworks)	0.135	0.132	0.132	0.201	0.285	0.313	0.408	0.375	0.254	0.169	0.137	0.134	0.224	0.401	0.411	0.391	0.347	0.311	0.302	0.288	0.245	0.224	0.209
Institutional	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Recreation/Resorts (and other)	0.102	0.112	0.102	0.287	0.277	0.183	0.076	0.076	0.079	0.102	0.106	0.102	0.134	0.076	0.076	0.076	0.076	0.076	0.079	0.079	0.079	0.079	0.079
Total Offstream Licences (all se	0.596	0.638	0.594	1.428	6.105	7.203	7.992	6.811	3.937	0.638	0.614	0.596	3.142	7.616	7.310	6.623	6.177	2.458	5.003	4.367	3.885	3.246	0.869
Total Instream Licences (conse	2.359	2.362	2.366	2.360	2.359	2.360	2.359	2.359	2.389	2.359	2.360	2.359	2.363	2.359	2.359	2.359	2.359	2.359	2.389	2.389	2.389	2.389	2.389



FIGURE D.1 TOTAL VOLUME OF WATER LICENSED FOR OFFSTREAM USE: NICOLA WATERSHED

Appendix E

SUMMARY OF GROUNDWATER WELLS IN THE NICOLA WATERSHED

Clapperton Domessic 17 4.0 000000015/71 Comperton Domessic 17 4.75 2.0 0.0 0000000713 Camperton Domessic 18 6.0 6.0 0.0 0000000713 Camperton Unishown 110 00 7 0000000073 Collysteir Correnergia and Industrial 500 185.0 9 4.0 000000073 Coldwater Domessic 0 45.0 8 4.0 000000073 Coldwater Domessic 0 45.0 8 4.0 0000000728 Coldwater Domessic 0 45.0 8 4.0 0000000728 Coldwater Domessic 2 400.0 100 130 6.0 0000000728 Coldwater Domessic 3 400.0 100 130 6.0 00000000728 Coldwater Domessic 5 400.0 100 160 000000000728 Coldwater </th <th>Subbasin</th> <th>Well Use</th> <th>Driller's Yield Estimate (US gpm)</th> <th>Depth Well Drilled (ft)</th> <th>Water Depth (ft)</th> <th>Bedrock Depth (ft)</th> <th>Diameter (inches)</th> <th>Well Tag Number</th> <th>Well Use Details</th>	Subbasin	Well Use	Driller's Yield Estimate (US gpm)	Depth Well Drilled (ft)	Water Depth (ft)	Bedrock Depth (ft)	Diameter (inches)	Well Tag Number	Well Use Details
Clapperton Domestic 17 47.5 20 0.0 00000071111 Clapperton Unintrom 0 0.0 25 7 0000007131 Clapperton Unintrom 0 0.0 25 7 00000007339 Collweater Commercial and Industrial 100 143.0 2 6.0 00000007174 Coldweater Dormestic 0 6.50 89 0.0 00000007174 Coldweater Dormestic 0 4.50 8 6.0 00000007174 Coldweater Dormestic 0 4.50 8 6.0 00000007174 Coldweater Dormestic 1 4.50 1.50 8 5 0.0 Coldweater Dormestic 2 4.900 1.30 1.60 00000000718 Coldweater Dormestic 3 1.20 1.00 1.00 0000000614 Coldweater Dormestic 5 376.0 15 36 6.5	Clapperton	Domestic	0	0.0			4.0	00000018577	
Catagentini Unit normalization 0.0 Columentic Output (Columna) 0.0 Columentic Output (Columna) Columentic Unit Normal (Columna) 110 00 25 7 Columentic Output (Columna) Columentic Output (Columna) 110 00 25 7 Columentic Output (Columna) Columentic Output (Columna) 110 00 26 7 Columentic Output (Columna) Columentic Output (Columna) Columentic Output (Columna) 185.0 80 0.0 Columna) Columentic Output (Columna) Domestic Output (Columna) 0.0 Columna)	Clapperton	Domestic	17	47.5	20		0.0	00000017111	
Calippention Unication 0 0.38 12 0 0.0000000773 Coldwater Commercial and Hodustrial 100 143.0 0 6.0 000000007785 Coldwater Commercial and Hodustrial 100 143.0 0 6.0 000000007785 Coldwater Commercial and Hodustrial 100 45.0 8 0.0 0000000017860 Coldwater Domestic 0 45.0 8 0.0 000000017264 Coldwater Domestic 0 45.0 8 0.0 0000000017264 Coldwater Domestic 2 4000 10 0.0 000000007264 Coldwater Domestic 2 4000 10 0.0 000000007264 Coldwater Domestic 5 376.0 185 356 000000007428 Coldwater Domestic 5 376.0 185 366 000000007428 Coldwater Domestic 8 98.0 74 6.5 <td>Clapperton</td> <td>Domestic</td> <td>35</td> <td>95.0</td> <td>52</td> <td></td> <td>0.0</td> <td>000000017153</td> <td></td>	Clapperton	Domestic	35	95.0	52		0.0	000000017153	
Chippention University Image Fill Source The image The image Coldwater Commercial and Industrial 500 145.0 20 6.0 0000000027380 Coldwater Domessic 0 45.0 8.0 0000000017380 Coldwater Domessic 0 45.0 8 6.0 000000001754 Coldwater Domessic 0 45.0 8 6.0 00000000754 Coldwater Domessic 1 34.0 9 10 0 00000007574 Coldwater Domessic 3 1200 10 10 0.0 000000006943 Coldwater Domessic 5 23.0 100 6.0 00000006942 Coldwater Domessic 5 23.0 100 6.5 00000006942 Coldwater Domessic 6 182.0 10 6.5 00000006942 Coldwater Domessic 8 196.0 100 6.5	Clapperton	Unknown	0	280		25	0.0	00000000000073	
Coldwater Commercial and Industrial 100 150 00 8.0 0.000000054533 Coldwater Dornestic 0 6.50 69 0.0 000000005453 Coldwater Dornestic 0 4.50 8 0.0 00000000544 Coldwater Dornestic 0 4.30 1 0.0 0000000544 Coldwater Dornestic 1 345.0 50 18 6.5 0000000543 Coldwater Dornestic 1 345.0 50 18 6.5 00000000043 Coldwater Dornestic 4 454.0 100 6.6 00000000049 Coldwater Dornestic 5 140.0 85 10 6.6 0000000049 Coldwater Dornestic 5 140.0 85 10 8.0 000000049 Coldwater Dornestic 8 186.0 100 6.5 0000000694 Coldwater Dornestic 8 186.0 <td>Clapperton</td> <td>Unknown</td> <td></td> <td>300</td> <td>90</td> <td>20</td> <td>7</td> <td>000000000073</td> <td></td>	Clapperton	Unknown		300	90	20	7	000000000073	
Coldwater Commercial and Hodustrial 500 105.0 20 8.0 0.00000019274 Coldwater Dormesic 0 45.0 8 6.0 00000001920 Coldwater Dormesic 0.2 48.0 210 6 000000019274 Coldwater Dormesic 0.2 48.0 18 6.5 00000000784 Coldwater Dormesic 2 400.0 130 6.0 0000000786 Coldwater Dormesic 2 400.0 130 6.0 0000000786 Coldwater Dormesic 5 220 100 0.0 0000000786 Coldwater Dormesic 6 182.0 70 6.5 0000000787 Coldwater Dormesic 8 180.0 74 6.5 0000000787 Coldwater Dormesic 8 180.0 74 6.5 00000007874 Coldwater Dormesic 8 98.0 74 6.5 000000007944	Coldwater	Commercial and Industrial	100	143.0	30		6.0	000000054339	
Coldwater Domesic 0 650 99 0.0 00000001380 Coldwater Domesic 0 43.0 0.0 00000001754 Coldwater Domesic 1 345.0 50 18 6.0 0000000028 Coldwater Domesic 1 345.0 50 18 6.5 00000000000 Coldwater Domesic 2 400.0 10 0.0 000000000000 Coldwater Domesic 2 400.0 10 0.0 000000000000000 Coldwater Domesic 5 376.0 185 386 6.5 000000000000000000000000000000000000	Coldwater	Commercial and Industrial	500	185.0	20		8.0	00000062174	
Coldwater Domestic 0 45.0 8 6.0 000000018754 Coldwater Domestic 0.2 580 2:10 6 000000028941 Coldwater Domestic 1 346.0 50 18 6.6 000000008941 Coldwater Domestic 2 400.0 130 130 0.0 000000008941 Coldwater Domestic 3 120.0 50.0 10 0.0 00000008941 Coldwater Domestic 6 120.0 100 10 0.0 00000008941 Coldwater Domestic 6 120.0 70 6.5 00000005944 Coldwater Domestic 8 120.0 70 6.5 00000005944 Coldwater Domestic 8 120.0 74 6.5 000000005440 Coldwater Domestic 12 61 12 6 000000001440 Coldwater Domestic 12 61 12 <td>Coldwater</td> <td>Domestic</td> <td>0</td> <td>65.0</td> <td>59</td> <td></td> <td>0.0</td> <td>00000013980</td> <td></td>	Coldwater	Domestic	0	65.0	59		0.0	00000013980	
Coldwater Dornesic 0.2 830 P 0.0 00000003860 Coldwater Dornesic 1 3450 50 148 6.5 00000005843 Coldwater Dornesic 2 400.0 100 100 00000000026 Coldwater Dornesic 3 120.0 50 10 0.0 000000000264 Coldwater Dornesic 5 120.0 10 6.6 00000000044 Coldwater Dornesic 5 120.0 10 6.6 00000000934 Coldwater Dornesic 5 120.0 10 6.5 0000000934 Coldwater Dornesic 8 196.0 100 6.5 0000000934 Coldwater Dornesic 12 50 160 6.0 0000000934 Coldwater Dornesic 12 51 12 6.0 0000000934 Coldwater Dornesic 15 20.0 160 6.0 0000000935<	Coldwater	Domestic	0	45.0	8		6.0	00000015220	
Coldwater Domestic 0.2 580 2.10 6 00000028691 Coldwater Domestic 2 400.0 130 130 0.0 0000000059431 Coldwater Domestic 2 400.0 130 16.0 000000060449 Coldwater Domestic 4 464.0 100 0.0 000000061291 Coldwater Domestic 5 376.0 185 366 6.5 000000061291 Coldwater Domestic 5 376.0 185 366 6.5 000000061291 Coldwater Domestic 6 182.0 70 6.6 00000005131 Coldwater Domestic 8 182.0 76 6.6 00000005141 Coldwater Domestic 10 76.5 6.0 0000000712 - Coldwater Domestic 10 76.5 6.0 00000000712 - Coldwater Domestic 120 75.1 28.0	Coldwater	Domestic	0	43.0			0.0	00000018754	
Coldwater Domesic 1 34.50 500 18 6.5 000000059431 Coldwater Domesic 2 400.0 120 30 6.0 00000000026 Coldwater Domesic 3 120.0 50 10 0.0 00000000026 Coldwater Domesic 5 376.0 185 356.6 65 000000000127 Coldwater Domesic 5 240.0 16 6.0 000000000127 Coldwater Domesic 5 240.0 16 6.0 000000000012 Coldwater Domesic 8 196.0 100 6.5 000000000012 Coldwater Domesic 8 196.0 100 6.5 00000000012 Coldwater Domesic 12 51 12 6.0 00000000012 Coldwater Domesic 15 26.0 160 6.0 0000000012 Coldwater Domesic 15 26.0 160	Coldwater	Domestic	0.2	580		210	6	00000082690	
Coldwater Dornestic 2 400.0 130 0.0 00000000768 Coldwater Dornestic 3 120.0 50 10 0.0 00000006429 Coldwater Dornestic 4 64.6 100 0.6 0000006429 Coldwater Dornestic 5 736.0 185 366 6.5 0000005473 Coldwater Dornestic 5 140.0 86 000000059144 Coldwater Dornestic 8 196.0 74 6.5 00000059144 Coldwater Dornestic 8 196.0 74 6.5 00000059146 Coldwater Dornestic 10 276.5 160 6.0 00000095146 Coldwater Dornestic 12 51 12 6 0.0000094349 Coldwater Dornestic 15 22.0 6 0.0 0.0000094349 Coldwater Dornestic 17.5 23.0 155 6.0 0.0000005434<	Coldwater	Domestic	1	345.0	50	18	6.5	00000059431	
Coldwater Domesic 2 400.0 20 30 6.0 000000060446 Coldwater Domestic 4 645.0 100 6.0 0000006146 Coldwater Domestic 5 376.0 195 366 0000006146 Coldwater Domestic 5 223.0 100 6.5 0000006142 Coldwater Domestic 6 162.0 70 6.5 0000006142 Coldwater Domestic 8 120.0 16 6.0 0000006142 Coldwater Domestic 18 120.0 6.5 00000001712 Coldwater Domestic 13 220.0 160 6.0 00000001712 Coldwater Domestic 15 420.0 6.0 000000412 Coldwater Domestic 15 420.0 6.0 0000004553 Coldwater Domestic 15 420.0 6.0 0000006567 Coldwater Domestic 20 <td>Coldwater</td> <td>Domestic</td> <td>2</td> <td>400.0</td> <td>130</td> <td>130</td> <td>0.0</td> <td>00000000726</td> <td></td>	Coldwater	Domestic	2	400.0	130	130	0.0	00000000726	
Coldwater Domestic 3 1200 10 0.0 00000061289 Coldwater Domestic 5 376.0 195 356 6.5 00000056730 Coldwater Domestic 5 225.0 100 6.5 00000056730 Coldwater Domestic 6 182.0 30 28 6.5 00000058144 Coldwater Domestic 8 125.0 30 28 6.5 00000058144 Coldwater Domestic 8 196.0 100 6.5 00000058144 Coldwater Domestic 10 276.5 6.0 0000005814 Coldwater Domestic 11 250 16 0.0 00000058167 Coldwater Domestic 15 420.0 6.6 00000004858 10 100 10 100 10 100 10 100 10 100 10 100 10 100 100 100 100 100	Coldwater	Domestic	2	400.0	20	30	6.0	00000000690	
Coldwater Domesic 4 4+01 100 6.0 00000005428 Coldwater Domesic 5 376.0 100 6.6 00000005428 Coldwater Domesic 5 140.0 86 0 6.6 00000005428 Coldwater Domesic 6 140.0 86 0 6.6 00000005424 Coldwater Domesic 6 180.0 70 6.6 00000054544 Coldwater Domesic 8 196.0 100 6.6 00000005454 Coldwater Domesic 10 276.5 6.0 00000001712 Coldwater Domesic 15 220.0 6.0 00000044535 Coldwater Domesic 15 420.0 6.0 00000064557 Coldwater Domesic 15 420.0 6.0 0000006557 Coldwater Domesic 20 158.0 6.0 0000006557 Coldwater Domesic 20	Coldwater	Domestic	3	120.0	50	10	0.0	00000060446	
Octivate Derivation 3 2700 150 300 6.5 00000000200 Caldwater Dornatic 6 1400 86 10 6.5 000000000000 Caldwater Dornatic 6 120 70 6.5 000000000000000000000000000000000000	Coldwater	Domestic	4	276.0	100	256	6.0	00000061299	
Optimizer Domestic 5 1400 16 10 0.0000006282 Coldwater Domestic 6 122.0 70 6.5 000000059434 Coldwater Domestic 8 122.0 70 6.5 000000059434 Coldwater Domestic 8 120.0 6.5 000000059434 Coldwater Domestic 8.3 500.0 250.0 160.0 6.0 000000059434 Coldwater Domestic 12 51.1 12 6 000000059436 Coldwater Domestic 15 420.0 66 6.0 000000059260 Coldwater Domestic 15 420.0 66 6.0 000000059260 Coldwater Domestic 17.5 230.0 16.0 000000059260 Coldwater Domestic 20 160.0 6.0 0000000059260 Coldwater Domestic 30 42.0 25 0.0 0.0 000000059273	Coldwater	Domestic	5	223.0	195	300	0.0 6.5	000000059429	
Coldwater Demestic 6 182.0 70 75 75 700000058174 Coldwater Domestic 8 196.0 100 6.5 00000058144 Coldwater Domestic 8 196.0 100 6.5 00000005934 Coldwater Domestic 8.3 500.0 250 16 000000000000000000000000000000000000	Coldwater	Domestic	5	140.0	85	10	6.0	0000000000750	
Coldwater Domestic 8 125.0 30 28 6.5.5 000000059434 Coldwater Domestic 8 196.0 100 6.5 000000059416 Coldwater Domestic 8.3 500.0 250 160 6.0 0000000742 Coldwater Domestic 12 51 12 6.0 00000008850 Coldwater Domestic 15 280.0 6.0 00000008855 Coldwater Domestic 17.5 42.0 2.6 6.0 00000008856 Coldwater Domestic 17.5 22.0 6.0 00000008567 Coldwater Domestic 20 156.0 0.0 6.0 0000008657 Coldwater Domestic 20 158.0 0 6.0 00000086315 Coldwater Domestic 25 86.0 6.0 00000066315 Coldwater Domestic 30 138.0 130 0.0 000000066315 Col	Coldwater	Domestic	6	182.0	70	10	6.5	000000059474	
Coldwater Domestic 8 98.0 7.4 6.5 00000059341 Coldwater Domestic 8.3 500.0 220 160 6.0 0000000712 Coldwater Domestic 112 251 12 6 0000000712 Coldwater Domestic 112 251 12 6 0000000048850 Coldwater Domestic 115 420.0 65 6.0 000000048850 Coldwater Domestic 115 420.0 65 6.0 000000048535 Coldwater Domestic 17.5 230.0 155 6.0 000000061537 Coldwater Domestic 20 180.0 0 6.0 00000006315 Coldwater Domestic 20 120 68 6 00000005315 Coldwater Domestic 30 230.0 6.0 0000000537 Coldwater Domestic 30 180.0 130 0.0 000000005347 C	Coldwater	Domestic	8	125.0	30	26	6.5	000000059434	
Coldwater Domestic 8 196.0 100 6.5 000000059416 Coldwater Domestic 10 276.5 6.0 00000000712 Coldwater Domestic 112 51 12 6 000000082670 Coldwater Domestic 115 420.0 66.0 000000048536 Coldwater Domestic 115 420.0 66.0 000000048536 Coldwater Domestic 17.5 23.0.0 155 6.0 00000005526 Coldwater Domestic 20 158.0 0 6.0 00000005578 Coldwater Domestic 20 158.0 0 6.5 0000000537 Coldwater Domestic 30 42.0 25 0.0 0000000537 Coldwater Domestic 30 42.0 25 0.0 0000000537 Coldwater Domestic 30 43.0 20 0.0 0000000537 Coldwater Ohres <td< td=""><td>Coldwater</td><td>Domestic</td><td>8</td><td>98.0</td><td>74</td><td>-</td><td>6.5</td><td>00000059534</td><td></td></td<>	Coldwater	Domestic	8	98.0	74	-	6.5	00000059534	
Coldwater Domesic 8.3 50.0 250 160 6.0 0000000712 Coldwater Domesic 10 276 5 6.0 00000002270 Coldwater Domesic 15 280 0 6.0 000000022570 Coldwater Domesic 15 420 0 65 6.0 00000094555 Coldwater Domesic 15 420 0 6.0 00000001557 Coldwater Domesic 20 100.0 0 6.0 00000001559 Coldwater Domesic 20 100.0 0 6.0 00000001537 Coldwater Domesic 20 120 68 6 0000000130 Coldwater Domesic 30 23.0 6.0 0000000133 Coldwater Domesic 30 19.0 130 0.0 00000066957 Coldwater Domesic 30 19.0 130 6.0 00000001707 Coldwater Unknown 0	Coldwater	Domestic	8	196.0	100		6.5	00000059416	
Coldwater Domesic 10 276.5 6.0 0000008430 Coldwater Domesic 15 280.0 6.0 0000008495 Coldwater Domesic 15 420.0 65.0 0.0000084955 Coldwater Domesic 15 420.0 65.0 0.0000089256 Coldwater Domesic 17.5 230.0 155 6.0 00000081567 Coldwater Domesic 20 100.0 0 6.0 00000081563 Coldwater Domesic 20 158.0 0 6.0 00000081563 Coldwater Domesic 230 120.68 6.5 0000008157 Coldwater Domesic 30 42.0 25 0.0 0000008137 Coldwater Domesic 30 130.0 13 6.0 00000008137 Coldwater Ohmesic 30 140.0 9 8.0 000000000000000000000000000000000000	Coldwater	Domestic	8.3	500.0	250	160	6.0	00000000712	
Coldwater Domestic 12 61 00000082670 Coldwater Domestic 15 420.0 65 6.0 00000049535 Coldwater Domestic 15 420.0 65 6.0 00000049535 Coldwater Domestic 17.5 230.0 155 6.0 00000061557 Coldwater Domestic 20 100.0 0 6.0 00000061558 Coldwater Domestic 20 120 68 6 000000682815 Coldwater Domestic 30 230.0 6.0 00000068315 Coldwater Domestic 30 180.0 130 0.0 00000069374 Coldwater Domestic 30 188.0 13 6.0 0000000777 Coldwater Obmestic 13 6.0 00000007777 Coldwater Other 0 152.0 11 0.0 00000007777 Coldwater Unknown 0 45.0 100 00000	Coldwater	Domestic	10	276.5			6.0	00000054340	
Coldwater Domestic 15 280.0 6.0 0.00000049859 Coldwater Domestic 15 92.5 22 6.0 0.00000049535 Coldwater Domestic 17.5 92.5 22 6.0 0.00000061567 Coldwater Domestic 20 158.0 0 6.0 0.00000061578 Coldwater Domestic 20 158.0 0 6.0 0.0000006315 Coldwater Domestic 30 320.0 6.6 0.00000005315 Coldwater Domestic 30 42.0 25 0.0 0.0000006357 Coldwater Domestic 30 42.0 9 8.0 0.0 0.000000637 Coldwater Obmestic 30 42.0 9 8.0 0.000000637 Coldwater Other 0 90.0 10 8.0 0.0000000778 Coldwater Other 0 90.0 10 8.0 0.00000000777 Coldwater	Coldwater	Domestic	12	51	12		6	00000082670	
Coldwater Domestic 15 420.0 65 6.0 00000004935 Coldwater Domestic 17.5 230.0 155 6.0 00000006157 Coldwater Domestic 20 190.0 0 6.0 00000006158 Coldwater Domestic 20 192.0 68 6 00000006315 Coldwater Domestic 25 88.0 6.5 00000006315 Coldwater Domestic 30 230.0 6.0 0000000637 Coldwater Domestic 30 198.0 130 0.0 00000006357 Coldwater Obmestic 30 198.0 13 6.0 00000006357 Coldwater Obmestic 30 198.7 12 0000000637 Coldwater Obmestic 30 198.0 13 6.0 00000007078 Coldwater Uhknown 0 152.0 11 0.0 00000007077 Coldwater Uhknown 0	Coldwater	Domestic	15	280.0			6.0	00000049859	
Coldwater Domestic 15 92.5 22 6.0 000000051557 Coldwater Domestic 20 100.0 0 6.0 000000061558 Coldwater Domestic 20 155 6.0 00000006157 Coldwater Domestic 20 120 68 6 000000062173 Coldwater Domestic 30 23.00 6.5 00000006335 Coldwater Domestic 30 42.0 25 0.0 00000006337 Coldwater Domestic 30 42.0 25 0.0 000000056315 Coldwater Domestic 30 42.0 25 0.0 00000005637 Coldwater Domestic 30 42.0 25 0.0 000000056918 Coldwater Other 0 90.0 10 8.0 00000000776 Coldwater Unknown 0 152.0 11 0.0 0000000776 Coldwater Unknown	Coldwater	Domestic	15	420.0	65		6.0	000000049535	
Coldwater Domestic 17.5 2300 155 6.0 00000061557 Coldwater Domestic 20 158.0 0 6.0 000000061558 Coldwater Domestic 20 158.0 0 6.0 000000061558 Coldwater Domestic 20 120 68 6 00000006130 Coldwater Domestic 30 230.0 6.0 000000054347 Coldwater Domestic 30 130 0.0 000000054347 Coldwater Municipal 98 7 12 000000038902 CITY OF MERRITT Coldwater Other 0 90.0 10 8.0 000000017078 Coldwater Other 0 90.0 11 0.0 00000017078 Coldwater Unknown 0 55.0 1 0.0 00000001707 Coldwater Unknown 0 36.0 19 5.0 0.00 0000000057536 Coldwater <td>Coldwater</td> <td>Domestic</td> <td>15</td> <td>92.5</td> <td>22</td> <td></td> <td>6.0</td> <td>000000059256</td> <td></td>	Coldwater	Domestic	15	92.5	22		6.0	000000059256	
Coldwater Domestic 20 100.0 0 6.0 0000006133 Coldwater Domestic 20 120 68 6 000000062173 Coldwater Domestic 20 120 68 6 000000062437 Coldwater Domestic 30 230.0 6.0 000000063357 Coldwater Domestic 30 42.0 25 0.0 00000006347 Coldwater Domestic 30 42.0 25 0.0 00000006347 Coldwater Domestic 30 42.0 25 0.0 00000006357 Coldwater Municipal 98 7 12 00000038902 CITY OF MERRITT Coldwater Other 0 90.0 10 8.0 000000017078 Coldwater Unknown 0 152.0 11 0.0 000000017059 Coldwater Unknown 0 80.0 19 5.0 000000005738 Coldwater	Coldwater	Domestic	17.5	230.0	155		6.0	00000061557	
Coldwater Domestic 20 1300 0.3 0.00000082680 Coldwater Domestic 25 88.0 6.5 000000082680 Coldwater Domestic 30 230.0 6.0 000000082680 Coldwater Domestic 30 42.0 25 0.0 00000060357 Coldwater Domestic 30 198.0 130 0.0 000000060357 Coldwater Observation 78 56.0 13 6.0 000000017078 Coldwater Other 0 90.0 10 8.0 000000017078 Coldwater Uhknown 0 450.0 9 8.0 000000017077 Coldwater Unknown 0 55.0 0.0 000000017077 Coldwater Unknown 0 80.0 000000031167 Coldwater Unknown 0 40.0 6.0 00000003117 Coldwater Unknown 0 110.0 0.0 00000003117	Coldwater	Domestic	20	158.0	0		6.0	00000061556	
Coldwater Domestic 25 88.0 0 6.5 00000058315 Coldwater Domestic 30 230.0 6.0 00000005437 Coldwater Domestic 30 198.0 130 0.0 00000005437 Coldwater Domestic 30 198.0 130 0.0 00000005837 Coldwater Observation 78 56.0 13 6.0 000000038902 CITY OF MERRITT Coldwater Other 0 90.0 10 8.0 000000023914 Coldwater Unknown 0 55.0 0.0 000000017059 Coldwater Unknown 0 55.0 0.00 000000057536 Coldwater Unknown 0 30.0 0.0 00000005233 Coldwater Unknown 0 30.0 0.0 00000005177 Coldwater Unknown 0 30.0 0.0 00000005177 Coldwater Unknown 0 30.0	Coldwater	Domestic	20	120	68		6	000000082680	
Coldwater Domestic 30 230.0 6.0 00000001030 Coldwater Domestic 30 42.0 25 0.0 00000006337 Coldwater Domestic 30 198.0 130 0.0 00000006357 Coldwater Municipal 98 7 12 00000005918 Coldwater Other 0 90.0 10 8.0 000000005918 Coldwater Unknown 0 40.0 9 8.0 0000000017078 Coldwater Unknown 0 152.0 11 0.0 000000017077 Coldwater Unknown 0 152.0 11 0.0 000000017077 Coldwater Unknown 0 40.0 6.0 000000005738 Coldwater Unknown 0 40.0 6.0 000000003117 Coldwater Unknown 0 110.0 0.0 00000003117 Coldwater Unknown 0 25.0 0.0	Coldwater	Domestic	25	88.0			6.5	000000058315	
Coldwater Domestic 30 42.0 25 0.0 000000054347 Coldwater Domestic 30 198.0 130 0.0 000000054347 Coldwater Municipal 98 7 12 000000056918 Coldwater Observation 78 56.0 13 6.0 000000056918 Coldwater Other 0 90.0 10 8.0 000000023914 Coldwater Unknown 0 55.0 0.0 000000017075 Coldwater Unknown 0 38.0 19 5.0 000000005736 Coldwater Unknown 0 38.0 19 5.0 000000057203 Coldwater Unknown 0 40.0 8.0 0000000575203 Coldwater Unknown 0 40.0 0.0 00000003117 Coldwater Unknown 0 25.0 0.0 00000003111 Coldwater Unknown 0 95.0 0.0	Coldwater	Domestic	30	230.0			6.0	00000001030	
Coldwater Domestic 30 180.0 130 0.0 000000006037 Coldwater Municipal 78 56.0 13 6.0 000000056918 Coldwater Other 0 90.0 10 8.0 000000017078 Coldwater Unknown 0 40.0 9 8.0 000000017059 Coldwater Unknown 0 152.0 11 0.0 000000057366 Coldwater Unknown 0 152.0 11 0.0 000000057366 Coldwater Unknown 0 60.0 8.0 000000034167 Coldwater Unknown 0 40.0 6.0 0.0 000000034167 Coldwater Unknown 0 30.0 0.0 0.0 000000034167 Coldwater Unknown 0 30.0 0.0 000000034171 Coldwater Unknown 0 80.0 0000000034172 Coldwater Unknown 0 96.0	Coldwater	Domestic	30	42.0	25		0.0	00000054347	
Coldwater Municipal 98 7 12 00000038902 CITY OF MERRITT Coldwater Observation 78 56.0 13 6.0 00000005918 Coldwater Other 0 90.0 10 8.0 000000017078 Coldwater Unknown 0 40.0 9 8.0 000000017059 Coldwater Unknown 0 152.0 11 0.0 000000017077 Coldwater Unknown 0 38.0 19 5.0 00000003167 Coldwater Unknown 0 40.0 8.0 00000003117 Coldwater Coldwater Unknown 0 40.0 6.0 00000003117 Coldwater Coldwater Unknown 0 110.0 0.0 00000003417 Coldwater Coldwater Unknown 0 86.0 0.0 000000034172 Coldwater Unknown 0 96.0 0.0 0000000034172 Coldwater Unknown 0 <td>Coldwater</td> <td>Domestic</td> <td>30</td> <td>198.0</td> <td>130</td> <td></td> <td>0.0</td> <td>00000060357</td> <td></td>	Coldwater	Domestic	30	198.0	130		0.0	00000060357	
Coldwater Observation 78 56.0 13 6.0 00000056918 Coldwater Unknown 0 40.0 9 8.0 000000017078 Coldwater Unknown 0 45.0 1 0.0 00000017059 Coldwater Unknown 0 152.0 11 0.0 000000017077 Coldwater Unknown 0 38.0 19 5.0 00000055236 Coldwater Unknown 0 30.0 60.0 000000031917 Coldwater Unknown 0 30.0 0.0 000000031917 Coldwater Unknown 0 80.0 000000031916 Coldwater Unknown 0 80.0 000000031916 Coldwater Unknown 0 80.0 000000031917 Coldwater Unknown 0 86.0 0.0 000000031916 Coldwater Unknown 0 96.0 0.0 000000031911 Coldwater U	Coldwater	Municipal		98	7		12	00000038902	CITY OF MERRITT
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Coldwater Unknown 0 40.0 9 8.0 00000003914 Coldwater Unknown 0 152.0 11 0.0 000000017077 Coldwater Unknown 0 35.0 19 5.0 000000057536 Coldwater Unknown 0 30.0 8.0 00000003167 Coldwater Unknown 0 40.0 6.0 000000031917 Coldwater Unknown 0 30.0 0.0 000000031917 Coldwater Unknown 0 110.0 0.0 000000031917 Coldwater Unknown 0 25.0 0.0 000000031917 Coldwater Unknown 0 36.0 0.0 000000031916 Coldwater Unknown 0 36.0 0.0 000000031917 Coldwater Unknown 0 95.0 0.0 000000031913 Coldwater Unknown 0 14.0 0.0 0000000031913 Coldwat	Coldwater	Other	0	90.0	10		8.0	00000017078	
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Coldwater Unknown 0 12.2 11 0.0 00000001717 Coldwater Unknown 0 38.0 19 5.0 000000057536 Coldwater Unknown 0 40.0 6.0 000000057536 Coldwater Unknown 0 30.0 0.0 000000034167 Coldwater Unknown 0 30.0 0.0 000000034171 Coldwater Unknown 0 25.0 0.0 000000034171 Coldwater Unknown 0 36.0 0.0 000000026017 Coldwater Unknown 0 36.0 0.0 000000022042 Coldwater Unknown 0 96.0 0.0 000000031911 Coldwater Unknown 0 21.0 4 0.0 000000031912 Coldwater Unknown 0 21.0 4 0.0 000000031914 Coldwater Unknown 0 21.0 160 0.0 000000031914	Coldwater	Unknown	0	55.U 152.0	11		0.0	00000017059	
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Coldwater Unknown 0 40.0 6.0 00000005203 Coldwater Unknown 0 30.0 0.0 00000005203 Coldwater Unknown 0 110.0 0.0 000000051917 Coldwater Unknown 0 25.0 0.0 000000031916 Coldwater Unknown 0 60.0 6.0 000000022017 Coldwater Unknown 0 36.0 0.0 000000022042 Coldwater Unknown 0 95.0 0.0 000000031911 Coldwater Unknown 0 96.0 0.0 000000031912 Coldwater Unknown 0 14.0 0.0 000000031913 Coldwater Unknown 0 210.0 160 0.0 000000031914 Coldwater Unknown 0 210.0 160 0.0 000000031914 Coldwater Unknown 0 45.0 4.0 000000031173 Coldwater <	Coldwater	Unknown	0	60.0	10		8.0	000000034167	
Coldwater Unknown 0 30.0 0.0 000000031917 Coldwater Unknown 0 110.0 0.0 000000034171 Coldwater Unknown 0 25.0 0.0 0000000231916 Coldwater Unknown 0 60.0 000000026017 Coldwater Unknown 0 36.0 0.0 000000022042 Coldwater Unknown 0 96.0 0.0 000000021911 Coldwater Unknown 0 96.0 0.0 000000031912 Coldwater Unknown 0 14.0 0.0 000000031913 Coldwater Unknown 0 210.0 160 0.0 000000031913 Coldwater Unknown 0 110.0 0.0 000000031913 1000000031915 Coldwater Unknown 0 45.0 44.0 000000031915 Coldwater Unknown 0 105.0 60.0 000000031915 Coldwater Un	Coldwater	Unknown	0	40.0			6.0	00000055203	
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Coldwater Onknown O 96.0 O 0.0 000000031911 Coldwater Unknown O 14.0 O.0 000000031912 Coldwater Unknown O 20.0 4 O.0 000000031913 Coldwater Unknown O 210.0 160 0.0 000000031914 Coldwater Unknown O 210.0 160 0.0 000000034174 Coldwater Unknown O 45.0 4.0 000000034173 Coldwater Unknown O 45.0 4.0 000000034173 Coldwater Unknown O 105.0 6.0 000000034173 Coldwater Unknown O 70.0 70 5.0 000000034175 Coldwater Unknown O 70.0 70 5.0 000000034178 Coldwater Unknown O 72.0 25 0.0 00000034178 Coldwater Unknown O 52.0	Coldwater	Unknown	0	95.0			0.0	000000022042	
Coldwater Onknown 0 14.0 0 0.0 000000031912 Coldwater Unknown 0 20.0 4 0.0 000000031913 Coldwater Unknown 0 210.0 160 0.0 00000031913 Coldwater Unknown 0 210.0 160 0.0 00000031914 Coldwater Unknown 0 45.0 4.0 00000031915 Coldwater Unknown 0 45.0 4.0 00000031915 Coldwater Unknown 0 0.0 0.0 00000031915 Coldwater Unknown 0 105.0 6.0 000000031915 Coldwater Unknown 0 70.0 70 5.0 000000034178 Coldwater Unknown 0 74.0 55 0.0 00000034178 Coldwater Unknown 0 52.0 25 45 0.0 00000034177 Coldwater Unknown 0 52.0	Coldwater	Linknown	0	90.0			0.0	000000031911	
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Coldwater Unknown 0 45.0 4.0 00000034173 Coldwater Unknown 0 0.0 0.0 0.0 00000031915 Coldwater Unknown 0 105.0 6.0 00000027649 Coldwater Unknown 0 70.0 70 5.0 00000034175 Coldwater Unknown 0 74.0 555 0.0 00000034178 Coldwater Unknown 0 39.0 0.0 000000034178 Coldwater Unknown 0 39.0 0.0 00000034179 Coldwater Unknown 0 52.0 25 45 0.0 00000034177 Coldwater Unknown 0 52.0 25 45 0.0 00000034176 Coldwater Unknown 0 60.0 0.0 000000034176 Coldwater Unknown 0 20.0 8 0.0 000000034176 Coldwater Unknown 0 20.0 </td <td>Coldwater</td> <td>Unknown</td> <td>0</td> <td>110.0</td> <td></td> <td></td> <td>0.0</td> <td>00000034174</td> <td></td>	Coldwater	Unknown	0	110.0			0.0	00000034174	
Coldwater Unknown 0 0.0 0.0 00000031915 Coldwater Unknown 0 105.0 6.0 00000027649 Coldwater Unknown 0 70.0 70 5.0 00000034175 Coldwater Unknown 0 74.0 55 0.0 00000034178 Coldwater Unknown 0 39.0 0.0 00000034179 Coldwater Unknown 0 52.0 25 45 0.0 00000034177 Coldwater Unknown 0 52.0 25 45 0.0 00000034176 Coldwater Unknown 0 60.0 0.0 000000034176 Coldwater Unknown 0 8 0.0 000000034176 Coldwater Unknown 0 20.0 8 0.0 000000034176 Coldwater Unknown 0 394.0 5.5 000000035425	Coldwater	Unknown	0	45.0			4.0	00000034173	
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Coldwater Unknown 0 52.0 25 45 0.0 000000341/7 Coldwater Unknown 0 60.0 0.0 00000034176 Coldwater Unknown 0 20.0 8 0.0 00000031919 Coldwater Unknown 0 394.0 5.5 00000035425	Coldwater	Unknown	0	39.0	05	45	0.0	00000034179	
Coldwater Unknown 0 50.0 0.0 000000034176 Coldwater Unknown 0 20.0 8 0.0 000000031919 Coldwater Unknown 0 394.0 5.5 000000035425	Coldwater	Unknown	0	52.0	25	45	0.0	00000034177	
Coldwater Unknown 0 394.0 5.5 000000035425	Coldwater		0	20.0	Q		0.0	000000034176	
	Coldwater	Unknown	0	394.0			5.5	000000035425	

Table E.1: Summary of Water Wells per Subbasin, MOE water wells database

Subbasis	Well Use	Driller's Yield Estimate	Depth Well Drilled	Water Depth	Bedrock	Diameter	Well Tee Number	Well Line Deteile
Coldwater	Linknown		(ft) 16.0	(ft) 12	Depth (ft)	(incnes)	00000031918	Well Use Details
Coldwater	Unknown	0	45.0	12	44	0.0	000000034159	
Coldwater	Unknown	0	460.0		183	6.0	00000045543	
Coldwater	Unknown	0	185.0			0.0	00000031902	
Coldwater	Unknown	0	34.0			0.0	00000000070	
Coldwater	Unknown	2	190	122		7	00000000075	
Coldwater	Unknown	2	239	12	50	6	00000036444	
Coldwater	Unknown	2.5	184.0 420	175	53	6.0	00000045404	
Coldwater	Unknown	3	380	180		6	000000038461	
Coldwater	Unknown	3	198	70		6	00000037894	
Coldwater	Unknown	4	393.0	42		6.0	00000034350	
Coldwater	Unknown	5	25.0	18		6.0	00000015223	
Coldwater	Unknown	5	170	110		6	000000042250	
Coldwater	Unknown	8	215	50 97		4.5	000000041446	
Coldwater	Unknown	10	305.0	202		6.0	000000038383	
Coldwater	Unknown	10	360	268	283	7	00000057573	
Coldwater	Unknown	12	175.0	50		4.5	00000042014	
Coldwater	Unknown	12	160.0	60		4.5	00000042509	
Coldwater	Unknown	15	363.0	260	60	6.0	00000045405	
Coldwater	Unknown	20	74	10			000000017058	
Coldwater	Unknown	20	62.0	40 25		6.0	000000031920	
Coldwater	Unknown	40	224.0	10		6.0	00000028853	
Coldwater	Unknown	50	75.0	14		8.0	00000034168	
Coldwater	Unknown	50	200.0	73		8.0	00000044585	
Coldwater	Unknown	400	100.0	10		16.0	00000024105	
Coldwater	Unknown	421	161.0	13		10.0	00000040069	
Coldwater	Unknown	1000	98.0	12		8.0	00000024157	
Coldwater	Unknown	1900	290	12		6	00000034180	
Coldwater	Unknown		272	160	247	7	00000058308	
Coldwater	Unknown		200			6	00000038460	
Coldwater	Unknown		67	2		7	00000058435	
Coldwater	Unknown		259	95		7	00000058104	
Coldwater	Unknown		35	17		7	000000058001	
Coldwater	Linknown		00 144	30 18		7	000000057992	
Coldwater	Unknown		79	50		7	000000057994	
Coldwater	Unknown		400		24	7	00000057647	dry hole
Guichon	Abandoned	0	120.0			6.5	00000059231	
Guichon	Abandoned	5	60.0	14		6.5	00000059234	
Guichon	Commercial and Industrial	0	11.0		11	0.0	00000061547	
Guichon	Commercial and Industrial	0	15.0	60	15	6.0	00000061548	
Guichon	Commercial and Industrial	1.5	150.0	27	44	6.0	000000059122	
Guichon	Commercial and Industrial	2	470.0	20	24	6.0	00000061545	
Guichon	Commercial and Industrial	10	195.0	30	32	6.0	00000059034	
Guichon	Commercial and Industrial	40	97.0	16	20	6.0	00000059066	
Guichon	Commercial and Industrial	405	470.0	15	15	6.0	00000061541	
Guichon	Commercial and Industrial		876		870		000000004367	
Guichon	Commercial and Industrial		258		242		00000004332	
Guichon	Domestic	0	5.0			0.0	00000017913	
Guichon	Domestic	0	24.0	2		0.0	00000001251	
Guichon	Domestic	0	412.0	50	80	6.0	00000061276	
Guichon	Domestic	0	7.0			0.0	00000016341	
Guichon	Domestic	0	0.0	10		0.0	00000004308	
Guichon	Domestic	0	47.0	18		8.0	000000055725	
Guichon	Domestic	8.00 20	197.00	14		0.00 6.5	000000085140	
Guichon	Domestic	20	13.7	5		3.2	000000075397	
Guichon	Domestic	20	20.0	Ť		30.0	00000060312	
Guichon	Domestic	20	20.0			30.0	00000060315	
Guichon	Domestic	20	20.0			30.0	00000060314	
Guichon	Domestic	20	20.0			30.0	00000060313	
Guichon	Domestic	20	20.0	1	1	30.0	00000060311	

O ut the size	Molt Have	Driller's Yield Estimate	Depth Well Drilled	Water Depth	Bedrock	Diameter		
Guichon	Nomestic	(US gpm) 20	(ft) 20.0	(ft)	Depth (ft)	(inches)		Well Use Details
Guichon	Domestic	20	56.0	35		6.0	000000000000000000000000000000000000000	
Guichon	Domestic	25	47.0	12		6.5	00000059235	
Guichon	Domestic	100	37.0	8		6.7	00000062935	
Guichon	Domestic	100	77.0	11		6.7	00000062936	
Guichon	Domestic	100	57.0	11		6.7	00000062937	
Guichon	Domestic	100	37.0	6		6.7	00000062938	
Guichon	Municipal	0	60.0	40		6.0 6.0	000000051644	
Guichon	Municipal	0	157.0	60	155	0.0	000000045496	
Guichon	Municipal	22	58.0	11		6.0	00000061488	
Guichon	Municipal	30	47.0	10		6.0	00000061486	
Guichon	Municipal	500	156.0	59		12.0	00000044030	
Guichon	Other	10	255		107	6	00000076784	
Guichon	Unknown	0	127.0		58	8.0	00000020007	
Guichon	Unknown	0	138.0			7.0	000000021070	
Guichon	Unknown	0	180.0		80	7.0	00000058044	
Guichon	Unknown	0	180.0	39		5.0	00000058028	
Guichon	Unknown	0	720.0		710	0.0	00000004358	
Guichon	Unknown	0	39.0			6.0	00000055838	
Guichon	Unknown	0	37.0			6.0	000000055843	
Guichon	Unknown	.1	12.0			0.0	000000051481	
Guichon	Unknown	10	157.0		94	10.0	000000023747	
Guichon	Unknown	20	310.0			4.0	000000043549	
Guichon	Unknown	80	295.0			8.0	00000016589	
Guichon	Unknown	150	518	23		8	00000020432	
Guichon	Unknown	300	170.0			0.0	00000023169	
Guichon	Unknown	325	324.0	8		8.0	00000016540	
Guichon	Unknown	400	305.0 469.0	5 21		0.0	000000016591	
Guichon	Unknown	536	168.0	55		8.0	000000034049	
Guichon	Unknown	610	361.0	3		0.0	00000030041	
Guichon	Unknown	800	283.0			12.0	00000044244	
Guichon	Unknown	876	287.0			12.0	00000044245	
Guichon	Unknown	1166	300.5			12.0	000000004427	
Lower Nicola	Abandoned	0	65.0			0.0	000000059232	
Lower Nicola	Domestic	0	10.0	8		0.0	000000011575	
Lower Nicola	Domestic	0	10.0	8		0.0	00000011576	
Lower Nicola	Domestic	0	0.0			0.0	00000011574	
Lower Nicola	Domestic	0	7.0			0.0	00000019055	
Lower Nicola	Domestic	0	10.0	8		0.0	000000015042	
Lower Nicola	Domestic	0	16.0	0 8		0.0	000000011577	
Lower Nicola	Domestic	0	20.0	15		0.0	000000011553	
Lower Nicola	Domestic	0	16.0	14		0.0	00000011555	
Lower Nicola	Domestic	0	12.0	6		0.0	000000011554	
Lower Nicola	Domestic	0	30.0	30		0.0	00000011556	
Lower Nicola	Domestic	0	6.0	3		0.0	000000019054	
Lower Nicola	Domestic	0	20.0 12.0	Q		0.0	000000031909	
Lower Nicola	Domestic	0	27.0	23		0.0	000000015379	
Lower Nicola	Domestic	0	15.0	10	1	0.0	00000025374	
Lower Nicola	Domestic	0	12.0	7		0.0	00000017105	
Lower Nicola	Domestic	0	14.0	10		0.0	00000017322	
Lower Nicola	Domestic	0	10.0	5		0.0	000000018585	
Lower Nicola	Domestic	0	14.0	9		0.0	00000018586	
Lower Nicola	Domestic	0	6.0	2		0.0	00000016337	
Lower Nicola	Domestic	0	97.0	-	UNK	6.0	000000059761	
Lower Nicola	Domestic	.5	340.0	195	70	6.0	00000059643	
Lower Nicola	Domestic	2	400.0	85	50	0.0	00000060276	
Lower Nicola	Domestic	2	300.0	30	38	0.0	00000060277	
Lower Nicola	Domestic	2	130.0	2	405	0.0	00000060407	
Lower Nicola	Domestic	2	400.0	/5 15	105	6.0	00000060445	
LOWEI INICOID	Domestic	4	200.0	10	09	0.0	00000002307	

Table E.1: Summary of Water Wells per Subbasin, MOE water wells database

		Driller's Yield Estimate	Depth Well Drilled	Water Depth	Bedrock	Diameter		
Subbasin	Well Use	(US gpm)	(ft)	(ft)	Depth (ft)	(inches)	Well Tag Number	Well Use Details
Lower Nicola	Domestic	0 7	49.0	0 25		6.0	000000031910	
Lower Nicola	Domestic	8	98.0	24		6.5	000000059129	
Lower Nicola	Domestic	8	82.0	25		6.5	00000059547	
Lower Nicola	Domestic	8	98.0	25		6.5	00000059253	
Lower Nicola	Domestic	8	50.0	18		6.5	000000059259	
Lower Nicola	Domestic	8	12.0	4		6.5	000000059249	
Lower Nicola	Domestic	8	58.0	4		6.5	000000058795	
Lower Nicola	Domestic	8	41.0	24		6.0	00000047592	
Lower Nicola	Domestic	10	12.0			6.5	00000058796	
Lower Nicola	Domestic	11	100.0	80		6.0	000000059616	
Lower Nicola	Domestic	20	198.0	58 70		0.0	000000059251	
Lower Nicola	Domestic	20	240.0	55	60	6.0	000000060442	
Lower Nicola	Domestic	30	70.0	7		6.0	00000048549	
Lower Nicola	Domestic	30	97.0			0.0	00000059759	
Lower Nicola	Domestic	40	147.0	18		6.0	00000057140	
Lower Nicola	Domestic	50 70	76.0	ь		0.0	000000000282	
Lower Nicola	Domestic	100	340.0	55	130	0.0	000000060434	
Lower Nicola	Domestic	100	150.0	25		6.0	00000060363	
Lower Nicola	Domestic	100	105.0	16		6.0	00000057145	
Lower Nicola	Domestic	100	63.0	12		0.0	00000057127	
Lower Nicola	Domestic	100	58.0	8		6.0	00000061359	
Lower Nicola	Domestic	300	178.0	0		8.0	000000051619	
Lower Nicola	dry hole	000	62			4	000000035424	
Lower Nicola	Institutional	5	206	39			00000017552	LOWER NICOLA SCHOOL
Lower Nicola	Irrigation	0	196.0	17		8.0	00000053506	
Lower Nicola	irrigation	3	40	26		6	00000037060	
Lower Nicola	Irrigation	500	52.0	12		10.0	000000055823	
Lower Nicola	Irrigation	700	203.0	17		8.0	000000053501	
Lower Nicola	Municipal	40	180.0			6.0	00000057156	
Lower Nicola	Municipal	250	105.0			8.0	00000060278	
Lower Nicola	Municipal	250	92.0			8.0	00000060279	
Lower Nicola	Unknown	0	152.0			7.0	000000000000000000000000000000000000000	
Lower Nicola	Unknown	0	108.0			7.0	00000058211	
Lower Nicola	Unknown	0	300.0			7.0	00000058202	
Lower Nicola	Unknown	0	405.0			10.0	00000051630	
Lower Nicola	Unknown	0	60.0	40	57	0.0	00000025696	
Lower Nicola	Unknown	0	10.0	40		0.0	00000022043	
Lower Nicola	Unknown	0	42.0			0.0	00000016572	
Lower Nicola	Unknown	0	55.0			0.0	00000054907	
Lower Nicola	Unknown	0	37.0	17	40	7.0	00000057623	
Lower Nicola	Unknown	0	81.0 02.0	21	13	6.0	000000057236	
Lower Nicola	Unknown	1	282.0	1		4.0	000000016151	
Lower Nicola	Unknown	5	40.0	28		6.0	00000037374	
Lower Nicola	Unknown	6	76	20		7	00000000099	
Lower Nicola	Unknown	8	81	53	07	8	00000034596	
Lower Nicola	Unknown	10	157.0	E	97	0.0	00000025683	
Lower Nicola	Unknown	10	85.0	24		6.0	000000029035	
Lower Nicola	Unknown	10	224	80		7	00000057979	
Lower Nicola	Unknown	20	175.0	48		6.0	00000024562	
Lower Nicola	Unknown	20	54.0	26		6.0	00000029017	
Lower Nicola	Unknown	20	50.0	26	705	6.0	000000041087	
Lower Nicola	Unknown	25 30	85.0	24	100	6.0	00000016571	
Lower Nicola	Unknown	40	57	35		7	000000057589	
Lower Nicola	Unknown	50	90.0	20		5.5	00000043319	
Lower Nicola	Unknown	60	38	12		7	00000057258	
Lower Nicola	Unknown	200	55.0	17		7.0	000000054911	
Lower INICOla	UNKNOWN	1	31	25	1	/	00000058190	

Table E.1: Summary of Water Wells per Subbasin, MOE water wells database

Subbasin	Wall Lisa	Driller's Yield Estimate	Depth Well Drilled	Water Depth	Bedrock	Diameter	Well Tag Number	Wall Use Details
Lower Nicola	Unknown	(03 gpiii)	24	12	Deptil (it)	7	00000058302	Well Use Details
Lower Nicola	Unknown		57	14		7	00000058305	
Lower Nicola	Unknown		175	120	165	7	00000058490	
Lower Nicola	Unknown		139	25		7	00000058464	
Lower Nicola	Unknown		37	20		7	00000058296	
Lower Nicola	Unknown		94	15	17	7	000000057172	
Lower Nicola	Linknown		37	30 4	17	7	000000057255	
Lower Nicola	Unknown		58	15		7	000000058101	
Middle Nicola	Commercial and Industrial	60	520.0	291	425	6.0	00000061302	
Middle Nicola	Commercial and Industrial	78	102	36		8	00000018860	BC PARKS - Drinking Water Supply
Middle Nicola	Domestic	0	4.0			0.0	00000011627	
Middle Nicola	Domestic	0	12.0	10		0.0	00000011621	
Middle Nicola	Domestic	0	15.0	10		0.0	000000011691	
Middle Nicola	Domestic	0	16.0	13		0.0	00000018859	
Middle Nicola	Domestic	0	13.0	6		0.0	000000002964	
Middle Nicola	Domestic	1.5	240.0	80	70	6.0	00000059818	
Middle Nicola	Domestic	5	80.0			6.0	00000049590	
Middle Nicola	Domestic	5	200.0	70	85	0.0	00000060257	
Middle Nicola	Domestic	5.00	60.00			6.00	00000084905	
Middle Nicola	Domestic	5.00	160.00	50	148.00	6.00	000000084906	
Middle Nicola	Domestic	15	1/8.0	53		6.0	000000049457	
Middle Nicola	Domestic	20	40.0	10		6.0	000000051648	
Middle Nicola	Domestic	25	40.0			6.0	000000051650	
Middle Nicola	Domestic	30	253.0	1		4.0	000000043667	
Middle Nicola	Domestic	30	198.0	117		6.0	00000061559	
Middle Nicola	Domestic	50	52.0			6.0	00000051647	
Middle Nicola	Domestic	50	60.0	12		0.0	00000060258	
Middle Nicola	Domestic	65	54.0	14		6.0	00000051645	
Middle Nicola	Domestic	200	230.0			6.0	000000051635	
Middle Nicola	irrigation	20	225.0			6.0	000000037237	
Middle Nicola	Irrigation	20	130.0	7		8.0	000000034292	
Middle Nicola	Irrigation	310	300.0	34		8.0	00000024072	
Middle Nicola	Other	25	252.0	60		6.5	00000059546	
Middle Nicola	Unknown	0	25.0			0.0	00000029152	
Middle Nicola	Unknown	0	45.0			0.0	00000031906	
Middle Nicola	Unknown	0	32.0	2		0.0	000000034164	
Middle Nicola	Linknown	0	99.0 60.0	3 12		8.0	00000023903	
Middle Nicola	Unknown	0	74.0	12		6.0	000000015206	
Middle Nicola	Unknown	0	96.0			0.0	00000034170	
Middle Nicola	Unknown	0	265.0	60		6.0	00000025371	
Middle Nicola	Unknown	5	42.0	15		6.0	00000028028	
Middle Nicola	Unknown	6	193.0	69		4.0	000000041440	
Middle Nicola	Unknown	D Q	98	1/		60	000000028027	
Middle Nicola	Linknown	10	170.0	62		6.5	000000028027	
Middle Nicola	Unknown	11	200.0	60		4.5	000000038289	
Middle Nicola	Unknown	25	68			4.5	00000022351	
Middle Nicola	Unknown	35	60.0	17		8.0	00000023891	
Middle Nicola	Unknown	250	305.0	6		6.0	00000051638	
Middle Nicola	Unknown	1000	303.0	~ ~		9.0	00000052316	
Middle Nicola	Unknown		150	33		7	000000057980	
Middle Nicola			100	0 20		1	000000031493	
Middle Nicola	Unknown		400	20		6	000000025136	Abandonned
Middle Nicola	Unknown		400			-	00000025137	
Moore	Domestic	0	10.0			0.0	000000011702	
Moore	Domestic	30	124.0		20	6.0	00000052185	
Moore	Unknown	25	74.0	32		6.0	00000034624	
Quilchena	Domestic	0	12.0			0.0	000000031905	
Quilchena	Domestic	0	10.0	8 7		0.0	00000011640	
Quilchena	Domestic	5	308.0	50	45	6.5	00000011639	
Quilchena	Domestic	6	320.0	70	25	6.5	000000059540	

Subbasin	Well Lice	Driller's Yield Estimate	Depth Well Drilled	Water Depth	Bedrock	Diameter	Well Tee Number	Well Line Details
Ouilchopa	Domostic	(US gpm) 50	38.0	(11)	Depth (It)	(incries)		Well Ose Details
Quilchena	Linknown	0	45.0	0		0.0	000000001308	
Quilchena	Unknown	6	170	55	58	7	000000057387	
Quilchena	Unknown	Ŭ	144	90	48	7	00000058493	
Spius	Domestic	5	110.0	60	107	6.5	00000059557	
Spius	Domestic	8	125.0	80	43	6.5	00000059247	
Spius	Domestic	10	137.0	80		6.5	00000001035	
Spius	Domestic	15	117.0	35		0.0	00000060416	
Spius	Domestic	100	380.0	15	190	6.0	00000059757	
Spius	Domestic	100	137.0	90		6.0	00000060286	
Spius	Domestic	200	118.0	56		6.0	00000061361	
Spius	Other	20	197.0	110		6.5	00000059242	
Spius	Unknown	0	34.0			0.0	00000025863	
Spius	Unknown	0	440.0	100	40	6.0	000000047197	
Spius	Unknown	18	211.0	130		6.0	00000028051	
Spius	Unknown		194	188		/	000000057269	
Spius	Unknown		232	115		/	00000057281	
Spius	Unknown		187	93	171	7	000000058273	
Spius	Linknown		68	105	58	7	000000058446	
Stump Lake	Domestic	0	100.0		50	60	000000038440	
Stump Lake	Domestic	2.5	340	98	90	6	000000013001	
Stump Lake	Domestic	4	203.0	38	147	6.5	000000059238	
Stump Lake	Domestic	5	290.0	85	160	6.5	000000058576	
Stump Lake	Domestic	5	210.0	148	205	6.5	00000058147	
Stump Lake	Domestic	10.00	258.00		232.00	6.00	00000084876	
Stump Lake	Domestic	100	78.0	28		6.0	00000061239	
Stump Lake	Domestic	200	136.0	6		6.0	00000017917	
Stump Lake	Domestic	400	132.0	9		6.0	00000018581	
Stump Lake	Irrigation	500	262.0			10.0	00000059084	
Stump Lake	Observation	5	132.0	35	112	6.0	00000020598	
Stump Lake	Unknown	0	60.0		53	0.0	00000044857	
Stump Lake	Unknown	0	91.0	21		7.0	00000058445	
Stump Lake	Unknown	100	208.0	35	203	8.0	00000023986	
Upper Nicola	Commercial and Industrial	20	40.0	20	400	6.0	00000051659	
Upper Nicola	Commercial and Industrial	280	136	37	130	12	00000019785	BRENDA MINES LTD
Upper Nicola	Commercial and Industrial	300	126	27		12	00000019785	BRENDA MINES LTD
Upper Nicola		0	7.0	40		0.0	00000019787	BRENDA MINES LTD
Upper Nicola	Domestic	0	15.0	7		0.0	000000011648	
Upper Nicola	Domestic	0	140.0		110	6.0	00000059627	
Upper Nicola	Domestic	0	25.0	10		0.0	00000002188	
Upper Nicola	Domestic	40	220.0		50	6.0	00000061235	
Upper Nicola	Domestic	50	143.0	100		6.0	00000059850	
Upper Nicola	Domestic	75	23.0	6		6.0	00000059628	
Upper Nicola	Irrigation		36	4		7	00000058004	DOUGLAS LK CATTLE CO
Upper Nicola	Irrigation		30			7	00000058018	DOUGLAS LK CATTLE CO
Upper Nicola	Unknown	0	57.0	21	56	7.0	00000057835	
Upper Nicola	Unknown	0	8.0			0.0	000000011649	
Upper Nicola	Unknown	0	74.0	<u> </u>		0.0	00000011650	
Upper Nicola	Unknown	0	378.0	19	16	7.0	00000058442	
Upper Nicola	Unknown	0	247.0	200	42	0.0	000000044512	
Upper Nicola	Unknown	0	220.0	405	48	7.0	00000000087	
Upper Nicola	Unknown	2	180	105	30	/	00000057400	
Upper Nicola		10	13	05	100		000000000000000000000000000000000000000	
Upper Nicola		2U 25	20.0	95	128	0.0	000000000000000000000000000000000000000	
Upper Nicola		∠5 104	39.U	4 0	30	0.0	00000020992	
	UTIKITOWIT	104	50.0	0		0.0	00000024099	

Table E-2: Summary of well use by sub-basin.

	Commercial					Abandoned /	
Sub-basin	and Industrial	Domestic	Institutional	Irrigation	Municipal	observation / other	Unknown
Clapperton		3				0	3
Coldwater	2	30			1	3	67
Guichon	11	22			5	3	23
Lower Nicola		56	1	5	3	4	39
Middle Nicola	2	21		4		2	22
Moore		2				0	1
Quilchena		6				0	3
Spius		7				1	9
Stump Lake		9		0		1	3
Upper Nicola	4				0	0	11
Nicola River Watershed (Total)	19	156	1	9	9	14	181

Source: BC Ministry of Environment water wells database

Table E-3. Estimated distribution of **DOMESTIC WATER USE** by source.

						For population	which source cou	uld be determine	d		
					Groun	dwater			Surface Water	-	
	Total	Population for which the source of	Percentage of the population for which the source of	Population served by individual	Population served by	Population served by other groundwater	Percentage	Population serviced by surface water	Population served by	Percentage of population	
	(based on	not be	not be	wells (from	groundwater	'small' water	served by	individual	licensed for	surface	
Sub-basin	Table 2.3)	determined	determined	Table 2.2)	wells	utilities)	groundwater	domestic use	waterworks	water	
Clapperton	67	26	39%	29	0	0	71%	12	0	29%	
Coldwater	7,364	736	10%	438	6,000	0	97%	171	19	3%	
Guichon	3,300	497	15%	209	2,300	0	90%	169	125	10%	
Lower Nicola	1,867	248	13%	371	0	1,200	97%	48	0	3%	
Middle Nicola	1,822	29	2%	157	1,600	15	99%	21	0	1%	
Moore	58	43	75%	10	0	0	68%	5	0	32%	
Quilchena	62	7	11%	43	0	0	78%	12	0	22%	
Spius	91	0	0%	67	0	0	74%	24	0	26%	
Stump Lake	111	49	45%	52	0	0	85%	10	0	15%	
Upper Nicola	303	248	82%	38	0	0	70%	17	0	30%	
Nicola River Watershed (Total)	15,045	1,883	13%	1,414	9,900	1,215	95%	489	144	5%	

Appendix F

SUMMARY OF CURRENT (2006) ESTIMATED WATER DEMAND IN THE NICOLA WATERSHED

TABLE F.1 SUMMARY OF ESTIMATED WATER DEMAND: 2006 (CURRENT)

CLAPPERION																							
	Estimated volumetric	water demand	for offstream u	use (m³)																			
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Industrial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Business/Commercial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Domestic	934	791	912	1,505	1,975	2,076	3,024	2,808	1,758	1,191	915	929	18,820	679	695	661	587	225	488	466	396	362	97
Institutional	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Recreation/Resorts	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Demand (all sectors)	934	791	912	1,505	1,975	2,076	3,024	2,808	1,758	1,191	915	929	18,820	679	695	661	587	225	488	466	396	362	97

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	 $v \rightarrow 1$	ER

	Estimated volume	tric water dema	nd for offstream	1 use (m ³)																			
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	34,795	496,879	624,934	739,220	621,202	328,780	102,019	0	0	2,947,829	158,236	151,425	135,063	126,627	49,851	97,204	82,966	73,764	58,974	15,872
Industrial	6,633	6,633	6,633	6,633	6,633	6,633	6,633	6,633	6,633	6,633	6,633	6,633	79,601	1,498	1,498	1,498	1,498	642	1,548	1,548	1,548	1,548	442
Business/Commercial	6,215	6,215	6,215	6,215	7,898	7,898	7,898	7,898	7,898	6,215	6,215	6,215	82,997	1,784	1,784	1,784	1,784	764	1,843	1,843	1,843	1,843	527
Domestic	102,686	86,920	100,267	165,381	217,121	228,185	332,417	308,682	193,254	130,918	100,517	102,138	2,068,485	74,645	76,364	72,697	64,463	24,742	53,651	51,166	43,508	39,754	10,608
Institutional	12,241	12,241	12,241	12,697	23,903	26,327	28,903	26,243	19,652	14,541	12,241	12,241	213,472	6,331	6,177	5,808	5,618	2,308	5,047	4,726	4,519	4,186	1,174
Recreation/Resorts	37,204	36,962	37,124	41,390	70,218	81,055	97,882	83,184	51,857	26,294	37,244	36,146	636,560	29,149	28,755	26,662	23,914	15,350	20,386	18,669	16,669	13,761	7,623
Total Demand (all sectors)	164,980	148,971	162,480	267,112	822,653	975,032	1,212,953	1,053,842	608,074	286,621	162,850	163,374	6,028,944	271,643	266,003	243,511	223,903	93,657	179,680	160,917	141,851	120,066	36,246

GUICHON																							
	Estimated volume	tric water dema	ind for offstream	n use (m³)																			
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	111,959	862,452	1,114,671	1,317,078	1,108,823	587,192	190,223	0	0	5,292,398	293,832	278,740	252,137	232,863	93,165	185,284	158,845	138,266	113,456	29,449
Industrial	466,369	466,369	466,369	466,369	466,369	466,369	466,369	466,369	466,369	466,369	466,369	466,369	5,596,428	105,309	105,309	105,309	105,309	45,132	108,819	108,819	108,819	108,819	31,091
Business/Commercial	5,352	5,352	5,352	5,352	5,352	5,352	5,352	5,352	5,352	5,352	5,352	5,352	64,229	1,209	1,209	1,209	1,209	518	1,249	1,249	1,249	1,249	357
Domestic	46,016	38,951	44,932	74,111	97,298	102,255	148,965	138,328	86,602	58,668	45,044	45,771	926,942	33,450	34,221	32,577	28,887	11,087	24,043	22,929	19,497	17,815	4,754
Institutional	803	803	803	3,374	68,726	69,260	73,159	69,441	63,246	1,764	803	803	352,985	16,480	16,311	16,014	15,799	6,697	15,708	15,413	15,183	14,906	4,226
Recreation/Resorts	971	971	971	4,544	15,792	16,534	21,952	16,786	8,176	2,394	971	971	91,035	3,623	3,454	3,157	2,942	1,187	2,422	2,127	1,897	1,620	430
Total Demand (all sectors)	519,512	512,447	518,428	665,710	1,515,989	1,774,442	2,032,876	1,805,100	1,216,938	724,770	518,540	519,267	12,324,018	453,903	439,244	410,403	387,009	157,786	337,524	309,381	284,912	257,865	70,306

LOWER NICOLA																							
	Estimated volumet	ric water dema	nd for offstream	1 use (m³)																			
Sector	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	236,988	1,258,814	1,522,445	1,794,090	1,495,157	794,811	267,441	0	0	7,369,746	391,724	371,284	336,313	310,145	124,281	248,618	213,174	185,420	152,286	39,477
Industrial	39	3,517	18,088	17,976	14,904	8,186	17,135	18,020	18,992	24,664	21,097	27,791	190,407	4,069	4,069	4,069	4,069	1,744	4,431	4,431	4,431	4,431	1,266
Business/Commercial	133	133	133	133	133	133	133	133	133	133	133	133	1,598	30	30	30	30	13	31	31	31	31	9
Domestic	26,034	22,037	25,421	41,929	55,047	57,852	84,278	78,260	48,996	33,192	25,484	25,895	524,425	18,925	19,361	18,431	16,343	6,273	13,602	12,972	11,031	10,079	2,689
Institutional	1,459	2,612	2,950	3,011	3,274	2,945	19,617	16,584	9,119	3,349	716	716	66,351	1,137	1,087	999	934	379	786	698	629	546	146
Recreation/Resorts	0	0	0	0	442	442	442	442	442	164	0	0	2,373	100	100	100	100	43	103	103	103	103	29
Total Demand (all sectors)	27,665	28,299	46,592	300,037	1,332,613	1,592,002	1,915,695	1,608,596	872,492	328,944	47,430	54,535	8,154,901	415,986	395,930	359,942	331,622	132,732	267,572	231,410	201,645	167,477	43,617

MIDDLE NICOLA																							
	Estimated volumet	ric water demai	nd for offstream	use (m ³)																			
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	91,384	1,437,691	1,821,903	2,149,438	1,795,240	960,691	322,666	0	0	8,579,012	457,573	437,447	391,835	365,700	144,672	284,259	243,011	214,411	173,041	45,967
Industrial	1,595	1,595	1,595	1,595	1,595	1,595	1,595	1,595	1,595	1,595	1,595	1,595	19,145	360	360	360	360	154	372	372	372	372	106
Business/Commercial	5,574	5,574	5,574	5,574	6,101	6,101	6,101	6,101	6,101	5,574	5,574	5,574	69,521	1,378	1,378	1,378	1,378	590	1,424	1,424	1,424	1,424	407
Domestic	25,406	21,506	24,808	40,918	53,720	56,457	82,247	76,374	47,815	32,392	24,870	25,271	511,784	588	601	573	508	195	423	403	343	313	84
Institutional	20,939	20,939	20,939	21,863	84,179	87,957	91,908	87,635	77,568	24,831	20,939	20,939	580,637	20,418	20,176	19,625	19,310	8,130	18,824	18,327	17,982	17,483	4,953
Recreation/Resorts	1,051	1,001	1,035	4,526	73,664	88,645	104,923	87,905	47,388	16,641	1,059	1,047	428,887	23,687	22,948	21,044	19,768	8,907	14,737	13,041	11,686	9,946	3,483
Total Demand (all sectors)	54,566	50,615	53,951	165,860	1,656,950	2,062,659	2,436,212	2,054,851	1,141,158	403,699	54,037	54,427	10,188,986	504,004	482,910	434,815	407,024	162,649	320,039	276,578	246,217	202,579	55,001

TABLE F.1 Cont'd.

MOORE																							
	Estimated volumetric	c water demand	for offstream	use (m ³)																			
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	10,785	40,007	47,867	56,638	47,198	24,964	8,542	0	0	236,000	11,988	11,476	10,229	9,597	3,775	7,625	6,525	5,730	4,651	1,226
Industrial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Business/Commercial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Domestic	809	685	790	1,303	1,710	1,797	2,618	2,431	1,522	1,031	792	804	16,292	588	601	573	508	195	423	403	343	313	84
Institutional	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Recreation/Resorts	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Demand (all sectors)	809	685	790	12,088	41,717	49,664	59,256	49,629	26,486	9,573	792	804	252,292	12,575	12,078	10,802	10,105	3,970	8,048	6,928	6,072	4,964	1,309

QUILCHENA																							
	Estimated volumetr	ic water demar	nd for offstream	use (m³)																			
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	59,985	446,222	536,033	634,083	529,739	280,983	97,125	0	0	2,584,171	135,053	129,069	115,368	107,916	42,589	83,613	71,424	63,253	50,816	13,585
Industrial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Business/Commercial	254	254	254	254	254	254	254	254	254	254	254	254	3,048	57	57	57	57	25	59	59	59	59	17
Domestic	865	732	844	1,392	1,828	1,921	2,799	2,599	1,627	1,102	846	860	17,415	628	643	612	543	208	452	431	366	335	89
Institutional	0	0	0	0	644	644	644	644	644	644	644	644	5,151	145	145	145	145	62	150	150	150	150	43
Recreation/Resorts	257	256	257	923	13,333	15,965	18,842	15,784	8,492	2,852	5	5	76,973	4,030	3,855	3,453	3,233	1,285	2,520	2,163	1,922	1,556	423
Total Demand (all sectors)	1,375	1,242	1,355	62,555	462,281	554,817	656,622	549,020	292,000	101,977	1,750	1,763	2,686,759	139,914	133,770	119,636	111,894	44,169	86,794	74,227	65,750	52,916	14,157

SPIUS																									
	Estimated volu	metric water o	emand for of	fstream us	se (m³)																				
Sector	Jan	Feb	Mar	Apr	Mag	y Jur	n Jul	I A	ug Sep	Oct	Nov	Dec		Annual	Aug	g Week 1 A	ug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0		0	0	8,737	85,242	108,596	128,815	107,187	56,606	17,308	0	0	51	2,491	27,320	26,086	23,351	21,809	8,621	16,744	14,306	12,659	10,180	2,718
Industrial	0		0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
Business/Commercial	0		0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
Domestic	1,269	1,0	'4 1	1,239	2,044	2,683	2,820	4,108	3,815	2,388	1,618	1,242	1,262	2	5,561	922	944	898	797	306	663	632	538	491	131
Institutional	2		2	2	2	2	2	2	2	2	2	2	2		23	0	0	0	0	0	0	0	0	0	0
Recreation/Resorts	484	4	34	484	484	0	0	0	0	0	0	484	484		2,902	0	0	0	0	0	0	0	0	0	0
Total Demand (all sectors)	1,754	1,56	01,	725	11,266	87,927	111,418	132,925	111,003	58,996	18,927	1,728	1,748	540	,977	28,243	27,030	24,250	22,606	8,927	17,407	14,938	13,197	10,671	2,849

STUMP LAKE																							
	Estimated volumetr	ic water deman	d for offstream	use (m ³)																			
Sector	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	95,885	545,590	675,465	809,135	676,263	350,441	115,380	0	0	3,268,159	172,035	165,412	146,414	138,396	54,007	103,508	88,177	79,112	62,547	17,096
Industrial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Business/Commercial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Domestic	1,548	1,310	1,511	2,493	3,273	3,440	5,011	4,653	2,913	1,973	1,515	1,540	31,179	1,125	1,151	1,096	972	373	809	771	656	599	160
Institutional	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Recreation/Resorts	612	610	612	634	648	654	684	677	643	621	613	612	7,621	234	237	232	220	136	210	206	196	190	90
Total Demand (all sectors)	2,160	1,920	2,123	99,011	549,511	679,559	814,830	681,593	353,996	117,974	2,128	2,152	3,306,959	173,395	166,799	147,741	139,588	54,517	104,527	89,154	79,964	63,337	17,346

UPPER NICOLA																							
	Estimated volumetri	c water demand	I for offstream	use (m ³)																			
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	150,680	1,662,972	2,034,545	2,417,715	2,014,296	1,052,144	362,055	0	0	9,694,408	512,533	492,405	436,415	411,946	160,997	310,835	264,908	237,196	187,996	51,209
Industrial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Business/Commercial	133	133	133	133	133	133	133	133	133	133	133	133	1,598	30	30	30	30	13	31	31	31	31	9
Domestic	4,222	3,574	4,123	6,800	8,928	9,383	13,669	12,693	7,946	5,383	4,133	4,200	85,054	3,069	3,140	2,989	2,651	1,017	2,206	2,104	1,789	1,635	436
Institutional	164	164	164	164	164	164	164	164	164	164	164	164	1,962	37	37	37	37	16	38	38	38	38	11
Recreation/Resorts	193	193	193	193	193	193	193	193	193	193	193	193	2,321	44	44	44	44	19	45	45	45	45	13
Total Demand (all sectors)	4,712	4,064	4,613	157,971	1,672,390	2,044,418	2,431,874	2,027,478	1,060,581	367,929	4,623	4,690	9,785,344	515,713	495,656	439,515	414,707	162,062	313,155	267,126	239,099	189,745	51,678

NICOLA RIVER WATERSHED (TOTAL)																						
	Estimated volume	etric water dema	and for offstrea	m use (m³)																			-
Sector	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	801,198	6,835,869	8,486,460	10,046,213	8,395,104	4,436,611	1,482,759	0	0	40,484,215	2,160,294	2,063,344	1,847,124	1,724,999	681,958	1,337,690	1,143,336	1,009,811	813,947	216,599
Industrial	474,637	478,115	492,685	492,574	489,502	482,783	491,733	492,617	493,590	499,262	495,695	502,389	5,885,582	111,236	111,236	111,236	111,236	47,673	115,171	115,171	115,171	115,171	32,906
Business/Commercial	17,662	17,662	17,662	17,662	19,872	19,872	19,872	19,872	19,872	17,662	17,662	17,662	222,992	4,487	4,487	4,487	4,487	1,923	4,637	4,637	4,637	4,637	1,325
Domestic	209,789	177,579	204,847	337,876	443,583	466,186	679,134	630,643	394,821	267,469	205,359	208,671	4,225,957	134,621	137,721	131,107	116,257	44,621	96,759	92,277	78,466	71,696	19,132
Institutional	35,608	36,761	37,099	41,110	180,891	187,299	214,397	200,713	170,394	45,295	35,508	35,508	1,220,582	44,549	43,933	42,630	41,844	17,593	40,554	39,352	38,501	37,309	10,553
Recreation/Resorts	40,773	40,478	40,676	52,695	174,291	203,488	244,919	204,972	117,191	49,160	40,569	39,460	1,248,672	60,867	59,392	54,691	50,220	26,926	40,424	36,354	32,517	27,222	12,092
Total Demand (all sectors)	778,468	750,594	792,969	1,743,114	8,144,008	9,846,088	11,696,268	9,943,922	5,632,480	2,361,607	794,793	803,690	53,288,000	2,516,054	2,420,114	2,191,275	2,049,044	820,694	1,635,235	1,431,127	1,279,103	1,069,982	292,606

TABLE F.1 Cont'd.

CLAPPERTON																					
	Estimated water	r demand fo	or offstream	use as a ve	olumetric ra	te (m³/s)															
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3
Agricultural	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Industrial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Business/Commercial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Domestic	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Institutional	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Recreation/Resorts	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Demand (all sectors)	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.007	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001

COLDWATER																					
	Estimated wate	r demand fo	or offstream	use as a vo	olumetric ra	te (m³/s)															
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3
Agricultural	0.000	0.000	0.000	0.013	0.186	0.241	0.276	0.232	0.127	0.038	0.000	0.000	0.093	0.262	0.250	0.223	0.209	0.192	0.161	0.137	0.122
Industrial	0.002	0.003	0.002	0.003	0.002	0.003	0.002	0.002	0.003	0.002	0.003	0.002	0.003	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003
Business/Commercial	0.002	0.003	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Domestic	0.038	0.036	0.037	0.064	0.081	0.088	0.124	0.115	0.075	0.049	0.039	0.038	0.066	0.123	0.126	0.120	0.107	0.095	0.089	0.085	0.072
Institutional	0.005	0.005	0.005	0.005	0.009	0.010	0.011	0.010	0.008	0.005	0.005	0.005	0.007	0.010	0.010	0.010	0.009	0.009	0.008	0.008	0.007
Recreation/Resorts	0.014	0.015	0.014	0.016	0.026	0.031	0.037	0.031	0.020	0.010	0.014	0.013	0.020	0.048	0.048	0.044	0.040	0.059	0.034	0.031	0.028
Total Demand (all sectors)	0.062	0.056	0.061	0.100	0.307	0.364	0.453	0.393	0.227	0.107	0.061	0.061	2.251	0.449	0.440	0.403	0.370	0.361	0.297	0.266	0.235

GUICHON																						
	Estimated wate	r demand fo	or offstream	use as a vo	olumetric ra	te (m³/s)																
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	S
Agricultural	0.000	0.000	0.000	0.043	0.322	0.430	0.492	0.414	0.227	0.071	0.000	0.000	0.168	0.486	0.461	0.417	0.385	0.359	0.306	0.263	0.229	
Industrial	0.174	0.193	0.174	0.180	0.174	0.180	0.174	0.174	0.180	0.174	0.180	0.174	0.177	0.174	0.174	0.174	0.174	0.174	0.180	0.180	0.180	
Business/Commercial	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	
Domestic	0.017	0.016	0.017	0.029	0.036	0.039	0.056	0.052	0.033	0.022	0.017	0.017	0.029	0.055	0.057	0.054	0.048	0.043	0.040	0.038	0.032	
Institutional	0.000	0.000	0.000	0.001	0.026	0.027	0.027	0.026	0.024	0.001	0.000	0.000	0.011	0.027	0.027	0.026	0.026	0.026	0.026	0.025	0.025	
Recreation/Resorts	0.000	0.000	0.000	0.002	0.006	0.006	0.008	0.006	0.003	0.001	0.000	0.000	0.003	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.003	
Total Demand (all sectors)	0.194	0.191	0.194	0.249	0.566	0.663	0.759	0.674	0.454	0.271	0.194	0.194	4.601	0.751	0.726	0.679	0.640	0.609	0.558	0.512	0.471	

LOWER NICOLA																							
	Estimated wate	r demand f	or offstream	use as a vo	olumetric ra	te (m³/s)																	
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000	0.000	0.000	0.091	0.470	0.587	0.670	0.558	0.307	0.100	0.000	0.000	0.234	0.648	0.614	0.556	0.513	0.479	0.411	0.352	0.307	0.252	0.228
Industrial	0.000	0.001	0.007	0.007	0.006	0.003	0.006	0.007	0.007	0.009	0.008	0.010	0.006	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007
Business/Commercial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Domestic	0.010	0.009	0.009	0.016	0.021	0.022	0.031	0.029	0.019	0.012	0.010	0.010	0.017	0.031	0.032	0.030	0.027	0.024	0.022	0.021	0.018	0.017	0.016
Institutional	0.001	0.001	0.001	0.001	0.001	0.001	0.007	0.006	0.004	0.001	0.000	0.000	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001
Recreation/Resorts	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Demand (all sectors)	0.010	0.011	0.017	0.112	0.498	0.594	0.715	0.601	0.326	0.123	0.018	0.020	3.045	0.688	0.655	0.595	0.548	0.512	0.442	0.383	0.333	0.277	0.252

MIDDLE NICOLA																							
	Estimated wate	er demand for	or offstream	use as a vo	olumetric ra	te (m³/s)																	
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000	0.000	0.000	0.035	0.537	0.703	0.803	0.670	0.371	0.120	0.000	0.000	0.272	0.757	0.723	0.648	0.605	0.558	0.470	0.402	0.355	0.286	0.266
Industrial	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Business/Commercial	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Domestic	0.009	0.009	0.009	0.016	0.020	0.022	0.031	0.029	0.018	0.012	0.010	0.009	0.016	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000
Institutional	0.008	0.009	0.008	0.008	0.031	0.034	0.034	0.033	0.030	0.009	0.008	0.008	0.018	0.034	0.033	0.032	0.032	0.031	0.031	0.030	0.030	0.029	0.029
Recreation/Resorts	0.000	0.000	0.000	0.002	0.028	0.034	0.039	0.033	0.018	0.006	0.000	0.000	0.014	0.039	0.038	0.035	0.033	0.034	0.024	0.022	0.019	0.016	0.020
Total Demand (all sectors)	0.020	0.019	0.020	0.062	0.619	0.770	0.910	0.767	0.426	0.151	0.020	0.020	3.804	0.833	0.798	0.719	0.673	0.628	0.529	0.457	0.407	0.335	0.318

Sep Week 4	Sep Week 5
0.000	0.000
0.000	0.000
0.000	0.000
0.001	0.001
0.000	0.000
0.000	0.000
0.001	0.001
Sep Week 4	Sep Week 5
Sep Week 4 0.098	Sep Week 5 0.092
Sep Week 4 0.098 0.003	Sep Week 5 0.092 0.003
Sep Week 4 0.098 0.003 0.003	Sep Week 5 0.092 0.003 0.003
Sep Week 4 0.098 0.003 0.003 0.066	Sep Week 5 0.092 0.003 0.003 0.061
Sep Week 4 0.098 0.003 0.003 0.066 0.007	Sep Week 5 0.092 0.003 0.003 0.061 0.007
Sep Week 4 0.098 0.003 0.003 0.066 0.007 0.023	Sep Week 5 0.092 0.003 0.003 0.061 0.007 0.044
Sep Week 4 0.098 0.003 0.003 0.066 0.007 0.023 0.199	Sep Week 5 0.092 0.003 0.003 0.061 0.007 0.044 0.210

Sep Week 4	Sep Week 5
0.188	0.170
0.180	0.180
0.002	0.002
0.029	0.028
0.025	0.024
0.003	0.002
0.426	0.407

TABLE F.1 Cont'd.

MOORE																							
	Estimated wate	er demand f	for offstream	n use as a v	olumetric ra	ate (m³/s)																	
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000	0.000	0.000	0.004	0.015	0.018	0.021	0.018	0.010	0.003	0.000	0.000	0.007	0.020	0.019	0.017	0.016	0.015	0.013	0.011	0.009	0.008	0.007
Industrial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Business/Commercial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Domestic	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000
Institutional	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Recreation/Resorts	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Demand (all sectors)	0.000	0.000	0.000	0.005	0.016	0.019	0.022	0.019	0.010	0.004	0.000	0.000	0.094	0.021	0.020	0.018	0.017	0.015	0.013	0.011	0.010	0.008	0.008
QUILCHENA																							
	Estimated wate	er demand f	for offstream	n use as a v	olumetric ra	ate (m ³ /s)																	
Sector	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5

QUILCHENA																						
	Estimated wate	r demand f	or offstream	n use as a v	olumetric ra	te (m³/s)																
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	5
Agricultural	0.000	0.000	0.000	0.023	0.167	0.207	0.237	0.198	0.108	0.036	0.000	0.000	0.082	0.223	0.213	0.191	0.178	0.164	0.138	0.118	0.105	
Industrial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Business/Commercial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Domestic	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	
Institutional	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Recreation/Resorts	0.000	0.000	0.000	0.000	0.005	0.006	0.007	0.006	0.003	0.001	0.000	0.000	0.002	0.007	0.006	0.006	0.005	0.005	0.004	0.004	0.003	
Total Demand (all sectors)	0.001	0.000	0.001	0.023	0.173	0.207	0.245	0.205	0.109	0.038	0.001	0.001	1.003	0.231	0.221	0.198	0.185	0.170	0.144	0.123	0.109	

SPIUS																							
	Estimate	ed water de	emand fo	r offstream	use as a v	olumetric ra	te (m³/s)																
Sector	Jan	Feb	М	lar A	pr I	May J	un J	ul /	Aug S	Sep (Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	:
Agricultural		0.000	0.000	0.000	0.003	0.032	0.042	0.048	0.040	0.022	0.006	6 0.000	0.000	0.016	0.045	0.043	0.039	0.036	0.033	0.028	0.024	0.021	
Industrial		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Business/Commercial		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Domestic		0.000	0.000	0.000	0.001	0.001	0.001	0.002	0.001	0.001	0.001	0.000	0.000	0.001	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	
Institutional		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Recreation/Resorts		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Total Demand (all sectors)	0	.001	0.001	0.001	0.004	0.033	0.042	0.050	0.041	0.022	0.007	0.001	0.001	0.202	0.047	0.045	0.040	0.037	0.034	0.029	0.025	0.022	

STUMP LAKE																							
	Estimated wate	r demand f	or offstream	use as a v	olumetric ra	ite (m³/s)																	
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000	0.000	0.000	0.037	0.204	0.261	0.302	0.252	0.135	0.043	0.000	0.000	0.104	0.284	0.273	0.242	0.229	0.208	0.171	0.146	0.131	0.103	0.099
Industrial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Business/Commercial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Domestic	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001
Institutional	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Recreation/Resorts	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.001
Total Demand (all sectors)	0.001	0.001	0.001	0.037	0.205	0.254	0.304	0.254	0.132	0.044	0.001	0.001	1.235	0.287	0.276	0.244	0.231	0.210	0.173	0.147	0.132	0.105	0.100

UPPER NICOLA																					
	Estimated wate	r demand fo	or offstream	use as a ve	olumetric ra	te (m³/s)															
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3
Agricultural	0.000	0.000	0.000	0.058	0.621	0.785	0.903	0.752	0.406	0.135	0.000	0.000	0.307	0.847	0.814	0.722	0.681	0.621	0.514	0.438	0.392
Industrial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Business/Commercial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Domestic	0.002	0.001	0.002	0.003	0.003	0.004	0.005	0.005	0.003	0.002	0.002	0.002	0.003	0.005	0.005	0.005	0.004	0.004	0.004	0.003	0.003
Institutional	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Recreation/Resorts	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Demand (all sectors)	0.002	0.002	0.002	0.059	0.624	0.763	0.908	0.757	0.396	0.137	0.002	0.002	3.653	0.853	0.820	0.727	0.686	0.625	0.518	0.442	0.395

NICOLA RIVER WATERS	SHED (TOTA	L)																					
	Estimated wate	r demand f	or offstream	use as a v	olumetric ra	ate (m³/s)																	
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000	0.000	0.000	0.309	2.552	3.274	3.751	3.134	1.712	0.554	0.000	0.000	1.284	3.572	3.412	3.054	2.852	2.631	2.212	1.890	1.670	1.346	1.253
Industrial	0.177	0.198	0.184	0.190	0.183	0.186	0.184	0.184	0.190	0.186	0.191	0.188	0.187	0.184	0.184	0.184	0.184	0.184	0.190	0.190	0.190	0.190	0.190
Business/Commercial	0.007	0.007	0.007	0.007	0.007	0.008	0.007	0.007	0.008	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.008	0.008	0.008	0.008	0.008
Domestic	0.078	0.073	0.076	0.130	0.166	0.180	0.254	0.235	0.152	0.100	0.079	0.078	0.134	0.223	0.228	0.217	0.192	0.172	0.160	0.153	0.130	0.119	0.111
Institutional	0.013	0.015	0.014	0.016	0.068	0.072	0.080	0.075	0.066	0.017	0.014	0.013	0.039	0.074	0.073	0.070	0.069	0.068	0.067	0.065	0.064	0.062	0.061
Recreation/Resorts	0.015	0.017	0.015	0.020	0.065	0.079	0.091	0.077	0.045	0.018	0.016	0.015	0.040	0.101	0.098	0.090	0.083	0.104	0.067	0.060	0.054	0.045	0.070
Total Demand (all sectors)	0.291	0.280	0.296	0.651	3.041	3.676	4.367	3.713	2.103	0.882	0.297	0.300	19.895	4.160	4.002	3.623	3.388	3.166	2.704	2.366	2.115	1.769	1.693

0.087	0.082
0.003	0.002
0.000	0.000
0.001	0.00
0.000	0.000
0.000	0.000
0.084	0.079

Sep Week 4	Sep Week 5
0.017	0.016
0.000	0.000
0.000	0.000
0.001	0.001
0.000	0.000
0.000	0.000
0.018	0.016

Sep Week 4	Sep Week 5
0.311	0.296
0.000	0.000
0.000	0.000
0.003	0.003
0.000	0.000
0.000	0.000
0.314	0.299



FIGURE F.1 CURRENT (2006) ESTIMATED WATER DEMAND: NICOLA WATERSHED

Appendix G

SUMMARY OF LICENSED AND MOE (1983) RECOMMENDED INSTREAM FLOWS FOR CONSERVATION

TABLE G.1 SUMMARY OF WATER LICENCES FOR INSTREAM USE (CONSERVATION).

	Total volume of wa	ater licensed for	instream use (m	າ <i>້</i>)																			
Sub-basin	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
CLAPPERTON	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
COLDWATER	227,531	205,512	227,531	220,191	227,531	220,191	227,531	227,531	220,191	227,531	220,191	227,531	2,678,994	51,378	51,378	51,378	51,378	22,019	51,378	51,378	51,378	51,378	14,679
GUICHON	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LOWER NICOLA	455,062	411,024	455,062	440,383	455,062	440,383	455,062	455,062	440,383	455,062	440,383	455,062	5,357,988	102,756	102,756	102,756	102,756	44,038	102,756	102,756	102,756	102,756	29,359
MIDDLE NICOLA	4,550,620	4,110,238	4,570,340	4,403,826	4,550,620	4,403,826	4,550,620	4,550,620	4,403,826	4,550,620	4,403,826	4,550,620	53,599,602	1,027,559	1,027,559	1,027,559	1,027,559	440,383	1,027,559	1,027,559	1,027,559	1,027,559	293,588
MOORE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
QUILCHENA	56,535	56,535	56,535	56,535	56,535	56,535	56,535	56,535	56,535	56,535	56,535	56,535	678,419	12,766	12,766	12,766	12,766	5,471	13,191	13,191	13,191	13,191	3,769
SPIUS	492,984	445,276	492,984	477,081	492,984	477,081	492,984	492,984	477,081	492,984	477,081	492,984	5,804,487	111,319	111,319	111,319	111,319	47,708	111,319	111,319	111,319	111,319	31,805
STUMP LAKE	308,353	278,994	308,353	298,566	308,353	298,566	308,353	308,353	298,566	308,353	298,566	308,353	3,631,727	69,628	69,628	69,628	69,628	29,841	69,665	69,665	69,665	69,665	19,904
UPPER NICOLA	227,531	205,512	227,531	220,191	227,531	220,191	227,531	227,531	294,983	227,531	220,191	227,531	2,753,786	51,378	51,378	51,378	51,378	22,019	68,829	68,829	68,829	68,829	19,666
NICOLA RIVER WATERSHED (TOTAL)	6,318,616	5,713,089	6,338,335	6,116,774	6,318,616	6,116,774	6,318,616	6,318,616	6,191,565	6,318,616	6,116,774	6,318,616	74,505,004	1,426,784	1,426,784	1,426,784	1,426,784	611,479	1,444,699	1,444,699	1,444,699	1,444,699	412,771

	Volumetric rate of w	ater licensed for	· instream use (n	1³/s)																			
Sub-basin	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
CLAPPERTON	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
COLDWATER	0.085	0.084	0.085	0.085	0.085	0.085	0.085	0.085	0.085	0.085	0.085	0.085	0.085	0.085	0.085	0.085	0.085	0.085	0.085	0.085	0.085	0.085	0.085
GUICHON	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
LOWER NICOLA	0.170	0.168	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170
MIDDLE NICOLA	1.699	1.684	1.706	1.699	1.699	1.699	1.699	1.699	1.699	1.699	1.699	1.699	1.700	1.699	1.699	1.699	1.699	1.699	1.699	1.699	1.699	1.699	1.699
MOORE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QUILCHENA	0.021	0.023	0.021	0.022	0.021	0.022	0.021	0.021	0.022	0.021	0.022	0.021	0.022	0.021	0.021	0.021	0.021	0.021	0.022	0.022	0.022	0.022	0.022
SPIUS	0.184	0.182	0.184	0.184	0.184	0.184	0.184	0.184	0.184	0.184	0.184	0.184	0.184	0.184	0.184	0.184	0.184	0.184	0.184	0.184	0.184	0.184	0.184
STUMP LAKE	0.115	0.114	0.115	0.115	0.115	0.115	0.115	0.115	0.115	0.115	0.115	0.115	0.115	0.115	0.115	0.115	0.115	0.115	0.115	0.115	0.115	0.115	0.115
UPPER NICOLA	0.085	0.084	0.085	0.085	0.085	0.085	0.085	0.085	0.114	0.085	0.085	0.085	0.087	0.085	0.085	0.085	0.085	0.085	0.114	0.114	0.114	0.114	0.114
NICOLA RIVER WATERSHED (TOTAL)	2.359	2.362	2.366	2.360	2.359	2.360	2.359	2.359	2.389	2.359	2.360	2.359	2.363	2.359	2.359	2.359	2.359	2.359	2.389	2.389	2.389	2.389	2.389

TABLE G.2 SUMMARY OF RECOMMENDED INSTREAM FISHERIES FLOWS (MOE 1983).

	Total volume of w	ater recommend	led for instream u	use (m³)																			
Stream	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
CLAPPERTON CREEK	*	*	*	*	-	-	-	379,221	366,988	379,221	366,988	-	-	85,631	85,631	85,631	85,631	36,699	85,631	85,631	85,631	85,631	24,466
COLDWATER RIVER	3,792,213	3,425,224	3,792,213	3,669,883	-	-	-	3,792,213	3,669,883	3,792,213	3,669,883	-	-	856,306	856,306	856,306	856,306	366,988	856,306	856,306	856,306	856,306	244,659
GUICHON CREEK	530,910	479,531	530,910	513,784	-	-	-	530,910	513,784	530,910	513,784	-	-	119,883	119,883	119,883	119,883	51,378	119,883	119,883	119,883	119,883	34,252
LOWER NICOLA RIVER ¹ (Thompson R. to Spius Cr.)	15,167,779	13,699,930	15,167,779	14,678,496	-	-	-	15,167,779	14,678,496	15,167,779	14,678,496	-	-	3,424,982	3,424,982	3,424,982	3,424,982	1,467,850	3,424,982	3,424,982	3,424,982	3,424,982	978,566
LOWER NICOLA RIVER ¹ (Spius Cr. To Coldwater R.)	8,343,216	7,535,808	8,343,216	8,074,080	-	-	-	8,343,216	8,074,080	8,343,216	8,074,080	-	-	1,883,952	1,883,952	1,883,952	1,883,952	807,408	1,883,952	1,883,952	1,883,952	1,883,952	538,272
MIDDLE NICOLA RIVER ¹	3,033,770	2,740,179	3,033,770	2,935,907	-	-	-	4,550,655	4,403,860	4,550,655	4,403,860	-	-	1,027,567	1,027,567	1,027,567	1,027,567	440,386	1,027,567	1,027,567	1,027,567	1,027,567	293,591
MOORE CREEK	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QUILCHENA CREEK	*	*	*	*	-	-	-	530,910	513,784	530,910	513,784	-	-	119,883	119,883	119,883	119,883	51,378	119,883	119,883	119,883	119,883	34,252
SPIUS CREEK	5,915,852	5,343,350	5,915,852	5,725,018	-	-	-	5,915,852	5,725,018	5,915,852	5,725,018	-	-	1,335,837	1,335,837	1,335,837	1,335,837	572,502	1,335,837	1,335,837	1,335,837	1,335,837	381,668
STUMPLAKE CREEK	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
UPPER NICOLA RIVER ²	•	•		*		-	-	2,123,639	2,055,135	2,123,639	2,055,135	-	-	479,531	479,531	479,531	479,531	205,513	479,531	479,531	479,531	479,531	137,009
	Volumetric rate of	water recomme	nded for instrear	n use (m³/s)																			
Stream	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
CLAPPERTON CREEK	*	*	*	*	-	-	-	0.142	0.142	0.142	0.142	-	-	0.142	0.142	0.142	0.142	0.142	0.142	0.142	0.142	0.142	0.142
COLDWATER RIVER	1.416	1.416	1.416	1.416	-	-	-	1.416	1.416	1.416	1.416	-	-	1.416	1.416	1.416	1.416	1.416	1.416	1.416	1.416	1.416	1.416
GUICHON CREEK	0.198	0.198	0.198	0.198	-	-	-	0.198	0.198	0.198	0.198	-	-	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198
LOWER NICOLA RIVER ¹ (Thompson R. to Spius Cr.)	5.663	5.663	5.663	5.663	-	-	-	5.663	5.663	5.663	5.663	-	-	5.663	5.663	5.663	5.663	5.663	5.663	5.663	5.663	5.663	5.663
LOWER NICOLA RIVER ¹ (Spius Cr. To Coldwater R.)	3.115	3.115	3.115	3.115	-	-	-	3.115	3.115	3.115	3.115	-	-	3.115	3.115	3.115	3.115	3.115	3.115	3.115	3.115	3.115	3.115
	1.133	1.133	1.133	1.133	-	-	-	1.699	1.699	1.699	1.699	-	-	1.699	1.699	1.699	1.699	1.699	1.699	1.699	1.699	1.699	1.699
MOORE CREEK	-		-	-		-	-			-	-	-	-		-	-	-	-	-	-	-	-	-
QUILCHENA CREEK	*	*	*	*	-	-	-	0.198	0.198	0.198	0.198	-	-	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198	0.198
SPIUS CREEK	2.209	2.209	2.209	2.209	-	-	-	2.209	2.209	2.209	2.209	-	-	2.209	2.209	2.209	2.209	2.209	2.209	2.209	2.209	2.209	2.209
STUMPLAKE CREEK	-			-	-	-	-				-	-	-										
UPPER NICOLA RIVER ²			*	*			-	0 793	0 793	0 793	0 793	-		0 793	0 793	0.793	0 793	0.793	0 793	0 793	0 793	0 793	0 793

	volumetric rate or wa	ater recommend	eu ior matieam u	iae (iii 7a)													
Stream	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Αι
CLAPPERTON CREEK	*	•	*	*	-	-	-	0.142	0.142	0.142	0.142	-	-	0.142	0.142	0.142	_
COLDWATER RIVER	1.416	1.416	1.416	1.416	-	-	-	1.416	1.416	1.416	1.416	-	-	1.416	1.416	1.416	
GUICHON CREEK	0.198	0.198	0.198	0.198	-	-	-	0.198	0.198	0.198	0.198	-	-	0.198	0.198	0.198	
LOWER NICOLA RIVER ¹ (Thompson R. to Spius Cr.)	5.663	5.663	5.663	5.663	-	-	-	5.663	5.663	5.663	5.663	-	-	5.663	5.663	5.663	
LOWER NICOLA RIVER ¹ (Spius Cr. To Coldwater R.)	3.115	3.115	3.115	3.115	-	-	-	3.115	3.115	3.115	3.115	-	-	3.115	3.115	3.115	
MIDDLE NICOLA RIVER ¹	1.133	1.133	1.133	1.133	-	-	-	1.699	1.699	1.699	1.699	-	-	1.699	1.699	1.699	
MOORE CREEK	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
QUILCHENA CREEK	*	*	*	*	-	-	-	0.198	0.198	0.198	0.198	-	-	0.198	0.198	0.198	
SPIUS CREEK	2.209	2.209	2.209	2.209	-	-	-	2.209	2.209	2.209	2.209	-	-	2.209	2.209	2.209	
STUMPLAKE CREEK	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
UPPER NICOLA RIVER ²	*	•	•	*	-	-	-	0.793	0.793	0.793	0.793	-	-	0.793	0.793	0.793	

Source: Ministry of Environment (MOE). 1983. Nicola Basin Strategic Plan Technical Document. Planning Branch and Thompson-Nicola Region, May 1983. * Natural flow regimes between November and July meet suggested maintenance flows for mid-winter survival of fish, considering reduced metabolic activity and "living space" requirements

- denotes no information available

Note 1: Upper Nicola values are estimates based on 20% of mean annual flow and may be refined following additional analysis

Appendix H

SUMMARY OF ESTIMATED FUTURE (2020s AND 2050s) WATER DEMAND IN THE NICOLA WATERSHED

TABLE H.1 SUMMARY OF ESTIMATED WATER DEMAND: SCENARIO 2020-A

CLAPPERTON																							
	Estimated volum	etric water dema	and for offstrean	n use (m³)																			
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Industrial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Business/Commercial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Domestic	1,093	925	1,067	1,760	2,311	2,429	3,539	3,286	2,057	1,394	1,070	1,087	22,019	795	813	774	686	263	571	545	463	423	113
Institutional	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Recreation/Resorts	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Demand (all sectors)	1,093	925	1,067	1,760	2,311	2,429	3,539	3,286	2,057	1,394	1,070	1,087	22,019	795	813	774	686	263	571	545	463	423	113
COLDWATER																							
	Estimated volum	etric water dema	and for offstrean	n use (m³)																			
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	34,795	496,879	624,934	739,220	621,202	328,780	102,019	0	0	2,947,829	158,236	151,425	135,063	126,627	49,851	97,204	82,966	73,764	58,974	15,872
Industrial	7,695	7,695	7,695	7,695	7,695	7,695	7,695	7,695	7,695	7,695	7,695	7,695	92,337	1,738	1,738	1,738	1,738	745	1,795	1,795	1,795	1,795	513
Business/Commercial	8,639	8,639	8,639	8,639	10,979	10,979	10,979	10,979	10,979	8,639	8,639	8,639	115,365	2,479	2,479	2,479	2,479	1,062	2,562	2,562	2,562	2,562	732
Domestic	120,142	101,696	117,312	193,495	254,032	266,976	388,928	361,157	226,107	153,175	117,605	119,502	2,420,128	87,335	89,346	85,055	75,421	28,948	62,772	59,864	50,904	46,513	12,412
Institutional	14,812	14,812	14,812	15,364	28,922	31,856	34,973	31,754	23,779	17,594	14,812	14,812	258,301	7,660	7,474	7,028	6,798	2,793	6,107	5,719	5,468	5,065	1,420
Recreation/Resorts	47,993	47,681	47,890	53,393	90,581	104,560	126,267	107,308	66,895	33,920	48,044	46,629	821,162	37,603	37,094	34,394	30,849	19,801	26,298	24,082	21,503	17,752	9,834
Total Demand (all sectors)	199,281	180,523	196,348	313,381	889,088	1,047,000	1,308,061	1,140,094	664,234	323,041	196,795	197,276	6,655,123	295,051	289,557	265,756	243,912	103,200	196,739	176,988	155,996	132,660	40,783

GUICHON																							
	Estimated volume	tric water dema	nd for offstream	use (m ³)																			
Sector	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	111,959	862,452	1,114,671	1,317,078	1,108,823	587,192	190,223	0	0	5,292,398	293,832	278,740	252,137	232,863	93,165	185,284	158,845	138,266	113,456	29,449
Industrial	540,988	540,988	540,988	540,988	540,988	540,988	540,988	540,988	540,988	540,988	540,988	540,988	6,491,857	122,159	122,159	122,159	122,159	52,354	126,231	126,231	126,231	126,231	36,066
Business/Commercial	7,440	7,440	7,440	7,440	7,440	7,440	7,440	7,440	7,440	7,440	7,440	7,440	89,278	1,680	1,680	1,680	1,680	720	1,736	1,736	1,736	1,736	496
Domestic	53,839	45,573	52,571	86,710	113,838	119,639	174,289	161,844	101,324	68,642	52,702	53,552	1,084,522	39,137	40,038	38,115	33,798	12,972	28,130	26,827	22,812	20,844	5,562
Institutional	971	971	971	4,082	83,159	83,805	88,522	84,024	76,528	2,135	971	971	427,112	19,941	19,737	19,377	19,117	8,103	19,006	18,649	18,371	18,036	5,113
Recreation/Resorts	1,253	1,253	1,253	5,862	20,372	21,328	28,319	21,653	10,547	3,088	1,253	1,253	117,435	4,673	4,456	4,073	3,795	1,531	3,124	2,744	2,447	2,090	554
Total Demand (all sectors)	604,491	596,225	603,223	757,041	1,628,249	1,887,871	2,156,636	1,924,772	1,324,020	812,515	603,354	604,204	13,502,603	481,421	466,809	437,540	413,412	168,845	363,511	335,031	309,863	282,391	77,240

LOWER NICOLA																							
	Estimated volumet	tric water dema	nd for offstream	n use (m³)																			-
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	236,988	1,258,814	1,522,445	1,794,090	1,495,157	794,811	267,441	0	0	7,369,746	391,724	371,284	336,313	310,145	124,281	248,618	213,174	185,420	152,286	39,477
Industrial	45	4,079	20,982	20,852	17,288	9,495	19,876	20,903	22,031	28,611	24,472	32,238	220,873	4,720	4,720	4,720	4,720	2,023	5,140	5,140	5,140	5,140	1,469
Business/Commercial	185	185	185	185	185	185	185	185	185	185	185	185	2,222	42	42	42	42	18	43	43	43	43	12
Domestic	30,460	25,783	29,742	49,057	64,405	67,687	98,605	91,564	57,325	38,834	29,817	30,297	613,577	22,142	22,652	21,564	19,122	7,339	15,915	15,177	12,906	11,792	3,147
Institutional	1,766	3,161	3,570	3,643	3,961	3,564	23,737	20,067	11,033	4,052	866	866	80,285	1,376	1,315	1,209	1,130	458	951	845	761	661	177
Recreation/Resorts	0	0	0	0	570	570	570	570	570	212	0	0	3,062	129	129	129	129	55	133	133	133	133	38
Total Demand (all sectors)	32,456	33,208	54,479	310,725	1,345,224	1,603,945	1,937,064	1,628,446	885,955	339,336	55,340	63,586	8,289,764	420,133	400,141	363,977	335,288	134,175	270,801	234,513	204,404	170,056	44,320

MIDDLE NICOLA	LA Estimated volumetric water demand for offstream use (m ³)																						
	Estimated volumet	tric water dema	nd for offstream	use (m³)																			
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	91,384	1,437,691	1,821,903	2,149,438	1,795,240	960,691	322,666	0	0	8,579,012	457,573	437,447	391,835	365,700	144,672	284,259	243,011	214,411	173,041	45,967
Industrial	1,851	1,851	1,851	1,851	1,851	1,851	1,851	1,851	1,851	1,851	1,851	1,851	22,208	418	418	418	418	179	432	432	432	432	123
Business/Commercial	7,748	7,748	7,748	7,748	8,480	8,480	8,480	8,480	8,480	7,748	7,748	7,748	96,634	1,915	1,915	1,915	1,915	821	1,979	1,979	1,979	1,979	565
Domestic	29,726	25,162	29,025	47,875	62,853	66,055	96,228	89,358	55,943	37,898	29,098	29,567	598,788	688	704	670	594	228	494	472	401	366	98
Institutional	25,336	25,336	25,336	26,454	101,857	106,428	111,209	106,039	93,857	30,046	25,336	25,336	702,571	24,706	24,412	23,747	23,365	9,838	22,777	22,175	21,758	21,154	5,993
Recreation/Resorts	1,356	1,292	1,335	5,838	95,027	114,352	135,351	113,398	61,131	21,467	1,366	1,351	553,264	30,556	29,602	27,147	25,501	11,490	19,011	16,823	15,075	12,831	4,494
Total Demand (all sectors)	66,016	61,388	65,295	181,149	1,707,758	2,119,070	2,502,557	2,114,365	1,181,953	421,676	65,399	65,853	10,552,477	515,855	494,498	445,731	417,493	167,228	328,953	284,892	254,055	209,803	57,241

TABLE H.1 Cont'd.

MOORE																	
	Estimated volumetr	ic water demand	for offstream	use (m³)													
Sector	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	A
Agricultural	0	0	0	10,785	40,007	47,867	56,638	47,198	24,964	8,542	0	0	236,000	11,988	11,476	10,229	
Industrial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Business/Commercial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Domestic	946	801	924	1,524	2,001	2,103	3,063	2,845	1,781	1,206	926	941	19,061	688	704	670	
Institutional	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Recreation/Resorts	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total Demand (all sectors)	946	801	924	12,309	42,007	49,969	59,701	50,042	26,745	9,749	926	941	255,062	12,675	12,180	10,899	

QUILCHENA																	
	Estimated volumet	ric water deman	d for offstream	use (m³)													
Sector	Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec															Aug Week 3	Α
Agricultural	0	0	0	59,985	446,222	536,033	634,083	529,739	280,983	97,125	0	0	2,584,171	135,053	129,069	115,368	
Industrial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Business/Commercial	353	353	353	353	353	353	353	353	353	353	353	353	4,237	80	80	80	
Domestic	1,012	856	988	1,629	2,139	2,248	3,275	3,041	1,904	1,290	990	1,006	20,376	735	752	716	
Institutional	0	0	0	0	779	779	779	779	779	779	779	779	6,233	176	176	176	
Recreation/Resorts	331	331	331	1,191	17,200	20,595	24,306	20,362	10,955	3,679	7	7	99,295	5,199	4,973	4,454	
Total Demand (all sectors)	1,696	1,540	1,672	63,158	466,693	560,008	662,796	554,274	294,974	103,226	2,129	2,145	2,714,312	141,243	135,050	120,794	

SPIUS																							
	Estimated volur	etric water der	nand for offstrea	n use (m³)																			
Sector	Jan	Feb	Mar	Apr M	ay Ju	n Ju	ıl A	ug Sep	Oct	Nov	Dec	Annu	ial	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	8,737	85,242	108,596	128,815	107,187	56,606	17,308	0	0	512,491	27,320	26,086	23,351	21,809	8,621	16,744	14,306	12,659	10,180	2,718
Industrial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Business/Commercial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Domestic	1,485	1,257	1,450	2,391	3,139	3,299	4,806	4,463	2,794	1,893	1,453	1,477	29,907	1,079	1,104	1,051	932	358	776	740	629	575	153
Institutional	2	2	2	2	2	2	2	2	2	2	2	2	28	1	1	1	1	0	1	1	1	1	0
Recreation/Resorts	624	624	624	624	0	0	0	0	0	0	624	624	3,743	0	0	0	0	0	0	0	0	0	0
Total Demand (all sectors)	2,111	1,883	2,076	11,754	88,384	111,898	133,624	111,652	59,402	19,203	2,079	2,103	546,169	28,400	27,191	24,402	22,741	8,979	17,520	15,046	13,288	10,755	2,871

STUMP LAKE																							
	Estimated volumetr	ic water deman	d for offstream	use (m³)																			
Sector	Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec 0 0 0 95,885 545,590 675,465 809,135 676,263 350,441 115,380 0 0															Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	95,885	545,590	675,465	809,135	676,263	350,441	115,380	0	0	3,268,159	172,035	165,412	146,414	138,396	54,007	103,508	88,177	79,112	62,547	17,096
Industrial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Business/Commercial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Domestic	1,811	1,533	1,768	2,917	3,829	4,024	5,862	5,444	3,408	2,309	1,773	1,801	36,479	1,316	1,347	1,282	1,137	436	946	902	767	701	187
Institutional	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Recreation/Resorts	790	787	789	818	836	844	883	873	829	801	791	790	9,831	302	305	299	284	176	271	266	252	246	116
Total Demand (all sectors)	2,601	2,320	2,557	99,619	550,256	680,333	815,881	682,580	354,678	118,490	2,563	2,591	3,314,470	173,654	167,064	147,995	139,817	54,619	104,725	89,345	80,132	63,494	17,399

UPPER NICOLA																							
	Estimated volumetr	ic water demand	d for offstream	use (m ³)																			
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	150,680	1,662,972	2,034,545	2,417,715	2,014,296	1,052,144	362,055	0	0	9,694,408	512,533	492,405	436,415	411,946	160,997	310,835	264,908	237,196	187,996	51,209
Industrial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Business/Commercial	185	185	185	185	185	185	185	185	185	185	185	185	2,222	42	42	42	42	18	43	43	43	43	12
Domestic	4,940	4,182	4,824	7,956	10,446	10,978	15,992	14,850	9,297	6,298	4,836	4,914	99,513	3,591	3,674	3,497	3,101	1,190	2,581	2,462	2,093	1,913	510
Institutional	198	198	198	198	198	198	198	198	198	198	198	198	2,374	45	45	45	45	19	46	46	46	46	13
Recreation/Resorts	250	250	250	250	250	250	250	250	250	250	250	250	2,995	56	56	56	56	24	58	58	58	58	17
Total Demand (all sectors)	5,573	4,814	5,456	159,269	1,674,050	2,046,156	2,434,340	2,029,779	1,062,074	368,986	5,468	5,546	9,801,512	516,266	496,222	440,055	415,190	162,248	313,564	267,517	239,436	190,056	51,762

NICOLA RIVER WATERSHED (TOTAL)

	Estimated volume	tric water dema	nd for offstrear	n use (m³)																			
Sector	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	801,198	6,835,869	8,486,460	10,046,213	8,395,104	4,436,611	1,482,759	0	0	40,484,215	2,160,294	2,063,344	1,847,124	1,724,999	681,958	1,337,690	1,143,336	1,009,811	813,947	216,599
Industrial	550,578	554,613	571,515	571,386	567,822	560,029	570,410	571,436	572,564	579,144	575,006	582,772	6,827,275	129,034	129,034	129,034	129,034	55,300	133,598	133,598	133,598	133,598	38,171
Business/Commercial	24,550	24,550	24,550	24,550	27,622	27,622	27,622	27,622	27,622	24,550	24,550	24,550	309,958	6,237	6,237	6,237	6,237	2,673	6,445	6,445	6,445	6,445	1,841
Domestic	245,453	207,768	239,671	395,315	518,992	545,437	794,587	737,852	461,940	312,939	240,270	244,145	4,944,370	157,506	161,133	153,395	136,021	52,207	113,208	107,964	91,805	83,885	22,384
Institutional	43,085	44,480	44,890	49,743	218,878	226,632	259,420	242,863	206,177	54,807	42,965	42,965	1,476,904	53,905	53,159	51,583	50,632	21,287	49,071	47,616	46,586	45,144	12,769
Recreation/Resorts	52,597	52,217	52,471	67,976	224,835	262,499	315,945	264,414	151,177	63,416	52,335	50,903	1,610,787	78,518	76,616	70,551	64,784	34,735	52,147	46,896	41,947	35,117	15,598
Total Demand (all sectors)	916,264	883,628	933,097	1,910,167	8,394,019	10,108,680	12,014,198	10,239,291	5,856,092	2,517,615	935,125	945,334	55,653,509	2,585,494	2,489,524	2,257,924	2,111,707	848,161	1,692,159	1,485,856	1,330,193	1,118,135	307,363

Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
9,597	3,775	7,625	6,525	5,730	4,651	1,226
0	0	0	0	0	0	0
0	0	0	0	0	0	0
594	228	494	472	401	366	98
0	0	0	0	0	0	0
0	0	0	0	0	0	0
10,191	4,003	8,119	6,997	6,131	5,018	1,323
Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
107,916	42,589	83,613	71,424	63,253	50,816	13,585
0	0	0	0	0	0	0
80	34	82	82	82	82	24
635	244	528	504	429	392	104
176	75	182	182	182	182	52
4,170	1,658	3,251	2,790	2,479	2,008	546
112,977	44,600	87,656	74,982	66,425	53,479	14,311

TABLE H.1 Cont'd.

CLAPPERTON																					
	Estimated wate	er demand fo	or offstream	n use as a v	olumetric ra	te (m³/s)															
Sector	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Weel
Agricultural	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0
Industrial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0
Business/Commercial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0
Domestic	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.0
Institutional	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0
Recreation/Resorts	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0
Total Demand (all sectors)	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.008	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.0

COLDWATER																					
	Estimated wate	er demand fo	or offstream	use as a v	olumetric ra	te (m³/s)															
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Wee
Agricultural	0.000	0.000	0.000	0.013	0.186	0.241	0.276	0.232	0.127	0.038	0.000	0.000	0.093	0.262	0.250	0.223	0.209	0.192	0.161	0.137	0.1
Industrial	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.0
Business/Commercial	0.003	0.004	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.0
Domestic	0.045	0.042	0.044	0.075	0.095	0.103	0.145	0.135	0.087	0.057	0.045	0.045	0.077	0.144	0.148	0.141	0.125	0.112	0.104	0.099	0.0
Institutional	0.006	0.006	0.006	0.006	0.011	0.012	0.013	0.012	0.009	0.007	0.006	0.006	0.008	0.013	0.012	0.012	0.011	0.011	0.010	0.009	0.0
Recreation/Resorts	0.018	0.020	0.018	0.021	0.034	0.040	0.047	0.040	0.026	0.013	0.019	0.017	0.026	0.062	0.061	0.057	0.051	0.076	0.043	0.040	0.0
Total Demand (all sectors)	0.074	0.067	0.073	0.117	0.332	0.391	0.488	0.426	0.248	0.121	0.073	0.074	2.485	0.488	0.479	0.439	0.403	0.398	0.325	0.293	0.2

GUICHON																					
	Estimated wate	r demand fo	or offstream	use as a ve	olumetric ra	te (m³/s)															
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Wee
Agricultural	0.000	0.000	0.000	0.043	0.322	0.430	0.492	0.414	0.227	0.071	0.000	0.000	0.168	0.486	0.461	0.417	0.385	0.359	0.306	0.263	0.2
Industrial	0.202	0.224	0.202	0.209	0.202	0.209	0.202	0.202	0.209	0.202	0.209	0.202	0.206	0.202	0.202	0.202	0.202	0.202	0.209	0.209	0.2
Business/Commercial	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.0
Domestic	0.020	0.019	0.020	0.033	0.043	0.046	0.065	0.060	0.039	0.026	0.020	0.020	0.034	0.065	0.066	0.063	0.056	0.050	0.047	0.044	0.0
Institutional	0.000	0.000	0.000	0.002	0.031	0.032	0.033	0.031	0.030	0.001	0.000	0.000	0.014	0.033	0.033	0.032	0.032	0.031	0.031	0.031	0.0
Recreation/Resorts	0.000	0.001	0.000	0.002	0.008	0.008	0.011	0.008	0.004	0.001	0.000	0.000	0.004	0.008	0.007	0.007	0.006	0.006	0.005	0.005	0.0
Total Demand (all sectors)	0.226	0.223	0.225	0.283	0.608	0.705	0.805	0.719	0.494	0.303	0.225	0.226	5.041	0.796	0.772	0.723	0.684	0.651	0.601	0.554	0.5

LOWER NICOLA	NICOLA Estimated water demand for offstream use as a volumetric rate (m ³ /s)																				
	Estimated wate	er demand fo	or offstream	use as a vo	olumetric ra	te (m³/s)															
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3
Agricultural	0.000	0.000	0.000	0.091	0.470	0.587	0.670	0.558	0.307	0.100	0.000	0.000	0.234	0.648	0.614	0.556	0.513	0.479	0.411	0.352	0.307
Industrial	0.000	0.002	0.008	0.008	0.006	0.004	0.007	0.008	0.008	0.011	0.009	0.012	0.007	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008
Business/Commercial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Domestic	0.011	0.011	0.011	0.019	0.024	0.026	0.037	0.034	0.022	0.014	0.012	0.011	0.019	0.037	0.037	0.036	0.032	0.028	0.026	0.025	0.021
Institutional	0.001	0.001	0.001	0.001	0.001	0.001	0.009	0.007	0.004	0.002	0.000	0.000	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001
Recreation/Resorts	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Demand (all sectors)	0.012	0.012	0.020	0.116	0.502	0.599	0.723	0.608	0.331	0.127	0.021	0.024	3.095	0.695	0.662	0.602	0.554	0.518	0.448	0.388	0.338

MIDDLE NICOLA																							
	Estimated wate	r demand fo	r offstream	use as a vo	lumetric ra	te (m³/s)																	
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000	0.000	0.000	0.035	0.537	0.703	0.803	0.670	0.371	0.120	0.000	0.000	0.272	0.757	0.723	0.648	0.605	0.558	0.470	0.402	0.355	0.286	0.266
Industrial	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Business/Commercial	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Domestic	0.011	0.010	0.011	0.018	0.023	0.025	0.036	0.033	0.022	0.014	0.011	0.011	0.019	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Institutional	0.009	0.010	0.009	0.010	0.038	0.041	0.042	0.040	0.036	0.011	0.010	0.009	0.022	0.041	0.040	0.039	0.039	0.038	0.038	0.037	0.036	0.035	0.035
Recreation/Resorts	0.001	0.001	0.000	0.002	0.035	0.044	0.051	0.042	0.024	0.008	0.001	0.001	0.018	0.051	0.049	0.045	0.042	0.044	0.031	0.028	0.025	0.021	0.026
Total Demand (all sectors)	0.025	0.023	0.024	0.068	0.638	0.791	0.934	0.789	0.441	0.157	0.024	0.025	3.940	0.853	0.818	0.737	0.690	0.645	0.544	0.471	0.420	0.347	0.331

ek 3	Sep Week 4	Sep Week 5
000	0.000	0.000
000	0.000	0.000
000	0.000	0.000
001	0.001	0.001
000	0.000	0.000
01	0.001	0.001
~ .		
ek 3	Sep Week 4	Sep Week 5
122	0.098	0.092
003	0.003	0.003
004	0.004	0.004
084	0.077	0.072
009	0.008	0.008
036	0.029	0.057
58	0.219	0.236
ek 3	Sep Week 4	Sep Week 5
229	0.188	0.170
209	0.209	0.209
003	0.003	0.003
038	0.034	0.032
030	0.030	0.030
004	0.003	0.003
12	0.467	0.447
ek 3	Sep Week 4	Sep Week 5
307	0.252	0.228
800	0.008	0.008
000	0.000	0.000
021	0.019	0.018
001	0.001	0.001
2000	0.000	0.000
30	0.281	0.256

TABLE H.1 Cont'd.

MOORE																							
	Estimated wate	er demand fo	or offstream	n use as a vr	olumetric ra	ite (m³/s)																	
Sector	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000	0.000	0.000	0.004	0.015	0.018	0.021	0.018	0.010	0.003	0.000	0.000	0.007	0.020	0.019	0.017	0.016	0.015	0.013	0.011	0.009	0.008	0.007
Industrial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Business/Commercial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Domestic	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Institutional	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Recreation/Resorts	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Demand (all sectors)	0.000	0.000	0.000	0.005	0.016	0.019	0.022	0.019	0.010	0.004	0.000	0.000	0.095	0.021	0.020	0.018	0.017	0.015	0.013	0.012	0.010	0.008	0.008
QUILCHENA																							
	Estimated wate	er demand fo	or offstream	i use as a vo	olumetric ra	ite (m³/s)																	
Sector	Jan	Feb	Mar	Δnr	Mav	Jun	.lul	Διια	Sen	Oct	Nov	Dec	Δnnual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sen Week 1	Sen Week 2	Sen Week 3	Sen Week 4	Sen Week 5

QUILCHENA																							
	Estimated wate	er demand fo	or offstream	n use as a vo	olumetric ra	ate (m³/s)																	
Sector	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000	0.000	0.000	0.023	0.167	0.207	0.237	0.198	0.108	0.036	0.000	0.000	0.082	0.223	0.213	0.191	0.178	0.164	0.138	0.118	0.105	0.084	0.079
Industrial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Business/Commercial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Domestic	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Institutional	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Recreation/Resorts	0.000	0.000	0.000	0.000	0.006	0.008	0.009	0.008	0.004	0.001	0.000	0.000	0.003	0.009	0.008	0.007	0.007	0.006	0.005	0.005	0.004	0.003	0.003
Total Demand (all sectors)	0.001	0.001	0.001	0.024	0.174	0.209	0.247	0.207	0.110	0.039	0.001	0.001	1.013	0.234	0.223	0.200	0.187	0.172	0.145	0.124	0.110	0.088	0.083

SPIUS																								
	Estima	ted water	demand fo	or offstrear	n use as a v	olumetric ra	ite (m³/s)																	
Sector	Jan	Fe	b I	/ ar	Apr I	May J	Jun J	ul A	ug S	Sep (Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural		0.000	0.000	0.000	0.003	0.032	0.042	0.048	0.040	0.022	0.006	0.000	0.000	0.016	0.045	0.043	0.039	0.036	0.033	0.028	0.024	0.021	0.017	0.016
Industrial		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Business/Commercial		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Domestic		0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001
Institutional		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Recreation/Resorts		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Demand (all sectors)		0.001	0.001	0.001	0.004	0.033	0.042	0.050	0.042	0.022	0.007	0.001	0.001	0.204	0.047	0.045	0.040	0.038	0.035	0.029	0.025	0.022	0.018	0.017

STUMP LAKE																							
	Estimated wate	r demand fo	or offstream	use as a vo	olumetric ra	te (m³/s)																	
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000	0.000	0.000	0.037	0.204	0.261	0.302	0.252	0.135	0.043	0.000	0.000	0.104	0.284	0.273	0.242	0.229	0.208	0.171	0.146	0.131	0.103	0.099
Industrial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Business/Commercial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Domestic	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001
Institutional	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Recreation/Resorts	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.001
Total Demand (all sectors)	0.001	0.001	0.001	0.037	0.205	0.254	0.305	0.255	0.132	0.044	0.001	0.001	1.237	0.287	0.276	0.245	0.231	0.211	0.173	0.148	0.132	0.105	0.101

UPPER NICOLA																							
	Estimated wate	er demand for	or offstream	use as a vo	olumetric ra	ate (m³/s)																	
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000	0.000	0.000	0.058	0.621	0.785	0.903	0.752	0.406	0.135	0.000	0.000	0.307	0.847	0.814	0.722	0.681	0.621	0.514	0.438	0.392	0.311	0.296
Industrial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Business/Commercial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Domestic	0.002	0.002	0.002	0.003	0.004	0.004	0.006	0.006	0.004	0.002	0.002	0.002	0.003	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.003	0.003	0.003
Institutional	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Recreation/Resorts	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Demand (all sectors)	0.002	0.002	0.002	0.059	0.625	0.764	0.909	0.758	0.397	0.138	0.002	0.002	3.659	0.854	0.820	0.728	0.686	0.626	0.518	0.442	0.396	0.314	0.300

NICOLA RIVER WATERSHED	(TOTAL)																						
	Estimated wate	r demand fo	or offstream	use as a vo	olumetric ra	te (m³/s)																	
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000	0.000	0.000	0.309	2.552	3.274	3.751	3.134	1.712	0.554	0.000	0.000	1.284	3.572	3.412	3.054	2.852	2.631	2.212	1.890	1.670	1.346	1.253
Industrial	0.206	0.229	0.213	0.220	0.212	0.216	0.213	0.213	0.221	0.216	0.222	0.218	0.216	0.213	0.213	0.213	0.213	0.213	0.221	0.221	0.221	0.221	0.221
Business/Commercial	0.009	0.010	0.009	0.009	0.010	0.011	0.010	0.010	0.011	0.009	0.009	0.009	0.010	0.010	0.010	0.010	0.010	0.010	0.011	0.011	0.011	0.011	0.011
Domestic	0.092	0.086	0.089	0.153	0.194	0.210	0.297	0.275	0.178	0.117	0.093	0.091	0.157	0.260	0.266	0.254	0.225	0.201	0.187	0.179	0.152	0.139	0.130
Institutional	0.016	0.018	0.017	0.019	0.082	0.087	0.097	0.091	0.080	0.020	0.017	0.016	0.047	0.089	0.088	0.085	0.084	0.082	0.081	0.079	0.077	0.075	0.074
Recreation/Resorts	0.020	0.022	0.020	0.026	0.084	0.101	0.118	0.099	0.058	0.024	0.020	0.019	0.051	0.130	0.127	0.117	0.107	0.134	0.086	0.078	0.069	0.058	0.090
Total Demand (all sectors)	0.342	0.330	0.348	0.713	3.134	3.774	4.486	3.823	2.186	0.940	0.349	0.353	20.779	4.275	4.116	3.733	3.492	3.272	2.798	2.457	2.199	1.849	1.779

TABLE H.2 SUMMARY OF ESTIMATED WATER DEMAND FOR SCENARIO 2020-B

CLAPPERTON																							
	Estimated volumetri	c water dema	nd for offstream	use (m ³)																			
Sector	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Industrial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Business/Commercial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Domestic	1,093	925	1,067	1,949	2,403	2,538	3,806	3,342	2,095	1,362	1,070	1,087	22,738	826	845	804	713	274	589	562	478	437	116
Institutional	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Recreation/Resorts	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Demand (all sectors)	1,093	925	1,067	1,949	2,403	2,538	3,806	3,342	2,095	1,362	1,070	1,087	22,738	826	845	804	713	274	589	562	478	437	116

COLDWATER																							
	Estimated volum	etric water dem	and for offstrea	m use (m³)																			
Sector	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	44,126	532,730	674,090	819,102	636,779	341,231	92,622	0	0	3,140,679	167,339	160,087	142,863	133,865	52,732	103,536	88,387	78,513	62,840	16,887
Industrial	7,695	7,695	7,695	7,695	7,695	7,695	7,695	7,695	7,695	7,695	7,695	7,695	92,337	1,738	1,738	1,738	1,738	745	1,795	1,795	1,795	1,795	513
Business/Commercial	8,639	8,639	8,639	8,639	10,979	10,979	10,979	10,979	10,979	8,639	8,639	8,639	115,365	2,479	2,479	2,479	2,479	1,062	2,562	2,562	2,562	2,562	732
Domestic	120,142	101,696	117,312	214,250	264,113	278,946	418,348	367,316	230,302	149,647	117,605	119,502	2,499,180	90,751	92,821	88,396	78,353	30,086	64,776	61,781	52,510	48,007	12,800
Institutional	14,812	14,812	14,812	15,512	29,940	33,197	37,152	32,179	24,118	17,338	14,812	14,812	263,495	7,909	7,711	7,241	6,996	2,872	6,280	5,867	5,597	5,170	1,448
Recreation/Resorts	47,993	47,681	47,890	54,861	95,528	111,041	137,139	109,443	68,582	32,634	48,044	46,629	847,465	39,276	38,723	35,895	32,214	20,588	27,404	25,062	22,349	18,471	10,182
Total Demand (all sectors)	199,281	180,523	196,348	345,081	940,985	1,115,948	1,430,413	1,164,390	682,906	308,575	196,795	197,276	6,958,521	309,491	303,558	278,611	255,645	108,084	206,353	185,454	163,326	138,846	42,562

GUICHON																							
	Estimated volume	tric water dem	and for offstrea	m use (m³)																			
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	141,980	924,680	1,202,350	1,459,405	1,136,628	609,428	172,701	0	0	5,647,172	310,735	294,684	266,699	246,174	98,550	197,353	169,224	147,167	120,894	31,331
Industrial	540,988	540,988	540,988	540,988	540,988	540,988	540,988	540,988	540,988	540,988	540,988	540,988	6,491,857	122,159	122,159	122,159	122,159	52,354	126,231	126,231	126,231	126,231	36,066
Business/Commercial	7,440	7,440	7,440	7,440	7,440	7,440	7,440	7,440	7,440	7,440	7,440	7,440	89,278	1,680	1,680	1,680	1,680	720	1,736	1,736	1,736	1,736	496
Domestic	53,839	45,573	52,571	96,011	118,356	125,003	187,472	164,604	103,204	67,061	52,702	53,552	1,119,947	40,668	41,596	39,612	35,112	13,482	29,028	27,686	23,531	21,513	5,736
Institutional	971	971	971	4,916	89,094	90,326	97,991	86,108	79,392	2,021	971	971	454,707	21,076	20,854	20,485	20,198	8,567	20,231	19,854	19,540	19,205	5,436
Recreation/Resorts	1,175	1,175	1,175	7,021	21,580	22,732	31,047	22,026	10,752	2,841	1,175	1,175	123,875	4,889	4,658	4,255	3,959	1,597	3,270	2,865	2,547	2,169	573
Total Demand (all sectors)	604,414	596,148	603,145	798,356	1,702,137	1,988,838	2,324,344	1,957,794	1,351,205	793,052	603,277	604,127	13,926,836	501,207	485,630	454,890	429,282	175,269	377,848	347,595	320,752	291,747	79,638

LOWER NICOLA																							
	Estimated volume	tric water dema	nd for offstrea	m use (m³)																			
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	300,536	1,349,640	1,642,198	1,987,964	1,532,649	824,909	242,807	0	0	7,880,704	414,258	392,521	355,737	327,874	131,465	264,813	227,104	197,356	162,270	42,000
Industrial	45	4,079	20,982	20,852	17,288	9,495	19,876	20,903	22,031	28,611	24,472	32,238	220,873	4,720	4,720	4,720	4,720	2,023	5,140	5,140	5,140	5,140	1,469
Business/Commercial	185	185	185	185	185	185	185	185	185	185	185	185	2,222	42	42	42	42	18	43	43	43	43	12
Domestic	30,460	25,783	29,742	54,319	66,961	70,721	106,064	93,126	58,389	37,940	29,817	30,297	633,619	23,008	23,533	22,411	19,865	7,628	16,423	15,663	13,313	12,171	3,245
Institutional	1,766	3,161	3,570	4,387	4,184	3,776	26,209	20,548	11,418	3,759	866	866	84,510	1,444	1,379	1,268	1,184	480	1,000	887	797	691	184
Recreation/Resorts	0	0	0	0	570	570	570	570	570	212	0	0	3,062	129	129	129	129	55	133	133	133	133	38
Total Demand (all sectors)	32,456	33,208	54,479	380,280	1,438,829	1,726,945	2,140,868	1,667,981	917,502	313,514	55,340	63,586	8,824,988	443,601	422,323	384,307	353,813	141,668	287,552	248,970	216,783	180,449	46,949

MIDDLE NICOLA																							
	Estimated volume	tric water dema	nd for offstrea	m use (m³)																			
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	115,888	1,541,423	1,965,211	2,381,712	1,840,257	997,071	292,945	0	0	9,134,507	483,895	462,469	414,466	386,604	153,034	302,776	258,890	228,214	184,387	48,905
Industrial	1,851	1,851	1,851	1,851	1,851	1,851	1,851	1,851	1,851	1,851	1,851	1,851	22,208	418	418	418	418	179	432	432	432	432	123
Business/Commercial	7,748	7,748	7,748	7,748	8,480	8,480	8,480	8,480	8,480	7,748	7,748	7,748	96,634	1,915	1,915	1,915	1,915	821	1,979	1,979	1,979	1,979	565
Domestic	29,726	25,162	29,025	53,010	65,347	69,017	103,508	90,881	56,981	37,026	29,098	29,567	618,347	715	731	696	617	237	510	487	414	378	101
Institutional	25,336	25,336	25,336	26,754	107,386	112,815	120,501	108,065	96,456	29,612	25,336	25,336	728,271	25,800	25,483	24,789	24,375	10,265	23,878	23,240	22,779	22,155	6,269
Recreation/Resorts	1,356	1,292	1,335	6,880	101,713	123,149	149,612	116,162	63,362	19,637	1,366	1,351	587,215	32,140	31,120	28,545	26,809	12,022	20,107	17,785	15,929	13,564	4,686
Total Demand (all sectors)	66,016	61,388	65,295	212,129	1,826,199	2,280,523	2,765,663	2,165,696	1,224,202	388,819	65,399	65,853	11,187,181	544,882	522,136	470,830	440,738	176,558	349,681	302,812	269,746	222,894	60,650

TABLE H.2 Cont'd.

MOORE																							
	Estimated volume	tric water dema	nd for offstrear	m use (m³)																			
Sector	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	13,677	42,893	51,632	62,758	48,381	25,909	7,755	0	0	253,007	12,677	12,133	10,820	10,146	3,994	8,122	6,951	6,098	4,956	1,304
Industrial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Business/Commercial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Domestic	946	801	924	1,687	2,080	2,197	3,295	2,893	1,814	1,179	926	941	19,684	715	731	696	617	237	510	487	414	378	101
Institutional	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Recreation/Resorts	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Demand (all sectors)	946	801	924	15,365	44,973	53,829	66,053	51,274	27,723	8,934	926	941	272,691	13,392	12,864	11,516	10,763	4,231	8,632	7,438	6,512	5,334	1,405
· · ·																							
QUILCHENA																							
	Estimated volume	tric water dema	nd for offstrear	m use (m³)																			
Sector	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	76,070	478,418	578,197	702,604	543,023	291,624	88,179	0	0	2,758,113	142,822	136,452	122,031	114,084	45,050	89,059	76,091	67,325	54,148	14,453
Industrial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Business/Commercial	353	353	353	353	353	353	353	353	353	353	353	353	4,237	80	80	80	80	34	82	82	82	82	24
Domestic	1,012	856	988	1,804	2,224	2,349	3,522	3,093	1,939	1,260	990	1,006	21,041	764	781	744	660	253	545	520	442	404	108
Institutional	0	0	0	0	835	840	863	799	809	707	779	779	6,412	186	186	186	186	80	194	194	194	194	55
Recreation/Resorts	331	331	331	1 420	18 417	22 188	26 905	20.964	11 257	2 2/1	7	7	105 490	E 402	F 252	4 706	4 403	1 751	3 457	2 966	2 633	2 134	579
		001	001	1,420	10,411	22,100	20,095	20,004	11,557	3,341	/		105,469	3,492	5,252	4,700	4,403	1,701	0,401	2,000	2,000	2,.01	

QUILCHENA																	
	Estimated volume	tric water dema	and for offstrea	m use (m³)													
Sector	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4
Agricultural	0	0	0	76,070	478,418	578,197	702,604	543,023	291,624	88,179	0	0	2,758,113	142,822	136,452	122,031	114,084
Industrial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Business/Commercial	353	353	353	353	353	353	353	353	353	353	353	353	4,237	80	80	80	80
Domestic	1,012	856	988	1,804	2,224	2,349	3,522	3,093	1,939	1,260	990	1,006	21,041	764	781	744	660
Institutional	0	0	0	0	835	840	863	799	809	707	779	779	6,412	186	186	186	186
Recreation/Resorts	331	331	331	1,420	18,417	22,188	26,895	20,864	11,357	3,341	7	7	105,489	5,492	5,252	4,706	4,403
Total Demand (all sectors)	1,696	1,540	1,672	79,647	500,247	603,927	734,238	568,131	306,081	93,840	2,129	2,145	2,895,294	149,344	142,751	127,747	119,413

SPIUS																									
	Estimated volu	metric water d	emand for o	ffstream	use (m ³)																				
Sector	Jan	Feb	Mar	Apr	Мау	/ Jun	Jul	Α	ug Sep	Oct	Nov	Dec	;	Annual		Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0)	0	11,080	91,393	117,138	142,736	109,875	58,749	15,713	0	0	0	546,684	28,892	27,578	24,700	23,055	9,119	17,835	15,240	13,474	10,847	2,891
Industrial	0)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Business/Commercial	0)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Domestic	1,485	1,25	7 1	,450	2,648	3,264	3,447	5,170	4,539	2,846	1,849	1,453	1,477	7	30,883	1,121	1,147	1,092	968	372	800	763	649	593	158
Institutional	2	:	2	2	2	2	2	2	2	2	2	2	2	2	28	1	1	1	1	0	1	1	1	1	0
Recreation/Resorts	624	62	1	624	624	0	0	0	0	0	0	624	624	4	3,743	0	0	0	0	0	0	0	0	0	0
Total Demand (all sectors)	2,111	1,883	3 2,	076	14,354	94,659	120,588	147,908	114,416	61,597	17,565	2,079	2,103	3	581,339	30,014	28,726	25,792	24,024	9,491	18,636	16,004	14,123	11,441	3,050

STUMP LAKE																							
	Estimated volumet	ric water dema	nd for offstrea	m use (m³)																			-
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	121,596	584,956	728,596	896,573	693,221	363,711	104,752	0	0	3,493,405	181,932	174,873	154,870	146,307	57,129	110,251	93,939	84,205	66,648	18,189
Industrial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Business/Commercial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Domestic	1,811	1,533	1,768	3,229	3,981	4,205	6,306	5,537	3,471	2,256	1,773	1,801	37,671	1,368	1,399	1,332	1,181	453	976	931	792	724	193
Institutional	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Recreation/Resorts	790	787	789	818	836	844	883	873	829	801	791	790	9,831	302	305	299	284	176	271	266	252	246	116
Total Demand (all sectors)	2,601	2,320	2,557	125,643	589,773	733,645	903,761	699,631	368,012	107,809	2,563	2,591	3,540,907	183,602	176,578	156,501	147,772	57,758	111,498	95,136	85,249	67,617	18,498

UPPER NICOLA																							
	Estimated volumet	ric water demar	nd for offstrear	m use (m³)																			
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	191,085	1,782,959	2,194,580	2,678,980	2,064,806	1,091,988	328,707	0	0	10,333,103	542,016	520,571	461,621	435,494	170,302	331,083	282,218	252,465	200,322	54,482
Industrial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Business/Commercial	185	185	185	185	185	185	185	185	185	185	185	185	2,222	42	42	42	42	18	43	43	43	43	12
Domestic	4,940	4,182	4,824	8,810	10,860	11,470	17,202	15,104	9,470	6,153	4,836	4,914	102,764	3,732	3,817	3,635	3,222	1,237	2,664	2,540	2,159	1,974	526
Institutional	198	198	198	198	198	198	198	198	198	198	198	198	2,374	45	45	45	45	19	46	46	46	46	13
Recreation/Resorts	250	250	250	250	250	250	250	250	250	250	250	250	2,995	56	56	56	56	24	58	58	58	58	17
Total Demand (all sectors)	5,573	4,814	5,456	200,527	1,794,451	2,206,682	2,696,814	2,080,542	1,102,090	335,493	5,468	5,546	10,443,457	545,890	524,531	465,399	438,858	171,601	333,894	284,906	254,772	202,444	55,051

NICOLA RIVER WATERSHED (T	OTAL)																						
	Estimated volum	etric water dem	and for offstre	am use (m³)																			
Sector	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	1,016,038	7,329,092	9,153,992	11,131,833	8,605,618	4,604,620	1,346,183	0	0	43,187,376	2,284,565	2,181,368	1,953,808	1,823,603	721,376	1,424,827	1,218,045	1,074,817	867,312	230,442
Industrial	550,578	554,613	571,515	571,386	567,822	560,029	570,410	571,436	572,564	579,144	575,006	582,772	6,827,275	129,034	129,034	129,034	129,034	55,300	133,598	133,598	133,598	133,598	38,171
Business/Commercial	24,550	24,550	24,550	24,550	27,622	27,622	27,622	27,622	27,622	24,550	24,550	24,550	309,958	6,237	6,237	6,237	6,237	2,673	6,445	6,445	6,445	6,445	1,841
Domestic	245,453	207,768	239,671	437,716	539,588	569,892	854,693	750,433	470,512	305,733	240,270	244,145	5,105,874	163,668	167,401	159,419	141,308	54,259	116,821	111,421	94,701	86,579	23,085
Institutional	43,085	44,480	44,890	51,770	231,640	241,154	282,916	247,900	212,394	53,637	42,965	42,965	1,539,796	56,460	55,658	54,014	52,984	22,283	51,629	50,087	48,954	47,461	13,406
Recreation/Resorts	52,520	52,139	52,394	71,872	238,893	280,773	346,395	270,188	155,701	59,716	52,257	50,826	1,683,674	82,285	80,243	73,885	67,855	36,212	54,699	49,136	43,901	36,774	16,191
Total Demand (all sectors)	916,186	883,550	933,019	2,173,331	8,934,657	10,833,462	13,213,869	10,473,198	6,043,414	2,368,962	935,047	945,256	58,653,952	2,722,249	2,619,941	2,376,398	2,221,021	892,103	1,788,020	1,568,732	1,402,417	1,178,170	323,136

TABLE H.2 Cont'd.

CLAPPERTON																							
	Estimated wate	or demand f	for offstrear	m use as a ·	volumetric	rate (m³/s)																	
Sector	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Industrial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Business/Commercial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Domestic	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Institutional	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Recreation/Resorts	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Demand (all sectors)	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.008	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
COLDWATER																							
	Estimated wate	er demand f	or offstrear	m use as a '	volumetric	rate (m ³ /s)																	
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000	0.000	0.000	0.017	0.199	0.260	0.306	0.238	0.132	0.035	0.000	0.000	0.100	0.277	0.265	0.236	0.221	0.203	0.171	0.146	0.130	0.104	0.098
Industrial	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Business/Commercial	0.003	0.004	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
Domestic	0.045	0.042	0.044	0.083	0.099	0.108	0.156	0.137	0.089	0.056	0.045	0.045	0.079	0.150	0.153	0.146	0.130	0.116	0.107	0.102	0.087	0.079	0.074
Institutional	0.006	0.006	0.006	0.006	0.011	0.013	0.014	0.012	0.009	0.006	0.006	0.006	0.008	0.013	0.013	0.012	0.012	0.011	0.010	0.010	0.009	0.009	0.008
Recreation/Resorts	0.018	0.020	0.018	0.021	0.036	0.043	0.051	0.041	0.026	0.012	0.019	0.017	0.027	0.065	0.064	0.059	0.053	0.079	0.045	0.041	0.037	0.031	0.059
Total Demand (all sectors)	0.074	0.067	0.073	0.129	0.351	0.417	0.534	0.435	0.255	0.115	0.073	0.074	2.598	0.512	0.502	0.461	0.423	0.417	0.341	0.307	0.270	0.230	0.246

COLDWATER																					
	Estimated wate	r demand f	or offstrea	m use as a	volumetric	rate (m³/s)															
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep We
Agricultural	0.000	0.000	0.000	0.017	0.199	0.260	0.306	0.238	0.132	0.035	0.000	0.000	0.100	0.277	0.265	0.236	0.221	0.203	0.171	0.146	(
Industrial	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	(
Business/Commercial	0.003	0.004	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	(
Domestic	0.045	0.042	0.044	0.083	0.099	0.108	0.156	0.137	0.089	0.056	0.045	0.045	0.079	0.150	0.153	0.146	0.130	0.116	0.107	0.102	(
Institutional	0.006	0.006	0.006	0.006	0.011	0.013	0.014	0.012	0.009	0.006	0.006	0.006	0.008	0.013	0.013	0.012	0.012	0.011	0.010	0.010	(
Recreation/Resorts	0.018	0.020	0.018	0.021	0.036	0.043	0.051	0.041	0.026	0.012	0.019	0.017	0.027	0.065	0.064	0.059	0.053	0.079	0.045	0.041	(
Total Demand (all sectors)	0.074	0.067	0.073	0.129	0.351	0.417	0.534	0.435	0.255	0.115	0.073	0.074	2.598	0.512	0.502	0.461	0.423	0.417	0.341	0.307	0

GUICHON																							
	Estimated wate	r demand f	for offstrea	m use as a	volumetric	rate (m³/s)																	
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000	0.000	0.000	0.055	0.345	0.464	0.545	0.424	0.235	0.064	0.000	0.000	0.179	0.514	0.487	0.441	0.407	0.380	0.326	0.280	0.243	0.200	0.181
Industrial	0.202	0.224	0.202	0.209	0.202	0.209	0.202	0.202	0.209	0.202	0.209	0.202	0.206	0.202	0.202	0.202	0.202	0.202	0.209	0.209	0.209	0.209	0.209
Business/Commercial	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Domestic	0.020	0.019	0.020	0.037	0.044	0.048	0.070	0.061	0.040	0.025	0.020	0.020	0.036	0.067	0.069	0.065	0.058	0.052	0.048	0.046	0.039	0.036	0.033
Institutional	0.000	0.000	0.000	0.002	0.033	0.035	0.037	0.032	0.031	0.001	0.000	0.000	0.014	0.035	0.034	0.034	0.033	0.033	0.033	0.033	0.032	0.032	0.031
Recreation/Resorts	0.000	0.000	0.000	0.003	0.008	0.009	0.012	0.008	0.004	0.001	0.000	0.000	0.004	0.008	0.008	0.007	0.007	0.006	0.005	0.005	0.004	0.004	0.003
Total Demand (all sectors)	0.226	0.223	0.225	0.298	0.636	0.743	0.868	0.731	0.504	0.296	0.225	0.226	5.200	0.829	0.803	0.752	0.710	0.676	0.625	0.575	0.530	0.482	0.461

LOWER NICOLA																							
	Estimated wate	er demand f	for offstrear	n use as a	volumetric	rate (m³/s)																	
Sector	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000	0.000	0.000	0.116	0.504	0.634	0.742	0.572	0.318	0.091	0.000	0.000	0.250	0.685	0.649	0.588	0.542	0.507	0.438	0.376	0.326	0.268	0.243
Industrial	0.000	0.002	0.008	0.008	0.006	0.004	0.007	0.008	0.008	0.011	0.009	0.012	0.007	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008
Business/Commercial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Domestic	0.011	0.011	0.011	0.021	0.025	0.027	0.040	0.035	0.023	0.014	0.012	0.011	0.020	0.038	0.039	0.037	0.033	0.029	0.027	0.026	0.022	0.020	0.019
Institutional	0.001	0.001	0.001	0.002	0.002	0.001	0.010	0.008	0.004	0.001	0.000	0.000	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001
Recreation/Resorts	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Demand (all sectors)	0.012	0.012	0.020	0.142	0.537	0.645	0.799	0.623	0.343	0.117	0.021	0.024	3.295	0.733	0.698	0.635	0.585	0.547	0.475	0.412	0.358	0.298	0.272

MIDDLE NICOLA																							
	Estimated wate	r demand f	for offstrean	n use as a	volumetric	rate (m³/s)																	
Sector	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000	0.000	0.000	0.045	0.576	0.758	0.889	0.687	0.385	0.109	0.000	0.000	0.290	0.800	0.765	0.685	0.639	0.590	0.501	0.428	0.377	0.305	0.283
Industrial	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Business/Commercial	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Domestic	0.011	0.010	0.011	0.020	0.024	0.027	0.039	0.034	0.022	0.014	0.011	0.011	0.020	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Institutional	0.009	0.010	0.009	0.010	0.040	0.044	0.045	0.040	0.037	0.011	0.010	0.009	0.023	0.043	0.042	0.041	0.040	0.040	0.039	0.038	0.038	0.037	0.036
Recreation/Resorts	0.001	0.001	0.000	0.003	0.038	0.048	0.056	0.043	0.024	0.007	0.001	0.001	0.019	0.053	0.051	0.047	0.044	0.046	0.033	0.029	0.026	0.022	0.027
Total Demand (all sectors)	0.025	0.023	0.024	0.079	0.682	0.851	1.033	0.809	0.457	0.145	0.024	0.025	4.177	0.901	0.863	0.778	0.729	0.681	0.578	0.501	0.446	0.369	0.351

TABLE H.2 Cont'd.

MOORE																							
	Estimated wate	r demand f	for offstrear	n use as a v	olumetric r	ate (m ³ /s)																	
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000	0.000	0.000	0.005	0.016	0.020	0.023	0.018	0.010	0.003	0.000	0.000	0.008	0.021	0.020	0.018	0.017	0.015	0.013	0.011	0.010	0.008	0.008
Industrial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Business/Commercial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Domestic	Istic 0.000 0.000 0.001 <th< td=""><td>0.001</td><td>0.001</td><td>0.001</td><td>0.001</td><td>0.001</td><td>0.001</td><td>0.001</td><td>0.001</td><td>0.001</td></th<>														0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Institutional	ional 0.000 0.000 0.000 0.000 0.001 0.001 0.001 0.001 0.001 0.0000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000															0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Recreation/Resorts	ional 0.000 <th< td=""><td>0.000</td><td>0.000</td><td>0.000</td><td>0.000</td><td>0.000</td><td>0.000</td><td>0.000</td><td>0.000</td></th<>															0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Demand (all sectors)	0.000	0.000	0.000	0.006	0.017	0.020	0.025	0.019	0.010	0.003	0.000	0.000	0.102	0.022	0.021	0.019	0.018	0.016	0.014	0.012	0.011	0.009	0.008
QUILCHENA																							
QUILCHENA	Estimated wate	r demand f	or offstrear	n use as a v	olumetric r	ate (m³/s)																	
QUILCHENA	Estimated wate Jan	r demand f Feb	or offstrear Mar	n use as a v Apr	olumetric r May	ate (m³/s) Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
QUILCHENA Sector Agricultural	Estimated wate Jan 0.000	r demand f Feb 0.000	for offstrear Mar 0.000	n use as a v Apr 0.029	rolumetric r May 0.179	ate (m ³ /s) Jun 0.223	Jul 0.262	Aug 0.203	Sep 0.113	Oct 0.033	Nov 0.000	Dec	Annual 0.087	Aug Week 1 0.236	Aug Week 2 0.226	Aug Week 3 0.202	Aug Week 4 0.189	Aug Week 5 0.174	Sep Week 1 0.147	Sep Week 2 0.126	Sep Week 3 0.111	Sep Week 4 0.090	Sep Week 5 0.084
QUILCHENA Sector Agricultural Industrial	Estimated wate Jan 0.000 0.000	r demand f Feb 0.000 0.000	for offstrear Mar 0.000 0.000	n use as a v Apr 0.029 0.000	olumetric r <u>May</u> 0.179 0.000	ate (m³/s) Jun 0.223 0.000	Jul 0.262 0.000	Aug 0.203 0.000	Sep 0.113 0.000	Oct 0.033 0.000	Nov 0.000 0.000	Dec 0.000 0.000	Annual 0.087 0.000	Aug Week 1 0.236 0.000	Aug Week 2 0.226 0.000	Aug Week 3 0.202 0.000	Aug Week 4 0.189 0.000	Aug Week 5 0.174 0.000	Sep Week 1 0.147 0.000	Sep Week 2 0.126 0.000	Sep Week 3 0.111 0.000	Sep Week 4 0.090 0.000	Sep Week 5 0.084 0.000
QUILCHENA Sector Agricultural Industrial Business/Commercial	Estimated wate Jan 0.000 0.000 0.000	or demand f Feb 0.000 0.000 0.000	for offstrear <u>Mar</u> 0.000 0.000 0.000	n use as a v Apr 0.029 0.000 0.000	olumetric r <u>May</u> 0.179 0.000 0.000	ate (m ³ /s) Jun 0.223 0.000 0.000	Jul 0.262 0.000 0.000	Aug 0.203 0.000 0.000	Sep 0.113 0.000 0.000	Oct 0.033 0.000 0.000	Nov 0.000 0.000 0.000	Dec 0.000 0.000 0.000	Annual 0.087 0.000 0.000	Aug Week 1 0.236 0.000 0.000	Aug Week 2 0.226 0.000 0.000	Aug Week 3 0.202 0.000 0.000	Aug Week 4 0.189 0.000 0.000	Aug Week 5 0.174 0.000 0.000	Sep Week 1 0.147 0.000 0.000	Sep Week 2 0.126 0.000 0.000	Sep Week 3 0.111 0.000 0.000	Sep Week 4 0.090 0.000 0.000	Sep Week 5 0.084 0.000 0.000
QUILCHENA Sector Agricultural Industrial Business/Commercial Domestic	Estimated wate Jan 0.000 0.000 0.000 0.000	r demand f Feb 0.000 0.000 0.000 0.000 0.000	for offstrear Mar 0.000 0.000 0.000 0.000 0.000	n use as a v Apr 0.029 0.000 0.000 0.000 0.001	olumetric r May 0.179 0.000 0.000 0.001	ate (m ³ /s) Jun 0.223 0.000 0.000 0.001	Jul 0.262 0.000 0.000 0.001	Aug 0.203 0.000 0.000 0.001	Sep 0.113 0.000 0.000 0.001	Oct 0.033 0.000 0.000 0.000	Nov 0.000 0.000 0.000 0.000	Dec 0.000 0.000 0.000 0.000	Annual 0.087 0.000 0.000 0.001	Aug Week 1 0.236 0.000 0.000 0.001	Aug Week 2 0.226 0.000 0.000 0.001	Aug Week 3 0.202 0.000 0.000 0.001	Aug Week 4 0.189 0.000 0.000 0.001	Aug Week 5 0.174 0.000 0.000 0.001	Sep Week 1 0.147 0.000 0.000 0.001	Sep Week 2 0.126 0.000 0.000 0.001	Sep Week 3 0.111 0.000 0.000 0.001	Sep Week 4 0.090 0.000 0.000 0.001	Sep Week 5 0.084 0.000 0.000 0.001
QUILCHENA Sector Agricultural Industrial Business/Commercial Domestic Institutional	Estimated wate Jan 0.000 0.000 0.000 0.000 0.000	r demand f Feb 0.000 0.000 0.000 0.000 0.000	for offstrear Mar 0.000 0.000 0.000 0.000 0.000 0.000	n use as a v Apr 0.029 0.000 0.000 0.001 0.000	rolumetric r May 0.179 0.000 0.000 0.001 0.000	ate (m ³ /s) Jun 0.223 0.000 0.000 0.001 0.000	Jul 0.262 0.000 0.000 0.001 0.000	Aug 0.203 0.000 0.000 0.001 0.000	Sep 0.113 0.000 0.000 0.001 0.000	Oct 0.033 0.000 0.000 0.000 0.000	Nov 0.000 0.000 0.000 0.000 0.000	Dec 0.000 0.000 0.000 0.000 0.000	Annual 0.087 0.000 0.000 0.001 0.000	Aug Week 1 0.236 0.000 0.000 0.001 0.000	Aug Week 2 0.226 0.000 0.000 0.001 0.000	Aug Week 3 0.202 0.000 0.000 0.001 0.001	Aug Week 4 0.189 0.000 0.000 0.001 0.001	Aug Week 5 0.174 0.000 0.000 0.001 0.001	Sep Week 1 0.147 0.000 0.000 0.001 0.001	Sep Week 2 0.126 0.000 0.000 0.001 0.001	Sep Week 3 0.111 0.000 0.000 0.001 0.001	Sep Week 4 0.090 0.000 0.000 0.001 0.000	Sep Week 5 0.084 0.000 0.000 0.001 0.001
QUILCHENA Sector Agricultural Industrial Business/Commercial Domestic Institutional Recreation/Resorts	Estimated wate Jan 0.000 0.000 0.000 0.000 0.000 0.000	r demand f Feb 0.000 0.000 0.000 0.000 0.000 0.000	for offstrear Mar 0.000 0.000 0.000 0.000 0.000 0.000 0.000	n use as a v Apr 0.029 0.000 0.000 0.001 0.000 0.001	rolumetric r May 0.179 0.000 0.000 0.001 0.000 0.007	ate (m ³ /s) Jun 0.223 0.000 0.000 0.001 0.000 0.009	Jul 0.262 0.000 0.000 0.001 0.000 0.010	Aug 0.203 0.000 0.000 0.001 0.000 0.008	Sep 0.113 0.000 0.000 0.001 0.000 0.004	Oct 0.033 0.000 0.000 0.000 0.000 0.001	Nov 0.000 0.000 0.000 0.000 0.000 0.000	Dec 0.000 0.000 0.000 0.000 0.000 0.000	Annual 0.087 0.000 0.000 0.001 0.000 0.003	Aug Week 1 0.236 0.000 0.000 0.001 0.000 0.009	Aug Week 2 0.226 0.000 0.000 0.001 0.000 0.009	Aug Week 3 0.202 0.000 0.000 0.001 0.000 0.008	Aug Week 4 0.189 0.000 0.000 0.001 0.000 0.007	Aug Week 5 0.174 0.000 0.000 0.001 0.000 0.007	Sep Week 1 0.147 0.000 0.000 0.001 0.000 0.006	Sep Week 2 0.126 0.000 0.000 0.001 0.000 0.005	Sep Week 3 0.111 0.000 0.000 0.001 0.000 0.004	Sep Week 4 0.090 0.000 0.000 0.001 0.000 0.004	Sep Week 5 0.084 0.000 0.000 0.001 0.000 0.003

QUILCHENA																					
	Estimated wate	er demand t	for offstrea	m use as a v	volumetric	rate (m ³ /s)															
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep W
Agricultural	0.000	0.000	0.000	0.029	0.179	0.223	0.262	0.203	0.113	0.033	0.000	0.000	0.087	0.236	0.226	0.202	0.189	0.174	0.147	0.126	
Industrial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Business/Commercial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Domestic	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	
Institutional	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Recreation/Resorts	0.000	0.000	0.000	0.001	0.007	0.009	0.010	0.008	0.004	0.001	0.000	0.000	0.003	0.009	0.009	0.008	0.007	0.007	0.006	0.005	
Total Demand (all sectors)	0.001	0.001	0.001	0.030	0.187	0.225	0.274	0.212	0.114	0.035	0.001	0.001	1.081	0.247	0.236	0.211	0.197	0.182	0.154	0.132	0

SPIUS																								
	Estimat	ed water	demand f	or offstrear	n use as a	volumetric	rate (m ³ /s)																	
Sector	Jan	Fe	b N	lar A	Apr I	/lay J	un J	ul A	ug S	ер	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural		0.000	0.000	0.000	0.004	0.034	0.045	0.053	0.041	0.023	0.006	0.000	0.000	0.017	0.048	0.046	0.041	0.038	0.035	0.029	0.025	0.022	0.018	0.017
Industrial		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Business/Commercial		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Domestic		0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001
Institutional		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Recreation/Resorts		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Demand (all sectors)	(.001	0.001	0.001	0.005	0.035	0.045	0.055	0.043	0.023	0.007	0.001	0.001	0.217	0.050	0.047	0.043	0.040	0.037	0.031	0.026	0.023	0.019	0.018

STUMP LAKE																							
	Estimated wate	r demand f	for offstrear	n use as a	volumetric i	rate (m³/s)																	
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000	0.000	0.000	0.047	0.218	0.281	0.335	0.259	0.140	0.039	0.000	0.000	0.111	0.301	0.289	0.256	0.242	0.220	0.182	0.155	0.139	0.110	0.105
Industrial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Business/Commercial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Domestic	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001
Institutional	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Recreation/Resorts	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.001
Total Demand (all sectors)	0.001	0.001	0.001	0.047	0.220	0.274	0.337	0.261	0.137	0.040	0.001	0.001	1.322	0.304	0.292	0.259	0.244	0.223	0.184	0.157	0.141	0.112	0.107

UPPER NICOLA																							
	Estimated wate	r demand f	or offstrean	n use as a v	volumetric	rate (m³/s)																	
Sector	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000	0.000	0.000	0.074	0.666	0.847	1.000	0.771	0.421	0.123	0.000	0.000	0.328	0.896	0.861	0.763	0.720	0.657	0.547	0.467	0.417	0.331	0.315
Industrial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Business/Commercial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Domestic	0.002	0.002	0.002	0.003	0.004	0.004	0.006	0.006	0.004	0.002	0.002	0.002	0.003	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.003	0.003
Institutional	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Recreation/Resorts	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Demand (all sectors)	0.002	0.002	0.002	0.075	0.670	0.824	1.007	0.777	0.411	0.125	0.002	0.002	3.899	0.903	0.867	0.770	0.726	0.662	0.552	0.471	0.421	0.335	0.319

NICOLA RIVER WATERSHED (TOTAL)																						
	Estimated wate	r demand f	or offstrear	n use as a	volumetric i	rate (m³/s)																	
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000	0.000	0.000	0.392	2.736	3.532	4.156	3.213	1.776	0.503	0.000	0.000	1.369	3.777	3.607	3.231	3.015	2.783	2.356	2.014	1.777	1.434	1.334
Industrial	0.206	0.229	0.213	0.220	0.212	0.216	0.213	0.213	0.221	0.216	0.222	0.218	0.216	0.213	0.213	0.213	0.213	0.213	0.221	0.221	0.221	0.221	0.221
Business/Commercial	0.009	0.010	0.009	0.009	0.010	0.011	0.010	0.010	0.011	0.009	0.009	0.009	0.010	0.010	0.010	0.010	0.010	0.010	0.011	0.011	0.011	0.011	0.011
Domestic	0.092	0.086	0.089	0.169	0.201	0.220	0.319	0.280	0.182	0.114	0.093	0.091	0.162	0.271	0.277	0.264	0.234	0.209	0.193	0.184	0.157	0.143	0.134
Institutional	0.016	0.018	0.017	0.020	0.086	0.093	0.106	0.093	0.082	0.020	0.017	0.016	0.049	0.093	0.092	0.089	0.088	0.086	0.085	0.083	0.081	0.078	0.078
Recreation/Resorts	0.020	0.022	0.020	0.028	0.089	0.108	0.129	0.101	0.060	0.022	0.020	0.019	0.053	0.136	0.133	0.122	0.112	0.140	0.090	0.081	0.073	0.061	0.094
Total Demand (all sectors)	0.342	0.330	0.348	0.811	3.336	4.045	4.933	3.910	2.256	0.884	0.349	0.353	21.899	4.501	4.332	3.929	3.672	3.442	2.956	2.594	2.319	1.948	1.870

TABLE H.3 SUMMARY OF ESTIMATED WATER DEMAND FOR SCENARIO 2020-C.

CLAPPERTON																							
	Estimated volumet	ric water dema	nd for offstream	n use (m³)																			
Sector	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Industrial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Business/Commercial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Domestic	2,242	1,898	2,189	3,999	4,929	5,206	7,808	6,855	4,298	2,793	2,195	2,230	46,643	1,694	1,732	1,650	1,462	561	1,209	1,153	980	896	239
Institutional	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Recreation/Resorts	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Demand (all sectors)	2,242	1,898	2,189	3,999	4,929	5,206	7,808	6,855	4,298	2,793	2,195	2,230	46,643	1,694	1,732	1,650	1,462	561	1,209	1,153	980	896	239

COLDWATER																							
	Estimated volume	etric water dem	and for offstrea	ım use (m³)																			
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	46,332	559,367	707,795	860,057	668,618	358,292	97,253	0	0	3,297,713	175,706	168,091	150,006	140,558	55,369	108,713	92,806	82,438	65,982	17,731
Industrial	15,920	15,920	15,920	15,920	15,920	15,920	15,920	15,920	15,920	15,920	15,920	15,920	191,042	3,595	3,595	3,595	3,595	1,541	3,715	3,715	3,715	3,715	1,061
Business/Commercial	14,916	14,916	14,916	14,916	18,956	18,956	18,956	18,956	18,956	14,916	14,916	14,916	199,192	4,280	4,280	4,280	4,280	1,834	4,423	4,423	4,423	4,423	1,264
Domestic	246,446	208,608	240,641	439,486	541,770	572,197	858,149	753,468	472,415	306,969	241,242	245,132	5,126,522	186,156	190,402	181,324	160,724	61,714	132,873	126,730	107,713	98,476	26,257
Institutional	29,379	29,379	29,379	30,767	59,386	65,844	73,689	63,826	47,838	34,389	29,379	29,379	522,634	15,686	15,294	14,362	13,875	5,696	12,456	11,636	11,102	10,254	2,872
Recreation/Resorts	89,290	88,708	89,098	102,067	177,727	206,588	255,142	203,615	127,594	60,714	89,384	86,751	1,576,679	73,071	72,042	66,781	59,933	38,302	50,984	46,627	41,579	34,365	18,943
Total Demand (all sectors)	395,951	357,531	389,953	649,488	1,373,126	1,587,301	2,081,913	1,724,404	1,041,015	530,161	390,841	392,099	10,913,783	458,495	453,705	420,350	382,967	164,456	313,164	285,938	250,971	217,216	68,128

GUICHON																							
	Estimated volum	etric water dem	and for offstrea	am use (m³)																			
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	149,079	970,914	1,262,467	1,532,375	1,193,459	639,900	181,336	0	0	5,929,531	326,271	309,418	280,034	258,483	103,477	207,221	177,686	154,526	126,939	32,897
Industrial	1,119,286	1,119,286	1,119,286	1,119,286	1,119,286	1,119,286	1,119,286	1,119,286	1,119,286	1,119,286	1,119,286	1,119,286	13,431,428	252,742	252,742	252,742	252,742	108,318	261,167	261,167	261,167	261,167	74,619
Business/Commercial	12,846	12,846	12,846	12,846	12,846	12,846	12,846	12,846	12,846	12,846	12,846	12,846	154,150	2,901	2,901	2,901	2,901	1,243	2,997	2,997	2,997	2,997	856
Domestic	110,439	93,483	107,837	196,945	242,781	256,416	384,559	337,649	211,701	137,561	108,107	109,850	2,297,328	83,421	85,324	81,256	72,025	27,656	59,544	56,791	48,269	44,130	11,766
Institutional	1,927	1,927	1,927	9,751	176,716	179,159	194,363	170,794	157,472	4,008	1,927	1,927	901,898	41,804	41,364	40,631	40,062	16,992	40,127	39,380	38,758	38,092	10,782
Recreation/Resorts	2,331	2,331	2,331	13,206	40,373	42,516	57,987	41,204	20,228	5,431	2,331	2,331	232,603	9,147	8,717	7,967	7,417	2,992	6,136	5,382	4,791	4,087	1,082
Total Demand (all sectors)	1,246,828	1,229,872	1,244,227	1,501,114	2,562,915	2,872,690	3,301,416	2,875,237	2,161,433	1,460,467	1,244,496	1,246,240	22,946,937	716,287	700,465	665,531	633,630	260,678	577,192	543,403	510,507	477,412	132,003

LOWER NICOLA																							
	Estimated volume	tric water dem	and for offstrea	m use (m³)																			
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	315,563	1,417,122	1,724,308	2,087,362	1,609,282	866,154	254,948	0	0	8,274,740	434,971	412,147	373,524	344,268	138,038	278,053	238,459	207,224	170,384	44,100
Industrial	93	8,440	43,410	43,142	35,769	19,646	41,123	43,247	45,581	59,194	50,633	66,700	456,978	9,765	9,765	9,765	9,765	4,185	10,636	10,636	10,636	10,636	3,039
Business/Commercial	320	320	320	320	320	320	320	320	320	320	320	320	3,836	72	72	72	72	31	75	75	75	75	21
Domestic	62,482	52,889	61,010	111,423	137,355	145,069	217,567	191,027	119,772	77,826	61,162	62,149	1,299,731	47,196	48,273	45,971	40,749	15,646	33,687	32,130	27,309	24,967	6,657
Institutional	3,502	6,269	7,081	8,702	8,300	7,489	51,984	40,757	22,648	7,455	1,717	1,717	167,622	2,865	2,735	2,515	2,348	952	1,984	1,759	1,581	1,371	366
Recreation/Resorts	0	0	0	0	1,060	1,060	1,060	1,060	1,060	394	0	0	5,696	239	239	239	239	103	247	247	247	247	71
Total Demand (all sectors)	66,397	67,917	111,821	479,150	1,599,926	1,897,892	2,399,417	1,885,693	1,055,535	400,137	113,832	130,885	10,208,602	495,109	473,232	432,087	397,441	158,956	324,682	283,305	247,071	207,679	54,253

MIDDLE NICOLA																							
	Estimated volum	etric water dema	and for offstrea	am use (m³)																			
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	121,683	1,618,494	2,063,472	2,500,798	1,932,269	1,046,924	307,593	0	0	9,591,233	508,090	485,593	435,189	405,934	160,686	317,915	271,835	239,624	193,606	51,350
Industrial	3,829	3,829	3,829	3,829	3,829	3,829	3,829	3,829	3,829	3,829	3,829	3,829	45,948	865	865	865	865	371	893	893	893	893	255
Business/Commercial	13,377	13,377	13,377	13,377	14,642	14,642	14,642	14,642	14,642	13,377	13,377	13,377	166,850	3,306	3,306	3,306	3,306	1,417	3,417	3,417	3,417	3,417	976
Domestic	60,976	51,614	59,539	108,738	134,045	141,573	212,323	186,423	116,885	75,950	59,688	60,651	1,268,403	1,466	1,500	1,428	1,266	486	1,047	998	848	776	207
Institutional	50,254	50,254	50,254	53,066	212,996	223,766	239,009	214,344	191,318	58,735	50,254	50,254	1,444,503	51,173	50,545	49,169	48,347	20,361	47,360	46,095	45,182	43,944	12,434
Recreation/Resorts	2,523	2,403	2,483	12,799	189,233	229,114	278,348	216,116	117,883	36,535	2,542	2,514	1,092,492	59,796	57,897	53,107	49,878	22,366	37,408	33,089	29,636	25,235	8,719
Total Demand (all sectors)	130,958	121,477	129,482	313,491	2,173,240	2,676,395	3,248,949	2,567,623	1,491,482	496,019	129,690	130,624	13,609,430	624,696	599,705	543,064	509,596	205,687	408,040	356,327	319,601	267,870	73,942

TABLE H.3 Cont'd.

MOORE																							
	Estimated volumet	ric water dema	nd for offstrear	n use (m³)																			
Sector	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	13,677	42,893	51,632	62,758	48,381	25,909	7,755	0	0	253,007	12,677	12,133	10,820	10,146	3,994	8,122	6,951	6,098	4,956	1,304
Industrial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Business/Commercial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Domestic	1,941	1,643	1,895	3,461	4,267	4,507	6,759	5,934	3,721	2,418	1,900	1,931	40,377	1,466	1,500	1,428	1,266	486	1,047	998	848	776	207
Institutional	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Recreation/Resorts	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Demand (all sectors)	1,941	1,643	1,895	17,139	47,160	56,138	69,517	54,316	29,630	10,173	1,900	1,931	293,384	14,143	13,632	12,248	11,412	4,480	9,168	7,950	6,947	5,732	1,511
QUILCHENA																							
	Estimated volumet	ric water dema	nd for offstrear	n use (m³)																			
Sector	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	76,070	478,418	578,197	702,604	543,023	291,624	88,179	0	0	2,758,113	142,822	136,452	122,031	114,084	45,050	89,059	76,091	67,325	54,148	14,453
Industrial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

QUILCHENA																							
	Estimated volumet	ric water dema	nd for offstrear	m use (m³)																			
Sector	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week !
Agricultural	0	0	0	76,070	478,418	578,197	702,604	543,023	291,624	88,179	0	0	2,758,113	142,822	136,452	122,031	114,084	45,050	89,059	76,091	67,325	54,148	14,453
Industrial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	(
Business/Commercial	610	610	610	610	610	610	610	610	610	610	610	610	7,316	138	138	138	138	59	142	142	142	142	41
Domestic	2,075	1,756	2,026	3,700	4,561	4,818	7,225	6,344	3,977	2,584	2,031	2,064	43,162	1,567	1,603	1,527	1,353	520	1,119	1,067	907	829	221
Institutional	0	0	0	0	1,657	1,667	1,712	1,584	1,604	1,403	1,545	1,545	12,718	369	369	369	369	158	384	384	384	384	11(
Recreation/Resorts	616	615	616	2,643	34,263	41,280	50,038	38,816	21,130	6,215	13	13	196,259	10,218	9,771	8,755	8,192	3,257	6,431	5,518	4,898	3,969	1,07
Total Demand (all sectors)	3,301	2,982	3,252	83,022	519,509	626,571	762,189	590,377	318,944	98,992	4,199	4,232	3,017,569	155,114	148,332	132,820	124,136	49,045	97,136	83,203	73,656	59,473	15,901

SPIUS																									
	Estimated volu	umetric wate	r demand f	or offstream	use (m ³)																				
Sector	Jan	Feb	Mar	Apr	Ma	y Jur	n Jul	Au	g Sep	Oct	Nov	Dec		Annual		Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	C)	0	0	11,634	95,962	122,995	149,872	115,369	61,687	16,499	0	0		574,018	30,336	28,957	25,935	24,208	9,575	5 18,726	16,002	14,147	11,390	3,036
Industrial	C)	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	C) C	0	0	0	0
Business/Commercial	C)	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	C) C	0	0	0	0
Domestic	3,045	5 2,	578	2,974	5,431	6,695	7,071	10,605	9,311	5,838	3,793	2,981	3,029		63,351	2,300	2,353	2,241	1,986	763	1,642	1,566	1,331	1,217	324
Institutional	2	2	2	2	2	2	2	2	2	2	2	2	2		28	1	1	1	1	C) 1	1	1	1	0
Recreation/Resorts	1,161	I 1,	161	1,161	1,161	0	0	0	0	0	0	1,161	1,161		6,964	0	0	0	0	C) C	0	0	0	0
Total Demand (all sectors)	4,208	3,7	'41	4,137	18,228	102,660	130,069	160,479	124,682	67,527	20,295	4,144	4,192		644,361	32,637	31,311	28,176	26,195	10,338	20,369	17,569	15,479	12,607	3,361

STUMP LAKE																							
	Estimated volumet	ric water dema	nd for offstrea	m use (m³)																			
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	121,596	584,956	728,596	896,573	693,221	363,711	104,752	0	0	3,493,405	181,932	174,873	154,870	146,307	57,129	110,251	93,939	84,205	66,648	18,189
Industrial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Business/Commercial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Domestic	3,715	3,144	3,627	6,625	8,166	8,625	12,935	11,357	7,121	4,627	3,636	3,695	77,274	2,806	2,870	2,733	2,423	930	2,003	1,910	1,624	1,484	396
Institutional	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Recreation/Resorts	1,470	1,464	1,468	1,521	1,556	1,570	1,642	1,625	1,543	1,491	1,471	1,470	18,290	563	568	556	529	327	503	495	470	457	216
Total Demand (all sectors)	5,185	4,609	5,095	129,742	594,678	738,791	911,150	706,203	372,375	110,870	5,107	5,164	3,588,969	185,300	178,312	158,159	149,258	58,386	112,757	96,344	86,298	68,589	18,801

UPPER NICOLA																							
	Estimated volumet	ric water dema	and for offstrea	m use (m³)																			
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	200,639	1,872,107	2,304,309	2,812,929	2,168,046	1,146,587	345,142	0	0	10,849,758	569,117	546,600	484,702	457,268	178,818	347,637	296,329	265,088	210,338	57,206
Industrial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Business/Commercial	320	320	320	320	320	320	320	320	320	320	320	320	3,836	72	72	72	72	31	75	75	75	75	21
Domestic	10,134	8,578	9,895	18,071	22,277	23,528	35,286	30,982	19,425	12,622	9,920	10,080	210,797	7,655	7,829	7,456	6,609	2,538	5,464	5,211	4,429	4,049	1,080
Institutional	392	392	392	392	392	392	392	392	392	392	392	392	4,709	89	89	89	89	38	92	92	92	92	26
Recreation/Resorts	464	464	464	464	464	464	464	464	464	464	464	464	5,571	105	105	105	105	45	108	108	108	108	31
Total Demand (all sectors)	11,310	9,754	11,071	219,887	1,895,560	2,329,013	2,849,391	2,200,204	1,167,189	358,941	11,096	11,256	11,074,672	577,037	554,694	492,424	464,143	181,469	353,375	301,814	269,792	214,662	58,364

NICOLA RIVER WATERSHED (TO	OTAL)																						
	Estimated volum	etric water dem	and for offstrea	am use (m³)																			
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	1,056,273	7,640,233	9,543,770	11,605,328	8,971,668	4,800,789	1,403,458	0	0	45,021,518	2,381,922	2,274,264	2,037,112	1,901,256	752,136	1,485,697	1,270,098	1,120,676	904,390	240,267
Industrial	1,139,128	1,147,475	1,182,445	1,182,177	1,174,804	1,158,680	1,180,158	1,182,282	1,184,616	1,198,229	1,189,668	1,205,734	14,125,396	266,967	266,967	266,967	266,967	114,414	276,410	276,410	276,410	276,410	78,974
Business/Commercial	42,388	42,388	42,388	42,388	47,693	47,693	47,693	47,693	47,693	42,388	42,388	42,388	535,180	10,769	10,769	10,769	10,769	4,615	11,128	11,128	11,128	11,128	3,180
Domestic	503,493	426,190	491,634	897,879	1,106,847	1,169,010	1,753,216	1,539,350	965,153	627,144	492,861	500,810	10,473,588	335,728	343,386	327,014	289,863	111,300	239,633	228,555	194,258	177,599	47,354
Institutional	85,456	88,223	89,035	102,681	459,449	478,321	561,153	491,700	421,276	106,386	85,217	85,217	3,054,113	111,986	110,395	107,135	105,091	44,197	102,404	99,346	97,099	94,137	26,590
Recreation/Resorts	97,856	97,148	97,621	133,861	444,678	522,593	644,681	502,901	289,902	111,244	97,367	94,704	3,134,555	153,140	149,340	137,512	126,293	67,393	101,819	91,468	81,730	68,469	30,139
Total Demand (all sectors)	1,868,321	1,801,424	1,903,123	3,415,259	10,873,704	12,920,067	15,792,229	12,735,594	7,709,428	3,488,848	1,907,500	1,928,853	76,344,349	3,260,512	3,155,122	2,886,509	2,700,240	1,094,056	2,217,091	1,977,006	1,781,302	1,532,135	426,502

TABLE H.3 Cont'd.

CLAPPERTON																					
	Estimated wate	r demand f	for offstrear	m use as a v	volumetric	rate (m³/s)															
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3
Agricultural	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Industrial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Business/Commercial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Domestic	0.001	0.001	0.001	0.002	0.002	0.002	0.003	0.003	0.002	0.001	0.001	0.001	0.001	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002
Institutional	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Recreation/Resorts	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Demand (all sectors)	0.001	0.001	0.001	0.001	0.002	0.002	0.003	0.003	0.002	0.001	0.001	0.001	0.017	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002

COLDWATER																					
	Estimated wat	er demand i	for offstrea	m use as a	volumetric	rate (m ³ /s)															
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3
Agricultural	0.000	0.000	0.000	0.018	0.209	0.273	0.321	0.250	0.138	0.036	0.000	0.000	0.105	0.291	0.278	0.248	0.232	0.214	0.180	0.153	0.136
Industrial	0.006	0.007	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
Business/Commercial	0.006	0.006	0.006	0.006	0.007	0.007	0.007	0.007	0.007	0.006	0.006	0.006	0.006	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007
Domestic	0.092	0.086	0.090	0.170	0.202	0.221	0.320	0.281	0.182	0.115	0.093	0.092	0.163	0.308	0.315	0.300	0.266	0.238	0.220	0.210	0.178
Institutional	0.011	0.012	0.011	0.012	0.022	0.025	0.028	0.024	0.018	0.013	0.011	0.011	0.017	0.026	0.025	0.024	0.023	0.022	0.021	0.019	0.018
Recreation/Resorts	0.033	0.037	0.033	0.039	0.066	0.080	0.095	0.076	0.049	0.023	0.034	0.032	0.050	0.121	0.119	0.110	0.099	0.148	0.084	0.077	0.069
Total Demand (all sectors)	0.148	0.133	0.146	0.242	0.513	0.593	0.777	0.644	0.389	0.198	0.146	0.146	4.075	0.758	0.750	0.695	0.633	0.634	0.518	0.473	0.415

GUICHON																					
	Estimated wate	r demand f	or offstrear	n use as a v	volumetric i	rate (m³/s)															
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3
Agricultural	0.000	0.000	0.000	0.058	0.362	0.487	0.572	0.446	0.247	0.068	0.000	0.000	0.188	0.539	0.512	0.463	0.427	0.399	0.343	0.294	0.255
Industrial	0.418	0.463	0.418	0.432	0.418	0.432	0.418	0.418	0.432	0.418	0.432	0.418	0.426	0.418	0.418	0.418	0.418	0.418	0.432	0.432	0.432
Business/Commercial	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Domestic	0.041	0.039	0.040	0.076	0.091	0.099	0.144	0.126	0.082	0.051	0.042	0.041	0.073	0.138	0.141	0.134	0.119	0.107	0.098	0.094	0.080
Institutional	0.001	0.001	0.001	0.004	0.066	0.069	0.073	0.064	0.061	0.001	0.001	0.001	0.029	0.069	0.068	0.067	0.066	0.066	0.066	0.065	0.064
Recreation/Resorts	0.001	0.001	0.001	0.005	0.015	0.016	0.022	0.015	0.008	0.002	0.001	0.001	0.007	0.015	0.014	0.013	0.012	0.012	0.010	0.009	0.008
Total Demand (all sectors)	0.466	0.459	0.465	0.560	0.957	1.073	1.233	1.073	0.807	0.545	0.465	0.465	8.567	1.184	1.158	1.100	1.048	1.006	0.954	0.898	0.844

LOWER NICOLA																							
	Estimated wate	er demand f	or offstrea	n use as a	volumetric	rate (m ³ /s)																	
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000	0.000	0.000	0.122	0.529	0.665	0.779	0.601	0.334	0.095	0.000	0.000	0.262	0.719	0.681	0.618	0.569	0.533	0.460	0.394	0.343	0.282	0.255
Industrial	0.000	0.003	0.016	0.017	0.013	0.008	0.015	0.016	0.018	0.022	0.020	0.025	0.014	0.016	0.016	0.016	0.016	0.016	0.018	0.018	0.018	0.018	0.018
Business/Commercial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Domestic	0.023	0.022	0.023	0.043	0.051	0.056	0.081	0.071	0.046	0.029	0.024	0.023	0.041	0.078	0.080	0.076	0.067	0.060	0.056	0.053	0.045	0.041	0.039
Institutional	0.001	0.003	0.003	0.003	0.003	0.003	0.019	0.015	0.009	0.003	0.001	0.001	0.005	0.005	0.005	0.004	0.004	0.004	0.003	0.003	0.003	0.002	0.002
Recreation/Resorts	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Demand (all sectors)	0.025	0.025	0.042	0.179	0.597	0.709	0.896	0.704	0.394	0.149	0.042	0.049	3.811	0.819	0.782	0.714	0.657	0.613	0.537	0.468	0.409	0.343	0.314

MIDDLE NICOLA																							
	Estimated wate	er demand f	for offstrear	m use as a	volumetric	rate (m ³ /s)																	
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000	0.000	0.000	0.047	0.604	0.796	0.934	0.721	0.404	0.115	0.000	0.000	0.304	0.840	0.803	0.720	0.671	0.620	0.526	0.449	0.396	0.320	0.297
Industrial	0.001	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Business/Commercial	0.005	0.006	0.005	0.005	0.005	0.006	0.005	0.005	0.006	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.006	0.006	0.006	0.006	0.006
Domestic	0.023	0.021	0.022	0.042	0.050	0.055	0.079	0.070	0.045	0.028	0.023	0.023	0.040	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001
Institutional	0.019	0.021	0.019	0.020	0.080	0.086	0.089	0.080	0.074	0.022	0.019	0.019	0.046	0.085	0.084	0.081	0.080	0.079	0.078	0.076	0.075	0.073	0.072
Recreation/Resorts	0.001	0.001	0.001	0.005	0.071	0.088	0.104	0.081	0.045	0.014	0.001	0.001	0.035	0.099	0.096	0.088	0.082	0.086	0.062	0.055	0.049	0.042	0.050
Total Demand (all sectors)	0.049	0.045	0.048	0.117	0.811	0.999	1.213	0.959	0.557	0.185	0.048	0.049	5.081	1.033	0.992	0.898	0.843	0.794	0.675	0.589	0.528	0.443	0.428

Sep Week 4	Sep Week 5
0.000	0.000
0.000	0.000
0.000	0.000
0.001	0.001
0.000	0.000
0.000	0.000
0.001	0.001
Sep Week 4	Sep Week 5
0.109	0.103
0.006	0.006
0.007	0.007
0.163	0.152
0.017	0.017
0.057	0.110
0.359	0.394
Sep Week 4	Sep Week 5
0.210	0.190
0.432	0.432
0.005	0.005
0.073	0.068
0.063	0.062
0.007	0.006
0.789	0.764

TABLE H.3 Cont'd.

MOORE																					
	Estimated wate	er demand	for offstrea	m use as a	volumetric	rate (m³/s)															
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3
Agricultural	0.000	0.000	0.000	0.005	0.016	0.020	0.023	0.018	0.010	0.003	0.000	0.000	0.008	0.021	0.020	0.018	0.017	0.015	0.013	0.011	0.010
Industrial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Business/Commercial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Domestic	0.001	0.001	0.001	0.001	0.002	0.002	0.003	0.002	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001
Institutional	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Recreation/Resorts	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Demand (all sectors)	0.001	0.001	0.001	0.006	0.018	0.021	0.026	0.020	0.011	0.004	0.001	0.001	0.110	0.023	0.023	0.020	0.019	0.017	0.015	0.013	0.011

QUILCHENA																							
	Estimated wate	er demand f	for offstrear	n use as a	volumetric	rate (m³/s)																	
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000	0.000	0.000	0.029	0.179	0.223	0.262	0.203	0.113	0.033	0.000	0.000	0.087	0.236	0.226	0.202	0.189	0.174	0.147	0.126	0.111	0.090	0.084
Industrial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Business/Commercial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Domestic	0.001	0.001	0.001	0.001	0.002	0.002	0.003	0.002	0.002	0.001	0.001	0.001	0.001	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.001	0.001	0.001
Institutional	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Recreation/Resorts	0.000	0.000	0.000	0.001	0.013	0.016	0.019	0.014	0.008	0.002	0.000	0.000	0.006	0.017	0.016	0.014	0.014	0.013	0.011	0.009	0.008	0.007	0.006
Total Demand (all sectors)	0.001	0.001	0.001	0.031	0.194	0.234	0.285	0.220	0.119	0.037	0.002	0.002	1.127	0.256	0.245	0.220	0.205	0.189	0.161	0.138	0.122	0.098	0.092

SPIUS																								
	Estimat	ed water	demand f	for offstrear	n use as a	volumetric	rate (m ³ /s)																	
Sector	Jan	Fe	eb N	Nar A	\pr	May	Jun J	ul A	ug S	Sep (Oct N	lov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural		0.000	0.000	0.000	0.004	0.036	0.047	0.056	0.043	0.024	0.006	0.000	0.000	0.018	0.050	0.048	0.043	0.040	0.037	0.031	0.026	0.023	0.019	0.018
Industrial		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Business/Commercial		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Domestic		0.001	0.001	0.001	0.002	0.002	0.003	0.004	0.003	0.002	0.001	0.001	0.001	0.002	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.002	0.002	0.002
Institutional		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Recreation/Resorts		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Demand (all sectors)	0	0.002	0.001	0.002	0.007	0.038	0.049	0.060	0.047	0.025	0.008	0.002	0.002	0.241	0.054	0.052	0.047	0.043	0.040	0.034	0.029	0.026	0.021	0.019

STUMP LAKE																							
	Estimated wate	r demand f	for offstrear	n use as a	volumetric i	rate (m ³ /s)																	
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000	0.000	0.000	0.047	0.218	0.281	0.335	0.259	0.140	0.039	0.000	0.000	0.111	0.301	0.289	0.256	0.242	0.220	0.182	0.155	0.139	0.110	0.105
Industrial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Business/Commercial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Domestic	0.001	0.001	0.001	0.003	0.003	0.003	0.005	0.004	0.003	0.002	0.001	0.001	0.002	0.005	0.005	0.005	0.004	0.004	0.003	0.003	0.003	0.002	0.002
Institutional	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Recreation/Resorts	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Total Demand (all sectors)	0.002	0.002	0.002	0.048	0.222	0.276	0.340	0.264	0.139	0.041	0.002	0.002	1.340	0.306	0.295	0.262	0.247	0.225	0.186	0.159	0.143	0.113	0.109

UPPER NICOLA																							
	Estimated wate	er demand f	for offstrea	m use as a	volumetric	rate (m ³ /s)																	
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000	0.000	0.000	0.077	0.699	0.889	1.050	0.809	0.442	0.129	0.000	0.000	0.344	0.941	0.904	0.801	0.756	0.690	0.575	0.490	0.438	0.348	0.331
Industrial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Business/Commercial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Domestic	0.004	0.004	0.004	0.007	0.008	0.009	0.013	0.012	0.007	0.005	0.004	0.004	0.007	0.013	0.013	0.012	0.011	0.010	0.009	0.009	0.007	0.007	0.006
Institutional	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Recreation/Resorts	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Demand (all sectors)	0.004	0.004	0.004	0.082	0.708	0.870	1.064	0.821	0.436	0.134	0.004	0.004	4.135	0.954	0.917	0.814	0.767	0.700	0.584	0.499	0.446	0.355	0.338

NICOLA RIVER WATERSHED (TOTAL)

NICOLA NIVEN WATENOILE (TO	JIAL)																						
	Estimated wate	r demand f	for offstrear	n use as a	volumetric r	rate (m ³ /s)																	
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000	0.000	0.000	0.408	2.853	3.682	4.333	3.350	1.852	0.524	0.000	0.000	1.428	3.938	3.760	3.368	3.144	2.902	2.457	2.100	1.853	1.495	1.390
Industrial	0.425	0.474	0.441	0.456	0.439	0.447	0.441	0.441	0.457	0.447	0.459	0.450	0.448	0.441	0.441	0.441	0.441	0.441	0.457	0.457	0.457	0.457	0.457
Business/Commercial	0.016	0.018	0.016	0.016	0.018	0.018	0.018	0.018	0.018	0.016	0.016	0.016	0.017	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018
Domestic	0.188	0.176	0.184	0.346	0.413	0.451	0.655	0.575	0.372	0.234	0.190	0.187	0.332	0.555	0.568	0.541	0.479	0.429	0.396	0.378	0.321	0.294	0.274
Institutional	0.032	0.036	0.033	0.040	0.172	0.185	0.210	0.184	0.163	0.040	0.033	0.032	0.097	0.185	0.183	0.177	0.174	0.171	0.169	0.164	0.161	0.156	0.154
Recreation/Resorts	0.037	0.040	0.036	0.052	0.166	0.202	0.241	0.188	0.112	0.042	0.038	0.035	0.099	0.253	0.247	0.227	0.209	0.260	0.168	0.151	0.135	0.113	0.174
Total Demand (all sectors)	0.698	0.673	0.711	1.275	4.060	4.824	5.896	4.755	2.878	1.303	0.712	0.720	28.504	5.391	5.217	4.773	4.465	4.221	3.666	3.269	2.945	2.533	2.468

Sep Week 4	Sep Week 5
0.008	0.008
0.000	0.000
0.000	0.000
0.001	0.001
0.000	0.000
0.000	0.000
0.009	0.009
Sep Week 4	Sep Week 5
0.090	0.084
0.090 0.000	0.084 0.000
0.090 0.000 0.000	0.084 0.000 0.000
0.090 0.000 0.000 0.001	0.084 0.000 0.000 0.001
0.090 0.000 0.000 0.001 0.001	0.084 0.000 0.000 0.001 0.001

TABLE H.4 SUMMARY OF ESTIMATED WATER DEMAND: SCENARIO 2050-A

CLAPPERTON																							
	Estimated volumetr	ic water deman	d for offstream	use (m ³)																			
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Industrial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Business/Commercial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Domestic	1,429	1,210	1,396	2,302	3,022	3,176	4,627	4,297	2,690	1,822	1,399	1,422	28,794	1,039	1,063	1,012	897	344	747	712	606	553	148
Institutional	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Recreation/Resorts	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Demand (all sectors)	1,429	1,210	1,396	2,302	3,022	3,176	4,627	4,297	2,690	1,822	1,399	1,422	28,794	1,039	1,063	1,012	897	344	747	712	606	553	148

COLDWATER																							
	Estimated volum	etric water dem	and for offstrea	m use (m³)																			
Sector	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	34,795	496,879	624,934	739,220	621,202	328,780	102,019	0	0	2,947,829	158,236	151,425	135,063	126,627	49,851	97,204	82,966	73,764	58,974	15,872
Industrial	10,016	10,016	10,016	10,016	10,016	10,016	10,016	10,016	10,016	10,016	10,016	10,016	120,197	2,262	2,262	2,262	2,262	969	2,337	2,337	2,337	2,337	668
Business/Commercial	13,735	13,735	13,735	13,735	17,455	17,455	17,455	17,455	17,455	13,735	13,735	13,735	183,423	3,942	3,942	3,942	3,942	1,689	4,073	4,073	4,073	4,073	1,164
Domestic	157,109	132,988	153,408	253,032	332,196	349,122	508,598	472,283	295,678	200,305	153,792	156,272	3,164,783	114,207	116,837	111,226	98,628	37,855	82,086	78,284	66,567	60,824	16,230
Institutional	20,320	20,320	20,320	21,077	39,678	43,703	47,979	43,564	32,622	24,138	20,320	20,320	354,364	10,509	10,254	9,642	9,326	3,832	8,378	7,846	7,501	6,948	1,949
Recreation/Resorts	71,432	70,967	71,278	79,469	134,819	155,625	187,933	159,714	99,565	50,485	71,508	69,401	1,222,195	55,967	55,210	51,191	45,915	29,471	39,142	35,844	32,004	26,421	14,636
Total Demand (all sectors)	272,613	248,026	268,758	412,126	1,031,044	1,200,856	1,511,201	1,324,234	784,117	400,699	269,371	269,745	7,992,790	345,123	339,930	313,325	286,699	123,667	233,221	211,349	186,247	159,577	50,519

GUICHON																							
	Estimated volume	etric water dema	nd for offstrear	n use (m³)																			
Sector	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	111,959	862,452	1,114,671	1,317,078	1,108,823	587,192	190,223	0	0	5,292,398	293,832	278,740	252,137	232,863	93,165	185,284	158,845	138,266	113,456	29,449
Industrial	704,217	704,217	704,217	704,217	704,217	704,217	704,217	704,217	704,217	704,217	704,217	704,217	8,450,607	159,017	159,017	159,017	159,017	68,150	164,317	164,317	164,317	164,317	46,948
Business/Commercial	11,829	11,829	11,829	11,829	11,829	11,829	11,829	11,829	11,829	11,829	11,829	11,829	141,946	2,671	2,671	2,671	2,671	1,145	2,760	2,760	2,760	2,760	789
Domestic	70,405	59,595	68,746	113,390	148,865	156,451	227,916	211,642	132,501	89,762	68,918	70,029	1,418,221	51,179	52,358	49,843	44,198	16,964	36,785	35,081	29,831	27,257	7,273
Institutional	1,333	1,333	1,333	5,600	114,086	114,972	121,444	115,273	104,989	2,929	1,333	1,333	585,955	27,357	27,077	26,584	26,226	11,117	26,075	25,585	25,203	24,744	7,015
Recreation/Resorts	1,865	1,865	1,865	8,725	30,320	31,745	42,149	32,228	15,698	4,596	1,865	1,865	174,787	6,955	6,632	6,062	5,648	2,279	4,650	4,083	3,642	3,110	825
Total Demand (all sectors)	789,649	778,839	787,990	955,721	1,871,770	2,133,885	2,424,633	2,184,012	1,556,426	1,003,555	788,162	789,273	16,063,915	541,011	526,494	496,313	470,624	192,819	419,871	390,672	364,020	335,644	92,298

LOWER NICOLA																							
	Estimated volumet	ric water dema	nd for offstrear	m use (m³)																			
Sector	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	236,988	1,258,814	1,522,445	1,794,090	1,495,157	794,811	267,441	0	0	7,369,746	391,724	371,284	336,313	310,145	124,281	248,618	213,174	185,420	152,286	39,477
Industrial	59	5,310	27,312	27,144	22,505	12,360	25,873	27,210	28,678	37,243	31,856	41,965	287,515	6,144	6,144	6,144	6,144	2,633	6,692	6,692	6,692	6,692	1,912
Business/Commercial	294	294	294	294	294	294	294	294	294	294	294	294	3,532	66	66	66	66	28	69	69	69	69	20
Domestic	39,832	33,716	38,894	64,151	84,222	88,513	128,945	119,738	74,963	50,784	38,991	39,620	802,369	28,955	29,622	28,199	25,005	9,597	20,811	19,847	16,877	15,421	4,115
Institutional	2,422	4,336	4,898	4,998	5,434	4,889	32,565	27,530	15,137	5,559	1,188	1,188	110,143	1,888	1,804	1,659	1,551	629	1,305	1,159	1,044	907	242
Recreation/Resorts	0	0	0	0	848	848	848	848	848	315	0	0	4,557	192	192	192	192	82	198	198	198	198	57
Total Demand (all sectors)	42,607	43,657	71,398	333,575	1,372,117	1,629,350	1,982,616	1,670,777	914,731	361,637	72,329	83,067	8,577,863	428,970	409,111	372,573	343,104	137,251	277,693	241,139	210,299	175,572	45,823

MIDDLE NICOLA																							
	Estimated volume	tric water dema	nd for offstrea	m use (m³)																			
Sector	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	91,384	1,437,691	1,821,903	2,149,438	1,795,240	960,691	322,666	0	0	8,579,012	457,573	437,447	391,835	365,700	144,672	284,259	243,011	214,411	173,041	45,967
Industrial	2,409	2,409	2,409	2,409	2,409	2,409	2,409	2,409	2,409	2,409	2,409	2,409	28,909	544	544	544	544	233	562	562	562	562	161
Business/Commercial	12,318	12,318	12,318	12,318	13,483	13,483	13,483	13,483	13,483	12,318	12,318	12,318	153,641	3,045	3,045	3,045	3,045	1,305	3,146	3,146	3,146	3,146	899
Domestic	38,872	32,904	37,956	62,605	82,192	86,380	125,837	116,852	73,157	49,559	38,051	38,665	783,030	900	920	876	777	298	647	617	524	479	128
Institutional	34,759	34,759	34,759	36,293	139,737	146,009	152,567	145,475	128,763	41,220	34,759	34,759	963,858	33,894	33,491	32,578	32,055	13,496	31,248	30,422	29,849	29,021	8,222
Recreation/Resorts	2,018	1,923	1,986	8,690	141,436	170,199	201,452	168,778	90,986	31,951	2,034	2,011	823,463	45,478	44,059	40,404	37,955	17,102	28,296	25,039	22,437	19,097	6,688
Total Demand (all sectors)	90,376	84,312	89,429	213,698	1,816,947	2,240,383	2,645,187	2,242,237	1,269,488	460,124	89,571	90,162	11,331,912	541,434	519,507	469,282	440,075	177,106	348,158	302,797	270,930	225,347	62,065

TABLE H.4 Con't.

MOORE																							
	Estimated volumetr	ric water demar	nd for offstream	n use (m³)																			
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	10,785	40,007	47,867	56,638	47,198	24,964	8,542	0	0	236,000	11,988	11,476	10,229	9,597	3,775	7,625	6,525	5,730	4,651	1,226
Industrial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Business/Commercial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Domestic	1,237	1,047	1,208	1,993	2,616	2,750	4,006	3,720	2,329	1,578	1,211	1,231	24,926	900	920	876	777	298	647	617	524	479	128
Institutional	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Recreation/Resorts	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Demand (all sectors)	1,237	1,047	1,208	12,778	42,623	50,616	60,644	50,918	27,293	10,120	1,211	1,231	260,927	12,887	12,397	11,105	10,374	4,074	8,272	7,142	6,254	5,130	1,353

QUILCHENA	HENA																						
	Estimated volumetric water demand for offstream use (m ³)																						
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	59,985	446,222	536,033	634,083	529,739	280,983	97,125	0	0	2,584,171	135,053	129,069	115,368	107,916	42,589	83,613	71,424	63,253	50,816	13,585
Industrial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Business/Commercial	561	561	561	561	561	561	561	561	561	561	561	561	6,737	127	127	127	127	54	131	131	131	131	37
Domestic	1,323	1,120	1,292	2,130	2,797	2,939	4,282	3,976	2,489	1,686	1,295	1,316	26,645	962	984	936	830	319	691	659	560	512	137
Institutional	0	0	0	0	1,069	1,069	1,069	1,069	1,069	1,069	1,069	1,069	8,551	241	241	241	241	103	249	249	249	249	71
Recreation/Resorts	493	492	493	1,773	25,600	30,653	36,177	30,306	16,305	5,475	10	10	147,788	7,737	7,402	6,630	6,207	2,467	4,839	4,152	3,689	2,988	813
Total Demand (all sectors)	2,377	2,173	2,346	64,450	476,249	571,255	676,172	565,652	301,408	105,917	2,936	2,956	2,773,892	144,120	137,822	123,302	115,321	45,533	89,523	76,616	67,883	54,696	14,643

SPIUS																							
	Estimated volumetric water demand for offstream use (m ³)																						
Sector	Jan I	Feb N	ar Aj	or M	ay Ju	n Ju	I A	ug Sep	Oct	Nov	/ Dec	;	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	8,737	85,242	108,596	128,815	107,187	56,606	17,308	0	0	512,491	27,320	26,086	23,351	21,809	8,621	16,744	14,306	12,659	10,180	2,718
Industrial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Business/Commercial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Domestic	1,941	1,643	1,896	3,127	4,105	4,314	6,285	5,836	3,654	2,475	1,900	1,931	39,109	1,411	1,444	1,374	1,219	468	1,014	967	823	752	201
Institutional	3	3	3	3	3	3	3	3	3	3	3	3	38	1	1	1	1	0	1	1	1	1	0
Recreation/Resorts	929	929	929	929	0	0	0	0	0	0	929	929	5,571	0	0	0	0	0	0	0	0	0	0
Total Demand (all sectors)	2,873	2,575	2,827	12,796	89,351	112,914	135,104	113,026	60,263	19,786	2,832	2,863	557,210	28,732	27,531	24,726	23,028	9,089	17,759	15,274	13,482	10,932	2,918

STUMP LAKE																							
Estimated volumetric water demand for offstream use (m ³)																							
Sector	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	95,885	545,590	675,465	809,135	676,263	350,441	115,380	0	0	3,268,159	172,035	165,412	146,414	138,396	54,007	103,508	88,177	79,112	62,547	17,096
Industrial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Business/Commercial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Domestic	2,368	2,005	2,312	3,814	5,007	5,262	7,666	7,119	4,457	3,019	2,318	2,356	47,704	1,721	1,761	1,677	1,487	571	1,237	1,180	1,003	917	245
Institutional	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Recreation/Resorts	1,176	1,172	1,174	1,217	1,245	1,256	1,314	1,300	1,234	1,193	1,177	1,176	14,632	450	455	445	423	261	403	396	376	366	173
Total Demand (all sectors)	3,544	3,176	3,487	100,916	551,842	681,984	818,116	684,682	356,132	119,592	3,495	3,531	3,330,495	174,207	167,627	148,535	140,305	54,839	105,148	89,753	80,491	63,829	17,514

PPER NICOLA																							
	Estimated volumetric water demand for offstream use (m ³)																						
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	150,680	1,662,972	2,034,545	2,417,715	2,014,296	1,052,144	362,055	0	0	9,694,408	512,533	492,405	436,415	411,946	160,997	310,835	264,908	237,196	187,996	51,209
Industrial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Business/Commercial	294	294	294	294	294	294	294	294	294	294	294	294	3,532	66	66	66	66	28	69	69	69	69	20
Domestic	6,460	5,468	6,308	10,404	13,660	14,356	20,913	19,420	12,158	8,236	6,324	6,426	130,133	4,696	4,804	4,573	4,055	1,557	3,375	3,219	2,737	2,501	667
Institutional	271	271	271	271	271	271	271	271	271	271	271	271	3,257	61	61	61	61	26	63	63	63	63	18
Recreation/Resorts	371	371	371	371	371	371	371	371	371	371	371	371	4,457	84	84	84	84	36	87	87	87	87	25
Total Demand (all sectors)	7,397	6,406	7,245	162,022	1,677,569	2,049,838	2,439,565	2,034,653	1,065,240	371,229	7,261	7,363	9,835,787	517,440	497,421	441,200	416,213	162,644	314,429	268,346	240,152	190,716	51,939

COLA RIVER WATERSHED (TOTAL)																							
	Estimated volumetric water demand for offstream use (m ³)																						
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	801,198	6,835,869	8,486,460	10,046,213	8,395,104	4,436,611	1,482,759	0	0	40,484,215	2,160,294	2,063,344	1,847,124	1,724,999	681,958	1,337,690	1,143,336	1,009,811	813,947	216,599
Industrial	716,701	721,953	743,955	743,786	739,147	729,003	742,516	743,852	745,321	753,886	748,499	758,608	8,887,228	167,967	167,967	167,967	167,967	71,986	173,908	173,908	173,908	173,908	49,688
Business/Commercial	39,032	39,032	39,032	39,032	43,917	43,917	43,917	43,917	43,917	39,032	39,032	39,032	492,811	9,917	9,917	9,917	9,917	4,250	10,247	10,247	10,247	10,247	2,928
Domestic	320,977	271,696	313,416	516,950	678,682	713,264	1,039,076	964,883	604,076	409,228	314,199	319,266	6,465,714	205,970	210,713	200,593	177,873	68,270	148,041	141,184	120,053	109,695	29,271
Institutional	59,109	61,022	61,584	68,242	300,279	310,916	355,899	333,184	282,855	75,189	58,943	58,943	2,026,166	73,952	72,930	70,766	69,462	29,204	67,320	65,325	63,912	61,933	17,517
Recreation/Resorts	78,285	77,718	78,097	101,174	334,639	390,697	470,244	393,546	225,007	94,387	77,893	75,763	2,397,450	116,864	114,033	105,007	96,423	51,699	77,614	69,799	62,433	52,267	23,216
Total Demand (all sectors)	1,214,104	1,171,422	1,236,085	2,270,383	8,932,534	10,674,258	12,697,865	10,874,487	6,337,787	2,854,481	1,238,567	1,251,613	60,753,586	2,734,963	2,638,903	2,401,373	2,246,640	907,367	1,814,821	1,603,799	1,440,364	1,221,997	339,220
TABLE H.4 Con't.

CLAPPERTON																							
	Estimated wate	er demand f	or offstrear	n use as a v	olumetric r	ate (m ³ /s)																	
Sector	Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec A													Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000														0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Industrial	0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000														0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Business/Commercial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Domestic	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Institutional	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Recreation/Resorts	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Demand (all sectors)	0.001	0.000	0.001	0.001	0.001	0.001	0.002	0.002	0.001	0.001	0.001	0.001	0.011	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001

COLDWATER																							
	Estimated wate	er demand f	or offstrear	n use as a v	olumetric r	rate (m³/s)																	
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000 0.000 0.013 0.186 0.241 0.276 0.232 0.127 0.038 0.000 0.1													0.262	0.250	0.223	0.209	0.192	0.161	0.137	0.122	0.098	0.092
Industrial	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
Business/Commercial	0.005	0.006	0.005	0.005	0.007	0.007	0.007	0.007	0.007	0.005	0.005	0.005	0.006	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007
Domestic	0.059	0.055	0.057	0.098	0.124	0.135	0.190	0.176	0.114	0.075	0.059	0.058	0.100	0.189	0.193	0.184	0.163	0.146	0.136	0.129	0.110	0.101	0.094
Institutional	0.008	0.008	0.008	0.008	0.015	0.017	0.018	0.016	0.013	0.009	0.008	0.008	0.011	0.017	0.017	0.016	0.015	0.015	0.014	0.013	0.012	0.011	0.011
Recreation/Resorts	0.027	0.029	0.027	0.031	0.050	0.060	0.070	0.060	0.038	0.019	0.028	0.026	0.039	0.093	0.091	0.085	0.076	0.114	0.065	0.059	0.053	0.044	0.085
Total Demand (all sectors)	0.102	0.093	0.100	0.154	0.385	0.448	0.564	0.494	0.293	0.150	0.101	0.101	2.984	0.571	0.562	0.518	0.474	0.477	0.386	0.349	0.308	0.264	0.292

GUICHON																							
	Estimated wate	er demand f	or offstrea	m use as a v	olumetric ı	rate (m ³ /s)																	
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000 0.000 0.000 0.043 0.322 0.430 0.492 0.414 0.227 0.071 0.000 0.000															0.417	0.385	0.359	0.306	0.263	0.229	0.188	0.170
Industrial	0.000 0.000 0.000 0.043 0.322 0.430 0.492 0.414 0.227 0.071 0.000 $0.0000.263$ 0.291 0.263 0.272 0.263 0.272 0.263 0.263 0.272 0.263 0.272 0.263 0.272 0.263															0.263	0.263	0.263	0.272	0.272	0.272	0.272	0.272
Business/Commercial	0.004	0.005	0.004	0.005	0.004	0.005	0.004	0.004	0.005	0.004	0.005	0.004	0.005	0.004	0.004	0.004	0.004	0.004	0.005	0.005	0.005	0.005	0.005
Domestic	0.026	0.025	0.026	0.044	0.056	0.060	0.085	0.079	0.051	0.034	0.027	0.026	0.045	0.085	0.087	0.082	0.073	0.065	0.061	0.058	0.049	0.045	0.042
Institutional	0.000	0.001	0.000	0.002	0.043	0.044	0.045	0.043	0.041	0.001	0.001	0.000	0.019	0.045	0.045	0.044	0.043	0.043	0.043	0.042	0.042	0.041	0.041
Recreation/Resorts	0.001	0.001	0.001	0.003	0.011	0.012	0.016	0.012	0.006	0.002	0.001	0.001	0.006	0.012	0.011	0.010	0.009	0.009	0.008	0.007	0.006	0.005	0.005
Total Demand (all sectors)	0.295	0.291	0.294	0.357	0.699	0.797	0.905	0.815	0.581	0.375	0.294	0.295	5.998	0.895	0.871	0.821	0.778	0.744	0.694	0.646	0.602	0.555	0.534

LOWER NICOLA																							
	Estimated wate	r demand fo	or offstrean	n use as a v	olumetric r	ate (m³/s)																	
Sector	r Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec													Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000 0.000 0.001 0.470 0.587 0.670 0.558 0.307 0.100 0.000 0.000															0.556	0.513	0.479	0.411	0.352	0.307	0.252	0.228
Industrial	0.000 0.002 0.010 0.008 0.005 0.010 0.010 0.011 0.014 0.012 0.016 0.000 0.002 0.010 0.010 0.008 0.005 0.010 0.011 0.014 0.012 0.016															0.010	0.010	0.010	0.011	0.011	0.011	0.011	0.011
Business/Commercial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Domestic	0.015	0.014	0.015	0.025	0.031	0.034	0.048	0.045	0.029	0.019	0.015	0.015	0.025	0.048	0.049	0.047	0.041	0.037	0.034	0.033	0.028	0.025	0.024
Institutional	0.001	0.002	0.002	0.002	0.002	0.002	0.012	0.010	0.006	0.002	0.000	0.000	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.001	0.001
Recreation/Resorts	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Demand (all sectors)	0.016	0.016	0.027	0.125	0.512	0.608	0.740	0.624	0.342	0.135	0.027	0.031	3.203	0.709	0.676	0.616	0.567	0.530	0.459	0.399	0.348	0.290	0.265

MIDDLE NICOLA																							
	Estimated wate	er demand f	or offstrear	n use as a v	olumetric r	rate (m ³ /s)																	
Sector	Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec														Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000 0.000 0.000 0.035 0.537 0.703 0.803 0.670 0.371 0.120 0.000 0.000														0.723	0.648	0.605	0.558	0.470	0.402	0.355	0.286	0.266
Industrial	0.000 0.000 0.000 0.035 0.537 0.703 0.803 0.670 0.371 0.120 0.000 0.000 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001														0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Business/Commercial	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Domestic	0.015	0.014	0.014	0.024	0.031	0.033	0.047	0.044	0.028	0.019	0.015	0.014	0.025	0.001	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Institutional	0.013	0.014	0.013	0.014	0.052	0.056	0.057	0.054	0.050	0.015	0.013	0.013	0.031	0.056	0.055	0.054	0.053	0.052	0.052	0.050	0.049	0.048	0.048
Recreation/Resorts	0.001	0.001	0.001	0.003	0.053	0.066	0.075	0.063	0.035	0.012	0.001	0.001	0.026	0.075	0.073	0.067	0.063	0.066	0.047	0.041	0.037	0.032	0.039
Total Demand (all sectors)	0.034	0.031	0.033	0.080	0.678	0.836	0.988	0.837	0.474	0.172	0.033	0.034	4.231	0.895	0.859	0.776	0.728	0.683	0.576	0.501	0.448	0.373	0.359

TABLE H.4 Con't.

MOORE																							
	Estimated wate	er demand f	or offstrear	n use as a v	olumetric r	ate (m ³ /s)																	
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000 0.000 0.000 0.004 0.015 0.018 0.021 0.018 0.010 0.003 0.000 0.000													0.020	0.019	0.017	0.016	0.015	0.013	0.011	0.009	0.008	0.007
Industrial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Business/Commercial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Domestic	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.001	0.001	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Institutional	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Recreation/Resorts	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Demand (all sectors)	0.000	0.000	0.000	0.005	0.016	0.019	0.023	0.019	0.010	0.004	0.000	0.000	0.097	0.021	0.020	0.018	0.017	0.016	0.014	0.012	0.010	0.008	0.008

QUILCHENA																							
	Estimated wat	er demand f	or offstrea	m use as a v	volumetric	rate (m ³ /s)																	
Sector	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000	0.000	0.000	0.023	0.167	0.207	0.237	0.198	0.108	0.036	0.000	0.000	0.082	0.223	0.213	0.191	0.178	0.164	0.138	0.118	0.105	0.084	0.079
Industrial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Business/Commercial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Domestic	0.000	0.000	0.000	0.001	0.001	0.001	0.002	0.001	0.001	0.001	0.000	0.000	0.001	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Institutional	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Recreation/Resorts	0.000	0.000	0.000	0.001	0.010	0.012	0.014	0.011	0.006	0.002	0.000	0.000	0.005	0.013	0.012	0.011	0.010	0.010	0.008	0.007	0.006	0.005	0.005
Total Demand (all sectors)	0.001	0.001	0.001	0.024	0.178	0.213	0.252	0.211	0.113	0.040	0.001	0.001	1.036	0.238	0.228	0.204	0.191	0.176	0.148	0.127	0.112	0.090	0.085

SPIUS																								
	Estimated	water de	mand fo	or offstrear	n use as a	volumetric	rate (m³/s)																	
Sector	Jan	Feb	Ma	ar A	Apr I	May .	Jun J	ul /	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.	0.000 0.000 0.000 0.003 0.032 0.042 0.048 0.040 0.022 0.006 0.000 0.000 0														0.043	0.039	0.036	0.033	0.028	0.024	0.021	0.017	0.016
Industrial	0.	000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Business/Commercial	0.	000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Domestic	0.	001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001
Institutional	0.	000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Recreation/Resorts	0.	000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Demand (all sectors)	0.0	01 0	.001	0.001	0.005	0.033	0.042	0.050	0.042	0.022	0.007	0.001	0.001	0.208	0.048	0.046	0.041	0.038	0.035	0.029	0.025	0.022	0.018	0.017

STUMP LAKE																							
	Estimated wate	r demand f	or offstrear	n use as a v	olumetric r	ate (m ³ /s)																	
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000 0.000 0.000 0.037 0.204 0.261 0.302 0.252 0.135 0.043 0.000 0.000														0.273	0.242	0.229	0.208	0.171	0.146	0.131	0.103	0.099
Industrial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Business/Commercial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Domestic	0.001	0.001	0.001	0.001	0.002	0.002	0.003	0.003	0.002	0.001	0.001	0.001	0.002	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.001
Institutional	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Recreation/Resorts	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Total Demand (all sectors)	0.001	0.001	0.001	0.038	0.206	0.255	0.305	0.256	0.133	0.045	0.001	0.001	1.243	0.288	0.277	0.246	0.232	0.212	0.174	0.148	0.133	0.106	0.101

UPPER NICOLA																							
	Estimated wate	er demand fo	or offstrear	n use as a v	olumetric r	ate (m ³ /s)																	
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000 0.000 0.008 0.621 0.785 0.903 0.752 0.406 0.135 0.000 0.000														0.814	0.722	0.681	0.621	0.514	0.438	0.392	0.311	0.296
Industrial	0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000														0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Business/Commercial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Domestic	0.002	0.002	0.002	0.004	0.005	0.006	0.008	0.007	0.005	0.003	0.002	0.002	0.004	0.008	0.008	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.004
Institutional	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Recreation/Resorts	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Demand (all sectors)	0.003	0.002	0.003	0.060	0.626	0.765	0.911	0.760	0.398	0.139	0.003	0.003	3.672	0.856	0.822	0.729	0.688	0.627	0.520	0.444	0.397	0.315	0.301

NICOLA RIVER WATERSHED (TOT)	AL)																						
	Estimated wate	er demand f	or offstrear	n use as a v	olumetric r	rate (m³/s)																	
Sector	tor Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov													Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000	0.000	0.000	0.309	2.552	3.274	3.751	3.134	1.712	0.554	0.000	0.000	1.284	3.572	3.412	3.054	2.852	2.631	2.212	1.890	1.670	1.346	1.253
Industrial	0.268	0.298	0.278	0.287	0.276	0.281	0.277	0.278	0.288	0.281	0.289	0.283	0.282	0.278	0.278	0.278	0.278	0.278	0.288	0.288	0.288	0.288	0.288
Business/Commercial	0.015	0.016	0.015	0.015	0.016	0.017	0.016	0.016	0.017	0.015	0.015	0.015	0.016	0.016	0.016	0.016	0.016	0.016	0.017	0.017	0.017	0.017	0.017
Domestic	0.120	0.112	0.117	0.199	0.253	0.275	0.388	0.360	0.233	0.153	0.121	0.119	0.205	0.341	0.348	0.332	0.294	0.263	0.245	0.233	0.198	0.181	0.169
Institutional	0.022	0.025	0.023	0.026	0.112	0.120	0.133	0.124	0.109	0.028	0.023	0.022	0.064	0.122	0.121	0.117	0.115	0.113	0.111	0.108	0.106	0.102	0.101
Recreation/Resorts	0.029	0.032	0.029	0.039	0.125	0.151	0.176	0.147	0.087	0.035	0.030	0.028	0.076	0.193	0.189	0.174	0.159	0.199	0.128	0.115	0.103	0.086	0.134
Total Demand (all sectors)	0.453	0.437	0.462	0.848	3.335	3.985	4.741	4.060	2.366	1.066	0.462	0.467	22.683	4.522	4.363	3.971	3.715	3.501	3.001	2.652	2.382	2.020	1.963

TABLE H.5 SUMMARY OF ESTIMATED WATER DEMAND FOR SCENARIO 2050-B

CLAPPERTON																							
	Estimated volumetr	ic water demai	nd for offstream	use (m ³)																			
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Industrial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Business/Commercial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Domestic	1,429	1,210	1,396	2,705	3,159	3,322	4,893	4,546	2,810	1,897	1,399	1,422	30,188	1,095	1,119	1,066	945	363	781	745	633	579	154
Institutional	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Recreation/Resorts	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Demand (all sectors)	1,429	1,210	1,396	2,705	3,159	3,322	4,893	4,546	2,810	1,897	1,399	1,422	30,188	1,095	1,119	1,066	945	363	781	745	633	579	154

COLDWATER																							
	Estimated volume	etric water dem	and for offstrea	m use (m³)																			
Sector	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	50,021	537,587	675,220	799,792	674,193	358,628	118,663	0	0	3,214,104	170,701	163,252	145,760	136,507	53,803	106,279	90,739	80,560	64,520	17,323
Industrial	10,016	10,016	10,016	10,016	10,016	10,016	10,016	10,016	10,016	10,016	10,016	10,016	120,197	2,262	2,262	2,262	2,262	969	2,337	2,337	2,337	2,337	668
Business/Commercial	13,735	13,735	13,735	13,735	17,455	17,455	17,455	17,455	17,455	13,735	13,735	13,735	183,423	3,942	3,942	3,942	3,942	1,689	4,073	4,073	4,073	4,073	1,164
Domestic	157,109	132,988	153,408	297,323	347,164	365,135	537,770	499,679	308,831	208,475	153,792	156,272	3,317,945	120,325	123,042	117,216	103,861	39,896	85,842	81,878	69,572	63,627	16,957
Institutional	20,320	20,320	20,320	21,409	41,264	45,585	50,246	45,546	33,739	24,760	20,320	20,320	364,151	10,975	10,697	10,042	9,696	3,980	8,718	8,137	7,756	7,156	2,003
Recreation/Resorts	71,432	70,967	71,278	83,033	143,179	165,492	200,202	170,527	105,583	53,876	71,508	69,401	1,276,479	59,377	58,520	54,255	48,689	31,077	41,500	37,934	33,806	27,958	15,377
Total Demand (all sectors)	272,613	248,026	268,758	475,538	1,096,666	1,278,904	1,615,482	1,417,416	834,253	429,526	269,371	269,745	8,476,298	367,581	361,715	333,477	304,957	131,415	248,750	225,098	198,105	169,670	53,491

GUICHON																							
	Estimated volume	etric water dema	and for offstrea	am use (m³)																			
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	160,951	933,109	1,204,365	1,425,001	1,203,411	640,500	221,256	0	0	5,788,592	316,978	300,511	272,107	251,033	100,552	202,582	173,727	151,005	124,125	32,140
Industrial	704,217	704,217	704,217	704,217	704,217	704,217	704,217	704,217	704,217	704,217	704,217	704,217	8,450,607	159,017	159,017	159,017	159,017	68,150	164,317	164,317	164,317	164,317	46,948
Business/Commercial	11,829	11,829	11,829	11,829	11,829	11,829	11,829	11,829	11,829	11,829	11,829	11,829	141,946	2,671	2,671	2,671	2,671	1,145	2,760	2,760	2,760	2,760	789
Domestic	70,405	59,595	68,746	133,238	155,573	163,627	240,989	223,919	138,395	93,423	68,918	70,029	1,486,857	53,921	55,138	52,528	46,543	17,878	38,468	36,692	31,177	28,513	7,599
Institutional	1,333	1,333	1,333	7,468	123,332	124,124	131,294	125,001	114,409	3,206	1,333	1,333	635,497	29,490	29,170	28,667	28,251	11,989	28,483	27,955	27,499	27,044	7,648
Recreation/Resorts	1,865	1,865	1,865	11,727	32,566	34,065	45,364	34,730	16,859	5,041	1,865	1,865	189,680	7,452	7,099	6,490	6,038	2,437	5,021	4,402	3,915	3,339	883
Total Demand (all sectors)	789,649	778,839	787,990	1,029,430	1,960,627	2,242,227	2,558,694	2,303,106	1,626,209	1,038,972	788,162	789,273	16,693,179	569,528	553,606	521,480	493,553	202,151	441,631	409,853	380,674	350,098	96,006

LOWER NICOLA																							
	Estimated volume	tric water dema	ind for offstrea	m use (m³)																			
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	340,693	1,361,944	1,644,950	1,941,099	1,622,701	866,967	311,072	0	0	8,089,425	422,582	400,283	362,951	334,346	134,136	271,829	233,146	202,503	166,607	43,085
Industrial	59	5,310	27,312	27,144	22,505	12,360	25,873	27,210	28,678	37,243	31,856	41,965	287,515	6,144	6,144	6,144	6,144	2,633	6,692	6,692	6,692	6,692	1,912
Business/Commercial	294	294	294	294	294	294	294	294	294	294	294	294	3,532	66	66	66	66	28	69	69	69	69	20
Domestic	39,832	33,716	38,894	75,380	88,017	92,573	136,341	126,684	78,298	52,855	38,991	39,620	841,201	30,506	31,195	29,718	26,332	10,115	21,763	20,759	17,639	16,131	4,299
Institutional	2,422	4,336	4,898	6,665	5,782	5,187	35,136	29,777	16,403	6,272	1,188	1,188	119,253	2,016	1,924	1,769	1,651	670	1,401	1,241	1,115	966	257
Recreation/Resorts	0	0	0	0	848	848	848	848	848	315	0	0	4,557	192	192	192	192	82	198	198	198	198	57
Total Demand (all sectors)	42,607	43,657	71,398	450,176	1,479,390	1,756,213	2,139,593	1,807,514	991,488	408,052	72,329	83,067	9,345,484	461,506	439,803	400,840	368,731	147,664	301,952	262,104	228,214	190,663	49,629

MIDDLE NICOLA																							
	Estimated volume	tric water dema	nd for offstrear	n use (m³)																			
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	131,373	1,555,475	1,968,505	2,325,565	1,948,382	1,047,906	375,306	0	0	9,352,511	493,618	471,614	422,870	394,235	156,143	310,798	265,779	234,165	189,315	50,168
Industrial	2,409	2,409	2,409	2,409	2,409	2,409	2,409	2,409	2,409	2,409	2,409	2,409	28,909	544	544	544	544	233	562	562	562	562	161
Business/Commercial	12,318	12,318	12,318	12,318	13,483	13,483	13,483	13,483	13,483	12,318	12,318	12,318	153,641	3,045	3,045	3,045	3,045	1,305	3,146	3,146	3,146	3,146	899
Domestic	38,872	32,904	37,956	73,564	85,895	90,342	133,055	123,630	76,411	51,581	38,051	38,665	820,925	948	969	923	818	314	676	645	548	501	134
Institutional	34,759	34,759	34,759	36,964	148,350	154,973	162,233	154,932	137,311	42,274	34,759	34,759	1,010,831	35,949	35,497	34,539	33,946	14,301	33,412	32,516	31,856	30,991	8,763
Recreation/Resorts	2,018	1,923	1,986	11,218	152,735	183,592	217,547	182,774	98,947	36,774	2,034	2,011	893,559	48,708	47,143	43,259	40,613	18,187	30,633	27,092	24,257	20,662	7,099
Total Demand (all sectors)	90,376	84,312	89,429	267,845	1,958,347	2,413,303	2,854,293	2,425,610	1,376,467	520,662	89,571	90,162	12,260,377	582,811	558,811	505,180	473,201	190,484	379,227	329,740	294,533	245,177	67,222

TABLE H.5 Cont'd.

MOORE																							
	Estimated volumet	ric water demar	nd for offstream	use (m ³)																			
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	15,505	43,284	51,718	61,279	51,224	27,230	9,936	0	0	260,176	12,932	12,373	11,040	10,346	4,075	8,337	7,136	6,258	5,089	1,338
Industrial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Business/Commercial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Domestic	1,237	1,047	1,208	2,342	2,734	2,876	4,236	3,936	2,432	1,642	1,211	1,231	26,133	948	969	923	818	314	676	645	548	501	134
Institutional	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Recreation/Resorts	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Demand (all sectors)	1,237	1,047	1,208	17,847	46,019	54,594	65,514	55,160	29,663	11,578	1,211	1,231	286,309	13,880	13,342	11,963	11,164	4,389	9,013	7,781	6,805	5,590	1,471
QUILCHENA																							
QUILCHENA	Estimated volumet	ric water deman	nd for offstream	use (m³)																			
QUILCHENA	Estimated volumet Jan	ric water demar Feb	ોd for offstream Mar	use (m ³) Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
QUILCHENA Sector Agricultural	Estimated volumet Jan	ric water demar Feb	nd for offstream	use (m³) <u>Apr</u> 86,234	May 482,779	Jun 579,166	Jul 686,040	Aug 574,928	Sep 306,492	Oct 112,970	Nov 0	Dec	Annual 2,828,610	Aug Week 1 145,692	Aug Week 2 139,150	Aug Week 3 124,506	Aug Week 4 116,336	Aug Week 5 45,966	Sep Week 1 91,419	Sep Week 2 78,116	Sep Week 3 69,081	Sep Week 4 55,595	Sep Week 5 14,826
QUILCHENA Sector Agricultural Industrial	Estimated volumet Jan 0 0	ric water demar Feb 0 0	nd for offstream Mar 0 0	use (m³) <u>Apr</u> 86,234 0	<u>May</u> 482,779 0	Jun 579,166 0	Jul 686,040 0	Aug 574,928 0	Sep 306,492 0	Oct 112,970 0	Nov 0 0	Dec 0 0	Annual 2,828,610 0	Aug Week 1 145,692 0	Aug Week 2 139,150 0	Aug Week 3 124,506 0	Aug Week 4 116,336 0	Aug Week 5 45,966 0	Sep Week 1 91,419 0	Sep Week 2 78,116 0	Sep Week 3 69,081 0	Sep Week 4 55,595 0	Sep Week 5 14,826 0
QUILCHENA Sector Agricultural Industrial Business/Commercial	Estimated volumet Jan 0 0 561	ric water demar Feb 0 0 561	nd for offstream Mar 0 0 561	1 use (m³) <u>Apr</u> 86,234 0 561	<u>May</u> 482,779 0 561	Jun 579,166 0 561	Jul 686,040 0 561	Aug 574,928 0 561	Sep 306,492 0 561	Oct 112,970 0 561	Nov 0 0 561	Dec 0 0 561	Annual 2,828,610 0 6,737	Aug Week 1 145,692 0 127	Aug Week 2 139,150 0 127	Aug Week 3 124,506 0 127	Aug Week 4 116,336 0 127	Aug Week 5 45,966 0 54	Sep Week 1 91,419 0 131	Sep Week 2 78,116 0 131	Sep Week 3 69,081 0 131	Sep Week 4 55,595 0 131	Sep Week 5 14,826 0 37
QUILCHENA Sector Agricultural Industrial Business/Commercial Domestic	Estimated volumet Jan 0 0 561 1,323	ric water demai Feb 0 0 561 1,120	nd for offstream <u>Mar</u> 0 0 561 1,292	use (m³) <u>Apr</u> 86,234 0 561 2,503	<u>May</u> 482,779 0 561 2,923	Jun 579,166 0 561 3,074	Jul 686,040 0 561 4,528	Aug 574,928 0 561 4,207	Sep 306,492 0 561 2,600	Oct 112,970 0 561 1,755	Nov 0 0 561 1,295	Dec 0 0 561 1,316	Annual 2,828,610 0 6,737 27,935	Aug Week 1 145,692 0 127 1,013	Aug Week 2 139,150 0 127 1,036	Aug Week 3 124,506 0 127 987	Aug Week 4 116,336 0 127 874	Aug Week 5 45,966 0 54 336	Sep Week 1 91,419 0 131 723	Sep Week 2 78,116 0 131 689	Sep Week 3 69,081 0 131 586	Sep Week 4 55,595 0 131 536	Sep Week 5 14,826 0 37 143
QUILCHENA Sector Agricultural Industrial Business/Commercial Domestic Institutional	Estimated volumet Jan 0 0 561 1,323 0	ric water demar Feb 0 561 1,120 0	nd for offstream 0 0 561 1,292 0	Apr 86,234 0 561 2,503 0	May 482,779 0 561 2,923 1,156	Jun 579,166 0 561 3,074 1,155	Jul 686,040 0 561 4,528 1,156	Aug 574,928 0 561 4,207 1,160	Sep 306,492 0 561 2,600 1,166	Oct 112,970 0 561 1,755 1,243	Nov 0 561 1,295 1,069	Dec 0 561 1,316 1,069	Annual 2,828,610 0 6,737 27,935 9,175	Aug Week 1 145,692 0 127 1,013 260	Aug Week 2 139,150 0 127 1,036 260	Aug Week 3 124,506 0 127 987 260	Aug Week 4 116,336 0 127 874 260	Aug Week 5 45,966 0 54 336 112	Sep Week 1 91,419 0 131 723 273	Sep Week 2 78,116 0 131 689 273	Sep Week 3 69,081 0 131 586 272	Sep Week 4 55,595 0 131 536 273	Sep Week 5 14,826 0 37 143 78
QUILCHENA Sector Agricultural Industrial Business/Commercial Domestic Institutional Recreatior/Resorts	Estimated volumet Jan 0 561 1,323 0 493	ric water demai Feb 0 0 561 1,120 0 492	nd for offstream	use (m ³) <u>Apr</u> 86,234 0 561 2,503 0 2,330	May 482,779 0 561 2,923 1,156 27,656	Jun 579,166 0 561 3,074 1,155 33,079	Jul 686,040 0 561 4,528 1,156 39,099	Aug 574,928 0 561 4,207 1,160 32,848	Sep 306,492 0 561 2,600 1,166 17,740	Oct 112,970 0 561 1,755 1,243 6,367	Nov 0 561 1,295 1,069 10	Dec 0 561 1,316 1,069 10	Annual 2,828,610 0 6,737 27,935 9,175 160,616	Aug Week 1 145,692 0 127 1,013 260 8,336	Aug Week 2 139,150 0 127 1,036 260 7,969	Aug Week 3 124,506 0 127 987 260 7,143	Aug Week 4 116,336 0 127 874 260 6,680	Aug Week 5 45,966 0 54 336 112 2,657	Sep Week 1 91,419 0 131 723 273 5,278	Sep Week 2 78,116 0 131 689 273 4,529	Sep Week 3 69,081 0 131 586 272 4,017	Sep Week 4 55,595 0 131 536 273 3,257	Sep Week 5 14,826 0 37 143 78 882

QUILCHENA																	
	Estimated volume	tric water dema	and for offstrea	m use (m³)													
Sector	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Wee
Agricultural	0	0	0	86,234	482,779	579,166	686,040	574,928	306,492	112,970	0	0	2,828,610	145,692	139,150	124,506	116,
Industrial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Business/Commercial	561	561	561	561	561	561	561	561	561	561	561	561	6,737	127	127	127	
Domestic	1,323	1,120	1,292	2,503	2,923	3,074	4,528	4,207	2,600	1,755	1,295	1,316	27,935	1,013	1,036	987	
Institutional	0	0	0	0	1,156	1,155	1,156	1,160	1,166	1,243	1,069	1,069	9,175	260	260	260	
Recreation/Resorts	493	492	493	2,330	27,656	33,079	39,099	32,848	17,740	6,367	10	10	160,616	8,336	7,969	7,143	6,
Total Demand (all sectors)	2,377	2,173	2,346	91,628	515,076	617,035	731,385	613,704	328,559	122,897	2,936	2,956	3,033,073	155,428	148,541	133,023	124,2

SPIUS																								
	Estimated volu	metric water	demand for	r offstream	use (m ³)																			
Sector	Jan	Feb	Mar	Apr	Ma	y Ju	n Jul	Au	g Sep	Oct	Nov	/ Dec	Annual		Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0		0	0	12,560	92,226	117,335	139,371	116,331	61,745	20,131	0	0	559,698	3 29,472	28,124	25,200	23,510	9,305	18,307	15,646	13,825	11,137	2,966
Industrial	0		0	0	0	0	0	0	0	0	0	0	0	0	0 0	0	0	0	0	0	0	0	0	0
Business/Commercial	0		0	0	0	0	0	0	0	0	0	0	0	0	0 0	0	0	0	0	0	0	0	0	0
Domestic	1,941	1,64	3	1,896	3,674	4,290	4,512	6,645	6,175	3,816	2,576	1,900	1,931	41,001	1,487	1,520	1,448	1,283	493	1,061	1,012	860	786	210
Institutional	3		3	3	3	3	3	3	3	3	3	3	3	38	3 1	1	1	1	0	1	1	1	1	0
Recreation/Resorts	929	92	9	929	929	0	0	0	0	0	0	929	929	5,571	0	0	0	0	0	0	0	0	0	0
Total Demand (all sectors)	2,873	2,57	5 2	2,827	17,166	96,519	121,850	146,019	122,508	65,564	22,711	2,832	2,863	606,309	30,960	29,645	26,650	24,795	9,798	19,369	16,658	14,685	11,924	3,176

STUMP LAKE																							
	Estimated volumet	ric water dema	nd for offstrea	m use (m³)																			
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	137,843	590,288	729,817	875,437	733,952	382,255	134,203	0	0	3,583,795	185,587	178,331	158,010	149,194	58,290	113,172	96,438	86,401	68,429	18,658
Industrial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Business/Commercial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Domestic	2,368	2,005	2,312	4,482	5,233	5,504	8,106	7,532	4,655	3,142	2,318	2,356	50,012	1,814	1,855	1,767	1,566	601	1,294	1,234	1,049	959	256
Institutional	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Recreation/Resorts	1,176	1,172	1,174	1,217	1,245	1,256	1,314	1,300	1,234	1,193	1,177	1,176	14,632	450	455	445	423	261	403	396	376	366	173
Total Demand (all sectors)	3,544	3,176	3,487	143,542	596,766	736,577	884,857	742,783	388,144	138,538	3,495	3,531	3,648,440	187,851	180,640	160,222	151,183	59,153	114,869	98,068	87,825	69,754	19,087

UPPER NICOLA																							
	Estimated volumet	ric water demar	nd for offstrear	n use (m³)																			
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	216,617	1,799,212	2,198,257	2,615,825	2,186,124	1,147,662	421,122	0	0	10,584,820	552,907	530,865	470,981	444,089	173,762	339,855	289,727	259,049	205,676	55,889
Industrial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Business/Commercial	294	294	294	294	294	294	294	294	294	294	294	294	3,532	66	66	66	66	28	69	69	69	69	20
Domestic	6,460	5,468	6,308	12,226	14,275	15,014	22,113	20,546	12,699	8,572	6,324	6,426	136,430	4,948	5,059	4,820	4,271	1,640	3,530	3,367	2,861	2,616	697
Institutional	271	271	271	271	271	271	271	271	271	271	271	271	3,257	61	61	61	61	26	63	63	63	63	18
Recreation/Resorts	371	371	371	371	371	371	371	371	371	371	371	371	4,457	84	84	84	84	36	87	87	87	87	25
Total Demand (all sectors)	7,397	6,406	7,245	229,780	1,814,425	2,214,209	2,638,875	2,207,608	1,161,298	430,631	7,261	7,363	10,732,497	558,066	536,136	476,013	448,572	175,494	343,604	293,312	262,128	208,511	56,649

NICOLA RIVER WATERSHED (T	OTAL)																						
	Estimated volum	netric water den	nand for offstre	am use (m³)																			
Sector	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	1,151,797	7,395,905	9,169,333	10,869,408	9,111,245	4,839,385	1,724,658	0	0	44,261,731	2,330,469	2,224,501	1,993,425	1,859,598	736,032	1,462,580	1,250,454	1,102,845	890,494	236,393
Industrial	716,701	721,953	743,955	743,786	739,147	729,003	742,516	743,852	745,321	753,886	748,499	758,608	8,887,228	167,967	167,967	167,967	167,967	71,986	173,908	173,908	173,908	173,908	49,688
Business/Commercial	39,032	39,032	39,032	39,032	43,917	43,917	43,917	43,917	43,917	39,032	39,032	39,032	492,811	9,917	9,917	9,917	9,917	4,250	10,247	10,247	10,247	10,247	2,928
Domestic	320,977	271,696	313,416	607,436	709,263	745,979	1,098,675	1,020,853	630,948	425,918	314,199	319,266	6,778,628	217,003	221,904	211,397	187,311	71,951	154,813	147,665	125,472	114,750	30,582
Institutional	59,109	61,022	61,584	72,780	320,159	331,298	380,340	356,691	303,302	78,031	58,943	58,943	2,142,203	78,752	77,609	75,341	73,867	31,077	72,350	70,186	68,561	66,493	18,767
Recreation/Resorts	78,285	77,718	78,097	110,826	358,601	418,703	504,746	423,397	241,583	103,938	77,893	75,763	2,549,551	124,598	121,460	111,867	102,718	54,738	83,119	74,638	66,656	55,865	24,495
Total Demand (all sectors)	1,214,104	1,171,422	1,236,085	2,725,657	9,566,993	11,438,233	13,639,603	11,699,956	6,804,456	3,125,463	1,238,567	1,251,613	65,112,152	2,928,705	2,823,358	2,569,914	2,401,377	970,035	1,957,018	1,727,098	1,547,691	1,311,758	362,853

TABLE H.5 Cont'd.

CLAPPERTON																							
	Estimated wat	er demand	for offstrea	m use as a	volumetric	rate (m ³ /s)																	
Sector	Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Ann															Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	tural 0.000 <th< th=""><th>0.000</th><th>0.000</th><th>0.000</th><th>0.000</th><th>0.000</th><th>0.000</th><th>0.000</th><th>0.000</th></th<>															0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Industrial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Business/Commercial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Domestic	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001
Institutional	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Recreation/Resorts	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Demand (all sectors)	0.001	0.000	0.001	0.001	0.001	0.001	0.002	0.002	0.001	0.001	0.001	0.001	0.011	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001
COLDWATER																							
	Estimated wat	er demand	for offstrea	m use as a	volumetric	rate (m ³ /s)																	

COLDWATER																							
	Estimated wate	r demand f	or offstrear	m use as a v	olumetric/	rate (m ³ /s)																	
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000	0.000	0.000	0.019	0.201	0.261	0.299	0.252	0.138	0.044	0.000	0.000	0.102	0.282	0.270	0.241	0.226	0.208	0.176	0.150	0.133	0.107	0.100
Industrial	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
Business/Commercial	0.005	0.006	0.005	0.005	0.007	0.007	0.007	0.007	0.007	0.005	0.005	0.005	0.006	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007
Domestic	0.059	0.055	0.057	0.115	0.130	0.141	0.201	0.187	0.119	0.078	0.059	0.058	0.105	0.199	0.203	0.194	0.172	0.154	0.142	0.135	0.115	0.105	0.098
Institutional	0.008	0.008	0.008	0.008	0.015	0.018	0.019	0.017	0.013	0.009	0.008	0.008	0.012	0.018	0.018	0.017	0.016	0.015	0.014	0.013	0.013	0.012	0.012
Recreation/Resorts	0.027	0.029	0.027	0.032	0.053	0.064	0.075	0.064	0.041	0.020	0.028	0.026	0.040	0.098	0.097	0.090	0.081	0.120	0.069	0.063	0.056	0.046	0.089
Total Demand (all sectors)	0.102	0.093	0.100	0.178	0.409	0.477	0.603	0.529	0.311	0.160	0.101	0.101	3.165	0.608	0.598	0.551	0.504	0.507	0.411	0.372	0.328	0.281	0.310

GUICHON																							
	Estimated wate	er demand f	or offstrear	n use as a v	olumetric	rate (m³/s)																	
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000	0.000	0.000	0.062	0.348	0.465	0.532	0.449	0.247	0.083	0.000	0.000	0.184	0.524	0.497	0.450	0.415	0.388	0.335	0.287	0.250	0.205	0.186
Industrial	0.263	0.291	0.263	0.272	0.263	0.272	0.263	0.263	0.272	0.263	0.272	0.263	0.268	0.263	0.263	0.263	0.263	0.263	0.272	0.272	0.272	0.272	0.272
Business/Commercial	0.004	0.005	0.004	0.005	0.004	0.005	0.004	0.004	0.005	0.004	0.005	0.004	0.005	0.004	0.004	0.004	0.004	0.004	0.005	0.005	0.005	0.005	0.005
Domestic	0.026	0.025	0.026	0.051	0.058	0.063	0.090	0.084	0.053	0.035	0.027	0.026	0.047	0.089	0.091	0.087	0.077	0.069	0.064	0.061	0.052	0.047	0.044
Institutional	0.000	0.001	0.000	0.003	0.046	0.048	0.049	0.047	0.044	0.001	0.001	0.000	0.020	0.049	0.048	0.047	0.047	0.046	0.047	0.046	0.045	0.045	0.044
Recreation/Resorts	0.001	0.001	0.001	0.005	0.012	0.013	0.017	0.013	0.007	0.002	0.001	0.001	0.006	0.012	0.012	0.011	0.010	0.009	0.008	0.007	0.006	0.006	0.005
Total Demand (all sectors)	0.295	0.291	0.294	0.384	0.732	0.837	0.955	0.860	0.607	0.388	0.294	0.295	6.233	0.942	0.915	0.862	0.816	0.780	0.730	0.678	0.629	0.579	0.556

LOWER NICOLA																							
	Estimated wate	r demand fo	or offstrean	n use as a v	olumetric i	ate (m³/s)																	
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000	0.000	0.000	0.131	0.508	0.635	0.725	0.606	0.334	0.116	0.000	0.000	0.257	0.699	0.662	0.600	0.553	0.517	0.449	0.385	0.335	0.275	0.249
Industrial	0.000	0.002	0.010	0.010	0.008	0.005	0.010	0.010	0.011	0.014	0.012	0.016	0.009	0.010	0.010	0.010	0.010	0.010	0.011	0.011	0.011	0.011	0.011
Business/Commercial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Domestic	0.015	0.014	0.015	0.029	0.033	0.036	0.051	0.047	0.030	0.020	0.015	0.015	0.027	0.050	0.052	0.049	0.044	0.039	0.036	0.034	0.029	0.027	0.025
Institutional	0.001	0.002	0.002	0.003	0.002	0.002	0.013	0.011	0.006	0.002	0.000	0.000	0.004	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.001
Recreation/Resorts	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Demand (all sectors)	0.016	0.016	0.027	0.168	0.552	0.656	0.799	0.675	0.370	0.152	0.027	0.031	3.489	0.763	0.727	0.663	0.610	0.570	0.499	0.433	0.377	0.315	0.287

MIDDLE NICOLA																							
	Estimated wate	er demand f	or offstrea	m use as a v	volumetric	rate (m ³ /s)																	
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000	0.000	0.000	0.051	0.581	0.759	0.868	0.727	0.404	0.140	0.000	0.000	0.297	0.816	0.780	0.699	0.652	0.602	0.514	0.439	0.387	0.313	0.290
Industrial	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Business/Commercial	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Domestic	0.015	0.014	0.014	0.028	0.032	0.035	0.050	0.046	0.029	0.019	0.015	0.014	0.026	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Institutional	0.013	0.014	0.013	0.014	0.055	0.060	0.061	0.058	0.053	0.016	0.013	0.013	0.032	0.059	0.059	0.057	0.056	0.055	0.055	0.054	0.053	0.051	0.051
Recreation/Resorts	0.001	0.001	0.001	0.004	0.057	0.071	0.081	0.068	0.038	0.014	0.001	0.001	0.028	0.081	0.078	0.072	0.067	0.070	0.051	0.045	0.040	0.034	0.041
Total Demand (all sectors)	0.034	0.031	0.033	0.100	0.731	0.901	1.066	0.906	0.514	0.194	0.033	0.034	4.578	0.964	0.924	0.835	0.782	0.735	0.627	0.545	0.487	0.405	0.389

TABLE H.5 Cont'd.

MOORE																							
	Estimated wate	r demand f	or offstrear	m use as a v	volumetric i	rate (m ³ /s)																	
Sector	Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Ar														Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000 0.000 0.000 0.006 0.016 0.020 0.023 0.019 0.011 0.004 0.000 0.000														0.020	0.018	0.017	0.016	0.014	0.012	0.010	0.008	0.008
Industrial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Business/Commercial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Domestic	0.000	0.000	0.000	0.001	0.001	0.001	0.002	0.001	0.001	0.001	0.000	0.000	0.001	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Institutional	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Recreation/Resorts	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Demand (all sectors)	0.000	0.000	0.000	0.007	0.017	0.020	0.024	0.021	0.011	0.004	0.000	0.000	0.107	0.023	0.022	0.020	0.018	0.017	0.015	0.013	0.011	0.009	0.009
QUILCHENA																							

QUILCHENA																							
	Estimated wat	er demand f	or offstrear	m use as a v	volumetric	rate (m ³ /s)																	
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000	0.000	0.000	0.033	0.180	0.223	0.256	0.215	0.118	0.042	0.000	0.000	0.090	0.241	0.230	0.206	0.192	0.177	0.151	0.129	0.114	0.092	0.086
Industrial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Business/Commercial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Domestic	0.000	0.000	0.000	0.001	0.001	0.001	0.002	0.002	0.001	0.001	0.000	0.000	0.001	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Institutional	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Recreation/Resorts	0.000	0.000	0.000	0.001	0.010	0.013	0.015	0.012	0.007	0.002	0.000	0.000	0.005	0.014	0.013	0.012	0.011	0.010	0.009	0.007	0.007	0.005	0.005
Total Demand (all sectors)	0.001	0.001	0.001	0.034	0.192	0.230	0.273	0.229	0.123	0.046	0.001	0.001	1.132	0.257	0.246	0.220	0.205	0.190	0.162	0.138	0.122	0.099	0.092

SPIUS																								
	Estimat	ed wat	er demand f	for offstrea	am use as a	volumetric	; rate (m³/s)																	
Sector	Jan		eb M	/lar .	Apr	May	Jun .	Jul .	Aug S	Бер	Oct	Nov D)ec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural		0.000	0.000	0.000	0.005	0.034	0.045	0.052	0.043	0.024	0.008	0.000	0.000	0.018	0.049	0.047	0.042	0.039	0.036	0.030	0.026	0.023	0.018	0.017
Industrial		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Business/Commercial		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Domestic		0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.002	0.003	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001
Institutional		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Recreation/Resorts		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Demand (all sectors)	0	.001	0.001	0.001	0.006	0.036	0.045	0.055	0.046	0.024	0.008	0.001	0.001	0.226	0.051	0.049	0.044	0.041	0.038	0.032	0.028	0.024	0.020	0.018

STUMP LAKE																							
	Estimated wate	er demand f	or offstrea	m use as a v	volumetric	rate (m³/s)																	
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	ural 0.000 0.000 0.000 0.053 0.220 0.282 0.327 0.274 0.147 0.050 0.000 0.000															0.261	0.247	0.225	0.187	0.159	0.143	0.113	0.108
Industrial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Business/Commercial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Domestic	0.001	0.001	0.001	0.002	0.002	0.002	0.003	0.003	0.002	0.001	0.001	0.001	0.002	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.001
Institutional	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Recreation/Resorts	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Total Demand (all sectors)	0.001	0.001	0.001	0.054	0.223	0.275	0.330	0.277	0.145	0.052	0.001	0.001	1.362	0.311	0.299	0.265	0.250	0.228	0.190	0.162	0.145	0.115	0.110

UPPER NICOLA																							
	Estimated wate	er demand f	or offstrear	m use as a v	olumetric	rate (m ³ /s)																	
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000	0.000	0.000	0.084	0.672	0.848	0.977	0.816	0.443	0.157	0.000	0.000	0.336	0.914	0.878	0.779	0.734	0.670	0.562	0.479	0.428	0.340	0.323
Industrial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Business/Commercial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Domestic	0.002	0.002	0.002	0.005	0.005	0.006	0.008	0.008	0.005	0.003	0.002	0.002	0.004	0.008	0.008	0.008	0.007	0.006	0.006	0.006	0.005	0.004	0.004
Institutional	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Recreation/Resorts	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Demand (all sectors)	0.003	0.002	0.003	0.086	0.677	0.827	0.985	0.824	0.434	0.161	0.003	0.003	4.007	0.923	0.886	0.787	0.742	0.677	0.568	0.485	0.433	0.345	0.328

NICOLA RIVER WATERSHED (TOTA	AL)																						
	Estimated wate	er demand f	or offstrear	m use as a v	volumetric	rate (m ³ /s)																	
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000	0.000	0.000	0.444	2.761	3.538	4.058	3.402	1.867	0.644	0.000	0.000	1.404	3.853	3.678	3.296	3.075	2.840	2.418	2.068	1.823	1.472	1.368
Industrial	0.268	0.298	0.278	0.287	0.276	0.281	0.277	0.278	0.288	0.281	0.289	0.283	0.282	0.278	0.278	0.278	0.278	0.278	0.288	0.288	0.288	0.288	0.288
Business/Commercial	0.015	0.016	0.015	0.015	0.016	0.017	0.016	0.016	0.017	0.015	0.015	0.015	0.016	0.016	0.016	0.016	0.016	0.016	0.017	0.017	0.017	0.017	0.017
Domestic	0.120	0.112	0.117	0.234	0.265	0.288	0.410	0.381	0.243	0.159	0.121	0.119	0.215	0.359	0.367	0.350	0.310	0.278	0.256	0.244	0.207	0.190	0.177
Institutional	0.022	0.025	0.023	0.028	0.120	0.128	0.142	0.133	0.117	0.029	0.023	0.022	0.068	0.130	0.128	0.125	0.122	0.120	0.120	0.116	0.113	0.110	0.109
Recreation/Resorts	0.029	0.032	0.029	0.043	0.134	0.162	0.188	0.158	0.093	0.039	0.030	0.028	0.081	0.206	0.201	0.185	0.170	0.211	0.137	0.123	0.110	0.092	0.142
Total Demand (all sectors)	0.453	0.437	0.462	1.018	3.572	4.271	5.092	4.368	2.540	1.167	0.462	0.467	24.310	4.842	4.668	4.249	3.971	3.742	3.236	2.856	2.559	2.169	2.100

TABLE H.6 SUMMARY OF ESTIMATED WATER DEMAND FOR SCENARIO 2050-C.

CLAPPERTON																							
	Estimated volumet	ric water dema	nd for offstrean	n use (m³)																			
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annua	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	0	0	0	0	0	0	0	0	0	(0 0	0	0	0	0	0	0	0	0	0
Industrial	0	0	0	0	0	0	0	0	0	0	0	0	C	0 0	0	0	0	0	0	0	0	0	0
Business/Commercial	0	0	0	0	0	0	0	0	0	0	0	0	C	0 0	0	0	0	0	0	0	0	0	0
Domestic	5,045	4,270	4,926	9,548	11,148	11,725	17,269	16,046	9,917	6,694	4,939	5,018	106,545	3,864	3,951	3,764	3,335	1,281	2,757	2,629	2,234	2,043	545
Institutional	0	0	0	0	0	0	0	0	0	0	0	0	C	0 0	0	0	0	0	0	0	0	0	0
Recreation/Resorts	0	0	0	0	0	0	0	0	0	0	0	0	C	0 0	0	0	0	0	0	0	0	0	0
Total Demand (all sectors)	5,045	4,270	4,926	9,548	11,148	11,725	17,269	16,046	9,917	6,694	4,939	5,018	106,545	3,864	3,951	3,764	3,335	1,281	2,757	2,629	2,234	2,043	545

COLDWATER																							
	Estimated volum	etric water dem	and for offstre	am use (m³)																			
Sector	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	55,024	591,345	742,742	879,771	741,612	394,491	125,817	0	0	3,530,802	187,771	179,578	160,336	150,158	59,184	116,907	99,812	88,616	70,972	19,055
Industrial	35,820	35,820	35,820	35,820	35,820	35,820	35,820	35,820	35,820	35,820	35,820	35,820	429,845	8,088	8,088	8,088	8,088	3,466	8,358	8,358	8,358	8,358	2,388
Business/Commercial	33,561	33,561	33,561	33,561	42,651	42,651	42,651	42,651	42,651	33,561	33,561	33,561	448,182	9,631	9,631	9,631	9,631	4,128	9,952	9,952	9,952	9,952	2,843
Domestic	554,503	469,368	541,441	1,049,374	1,225,285	1,288,713	1,898,013	1,763,571	1,089,991	735,793	542,794	551,548	11,710,393	424,676	434,267	413,705	366,569	140,809	302,971	288,981	245,550	224,566	59,849
Institutional	66,103	66,103	66,103	69,643	134,233	148,288	163,450	148,162	109,753	80,546	66,103	66,103	1,184,588	35,703	34,797	32,668	31,541	12,946	28,360	26,468	25,229	23,277	6,515
Recreation/Resorts	200,903	199,594	200,469	233,532	402,692	465,447	563,068	479,607	296,952	151,527	201,115	195,191	3,590,096	166,997	164,587	152,592	136,937	87,404	116,720	106,691	95,081	78,631	43,248
Total Demand (all sectors)	890,889	804,445	877,394	1,476,953	2,432,027	2,723,661	3,582,774	3,211,425	1,969,659	1,163,064	879,392	882,222	20,893,907	832,867	830,948	777,020	702,925	307,937	583,267	540,262	472,786	415,756	133,899

GUICHON																							
	Estimated volun	netric water dem	and for offstrea	am use (m³)																			
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	177,046	1,026,420	1,324,801	1,567,501	1,323,752	704,550	234,596	0	0	6,358,666	348,676	330,562	299,318	276,136	110,607	222,840	191,100	166,105	136,538	35,354
Industrial	2,518,393	2,518,393	2,518,393	2,518,393	2,518,393	2,518,393	2,518,393	2,518,393	2,518,393	2,518,393	2,518,393	2,518,393	30,220,713	568,669	568,669	568,669	568,669	243,715	587,625	587,625	587,625	587,625	167,893
Business/Commercial	28,903	28,903	28,903	28,903	28,903	28,903	28,903	28,903	28,903	28,903	28,903	28,903	346,837	6,527	6,527	6,527	6,527	2,797	6,744	6,744	6,744	6,744	1,927
Domestic	248,487	210,336	242,634	470,252	549,082	577,506	850,549	790,302	488,454	329,728	243,240	247,163	5,247,732	190,308	194,606	185,392	164,269	63,100	135,769	129,500	110,037	100,634	26,820
Institutional	4,335	4,335	4,335	24,293	401,199	403,777	427,102	406,629	372,173	10,429	4,335	4,335	2,067,279	95,930	94,890	93,255	91,902	39,000	92,654	90,938	89,454	87,973	24,879
Recreation/Resorts	5,246	5,246	5,246	32,983	91,593	95,809	127,587	97,677	47,417	14,179	5,246	5,246	533,474	20,958	19,965	18,252	16,982	6,854	14,122	12,382	11,012	9,391	2,483
Total Demand (all sectors)	2,805,364	2,767,213	2,799,511	3,251,870	4,615,590	4,949,188	5,520,034	5,165,656	4,159,890	3,136,228	2,800,117	2,804,040	44,774,700	1,231,068	1,215,219	1,171,413	1,124,485	466,074	1,059,754	1,018,288	970,978	928,905	259,355

LOWER NICOLA																							
	Estimated volume	etric water dem	and for offstrea	ım use (m³)																			
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	374,762	1,498,138	1,809,445	2,135,209	1,784,971	953,663	329,827	0	0	8,886,016	464,840	440,311	399,246	367,780	147,549	299,012	256,461	222,753	183,268	47,393
Industrial	209	18,991	97,673	97,070	80,480	44,202	92,527	97,306	102,557	133,187	113,924	150,074	1,028,200	21,972	21,972	21,972	21,972	9,417	23,930	23,930	23,930	23,930	6,837
Business/Commercial	719	719	719	719	719	719	719	719	719	719	719	719	8,631	162	162	162	162	70	168	168	168	168	48
Domestic	140,583	118,999	137,272	266,048	310,647	326,728	481,204	447,119	276,346	186,546	137,615	139,834	2,968,944	107,668	110,100	104,887	92,937	35,700	76,812	73,266	62,254	56,934	15,174
Institutional	7,880	14,105	15,932	21,680	18,810	16,873	114,298	96,864	53,360	20,404	3,864	3,864	387,932	6,558	6,258	5,755	5,371	2,178	4,559	4,038	3,626	3,143	837
Recreation/Resorts	0	0	0	0	2,386	2,386	2,386	2,386	2,386	887	0	0	12,816	539	539	539	539	231	557	557	557	557	159
Total Demand (all sectors)	149,392	152,814	251,596	760,280	1,911,180	2,200,353	2,826,344	2,429,365	1,389,031	671,571	256,122	294,491	13,292,539	601,740	579,342	532,561	488,761	195,145	405,038	358,419	313,288	268,000	70,448

MIDDLE NICOLA																							
	Estimated volum	etric water dem	and for offstrea	m use (m³)																			
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	144,510	1,711,022	2,165,355	2,558,121	2,143,220	1,152,697	397,934	0	0	10,272,860	542,979	518,775	465,157	433,659	171,758	341,878	292,357	257,581	208,247	55,185
Industrial	8,615	8,615	8,615	8,615	8,615	8,615	8,615	8,615	8,615	8,615	8,615	8,615	103,384	1,945	1,945	1,945	1,945	834	2,010	2,010	2,010	2,010	574
Business/Commercial	30,098	30,098	30,098	30,098	32,945	32,945	32,945	32,945	32,945	30,098	30,098	30,098	375,412	7,439	7,439	7,439	7,439	3,188	7,687	7,687	7,687	7,687	2,196
Domestic	137,195	116,131	133,963	259,636	303,160	318,853	469,606	436,343	269,686	182,050	134,298	136,464	2,897,384	3,345	3,420	3,258	2,887	1,109	2,386	2,276	1,934	1,769	471
Institutional	113,071	113,071	113,071	120,243	482,585	504,128	527,747	503,997	446,674	137,519	113,071	113,071	3,288,247	116,942	115,472	112,357	110,427	46,521	108,689	105,774	103,626	100,814	28,505
Recreation/Resorts	5,676	5,407	5,587	31,552	429,567	516,352	611,852	514,051	278,289	103,427	5,720	5,656	2,513,134	136,991	132,589	121,666	114,224	51,152	86,154	76,197	68,223	58,111	19,965
Total Demand (all sectors)	294,655	273,322	291,335	594,655	2,967,893	3,546,249	4,208,886	3,639,171	2,188,905	859,643	291,802	293,904	19,450,420	809,642	779,641	711,823	670,581	274,561	548,805	486,302	441,062	378,637	106,897

TABLE H.6 Cont'd.

MOORE																							
	Estimated volume	tric water dema	nd for offstrea	m use (m³)																			
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	15,505	43,284	51,718	61,279	51,224	27,230	9,936	0	0	260,176	12,932	12,373	11,040	10,346	4,075	8,337	7,136	6,258	5,089	1,338
Industrial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Business/Commercial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Domestic	4,367	3,697	4,264	8,265	9,651	10,150	14,949	13,890	8,585	5,795	4,275	4,344	92,233	3,345	3,420	3,258	2,887	1,109	2,386	2,276	1,934	1,769	471
Institutional	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Recreation/Resorts	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Demand (all sectors)	4,367	3,697	4,264	23,770	52,935	61,868	76,228	65,114	35,815	15,731	4,275	4,344	352,409	16,277	15,793	14,298	13,233	5,184	10,723	9,412	8,192	6,858	1,809
QUILCHENA																							
1	Estimated volume	tric water dema	nd for offstrea	.m use (m³)																			1
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	86,234	482,779	579,166	686,040	574,928	306,492	112,970	0	0	2,828,610	145,692	139,150	124,506	116,336	45,966	91,419	78,116	69,081	55,595	14,826
Industrial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Business/Commercial	1,372	1,372	1,372	1,372	1,372	1,372	1,372	1,372	1,372	1,372	1,372	1,372	16,462	310	310	310	310	133	320	320	320	320	91
Domestic	4,669	3,952	4,559	8,835	10,316	10,850	15,980	14,848	9,177	6,195	4,570	4,644	98,594	3,575	3,656	3,483	3,086	1,186	2,551	2,433	2,067	1,891	504
Institutional	0	0	0	0	3,762	3,757	3,762	3,774	3,793	4,044	3,477	3,477	29,847	847	846	847	846	363	887	887	886	888	253
Recreation/Resorts	1,387	1,385	1,386	6,552	77,782	93,033	109,965	92,384	49,893	17,906	29	29	451,733	23,444	22,412	20,091	18,788	7,474	14,844	12,737	11,298	9,160	2,482
Total Demand (all sectors)	7,427	6,708	7,317	102,993	576,012	688,178	817,120	687,306	370,727	142,487	9,448	9,521	3,425,244	173,868	166,374	149,237	139,367	55,121	110,021	94,493	83,652	67,853	18,157

QUILCHENA																	
	Estimated volume	tric water dema	and for offstrea	am use (m³)													
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4
Agricultural	0	0	0	86,234	482,779	579,166	686,040	574,928	306,492	112,970	0	0	2,828,610	145,692	139,150	124,506	116,336
Industrial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Business/Commercial	1,372	1,372	1,372	1,372	1,372	1,372	1,372	1,372	1,372	1,372	1,372	1,372	16,462	310	310	310	310
Domestic	4,669	3,952	4,559	8,835	10,316	10,850	15,980	14,848	9,177	6,195	4,570	4,644	98,594	3,575	3,656	3,483	3,086
Institutional	0	0	0	0	3,762	3,757	3,762	3,774	3,793	4,044	3,477	3,477	29,847	847	846	847	846
Recreation/Resorts	1,387	1,385	1,386	6,552	77,782	93,033	109,965	92,384	49,893	17,906	29	29	451,733	23,444	22,412	20,091	18,788
Total Demand (all sectors)	7,427	6,708	7,317	102,993	576,012	688,178	817,120	687,306	370,727	142,487	9,448	9,521	3,425,244	173,868	166,374	149,237	139,367

SPIUS																								
	Estimated vo	lumetric wa	ter demand	for offstream	use (m ³)																			
Sector	Jan	Feb	Mar	Apr	Ma	y Jur	n Jul	Αι	g Sep	Oct	Nov	Dec	Annual		Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural		0	0	0	13,816	101,449	129,068	153,308	127,964	67,919	21,345	0	0	614,868	32,420	30,936	27,720	25,861	10,235	20,138	17,210	15,207	12,251	3,263
Industrial		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Business/Commercial		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Domestic	6,85	52	5,800	6,691	12,968	15,141	15,925	23,455	21,793	13,469	9,092	6,708	6,816	144,710	5,248	5,366	5,112	4,530	1,740	3,744	3,571	3,034	2,775	740
Institutional		3	3	3	3	3	3	3	3	3	3	3	3	38	1	1	1	1	0	1	1	1	1	0
Recreation/Resorts	2,61	12 :	2,612	2,612	2,612	0	0	0	0	0	0	2,612	2,612	15,669	0	0	0	0	0	0	0	0	0	0
Total Demand (all sectors)	9,46	67 8	,415	9,306	29,399	116,593	144,997	176,765	149,760	81,392	30,441	9,322	9,430	775,286	37,668	36,303	32,833	30,392	11,975	23,883	20,782	18,243	15,027	4,002

STUMP LAKE																							
	Estimated volume	tric water dema	and for offstrea	m use (m³)																			
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	151,627	649,317	802,799	962,980	807,347	420,480	142,294	0	0	3,936,846	204,146	196,164	173,811	164,114	64,119	124,489	106,082	95,041	75,272	20,524
Industrial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Business/Commercial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Domestic	8,358	7,075	8,161	15,818	18,469	19,425	28,609	26,583	16,430	11,091	8,182	8,314	176,515	6,401	6,546	6,236	5,525	2,122	4,567	4,356	3,701	3,385	902
Institutional	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Recreation/Resorts	3,307	3,295	3,303	3,423	3,501	3,532	3,695	3,655	3,471	3,355	3,309	3,306	41,153	1,266	1,279	1,251	1,190	735	1,133	1,114	1,057	1,029	487
Total Demand (all sectors)	11,666	10,370	11,465	170,868	671,287	825,756	995,285	837,585	440,381	156,740	11,491	11,620	4,154,513	211,813	203,989	181,299	170,829	66,976	130,189	111,552	99,799	79,685	21,913

UPPER NICOLA																							
	Estimated volume	etric water dema	nd for offstrea	m use (m³)																			
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	238,278	1,979,134	2,418,083	2,877,407	2,404,737	1,262,429	446,512	0	0	11,626,580	608,197	583,951	518,079	488,498	191,139	373,841	318,700	284,953	226,244	61,478
Industrial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Business/Commercial	719	719	719	719	719	719	719	719	719	719	719	719	8,631	162	162	162	162	70	168	168	168	168	48
Domestic	22,801	19,300	22,264	43,149	50,382	52,991	78,044	72,516	44,819	30,255	22,319	22,679	481,519	17,462	17,857	17,011	15,073	5,790	12,458	11,883	10,097	9,234	2,461
Institutional	883	883	883	883	883	883	883	883	883	883	883	883	10,596	199	199	199	199	85	206	206	206	206	59
Recreation/Resorts	1,045	1,045	1,045	1,045	1,045	1,045	1,045	1,045	1,045	1,045	1,045	1,045	12,536	236	236	236	236	101	244	244	244	244	70
Total Demand (all sectors)	25,447	21,947	24,910	284,074	2,032,163	2,473,721	2,958,098	2,479,900	1,309,895	479,414	24,966	25,326	12,139,862	626,257	602,405	535,688	504,169	197,185	386,916	331,200	295,668	236,096	64,115

NICOLA RIVER WATERSHED (T	OTAL)																						
	Estimated volum	netric water der	nand for offstre	am use (m³)																			
Sector	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0	0	0	1,256,803	8,082,889	10,023,178	11,881,617	9,959,754	5,289,951	1,821,232	0	0	48,315,423	2,547,653	2,431,799	2,179,213	2,032,889	804,631	1,598,862	1,366,974	1,205,596	973,475	258,415
Industrial	2,563,038	2,581,819	2,660,501	2,659,898	2,643,308	2,607,031	2,655,356	2,660,134	2,665,385	2,696,016	2,676,752	2,712,902	31,782,141	600,675	600,675	600,675	600,675	257,432	621,923	621,923	621,923	621,923	177,692
Business/Commercial	95,372	95,372	95,372	95,372	107,310	107,310	107,310	107,310	107,310	95,372	95,372	95,372	1,204,155	24,231	24,231	24,231	24,231	10,385	25,039	25,039	25,039	25,039	7,154
Domestic	1,132,860	958,928	1,106,175	2,143,892	2,503,282	2,632,866	3,877,678	3,603,012	2,226,874	1,503,240	1,108,938	1,126,823	23,924,568	765,892	783,190	746,107	661,099	253,946	546,400	521,170	442,843	405,000	107,936
Institutional	192,275	198,500	200,327	236,745	1,041,475	1,077,709	1,237,245	1,160,312	986,639	253,828	191,736	191,736	6,968,527	256,180	252,463	245,083	240,287	101,094	235,355	228,313	223,029	216,301	61,049
Recreation/Resorts	220,175	218,583	219,648	311,698	1,008,565	1,177,603	1,419,598	1,190,805	679,452	292,325	219,075	213,084	7,170,611	350,431	341,606	314,626	288,895	153,951	233,772	209,920	187,470	157,121	68,893
Total Demand (all sectors)	4,203,721	4,053,202	4,282,024	6,704,409	15,386,828	17,625,696	21,178,803	18,681,327	11,955,612	6,662,013	4,291,874	4,339,917	119,365,425	4,545,064	4,433,966	4,109,936	3,848,077	1,581,440	3,261,352	2,973,340	2,705,901	2,398,860	681,140

TABLE H.6 Cont'd.

CLAPPERTON																					
	Estimated wate	r demand	for offstrea	m use as a	olumetric	rate (m³/s)															
Sector	Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Ann ural 0.000 </th <th>Aug Week 3</th> <th>Aug Week 4</th> <th>Aug Week 5</th> <th>Sep Week 1</th> <th>Sep Week 2</th> <th>Sep Week 3</th>															Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3
Agricultural	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Industrial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Business/Commercial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Domestic	0.002	0.002	0.002	0.004	0.004	0.005	0.006	0.006	0.004	0.002	0.002	0.002	0.003	0.006	0.007	0.006	0.006	0.005	0.005	0.004	0.004
Institutional	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Recreation/Resorts	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Demand (all sectors)	0.002	0.002	0.002	0.004	0.004	0.004	0.006	0.006	0.004	0.002	0.002	0.002	0.040	0.006	0.007	0.006	0.006	0.005	0.005	0.004	0.004
	_																				

COLDWATER																					
	Estimated wat	er demand	for offstrea	m use as a	volumetric	rate (m³/s)															
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3
Agricultural	0.000	0.000	0.000	0.021	0.221	0.287	0.328	0.277	0.152	0.047	0.000	0.000	0.112	0.310	0.297	0.265	0.248	0.228	0.193	0.165	0.147
Industrial	0.013	0.015	0.013	0.014	0.013	0.014	0.013	0.013	0.014	0.013	0.014	0.013	0.014	0.013	0.013	0.013	0.013	0.013	0.014	0.014	0.014
Business/Commercial	0.013	0.014	0.013	0.013	0.016	0.016	0.016	0.016	0.016	0.013	0.013	0.013	0.014	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016
Domestic	0.207	0.194	0.202	0.405	0.457	0.497	0.709	0.658	0.421	0.275	0.209	0.206	0.371	0.702	0.718	0.684	0.606	0.543	0.501	0.478	0.406
Institutional	0.025	0.027	0.025	0.027	0.050	0.057	0.061	0.055	0.042	0.030	0.026	0.025	0.038	0.059	0.058	0.054	0.052	0.050	0.047	0.044	0.042
Recreation/Resorts	0.075	0.083	0.075	0.090	0.150	0.180	0.210	0.179	0.115	0.057	0.078	0.073	0.114	0.276	0.272	0.252	0.226	0.337	0.193	0.176	0.157
Total Demand (all sectors)	0.333	0.300	0.328	0.551	0.908	1.017	1.338	1.199	0.735	0.434	0.328	0.329	7.801	1.377	1.374	1.285	1.162	1.188	0.964	0.893	0.782

Estimated water demand for offstream use as a volumetric rate (m ³ /s)																					
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Annual																					
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Annual															Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
0.000	0.000	0.068	0.383	0.511	0.585	0.494	0.272	0.088	0.000	0.000	0.202	0.577	0.547	0.495	0.457	0.427	0.368	0.316	0.275	0.226	0.205
1.041	0.940	0.972	0.940	0.972	0.940	0.940	0.972	0.940	0.972	0.940	0.958	0.940	0.940	0.940	0.940	0.940	0.972	0.972	0.972	0.972	0.972
0.012	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011
0.087	0.091	0.181	0.205	0.223	0.318	0.295	0.188	0.123	0.094	0.092	0.166	0.315	0.322	0.307	0.272	0.243	0.224	0.214	0.182	0.166	0.155
0.002	0.002	0.009	0.150	0.156	0.159	0.152	0.144	0.004	0.002	0.002	0.066	0.159	0.157	0.154	0.152	0.150	0.153	0.150	0.148	0.145	0.144
0.002	0.002	0.013	0.034	0.037	0.048	0.036	0.018	0.005	0.002	0.002	0.017	0.035	0.033	0.030	0.028	0.026	0.023	0.020	0.018	0.016	0.014
1.033	1.045	1.214	1.723	1.848	2.061	1.929	1.553	1.171	1.045	1.047	16.717	2.035	2.009	1.937	1.859	1.798	1.752	1.684	1.605	1.536	1.501
	r demand fo Feb 0.000 1.041 0.012 0.087 0.002 0.002 1.033	r demand for offstream Feb Mar 0.000 0.000 1.041 0.940 0.012 0.011 0.087 0.091 0.002 0.002 1.033 1.045	r demand for offstream use as a v Feb Mar Apr 0.000 0.000 0.068 1.041 0.940 0.972 0.012 0.011 0.011 0.087 0.091 0.181 0.002 0.002 0.009 0.003 1.045 1.214	r demand for offstream use as a volumetric f Feb Mar Apr May 0.000 0.000 0.068 0.383 1.041 0.940 0.972 0.940 0.012 0.011 0.011 0.011 0.087 0.091 0.181 0.205 0.002 0.002 0.009 0.150 0.002 0.002 0.013 0.034 1.033 1.045 1.214 1.723	r demand for offstream use as a volumetric rate (m³/s) Feb Mar Apr May Jun 0.000 0.000 0.068 0.383 0.511 1.041 0.940 0.972 0.940 0.972 0.012 0.011 0.011 0.011 0.011 0.087 0.091 0.181 0.205 0.223 0.002 0.002 0.009 0.150 0.156 0.002 0.002 0.013 0.034 0.037 1.033 1.045 1.214 1.723 1.848	r demand for offstream use as a volumetric rate (m ³ /s) Feb Mar Apr May Jun Jul 0.000 0.006 0.088 0.383 0.511 0.585 1.041 0.940 0.972 0.940 0.972 0.940 0.012 0.011 0.011 0.011 0.011 0.011 0.887 0.091 0.181 0.205 0.223 0.318 0.002 0.002 0.009 0.150 0.156 0.159 0.002 0.002 0.013 0.034 0.037 0.048 1.033 1.045 1.214 1.723 1.848 2.061	r demand for offstream use as a volumetric rate (m ³ /s) Feb Mar Apr May Jun Jul Aug 0.000 0.0068 0.383 0.511 0.585 0.494 1.041 0.940 0.972 0.940 0.972 0.940 0.940 0.012 0.011 0.011 0.011 0.011 0.011 0.011 0.087 0.091 0.181 0.205 0.223 0.318 0.295 0.002 0.002 0.009 0.150 0.156 0.152 0.0152 0.002 0.002 0.013 0.034 0.037 0.048 0.036 1.033 1.045 1.214 1.723 1.848 2.061 1.929	r demand for offstream use as a volumetric rate (m³/s) Feb Mar Apr May Jun Jul Aug Sep 0.000 0.006 0.883 0.511 0.585 0.494 0.272 1.041 0.940 0.972 0.940 0.972 0.940 0.972 0.012 0.011 0.011 0.011 0.011 0.011 0.011 0.011 0.087 0.091 0.181 0.205 0.223 0.318 0.295 0.188 0.002 0.002 0.013 0.150 0.156 0.152 0.144 0.002 0.002 0.013 0.034 0.037 0.048 0.036 0.018 1.033 1.045 1.214 1.723 1.848 2.061 1.929 1.553	r demand for offstream use as a volumetric rate (m³/s) Feb Mar Apr May Jun Jul Aug Sep Oct 0.000 0.008 0.383 0.511 0.585 0.494 0.272 0.940 1.041 0.940 0.972 0.940 0.972 0.940 0.972 0.940 0.012 0.011 0.014 0.004 0.002 0.002 0.002 0.013 0.034 0.037 0.048 0.036 0.018 0.005 1.033 1.045	r demand for offstream use as a volumetric rate (m ³ /s) Feb Mar Apr May Jun Jul Aug Sep Oct Nov 0.000 0.000 0.068 0.383 0.511 0.585 0.494 0.272 0.088 0.000 1.041 0.940 0.972 0.940 0.972 0.940 0.972 0.012 0.011 0.002 0.002 0.002 0.002 0.150 0.156	r demand for offstream use as a volumetric rate (m³/s) Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec 0.000 0.000 0.068 0.383 0.511 0.585 0.494 0.272 0.088 0.000 0.000 1.041 0.940 0.972 0.940 0.011 0.011 0.011 0.011 0.011 0.011 0.011 0.011 0.011 0.011 0.014	r demand for offstream use as a volumetric rate (m³/s) Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Annual 0.000 0.006 0.383 0.511 0.585 0.494 0.272 0.088 0.000 0.000 0.000 0.068 0.393 0.511 0.585 0.494 0.272 0.940 0.911 0.011	r demand for offstream use as a volumetric rate (m³/s) Feb Mar Apr May Jun Jul Aug Sep Ot Nov Dec Annual Aug Week 1 0.000 0.006 0.088 0.383 0.511 0.585 0.494 0.272 0.088 0.000 0.000 0.202 0.577 1.041 0.940 0.972 0.940 0.971 0.916 0.911 0.011 0.011 0.011 0.011 0.011 0.011	r demand for offstream use as a volumetric rate (m³/s) Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Annul Aug Week 1 Aug Week 2 0.000 0.000 0.068 0.383 0.511 0.585 0.494 0.272 0.088 0.000 0.000 0.202 0.577 0.547 1.041 0.940 0.972 0.940 0.911 0.011 0.011 0.011 0.011 0.011 0.011 <th>r demand for offstream use as a volumetric rate (m³/s) Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Annul Aug Week 1 Aug Week 2 Aug Week 3 0.000 0.006 0.383 0.511 0.585 0.494 0.272 0.088 0.000 0.000 0.202 0.577 0.547 0.495 1.041 0.940 0.972 0.940 0.911 0.011 0.011 0.011 0.011 0.011 0.011 0.011 0.011 0.011 0.011 0</th> <th>Indemand for offstream use as a volumetric rate (m³/s) Feb Mar Apr May Jun Jul Aug Sep Out Nov Dec Annul Aug Week 1 Aug Week 2 Aug Week 3 Aug Week 4 0.000 0.006 0.383 0.511 0.585 0.494 0.272 0.088 0.000 0.002 0.577 0.547 0.495 0.457 1.041 0.940 0.972 0.940 0.972 0.940 0.972 0.940 0.958 0.940 0.941 0.011 0.011 0.011 0.011 0.011 0.011 0.011 0.011 0.011 0.011 0.011</th> <th>Index offstream use as volumetric rate (m³/s) Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Annul Aug Week 1 Aug Week 2 Aug Week 3 Aug Week 3 Aug Week 4 Aug Week 5 0.000 0.000 0.068 0.383 0.511 0.585 0.494 0.272 0.940 0.911 0.011 0.011 0.011 0.011 0.011 0.011 0.011 0.011 0.011 0.011 0.011 0.011 0.011</th> <th>Index offstream use as volumetric rate (m³/s) Verdemand for offstream use as volumetric rate (m³/s) Feb Mar Apr May Jun Jul Aug Sep Out Anov Andv Aug Week 1 Aug Week 2 Aug Week 3 Aug Week 3 Aug Week 5 Sep Week 1 0.000 0.000 0.068 0.383 0.511 0.585 0.494 0.272 0.088 0.000 0.000 0.202 0.577 0.547 0.495 0.495 0.497 0.383 1.041 0.940 0.972 0.941<!--</th--><th>Index offstream use as volume trace (m³/s) Verdemand for offstream use as volume trace (m³/s) Feb Mar Apr May Jun Jul Aug Sep Out Anov Aug Aug Aug Week 3 Aug Week 3 Aug Week 5 Aug Week 5 Sep Week 1 Sep Week 3 0.000 0.000 0.068 0.383 0.511 0.585 0.494 0.272 0.088 0.000 0.002 0.517 0.547 0.495 0.495 0.497 0.368 0.316 0.316 0.316 0.316 0.316 0.972 0.940 0.972 0.940 0.972 0.940 0.972 0.940 0.972 0.940 0.972 0.940 0.972 0.940 0.972 0.940 0.972 0.940 0.972 0.940 0.972 0.940 0.972 0.940 0.972 0.940 0.972 0.940 0.972 0.940 0.972 0.940 0.972 0.940 0.972 0.941 0.011 0.011 0.011 0.011 0.011 0.011 0.011 0.011 0.011 0.011</th><th>Indemand for offstream use as a vulnetric rate (m³/s) Vertice (m³/s) Vertice (m³/s) Vertice (m³/s) Feb Mar App May Jun Jul Aug Cols Annual Aug Week 2 Aug Week 2 Aug Week 2 Aug Week 3 Aug Week 3 Aug Week 4 Aug Week 4</th><th>Indemand for offstream use as a volumetric rate (m³/s) Verdmand for offstream use as a volumetric rate (m³/s) Feb Mar Apr May Jun Jul Aug Sep Aug Week 1 Aug Week 2 Aug Week 3 Aug Week 3 Aug Week 3 Aug Week 5 Sep Week 1 Sep Week 2 Sep Week 2 Sep Week 2 Sep Week 3 Sep Week 3 Colspan="12">Sep Week 3 Sep Week 3 Sep</th></th>	r demand for offstream use as a volumetric rate (m ³ /s) Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Annul Aug Week 1 Aug Week 2 Aug Week 3 0.000 0.006 0.383 0.511 0.585 0.494 0.272 0.088 0.000 0.000 0.202 0.577 0.547 0.495 1.041 0.940 0.972 0.940 0.911 0.011 0.011 0.011 0.011 0.011 0.011 0.011 0.011 0.011 0.011 0	Indemand for offstream use as a volumetric rate (m ³ /s) Feb Mar Apr May Jun Jul Aug Sep Out Nov Dec Annul Aug Week 1 Aug Week 2 Aug Week 3 Aug Week 4 0.000 0.006 0.383 0.511 0.585 0.494 0.272 0.088 0.000 0.002 0.577 0.547 0.495 0.457 1.041 0.940 0.972 0.940 0.972 0.940 0.972 0.940 0.958 0.940 0.941 0.011 0.011 0.011 0.011 0.011 0.011 0.011 0.011 0.011 0.011 0.011	Index offstream use as volumetric rate (m ³ /s) Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Annul Aug Week 1 Aug Week 2 Aug Week 3 Aug Week 3 Aug Week 4 Aug Week 5 0.000 0.000 0.068 0.383 0.511 0.585 0.494 0.272 0.940 0.911 0.011 0.011 0.011 0.011 0.011 0.011 0.011 0.011 0.011 0.011 0.011 0.011 0.011	Index offstream use as volumetric rate (m ³ /s) Verdemand for offstream use as volumetric rate (m ³ /s) Feb Mar Apr May Jun Jul Aug Sep Out Anov Andv Aug Week 1 Aug Week 2 Aug Week 3 Aug Week 3 Aug Week 5 Sep Week 1 0.000 0.000 0.068 0.383 0.511 0.585 0.494 0.272 0.088 0.000 0.000 0.202 0.577 0.547 0.495 0.495 0.497 0.383 1.041 0.940 0.972 0.941 </th <th>Index offstream use as volume trace (m³/s) Verdemand for offstream use as volume trace (m³/s) Feb Mar Apr May Jun Jul Aug Sep Out Anov Aug Aug Aug Week 3 Aug Week 3 Aug Week 5 Aug Week 5 Sep Week 1 Sep Week 3 0.000 0.000 0.068 0.383 0.511 0.585 0.494 0.272 0.088 0.000 0.002 0.517 0.547 0.495 0.495 0.497 0.368 0.316 0.316 0.316 0.316 0.316 0.972 0.940 0.972 0.940 0.972 0.940 0.972 0.940 0.972 0.940 0.972 0.940 0.972 0.940 0.972 0.940 0.972 0.940 0.972 0.940 0.972 0.940 0.972 0.940 0.972 0.940 0.972 0.940 0.972 0.940 0.972 0.940 0.972 0.940 0.972 0.941 0.011 0.011 0.011 0.011 0.011 0.011 0.011 0.011 0.011 0.011</th> <th>Indemand for offstream use as a vulnetric rate (m³/s) Vertice (m³/s) Vertice (m³/s) Vertice (m³/s) Feb Mar App May Jun Jul Aug Cols Annual Aug Week 2 Aug Week 2 Aug Week 2 Aug Week 3 Aug Week 3 Aug Week 4 Aug Week 4</th> <th>Indemand for offstream use as a volumetric rate (m³/s) Verdmand for offstream use as a volumetric rate (m³/s) Feb Mar Apr May Jun Jul Aug Sep Aug Week 1 Aug Week 2 Aug Week 3 Aug Week 3 Aug Week 3 Aug Week 5 Sep Week 1 Sep Week 2 Sep Week 2 Sep Week 2 Sep Week 3 Sep Week 3 Colspan="12">Sep Week 3 Sep Week 3 Sep</th>	Index offstream use as volume trace (m ³ /s) Verdemand for offstream use as volume trace (m ³ /s) Feb Mar Apr May Jun Jul Aug Sep Out Anov Aug Aug Aug Week 3 Aug Week 3 Aug Week 5 Aug Week 5 Sep Week 1 Sep Week 3 0.000 0.000 0.068 0.383 0.511 0.585 0.494 0.272 0.088 0.000 0.002 0.517 0.547 0.495 0.495 0.497 0.368 0.316 0.316 0.316 0.316 0.316 0.972 0.940 0.972 0.940 0.972 0.940 0.972 0.940 0.972 0.940 0.972 0.940 0.972 0.940 0.972 0.940 0.972 0.940 0.972 0.940 0.972 0.940 0.972 0.940 0.972 0.940 0.972 0.940 0.972 0.940 0.972 0.940 0.972 0.940 0.972 0.941 0.011 0.011 0.011 0.011 0.011 0.011 0.011 0.011 0.011 0.011	Indemand for offstream use as a vulnetric rate (m ³ /s) Vertice (m ³ /s) Vertice (m ³ /s) Vertice (m ³ /s) Feb Mar App May Jun Jul Aug Cols Annual Aug Week 2 Aug Week 2 Aug Week 2 Aug Week 3 Aug Week 3 Aug Week 4	Indemand for offstream use as a volumetric rate (m ³ /s) Verdmand for offstream use as a volumetric rate (m ³ /s) Feb Mar Apr May Jun Jul Aug Sep Aug Week 1 Aug Week 2 Aug Week 3 Aug Week 3 Aug Week 3 Aug Week 5 Sep Week 1 Sep Week 2 Sep Week 2 Sep Week 2 Sep Week 3 Sep Week 3 Colspan="12">Sep Week 3 Sep

LOWER NICOLA																							
	Estimated wat	er demand f	or offstrea	m use as a v	volumetric	rate (m³/s)																	
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000	0.000	0.000	0.145	0.559	0.698	0.797	0.666	0.368	0.123	0.000	0.000	0.282	0.769	0.728	0.660	0.608	0.569	0.494	0.424	0.368	0.303	0.274
Industrial	0.000	0.008	0.036	0.037	0.030	0.017	0.035	0.036	0.040	0.050	0.044	0.056	0.033	0.036	0.036	0.036	0.036	0.036	0.040	0.040	0.040	0.040	0.040
Business/Commercial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Domestic	0.052	0.049	0.051	0.103	0.116	0.126	0.180	0.167	0.107	0.070	0.053	0.052	0.094	0.178	0.182	0.173	0.154	0.138	0.127	0.121	0.103	0.094	0.088
Institutional	0.003	0.006	0.006	0.008	0.007	0.007	0.043	0.036	0.021	0.008	0.001	0.001	0.012	0.011	0.010	0.010	0.009	0.008	0.008	0.007	0.006	0.005	0.005
Recreation/Resorts	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Total Demand (all sectors)	0.056	0.057	0.094	0.284	0.714	0.822	1.055	0.907	0.519	0.251	0.096	0.110	4.963	0.995	0.958	0.881	0.808	0.753	0.670	0.593	0.518	0.443	0.408

MIDDLE NICOLA																							
	Estimated wat	er demand i	for offstrea	m use as a v	volumetric	rate (m ³ /s)																	
Sector	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000	0.000	0.000	0.056	0.639	0.835	0.955	0.800	0.445	0.149	0.000	0.000	0.326	0.898	0.858	0.769	0.717	0.663	0.565	0.483	0.426	0.344	0.319
Industrial	0.003	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Business/Commercial	0.011	0.012	0.011	0.012	0.012	0.013	0.012	0.012	0.013	0.011	0.012	0.011	0.012	0.012	0.012	0.012	0.012	0.012	0.013	0.013	0.013	0.013	0.013
Domestic	0.051	0.048	0.050	0.100	0.113	0.123	0.175	0.163	0.104	0.068	0.052	0.051	0.092	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.003	0.003	0.003
Institutional	0.042	0.047	0.042	0.046	0.180	0.194	0.197	0.188	0.172	0.051	0.044	0.042	0.104	0.193	0.191	0.186	0.183	0.179	0.180	0.175	0.171	0.167	0.165
Recreation/Resorts	0.002	0.002	0.002	0.012	0.160	0.199	0.228	0.192	0.107	0.039	0.002	0.002	0.080	0.227	0.219	0.201	0.189	0.197	0.142	0.126	0.113	0.096	0.116
Total Demand (all sectors)	0.110	0.102	0.109	0.222	1.108	1.324	1.571	1.359	0.817	0.321	0.109	0.110	7.262	1.339	1.289	1.177	1.109	1.059	0.907	0.804	0.729	0.626	0.619

Care Weak 4	Com Wools 5
Sep week 4	Sep week 5
0.000	0.000
0.000	0.000
0.000	0.000
0.003	0.003
0.000	0.000
0.000	0.000
0.003	0.003
Sep Week 4	Sep Week 5
	0.110
0.117	0.110
0.117 0.014	0.014
0.117 0.014 0.016	0.014 0.016
0.117 0.014 0.016 0.371	0.014 0.016 0.346
0.117 0.014 0.016 0.371 0.038	0.014 0.016 0.346 0.038
0.117 0.014 0.016 0.371 0.038 0.130	0.014 0.016 0.346 0.038 0.250
0.117 0.014 0.016 0.371 0.038 0.130 0.687	0.110 0.014 0.016 0.346 0.038 0.250 0.775
0.117 0.014 0.016 0.371 0.038 0.130 0.687	0.014 0.016 0.346 0.038 0.250 0.775
0.117 0.014 0.016 0.371 0.038 0.130 0.687	0.014 0.014 0.346 0.038 0.250 0.775
0.117 0.014 0.016 0.371 0.038 0.130 0.687	0.014 0.016 0.346 0.038 0.250 0.775
0.117 0.014 0.016 0.371 0.038 0.130 0.687	0.014 0.016 0.346 0.038 0.250 0.775
0.117 0.014 0.016 0.371 0.038 0.130 0.687 Sep Week 4	0.014 0.016 0.346 0.038 0.250 0.7775 Sep Week 5
0.117 0.014 0.016 0.371 0.038 0.130 0.637 Sep Week 4 0.226	0.014 0.014 0.346 0.338 0.250 0.775 Sep Week 5 0.205

TABLE H.6 Cont'd.

MOORE																					
	Estimated wate	r demand f	for offstrear	n use as a v	olumetric/	rate (m ³ /s)															
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3
Agricultural	0.000	0.000	0.000	0.006	0.016	0.020	0.023	0.019	0.011	0.004	0.000	0.000	0.008	0.021	0.020	0.018	0.017	0.016	0.014	0.012	0.010
Industrial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Business/Commercial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Domestic	0.002	0.002	0.002	0.003	0.004	0.004	0.006	0.005	0.003	0.002	0.002	0.002	0.003	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.003
Institutional	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Recreation/Resorts	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Demand (all sectors)	0.002	0.001	0.002	0.009	0.020	0.023	0.028	0.024	0.013	0.006	0.002	0.002	0.132	0.027	0.026	0.024	0.022	0.020	0.018	0.016	0.014

QUILCHENA																					
	Estimated wate	er demand f	ior offstrear	m use as a v	olumetric r	rate (m³/s)															
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3
Agricultural	0.000	0.000	0.000	0.033	0.180	0.223	0.256	0.215	0.118	0.042	0.000	0.000	0.090	0.241	0.230	0.206	0.192	0.177	0.151	0.129	0.114
Industrial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Business/Commercial	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Domestic	0.002	0.002	0.002	0.003	0.004	0.004	0.006	0.006	0.004	0.002	0.002	0.002	0.003	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.003
Institutional	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Recreation/Resorts	0.001	0.001	0.001	0.003	0.029	0.036	0.041	0.034	0.019	0.007	0.000	0.000	0.014	0.039	0.037	0.033	0.031	0.029	0.025	0.021	0.019
Total Demand (all sectors)	0.003	0.003	0.003	0.038	0.215	0.257	0.305	0.257	0.138	0.053	0.004	0.004	1.279	0.287	0.275	0.247	0.230	0.213	0.182	0.156	0.138

SPIUS																								
	Estima	ted wate	r demand fe	or offstrea	m use as a	volumetric	rate (m ³ /s)																	
Sector	Jan	F	eb M	ar /	Apr	May	Jun J	ul A	Aug S	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural		0.000	0.000	0.000	0.005	0.038	0.050	0.057	0.048	0.026	0.008	0.000	0.000	0.019	0.054	0.051	0.046	0.043	0.039	0.033	0.028	0.025	0.020	0.019
Industrial		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Business/Commercial		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Domestic		0.003	0.002	0.002	0.005	0.006	0.006	0.009	0.008	0.005	0.003	0.003	3 0.003	3 0.005	0.009	0.009	0.008	0.007	0.007	0.006	0.006	0.005	0.005	0.004
Institutional		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Recreation/Resorts		0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001	1 0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Demand (all sectors)		0.004	0.003	0.003	0.011	0.044	0.054	0.066	0.056	0.030	0.011	0.003	3 0.004	0.289	0.062	0.060	0.054	0.050	0.046	0.039	0.034	0.030	0.025	0.023

STUMP LAKE																							
	Estimated wate	er demand f	or offstrear	n use as a v	olumetric ı	rate (m³/s)																	
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000	0.000	0.000	0.058	0.242	0.310	0.360	0.301	0.162	0.053	0.000	0.000	0.125	0.338	0.324	0.287	0.271	0.247	0.206	0.175	0.157	0.124	0.119
Industrial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Business/Commercial	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Domestic	0.003	0.003	0.003	0.006	0.007	0.007	0.011	0.010	0.006	0.004	0.003	0.003	0.006	0.011	0.011	0.010	0.009	0.008	0.008	0.007	0.006	0.006	0.005
Institutional	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Recreation/Resorts	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.003	0.002	0.002	0.002	0.002	0.003
Total Demand (all sectors)	0.004	0.004	0.004	0.064	0.251	0.308	0.372	0.313	0.164	0.059	0.004	0.004	1.551	0.350	0.337	0.300	0.282	0.258	0.215	0.184	0.165	0.132	0.127

Estimated wate	er demand f	for offstrear	n use as a v	olumetric ı	rate (m³/s)																	
Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
0.000	0.000	0.000	0.092	0.739	0.933	1.074	0.898	0.487	0.167	0.000	0.000	0.369	1.006	0.966	0.857	0.808	0.737	0.618	0.527	0.471	0.374	0.356
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.009	0.008	0.008	0.017	0.019	0.020	0.029	0.027	0.017	0.011	0.009	0.008	0.015	0.029	0.030	0.028	0.025	0.022	0.021	0.020	0.017	0.015	0.014
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.010	0.008	0.009	0.106	0.759	0.924	1.104	0.926	0.489	0.179	0.009	0.009	4.533	1.035	0.996	0.886	0.834	0.761	0.640	0.548	0.489	0.390	0.371
	Estimated wate Jan 0.000 0.000 0.009 0.000 0.000 0.000 0.000	Estimated water demand Jan Feb 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.001 0.000	Estimated water demand for offstream Jan Feb Mar 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.001 0.008 0.009	Estimated water demand for offstream use as a structure Mar Apr 0.000 0.000 0.000 0.092 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.001 0.008 0.009 0.106	Estimated water demand for offstream use as a volumetric Mar Apr May 0.000 0.000 0.092 0.739 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.008 0.008 0.017 0.019 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.001 0.008 0.009 0.106 0.759	Estimated water demand for offstream use as a volumetric rate (m ³ /s) Jan Feb Mar Apr May Jun 0.000 0.000 0.000 0.092 0.739 0.933 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.010 0.008 0.009 0.106 0.759 0.924	Estimated water demand for offstream use as a volumetric rate (m³/s) Jan Feb Mar Apr May Jun Jul 0.000 0.000 0.000 0.092 0.739 0.933 1.074 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.001 0.002 0.002 0.000 0.000 0.000 0.000 0.001 0.002 0.002 0.002 0.002 0.001	Estimated water demand for offstream use as a volumetric rate (m³/s) Jan Feb Mar Apr May Jun Jul Aug 0.000 0.000 0.000 0.092 0.739 0.933 1.074 0.898 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.001 0.002 0.002 0.002 0.022 0.027 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.001 0.002 0.002 0.000 0.000 0.000 0.000 0.001 0.002 0.003 0.000 0.000 </th <th>Estimated water demand for offstream use as a volumetric rate (m³/s) Jan Feb Mar Apr May Jun Jul Aug Sep 0.000 0.000 0.000 0.092 0.739 0.933 1.074 0.898 0.487 0.000 <t< th=""><th>Estimated water demand for offstream use as a volumetric rate (m³/s) Jan Feb Mar Apr May Jun Jul Aug Sep Oct 0.000 0.000 0.000 0.002 0.739 0.933 1.074 0.898 0.487 0.167 0.000</th><th>Estimated water demand for offstream use as a volumetric rate (m³/s) Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov 0.000 0.000 0.000 0.002 0.739 0.933 1.074 0.898 0.487 0.167 0.000 0.000 0.</th><th>Estimated water demand for offstream use as a volumetric rate (m³/s) Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec 0.000</th><th>Estimated water demand for offstream use as a volumetric rate (m³/s) Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Annual 0.000 0.000 0.000 0.002 0.739 0.933 1.074 0.888 0.487 0.167 0.000 0</th><th>Estimated water demand for offstream use as a volumetric rate (m³/s) Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Annual Aug Week 1 0.000</th><th>Estimated water demand for offstream use as a volumetric rate (m³/s) Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Annual Aug Week 1 Aug Week 2 0.000</th><th>Estimated water demand for offstream use as a volumetric rate (m³/s) Jan Feb Mar Apr May Jun Jun Sep Oct Nov Dec Annual Aug Week 1 Aug Week 2 Aug Week 3 0.000<!--</th--><th>Estimated water demand for offstream use as a volumetric rate (m³/s) Jan Feb Mar Apr May Jun Jun Sep Oct Nov Dec Annual Aug Week 1 Aug Week 2 Aug Week 3 Aug Week 4 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NICOLA RIVER WATERSHED (TO	TAL)																						
	Estimated wate	er demand f	or offstrear	m use as a	volumetric	rate (m³/s)																	
Sector	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Aug Week 1	Aug Week 2	Aug Week 3	Aug Week 4	Aug Week 5	Sep Week 1	Sep Week 2	Sep Week 3	Sep Week 4	Sep Week 5
Agricultural	0.000	0.000	0.000	0.485	3.018	3.867	4.436	3.719	2.041	0.680	0.000	0.000	1.532	4.212	4.021	3.603	3.361	3.104	2.644	2.260	1.993	1.610	1.495
Industrial	0.957	1.067	0.993	1.026	0.987	1.006	0.991	0.993	1.028	1.007	1.033	1.013	1.008	0.993	0.993	0.993	0.993	0.993	1.028	1.028	1.028	1.028	1.028
Business/Commercial	0.036	0.039	0.036	0.037	0.040	0.041	0.040	0.040	0.041	0.036	0.037	0.036	0.038	0.040	0.040	0.040	0.040	0.040	0.041	0.041	0.041	0.041	0.041
Domestic	0.423	0.396	0.413	0.827	0.935	1.016	1.448	1.345	0.859	0.561	0.428	0.421	0.759	1.266	1.295	1.234	1.093	0.980	0.903	0.862	0.732	0.670	0.625
Institutional	0.072	0.082	0.075	0.091	0.389	0.416	0.462	0.433	0.381	0.095	0.074	0.072	0.221	0.424	0.417	0.405	0.397	0.390	0.389	0.378	0.369	0.358	0.353
Recreation/Resorts	0.082	0.090	0.082	0.120	0.377	0.454	0.530	0.445	0.262	0.109	0.085	0.080	0.227	0.579	0.565	0.520	0.478	0.594	0.387	0.347	0.310	0.260	0.399
Total Demand (all sectors)	1.569	1.513	1.599	2.503	5.745	6.581	7.907	6.975	4.464	2.487	1.602	1.620	44.566	7.515	7.331	6.796	6.363	6.101	5.392	4.916	4.474	3.966	3.942

3	Sep Week 4	Sep Week 5
)	0.008	0.008
)	0.000	0.000
)	0.000	0.000
3	0.003	0.003
)	0.000	0.000
)	0.000	0.000
	0.011	0.010
3	Sep Week 4	Sep Week 5
3 -	Sep Week 4 0.092	Sep Week 5 0.086
3 -)	Sep Week 4 0.092 0.000	Sep Week 5 0.086 0.000
3 -)	Sep Week 4 0.092 0.000 0.001	Sep Week 5 0.086 0.000 0.001
B 	Sep Week 4 0.092 0.000 0.001 0.003	Sep Week 5 0.086 0.000 0.001 0.003
3 - - 	Sep Week 4 0.092 0.000 0.001 0.003 0.001	Sep Week 5 0.086 0.000 0.001 0.003 0.001
3 - - - -	Sep Week 4 0.092 0.000 0.001 0.003 0.001 0.015	Sep Week 5 0.086 0.000 0.001 0.003 0.001 0.014
3 - - - - - - - - -	Sep Week 4 0.092 0.000 0.001 0.003 0.001 0.015 0.112	Sep Week 5 0.086 0.000 0.001 0.003 0.001 0.014 0.115



FIGURE H.1 ESTIMATED WATER DEMAND UNDER SCENARIO 2020-A: NICOLA WATERSHED



FIGURE H.2 ESTIMATED WATER DEMAND UNDER SCENARIO 2020-B: NICOLA WATERSHED



FIGURE H.3 ESTIMATED WATER DEMAND UNDER SCENARIO 2020-C: NICOLA WATERSHED



FIGURE H.4 ESTIMATED WATER DEMAND UNDER SCENARIO 2050-A: NICOLA WATERSHED



FIGURE H.5 ESTIMATED WATER DEMAND UNDER SCENARIO 2050-B: NICOLA WATERSHED



FIGURE H.6 ESTIMATED WATER DEMAND UNDER SCENARIO 2050-C: NICOLA WATERSHED

Appendix I

WATER ALLOCATION RESTRICTIONS IN THE NICOLA WATERSHED

Water Allocation Restrictions Summary

Water allocation restrictions (WAR) are determined by the Ministry of Environment (MOE) Water Stewardship Division. WAR provides a means by which MOE informs staff of current or potential water allocation concerns. According to MOE, when a source is at or nearing the full water allocation, a WAR is initiated to limit future water use (MOE 2006). Once a WAR is determined, it is entered into the Water Rights Information System (WRIS) database. The abbreviations provided in the WRIS inventory indicate the different types of restrictions assigned to each identified water body and these are summarized below:

- Refused No Water (RNW): there is insufficient water in the stream for a specific water licence to grant the application;
- Possible Water Shortage (PWS): the specific stream is nearing a fully recorded restriction and any future water licences may cause potential periods of insufficient water;
- Fully Recorded (FR): indicates that no future licences should be considered on this stream based on the last inspection;
- Office Reserve (OR): this comment is reserved for special considerations regarding any WAR for this stream; and
- Fully Recorded except for (FR-EXC): indicates that no future licences should be considered on this stream except for licences for specific purposes and/or quantities.

In addition, specific reasons may be provided for a stream designated with a FR or FR-EXC abbreviation. According to Ms. Colleen Daku (2006), Portfolio Administrator for MOE, the FR restriction refers to fully recorded for all purposes including storage (Daku, pers. comm. 2006). Ms. Daku also stated that the FR-EXC can accommodate certain water licences with specific restrictions. The following are examples of FR-EXC restrictions for the Nicola watershed:

- Fully Recorded for irrigation;
- Fully Recorded without storage; and
- Fully Recorded except for small domestic supply.

The FR-EXC restrictions consider the time of the year and volume of water required for future licences. The Ministry provides an online inventory of Water Allocation Restrictions (WAR) for the province and the following Water District/Precincts applied to the Nicola Watershed:

- Lower Nicola;
- Merritt;
- Upper Nicola; and
- Spences Bridge.

Each stream within each sub-basin of the Nicola watershed identified with a WAR inventory is summarized in Table I.1 (below).

Most areas in the watershed with the exception of Moore, Quilchena, and Stump Lake subbasins have some or several WARs designated on specific water sources.

Table I.1Summary of identified streams within each sub-basin of the Nicola watershed
assigned a water allocation restriction.

Sub-basin	Fully Recorded (including storage)	Fully Recorded (except small domestic supply)	Fully Recorded (without storage)	Fully Recorded (for irrigation)	Refused No Water	Possible Water Shortage
Clapperton					Rorison Creek Rorison Creek	Easthalf Spring Patrick Brook Westhalf Spring
Coldwater	Godey Creek	Hatt Spring	Coldwater River Gwen Lake Kanevale Creek Menzies Lake Spanish Creek Voght Creek West Midday Creek			Archies Spring Diamond Vale Brook Fig Lake Salem Creek
Guichon	Lund Pond Marquart Creek Burgoyne Spring Danish Creek Guichon Creek Hector Creek Homfray Lake Miller Spring Ransome Creek Samson Creek		Dunois Creek Holland Spring Lac Le Jeune Terrina Springs Nicola River	Millar Brook Witches Brook	Billy Lake Camp Creek Chartrand Creek Gnawed Lake Meadow Creek Neville Creek	
Lower Nicola	Duncan Brook Hendy Creek Hardiman Spring MacDonald Spring Hurley Creek Manning Creek		Gordon Creek Nicola River Sarah Spring Skuhun Creek	Stumbles Creek	Berard Brook Billy Creek Marshall Creek	Brenton Creek Lindley Creek Pine Spring
Mid Nicola	Hamilton Creek		Nicola Lake Nicola River			
Spius	Hutton Pond Richardson Creek Roberts Creek		James Creek Spius Creek			Kelton Creek
Upper Nicola		Glimpse Lake	Nicola River			

Source: http://www.env.gov.bc.ca/wsd/water_rights/reserves_restrictions/index.html