

National Assessment of First Nations Water and Wastewater Systems

Saskatchewan Regional Roll-Up Report FINAL

Department of Indian Affairs and
Northern Development

January 2011

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**National Assessment of First Nations
Water and Wastewater Systems**

**Saskatchewan Regional Roll-Up Report
Final**

**Department of Indian and Northern
Affairs Canada**

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Prepared for:

Department of Indian and Northern Affairs Canada

January 2011

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This regional roll-up report has been prepared by Neegan Burnside Ltd. and a team of sub-consultants (Consultant) for the benefit of Indian and Northern Affairs Canada (Client). Regional summary reports have been prepared for the 8 regions, to facilitate planning and budgeting on both a regional and national level to address water and wastewater system deficiencies and needs.

The material contained in this Regional Roll-Up report is:

- preliminary in nature, to allow for high level budgetary and risk planning to be completed by the Client on a national level.
- based on a compilation of the data and findings from the individual community reports prepared and issued for a specific region.
- not proposing to identify the preferred solution to address deficiencies for each community. Rather this report will identify possible solution(s) and probable preliminary costs associated with solution(s) presented in greater detail in the community reports. Community specific studies including more detailed evaluation will be required to identify both preferred solutions and final costs.
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Risk as it pertains to health and safety issues and building code compliance is based upon hazards readily identifiable during a simple walk through of the water and wastewater facilities, and does not constitute a comprehensive assessment with regard to health and safety regulations and or building code regulations.

The Consultant accepts no responsibility for any decisions made or actions taken as a result of this report.

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1.0 Introduction

The Government of Canada is committed to providing safe, clean drinking water in all First Nations communities, and to ensuring that wastewater services in all First Nations communities meet acceptable effluent quality standards. As part of this commitment, the Government announced the First Nations Water and Wastewater Action Plan (FNWWAP). The plan funds the construction and renovation of water and wastewater facilities, operator training, and public health activities related to water and wastewater on reserves. It also provided for a national, independent assessment – *The National Assessment of First Nations Water and Wastewater Systems* – which will inform the Government's future, long-term investment strategy. This assessment was also recommended by the Senate Standing Committee on Aboriginal Peoples.

The purpose of the assessment is to define current deficiencies and operational needs, as well as long-term infrastructure development strategies and needs for each community on a sustainable basis. The objectives of this assessment are to:

- Identify critical upgrades required for existing public systems to meet INAC'S Level of Service Standards, the Protocol for Safe Drinking Water in First Nations Communities, the Draft Interim Protocol for Wastewater Treatment and Disposal in First Nations Communities, and applicable provincial regulations, codes and standards.
- Complete the Annual Inspection, Risk Assessment and Asset Condition Reporting Systems (ACRS) assessment for water and wastewater assets.
- Conduct an overall community serviceability assessment, considering private on-site, communal and central systems, or combination thereof.
- Prepare Class "D" cost estimates for each of the communities visited. This is a preliminary estimate, based on available site information, indicating the approximate magnitude of cost of the recommended actions, which may be used in developing long-term capital plans and for preliminary discussion of proposed capital projects.

This assessment involved collecting background data and information about each community, undertaking a site visit, and preparing individual community reports for each participating First Nation. The assessment was conducted for each of the eight regions. This report summarizes the findings for the Saskatchewan region.

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1.1 Site Visits

Site visits in the Saskatchewan region were undertaken by personnel from Neegan Burnside Ltd. and sub-consultants, R.J. Burnside & Associates Limited and KGS Group during September and October of 2009 and May, June, July and August of 2010. Each visit included at least two team members. In addition to the consultant staff, additional participants including the Circuit Rider Trainer (CRT), INAC Representative, Environmental Health Officer (EHO) from Health Canada and Tribal Council Representatives were invited to attend the site visits. The additional participants that were able to attend are identified in each community report.

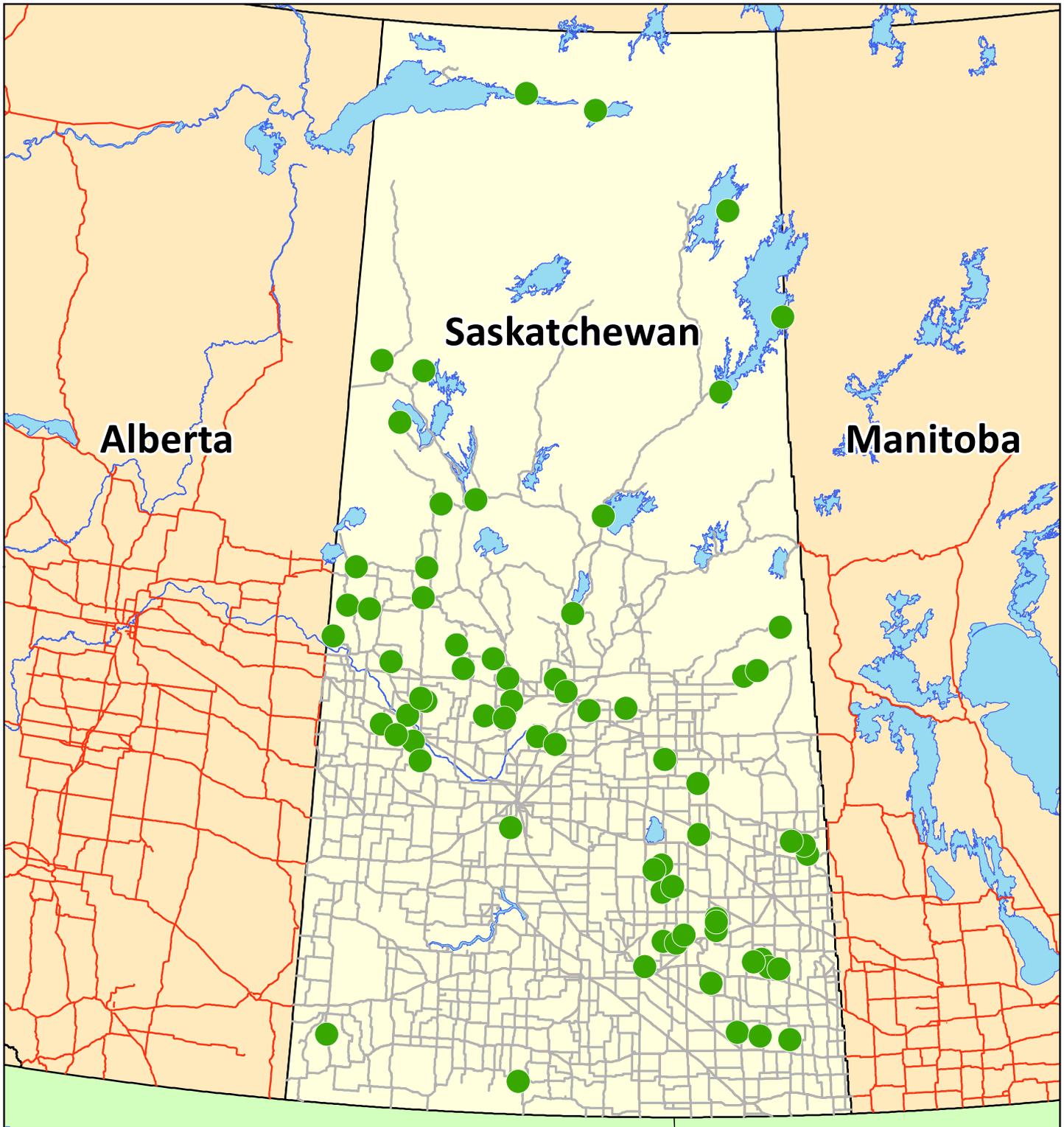
After confirming the number and type of systems that the First Nation uses to provide water and wastewater services to the community, and after considering the community's current and future population and servicing needs, an assessment was carried out of the communal water and wastewater systems, and 5% of the individual systems.

1.2 Reporting

Individual community reports have been prepared for each First Nation. In cases where the First Nation consists of multiple communities, each located in a geographically distinct area, a separate report was prepared for each community. In the Saskatchewan Region, there was 100% participation from the 69 First Nations with on-reserve water and wastewater infrastructure, which resulted in the preparation of 86 individual community reports. A report was not submitted for one First Nation that did not have any members living on-reserve and had no water or wastewater assets. Figure 1.1 indicates the location of each First Nation visited as a part of this study.

The reports include an assessment of existing communal systems and existing individual systems, identification of needs to meet Departmental, Federal and Provincial protocols and guidelines, and an assessment of existing servicing of the community along with projections of population and flows for future servicing for the 10 year period. Each report also includes the projected cost of the recommendations to meet departmental protocol, federal and provincial guidelines, regulations, and standards, an evaluation of servicing alternatives, and the life-cycle cost of each alternative.

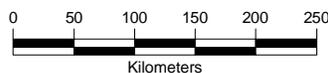
An annual water inspection, risk evaluation and ACRS inspection was completed for each system and are included in the Appendices of each report.



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Figure 1.1 - Saskatchewan First Nations Visited

- Saskatchewan First Nations (Visited)
- Saskatchewan Roads
- Major National Roads
- Major Lakes



NOTES

This map has been compiled with data of varying scale and accuracy. This is not a plan of survey.

SOURCES

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2.0 Regional Overview

The Saskatchewan region includes 69 First Nations with on-reserve water and wastewater infrastructure. There are 103 water systems (94 First Nations and 9 Municipal Type Agreements), and 88 wastewater systems (83 First Nations and five Municipal Type Agreements).

A water or wastewater system considered a First Nation system, consists of INAC-funded assets, and serves five or more residences or community buildings. A Municipal Type Agreement (MTA), on the other hand, is when First Nations are supplied with treated water from or send their wastewater to a nearby municipality or neighbouring First Nation or corporate entity as outlined in a formal agreement between the two parties.

In Saskatchewan, the First Nation community population ranges from 17 to 5,482 people, and household sizes range from 1.9 to 10.0 people per unit (ppu). The total number of homes is 14,248, and the average household size is 5.0 ppu.

2.1 Water Servicing

There are a total of 103 water systems serving 68 First Nations. One First Nation is serviced solely by individual wells. For water treatment, the 103 water systems include:

- 9 systems that receive their water supply through a Municipal Type Agreement (MTA)
- 70 groundwater systems
- seven groundwater under the direct influence of surface water (GUDI) systems
- 17 surface water systems.

For water distribution, the 103 systems include:

- 4 distribution systems that are maintained through a Municipal Type Agreement (MTA)
- 99 distribution systems that are maintained by the First Nation.

The following is a summary of the level of service being provided to the homes within the Saskatchewan region:

- 74% of the homes (10,523) are piped
- 21% of the homes (3,028) are on truck delivery
- 5% of the homes (652) are serviced by individual wells
- <1% of the homes (45) were reported to have no water service.

Table 2.1, below, provides an overview of the water systems by system classification, source type, treatment type and storage type. In general, the treatment system classification reflects the complexity of the treatment process and the distribution classification reflects the population of the community being serviced. Treatment systems labeled “Small System” and “None” typically represent systems with either disinfection only or no treatment.

Table 2.1 - Water Overview

System Classification	No.	% of Total
None	2	2%
Small System	8	8%
Level I	48	46%
Level II	36	35%
MTA	9	9%

Source Type	No.	% of Total
Groundwater	70	68%
Surface Water	17	16%
Groundwater GUDI	7	7%
MTA	9	9%

Storage	No.	% of Total
None	11	11%
Grade level	6	6%
Underground	86	83%

Treatment Type	No.	% of Total
None - Direct Use	4	4%
Disinfection Only	4	4%
Conventional	21	20%
Greensand Filtration	37	36%
Membrane Filtration	26	25%
Slow Sand	2	2%
MTA	9	9%

2.2 Wastewater Servicing

There are a total of 88 wastewater systems serving 67 First Nations. The remaining two First Nations are serviced solely by individual septic systems. For wastewater treatment, the 88 systems include:

- 5 wastewater systems are provided through a Municipal Type Agreement (MTA)
- 83 First Nation wastewater treatment systems using either facultative or aerated lagoons.

For wastewater collection, the 88 systems include:

- 3 wastewater collection systems that are maintained through a Municipal Type Agreement (MTA)
- 85 wastewater collection systems that are maintained by the First Nation.

The following is a summary of the level of service being provided to the homes within the Saskatchewan region:

- 50% of the homes (7,002) are piped
- 7% of the homes (1,060) are on truck haul
- 43% of the homes (6,142) are serviced by individual septic systems with tile fields or “shoot-out” systems
- <1% of the homes (44) are reported to have no service.

The homes without service were split between 12 different communities.

The following table provides an overview of the wastewater systems by system classification and treatment type:

Table 2.2 - Wastewater Overview

System Classification	No.	% of Total
Level I	83	94%
MTA	5	6%

Treatment Type	No.	% of Total
Aerated Lagoon	2	2%
Facultative Lagoon	81	92%
MTA	5	6%

3.0 Preliminary Results and Trends

3.1 Per Capita Consumption and Plant Capacity

For 103 of the communal water systems, the average per capita demand ranges from 30 L/p/d to 986 L/p/d, with an average per capita demand of approximately 280 L/p/d.

For the systems without flow data, an average per capita flow rate ranging from 225 L/p/d to 325 L/p/d for piped servicing and 90 L/p/d for truck haul was used to evaluate the water systems.

The distribution of per capita flow is outlined in Table 3.1.

Table 3.1 - Range of Per Capita Water Usage Rates

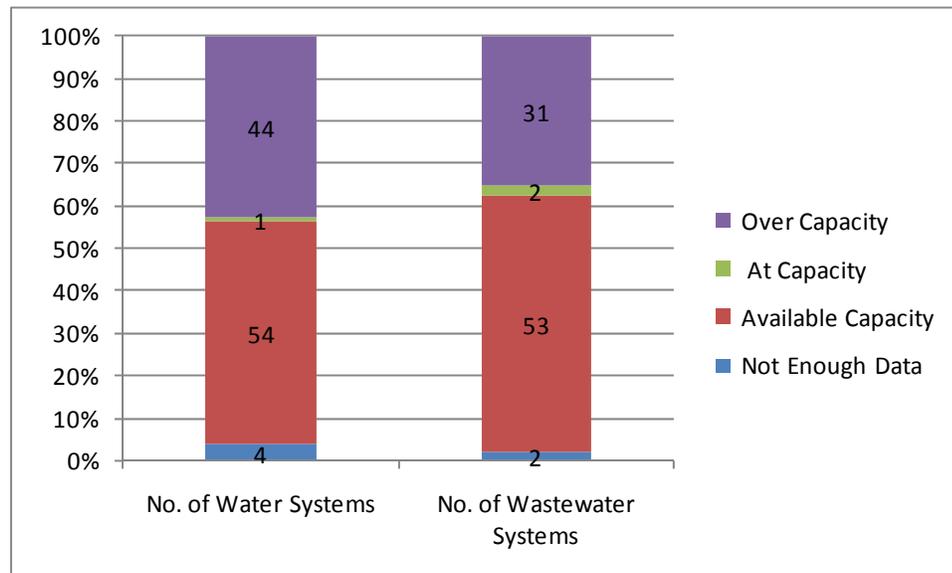
	No. of systems 2009
Less than 250 L/c/d	42
250 L/c/d to 375 L/c/d	46
Greater than 375 L/c/d	15

Historical flow data for wastewater was not available for most of the sewage systems. Therefore, to evaluate the ability of the existing infrastructure to meet the current and projected needs, an average daily flow was calculated based on the actual or assumed per capita water consumption, plus an infiltration allowance of 90 L/c/d for piped servicing.

The following summarizes the plant capacity for the water and wastewater systems:

- over capacity: the existing system is unable to meet the current needs
- at capacity: the existing system is able to meet the current needs
- available capacity: the existing system has sufficient capacity to meet more than the current needs
- not enough data: insufficient data available to determine the actual system capacity.

Figure 3.1 - Water and Wastewater Treatment Capacities



The data shows that 45 water systems and 33 wastewater systems are operating at or beyond their estimated capacities. The per capita demand for the plants identified as over capacity was within typical values for the region, according to available records.

3.2 Distribution and Collection

The household size for the 69 First Nations ranges from 1.9 to 10.0 people per unit (ppu), with an average of 5.0 ppu. The total number of piped connections in the region is 10,523 for water and 7,002 for wastewater. The average length per connection of watermain in the region is 72 m. The average length per connection of sewermain in the region is 43 m.

As shown in the table and figures below, there is no real correlation between the size of the community and the length of pipe per connection. The length of watermain per connection is much greater than the length of sanitary main per connection. However, this difference is because some communities provide piped water service only through small diameter, low-pressure lines and, as such, the homes are farther apart to allow for the installation of private sewage systems.

It should also be noted that, in some cases, the data provided for watermain includes low-pressure lines, dedicated transmission main lengths (with no service connections), and non-distribution mains (i.e. intake pipes, raw water pipes). As a result, the average length per connection is inflated, particularly for smaller communities where the additional pipe length is spread over a smaller number of connections.

The table below indicates the number of water and wastewater systems that have pipe lengths above and below 30 m/connection. It should be noted that this information was not available for all of the systems.

Table 3.2 - Average Water Distribution and Wastewater Collection Pipe Lengths

	Watermain	Sewer
Average m/connection	72	43
No. of systems with pipe lengths above 30 m/connection	85	70
No. of systems with pipe lengths below 30 m/connection	7	11

Figure 3.2 - Water Distribution - Average Pipe Length per Connection

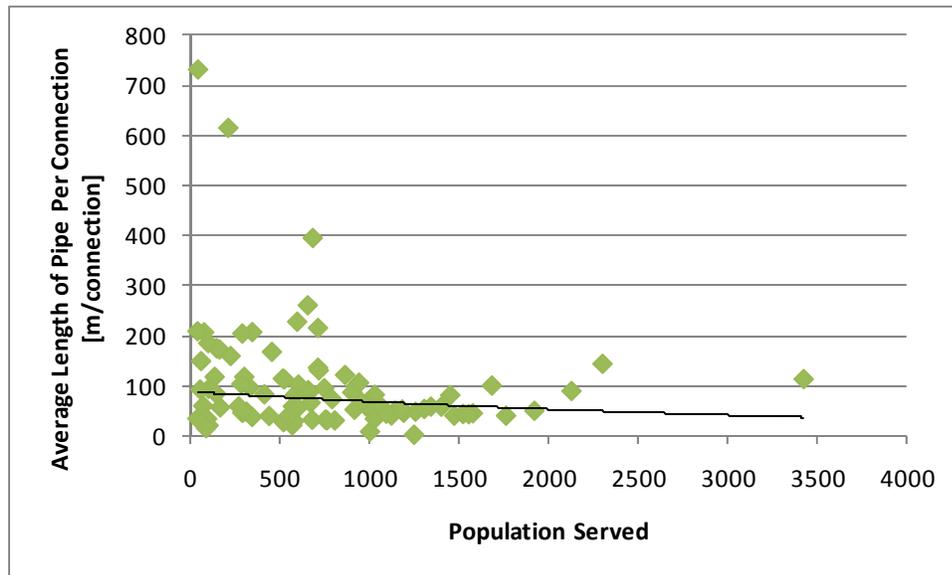
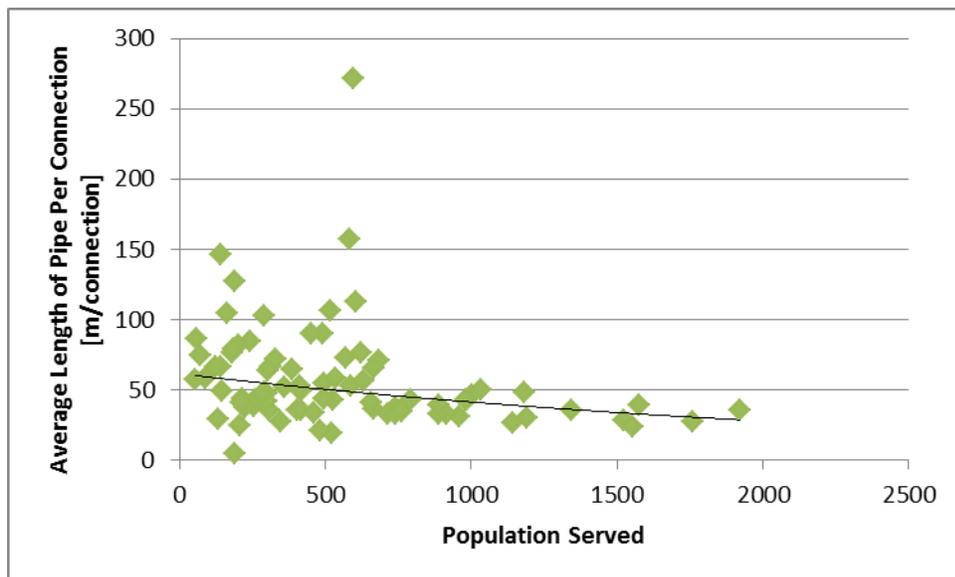


Figure 3.3 - Wastewater Collection: Average Pipe Length per Connection



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3.3 Water Risk Evaluation

A risk assessment has been completed for each water system according to the INAC Risk Level Evaluation Guidelines. Each facility is ranked in risk according to the following categories: Water Source, Design, Operation (and Maintenance), Reporting and Operators and the risk levels of all five categories are then used to determine the overall risk for the system.

Each of the five risk categories, as well as the overall risk level of the entire system, is ranked numerically from 1 to 10. Low, medium and high risks are defined as follows:

- **Low Risk (1.0 to 4.0):** These are systems that operate with minor deficiencies. Low-risk systems usually meet the water quality parameters that are specified by the appropriate Canadian Guidelines for drinking water (in particular, the *Guidelines for Canadian Drinking Water Quality (GCDWQ)*).
- **Medium Risk (4.1 to 7.0):** These are systems with deficiencies, which—individually or combined—pose a medium risk to the quality of water and to human health. These systems do not generally require immediate action, but the deficiencies should be corrected to avoid future problems.
- **High Risk (7.1 to 10.0):** These are systems with major deficiencies, which—individually or combined—pose a high risk to the quality of water. These deficiencies may lead to potential health and safety or environmental concerns. They could also result in water quality advisories against drinking the water (such as, but not limited to, boil water advisories), repetitive non-compliance with guidelines, and inadequate water supplies. Once systems are classified under this category, regions and First Nations must take immediate corrective action to minimize or eliminate deficiencies.

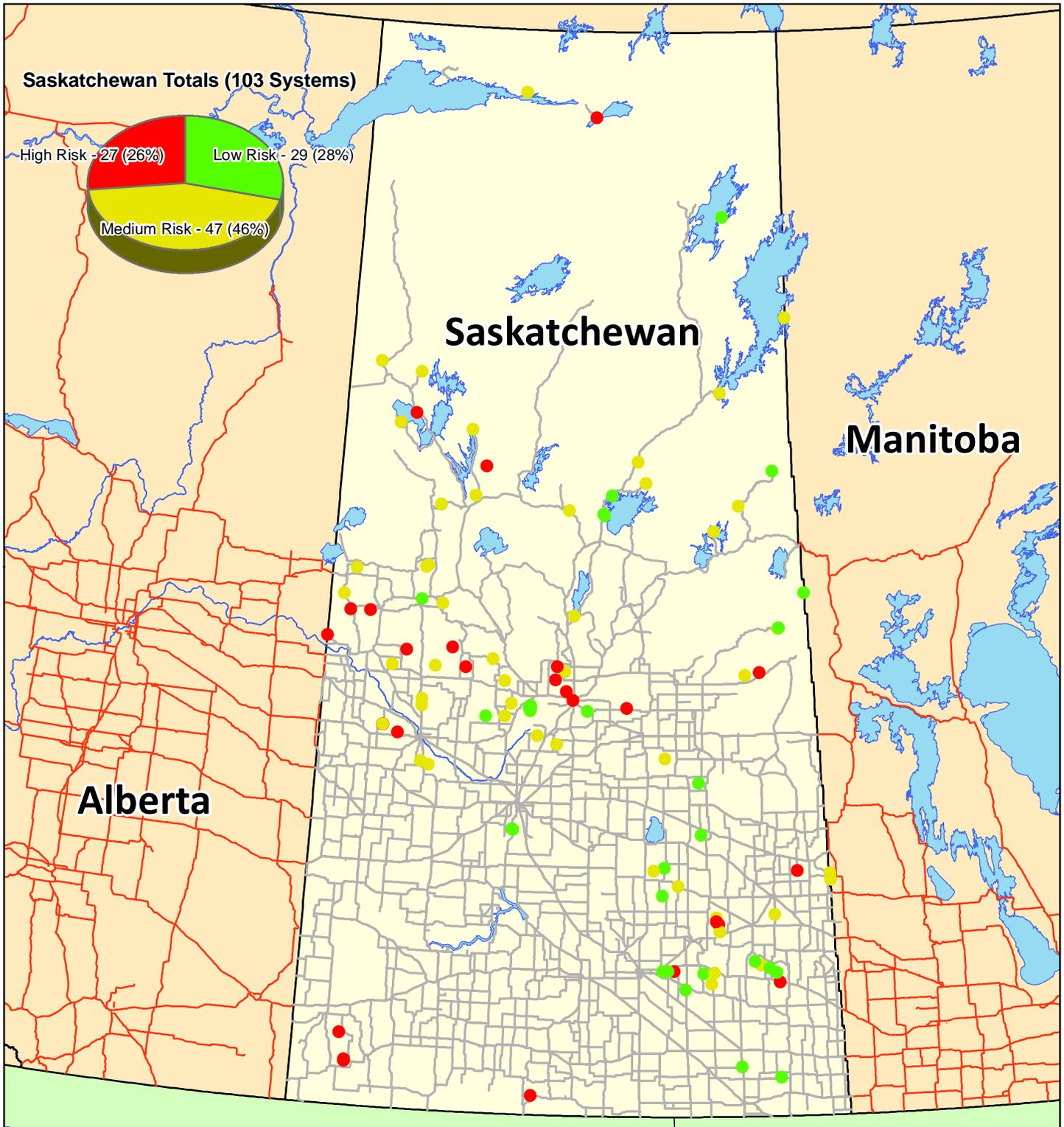
Regional Risk Summary:

Of the 103 water systems inspected:

- 27 are categorized as high overall risk
- 47 are categorized as medium overall risk
- 29 are categorized as low overall risk.

The table in Appendix E.1 summarizes the correlation between the component risk and the overall risk. In general, Municipal Type Agreement systems have the lowest risk, followed by groundwater systems, then surface water systems, and, finally, groundwater under the direct influence of surface water (GUDI) systems.

Figure 3.4 provides a geographical representation of the final risk for the water systems that were inspected.

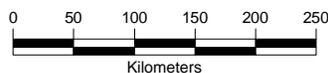


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Figure 3.4 - Saskatchewan Water System Risk

Water System Risk Level

- High
- Medium
- Low
- Saskatchewan Roads
- Major National Roads
- Major Lakes



NOTES

This map has been compiled with data of varying scale and accuracy. This is not a plan of survey.

SOURCES

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3.3.1 Overall System Risk by Source

The following table summarizes the overall system risk by water source. 57% of the GUDI systems, 27% of groundwater systems, and 24% of surface water systems are high-risk systems. None of the Municipal Type Agreement systems are classified as high risk. Generally, Municipal Type Agreement systems are assumed to have low-risk water supplies because the municipalities operate their systems in compliance with provincial legislation. For the Saskatchewan region, however, there are a number of Municipal Type Agreement water supplies where the treated water does not meet the GCDWQ, which resulted in medium-risk rankings for these systems.

Table 3.3 - Summary of Overall Risk Levels by Water Source

Overall Risk Level	Groundwater	GUDI	Surface Water	MTA	Total
High	19	4	4	0	27
Medium	31	2	11	3	47
Low	20	1	2	6	29
Total	70	7	17	9	103

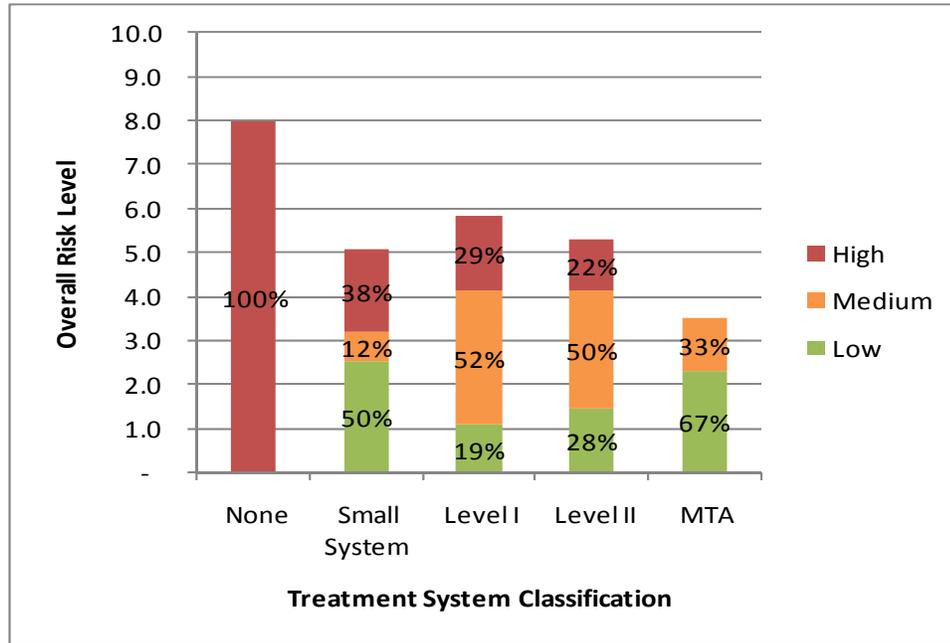
3.3.2 Overall System Risk by Treatment Classification

The following table summarizes the overall system risk by the classification level of the treatment system. System classification is based on a number of factors. There is no clear pattern between the system classification level and the overall system risk.

Table 3.4 - Summary of Overall Risk Levels by Treatment System Classification

Overall Risk Level	None	Small System	Level I	Level II	MTA	Total
High	2	3	14	8	0	27
Medium	0	1	25	18	3	47
Low	0	4	9	10	6	29
Total	2	8	48	36	9	103

Figure 3.5 - Risk Profile Based on Water Treatment System Classification



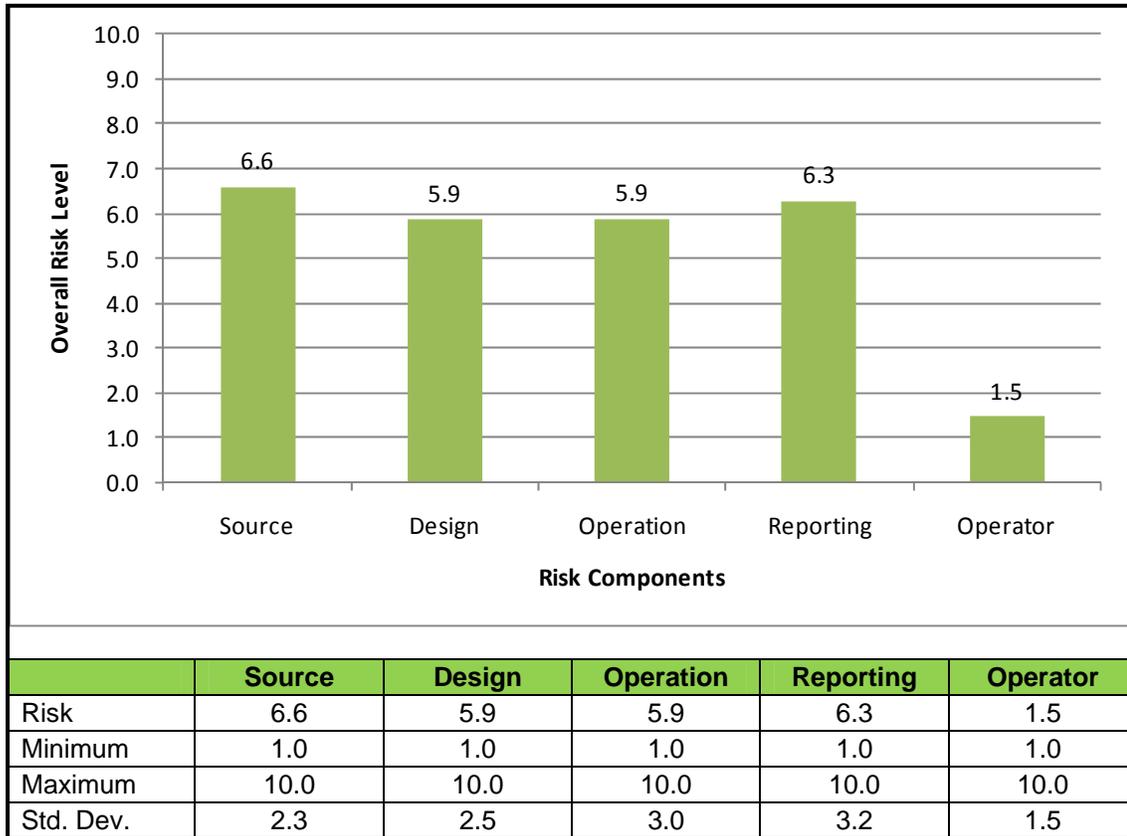
3.3.3 Overall Risk by Number of Connections

The majority of systems serving more than 100 connections tend to have a medium overall risk, while the systems serving less than 100 connections are fairly evenly distributed between all three risk categories (i.e. high, medium and low).

3.3.4 Component Risks: Water

The overall risk is comprised of five component risks: water source, design, operation, reporting and operator. Each of these component risk factors is discussed in the following sections.

Figure 3.6 - Water: Risk Profile Based on Risk Components



3.3.5 Component Risk - Water: Source

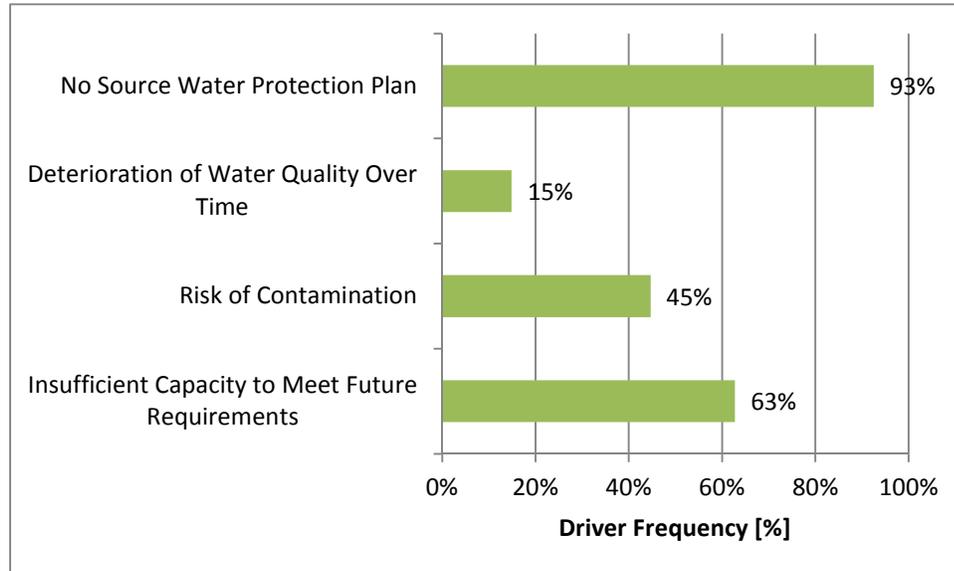
The risk associated with the water source has a mean score of 6.6. The mean source risk score by type of source is:

- groundwater at 6.3
- groundwater under the direct influence of surface water (GUDI) at 9.3
- surface water at 8.8
- Municipal Type Agreement (MTA) at 2.2.

The data indicates that systems that rely on GUDI or surface water typically have a higher component risk score than systems that rely on groundwater. The risk formula automatically assigns a higher base risk to these types of systems.

The following figure identifies drivers that contribute to source risk scores.

Figure 3.7 - Source Risk Drivers



3.3.6 Component Risk - Water: Design

The risk associated with the design has a mean score of 5.9. The mean design risk score by type of source is:

- groundwater at 5.7
- groundwater under the direct influence of surface water (GUDI) at 7.0
- surface water at 6.9
- Municipal Type Agreement (MTA) at 4.2.

The higher design risk associated with GUDI sources is likely because the original water source was considered to be groundwater and as a result, the only treatment required was disinfection. The level of treatment required for a GUDI source has been upgraded to be equivalent to surface water. Five of the GUDI systems are high risk, one is medium risk, and one is low risk.

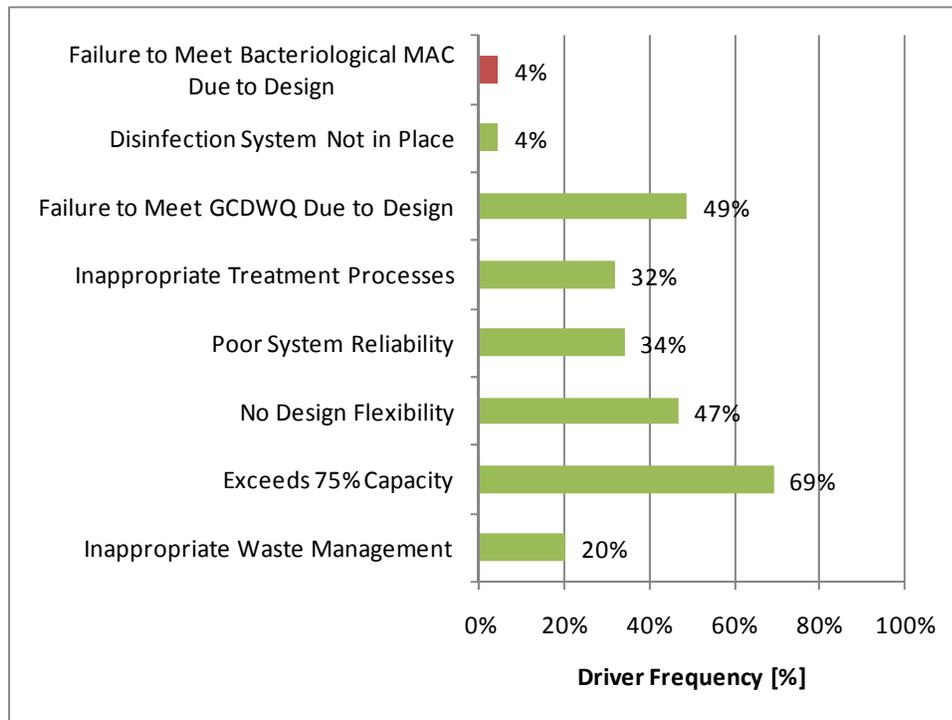
As part of the multi-barrier approach to water treatment, chlorination is now required for all water systems. Typically, a groundwater system has an increased design risk if there is no disinfection system in place, or if there is insufficient contact time to ensure that the chlorination process is adequate.

The higher risk for surface water sources and Municipal Type Agreements is typically because the treated water system or distribution system exceeds the GCDWQ for disinfection by-products.

There are several key drivers that have a significant impact on the region’s design risk scores, including:

- failure to meet the GCDWQ
- exceeding the GCDWQ Maximum Acceptable Concentration (MAC) for bacteria
- no disinfection system in place or a disinfection system that is not being used
- no appropriate treatment in place to meet INAC’s Protocol requirements
- problems with system reliability
- systems approaching or exceeding design capacity

Figure 3.8 - Design Risk Drivers



It should be noted that the design risk drivers in red result in the entire water system being given a high risk score, regardless of all of the other component risk scores.

3.3.7 Component Risk - Water: Operation

The risk associated with operation has a mean score of 5.9. The mean operation risk score by type of source is:

- groundwater at 5.9
- groundwater under the direct influence of surface water (GUDI) at 7.3
- surface water at 6.1
- Municipal Type Agreements (MTA) at 4.0.

There are several key drivers that have a significant impact on the region’s operation risk scores, including:

- failure to meet the GCDWQ
- exceeding the GCDWQ Maximum Acceptable Concentration (MAC) for bacteria
- maintenance logs being inadequately maintained
- lack of general system maintenance
- Emergency Response Plan not in place
- Operations & Maintenance manual not available or not in use.

Figure 3.9 - Operations Risk Drivers

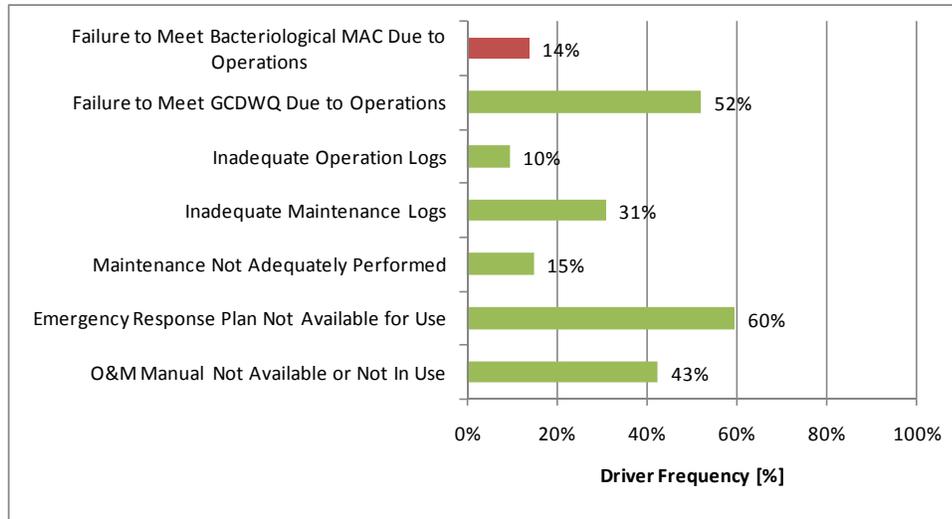
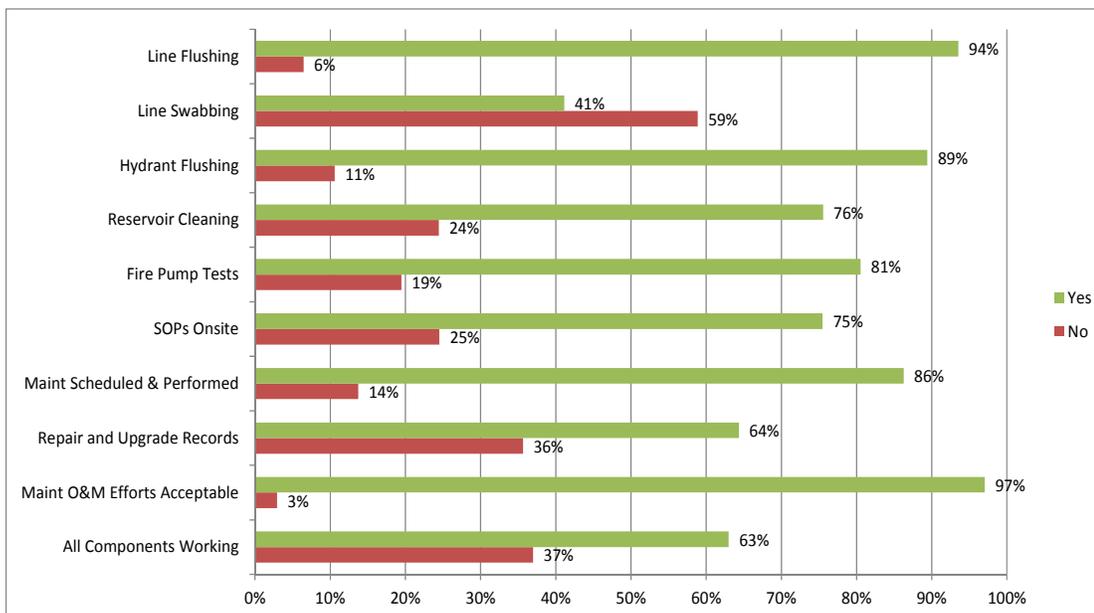


Figure 3.10 - Summary of Findings: Water Systems Operational Practices



One or more major components are not working for 37% of the systems. Although the operators for approximately 94% of systems practice line flushing and 89% flush hydrants, only 41% regularly swab watermains. Reservoir cleaning is completed for 76% of the systems and fire pump testing for 81% of the systems. Records of system maintenance and repairs were available for 64% of the systems.

3.3.8 Component Risk - Water: Reporting

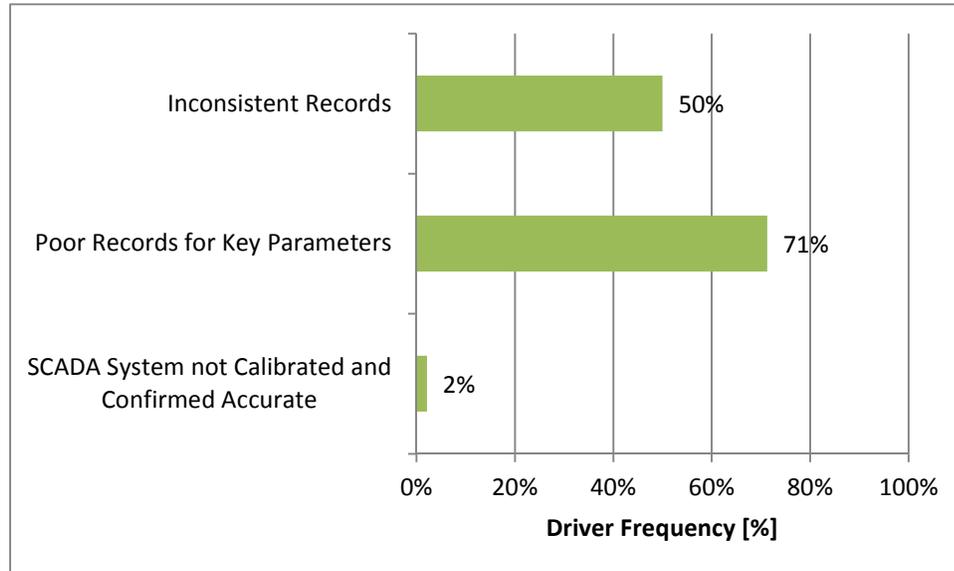
The risk associated with reporting has a mean score of 6.3. The mean reporting risk score by type of source is:

- groundwater at 6.4
- groundwater under the direct influence of surface water (GUDI) at 7.0
- surface water at 5.5
- Municipal Type Agreement (MTA) at 6.0.

For the majority of systems (71%), poor record keeping and reporting are the main drivers for the reporting risk. For water systems with a Supervisory Data Control Acquisition system, some operators are successfully decreasing risk by calibrating instruments to ensure that the information being recorded is accurate.

An important consideration is that the systems were evaluated based on the requirements for monitoring and reporting as set out in INAC’s Protocol. Generally, system monitoring and reporting do not meet these requirements. Operator awareness and training could have a significant impact on these risk scores.

Figure 3.11 - Reporting Risk Drivers



3.3.9 Component Risk - Water: Operator

The risk associated with the operator has a mean score of 1.5. Of the five risk components, this has the lowest mean score and is one of the components that is significantly reducing water-system risk in the Saskatchewan region.

The majority of the operators in the Saskatchewan region are certified to the appropriate level. However, 1 system does not have a primary operator, and 11 treatment systems and 13 distribution systems do not have a back-up operator. The mean operator risk score by type of source is:

- groundwater at 1.4
- groundwater under the influence of surface water (GUDI) at 2.1
- surface water at 1.6
- Municipal Type Agreement (MTA) at 1.0.

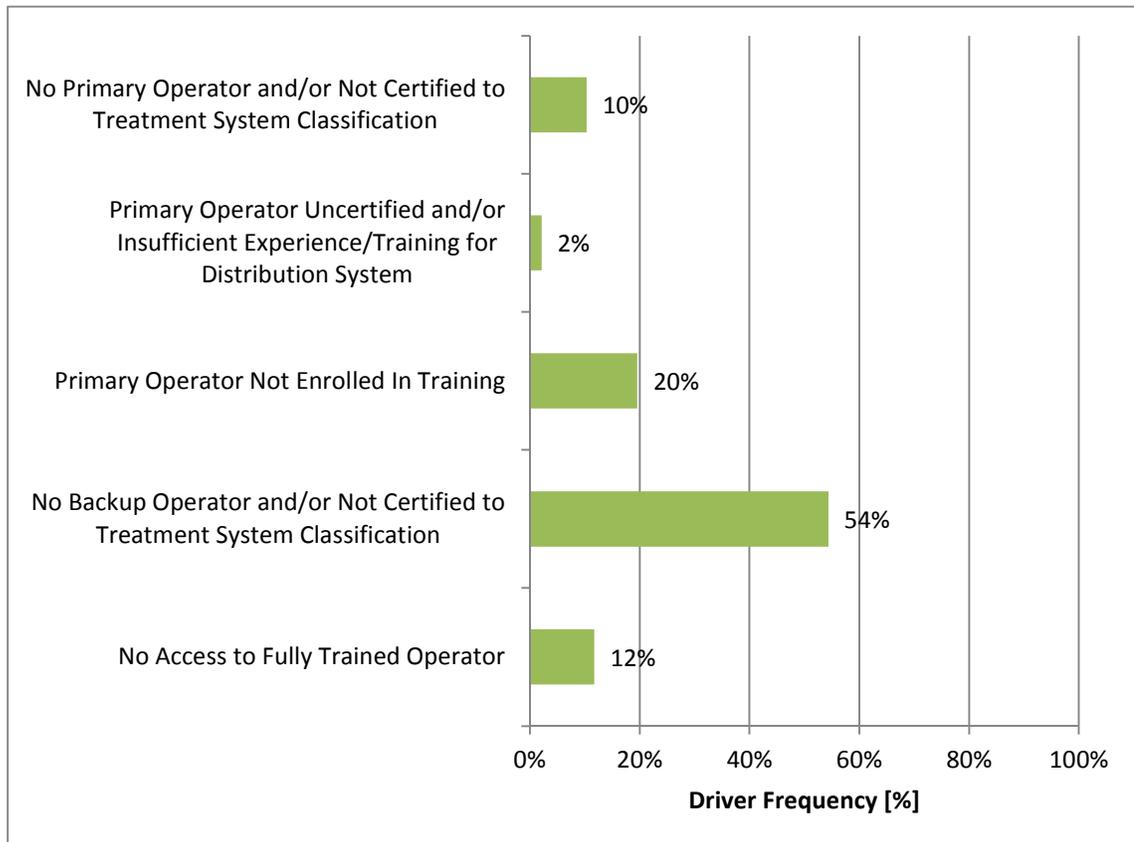
The extent to which existing systems have fully certified primary and backup operators is presented in Table 3.5. Of the 92 systems that require a certified operator for the water treatment system, 20% did not have a fully certified primary operator and 71% did not have a fully certified backup operator. Of the 97 systems that require a certified operator for the distribution system, 11% did not have a fully certified primary operator and 57% did not have a fully certified backup operator.

Table 3.5 - Water: Operator Status for the Saskatchewan Region

	Primary Operator		Backup Operator	
	Treatment	Distribution	Treatment	Distribution
No. of Systems Currently Without an Operator	1	1	11	13
No. of Systems with Operator with No Certification	8	10	39	40
No. of Systems with Operator Certified but not to the Required Level of the System	9	0	15	2
No. of Systems with Operator with Adequate Certification	74	86	27	42
No. of Systems Not Requiring Operators with Certification	11	6	11	6
Total No. of Systems	103	103	103	103

Those factors which frequently contribute to increased operator risk are identified in Figure 3.12. A lack of certification, lack of training and the lack of primary or backup operator are common drivers that increase operator risk.

Figure 3.12 - Operator Risk Drivers



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3.4 Wastewater Risk Evaluation

A risk assessment was completed for each wastewater system according to INAC's *Risk Level Evaluation Guidelines*. The risk of each facility is ranked according to the following categories: effluent receiver, design, operation, reporting and operators. The risk levels of all five categories are used to determine the overall risk for the system. The overall risk score is a weighted average of the component risk scores.

Each of the five risk categories, as well as the overall risk level of the entire system, is ranked numerically from 1 to 10. A risk ranking of 1.0 to 4.0 represents a low risk, a risk ranking of 4.1 to 7.0 represents a medium risk, and a risk of 7.1 to 10.0 represents a high risk.

Of the 88 wastewater systems inspected:

- 4 are categorized as high overall risk
- 44 are categorized as medium overall risk
- 40 systems are categorized as low risk.

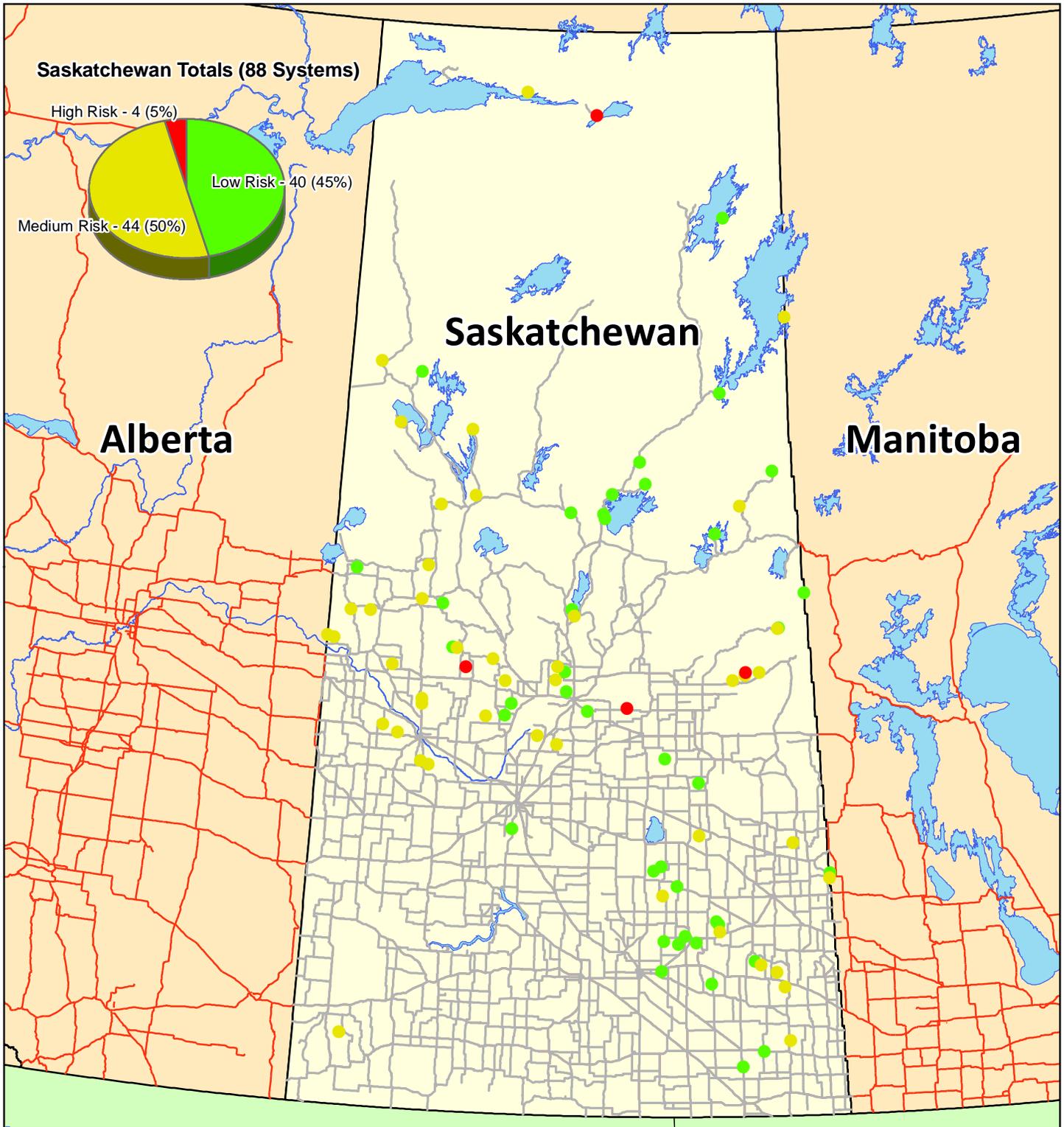
All of the wastewater Municipal Type Agreement systems are low risk.

Appendix E.2 provides a table that summarizes the correlation between component risk and overall risk.

Figure 3.13 provides a geographical representation of the final risk for the wastewater systems that were inspected.

3.4.1 Overall System Risk by Treatment Classification

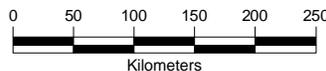
Figure 3.14 demonstrates the correlation between the overall system risk and the classification level of the treatment system. For Municipal Type Agreements, it is assumed that the municipality is operating their system in accordance with provincial legislation, which results in a low-risk rating.



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Wastewater System Risk Level Figure 3.13 - Saskatchewan Wastewater System Risk

- High
- Medium
- Low
- Saskatchewan Roads
- Major National Roads
- Major Lakes



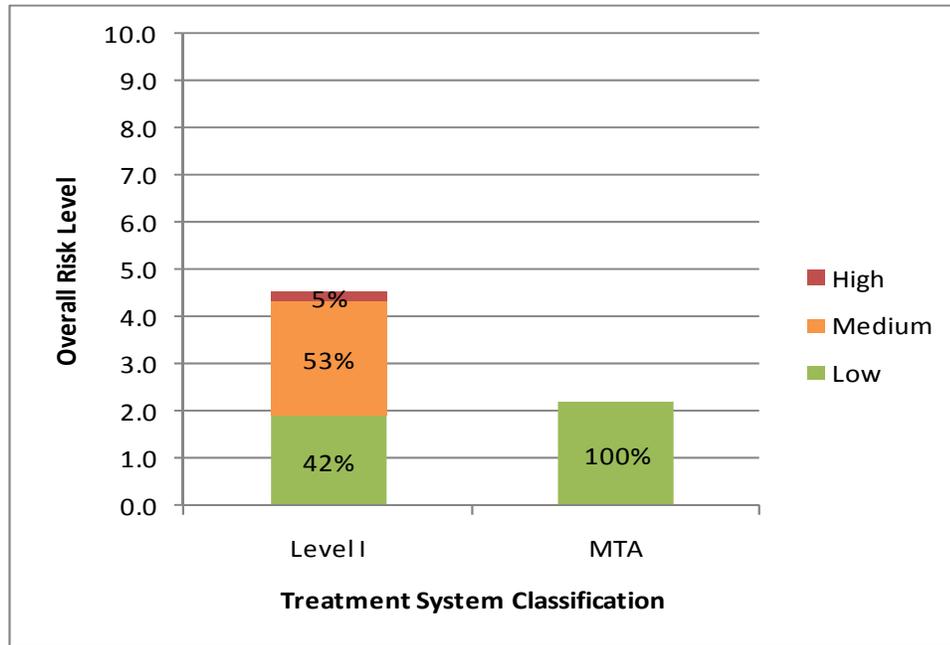
NOTES
 This map has been compiled with data of varying scale and accuracy. This is not a plan of survey.

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Project: FGY16308
 Drawn By: B. Goll
 Projection: Geographic, Canada LCC

Figure 3.14 - Risk Profile Based on Wastewater Treatment System Classification



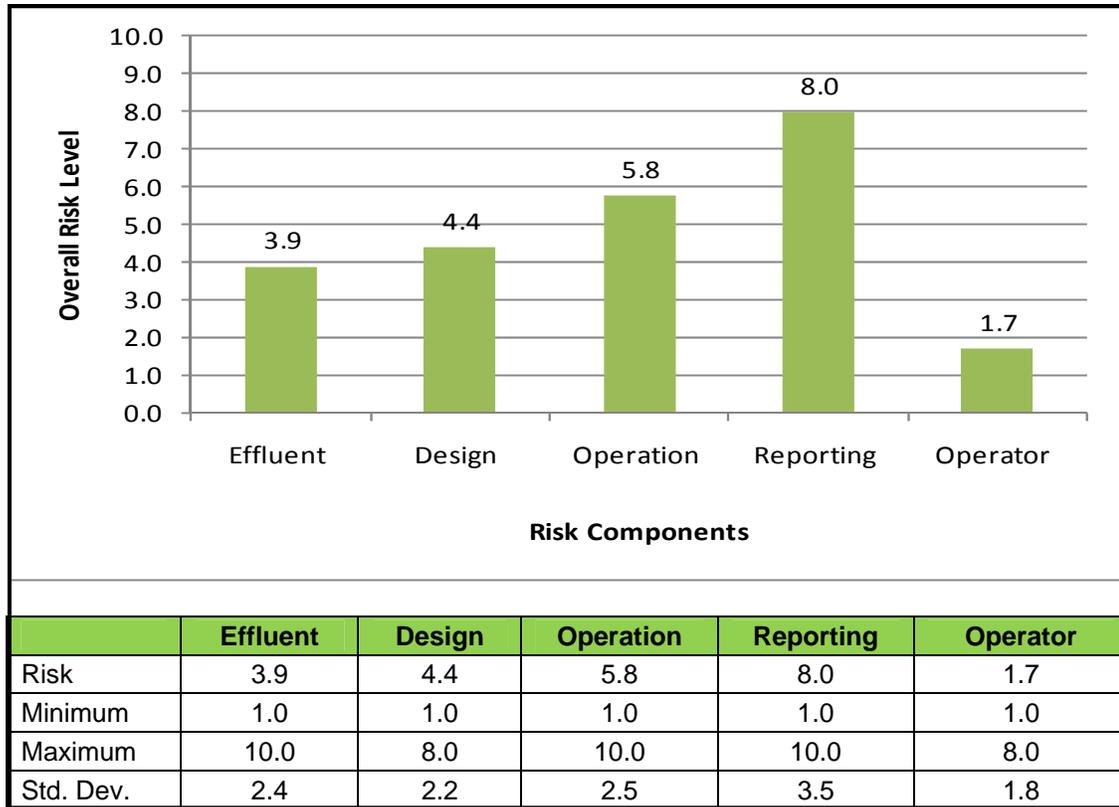
3.4.2 Overall System Risk by Number of Connections

For the Saskatchewan region, there is no clear pattern between the overall system risk and the number of connections.

3.4.3 Component Risks: Wastewater

The overall risk is comprised of five component risks: effluent receiver, design, operation, reporting and operators. Each of these component risk factors is discussed below.

Figure 3.15 - Wastewater: Risk Profile Based on Risk Components

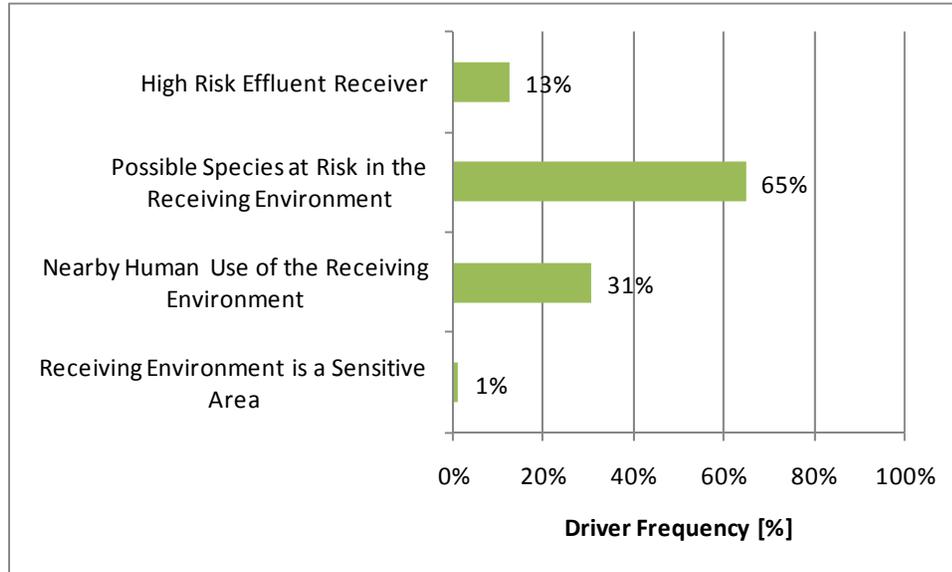


3.4.4 Component Risk - Wastewater: Effluent Receiver

The effluent receiver has a mean risk score of 3.9, and there is a fairly even distribution of the risk scores. The key drivers of this risk score are:

- the proximity of the receiving environment to species at risk
- the extent to which the receiver is required for other human uses, such as fishing, recreation or drinking water.

Figure 3.16 - Effluent Risk Drivers



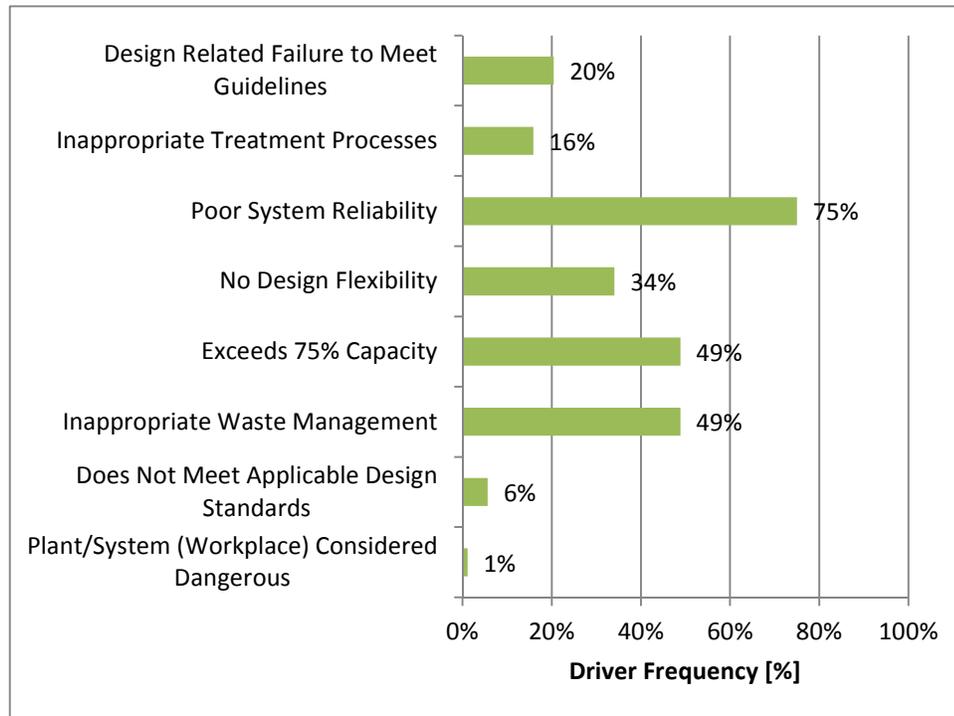
3.4.5 Component Risk - Wastewater: Design

The risk associated with the design has a mean score of 4.4. A total of 55 of the systems have a low-risk design score. Half of the overall high-risk systems also have a high design risk.

There are several key drivers of the design risk scores in the region, including:

- poor system reliability
- system lacks the flexibility required to meet future growth
- system exceeds 75% of the design capacity
- inappropriate waste management.

Figure 3.17 - Design Risk Drivers



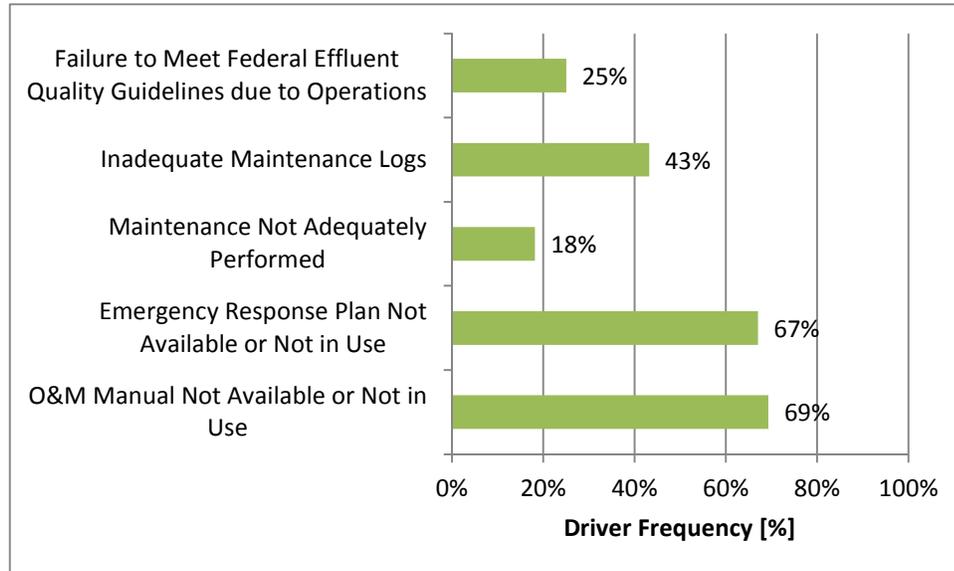
3.4.6 Component Risk - Wastewater: Operation

The risk associated with the operation has a mean score of 5.8. Most of the wastewater systems have a medium- or a high-risk score. This is identified as an area of opportunity for increased risk mitigation efforts.

There are several key drivers of increased operation risk in the region, including:

- failure to meet Federal Effluent Guidelines
- inadequate maintenance logs
- Emergency Response Plans not in place or not being used
- Operation & Maintenance manuals not available or not in use.

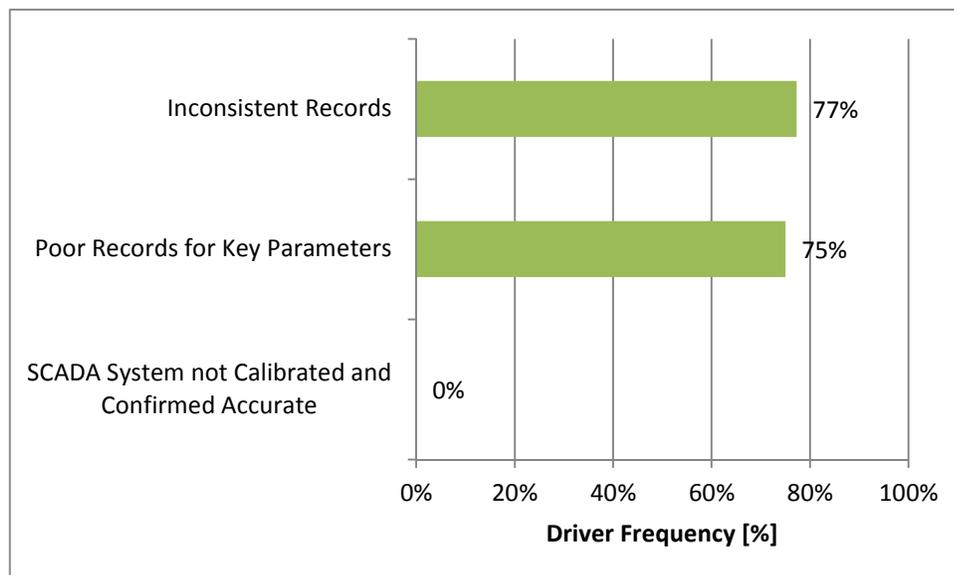
Figure 3.18 - Operation Risk Drivers



3.4.7 Component Risk - Wastewater: Reporting

The risk associated with reporting has a mean score of 8.0. The reporting risk component assesses whether operators maintain effluent-testing and system-monitoring records. Poor record keeping is a significant factor in raising the overall risk ranking for many communities in this region. For reporting, 20 systems have a low-risk score, 1 system has a medium-risk score, and 67 systems have a high-risk score.

Figure 3.19 - Reporting Risk Drivers



3.4.8 Component Risk - Wastewater: Operator

The risk associated with the operator has a mean score of 1.7. Operator risk is determined by whether or not the operators have adequate certification. The operator risk is the lowest mean component score for the region, which is because there are a high number of certified operators. There is only one system that is high risk because the primary operator does not have adequate certification and there is no backup operator.

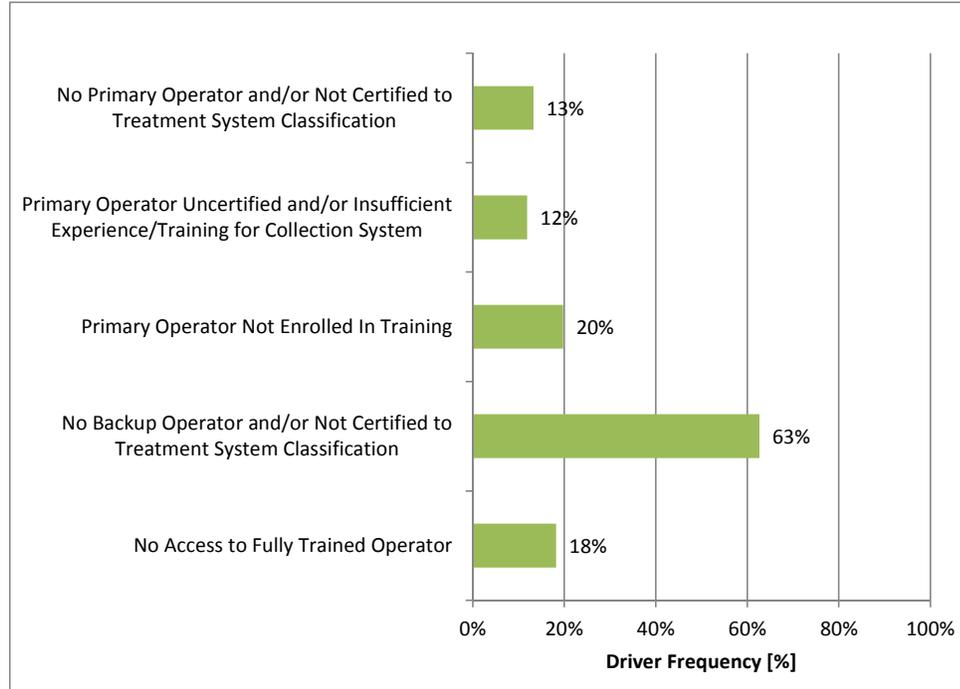
The extent to which existing wastewater systems have fully certified primary and backup operators is presented in Table 3.6. Of the 83 systems which require a certified operator for the wastewater treatment system, 11% did not have a fully certified primary operator and 64% did not have a fully certified backup operator. Of the 84 systems which require a certified operator for the collection system, 12% did not have a fully certified primary operator and 64% did not have a fully certified backup operator.

Table 3.6 - Wastewater: Operator Status for Saskatchewan Region

	Primary Operator		Backup Operator	
	Treatment	Collection	Treatment	Collection
No. of Systems Currently Without an Operator	0	0	10	10
No. of Systems with Operator with No Certification	11	10	42	41
No. of Systems with Operator Certified but not to the Required Level of the System	0	0	1	4
No. of Systems with Operator with Adequate Certification	72	74	30	29
No. of Systems Not Requiring Operators with Certification	5	4	5	4
Total No. of Systems	88	88	88	88

Those factors which frequently contribute to increased wastewater operator risk are identified in Figure 3.20. A lack of certification, lack of training and the lack of primary or backup operator are common drivers that increase operator risk.

Figure 3.20 - Operators Risk Drivers



3.5 Plans

Information was collected regarding the availability of various documents, including Source Water Protection Plans (SWPP), Maintenance Management Plans (MMP), operation and maintenance manuals and Emergency Response Plans (ERP). The following tables provide a summary of the percentages of First Nations that have plans in place.

Table 3.7 - Plans Summary: Water

Source	Percentage of Water Systems that have a (an)...		
	Source Water Protection Plan	Maintenance Management Plan	Emergency Response Plan
Groundwater	9%	51%	43%
Groundwater GUDI	0%	43%	14%
MTA	N/A	33%	33%
Surface Water	6%	71%	41%
Overall	7%	52%	40%

Table 3.8 - Plans Summary: Wastewater

<i>Percentage of Wastewater Systems that have a (an)...</i>	
Maintenance Management Plan	Emergency Response Plan
40%	33%

3.5.1 Source Water Protection Plan

Source water protection planning is one component in a multi-barrier approach to providing safe drinking water. Source Water Protection Plans seek to identify threats to the water source. They also establish policies and practices to prevent contamination of the water source, and to ensure that the water service provider is equipped to take corrective action in the event of a contamination. Source water protection is appropriate for both groundwater and surface water sources.

Only 7% of the systems inspected reported that they had completed a Source Water Protection Plan.

3.5.2 Maintenance Management Plans

Maintenance Management Plans are intended to improve the effectiveness of maintenance activities. They plan, schedule, and document preventative maintenance activities, and they document unscheduled maintenance. The plans represent a change from reactive to proactive thinking, and— when executed properly— they optimize maintenance spending, minimize service disruption and extend asset life.

Approximately 52% of the water systems and 40% of the wastewater systems indicated that they have a Maintenance Management Plan in place.

3.5.3 Emergency Response Plans

Emergency Response Plans are intended to be a quick reference to assist operators and other stakeholders in managing and in responding to emergency situations. Emergency Response Plans should be in place for both water and wastewater systems. They include key contact information for those who should be notified and who may be of assistance in case of emergency (agencies, contractors, suppliers, etc.), and they provide standard communication and response protocols. Emergency Response Plans identify recommended corrective actions for “foreseeable” emergencies, as well as methodologies for addressing unforeseen situations. They are essentially the last potential “barrier” in a multi-barrier approach to protecting the drinking water supply and the natural environment, and they provide the last opportunity to mitigate damages.

40% of the water systems and 33% of the wastewater systems have an Emergency Response Plan in place.

4.0 Cost Analysis

4.1 Upgrade to Meet INAC’s Protocols: Water

In 2006, INAC began to develop a series of Protocol documents for centralised and decentralised water and wastewater systems in First Nations communities. The Protocols contain standards for the design, construction, operation, maintenance, and monitoring of these systems.

One of the objectives of this study was to review the existing water and wastewater infrastructure, and to identify the potential upgrade costs to meet INAC’s Protocol, as well as federal and provincial guidelines, standards, and regulations. The total estimated construction cost for water system upgrades to meet the INAC Protocol is \$137 million.

Table 4.1 provides a breakdown of the estimated total capital costs identified. A separate line item is included for engineering and contingency. Figure 4.1 provides a comparison graph of each of the categories. Note that treatment alone comprises over half of the estimated costs.

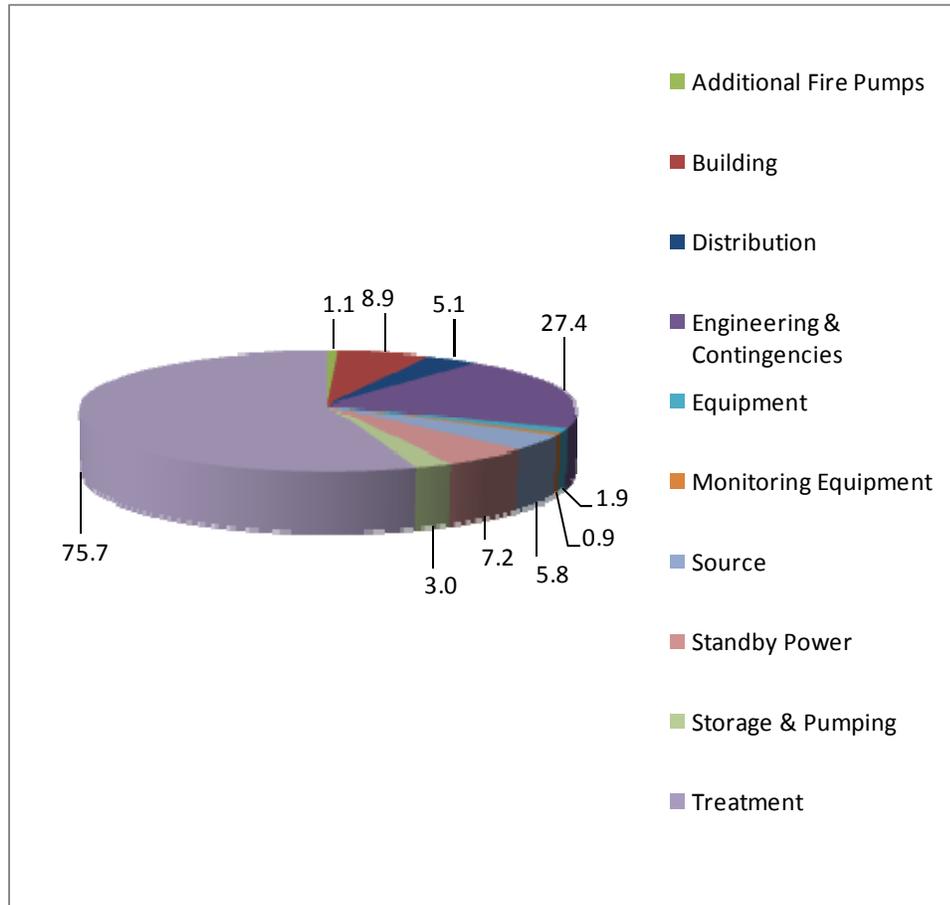
Table 4.1 - Estimated Total Construction Costs: Water

Description	Protocol - Estimated Cost	Federal - Estimated Cost	Provincial - Estimated Cost
Building	\$8,922,150	\$686,000	\$2,707,050
Distribution	\$5,097,000	\$827,000	\$811,000
Equipment	\$1,903,500	\$1,898,000	\$81,500
Additional Fire Pumps	\$1,055,000	\$0	\$455,000
Monitoring Equipment	\$874,200	\$661,700	\$391,700
Source	\$5,799,300	\$1,789,500	\$4,908,700
Storage & Pumping	\$3,038,000	\$2,510,000	\$2,380,500
Treatment	\$75,737,000	\$41,815,500	\$41,258,500
Standby Power	\$7,235,000	\$0	\$6,300,000
Engineering & Contingencies	\$27,438,650	\$12,572,550	\$14,879,550
Construction Total Estimate	\$137,099,800	\$62,760,250	\$74,173,500

There are 34 water systems that may potentially have groundwater under the influence of surface water (GUDI) water supplies. The upgrade costs for these systems have been estimated under the assumption that they will prove to be secure groundwater supplies, but further studies are recommended to confirm this assumption.

If the GUDI studies indicate that these supplies should be considered to be surface water *rather than* groundwater, then additional upgrades will be required to meet INAC’s Protocols. It is estimated that, depending on system capacity and site indices, an additional \$1.0 to \$2.5 million will be required for each system that needs to be upgraded to surface water treatment.

Figure 4.1 - Breakdown of the Estimated Construction Costs to Meet INAC's Protocol: Water (\$ - M)



Below is a breakdown of some of the major expenses:

Treatment costs include:

- Providing spare chemical feed equipment.
- Providing spare disinfection equipment.
- Providing additional filter trains.
- Providing secondary containment for treatment chemicals.
- Providing conventional treatment systems for GUDI sources.
- Providing surge suppression/uninterruptible power supplies for critical electronic equipment.
- Upgrading the capacity of existing water treatment plants.

Building costs include:

- Undertaking building expansion for incompatible chemicals.
- Undertaking building expansion to provide separate rooms for controls, electrical equipment and chemical storage.
- Providing fence for security purposes.
- Providing laboratory space complete with proper ventilation and plumbing.
- Providing security alarm systems.
- Providing screened reservoir vents.

Storage & Pumping costs include:

- Expanding to provide adequate storage for fire protection and domestic flows.
- Providing screened reservoir vents and overflow pipes.
- Retrofitting existing reservoirs to include baffling (concrete and/or curtain) so that there are no common walls between treated and raw water and/or treated water and backwash waste.

Plans/Documentation costs include:

- Developing and/or updating Emergency Response Plans.
- Developing and/or updating Maintenance Management Systems.
- Developing and/or updating Operation & Maintenance manuals.
- Developing and/or updating Source Water Protection Plans.
- Developing Standard Operating Procedures (SOPs)/Operational Plans (OP).
- Developing wellhead protection plans, including wellhead integrity recommendations.
- Providing as-built/record drawings for facility records.

Table 4.2 - Estimated Total Non- Construction Costs: Water

Description	Protocol - Estimated Cost	Federal - Estimated Cost	Provincial - Estimated Cost
Training	\$535,000	\$535,000	\$535,000
GUDI Studies	\$988,500	\$25,500	\$115,500
Plans/Documentation	\$5,172,500	\$3,992,500	\$3,407,500
Studies	\$4,649,000	\$3,386,000	\$3,480,000
Non-Construction Total Estimate	\$11,345,000	\$7,939,000	\$7,538,000

Additional annual operations and maintenance costs, shown in Table 4.3, include costs that occur annually for items that are not currently being completed to meet protocols, such as calibrating monitoring equipment, additional sampling, cleaning the reservoir, and backup operator’s salary.

Table 4.3 - Estimated Additional Annual Operation & Maintenance Costs: Water

Description	Estimated Cost
Sampling	\$1,087,500
Operations	\$422,000
Operator	\$345,000
Water O&M Total Estimated Cost	\$1,854,500

The total estimated cost, including construction and non-construction costs, for water system upgrades to meet the INAC Protocol is \$148.4 million. This excludes costs associated with potentially GUDI systems as discussed previously.

4.2 Upgrade to Meet INAC’s Protocol: Wastewater

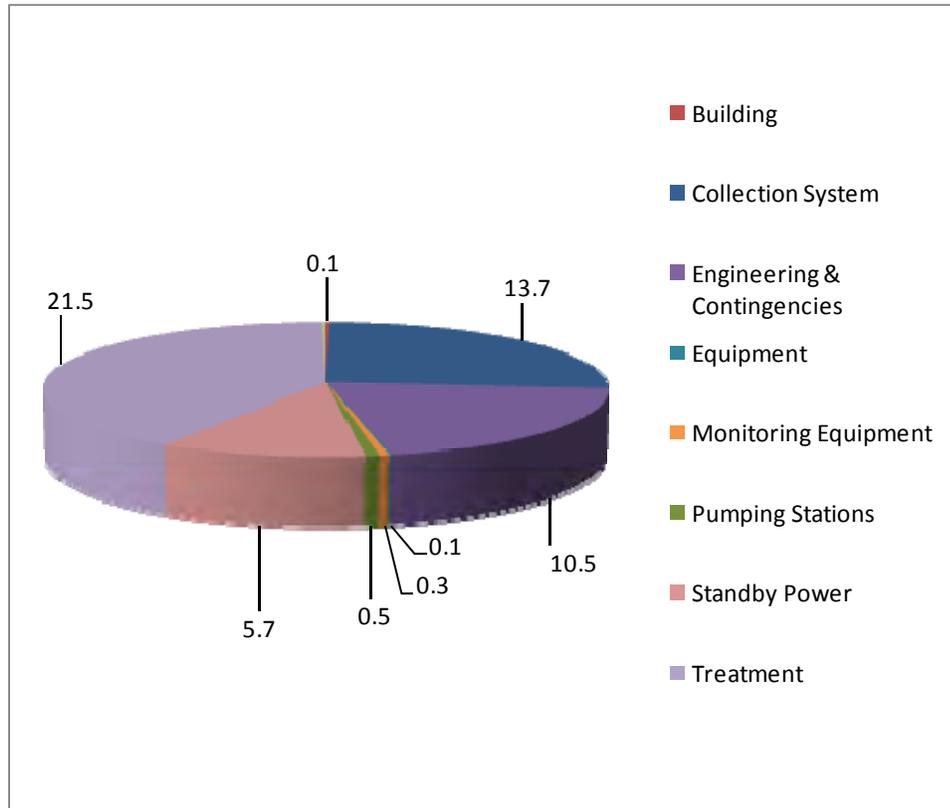
The total construction cost estimate for the wastewater system upgrades that will be required for systems to meet INAC’s Protocol is \$52 million. Below is a list of the specific needs, the number of systems impacted by the upgrades, and the total cost of each need.

Increasing capacity, extending the collection system, and providing standby power represent about 78% of the upgrade costs. 20 systems need upgrades to increase capacity, but they are high-cost upgrades. Providing standby power is a widespread necessity, but a low-cost need.

Table 4.4 - Estimated Total Construction and Related Costs: Wastewater

Description	Protocol - Estimated Cost	Federal - Estimated Cost	Provincial - Estimated Cost
Building	\$145,500	\$112,000	\$142,000
Collection System	\$13,710,000	\$13,710,000	\$13,710,000
Equipment	\$81,500	\$81,500	\$5,500
Monitoring Equipment	\$288,000	\$34,000	\$34,000
Pumping Stations	\$522,500	\$422,000	\$490,000
Treatment	\$21,464,000	\$16,844,000	\$16,844,000
Standby Power	\$5,675,000	\$5,350,000	\$5,350,000
Engineering & Contingencies	\$10,509,200	\$9,168,700	\$9,180,900
Construction Total Estimate	\$52,395,700	\$45,722,200	\$45,756,400

Figure 4.2 - Breakdown of the Estimated Construction Costs to Meet Protocol: Wastewater (\$ - M)



Below is an itemized breakdown of some of the major expenses:

Treatment costs include:

- installing rodent screens on wastewater outfalls
- undertaking expansion/upgrades of wastewater treatment lagoons
- providing fence for security purposes, complete with locked gates and signage.

Collection costs include:

- extending existing collection systems
- providing additional wastewater haulage trucks.

Table 4.5 - Estimated Total Non-Construction and Related Costs: Wastewater

Description	Protocol - Estimated Cost	Federal - Estimated Cost	Provincial - Estimated Cost
Training	\$240,000	\$240,000	\$240,000
Plans/Documentation	\$1,218,500	\$703,500	\$498,500
Studies	\$747,000	\$516,000	\$516,000
Non-Construction Total Estimate	\$2,205,500	\$1,459,500	\$1,254,500

Additional annual operations and maintenance costs, as shown in Table 4.6, include costs that occur annually, for items that are not currently being completed to meet protocols, such as calibrating monitoring equipment, additional sampling, and backup operator's salary.

Table 4.6 - Estimated Additional Annual Operations & Maintenance Costs: Wastewater

Description	Estimated Cost
Sampling	\$124,200
Operations	\$6,000
Operator	\$55,000
Wastewater O&M Total Estimated Cost	\$185,200

The total estimated cost, including construction and non-construction costs, for wastewater system upgrades is \$54.6 million.

4.3 Upgrade Cost Summary

Table 4.7 provides a summary of the upgrade costs to meet INAC's Protocol, and federal and provincial guidelines, standards, and regulations:

Table 4.7 - Summary and Comparison of Upgrade Costs

	Total Estimated Cost	
	Water	Wastewater
Upgrade to meet Protocol	\$148,444,800	\$54,601,200
Upgrade to meet Federal Guidelines	\$70,699,250	\$47,181,700
Upgrade to meet Provincial Guidelines	\$81,711,500	\$47,010,900

The following tables present a breakdown of the costs (by risk level) to meet INAC's Protocols.

Table 4.8 - Breakdown of Protocol Estimated Costs by Risk Level: Water

Risk Level	Short Term	Long Term	Total
High	\$37,000,317	\$16,266,147	\$73,267,341
Medium	\$48,583,146	\$6,471,128	\$73,423,200
Low	\$711,517	\$453,899	\$1,754,258
Total	\$86,294,980	\$23,191,174	\$148,444,800

Table 4.9 - Breakdown of Protocol Estimated Costs by Risk Level: Wastewater

Risk Level	Short Term	Long Term	Total
High	\$4,142,890	\$0	\$4,142,890
Medium	\$38,530,551	\$6,192	\$38,536,742
Low	\$11,921,567	\$0	\$11,921,567
Total	\$54,595,008	\$6,192	\$54,601,200

4.4 Asset Condition and Reporting System Needs

ACRS (Asset Condition and Reporting System) inspections were completed for all water and wastewater related assets. For the purposes of this assessment, ACRS needs were limited to required repairs of existing facilities, and did not include any upgrade costs, in order to avoid duplication with the Upgrade to Protocol needs identified. The following two tables (Tables 4.10 and 4.11) provide a summary of the required operation & maintenance repairs broken down by the type of asset for both water and wastewater systems.

Table 4.10 - Asset Condition Reporting System Identified Operation & Maintenance Costs: Water

Asset Code	Description	Estimated Cost
A5A	Buildings	\$481,825
B1B	Watermains	\$240,610
B1C/B1D	Treatment	\$1,038,400
B1E	Reservoirs	\$166,110
B1G	Standpipe/Truckfill	\$42,100
B1F	Community Wells	\$186,050
B1I	Low Lift Pumping	\$27,000
B1H	High Lift Pumping	\$296,550
E4A	Trucks	\$200
	Water ACRS Total Estimated Cost	\$2,478,845

Table 4.11 - Asset Condition and Reporting System Identified Operation & Maintenance Costs: Wastewater

Asset Code	Description	Estimated Cost
A5B	Buildings	\$785,450
B2A	Sewers	\$45,250
B2H/B2J	Lift Stations & Forcemains	\$617,150
B2E/B2I	Lagoons	\$2,557,800
B2F	Septic Systems	\$7,050
E3A	Trucks	\$4,000
	Wastewater ACRS Total Estimated Cost	\$4,016,700

4.5 Community Servicing

An analysis was completed to evaluate future servicing alternatives for a 10-year design period. The analysis considers a variety of alternatives, including expanding existing systems, developing new systems, establishing local Municipal Type Agreements (if applicable), and using individual systems.

A theoretical operation and maintenance cost was developed for each alternative, along with a 30-year life-cycle cost. The cost of the upgrades that are necessary for systems to meet INAC’s Protocol is included in the new servicing cost, if appropriate (i.e. for new servicing alternatives that include continued use of the existing system).

The following table summarizes the capital cost and the total estimated operation & maintenance cost of the recommended servicing alternatives.

Table 4.12 - Future Servicing Costs

	Total Estimated Cost		Cost Per Connection	
	Water	Wastewater	Water	Wastewater
Future Servicing Cost	\$400,000,000	\$280,000,000	\$18,600	\$13,100
Annual O&M to service future growth	\$37,500,000	\$21,200,000	\$1,700	\$1,000

The existing servicing in the Saskatchewan region includes piped and trucked connections and individual servicing. Most communities include a core area of greater density around community buildings, typically serviced by piped water with fire protection and gravity sewer lines, and rural lots, serviced by low pressure water lines, trucked water delivery, or individual wells for water, and trucked sewage haul or private septic systems for wastewater.

In evaluating future servicing options, the location of new homes in core areas with piped servicing, or rural areas with low pressure water or individual servicing, was considered. In most cases piped water and sewer lines provided the most economical option as well as a higher level of service. This assumes that future homes would be constructed in a more compact subdivision type setting adjacent to the existing serviced area. In cases

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where residents choose to build homes in outlying areas, individual or truck haul servicing may be more appropriate.

Modification of the servicing to existing homes was not considered in the future servicing evaluation, except in cases where the existing servicing methods posed a health risk or had serious operational concerns. In some areas of the region existing individual wells have concentrations of naturally-occurring metals such as lead, arsenic, or uranium, at levels above the federal limits. Other private wells are installed without adequate casing or wellhead protection and are susceptible to bacteriological contamination from the surface. In some cases it may be possible to replace existing wells with cisterns for trucked delivery or connect to low pressure water lines.

Private septic systems are used extensively throughout the region, and in many cases these systems pose operational concerns because of poor soil conditions or improper installation techniques. Although the region has had a longstanding, cost-sharing incentive program to convert individual surface discharge septic systems (shoot-outs) to sub-surface disposal systems, such as tile fields, mounds, and/or seepage pits, many septic systems continue to rely upon surface discharge systems.

Regional cost-sharing incentives have essentially eliminated the use of single-family lagoon systems, but additional efforts will be required to reduce the current environmental and health hazards that are associated with surface discharge or “sewage spray jet” systems. In most cases, it should be possible to replace surface discharge systems with sub-surface disposal facilities constructed specifically for the conditions or with truck haul service. Low-pressure sewer lines may be another viable solution in some locations, although they are not used extensively in the region.

It is assumed that houses without service in the Saskatchewan region are not viable for renovation and will need to be replaced. Site inspections confirmed that there are a total of 44 homes without wastewater services and 45 homes without any form of water service. The cost for the required replacement of these housing units has not been carried as part of this study.

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All 69 First Nations in the Saskatchewan Region with water and wastewater infrastructure were visited during the completion of this project. 9 of the First Nations, or 9%, are serviced by Municipal Type Agreements with a neighbouring municipality for water, while 5 communities are serviced by Municipal Type Agreements for wastewater. The majority of First Nations have a core area serviced with piped distribution with the outlying areas serviced by individual wells and septic systems or by truck haul. Only one First Nation is serviced entirely by individual wells, and two First Nations are serviced entirely by individual septic systems.

According to INAC, a “Public System” serves five or more houses or community buildings. In Saskatchewan, however, a “Public System” was defined as a system that provides services to three or more houses, which has led to many three-house systems.

In the Saskatchewan region, there are 27 water systems and 4 wastewater systems identified as high risk. Although there are multiple factors that contribute to risk, the analysis suggests that INAC, Health Canada, and Band Councils should give design and operational concerns the most weight, particularly when the concern is related to the protection of public health or to the environment. The high-risk water systems in the region typically require system upgrades or improved operational procedures to meet the GCDWQ.

According to the assessment, INAC, First Nations and Health Canada can reduce risk significantly by ensuring that all water and wastewater systems are designed and constructed in accordance with INAC’s Protocols and that they are operated in accordance with best management practices.

A significant concern is that 69% of the water systems have exceeded 75% of their design capacity. Historical standards that promoted the use of 180 L/p/d for the design of piped water systems have, in part, contributed to the water treatment plant capacity problem in the region. Although the Saskatchewan region took the initiative in 2004 to increase the minimum water consumption rates for piped system design to 235 L/p/d through a local Operating Instruction, the rates used for design purposes continue to fall short of actual water consumption data, which is currently averaging 280 L/p/d.

Ammonia in the water supply is a recurring concern, interfering with sodium hypochlorite addition. Use of chlorination or pretreatment with ion exchange or membrane filtration may be an option.

In terms of positive developments, the Saskatchewan region has significantly reduced risk levels through a very aggressive and effective program that facilitates the certification of First Nation water and wastewater operators. This program is supported by an effective regional Circuit Rider program, which provides competent and committed training staff for First Nation operators through the Saskatchewan Water Corporation, and by the Saskatoon, Prince Albert Grand Council and Meadow Lake Tribal Council organizations. That the mean operator risk scores for water and wastewater are so low—1.5 for water and 1.7 for wastewater—reflects the success of these efforts. Risk could also be reduced with the completion of various planning tools, including Source Water Protection Plans, Maintenance Management Plans and Emergency

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Response Plans. Currently, Source Water Protection Plans are available for only 7% of the regional water systems.

Various individual First Nations commented that current Operation & Maintenance budgets are often insufficient to retain operators, to provide ongoing component replacement, and to perform all of the monitoring and recording requirements. A regional review of current Operation & Maintenance unit costs for water and wastewater infrastructure may be warranted.

The Saskatchewan region relies solely upon lagoon systems for communal wastewater treatment. Many lagoons appear to experience exfiltration. It is not clear whether exfiltration was part of the original design intent, and it may be appropriate to investigate whether this practice has any negative impacts.

Wastewater sampling prior to effluent discharge appears to be another area to address in order to minimize the overall risk significantly. Although some operators do sample, test and record effluent quality prior to discharge, the practice is not consistent for all systems across the region. To address the reporting risk component for wastewater systems, INAC, in conjunction with First Nations, Health Canada, and/or Environment Canada, could develop a protocol for sampling, testing, reporting and monitoring.

In Saskatchewan region, low pressure water lines are used to connect many rural houses. Septic systems are used extensively, but many operational concerns were observed. Individual surface discharge systems pose health and environmental concerns.

Appendix A
Glossary

Appendix A: Glossary of Terms and Acronyms

Aeration (see also lagoon): The process of bringing air into contact with a liquid (typically water), usually by bubbling air through the liquid, spraying the liquid into the air, allowing the liquid to cascade down a waterfall, or by mechanical agitation. Aeration serves to (1) strip dissolved gases from solution, and/or (2) oxygenate the liquid. (Gowen Environmental)

Aesthetic Objective (AO): Aesthetic objectives are set for drinking water quality parameters such as colour or odour, where exceeding the objective may make the water less pleasant, but not unsafe. (INAC *Protocol for Decentralised Water and Wastewater*)

Ammonia (See also: Potable water; Effluent quality requirements): A pungent colorless gaseous alkaline compound of nitrogen and hydrogen (NH₃) that is very soluble in water and can easily be condensed to a liquid by cold and pressure (*Merriam-Webster*). Ammonia is used in several areas of water and wastewater treatment, such as pH control. It is also used in conjunction with chlorine to produce potable water. The existence of ammonia in wastewater is common in industrial sectors as a by-product of cleaning agents. This chemical impacts both human and environmental conditions. Treatment of ammonia can be completed in lagoon systems and mechanical plants. (R.M. Technologies)

Arsenic: A metallic element that forms a number of compounds. It is found in nature at low levels, mostly in compounds with oxygen, chlorine, and sulphur; these are called inorganic arsenic compounds. Organic arsenic in plants and animals combines with carbon and hydrogen. Inorganic arsenic is a human poison. Organic arsenic is less harmful. High levels of inorganic arsenic in food or water can be fatal. (Medicinenet.com)

Aquifer (confined): A layer of soil or rock below the land surface that is saturated with water. There are layers of impermeable material both above and below it, and it is under pressure so that when the aquifer is penetrated by a well, the water will rise above the top of the aquifer. (INAC *Protocol for Decentralised Water and Wastewater Systems*)

Aquifer (unconfined): An unconfined aquifer is one whose upper water surface (water table) is at atmospheric pressure, and thus is able to rise and fall. (INAC *Protocol for Decentralised Water and Wastewater Systems*)

As-built/record drawings: Revised set of drawing submitted by a contractor upon completion of a project or a particular job. They reflect all changes made in the specifications and working drawings during the construction process, and show the exact dimensions, geometry, and location of all elements of the work completed under the contract. Also called as-built drawings or just as-builts.

ACRS Inspection (Asset Condition Reporting System Inspection): For centralised water and wastewater systems, an ACRS (asset condition reporting system) inspection of the system is to be performed once every three (3) years by a qualified person (consulting engineer, Tribal Council engineer), who is not from the First Nation involved, to assess the condition of the asset, adequacy of maintenance efforts, and need for additional maintenance work. The ACRS inspection report will be discussed with, and submitted to, the First Nation council and the INAC regional office. Inspections will be conducted in accordance with the ACRS Manual, a copy of which can be obtained from the INAC regional office.

Bacteria (plural) bacterium (singular): Microscopic living organisms usually consisting of a single cell. Bacteria can aid in pollution control by consuming or breaking down organic matter in sewage and/or other water pollutants. Some bacteria may also cause human, animal, and plant health problems. Bacteria are predominantly found in the intestines and feces of humans and animals. The presence of *coliform* bacteria in water indicates the contamination of water by raw or partially treated sewage. (*INAC Protocol for Decentralised Water and Wastewater Systems*)

Baffle (concrete and/or curtain): Vertical/horizontal impermeable barriers in a pond or reservoir. Baffles direct the flow of water into the longest possible path through the reservoir in order to eliminate short-circuiting in the water treatment system. In potable water treatment, short-circuiting can reduce the effectiveness of disinfectants. In effluent treatment, short-circuiting may result in an increase of pollutants at the outlet. Short-circuiting occurs when water flows directly from the inlet to the outlet across a pond or reservoir. (Layfield)

BOD₅ (Biochemical Oxygen Demand): The most widely used parameter of organic pollution applied to both wastewater and surface water is the 5-day BOD (BOD₅). This determination involves the measurement of the dissolved oxygen used by microorganisms in the biochemical oxidation of organic matter. BOD test results are used to: determine the approximate quantity of oxygen that will be required to biologically stabilize the organic matter present; to determine the size of waste treatment facilities; to measure the efficiency of some treatment processes; and to determine compliance with wastewater discharge permits. (Metcalf & Eddy)

Capacity (actual vs. design): Refers to the capacity of the treatment system, with the “design capacity” being the flow rate proposed by the designer or manufacturer. If the system is not operating to design levels, the “actual capacity” could be limited by failing pumps, clogged filters or not meeting the Protocol (i.e. Protocol requires two filter trains such that one could operate while another is being cleaned/repared and this was previously not explicitly required; therefore, the actual capacity is half of the design capacity).

Chemical feed equipment: All equipment associated with introducing chemicals to the raw water as part of the treatment process including coagulants, coagulant aids, disinfectants, etc.

Chlorine: A disinfectant used in either gas or liquid form that is added to water to protect the consumer from bacteria and other micro-organisms. It is widely used because it is inexpensive and easily injected into water. Because of its concentration, a gallon can treat a large amount of water. However, chlorine use does have drawbacks: when chlorine is used as a disinfectant it combines with naturally occurring decaying organic matter to form Trihalomethanes (THMs). (Vital Life Systems)

Chlorination: The application of chlorine to water, sewage or industrial wastes for disinfection (reduction of pathogens) or to oxidize undesirable compounds. (City of Toronto)

Chlorine Residual: The chlorine level in potable water immediately after it has been treated. (Ontario Ministry of the Environment)

Circuit Rider (see also Circuit Rider Training Program): Under the department's Circuit Rider Trainer Program (CRTP) INAC provides funds to engage circuit riders (third party water and wastewater system experts who provide water and wastewater system operators with on-site, mentoring, training, and emergency assistance). The third-party service providers that provide circuit rider services also provide operators with a 24/7 emergency hotline. (INAC *Protocol for Centralised Wastewater Systems in First Nations Communities*)

Circuit Rider Training Program: The main vehicle by which most First Nations operators receive the required training to operate their systems. This program provides qualified experts who rotate through a circuit of communities, providing hands-on training for the operators on their own system. Circuit rider trainers also help the First Nations with minor troubles and issues of operation and maintenance of their systems. (INAC *Plan of Action*)

Cistern: A tank for storing potable water or other liquids, usually placed above the ground. (Bow River Basin Council, cited in Alberta Environment *Glossary*)

Class "D" Cost Estimates: A preliminary estimate, for each community visited, based on available site information, which indicates the approximate magnitude (+/- 40%) of the cost of the actions recommended in the report, and which may be used in developing long-term capital plans and for a preliminary discussion of proposed capital projects.

Collection piping: Sanitary sewer collecting wastewater from individual buildings and homes, for treatment and disposal at a public facility.

Component risk / component risk factors: The overall risk is determined by five component risks: water source/effluent, design, operation, reporting, and operator.

Community Health Representatives (CHRs): Health Canada's local health representatives. They undertake bacteriological and chlorine residual sampling of distributed water within most First Nation communities.

Contact piping: Dedicated watermain to provide chlorine contact time before potable water is distributed to the first user.

Containment liners (for on-site fuel storage): A form of secondary containment used for diesel driven generators or fire pumps.

Continuous discharge to a receiving body: The release of treated wastewater effluent to a lake, river, stream, etc. where the rate of release is continuous (i.e. not batch discharge).

Conventional Wastewater Treatment: Consists of preliminary processes, primary settling to remove heavy solids and floatable materials, secondary biological aeration to metabolize and flocculate colloidal and dissolved organics, and secondary settling to remove additional solids. Tertiary treatment such as disinfection or filtration to further treat the wastewater depending on the level of treatment required for discharge. Waste sludge drawn from these operations is thickened and processed for ultimate disposal, usually either land application or landfilling. Preliminary treatment processes include coarse screening, medium screening, shredding of solids, flow measuring, pumping, grit removal, and pre-aeration. Chlorination of raw wastewater sometimes is used for odor control and to improve settling characteristics of the solids.

Conventional Water Treatment: Consists of a combination of coagulation (adding chemicals called coagulants), flocculation (particles binding together with coagulants) and sedimentation (settling of particles) to remove a large amount of organic compounds and suspended particles, filtration (water passing through porous media) to remove bacteria protozoa and viruses (slow sand filtration) or suspended particles (rapid sand filtration), and disinfection to ensure all the bacteria protozoa and viruses are removed, and provide safe drinking water.

Cross connections: A cross connection is a link between a possible source of pollution and a potable water supply. A pollutant may enter the potable water system when a) the pressure of the pollution source exceeds the pressure of the potable water source or b) when a sudden loss of pressure occurs in the water system and "backflow" occurs. The flow through a water treatment plant should have no instances of treated water coming into contact with raw or wastewater. Backflow preventers should be tested regularly and any actual physical links should be removed.

Decentralized System: A group or groups of communal (as opposed to private) on-site water or wastewater systems. (*INAC Protocol for Decentralised Water and Wastewater Systems*)

Dedicated transmission main: A length of watermain which has no service connections or hydrants; can refer to the length of raw watermain from a raw water source to the water treatment plant or in the distribution system where there are larger distances between homes.

Discharge Frequency: The frequency in which treated wastewater is discharged; could be continuous, seasonal, annual, etc.

Discharge quality data: Data acquired through the completion of a laboratory analysis of treated wastewater effluent prior to obtaining permission to discharge. Relevant parameters for testing include: 5 day Biochemical Oxygen Demand, Suspended Solids, Fecal Coliforms, pH, Phenols, Oils & Greases, Phosphorus and Temperature.

Disinfectant: A disinfectant is a chemical (commonly chlorine, chloramines, or ozone) or physical process (e.g., ultraviolet light) that inactivates or kills microorganisms such as bacteria, viruses, and protozoa. (INAC *Protocol for Decentralised Water and Wastewater Systems*)

Disinfection: A process that has as its objective destroying or inactivating pathogenic micro-organisms in water. (Government of Alberta, *Environmental Protection and Enhancement Act*, cited in Alberta Environment *Glossary*)

Disinfection By-products: Disinfection by-products are chemical, organic and inorganic substances that can form during a reaction of a disinfectant with naturally present organic or anthropogenic matter in the water. (Lenntech)

Distribution Classification > piped / trucked: Refers to the classification of the delivery of potable water leaving the water treatment plant. This can be either piped (via watermain) or trucked (via truck delivery to individual homes/cisterns). The level of classification involves the number of house connections (population served).

Domestic flows: All demands in the water system excluding fire flows.

Drinking Water: Water of sufficiently high quality that can be consumed or used without risk of immediate or long term harm.

Drinking Water Advisory (DWA): Drinking Water Advisories (DWAs) are preventive measures that are regularly issued in municipalities and communities across Canada; they protect public health from waterborne contaminants that can be present in drinking water. A DWA can be issued in any community and may include *boil water advisories*, *do not consume advisories* and *do not use advisories*. (INAC “Fact Sheet”)

Effluent: 1. The liquid waste of municipalities/communities, industries, or agricultural operations. Usually the term refers to a treated liquid released from a wastewater treatment process. (Bow River) 2. The discharge from any *on-site sewage* treatment component. (Alberta Municipal Affairs; cited in Alberta Environment *Glossary*)

Effluent quality data: Any test results or monitoring data that describes the condition of treated wastewater effluent.

Effluent Quality Requirements: All effluents from wastewater systems in Canada must comply with all applicable federal legislation including the *Canadian Environmental Protection Act, 1999* and the *Fisheries Act*, as well as any other applicable legislation, including provincial, depending on the geographical location of the system. In addition, all discharges from First Nations wastewater systems shall meet the quality requirements found in the *Guidelines for Effluent Quality and Wastewater Treatment at Federal Establishments* - EPS 1-EC-76-1 (1976 Guidelines).

For the purposes of determining effluent quality related to ammonia and chlorine, the *Notice Requiring the Preparation and Implementation of Pollution Prevention Plans for Inorganic Chloramines and Chlorinated Wastewater Effluents* and the *Guideline for the Release of Ammonia Dissolved in Water Found in Wastewater Effluents* contain additional and/or updated information to the requirements provided in the 1976 Guidelines.

A copy of the *Guideline for the Release of Ammonia Dissolved in Water Found in Wastewater Effluents* can be found at Environment Canada's website. (*INAC Protocol for Centralised Wastewater Systems in First Nations Communities*)

Effluent Receiver (also referred to as the receiving body; the receiving environment; the receiver) (see also Effluent and Component risks): The environment that receives treated wastewater, including lakes, rivers, wetlands, sub-surfaces, title fields, open marines, and enclosed bays. It may also refer to a community's method for dealing with wastewater (e.g. Municipal Type Agreements or evaporation).

Elevated Storage: A water tower, which is a reservoir or storage tank mounted on a tower-like structure at the summit of an area of high ground in a place where the water pressure would otherwise be inadequate for distribution at a uniform pressure. (Collins)

Emergency Response Plan (ERP): Emergency response plans for water and wastewater systems are intended to be a quick reference to assist operators and other stakeholders in managing and responding to emergency situations. They include key contact information for persons to be notified and for persons who may be of assistance (e.g. agencies, contractors, suppliers, etc.), as well as standard communication and response protocols. Emergency response plans identify recommended action for "foreseeable" emergencies, and provide methodologies for unforeseen situations.

Facultative Lagoon: The most common type of wastewater treatment lagoon used by small communities and individual households. Facultative lagoons rely on both aerobic and anaerobic decomposition of waste, can be adapted for use in most climates and require no machinery to treat wastewater.

Filter: A device used to remove solids from a mixture or to separate materials. Materials are frequently separated from water using filters. (Edwards Aquifier)

Filter train equipment: Includes all components that form part of the water filtration process from where the raw water enters the filter process to where the filtered water leaves the treatment unit. This does not refer to the disinfection equipment.

Filtration: The mechanical process which removes particulate matter by separating water from solid material, usually by passing it through sand. (Edwards Aquifier)

Fire pump tests: A monthly test for the basic operation and functionality of the fire pump.

Grade Level Storage: A treated water storage reservoir that is constructed at grade, typically with earth mounded on top to provide some frost protection.

GPS: Global Positioning System (GPS) - A navigational system involving satellites and computers that can determine the latitude and longitude of a receiver on Earth by computing the time difference for signals from different satellites to reach the receiver.

Groundwater: Groundwater is any water that is obtained from a subsurface water-bearing soil unit (called an aquifer). 1) Water that flows or seeps downward and saturates soil or rock, supplying springs and wells. The upper surface of the saturate zone is called the water table. 2) Water stored underground in rock crevices and in the pores of geologic materials that make up the Earth's crust. (INAC, *Protocol for Decentralised Water and Wastewater Systems*)

Groundwater, confined: Groundwater that is under pressure significantly greater than atmospheric, with its upper limit the bottom of a bed with hydraulic conductivity distinctly lower than that of the material in which the confined water occurs. (INAC, *Protocol for Decentralised Water and Wastewater Systems*)

Groundwater, unconfined: Water in an aquifer that has a water table that is exposed to the atmosphere. (INAC *Protocol for Decentralised Water and Wastewater Systems*)

Groundwater under the direct influence of surface water (GUDI): This term refers to groundwater sources (e.g., wells, springs, infiltration galleries, etc.) where microbial pathogens are able to travel from nearby surface water to the groundwater source. (Government of Nova Scotia)

Guidelines: Guidelines as referred to in this Assessment include all federal and provincial water and wastewater guidelines for domestic potable water and household sanitary waste. These guidelines include the “Guidelines for Canadian Drinking Water Quality” and all its recommended health and aesthetic guidelines for water quality.

Guidelines for Canadian Drinking Water Quality (GCDWQ): Water quality guidelines developed by the Federal-Provincial-Territorial Committee on Drinking Water and have been published by Health Canada since 1968.

Canadian drinking water supplies are generally of excellent quality. However, water in nature is never "pure." It picks up traces of everything it comes into contact with, including minerals, silt, vegetation, fertilizers, and agricultural run-off. While most of these substances are harmless, some may pose a health risk. To address this risk, Health Canada works with the provincial and territorial governments to develop guidelines that set out the maximum acceptable concentrations of these substances in drinking water. These drinking water guidelines are designed to protect the health of the most vulnerable members of society, such as children and the elderly. The guidelines set out the basic parameters that every water system should strive to achieve in order to provide the cleanest, safest and most reliable drinking water possible.

The Guidelines for Canadian Drinking Water Quality deal with microbiological, chemical and radiological contaminants. They also address concerns with physical and aesthetic characteristics of water, such as taste and odour. (Health Canada)

Guidelines for Effluent Quality and Wastewater Treatment at Federal Establishments, April 1976: The purpose of these guidelines is to indicate the degree of treatment and effluent quality that will be applicable to all wastewater discharged from existing and proposed Federal installations. Use of these guidelines is intended to promote a consistent wastewater approach towards the cleanup and prevention of water pollution and ensure that the best practicable control technologies used. (Government of Canada)

Highlift Pumping: Refers to pumps installed that provide treated water into the water distribution system at pressure; either directly or via water tower.

Hydrant Flushing (see line flushing and swabbing)

Influent: Water, wastewater, or other liquid flowing into a reservoir, basin or treatment plant. (Gowen)

Lagoon: A shallow pond where sunlight, bacterial action, and oxygen work to purify wastewater. Lagoons are typically used for the storage of wastewaters, sludges, liquid wastes, or spent nuclear fuel. (Edwards Aquifer)

Lagoon, aerated: See Aeration

Lagoon, facultative: See Facultative Lagoon.

L/c/d: Measurement of daily water usage as Litres per capita, per day.

Level of Service Standards (INAC): The Level of Service Standards (LOSS), determined on a national basis, are the levels of service that the Department of Indian Affairs and Northern Development (DIAND) is prepared to financially support to assist First Nations in providing community services comparable to the levels of service that would generally be available in non-native communities of similar size and circumstances.

The Level of Service Standards provide a description of criteria which will be used to establish the level of funding for safe, cost-effective, domestic water supply and wastewater disposal systems for on-reserve housing units and administrative, operative, institutional and recreational buildings. (INAC “Water and Sewage Systems”)

Lift Station (also Pumping Station): A point in the sewer system where the wastewater needs to be pumped (lifted) to a higher elevation so that gravity can be used to bring the wastewater to the treatment plant. (Hailey City Hall Public Works)

Line flushing and swabbing (also referred to as watermain swabbing and flushing): Watermain swabbing entails inserting a soft material shaped like a bullet into the watermain through a fire hydrant. The diameter is slightly larger than the watermain and the bullet (swab) is pushed along the watermain by water pressure. As it passes through the watermain, the swab executes a scouring action on the sediment inside the watermain.

During watermain flushing, high velocity water flowing from hydrants is used to remove loose sediment from watermains. (City of Guelph)

L/p/d: Measurement of daily water usage as Litres per person, per day.

MAC (Maximum acceptable concentration): In the Guidelines for Canadian Drinking Water Quality (GCDWQ), Maximum Acceptable Concentrations (MACs) have been established for certain physical, chemical, radiological and microbiological parameters or substances that are known or suspected to cause adverse effects on health. For some parameters, Interim Maximum Acceptable Concentrations (IMACs) are also recommended in the guidelines.

Drinking water that continually has a substance at a greater concentration than the specified MACs will contribute significantly to consumer exposure to the substance and may, in some instances, produce harmful health effects. However, the short-term presence of substances above the MAC levels does not necessarily mean the water constitutes a risk to health. (INAC, *National Assessment Summary Report*)

Maintenance Management Plan (MMP): Maintenance management plans apply to both water and wastewater systems. They are intended to improve the effectiveness of maintenance activities and are focused on planning, scheduling, and documenting preventative maintenance activities and on documenting unscheduled maintenance.

Manganese: Manganese is a mineral that naturally occurs in rocks and soil and is a normal constituent of the human diet. In some places, it exists in well water as a naturally occurring groundwater mineral, but may also be present due to underground pollution sources. Manganese may become noticeable in tap water at concentrations greater than 0.05 milligrams per liter (mg/L) of water by imparting a colour, odour, or taste to the water. However, health effects from manganese are not a concern until concentrations are approximately 10 times higher. (Conneticut Dept. of Health)

Mechanical Plant/ Mechanical Treatment: Refers to any type of wastewater treatment plant including treatments systems consisting of rotating biological contactors (RBC), sequencing batch reactors (SBR), extended aeration (EA), etc. It does not include natural forms of wastewater treatment like lagoons or septic systems.

Metals Scan (Full): A full metal scan refers to what laboratories call Inductively Coupled Plasma Mass Spectrometry (ICP-MS) analysis for the evaluation of trace metals in water samples. This test covers a complete scan of over 20 trace metals in a single analysis.

Municipal Type Agreement (MTA): The situation where First Nations are supplied with treated water from or send their wastewater to a nearby municipality, as outlined in a formal agreement between the two parties. The term is also used in this report to describe a system where the First Nation is supplied with treated water or wastewater treatment services by another First Nation or other independent body such as a corporate entity such as a Casino etc.

Multi-Barrier Approach: Approach used to ensure that drinking water is safe. In the past, the term „multi-barrier’ referred only to the barriers involved in the actual treatment of raw water to provide quality drinking water. This approach has now been expanded to include a number of key elements that are an integral part of a drinking water program to ensure delivery of safe, secure supplies of drinking water. Barriers may be physical (eg: filter) or administrative (eg: planning) in nature. (Alberta Environment, *Glossary & Alberta’s Drinking Water Program*)

None: Indicates that the treatment and/or distribution/collection system has not been classified.

O & M: Operation and Maintenance.

Operational Plan (OP): An Operational Plan is the primary instrument for communicating the Community’s quality management system (QMS) from the public works departments (water and wastewater) to Chief and Council, and from Council to INAC, Health Canada and the community members.

Phosphorus: A non-metallic element of the nitrogen family that occurs widely especially as phosphates (*Merriam-Webster*). Phosphorus occurs naturally in rocks, soil, animal waste, plant material, and even the atmosphere. In addition to these natural sources, phosphorus comes from human activities such as agriculture, discharge of industrial and municipal waste, and surface water runoff from residential and urban areas. Nutrients held in soil can be dissolved in water and carried off by leaching, tile drainage or surface runoff.

Phosphorus does not pose a direct threat to human health; it is an essential component of all cells and is present in bones and teeth. It does, however, pose an indirect threat to both aesthetics and to human health by affecting source waters used for drinking and recreation. For example, excessive nutrients can promote the growth of algal blooms, which can contribute to a wide range of water quality problems by affecting the potability, taste, odour, and colour of the water. (Canadian Council of Ministers of the Environment)

Piped Distribution System: A water distribution system which relies on pipes to convey water through pumping or elevated storage to the end user. Different from trucked distribution in that a trucked distribution system delivers water to end users in batch quantities to individual holding tanks (cisterns).

Potable water: Potable water is water that is destined for human consumption. For the purposes of the *Protocol for Centralised Drinking Water Systems in First Nations Communities*, water destined for human consumption is water that is consumed directly as drinking water, water that is used in cooking, water that is used to wash food, and water that is used for bathing infants (individuals under 1 year in age). (INAC, *Protocol for Centralised Drinking Water Systems in First Nations Communities*)

PPU: People per unit. Measurement to describe housing density.

Primary Operator: The main operator of a water or wastewater system. The primary operator must be certified to the level of the treatment and distribution/collection system.

Primary Wastewater Treatment: Removal of particulate materials from domestic wastewater, usually done by allowing the solid materials to settle as a result of gravity. Typically, the first major stage of treatment encountered by domestic wastewater as it enters a treatment facility. Primary treatment plants generally remove 25 to 35 percent of the *Biological Oxygen Demand (BOD)* and 45 to 65 percent of the total suspended matter. Also, any process used for the decomposition, stabilization, or disposal of sludges produced by settling. (North American Lake Management Society; cited in Alberta Environment *Glossary*)

Protocol for Safe Drinking Water in First Nations Communities: Standards for design, construction, operation, maintenance, and monitoring of drinking water systems and is intended for use by First Nations staff responsible for water systems. It is also intended for use by Indian and Northern Affairs Canada (INAC) staff, Public Works and Government Services Canada (PWGSC) for INAC staff, and all others involved in providing advice or assistance to First Nations in the design, construction, operation, maintenance, and monitoring of their drinking water systems in their communities, in accordance with established federal or provincial standards, whichever are the most stringent.

Any water system that produces drinking water destined for human consumption, that is funded in whole or in part by INAC, and that serves five or more households or a public facility, must comply with the requirements of this protocol. (*INAC Protocol*)

Quality Assurance/Quality Control (QA/QC): A quality management system that focuses on fulfilling quality requirements and providing confidence that quality requirements will be fulfilled.

Reporting Risk: The Reporting risk level is the risk inherent with the operational method of recording data and providing the required reports. This would include both manual and automatic methods of record keeping. The reporting risk ranking is based on the adequacy of the operational records and the number of reports submitted during the year compared to the total number of records and reports required according to the appropriate legislation, standards, and operation procedures of the system in question.

Reservoir: A man-made lake that collects and stores water for future use. During periods of low river flow, reservoirs can release additional flow if water is available. (Government of Alberta, *Water for Life*, cited in *Alberta Glossary*)

Reservoir Cleaning: This involves the pump-down, clean-out, removal of settled material, disinfection and refill of a water storage reservoir. This activity requires confined space entry equipment and training.

Retrofit: 1. To furnish with new or modified parts or equipment not available or considered necessary at the time of manufacture; 2. To install (new or modified parts or equipment) in something previously manufactured or constructed; 3. To adapt to a new purpose or need: modify. (*Merriam-Webster*)

Rotating Biological Contactor (RBC): A technology used to treat wastewater classified as mechanical treatment.

Risk (Management Risk Level/Management Risk Score): Risk is defined in INAC's *Management Risk Level Evaluation Guidelines for Water and Wastewater Systems in First Nations Communities* (Revised 2010). These guidelines follow the Multi-Barrier Approach for water management. This approach, developed by the Federal-Provincial-Territorial Committee on Drinking Water and the Canadian Council of Ministers of the Environment (CCME) Water Quality Task Group, is intended to prevent the presence of water-borne contaminants in drinking water by ensuring effective safeguards are in place at each stage of a drinking water system.

Following that approach, INAC assesses five main components of a system to determine an overall system management risk score:

- Source Water (drinking water systems) or Effluent Receiver (wastewater systems)
- System Design
- Operation and Maintenance
- Records and Reporting
- Operator Training and Experience

Each of these components is assigned a risk score, which are then weighed to determine the overall management risk score of a system. The resulting score will then result in the management of the system as being classified as either high risk, medium risk, or low risk.

-High Risk: Major deficiencies in most of the components. Should a problem arise, the system and management as a whole is unlikely to be able to compensate, thus there is a high probability that any problem could result in unsafe water. Issues should be addressed as soon as possible.

-Medium Risk: Minor deficiencies in several components, or major deficiencies in one or two components. Should a problem arise, the system and management can probably compensate for the problem, but the noted deficiencies makes this uncertain, thus there is a medium probability that any problem could result in unsafe water. Issues need to be addressed.

-Low Risk: Minor or no deficiencies with the system or management. Should a problem occur, it is likely that the system and management as a whole will be able to compensate and continue to provide safe water while the issue is being resolved.

It is important to distinguish between INAC's system management risk level and drinking water quality. The actual quality of the water produced by a system is but one part of determining the overall system management risk level.

Unsafe drinking water is noted through the implementation of Drinking Water Advisories (DWA), not by the management risk level of the system. DWA come in multiple forms, the most common being the boil water advisory.

A system with a high-risk ranking under INAC's management evaluation is, because of its multiple deficiencies, likely to be unable to cope with problems that may occur in the system that result in a DWA. This means that DWA are likely to occur more frequently and to have a longer-term duration on a high-risk system. On the other hand, while problems can and do occur in low-risk systems, because of better overall risk management, these systems are more likely to address the problem in the short term, resulting in the rapid removal of problems and DWA.

This means that a high-risk drinking system can still produce perfectly safe and potable water. Deficiencies should be addressed as quickly as possible, however, before any issues arise with the water quality. (INAC, *Management Risk Level Evaluation Guidelines*)

SCADA (Supervisory Control and Data Acquisition) system: Refers to a control and/or computer system that can monitor, record and control infrastructure, or facility-based processes.

Screened reservoir vents: Reservoir vents should be screened to allow air movement and to prevent vermin from entering.

Seasonal discharge: Discharge of wastewater at times of maximum or substantial stream flow. This may vary from location to location.

Secondary containment for treatment chemicals: Secondary containment is required for the storage of all regulated hazardous materials. Secondary containment must be constructed using materials capable of containing a spill or leak for at least as long as the period between monitoring inspections. A means of providing overflow protection for any primary container may be required. This may be an overflow prevention device and/or an attention getting high level alarm. Materials that in combination may cause a fire or explosion, the production of a flammable, toxic, poisonous gas, or the deterioration of a primary or secondary container will be separated in both the primary and secondary treatment containment so as to avoid intermixing.

Secondary Treatment: involving the biological process of reducing suspended, colloidal, and dissolved organic/inorganic matter in effluent from primary treatment systems and which generally removes 80 to 95 percent of the *Biochemical Oxygen Demand (BOD)* and suspended matter. Secondary wastewater treatment may be accomplished by biological or chemical-physical methods. Activated sludge and trickling filters are two of the most common means of secondary treatment. (North American Lake Management Society, cited in Alberta *Glossary*)

Septic tank: A tank used to detain domestic wastes to allow the settling of solids prior to distribution to a leach field for soil absorption. Septic tanks are used when a piped wastewater collection system is not available to carry them to a treatment plant. A settling tank in which settled sludge is in immediate contact with sewage flowing through the tank, and wherein solids are decomposed by anaerobic bacterial action. (INAC *Protocol for Centralised Wastewater*)

Septic system: A combination of underground pipe(s) and holding tank(s) which are used to hold, decompose, and clean wastewater for subsurface disposal. (Bow River, cited in Alberta *Glossary*)

Sequencing Batch Reactor (SBR): A treatment technology used to treat wastewater classified as mechanical treatment.

Sewage treatment plant (STP) (also known as Wastewater Treatment Plant (WWTP) or Water Pollution Control Plant (WPCP)): Facility designed to treat wastewater (sewage) by removing materials that may damage water quality and threaten public health. (Ontario Ministry of Environment)

Sewage treatment systems: Facility or system designed to treat wastewater (sewage) by removing materials that may damage water quality and threaten public health. (Ontario Ministry of Environment)

Shoot-out: A septic system consisting of a septic tank with untreated wastewater effluent being discharged to the surface; this poses a health risk.

Sludge: The accumulated wet or dry solids that are separated from wastewater during treatment. This includes precipitates resulting from the chemical or biological treatment of wastewater. (Government of Alberta, *Activities*, cited in Alberta *Glossary*)

Source Classification: The determination of the water source classification in this assessment includes the options of: surface water, groundwater, GUDI or MTA. Surface water includes water from lakes or rivers; groundwater includes any well water that is not influenced by surface water infiltration; GUDI is any groundwater source under the direct influence of surface water; MTA as a source refers to the community acquiring the treated water from a municipality.

Source risk: The risk inherent in the quality and quantity of the raw source water prior to treatment.

Source Water Protection: 1. The prevention of pollution of the lakes, reservoirs, rivers, streams, and groundwater that serve as sources of drinking water. Wellhead protection would be an example of a source water protection approach that protects groundwater sources, whereas management of land around a lake or reservoir used for drinking water would be an example for surface water supplies. Source water protection programs typically include: delineating source water protection areas; identifying sources of

contamination; implementing measures to manage these changes; and planning for the future. (North American Lake Management Society, cited in *Alberta Glossary*)

2. Action taken to control or minimize the potential for introduction of chemicals or contaminants in source waters, including water used as a source of drinking water (Alberta Environment, *Standards and Guidelines*, cited in *Alberta Glossary*).

SPS: An abbreviation of the term sewage pumping station.

Standard Operating Procedures (SOPs): An SOP is a written document or instruction detailing all steps and activities of a process or procedure. This would include all procedures used in water/wastewater treatment processes that could affect the quality.

Standpipe Storage: An above-grade storage facility where the storage volume is contained within the entirety of the structure. This type of storage is most feasible for use where there is sufficient change in the topography to allow for maximum usable volume in the standpipe.

Storage Type: Refers to whether the community water storage is via grade-level, below-grade or elevated storage (including standpipes and towers). In some cases there is no storage thus the storage type would be considered “direct pump.”

Surface water: Surface water is any water that is obtained from sources, such as lakes, rivers, and reservoirs that are open to the atmosphere. (INAC, *Protocol for Centralised Drinking Water*)

System Designer: A system designer is a person, such as a professional engineer, who is qualified to design a water or wastewater systems. (INAC, *Protocol for Centralised Drinking Water*)

System Operator: A system operator is a First Nation employee or third party under contract to a First Nation who is tasked with managing a water or wastewater system. (INAC, *Protocol for Centralised Drinking Water*)

System Manager: A system manager is a First Nation employee or third party under contract to a First Nation who is tasked with managing a water or wastewater system. (INAC, *Protocol for Centralised Drinking Water*)

Tertiary Treatment: Selected biological, physical, and chemical separation processes to remove organic and inorganic substances that resist conventional treatment practices. *Tertiary Treatment* processes may consist of flocculation basins, clarifiers, filters, and chlorine basins or ozone or ultraviolet radiation processes. Tertiary techniques may also involve the application of wastewater to land to allow the growth of plants to remove plant nutrients. Can include advanced nutrient removal processes. (North American Lake Management Society, cited in *Alberta Glossary*)

Trihalomethanes (THMs): Chemical compounds that can be formed when water is disinfected using chlorine or bromine as the chemical disinfection agent. These chemical compounds are formed when organic material present in the raw source water reacts with chlorine or bromine. Therefore, THMs are classified as disinfection by-products (DBPs). The primary source of organic material comes from decaying vegetation found in lakes, rivers and streams and for this reason, THMs are more commonly observed in water systems that use a surface water source. The four chemical compounds that are measured and used to calculate total THMs are: chloroform, bromoform, bromodichloromethane (BDCM) and chlorodibromomethane (CDBM). THMs are a concern in potable water because there is scientific evidence that they may pose a risk in the development of cancer.

Treatment Certification: The treatment level to which an operator is certified for water treatment and distribution and wastewater treatment and collection systems (see Treatment Classification).

Treatment Classification: The size (flow) and complexity of a water or wastewater system is used to determine the Class of a system using a point template. The knowledge and experience it takes to operate a system is closely related to its classification and is reflected in the level of certification of the operator. Systems that are small and relatively simple, are classified as Small Water or Wastewater Systems. Larger or more complex systems are ranked as Class I, II, III, and IV with the highest being Class IV. Systems should be operated under the supervision of an operator certified to at least the same level of the facility.

TSS (Total Suspended Solids): Measure of the amount of non-dissolved solid material present in water or wastewater. Total suspended solids (TSS) can cause: a) interference with light penetration (in UV applications), b) build-up of sediment and c) can carry nutrients and other toxic pollutants that cause algal blooms and potential reduction in aquatic habitat (wastewater).

Underground Storage: A water storage facility (reservoir/clearwell) which is located 100% below-grade. Often located below the water treatment plant.

Waste: Any solid or liquid material, product, or combination of them that is intended to be treated or disposed of or that is intended to be stored and then treated or disposed. This does not include recyclables. (Government of Alberta, Activities Designation Regulation, cited in Alberta *Glossary*)

Waste management plan: A Waste Management Plan identifies and describes types of waste generated during operations and how they are managed and disposed of.

Wastewater (*Industrial Wastewater, Domestic Wastewater*): A combination of liquid and water-carried pollutants from homes, businesses, industries, or farms; a mixture of water and dissolved or suspended solids. (North American Lake Management Society, cited in Alberta *Glossary*)

Wastewater System: an organized process and associated structures for collecting, treating, and disposing of wastewater. For the purposes of this report, it is a system serving five or more houses. It includes any or all of the following:

1. Sewers and pumping stations that make up a wastewater collection system.
2. Sewers and pumping stations that transport untreated wastewater from a wastewater collection system to a wastewater treatment plant.
3. Wastewater treatment plants.
4. Facilities that provide storage for treated wastewater.
5. Wastewater sludge treatment and disposal facilities.
6. Sewers that transport treated wastewater from a wastewater treatment plant to the place where it is disposed of.
7. Treated wastewater outfall facilities, including the outfall structures to a watercourse or any structures for disposal of treated wastewater to land or to wetlands. (Government of Alberta, *Environmental Protection and Enhancement Act*, cited in *Alberta Glossary*)

Wastewater Treatment: Any of the mechanical, chemical or biological processes used to modify the quality of wastewater (sewage) in order to make it more compatible or acceptable to man and his/her environment. (North American Lake Management System, cited in *Alberta Glossary*)

Wastewater Treatment Plant: Any structure, thing, or process used for the physical, chemical, biological, or radiological treatment of wastewater before it is returned to the environment. The term also includes any structure, thing, or process used for wastewater storage or disposal, or sludge treatment, storage, or disposal. (Government of Alberta, *Activities*, cited in *Alberta Glossary*)

Watermain: A principal pipe in a system of pipes for conveying water, especially one installed underground. (*American Heritage Dictionary*)

Water quality: The term used to describe the chemical, physical, and biological characteristics of water, usually with respect to its suitability for a particular purpose. (INAC, *Protocol for Centralised Drinking Water*)

Water use: The term water use refers to water that is used for a specific purpose, such as for domestic use, irrigation, or industrial processing. Water use pertains to human interaction with and influence on the hydrolic cycle, and includes elements, such as water withdrawal from surface- and ground-water sources, water delivery to homes and businesses, consumptive use of water, water released from wastewater-treatment plants, water returned to the environment, and in-stream uses, such as using water to produce hydroelectric power. (INAC, *Protocol for Centralised Drinking Water*)

Water Well: An opening in the ground, whether drilled or altered from its natural state, that is used for the production of groundwater, obtaining data on groundwater, or recharging an underground formation from which groundwater can be recovered. By definition in the provincial Water Act, a water well also includes any related equipment, buildings, and structures. (Government of Alberta, *Water for Life*, cited in Alberta, *Glossary*)

Wellhead Protection Area: A protected surface and subsurface zone surrounding a well or well field supplying a public water system to keep contaminants from reaching the well water. (Edwards Aquifer)

Wellhead Protection Plan: A wellhead protection plan defines the wellhead protection area, identifies potential sources of contamination, manages the potential contaminant sources including properly decommissioning abandoned wells, identifies emergency and contingency plans (i.e. what to do if the well becomes contaminated or requires additional capacity) and provides overall public awareness.

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Appendix B
Water System Summary

Appendix B.1

Water System Summary

Regional Roll-Up Summary

Region: SASKATCHEWAN
Total No. of First Nations: 69
Participating No. of First Nations: 69
Participation Level: 100%
No. of Community Reports Issued: 86

Water

		Groundwater	GUDI	Surface	MTA	Totals
Total No. of Systems		70	7	17	9	103
System Age						
	0-5 years (2006 - 2010)	7	1	0	2	10
	6-10 years (2001 - 2005)	10	0	1	3	14
	10-15 years (1996 - 2000)	10	4	7	2	23
	15 -20 years (1991 - 1995)	24	1	4	0	29
	> 20 years (≤ 1990)	19	1	5	2	27
Treatment						
	None - Direct Use	4	0	0	0	4
	Disinfection only	4	0	0	1	5
	Conventional Filtration	62	7	17	0	86
	MTA	0	0	0	8	8
Classification - Treatment						
	Small system	8	0	0	0	8
	Level I	44	4	0	0	48
	Level II	16	3	17	0	36
	MTA	0	0	0	9	9
	None	2	0	0	0	2
Classification - Distribution						
	Small system	11	0	0	1	12
	Level I	57	6	15	3	81
	Level II	0	1	2	1	4
	MTA	0	0	0	4	4
	None	2	0	0	0	2

		Groundwater	GUDI	Surface	MTA	Totals
Total No. of Systems		70	7	17	9	103
Distribution						
	Piped	32	3	9	4	48
	Trucked	1	0	0	1	2
	Self Haul	2	0	0	0	2
	Combined	35	4	8	4	51
Water Quality						
Fails Health						
	Yes, fails health due to:	22	5	15	4	46
	Design	4	0	4	2	10
	Operation	6	1	3	1	11
	Combination	12	4	8	0	24
	Unknown	0	0	0	1	1
Fails Aesthetic						
	Yes, fails aesthetic due to:	39	4	8	2	53
	Design	12	0	1	2	15
	Operation	14	1	2	0	17
	Combination	13	3	5	0	21
	Unknown	0	0	0	0	0
Primary Operator - Treatment						
	Not certified	5	1	2	0	8
	No operator	1	0	0	0	1
	Not required	2	0	0	9	11
	Certified to Level	57	5	12	0	74
	Certified	5	1	3	0	9
Back-up Operator - Treatment						
	Not certified	27	4	8	0	39
	No operator	11	0	0	0	11
	Not required	2	0	0	9	11
	Certified to Level	24	2	1	0	27
	Certified	6	1	8	0	15

	Groundwater	GUDI	Surface	MTA	Totals	
Total No. of Systems	70	7	17	9	103	
Primary Operator - Distribution						
Not certified	6	1	2	1	10	
No operator	1	0	0	0	1	
Not required	2	0	0	4	6	
Certified to Level	61	6	15	4	86	
Certified	0	0	0	0	0	
Back-up Operator - Distribution						
Not certified	26	4	10	0	40	
No operator	11	0	0	2	13	
Not required	2	0	0	4	6	
Certified to Level	30	3	6	3	42	
Certified	1	0	1	0	2	
Risk (mean)					Mean	Mean excluding MTA
Final	5.5	6.7	5.8	3.5	5.4	5.6
Source	6.3	9.3	8.8	2.2	6.6	7.0
Design	5.7	7.0	6.9	4.2	5.9	6.0
Operations	5.9	7.3	6.1	4.0	5.9	6.1
Reporting	6.4	7.0	5.5	6.0	6.3	6.3
Operator	1.4	2.1	1.6	1.0	1.5	1.5

Appendix B.2

Wastewater System Summary

Regional Roll-Up Summary

Region: SASKATCHEWAN
Total No. of First Nations: 69
Participating No. of First Nations: 69
Participation Level: 100%
No. of Community Reports Issued: 86

Wastewater

		Septic	Aerated Lagoon	Facultative Lagoon	Mechanical	Other	MTA	Totals
Total No. of Systems		0	2	81	0	0	5	88
System Age								
	0-5 years (2006 - 2010)	0	1	8	0	0	0	9
	6-10 years (2001 - 2005)	0	0	3	0	0	0	3
	10-15 years (1996 - 2000)	0	1	21	0	0	1	23
	15 -20 years (1991 - 1995)	0	0	34	0	0	2	36
	> 20 years (\leq 1990)	0	0	15	0	0	2	17
Classification - Treatment								
	MTA	0	0	0	0	0	5	5
	Level I	0	2	81	0	0	0	83
Classification - Collection								
	Small System	0	0	1	0	0	0	1
	Level I	0	1	78	0	0	2	81
	Level II	0	1	1	0	0	0	2
	MTA	0	0	0	0	0	3	3
	None	0	0	1	0	0	0	1
Collection								
	Piped	0	1	41	0	0	3	45
	Trucked	0	0	2	0	0	1	3
	Combined	0	1	38	0	0	1	40
Effluent Quality								
	No data	0	0	24	0	0	5	29
	Meets	0	1	27	0	0	0	28
	Does not meet	0	1	30	0	0	0	31
Primary Operator - Treatment								
	Not certified	0	0	11	0	0	0	11
	No operator	0	0	0	0	0	0	0
	Not required	0	0	0	0	0	5	5
	Certified to Level	0	2	70	0	0	0	72
	Certified	0	0	0	0	0	0	0

		Septic	Aerated Lagoon	Facultative Lagoon	Mechanical	Other	MTA	Totals		
Total No. of Systems		0	2	81	0	0	5	88		
Back-Up Operator - Treatment										
	Not certified	0	0	42	0	0	0	42		
	No operator	0	0	10	0	0	0	10		
	Not required	0	0	0	0	0	5	5		
	Certified to Level	0	2	28	0	0	0	30		
	Certified	0	0	1	0	0	0	1		
Primary Operator - Collection										
	Not certified	0	0	9	0	0	1	10		
	No operator	0	0	0	0	0	0	0		
	Not required	0	0	1	0	0	3	4		
	Certified to Level	0	2	71	0	0	1	74		
	Certified	0	0	0	0	0	0	0		
Back-Up Operator - Collection										
	Not certified	0	0	40	0	0	1	41		
	No operator	0	0	10	0	0	0	10		
	Not required	0	0	1	0	0	3	4		
	Certified to Level	0	1	27	0	0	1	29		
	Certified	0	1	3	0	0	0	4		
Receiver										
	River	0	0	3	0	0	0	3		
	Lake, reservoir	0	0	5	0	0	0	5		
	Creek	0	0	2	0	0	0	2		
	Wetland	0	2	41	0	0	0	43		
	Sub-surface / Ground	0	0	22	0	0	0	22		
	Evaporation	0	0	7	0	0	0	7		
	Other	0	0	1	0	0	0	1		
	MTA	0	0	0	0	0	5	5		
Risk (mean)									Mean	Mean excluding MTA
	Final	0.0	3.0	4.6	0.0	0.0	2.2	4.4	4.5	
	Effluent Receiver	0.0	4.0	4.0	0.0	0.0	1.0	3.9	4.0	
	Design	0.0	2.5	4.6	0.0	0.0	2.0	4.4	4.5	
	Operations	0.0	5.0	5.9	0.0	0.0	3.8	5.8	5.9	
	Reporting	0.0	1.0	8.4	0.0	0.0	3.6	8.0	8.3	
	Operator	0.0	1.0	1.7	0.0	0.0	1.0	1.7	1.7	

Appendix C

Site Visit Methodology

Site Visits

Typical Day

Arrive in Community – Lead/Senior Inspector & Technical Support

- Meet with Circuit Rider and/or DIAND representative and First Nation/Tribal Council Representatives to undergo introductions and provide a brief synopsis of the activities to be undertaken for the day. This is based on the assumption that the First Nation has been fully briefed by DIAND on the purpose, process and benefits for the First Nation to cooperate and collaborate with the project.
- Confirm the various components that the First Nation uses to provide water to the entire community (i.e. number and types of distribution systems, source types, private wells, etc.) to help build assessment form for the community.
- Pre-select areas to undertake private system evaluations on community map.
- Confirm any missing background data that may be available allowing the First Nation time during the day to have Public Works Director/Supervisor/Secretary/etc to locate such materials.

Lead/Senior – Inspector

- Meet with Chief/Housing Manager/Band Manager/Finance Manager, to identify:
 - future servicing needs (planned development and population growth)
 - servicing constraints (source availability, soils, groundwater, bedrock, topography, etc.)
 - identify the extent to which non structural solutions or optimization strategies (water conservation, leak reduction, etc) have been previously investigated or implemented
 - confirm current population and housing numbers
 - obtain financial information not previously provided
 - note community concerns related to future servicing.
- Complete a walk through of the water plant from source to storage.
- Prepare a flow schematic (internal use).
- Complete the assessment questionnaire on treatment/storage/operations/operator(s) etc. with Operator/Circuit Rider.
- Take photographs.
- Travel to main sewage pumping station and wastewater treatment facility.
- Complete a walk through of the plant from influent to effluent.
- Prepare a flow schematic (internal use).
- Complete assessment questionnaire.
- Take photographs.
- Complete ACRS update.
- Repeat for additional water or wastewater facilities.
- Review information collected by Technical Support
- Gather all background/operational data gathered by First Nation.
- Complete overall notes.

Technical Support

- Gather any relevant operational data (water and wastewater), if not already provided and arrange with the First Nation to have copied/scanned that day.
- Obtain GPS coordinates of source(s) and treatment.
- Complete the source questions on the assessment questionnaire.
- Undertake sampling of the raw and/or treated water, if necessary.
- Take photographs.
- Complete ACRS update.
- Travel around community with First Nation representative and undertake private system assessments for water and/or septic including GPS coordinates, photographs, assessment forms and sampling.
- Meet back with Lead/Senior Inspector at wastewater location and assist with sampling, if required.

Sampling Requirements

Water Sampling

The terms of reference state, *“The sampling program for public water systems should reflect the requirements of the most stringent regulations applicable in the Province in which the community is located. However, should an adequate sampling program already be in place, then existing data may be used. Bidders should assume sampling and testing will be required for 5% of total wells, septics, and cisterns identified in SW5. Septics and cisterns only require a visual inspection. All bidders are required to carry a \$500,000 allowance for this purpose. Any variances should be identified in the Inception Report.”*

Health Canada data is anticipated to be available for the majority of the water systems. Where data is not available, sampling will be conducted as part of the inspection.

Minimum existing data required will include:

Community systems

- bacteriological – monthly available for previous year
- general chemistry – annually (treated)
- full Volatile Organic Compound analysis – within 5 years

Private wells

- bacteriological – one sample within past year
- basic chemistry – one sample within past year

For public systems where data is not available, treated water samples will be obtained and submitted to a laboratory for testing that would include; Basic Chemistry, Full Metals Scan, Bacteria and Volatile Organic Compounds.

For public systems that include a piped distribution system and where distributed water quality data is not available, a sample will be taken from the most remote point in the distribution system and sampled for Disinfection By-Products.

For individual wells, samples will be obtained from a representative number of wells (5% of total wells) in the community. The testing will include; Basic Chemistry, Full Metals Scan and Bacteria.

Wastewater Sampling

For systems lacking existing discharge quality data, and that will be discharging at the time of the site visit, representative samples will be obtained and submitted to a laboratory for testing. This would include seasonal discharges at the time of the site visit and from plants with continuous discharge to a receiving body. Sewage treatment systems providing an equivalent to secondary treatment (lagoons, and mechanical facilities) for which effluent quality data does not include the parameters of BOD₅, TSS, and E.Coli, will be sampled in the field, if they are in fact discharging at the time of site visit. Similarly, sewage treatment systems providing an equivalent to tertiary treatment for which effluent quality data does not include BOD₅, TSS, Ammonia, Total Phosphorous and E.Coli, will be sampled in the field, if they are in fact discharging at the time of the site visit.

Appendix D

First Nation Water Summaries

Appendix D.1

Individual First Nation Water Summary

Table D.1 - 1: Water System Regional Summary of Water Treatment, Storage and Distribution Systems

First Nation Information		Water System Information										Storage Information		Distribution System Information						
Band #	Band Name	System #	System Name	System Type	Water Source	Treatment Class	Const Year	Design Capacity [m3/d]	Actual Capacity [m3/d]	Max Daily Volume [m3/d]	Disinfection	Storage Type	Storage Capacity	Distribution Class	Population Served	Homes Piped	Homes Trucked	Number of Trucks in Service	Pipe Length	Pipe Length / Connection
406	Ahtahkakoop	6695	AHTAHKAKOOP NO.104	Water	Groundwater	Level I	2000	897.6	872.6	547	Yes	Underground	800	Level I	1472	103	186	2	4280	41
369	Beardys and Okemasis	6655	BEARDY'S NO. 97 AND OKEMASIS NO. 96	Water	Groundwater	Level I	1992	691.9	691.9	642.5	Yes	Underground	858.2	Level I	1029	111	141	7	3901	35
399	Big Island Lake Cree Nation	6686	BIG ISLAND LAKE NO. 124	Water	Groundwater	Level I	1990	631	631	540	Yes	Underground	600	Level I	941	146	6	1	15658	107
404	Big River First Nation	6693	BIG RIVER NO. 118	Water	Groundwater	Level I	1992	657	545	551	Yes	Underground	647	Level I	2126	23	310	5	2086.25	90
403	Birch Narrows First Nation	6692	TURNOR LAKE NO. 193B	Water	Groundwater	Level I	2006	847	847	568	Yes	Underground	787	Level I	524	82	0	0	9349	114
359	Black Lake	6644	CHICKEN NO. 224	Water	Surface Water	Level II	2005	778	778	1288	Yes	Underground	1700	Level I	1919	220	0	0	11278.3	51
398	Buffalo River Dene Nation	6685	PETER POND NO. 193	Water	Surface Water	Level II	1996	735	735	691	Yes	Underground	710	Level I	791	200	27	0	14888	74
394	Canoe Lake Cree First Nation	6680	CANOE LAKE NO. 165	Water	Surface Water	Level II	1990	544	544	986	Yes	Underground	837	Level I	985	218	0	0	12959	59
394	Canoe Lake Cree First Nation	6698	EAGLES LAKE NO. 165C	Water	Groundwater	Level I	2001	164	164	59	Yes	Underground	160	Level I	136	30	0	0	3570	119
378	Carry The Kettle	6663	ASSINIBOINE NO. 76	Water	Groundwater	Level I	1994	259	259	295	Yes	Underground	175	Level I	1002	197	0	1	1893	9
401	Clearwater River Dene	6689	CLEARWATER RIVER NO. 222	Water	Groundwater	Level I	1991	864	864	784	Yes	Underground	1555	Level I	981	151	3	0	9077	60
401	Clearwater River Dene	6690	CLEARWATER RIVER NO. 223 - THE LANDING	Water	Groundwater	Level I	2005				No	None		Small System	57	0	0	0		
366	Cote First Nation 366	6652	COTE NO. 64	Water	Groundwater GUDI	Level I	1997	518	518	606	Yes	Underground	380	Level I	664	157	94	0	13925	88
361	Cowessess	6647	COWESSESS NO. 73	Water	Groundwater	Level II	1993	442	442	480	Yes	Underground	372	Level I	712	87	15	1	18843.9	216
361	Cowessess	17032	WELL #1	Water	Groundwater	None	1998	9.7	9.7	29	No	None		Small System	23	7	0	0		
350	Cumberland House Cree Nation	6622	CUMBERLAND NO. 20 - PEMMICAN PORTAGE	Water	Groundwater	Level I	1993	268	268	405	Yes	Underground	646	Level I	916	189	0	0	10082.1	53
350	Cumberland House Cree Nation	6623	CUMBERLAND NO. 20 - RESERVE CENTRE	Water	Groundwater	Level I	1984	27.3	27.3	45.8	Yes	Underground	29.5	Level I	102	21	0	0	1995	95
389	Day Star	6674	DAY STAR NO. 87	Water	Groundwater	Level II	2004	169	169	159	Yes	Underground	327.7	Level I	167	35	15	1	2029	57
400	English River First Nation	6687	LA PLONGE NO. 192	Water	Groundwater	Level I	1995	138.2	138.2	149.2	Yes	Underground	190	Level I	146	48	0	0	8107.8	168
400	English River First Nation	6688	WAPACHEWUNAK NO. 192D	Water	Surface Water	Level II	1992	821	821	755	Yes	Underground	900	Level I	762	167	0	0	5398.24	32
400	English River First Nation	17031	WELL#2	Water	Groundwater	None	1985				No	None		Small System	40	9	0	0	320	35
390	Fishing Lake First Nation	6675	FISHING LAKE NO. 89	Water	Groundwater	Level II	2008	337	337	469	Yes	Underground	487.7	Level I	569	146	0	0	3236.7	22
395	Flying Dust First Nation	6681	MEADOW LAKE NO. 105 - MTA	Water	MTA	MTA	2005			405	MTA	None	MTA	Level I	455	192	1	0	32419	168
351	Fond du Lac	6625	FOND DU LAC NO. 227	Water	Groundwater	Level I	1998	1045	1037	929	Yes	Underground	582	Level I	1143	280	0	0	14413	51
391	Gordon	6676	GORDON NO. 86	Water	Groundwater	Level II	1989	345	345	780	Yes	Underground	909	Level I	1248	261	0	0	905	3
352	Hatchet Lake	6626	LAC LA HACHE NO. 220	Water	Surface Water	Level II	1988	950	950	1220.8	Yes	Underground	959	Level I	1521	200	1	0	8950	44
397	Island Lake First Nation	6683	MINISTIKWAN NO. 161	Water	Surface Water	Level II	1991	436	436	468	Yes	Underground	579	Level I	956	129	3	1	8783.1	68
397	Island Lake First Nation	6684	MINISTIKWAN NO. 161A - MUDIE LAKE	Water	Groundwater	Level I	1996	276	276	202	Yes	Underground	207	Level I	346	48	0	0	10000	208
370	James Smith	6624	JAMES SMITH NO. 100	Water	Groundwater	Level I	1985	886	458	931	Yes	Underground	635	Level I	2299	86	134	3	12466.4	144
362	Kahkewistahaw	6648	KAHKEWISTAHAW NO. 72	Water	Groundwater	Level II	1988	518	518	496	Yes	Underground		Level I	621	130	5	1	12207.5	93
393	Kawacatoose	6679	POORMAN NO. 88	Water	Groundwater	Level II	2007	389	389	409	Yes	Underground	235	Level I	1182	75	96	1	4023	53
367	Keeseekoose	6653	KEESEKOOSE NO. 66	Water	Groundwater	Level I	1985	630	630	438	Yes	Underground	611.73	Level I	747	152	0	0	14612	96
377	Kinistin Saulteaux Nation	6662	KINISTIN NO. 91	Water	Groundwater	Level I	1991	276	276	423	Yes	Underground	287	Level I	440	89	0	0	3631.6	40
353	Lac La Ronge	6627	GRANDMOTHER'S BAY NO. 219	Water	Surface Water	Level II	1997	954	954	483	Yes	Underground	569	Level I	301	87	0	0	10350	118
353	Lac La Ronge	16041	KITSAKIE NO. 156B - MTA	Water	MTA	MTA	1979			244	MTA	None	MTA	Level I	657	51	92	2	4716	92
353	Lac La Ronge	6629	LAC LA RONGE NO. 156 - MTA	Water	MTA	MTA	1996			1281	MTA	Underground	MTA	Level II	1576	403	1	0	18569.46	46
353	Lac La Ronge		LITTLE RED RIVER 106C - TRUCKED WATER FROM MONTREAL LAKE SIDE	Water	MTA	MTA	1996			76	MTA	None	MTA	MTA	754	0	66	2		
353	Lac La Ronge	6631	MORIN LAKE NO. 217	Water	Groundwater	Level I	1995	250	250	257	Yes	Underground	266	Level I	413	67	48	1	5635	84
353	Lac La Ronge	6632	STANLEY NO. 157	Water	Surface Water	Level II	1996	1908	1908	1190	Yes	Underground	1417	Level II	1761	415	0	0	17225.5	41
353	Lac La Ronge	6633	SUCKER RIVER NO. 156C	Water	Surface Water	Level II	1996	408	408	336	Yes	Underground	485	Level I	345	115	0	0	4460	38
379	Little Black Bear	6664	LITTLE BLACK BEAR NO. 84	Water	Groundwater	Level II	1999	138	138	154	Yes	Underground	132.3	Small System	212	3	37	1	1848	616
340	Little Pine	6610	LITTLE PINE NO. 116	Water	Groundwater	Level I	1986	432	432	679	Yes	Underground	383.5	Level I	1029	211	22	1	17550.88	83
396	Makwa Sahgaiehcac First Nation	6682	MAKWA LAKE NO. 129B	Water	Groundwater GUDI	Level I	1999	927	464	795	Yes	Underground	863.2	Level I	1122	216	0	0	9000	41
374	Mistawasis	17038	ISLAND LAKE VILLAGE	Water	Groundwater	Small System	2005			75	Yes	Grade level	11.4	Small System	77	9	0	0	1871	207
374	Mistawasis	6659	MISTAWASIS NO. 103	Water	Groundwater	Level I	1993	458	458	715	Yes	ade level, Undergrou	560	Level I	1069	99	26	1	5718.5	57
374	Mistawasis	17041	PECHAWIS VILLAGE	Water	Groundwater	Small System	2007			42	Yes	Grade level	13	Small System	43	5	0	0	3663	732
374	Mistawasis	17040	SOUTH VILLAGE	Water	Groundwater	Small System	2007	59	41	99	Yes	Grade level	15	Small System	102	12	0	0	265	22
374	Mistawasis	17039	WATSON VILLAGE	Water	Groundwater	Small System	2007			42	Yes	Grade level	13	Small System	43	5	0	0	176	35
354	Montreal Lake	6634	MONTREAL LAKE NO. 106	Water	Surface Water	Level II	1993	1002	852	507	Yes	Underground	902	Level I	1400	187	72	2	11095	59
354	Montreal Lake	6635	MONTREAL LAKE NO. 106B - LITTLE RED RIVER	Water	Groundwater	Level I	1996	550.8	550.8	430	Yes	Underground	366	Level I	754	110	66	2	3694	33
342	Moosomin	6611	MOOSOMIN NO. 112B	Water	Groundwater	Level I	1976	613	613	507	Yes	Underground	395	Level I	1256	177	11	1	8716	49
343	Mosquito, Grizzly Bears Head, Lean Man Fs	6612	MOSQUITO NO. 109	Water	Groundwater	Level I	1995	465	389	633	Yes	Underground	350	Level I	680	140	0	0	4649.4	33
381	Muscowpetung	6666	MUSCOWPETUNG NO. 80	Water	Groundwater	Level I	1997	222	222	50	Yes	Underground	140	NA	377	0	75	1		
381	Muscowpetung	15939	MUSCOWPETUNG NO. 80 - SCHOOL	Water	Groundwater	Level I	2005	65	65	6.5	Yes	Underground	45	NA	80	0	0	0		
375	Muskeg Lake	6660	MUSKEG LAKE NO. 102	Water	Groundwater	Level I	1990	259	259	284	Yes	Underground	377	Level I	291	91	0	0	4263	46
371	Muskoday First Nation	6656	MUSKODAY NO. 99 - MTA	Water	MTA	MTA	1988	229	229	505	MTA	Underground	MTA	Level I	671	197	2	1	13257.5	67
392	Muskowekwan	6677	MUSKOWEKWAN NO. 85 - CORE AREA	Water	Groundwater	Level II	1991	300	300	683	Yes	Underground	420.4	Level I	516	52	77	1	5999.72	115
380	Nekaneet	17035	MIDDLE CAMP WELL	Water	Groundwater	Small System	1994	Unknown	Unknown		No	None		Small System	24	5	0	0		
380	Nekaneet	6665	NEKANEET NO. 160A	Water	Groundwater	Level I	1992	225	225	146	Yes	Underground	276.5	Level I	100	31	1	1	5776	186
380	Nekaneet	17034	UPPER CAMP WELL	Water	Groundwater	Small System	1994	Unknown	Unknown		Yes	Underground	Unknown	Small System	82	17	0	0		
408	Ocean Man	6702	OCEAN MAN NO. 69	Water	Groundwater	Level I	1993	199	199	129	Yes	Underground	215.2	Level I	144	37	4	1	3152	85
363	Ochapowace	6649	OCHAPOWACE NO. 71	Water	Groundwater	Level I	1994	259	259	426	Yes	Underground	523	Level I	583	109	8	1	9050	83
382	Okanese	6667	OKANESE NO. 82	Water	Groundwater	Level II	1989	191	191	247	Yes	Underground	306	Level I	314	42	20	1	2064	49
373	One Arrow	6658	ONE ARROW NO. 95	Water	Surface Water	Level II	1996	518.4	518.4	473	Yes	Underground	420	Level I	712	134	32	3	18403	137
344	Onion Lake	6613	SEEKASKOOTCH NO. 119	Water	Groundwater GUDI	Level II	1998	4320	4320	1406	Yes	Underground	3400	Level II	3421	282	398	6	32295	114
383	Pasqua First Nation #79	6668	PASQUA NO. 79	Water	Groundwater	Level II	1989	125	125	157	Yes	Underground	190	Level I	603	25	117	1	2585.8	103

First Nation Information		Water System Information										Storage Information		Distribution System Information						
Band #	Band Name	System #	System Name	System Type	Water Source	Treatment Class	Const Year	Design Capacity [m3/d]	Actual Capacity [m3/d]	Max Daily Volume [m3/d]	Disinfection	Storage Type	Storage Capacity	Distribution Class	Population Served	Homes Piped	Homes Trucked	Number of Trucks in Service	Pipe Length	Pipe Length / Connection
384	Peepeekisis	6669	PEEPEEKISIS NO. 81	Water	Groundwater	Level II	1989	138	138	671	Yes	Underground	390	Level I	596	21	85	2	4808	228
405	Pelican Lake	6694	CHITEK LAKE NO. 191 (both North and South are served)	Water	Surface Water	Level II	1991	544	544	392	Yes	Underground	320	Level I	863	92	84	2	11283	122
355	Peter Ballantyne Cree Nation	6700	DESCHAMBEAULT LAKE	Water	Surface Water	Level II	1997	954	954	967	Yes	Underground	636	Level I	1190	205	0	0	9696	47
355	Peter Ballantyne Cree Nation	7105	KINOOSAO THOMAS CLARK NO. 204	Water	Groundwater	Level I	1997	27.6	27.6	53.6	Yes	Underground	96.5	Level I	55	11	0	0	1030.6	93
355	Peter Ballantyne Cree Nation	17036	KISKACIWAN NO.208-WELL	Water	Groundwater	Small System	2002	Unknown	Unknown	59	Yes	Underground	4	Small System	60	13	0	0		
355	Peter Ballantyne Cree Nation	6636	PELICAN NARROWS NO. 184B	Water	Surface Water	Level II	1997	1900	1900	1141	Yes	Underground	1600	Level II	1342	336	69	0	19996.2	59
355	Peter Ballantyne Cree Nation	16045	SANDY BAY (WAPASKOKIMAW) NO. 202 - MTA	Water	MTA	MTA	2008	Unknown	Unknown	423	MTA	None	MTA	MTA	520	100	0	0	2850	28
355	Peter Ballantyne Cree Nation	6637	SOUTHEND NO. 200	Water	Groundwater GUDI	Level II	1989	1054	1054	902	Yes	Underground	1135	Level I	1553	200	11	0	8846	44
355	Peter Ballantyne Cree Nation	6638	STURGEON WEIR NO. 184F	Water	Groundwater GUDI	Level I	2006	34	34	47	Yes	Underground	255	Level I	60	12	0	0	1805	150
409	Pheasant Rump Nakota	6703	PHEASANT RUMP NO. 68	Water	Groundwater	Level I	2005	141	141	143	Yes	Underground	158	Level I	163	10	13	1	1736.6	173
385	Piapot	6670	PIAPOT NO. 75	Water	Groundwater	Level II	1988	360	360	218	Yes	Underground	506	Level I	683	25	114	2	9906	396
345	Poundmaker	6614	POUNDMAKER NO. 114 - CENTRAL	Water	Groundwater	Level I	1993	274	274	386	Yes	Underground	115.4	Level I	580	166	0	0	5085	30
345	Poundmaker	6615	POUNDMAKER NO. 114 - SCHOOL	Water	Groundwater	Level I	1995	154	154	308	Yes	Underground	291.4	Level I	270	45	0	0	2704	60
345	Poundmaker	17037	POUNDMAKER NO.114-18B-WELL	Water	MTA	MTA	2009				MTA	Underground	MTA	Small System	72	18	0	0	1100	61
356	Red Earth	6640	RED EARTH NO. 29	Water	Surface Water	Level II	1989	890	890	823	Yes	Underground	1010	Level I	1450	198	0	0	16308.47	82
346	Red Pheasant	6616	RED PHEASANT NO. 108	Water	Groundwater	Level I	1986	587	510	452	Yes	Underground	626	Level I	922	66	103	0	6594	99
364	Sakimay First Nations	6697	LITTLE BONE NO. 74B	Water	MTA	MTA	2005			33	MTA	None	MTA	MTA	33	9	0	0		
364	Sakimay First Nations	6650	SAKIMAY NO. 74	Water	Groundwater	Level I	1987	216	216	162	Yes	Underground	187.7	Level I	225	19	37	1	3051	160
347	Saulteaux	6618	SAULTEAUX NO. 159	Water	Groundwater	Level I	2003	315	315	331	Yes	Underground	441.2	Level I	806	126	4	1	4019	31
347	Saulteaux	6617	SAULTEAUX NO. 159A - BIRCH LAKE	Water	Groundwater	Level I	1995	39	39	39	Yes	Underground	73	Level I	40	10	0	0	2100	210
357	Shoal Lake Cree Nation	6641	SHOAL LAKE NO. 28A	Water	Groundwater GUDI	Level II	1996	518	518	523	Yes	Underground	975	Level I	903	109	0	0	9579	87
386	Standing Buffalo	6671	STANDING BUFFALO NO. 78	Water	Groundwater	Level II	1986	229	229	453	Yes	Underground	268	Level I	572	81	109	2	4864.5	60
387	Star Blanket	6672	STAR BLANKET NO. 83	Water	Groundwater	Level II	1994	218	218	261	Yes	Underground	437	Level I	290	58	0	0	11917	205
387	Star Blanket	6779	WA-PII MOOS-TOOSIS (WHITE CALF) NO. 83A	Water	Groundwater	Level I	1985	N/A	N/A	86	Yes	None		Level I	88	22	0	0	360	16
360	Sturgeon Lake First Nation	6646	STURGEON LAKE NO. 101 - WEST PLANT	Water	Surface Water	Level II	1977	950	950	490	Yes	Underground	874	Level I	1682	149	96	1	15125	101
348	Sweetgrass	6619	SWEET GRASS NO. 113	Water	Groundwater	Level I	1991	1089	881	582	Yes	Underground	562	Level I	600	108	45	1	6168	57
368	The Key First Nation	6654	THE KEY NO. 65	Water	Groundwater	Level I	1992	107	107	158	Yes	Underground	135.6	Level I	331	41	2	1	4010	97
349	Thunderchild First Nation	17013	THUNDERCHILD 115C	Water	Groundwater GUDI	Level I	1995	76	76	43	Yes	Grade level	11.4	Level I	94	11	3	1	384	34
349	Thunderchild First Nation	6620	THUNDERCHILD NO. 115B	Water	Groundwater	Small System	2000	1175	1175	594	Yes	Underground	996	Level I	1305	236	3	0	12963	54
358	Wahpeton Dakota Nation	6642	WAHPETON NO. 94A	Water	Groundwater	Level I	1997	328	328	285	Yes	Underground	228	Level I	292	62	0	0	3002.27	48
402	Waterhen Lake	17009	WATERHEN 130	Water	Surface Water	Level II	1985	561	561	415	Yes	Underground	1065	Level I	1093	192	0	0	8709.7	45
365	White Bear	6651	WHITE BEAR NO. 70	Water	Groundwater	Level II	2002	365	365	673	Yes	Underground	492	Level I	717	166	18	1	21883.2	131
372	Whitecap Dakota First Nation		DAKOTA DUNES CASINO WTP	Water	MTA	MTA	2005	604.8	604.8	25.0	MTA	Underground	MTA	MTA	23	8	0	0		
372	Whitecap Dakota First Nation	6657	WHITE CAP NO. 94	Water	Groundwater	Level I	1995	216	216	310	Yes	Underground	165	Level I	285	100	0	0	10455.9	104
407	Witchehan Lake	6696	WITCHEKAN LAKE NO. 117	Water	Groundwater	Level I	1990	168	168	143	Yes	Underground	600	Level I	546	61	3	1	2496	40
388	Wood Mountain	6673	WOOD MOUNTAIN NO. 160	Water	Groundwater	Level I	2006	0.23	0.23		Yes	None		Level I	17	0	0	0		
376	Yellow Quill	6661	NUT LAKE NO. 90	Water	Groundwater	Level II	2003	345.6	345.6	332	Yes	Underground	1140	Level I	655	114	17	0	29840.2	261

Table D.1 - 2: Regional Summary of Water Quality Information

First Nation Information		Water System Information				Water Quality Information							
Band #	Band Name	System #	System Name	System Type	Water Source	Meets/Does Not Meet GCDWQ	Cause of Failure	Fails Health Guidelines	Fails Aesthetic Guidelines	Fails MAC by Design	Fails MAC by Operation	DWA In Effect	DWA Count
406	Ahtahkakoop	6695	AHTAHKAKOOP NO.104	Water	Groundwater	High Freq, Low Mag	Design	No	Yes	No	No	No	0
369	Beardys and Okemasis	6655	BEARDY'S NO. 97 AND OKEMASIS NO. 96	Water	Groundwater	Low Freq, Low Mag	Operation	No	Yes	No	No	No	0
399	Big Island Lake Cree Nation	6686	BIG ISLAND LAKE NO. 124	Water	Groundwater	High Freq, Low Mag	Both	Yes	Yes	No	No	Yes	1
404	Big River First Nation	6693	BIG RIVER NO. 118	Water	Groundwater	Low Freq, Low Mag	Operation	No	Yes	No	No	No	0
403	Birch Narrows First Nation	6692	TURNOR LAKE NO. 193B	Water	Groundwater	Low Freq, Low Mag	Operation	No	Yes	No	No	No	3
359	Black Lake	6644	CHICKEN NO. 224	Water	Surface Water	High Freq AND High Mag	Both	Yes	No	No	No	Yes	1
398	Buffalo River Dene Nation	6685	PETER POND NO. 193	Water	Surface Water	High Freq OR High Mag	Operation	Yes	No	No	No	Yes	1
394	Canoe Lake Cree First Nation	6680	CANOE LAKE NO. 165	Water	Surface Water	High Freq OR High Mag	Operation	Yes	Yes	No	No	No	0
394	Canoe Lake Cree First Nation	6698	EAGLES LAKE NO. 165C	Water	Groundwater	High Freq, Low Mag	Both	Yes	Yes	No	No	No	2
378	Carry The Kettle	6663	ASSINIBOINE NO. 76	Water	Groundwater	High Freq, Low Mag	Operation	N/A	N/A	No	No	No	0
401	Clearwater River Dene	6689	CLEARWATER RIVER NO. 222	Water	Groundwater	High Freq AND High Mag	Operation	Yes	Yes	No	No	No	0
401	Clearwater River Dene	6690	CLEARWATER RIVER NO. 223 - THE LANDING	Water	Groundwater	Meets Requirements	N/A	N/A	N/A	No	No	Yes	1
366	Cote First Nation 366	6652	COTE NO. 64	Water	Groundwater GUDI	Low Freq, Low Mag	Design	N/A	N/A	No	No	Yes	1
361	Cowessess	6647	COWESSESS NO. 73	Water	Groundwater	High Freq AND High Mag	Operation	No	Yes	No	No	No	0
361	Cowessess	17032	WELL #1	Water	Groundwater	High Freq AND High Mag	Design	No	Yes	No	No	No	0
350	Cumberland House Cree Nation	6622	CUMBERLAND NO. 20 - PEMMICAN PORTAGE	Water	Groundwater	Low Freq, Low Mag	Operation	No	Yes	No	No	No	0
350	Cumberland House Cree Nation	6623	CUMBERLAND NO. 20 - RESERVE CENTRE	Water	Groundwater	Meets Requirements	N/A	N/A	N/A	No	No	No	0
389	Day Star	6674	DAY STAR NO. 87	Water	Groundwater	Meets Requirements	N/A	N/A	N/A	No	No	No	0
400	English River First Nation	6687	LA PLONGE NO. 192	Water	Groundwater	Low Freq, Low Mag	Both	N/A	N/A	No	No	No	0
400	English River First Nation	6688	WAPACHEWUNAK NO. 192D	Water	Surface Water	Low Freq, Low Mag	Design	Yes	No	No	No	No	0
400	English River First Nation	17031	WELL#2	Water	Groundwater	Low Freq, Low Mag	Operation	No	Yes	No	No	No	0
390	Fishing Lake First Nation	6675	FISHING LAKE NO. 89	Water	Groundwater	Meets Requirements	N/A	N/A	N/A	No	No	Yes	1
395	Flying Dust First Nation	6681	MEADOW LAKE NO. 105 - MTA	Water	MTA	Low Freq, Low Mag	Design	Yes	No	No	No	No	2
351	Fond du Lac	6625	FOND DU LAC NO. 227	Water	Groundwater	Meets Requirements	N/A	N/A	N/A	No	No	No	0
391	Gordon	6676	GORDON NO. 86	Water	Groundwater	Meets Requirements	N/A	N/A	N/A	No	No	Yes	1
352	Hatchet Lake	6626	LAC LA HACHE NO. 220	Water	Surface Water	Meets Requirements	N/A	N/A	N/A	No	No	No	0
397	Island Lake First Nation	6683	MINISTIKWAN NO. 161	Water	Surface Water	High Freq, Low Mag	Both	Yes	Yes	No	No	No	4
397	Island Lake First Nation	6684	MINISTIKWAN NO. 161A - MUDIE LAKE	Water	Groundwater	High Freq AND High Mag	Both	Yes	Yes	No	No	No	0
370	James Smith	6624	JAMES SMITH NO. 100	Water	Groundwater	High Freq OR High Mag	Both	Yes	No	Yes	No	No	0
362	Kahkewistahaw	6648	KAHKEWISTAHAW NO. 72	Water	Groundwater	Meets Requirements	N/A	N/A	N/A	No	No	No	0
393	Kawacatoose	6679	POORMAN NO. 88	Water	Groundwater	Meets Requirements	N/A	N/A	N/A	No	No	No	4
367	Keeseekoose	6653	KEESEEKOOSE NO. 66	Water	Groundwater	Low Freq, Low Mag	Design	Yes	Yes	No	No	Yes	1
377	Kinistin Sauteaux Nation	6662	KINISTIN NO. 91	Water	Groundwater	Low Freq, Low Mag	Design	Yes	Yes	No	No	No	0
353	Lac La Ronge	6627	GRANDMOTHER'S BAY NO. 219	Water	Surface Water	High Freq, Low Mag	Both	Yes	No	No	No	No	0
353	Lac La Ronge	16041	KITSAKIE NO. 156B - MTA	Water	MTA	Meets Requirements	Unknown	No	No	No	No	Yes	1
353	Lac La Ronge	6629	LAC LA RONGE NO. 156 - MTA	Water	MTA	High Freq, Low Mag	Operation	Yes	No	No	No	No	0
353	Lac La Ronge		LITTLE RED RIVER 106C - TRUCKED WATER FROM MONTREAL LAKE SIDE	Water	MTA	High Freq, Low Mag	Design	No	Yes	No	No	No	0
353	Lac La Ronge	6631	MORIN LAKE NO. 217	Water	Groundwater	Low Freq, Low Mag	Operation	Yes	No	No	No	No	0
353	Lac La Ronge	6632	STANLEY NO. 157	Water	Surface Water	High Freq, Low Mag	Design	Yes	No	No	No	No	0
353	Lac La Ronge	6633	SUCKER RIVER NO. 156C	Water	Surface Water	Meets Requirements	N/A	N/A	N/A	No	No	No	0
379	Little Black Bear	6664	LITTLE BLACK BEAR NO. 84	Water	Groundwater	Meets Requirements	N/A	No	No	No	No	No	0
340	Little Pine	6610	LITTLE PINE NO. 116	Water	Groundwater	Meets Requirements	N/A	N/A	N/A	No	No	Yes	1
396	Makwa Sahgaiehcan First Nation	6682	MAKWA LAKE NO. 129B	Water	Groundwater GUDI	High Freq, Low Mag	Both	Yes	Yes	No	No	Yes	1
374	Mistawasis	17038	ISLAND LAKE VILLAGE	Water	Groundwater	Meets Requirements	Design	Yes	No	No	No	Yes	1
374	Mistawasis	6659	MISTAWASIS NO. 103	Water	Groundwater	Low Freq, Low Mag	Design	No	Yes	No	No	Yes	1
374	Mistawasis	17041	PECHAWIS VILLAGE	Water	Groundwater	Low Freq, Low Mag	Design	No	Yes	No	No	Yes	1
374	Mistawasis	17040	SOUTH VILLAGE	Water	Groundwater	Meets Requirements	N/A	N/A	N/A	No	No	No	0
374	Mistawasis	17039	WATSON VILLAGE	Water	Groundwater	Meets Requirements	N/A	N/A	N/A	No	No	No	0
354	Montreal Lake	6634	MONTREAL LAKE NO. 106	Water	Surface Water	High Freq, Low Mag	Both	Yes	Yes	No	No	Yes	1
354	Montreal Lake	6635	MONTREAL LAKE NO. 106B - LITTLE RED RIVER	Water	Groundwater	Low Freq, Low Mag	Both	Yes	Yes	No	Yes	No	0

REGION: SASKATCHEWAN
January 2011

First Nation Information		Water System Information				Water Quality Information							
Band #	Band Name	System #	System Name	System Type	Water Source	Meets/Does Not Meet GCDWQ	Cause of Failure	Fails Health Guidelines	Fails Aesthetic Guidelines	Fails MAC by Design	Fails MAC by Operation	DWA In Effect	DWA Count
342	Moosomin	6611	MOOSOMIN NO. 112B	Water	Groundwater	High Freq, Low Mag	Both	Yes	Yes	No	No	No	0
343	Mosquito, Grizzly Bears Head, Lean Man Fs	6612	MOSQUITO NO. 109	Water	Groundwater	Low Freq, Low Mag	Design	No	Yes	No	No	Yes	1
381	Muscowpetung	6666	MUSCOWPETUNG NO. 80	Water	Groundwater	High Freq, Low Mag	Design	N/A	N/A	No	No	No	0
381	Muscowpetung	15939	MUSCOWPETUNG NO. 80 - SCHOOL	Water	Groundwater	Meets Requirements	N/A	N/A	N/A	No	No	No	3
375	Muskeg Lake	6660	MUSKEG LAKE NO. 102	Water	Groundwater	High Freq, Low Mag	Both	Yes	Yes	No	No	Yes	1
371	Muskoday First Nation	6656	MUSKODAY NO. 99 - MTA	Water	MTA	Meets Requirements	Unknown	Yes	No	No	No	No	0
392	Muskowekwan	6677	MUSKOWEKWAN NO. 85 - CORE AREA	Water	Groundwater	High Freq, Low Mag	Operation	N/A	N/A	No	No	No	0
380	Nekaneet	17035	MIDDLE CAMP WELL	Water	Groundwater	High Freq AND High Mag	Design	Yes	Yes	Yes	Yes	No	0
380	Nekaneet	6665	NEKANEET NO. 160A	Water	Groundwater	High Freq, Low Mag	Design	No	Yes	Yes	No	No	0
380	Nekaneet	17034	UPPER CAMP WELL	Water	Groundwater	High Freq, Low Mag	Operation	Yes	Yes	No	Yes	No	0
408	Ocean Man	6702	OCEAN MAN NO. 69	Water	Groundwater	Meets Requirements	N/A	N/A	N/A	No	No	No	0
363	Ochapowace	6649	OCHAPOWACE NO. 71	Water	Groundwater	High Freq, Low Mag	Design	N/A	N/A	No	No	No	0
382	Okanese	6667	OKANESE NO. 82	Water	Groundwater	High Freq AND High Mag	Operation	Yes	No	No	Yes	Yes	1
373	One Arrow	6658	ONE ARROW NO. 95	Water	Surface Water	Low Freq, Low Mag	Operation	Yes	Yes	No	No		2
344	Onion Lake	6613	SEEKASKOOTCH NO. 119	Water	Groundwater GUDI	High Freq, Low Mag	Both	Yes	No	No	Yes	No	0
383	Pasqua First Nation #79	6668	PASQUA NO. 79	Water	Groundwater	Meets Requirements	N/A	N/A	N/A	No	No	No	0
384	Peepseekis	6669	PEEPEEKISIS NO. 81	Water	Groundwater	Low Freq, Low Mag	Operation	No	Yes	No	No	No	0
405	Pelican Lake	6694	CHITEK LAKE NO. 191 (both North and South are served)	Water	Surface Water	High Freq AND High Mag	Both	Yes	Yes	No	No	Yes	1
355	Peter Ballantyne Cree Nation	6700	DESCHAMBEAULT LAKE	Water	Surface Water	High Freq, Low Mag	Both	Yes	No	No	No	Yes	1
355	Peter Ballantyne Cree Nation	7105	KINOOSAO THOMAS CLARK NO. 204	Water	Groundwater	Low Freq, Low Mag	Operation	No	Yes	No	No	No	0
355	Peter Ballantyne Cree Nation	17036	KISKACIWAN NO.208-WELL	Water	Groundwater	Low Freq, Low Mag	Design	No	Yes	No	No	No	0
355	Peter Ballantyne Cree Nation	6636	PELICAN NARROWS NO. 184B	Water	Surface Water	High Freq, Low Mag	Design	Yes	No	No	No	No	0
355	Peter Ballantyne Cree Nation	16045	SANDY BAY (WAPASKOKIMAW) NO. 202 - MTA	Water	MTA	Meets Requirements	N/A	N/A	N/A	No	No	No	0
355	Peter Ballantyne Cree Nation	6637	SOUTHEND NO. 200	Water	Groundwater GUDI	High Freq, Low Mag	Operation	Yes	Yes	No	No	No	0
355	Peter Ballantyne Cree Nation	6638	STURGEON WEIR NO. 184F	Water	Groundwater GUDI	Meets Requirements	Operation	No	No	No	No	No	0
409	Pheasant Rump Nakota	6703	PHEASANT RUMP NO. 68	Water	Groundwater	Meets Requirements	N/A	N/A	N/A	No	No	No	0
385	Piapot	6670	PIAPOT NO. 75	Water	Groundwater	Meets Requirements	N/A	N/A	N/A	No	No	Yes	1
345	Poundmaker	6614	POUNDMAKER NO. 114 - CENTRAL	Water	Groundwater	High Freq AND High Mag	Both	Yes	Yes	No	Yes	Yes	1
345	Poundmaker	6615	POUNDMAKER NO. 114 - SCHOOL	Water	Groundwater	High Freq AND High Mag	Both	Yes	Yes	No	Yes	Yes	1
345	Poundmaker	17037	POUNDMAKER NO.114-18B-WELL	Water	MTA	High Freq AND High Mag	Design	Yes	N/A	No	No	Yes	1
356	Red Earth	6640	RED EARTH NO. 29	Water	Surface Water	High Freq AND High Mag	Both	Yes	Yes	No	No	No	0
346	Red Pheasant	6616	RED PHEASANT NO. 108	Water	Groundwater	Meets Requirements	N/A	N/A	N/A	No	No	No	0
364	Sakimay First Nations	6697	LITTLE BONE NO. 74B	Water	MTA	High Freq, Low Mag	Design	No	Yes	No	No	No	0
364	Sakimay First Nations	6650	SAKIMAY NO. 74	Water	Groundwater	High Freq, Low Mag	Design	No	Yes	No	No	Yes	1
347	Saulteaux	6618	SAULTEAUX NO. 159	Water	Groundwater	High Freq, Low Mag	Both	No	Yes	No	No	Yes	1
347	Saulteaux	6617	SAULTEAUX NO. 159A - BIRCH LAKE	Water	Groundwater	Low Freq, Low Mag	Both	Yes	Yes	No	No	No	0
357	Shoal Lake Cree Nation	6641	SHOAL LAKE NO. 28A	Water	Groundwater GUDI	High Freq AND High Mag	Both	Yes	Yes	No	No		2
386	Standing Buffalo	6671	STANDING BUFFALO NO. 78	Water	Groundwater	Meets Requirements	N/A	N/A	N/A	No	No	Yes	1
387	Star Blanket	6672	STAR BLANKET NO. 83	Water	Groundwater	High Freq AND High Mag	Operation	No	Yes	No	Yes	Yes	1
387	Star Blanket	6779	WA-PII MOOS-TOOSIS (WHITE CALF) NO. 83A	Water	Groundwater	High Freq AND High Mag	Design	No	Yes	No	No	Yes	1
360	Sturgeon Lake First Nation	6646	STURGEON LAKE NO. 101 - WEST PLANT	Water	Surface Water	High Freq AND High Mag	Both	Yes	Yes	No	Yes	No	0
348	Sweetgrass	6619	SWEET GRASS NO. 113	Water	Groundwater	Low Freq, Low Mag	Operation	Yes	Yes	No	Yes	Yes	1
368	The Key First Nation	6654	THE KEY NO. 65	Water	Groundwater	High Freq, Low Mag	Both	No	Yes	No	No	Yes	1
349	Thunderchild First Nation	17013	THUNDERCHILD 115C	Water	Groundwater GUDI	Low Freq, Low Mag	Both	Yes	Yes	No	No	Yes	1
349	Thunderchild First Nation	6620	THUNDERCHILD NO. 115B	Water	Groundwater	Meets Requirements	N/A	N/A	N/A	No	No		2
358	Wahpeton Dakota Nation	6642	WAHPETON NO. 94A	Water	Groundwater	High Freq OR High Mag	Both	Yes	Yes	No	Yes	No	0
402	Waterhen Lake	17009	WATERHEN 130	Water	Surface Water	High Freq, Low Mag	Design	Yes	Yes	No	No	No	0
365	White Bear	6651	WHITE BEAR NO. 70	Water	Groundwater	High Freq AND High Mag	Operation	No	Yes	No	No	Yes	1
372	Whitecap Dakota First Nation		DAKOTA DUNES CASINO WTP	Water	MTA	Meets Requirements	N/A	N/A	N/A	No	No	No	0
372	Whitecap Dakota First Nation	6657	WHITE CAP NO. 94	Water	Groundwater	Meets Requirements	N/A	N/A	N/A	No	No	No	0
407	Witchekan Lake	6696	WITCHEKAN LAKE NO. 117	Water	Groundwater	High Freq AND High Mag	Both	Yes	Yes	Yes	Yes		2
388	Wood Mountain	6673	WOOD MOUNTAIN NO. 160	Water	Groundwater	High Freq AND High Mag	Operation	Yes	Yes	No	Yes	No	0
376	Yellow Quill	6661	NUT LAKE NO. 90	Water	Groundwater	Meets Requirements	N/A	N/A	N/A	No	No		2

Table D.1 - 3: Regional Summary of Water Operator Information

First Nation Information		Water System Information				Operator Information					
Band #	Band Name	System #	System Name	System Type	Water Source	Primary Operator Exists	Primary Operator Treatment Class	Primary Operator Distribution Class	Secondary Operator Exists	Secondary Operator Treatment Class	Secondary Operator Distribution Class
406	Ahtahkakoop	6695	AHTAHKAKOOP NO.104	Water	Groundwater	Yes	Level I	Level I	Yes	Level I	Level I
369	Beardys and Okemasis	6655	BEARDY'S NO. 97 AND OKEMASIS NO. 96	Water	Groundwater	Yes	Level I	Level I	No	Not Required	No Operator
399	Big Island Lake Cree Nation	6686	BIG ISLAND LAKE NO. 124	Water	Groundwater	Yes	No Certification	No Certification	Yes	Level I	Level I
404	Big River First Nation	6693	BIG RIVER NO. 118	Water	Groundwater	Yes	Level II	Level II	Yes	No Certification	No Certification
403	Birch Narrows First Nation	6692	TURNOR LAKE NO. 193B	Water	Groundwater	Yes	Level I	Level I	Yes	Level I	Level I
359	Black Lake	6644	CHICKEN NO. 224	Water	Surface Water	Yes	No Certification	No Certification	Yes	No Certification	No Certification
398	Buffalo River Dene Nation	6685	PETER POND NO. 193	Water	Surface Water	Yes	Level II	Level I	Yes	Level I	Level I
394	Canoe Lake Cree First Nation	6680	CANOE LAKE NO. 165	Water	Surface Water	Yes	Level II	Level II	Yes	Level I	Level I
394	Canoe Lake Cree First Nation	6698	EAGLES LAKE NO. 165C	Water	Groundwater	Yes	Level II	Level I	Yes	Level I	Level I
378	Carry The Kettle	6663	ASSINIBOINE NO. 76	Water	Groundwater	Yes	Level I	Level I	Yes	No Certification	No Certification
401	Clearwater River Dene	6689	CLEARWATER RIVER NO. 222	Water	Groundwater	Yes	Level I	Level I	No	Not Required	No Operator
401	Clearwater River Dene	6690	CLEARWATER RIVER NO. 223 - THE LANDING	Water	Groundwater	No	Not Required	No Operator	No	Not Required	No Operator
366	Cote First Nation 366	6652	COTE NO. 64	Water	Groundwater GUDI	Yes	Level I	Level I	Yes	No Certification	No Certification
361	Cowessess	6647	COWESSESS NO. 73	Water	Groundwater	Yes	Level II	Level I	Yes	No Certification	No Certification
361	Cowessess	17032	WELL #1	Water	Groundwater	Yes	Level II	Level I	Yes	No Certification	No Certification
350	Cumberland House Cree Nation	6622	CUMBERLAND NO. 20 - PEMMICAN PORTAGE	Water	Groundwater	Yes	Level I	Level I	Yes	Level I	Level I
350	Cumberland House Cree Nation	6623	CUMBERLAND NO. 20 - RESERVE CENTRE	Water	Groundwater	Yes	Level I	Level I	Yes	Level I	Level I
389	Day Star	6674	DAY STAR NO. 87	Water	Groundwater	Yes	Level II	Level II	Yes	No Certification	No Certification
400	English River First Nation	6687	LA PLONGE NO. 192	Water	Groundwater	Yes	Level I	Level I	Yes	Level II	Level II
400	English River First Nation	6688	WAPACHEWUNAK NO. 192D	Water	Surface Water	Yes	Level I	Level I	Yes	No Certification	No Certification
400	English River First Nation	17031	WELL#2	Water	Groundwater	Yes	Not Required	Level I	Yes	Not Required	No Certification
390	Fishing Lake First Nation	6675	FISHING LAKE NO. 89	Water	Groundwater	Yes	Level II	Level II	No	Not Required	No Operator
395	Flying Dust First Nation	6681	MEADOW LAKE NO. 105 - MTA	Water	MTA	Yes	No Certification	No Certification	No	Not Required	
351	Fond du Lac	6625	FOND DU LAC NO. 227	Water	Groundwater	Yes	Level I	Level I	Yes	No Certification	No Certification
391	Gordon	6676	GORDON NO. 86	Water	Groundwater	Yes	Level II	Level II	Yes	Level I	Level I
352	Hatchet Lake	6626	LAC LA HACHE NO. 220	Water	Surface Water	Yes	Level I	Level I	Yes	No Certification	No Certification
397	Island Lake First Nation	6683	MINISTIKWAN NO. 161	Water	Surface Water	Yes	Level II	Level I	Yes	Level I	No Certification
397	Island Lake First Nation	6684	MINISTIKWAN NO. 161A - MUDIE LAKE	Water	Groundwater	Yes	Level I	No Certification	Yes	Level II	Level I
370	James Smith	6624	JAMES SMITH NO. 100	Water	Groundwater	Yes	Level I	Level I	Yes	Level I	Level I
362	Kahkewistahaw	6648	KAHKEWISTAHAW NO. 72	Water	Groundwater	Yes	Level I	Level I	Yes	No Certification	No Certification
393	Kawacatoose	6679	POORMAN NO. 88	Water	Groundwater	Yes	Level I	Level I	Yes	Level I	Level I
367	Keeseekoose	6653	KEESEEKOOSE NO. 66	Water	Groundwater	Yes	Level I	Level I	Yes	Level I	Level I
377	Kinistin Saulteaux Nation	6662	KINISTIN NO. 91	Water	Groundwater	Yes	Level II	Level II	Yes	No Certification	No Certification
353	Lac La Ronge	6627	GRANDMOTHER'S BAY NO. 219	Water	Surface Water	Yes	Level II	Level II	Yes	No Certification	No Certification
353	Lac La Ronge	16041	KITSAKIE NO. 156B - MTA	Water	MTA	Yes	Not Required	Level II	Yes	Not Required	Level II
353	Lac La Ronge	6629	LAC LA RONGE NO. 156 - MTA	Water	MTA	Yes	Not Required	Level II	Yes	Not Required	Level II
353	Lac La Ronge		LITTLE RED RIVER 106C - TRUCKED WATER FROM MONTREAL LAKE SIDE	Water	MTA	NR	Not Required	Not Required	No	Not Required	Not Required
353	Lac La Ronge	6631	MORIN LAKE NO. 217	Water	Groundwater	Yes	Level I	Level I	Yes	No Certification	No Certification
353	Lac La Ronge	6632	STANLEY NO. 157	Water	Surface Water	Yes	Level II	Level II	Yes	Level II	Level II
353	Lac La Ronge	6633	SUCKER RIVER NO. 156C	Water	Surface Water	Yes	Level II	Level II	Yes	No Certification	No Certification
379	Little Black Bear	6664	LITTLE BLACK BEAR NO. 84	Water	Groundwater	Yes	No Certification	No Certification	Yes	No Certification	No Certification
340	Little Pine	6610	LITTLE PINE NO. 116	Water	Groundwater	Yes	Level I	Level I	Yes	No Certification	No Certification
396	Makwa Sahgaiehcan First Nation	6682	MAKWA LAKE NO. 129B	Water	Groundwater GUDI	Yes	No Certification	No Certification	Yes	No Certification	No Certification
374	Mistawasis	17038	ISLAND LAKE VILLAGE	Water	Groundwater	Yes	Level I	Level I	Yes	No Certification	No Certification
374	Mistawasis	6659	MISTAWASIS NO. 103	Water	Groundwater	Yes	Level I	Level I	Yes	No Certification	No Certification
374	Mistawasis	17041	PECHAWIS VILLAGE	Water	Groundwater	Yes	Level I	Level I	Yes	No Certification	No Certification
374	Mistawasis	17040	SOUTH VILLAGE	Water	Groundwater	Yes	Level I	Level I	Yes	No Certification	No Certification
374	Mistawasis	17039	WATSON VILLAGE	Water	Groundwater	Yes	Level I	Level I	Yes	No Certification	No Certification
354	Montreal Lake	6634	MONTREAL LAKE NO. 106	Water	Surface Water	Yes	Level II	Level II	Yes	No Certification	No Certification
354	Montreal Lake	6635	MONTREAL LAKE NO. 106B - LITTLE RED RIVER	Water	Groundwater	Yes	Level II	Level I	Yes	Level II	Level II

First Nation Information		Water System Information				Operator Information					
Band #	Band Name	System #	System Name	System Type	Water Source	Primary Operator Exists	Primary Operator Treatment Class	Primary Operator Distribution Class	Secondary Operator Exists	Secondary Operator Treatment Class	Secondary Operator Distribution Class
342	Moosomin	6611	MOOSOMIN NO. 112B	Water	Groundwater	Yes	Level I	Level I	Yes	Level II	Level I
343	Mosquito, Grizzly Bears Head, Lean Man Fs	6612	MOSQUITO NO. 109	Water	Groundwater	Yes	Level I	Level I	Yes	Level II	Level II
381	Muscowpetung	6666	MUSCOWPETUNG NO. 80	Water	Groundwater	Yes	Level II	Level II	Yes	No Certification	No Certification
381	Muscowpetung	15939	MUSCOWPETUNG NO. 80 - SCHOOL	Water	Groundwater	Yes	Level II	No Operator	Yes	No Certification	No Operator
375	Muskeg Lake	6660	MUSKEG LAKE NO. 102	Water	Groundwater	Yes	Level I	Level I	Yes	No Certification	No Certification
371	Muskoday First Nation	6656	MUSKODAY NO. 99 - MTA	Water	MTA	Yes	Not Required	Level I	No	Not Required	
392	Muskowekwan	6677	MUSKOWEKWAN NO. 85 - CORE AREA	Water	Groundwater	Yes	Level II	Level II	Yes	Level II	Level II
380	Nekaneet	17035	MIDDLE CAMP WELL	Water	Groundwater	Yes	Level I	Level I	No	Not Required	No Operator
380	Nekaneet	6665	NEKANEET NO. 160A	Water	Groundwater	Yes	Level I	Level I	No	Not Required	No Operator
380	Nekaneet	17034	UPPER CAMP WELL	Water	Groundwater	Yes	Level I	Level I	No	Not Required	No Operator
408	Ocean Man	6702	OCEAN MAN NO. 69	Water	Groundwater	Yes	Level I	Level I	Yes	No Certification	No Certification
363	Ochapowace	6649	OCHAPOWACE NO. 71	Water	Groundwater	Yes	Level I	Level I	Yes	Level I	Level I
382	Okanese	6667	OKANESE NO. 82	Water	Groundwater	Yes	Level II	Level I	Yes	No Certification	No Certification
373	One Arrow	6658	ONE ARROW NO. 95	Water	Surface Water	Yes	No Certification	No Certification	Yes	No Certification	No Certification
344	Onion Lake	6613	SEEKASKOOTCH NO. 119	Water	Groundwater GUDI	Yes	Level II	Level II	Yes	Level II	Level II
383	Pasqua First Nation #79	6668	PASQUA NO. 79	Water	Groundwater	Yes	Level II	Level II	Yes	Level I	Level I
384	Peepseekisis	6669	PEEPEEKISIS NO. 81	Water	Groundwater	Yes	Level II	Level II	Yes	Level I	Level I
405	Pelican Lake	6694	CHITEK LAKE NO. 191 (both North and South are served)	Water	Surface Water	Yes	Level II	Level II	Yes	No Certification	No Certification
355	Peter Ballantyne Cree Nation	6700	DESCHAMBEAULT LAKE	Water	Surface Water	Yes	Level II	Level I	Yes	Level I	Level I
355	Peter Ballantyne Cree Nation	7105	KINOOSAO THOMAS CLARK NO. 204	Water	Groundwater	Yes	Level I	Level I	Yes	No Certification	No Certification
355	Peter Ballantyne Cree Nation	17036	KISKACIWAN NO.208-WELL	Water	Groundwater	Yes	No Certification	No Certification	Yes	No Certification	No Certification
355	Peter Ballantyne Cree Nation	6636	PELICAN NARROWS NO. 184B	Water	Surface Water	Yes	Level I	Level II	Yes	Level I	Level I
355	Peter Ballantyne Cree Nation	16045	SANDY BAY (WAPASKOKIMAW) NO. 202 - MTA	Water	MTA	NR	Not Required	Not Required	No	Not Required	Not Required
355	Peter Ballantyne Cree Nation	6637	SOUTHEND NO. 200	Water	Groundwater GUDI	Yes	Level II	Level II	Yes	Level I	Level II
355	Peter Ballantyne Cree Nation	6638	STURGEON WEIR NO. 184F	Water	Groundwater GUDI	Yes	Level II	Level II	Yes	No Certification	No Certification
409	Pheasant Rump Nakota	6703	PHEASANT RUMP NO. 68	Water	Groundwater	Yes	Level I	Level I	No	Not Required	No Operator
385	Piapot	6670	PIAPOT NO. 75	Water	Groundwater	Yes	Level I	Level I	Yes	Level II	Level II
345	Poundmaker	6614	POUNDMAKER NO. 114 - CENTRAL	Water	Groundwater	Yes	Level I	Level I	Yes	Level II	Level II
345	Poundmaker	6615	POUNDMAKER NO. 114 - SCHOOL	Water	Groundwater	Yes	Level I	Level I	Yes	Level II	Level II
345	Poundmaker	17037	POUNDMAKER NO.114-18B-WELL	Water	MTA	Yes	Level I	Level I	Yes	Level II	Level II
356	Red Earth	6640	RED EARTH NO. 29	Water	Surface Water	Yes	Level II	Level II	Yes	Level I	Level I
346	Red Pheasant	6616	RED PHEASANT NO. 108	Water	Groundwater	Yes	Level I	Level I	Yes	Level II	Level II
364	Sakimay First Nations	6697	LITTLE BONE NO. 74B	Water	MTA	Yes	Level I	Level I	Yes	Level I	Level I
364	Sakimay First Nations	6650	SAKIMAY NO. 74	Water	Groundwater	Yes	Level I	Level I	Yes	Level I	Level I
347	Saulteaux	6618	SAULTEAUX NO. 159	Water	Groundwater	Yes	Level I	Level I	No	No Certification	Level I
347	Saulteaux	6617	SAULTEAUX NO. 159A - BIRCH LAKE	Water	Groundwater	Yes	Level I	Level I	Yes	No Certification	Level I
357	Shoal Lake Cree Nation	6641	SHOAL LAKE NO. 28A	Water	Groundwater GUDI	Yes	Level I	Level I	Yes	No Certification	No Certification
386	Standing Buffalo	6671	STANDING BUFFALO NO. 78	Water	Groundwater	Yes	Level I	Level I	Yes	No Certification	No Certification
387	Star Blanket	6672	STAR BLANKET NO. 83	Water	Groundwater	Yes	Level I	Level I	Yes	No Certification	No Certification
387	Star Blanket	6779	WA-PII MOOS-TOOSIS (WHITE CALF) NO. 83A	Water	Groundwater	Yes	Level I	Level I	Yes	No Certification	No Certification
360	Sturgeon Lake First Nation	6646	STURGEON LAKE NO. 101 - WEST PLANT	Water	Surface Water	Yes	Level II	Level II	Yes	Level I	Level I
348	Sweetgrass	6619	SWEET GRASS NO. 113	Water	Groundwater	Yes	Level II	Level II	Yes	Level II	Level II
368	The Key First Nation	6654	THE KEY NO. 65	Water	Groundwater	Yes	No Certification	No Certification	No	Not Required	No Operator
349	Thunderchild First Nation	17013	THUNDERCHILD 115C	Water	Groundwater GUDI	Yes	Level I	Level I	Yes	Level I	Level I
349	Thunderchild First Nation	6620	THUNDERCHILD NO. 115B	Water	Groundwater	Yes	Level I	Level I	Yes	Level I	Level I
358	Wahpeton Dakota Nation	6642	WHPETON NO. 94A	Water	Groundwater	Yes	Level I	Level I	Yes	Not Required	No Operator
402	Waterhen Lake	17009	WATERHEN 130	Water	Surface Water	Yes	Level II	Level I	Yes	Level I	No Certification
365	White Bear	6651	WHITE BEAR NO. 70	Water	Groundwater	Yes	No Certification	No Certification	Yes	Level II	Level I
372	Whitecap Dakota First Nation		DAKOTA DUNES CASINO WTP	Water	MTA	Yes	Not Required	No Certification	Yes	Not Required	No Certification
372	Whitecap Dakota First Nation	6657	WHITE CAP NO. 94	Water	Groundwater	Yes	Level II	Level II	Yes	Level II	Level II
407	Witchekan Lake	6696	WITCHEKAN LAKE NO. 117	Water	Groundwater	Yes	Level I	Level I	Yes	No Certification	No Certification
388	Wood Mountain	6673	WOOD MOUNTAIN NO. 160	Water	Groundwater	Yes	Level I	Level I	No	Not Required	No Operator
376	Yellow Quill	6661	NUT LAKE NO. 90	Water	Groundwater	Yes	Level II	Level I	Yes	Level I	Level I

Appendix D.2

Individual First Nation Wastewater Summary

Table D.2 - 1: Regional Summary of Wastewater Treatment

Band #	First Nation Information			Wastewater System Information										
	Band Name	System #	System Name	Const Year	Receiver Name	Treatment Class	Design Capacity [m ³ /d]	Max Daily Volume [m ³ /d]	Wastewater System Type	Wastewater Treatment Level	Wastewater Disinfection Chlorine	Wastewater Disinfection UV	Discharge Frequency	Wastewater Sludge Treatment
406	Ahtahkakoop	7447	AHTAHKAKOOP NO. 104	1985	Creek	Level I	128	156	Faculative lagoon	Secondary			Other	No
369	Beardys and Okemasis	7408	BEARDY'S NO. 97 AND OKEMASIS NO. 96	1992	Wetland	Level I	110	130.3	Faculative lagoon	Secondary	No	No	Spring, fall	No
399	Big Island Lake Cree Nation	7438	BIG ISLAND LAKE NO. 124	1980	Wetland	Level I	150	58	Faculative lagoon	Secondary	No	No	Spring, fall	No
404	Big River First Nation	7445	BIG RIVER NO. 118	2009	Sub-Surface/Ground	Level I	230	108	Faculative lagoon	Secondary	No	No	Other	No
403	Birch Narrows First Nation	16046	TURNOR LAKE NO. 193B - MTA	1983	MTA	MTA	217	217	MTA	MTA	MTA	MTA	MTA	MTA
359	Black Lake	7396	CHICKEN NO. 224	1992	Lake, Reservoir	Level I	538	796	Faculative lagoon	Secondary	No	No	Spring, fall	No
398	Buffalo River Dene Nation	7437	PETER POND NO. 193	1994	Lake, Reservoir	Level I	403	292	Faculative lagoon	Secondary	No	No	Spring, fall	No
394	Canoe Lake Cree First Nation	7432	CANOE LAKE NO. 165	1981	Lake, Reservoir	Level I	424	418	Faculative lagoon	Secondary	No	No	Spring, fall	No
394	Canoe Lake Cree First Nation	7450	EAGLES LAKE NO. 165C	2001	Sub-Surface/Ground	Level I	81.1	28.0	Faculative lagoon	Secondary	No	No	Other	No
378	Carry The Kettle	7416	ASSINIBOINE NO. 76	1994	Sub-Surface/Ground	Level I	68.6	34.5	Faculative lagoon	Secondary	No	No	Spring, fall	Yes
401	Clearwater River Dene	7441	CLEARWATER RIVER NO. 222	2000	Lake, Reservoir	Level I	324	397	Faculative lagoon	Secondary			Fall	No
366	Cote First Nation 366	7405	COTE NO. 64	1980	River	Level I	114	114	Faculative lagoon	Secondary	No	No	Spring, fall	No
361	Cowessess	7400	COWESSESS NO. 73	1994	River	Level I	383	274	Faculative lagoon	Secondary	No	No	Spring, fall	Yes
350	Cumberland House Cree Nation	7374	CUMBERLAND NO. 20 - PEMMICAN PORTAGE	1996	Wetland	Level I	147	245	Faculative lagoon	Secondary	No	No	Spring, fall	No
350	Cumberland House Cree Nation	7375	CUMBERLAND NO. 20 - RESERVE CENTRE	1984	Wetland	Level I	6.8	10.1	Faculative lagoon	Secondary	No	No	Spring, fall	No
389	Day Star	7427	DAY STAR NO. 87	1993	Wetland	Level I	64.8		Faculative lagoon	Secondary	No	No	Spring, fall	No
400	English River First Nation	7439	LA PLONGE NO. 192	1997	Sub-Surface/Ground	Level I	76	61	Faculative lagoon	Secondary	No	No	Other	No
400	English River First Nation	7440	WAPACHEWUNAK NO. 192D	1990	River	Level I	103	333	Faculative lagoon	Secondary	No	No	Spring, fall	No
390	Fishing Lake First Nation	7428	FISHING LAKE NO. 89	1993	Wetland	Level I	61	41	Faculative lagoon	Secondary	No	No	Other	No
395	Flying Dust First Nation	7433	MEADOW LAKE NO. 105	2008	Wetland	Level I	247	119	Faculative lagoon	Secondary	No	No	Spring	No
351	Fond du Lac	7377	FOND DU LAC NO. 227	1998	Lake, Reservoir	Level I	634	474	Faculative lagoon	Secondary	No	No	Continuous	No
391	Gordon	7429	GORDON NO. 86	1991	Wetland	Level I	66		Faculative lagoon	Secondary	No	No	Other	No
352	Hatchet Lake	7378	LAC LA HACHE NO. 220	1996	Wetland	Level I	548	674.4	Faculative lagoon	Secondary	No	No	Continuous	No
397	Island Lake First Nation	7435	MINISTIKWAN NO. 161	1994	Wetland	Level I	115	119	Faculative lagoon	Secondary	No	No	Other	No
370	James Smith	7376	JAMES SMITH NO. 100	1986	Evaporation	Level I	263	299	Faculative lagoon	Secondary	No	No	Other	No
362	Kahkewistahaw	7401	KAHKEWISTAHAW NO. 72	1979	Sub-Surface/Ground	Level I	28.4	49	Faculative lagoon	Secondary	No	No	Spring, fall	No
393	Kawacatoose	7431	POORMAN NO. 88	2001	Wetland	Level I	656	178	Faculative lagoon	Secondary	No	No	Fall	No
367	Keeseekoose	7406	KEESEKOOSE NO. 66	1975	Sub-Surface/Ground	Level I	111	78.7	Faculative lagoon	Secondary	No	No	Spring, fall	No
377	Kinistin Sauteaux Nation	7415	KINISTIN NO. 91	1991	Wetland	Level I	52	122	Faculative lagoon	Secondary	No	No	Other	No
353	Lac La Ronge	7379	GRANDMOTHER'S BAY NO. 219	1997	Wetland	Level I	168	125	Faculative lagoon	Secondary	No	No	Spring, fall	No
353	Lac La Ronge	16042	KITSAKIE NO. 156B - MTA	1995	MTA	MTA		135	MTA	MTA	MTA	MTA	MTA	MTA
353	Lac La Ronge	7381	LAC LA RONGE NO. 156	1996	Wetland	Level I	1740	1121	Faculative lagoon	Secondary	No	No	Spring, fall	No
353	Lac La Ronge	7383	MORIN LAKE NO. 217	1995	Sub-Surface/Ground	Level I	204	131	Faculative lagoon	Primary	No	No	Other	No
353	Lac La Ronge	7384	STANLEY NO. 157	2007	Wetland	Level I	1146	657	Aerated lagoon	Secondary	No	No	Spring, fall	No
353	Lac La Ronge	7385	SUCKER RIVER NO. 156C	1996	Wetland	Level I	177	139	Faculative lagoon	Secondary	No	No	Spring, fall	No
353	Lac La Ronge		WASTEWATER TRUCK HAUL SYSTEM	0	MTA	MTA	NA	60	MTA	MTA	MTA	MTA	MTA	MTA
340	Little Pine	7362	LITTLE PINE NO. 116	1997	Evaporation	Level I	133	122	Faculative lagoon	Secondary	No	No	Other	No
396	Makwa Sahgaiehcan First Nation	7434	MAKWA LAKE NO. 129B	1999	Wetland	Level I	401	278	Faculative lagoon	Secondary	No	No	Spring, fall	No
374	Mistawasis	7412	MISTAWASIS NO. 103	1995	Wetland	Level I	63	149	Faculative lagoon	Secondary	No	No	Spring, fall	No
354	Montreal Lake	7386	MONTREAL LAKE NO. 106	1993	Wetland	Level I	202	163	Faculative lagoon	Secondary	No	No	Spring, fall	No
354	Montreal Lake	17055	MONTREAL LAKE NO. 106 - BITTERN LAKE SUBDIVISION	2008	Wetland	Level I	75	39	Faculative lagoon	Secondary	No	No	Other	No
354	Montreal Lake	7387	MONTREAL LAKE NO. 106B - LITTLE RED RIVER	1996	Sub-Surface/Ground	Level I	141	89	Faculative lagoon	Secondary	No	No	Other	No
342	Moosomin	7363	MOOSOMIN NO. 112B	1993	Wetland	Level I	57	152	Faculative lagoon	Secondary	No	No	Other	No
343	Mosquito, Grizzly Bears Head, Lean Man First Nation	7364	MOSQUITO NO. 109	1994	Wetland	Level I	79	87	Faculative lagoon	Secondary	No	No	Spring, fall	No
381	Muscowpetung	7419	MUSCOWPETUNG NO. 80	1995	Evaporation	Level I	17.5	31	Faculative lagoon	Primary	No	No	Other	No
375	Muskeg Lake	7413	MUSKEG LAKE NO. 102	1989	Sub-Surface/Ground	Level I	91	54	Faculative lagoon	Secondary	No	No	Other	No
371	Muskoday First Nation	7409	MUSKODAY NO. 99	1989	Wetland	Level I	121	168.9	Faculative lagoon	Secondary	No	No	Spring, fall	No
392	Muskowekwan	7430	MUSKOWEKWAN NO. 85 - CORE AREA & MEC	1993	Wetland	Level I	97.8	77.6	Faculative lagoon	Secondary	No	No	Other	No
380	Nekaneet	7418	NEKANEET NO. 160A	1990	Sub-Surface/Ground	Level I	14.4	46	Faculative lagoon	Secondary	No	No	Continuous	Yes
408	Ocean Man	17008	OCEAN MAN NO. 69	1993	Sub-Surface/Ground	Level I	55	29	Faculative lagoon	Secondary	No	No	Other	No
363	Ochapowace	7402	OCHAPOWACE NO. 71	2006	Sub-Surface/Ground	Level I	77		Faculative lagoon	Secondary	No	No	Spring, fall	No
382	Okanese	7420	OKANESE NO. 82	1993	Wetland	Level I	83	36	Faculative lagoon	Secondary	No	No	Other	No
373	One Arrow	7411	ONE ARROW NO. 95	1994	Wetland	Level I	39.9	163	Faculative lagoon	Secondary	No	No	Spring, fall	No
344	Onion Lake	7365	SEEKASKOOTCH NO. 119 - CT	1994	Sub-Surface/Ground	Level I	441	253	Faculative lagoon	Secondary	No	No	Spring	No
344	Onion Lake		SEEKASKOOTCH NO. 119 - RC	2007	Sub-Surface/Ground	Level I	248.3	123	Faculative lagoon	Secondary	No	No	Spring	No
383	Pasqua First Nation #79	7421	PASQUA NO. 79	2008	Evaporation	Level I	56	43.2	Faculative lagoon	Secondary	No	No	Other	No
384	Peepseekisis	7422	PEEPEEKISIS NO. 81	1999	Evaporation	Level I	136	22	Faculative lagoon	Secondary	No	No	Other	No
405	Pelican Lake	7446	CHITEK LAKE NO. 191 - Northcore subdivision Lagoon	1994	Sub-Surface/Ground	Level I	114	108	Faculative lagoon	Secondary	No	No	Spring, fall	No
405	Pelican Lake	NEW001	CHITEK LAKE NO. 191 - Southcore Subdivision Lagoon	2004	Sub-Surface/Ground	Level I	114	80	Faculative lagoon	Secondary	No	No	Other	No
355	Peter Ballantyne Cree Nation	7452	DESCHAMBEAULT LAKE	1997	Wetland	Level I	499	494	Faculative lagoon	Secondary	No	No	Spring, fall	No
355	Peter Ballantyne Cree Nation	7646	KINOOSAO THOMAS CLARK NO. 204	1997	Wetland	Level I	2.6	22.8	Faculative lagoon	Primary	No	No	Spring, fall	No
355	Peter Ballantyne Cree Nation	7388	PELICAN NARROWS NO. 184B	1997	Wetland	Level I	740	691	Faculative lagoon	Secondary	No	No	Continuous	No
355	Peter Ballantyne Cree Nation	16119	SANDY BAY (WAPASKOKIMAW) NO. 202 - MTA	1993	MTA	MTA	Unknown	216	MTA	MTA	MTA	MTA	MTA	MTA
355	Peter Ballantyne Cree Nation	7389	SOUTHEND NO. 200	2007	Wetland	Level I	683	493	Faculative lagoon	Secondary	No	No	Spring, fall	No
355	Peter Ballantyne Cree Nation	7390	STURGEON WEIR NO. 184F	2006	Wetland	Level I	33	21	Faculative lagoon	Secondary	No	No	Spring, fall	No

First Nation Information				Wastewater System Information										
Band #	Band Name	System #	System Name	Const Year	Receiver Name	Treatment Class	Design Capacity [m ³ /d]	Max Daily Volume [m ³ /d]	Wastewater System Type	Wastewater Treatment Level	Wastewater Disinfection Chlorine	Wastewater Disinfection UV	Discharge Frequency	Wastewater Sludge Treatment
409	Pheasant Rump Nakota	7455	PHEASANT RUMP NO. 68	1993	Evaporation	Level I	107	30	Faculative lagoon	Secondary	No	No	Other	No
385	Piapot	7423	PIAPOT NO. 75	1994	Sub-Surface/Ground	Level I	48.2	48.9	Faculative lagoon	Secondary	No	No	Spring, fall	No
345	Poundmaker	7366	POUNDMAKER NO. 114 - SCHOOL	1998	Sub-Surface/Ground	Level I	127	87	Faculative lagoon	Secondary	No	No	Other	No
356	Red Earth	7391	CARROT RIVER NO. 29A	1994	Wetland	Level I	63	288	Faculative lagoon	Secondary	No	No	Spring, fall	No
356	Red Earth	7392	RED EARTH NO. 29	1997	Wetland	Level I	132	144	Faculative lagoon	Secondary	No	No	Spring, fall	No
346	Red Pheasant	7368	RED PHEASANT NO. 108	1985	Wetland	Level I	151	77.5	Faculative lagoon	Secondary	No	No	Spring, fall	No
364	Sakimay First Nations	7403	SAKIMAY NO. 74	1997	Sub-Surface/Ground	Level I	136.5	19	Faculative lagoon	Secondary	No	No	Spring, fall	No
347	Saulteaux	7370	SAULTEAUX NO. 159	1999	Other	Level I	47	65.7	Faculative lagoon	Secondary	No	No	Other	No
357	Shoal Lake Cree Nation	7393	SHOAL LAKE NO. 28A	1995	Wetland	Level I	227	286	Faculative lagoon	Secondary	No	No	Spring, fall	No
386	Standing Buffalo	7424	STANDING BUFFALO NO. 78	1995	Evaporation	Level I	83.3	158	Faculative lagoon	Secondary	No	No	Other	No
387	Star Blanket	7425	STAR BLANKET NO. 83	1994	Wetland	Level I	83	31	Faculative lagoon	Secondary	No	No	Other	No
387	Star Blanket	16059	WA-PII MOOS-TOOSIS INDIAN RES. (WHITE CALF) NO. 83A	1998	MTA	MTA		36.5	MTA	MTA	MTA	MTA	MTA	MTA
360	Sturgeon Lake First Nation	7399	STURGEON LAKE NO. 101 - EAST LAGOON	1995	Wetland	Level I	127	153	Faculative lagoon	Secondary	No	No	Spring, fall	No
360	Sturgeon Lake First Nation	7398	STURGEON LAKE NO. 101 - WEST LAGOON	1977	Wetland	Level I	56	99	Faculative lagoon	Secondary	No	No	Spring, fall	No
348	Sweetgrass	7371	SWEET GRASS NO. 113	1995	Wetland	Level I	109	86	Faculative lagoon	Secondary	No	No	Spring, fall	No
368	The Key First Nation	7407	THE KEY NO. 65	1995	Sub-Surface/Ground	Level I	20.6	29.4	Faculative lagoon	Secondary	No	No	Other	No
349	Thunderchild First Nation	7372	THUNDERCHILD NO. 115B	1994	Sub-Surface/Ground	Level I	86	138	Faculative lagoon	Secondary	No	No	Spring	No
358	Wahpeton Dakota Nation	7394	WHPETON NO. 94A	1997	Sub-Surface/Ground	Level I	105	82	Faculative lagoon	Secondary	No	No	Other	No
402	Waterhen Lake	7443	WATERHEN NO. 130	1999	Wetland	Level I	240	107	Faculative lagoon	Secondary	No	No	Spring, fall	No
365	White Bear	7404	WHITE BEAR NO. 70 - SCHOOL & RESORT LAGOONS	1991	Wetland	Level I	20	16	Faculative lagoon	Secondary	No	No	Spring, fall	No
372	Whitecap Dakota First Nation	7410	WHITE CAP NO. 94	1996	Wetland	Level I	350	113.7	Aerated lagoon	Secondary	No	No	Continuous	No
407	Witchekan Lake	7448	WITCHEKAN LAKE NO. 117	1990	Creek	Level I	108	130	Faculative lagoon	Secondary	No	No	Spring, fall	No
376	Yellow Quill	7414	NUT LAKE NO. 90	1993	Wetland	Level I	137	39.4	Faculative lagoon	Secondary	No	No	Spring, fall	No

Table D.2 - 2: Regional Summary of Wastewater Collection Systems, Effluent Quality and Operators

First Nation Information				Collection System Information										Effluent Quality		Operator Information					
Band #	Band Name	System #	System Name	Collection Type	Collection Class	Pop. Served	Homes Piped	Homes Trucked	No. of Trucks in Service	Pipe Length	Pipe Length / Connection	Low Pressure Sewer	No. of Pumping Stations	Meets Federal Guidelines (1976)	Cause of Failure	Primary Operator Exists	Primary Operator Treatment Class	Primary Operator Collection Class	Secondary Operator Exists	Secondary Operator Treatment Class	Secondary Operator Collection Class
406	Ahtahkakoop	7447	AHTAHKAKOOP NO.104	Piped, Trucked	Level I	495	62	37	1	3364	54	No	1	Unknown	Unknown	Yes	Level I	Level I	No	No Operator	No Operator
369	Beardys and Okemasis	7408	BEARDY'S NO. 97 AND OKEMASIS NO. 96	Piped, Trucked	Level I	404	80	19	0	2821	35	No	2	High Freq OR High Mag	Unknown	Yes	Level I	Level I	No	No Operator	No Operator
399	Big Island Lake Cree Nation	7438	BIG ISLAND LAKE NO. 124	Piped, Trucked	Level I	181	26	2	1	1984	76	No	1	Meets Requirements	Unknown	Yes	No Certification	No Certification	Yes	Level I	Level I
404	Big River First Nation	7445	BIG RIVER NO. 118	Piped, Low Pressure, Trucked	Level I	741	200	96	3	754	37	Yes	2	Unknown	Unknown	Yes	Level I	Level I	Yes	No Certification	No Certification
403	Birch Narrows First Nation	16046	TURNOR LAKE NO. 193B - MTA	Piped	Level I	524	82	0	0	3519	42	No	2	MTA	MTA	Yes	Not Required	Not Required	Yes	Not Required	Not Required
359	Black Lake	7396	CHICKEN NO. 224	Piped	Level I	1919	220	0	0	7904	35	No	3	Unknown	Unknown	Yes	No Certification	No Certification	Yes	No Certification	No Certification
398	Buffalo River Dene Nation	7437	PETER POND NO. 193	Piped, Trucked	Level I	791	200	27	0	8468	42	No	3	Unknown	Unknown	Yes	Level I	Level I	Yes	Level I	Level I
394	Canoe Lake Cree First Nation	7432	CANOE LAKE NO. 165	Piped	Level I	985	218	0	0	9406.8	43	No	3	Unknown	Unknown	Yes	Level I	Level I	Yes	Level I	Level I
394	Canoe Lake Cree First Nation	7450	EAGLES LAKE NO. 165C	Piped	Level I	141	31	0	0	2055	66	No	1	Meets Requirements	Unknown	Yes	Level I	Level I	Yes	Level I	Level I
378	Carry The Kettle	7416	ASSINIBOINE NO. 76	Piped	Level I	1002	33	0	0	1536	46	No	1	Meets Requirements	Unknown	Yes	Level I	Level I	Yes	No Certification	No Certification
401	Clearwater River Dene	7441	CLEARWATER RIVER NO. 222	Piped, Trucked	Level I	981	149	5	0	6369	42	No	1	Unknown	Unknown	Yes	Level I	Level I	No	No Operator	No Operator
366	Cote First Nation 366	7405	COTE NO. 64	Piped	Level I	664	104	0	0	3832	36	No	0	Low Freq, Low Mag	Design	Yes	Level I	Level I	Yes	No Certification	No Certification
361	Cowessess	7400	COWESSESS NO. 73	Piped, Low Pressure, Trucked	Level I	712	88	3	1	2871	32	Yes	2	High Freq, Low Mag	Operation	Yes	Level I	Level I	Yes	No Certification	No Certification
350	Cumberland House Cree Nation	7374	CUMBERLAND NO. 20 - PEMMICAN PORTAGE	Piped	Level I	916	189	0	0	6197.1	32	No	1	Low Freq, Low Mag	Design	Yes	Level I	Level I	Yes	Level I	Level I
350	Cumberland House Cree Nation	7375	CUMBERLAND NO. 20 - RESERVE CENTRE	Piped	Level I	0	0	0	0			No	1	Meets Requirements	Unknown	Yes	Level I	Level I	Yes	Level I	Level I
389	Day Star	7427	DAY STAR NO. 87	Piped, Low Pressure	Level I	167	13	0	1			Yes	1	Meets Requirements	Unknown	Yes	Level I	Level I	Yes	No Certification	No Certification
400	English River First Nation	7439	LA PLONGE NO. 192	Piped	Level I	140	46	0	0	6712.3	145	No	1	Low Freq, Low Mag	Unknown	Yes	Level I	Level I	Yes	Level I	Level I
400	English River First Nation	7440	WAPACHEWUNAK NO. 192D	Piped, Trucked	Level I	762	167	9	1	5848.6	35	No	2	Unknown	Unknown	Yes	Level I	Level I	Yes	No Certification	No Certification
390	Fishing Lake First Nation	7428	FISHING LAKE NO. 89	Piped	Level I	569	34	0	2	2473.5	72	No	3	High Freq, Low Mag	Operation	Yes	Level I	Level II	No	No Operator	No Operator
395	Flying Dust First Nation	7433	MEADOW LAKE NO. 105	Piped	Level I	308	130	0	0	4662	35	No	2	Meets Requirements	Unknown	Yes	No Certification	No Certification	No	No Operator	No Operator
351	Fond du Lac	7377	FOND DU LAC NO. 227	Piped	Level I	1143	280	0	0	7505.5	26	No	6	Unknown	Unknown	Yes	Level I	Level I	Yes	No Certification	No Certification
391	Gordon	7429	GORDON NO. 86	Piped, Trucked	Level I	1248	0	1	1			No	2	High Freq OR High Mag	Design	Yes	Level I	Level II	Yes	No Certification	No Certification
352	Hatchet Lake	7378	LAC LA HACHE NO. 220	Piped	Level I	1521	221	0	0	6224	28	No	3	Unknown	Unknown	Yes	Level I	Level I	Yes	No Certification	No Certification
397	Island Lake First Nation	7435	MINISTIKWAN NO. 161	Piped	Level I	418	58	0	1	2867	49	No	0	Low Freq, Low Mag	Sign & Opera	Yes	Level I	Level I	Yes	No Certification	No Certification
370	James Smith	7376	JAMES SMITH NO. 100	Piped, Trucked	Level I	1034	86	15	1	4308	50	No	1	High Freq AND High Mag	Sign & Opera	Yes	Level I	Level I	Yes	No Certification	No Certification
362	Kahkewistahaw	7401	KAHKEWISTAHAW NO. 72	Piped	Level I	621	28	0	0	2135	76	No	1	High Freq AND High Mag	Design	Yes	Level I	Level I	Yes	No Certification	No Certification
393	Kawacatoose	7431	POORMAN NO. 88	Piped, Trucked	Level I	1182	76	8	1	3643.5	47	No	1	Unknown	Unknown	Yes	Level I	Level I	Yes	No Certification	No Certification
367	Keeseekoose	7406	KEESEEKOOSE NO. 66	Piped	Level I	257	53	0	0	2023	38	No	2	Meets Requirements	Unknown	Yes	Level I	Level I	Yes	Level I	Level I
377	Kinistin Saulteaux Nation	7415	KINISTIN NO. 91	Piped, Low Pressure	Level I	297	60	0	1	2815	46	Yes	2	Meets Requirements	Unknown	Yes	Level I	Level I	Yes	No Certification	No Certification
353	Lac La Ronge	7379	GRANDMOTHER'S BAY NO. 219	Piped	Level I	301	87	0	0	5550	63	No	5	Meets Requirements	Unknown	Yes	Level I	Level I	Yes	No Certification	No Certification
353	Lac La Ronge	16042	KITSAKIE NO. 156B - MTA	Piped, Trucked	Level I	657	51	92	2	2109.4	41	No	1	MTA	MTA	Yes	Not Required	Not Required	Yes	Not Required	Not Required
353	Lac La Ronge	7381	LAC LA RONGE NO. 156	Piped, Trucked	Level II	1576	403	1	0	14642.7	36	No	6	Meets Requirements	Unknown	Yes	Level II	Level II	Yes	Level I	Level I
353	Lac La Ronge	7383	MORIN LAKE NO. 217	Piped, Trucked	Level I	413	67	40	1	3530	52	No	2	Unknown	Unknown	Yes	Level I	Level I	Yes	No Certification	No Certification
353	Lac La Ronge	7384	STANLEY NO. 157	Piped, Trucked	Level II	1761	411	4	0	11109	27	No	4	Meets Requirements	Operation	Yes	Level II	Level II	Yes	Level II	Level I
353	Lac La Ronge	7385	SUCKER RIVER NO. 156C	Piped, Low Pressure, Trucked	Level I	345	98	17	0	2693	27	Yes	2	Meets Requirements	Unknown	Yes	Level I	Level II	Yes	No Certification	No Certification
353	Lac La Ronge		WASTEWATER TRUCK HAUL SYSTEM	Trucked	MTA	13	0	13	0			No		MTA	MTA	NR	Not Required	Not Required	No	Not Required	Not Required
340	Little Pine	7362	LITTLE PINE NO. 116	Piped, Trucked	Level I	388	49	39	1	3163.4	64	No	1	Low Freq, Low Mag	Unknown	Yes	Level I	Level I	Yes	No Certification	No Certification
396	Makwa Sahgaiehan First Nation	7434	MAKWA LAKE NO. 129B	Piped	Level I	535	103	0	0	6007	58	No	1	Low Freq, Low Mag	Operation	Yes	No Certification	No Certification	Yes	No Certification	No Certification
374	Mistawasis	7412	MISTAWASIS NO. 103	Piped, Trucked	Level I	359	38	4	1	1961	51	No	1	Meets Requirements	Unknown	Yes	Level I	Level I	Yes	No Certification	No Certification
354	Montreal Lake	7386	MONTREAL LAKE NO. 106	Piped, Trucked	Level I	888	155	10	1	5065	32	No	2	Low Freq, Low Mag	Operation	Yes	Level I	Level II	Yes	No Certification	No Certification
354	Montreal Lake	17055	MONTREAL LAKE NO. 106 - BITTERN LAKE SUBDIVISION	Piped, Trucked	Level I	242	30	15	1	2535	84	No	1	Unknown	Unknown	Yes	Level I	Level I	Yes	No Certification	No Certification
354	Montreal Lake	7387	MONTREAL LAKE NO. 106B - LITTLE RED RIVER	Piped, Trucked	Level I	214	54	78	1	2339	43	No	2	Unknown	Unknown	Yes	Level I	Level I	Yes	Level I	Level I
342	Moosomin	7363	MOOSOMIN NO. 112B	Piped	Level I	588	88	0	1	4656	52	No	2	Low Freq, Low Mag	Design	Yes	Level I	Level I	Yes	No Certification	No Certification
343	Mosquito, Grizzly Bears Head, Lean Man F	7364	MOSQUITO NO. 109	Piped	Level I	204	42	0	0	3440	81	No	1	High Freq AND High Mag	Sign & Opera	Yes	Level I	Level I	Yes	Level I	Level I
381	Muscowpetung	7419	MUSCOWPETUNG NO. 80	Trucked	NA	377	0	65	1			No		Unknown	Unknown	Yes	Level I	Level I	Yes	No Certification	No Certification
375	Muskeg Lake	7413	MUSKEG LAKE NO. 102	Piped	Level I	131	41	0	1	1181.3	28	No	2	Meets Requirements	Unknown	Yes	Level I	Level I	Yes	No Certification	No Certification
371	Muskoday First Nation	7409	MUSKODAY NO. 99	Piped, Trucked	Level I	415	118	5	1	4176	35	No	1	Meets Requirements	Unknown	Yes	Level I	Level I	No	No Operator	No Operator
392	Muskowekwan	7430	MUSKOWEKWAN NO. 85 - CORE AREA & MEC	Piped, Trucked	Level I	516	50	5	0	5326.19	106	No	1	Unknown	Unknown	Yes	Level I	Level II	Yes	Level I	Level II
380	Nekaneet	7418	NEKANEET NO. 160A	Piped	Level I	71	23	0	0	1705	74	No	1	High Freq, Low Mag	Design	Yes	Level I	Level I	No	No Operator	No Operator
408	Ocean Man	17008	OCEAN MAN NO. 69	Piped	Level I	144	28	0	0	1386	49	No	1	Meets Requirements	Unknown	Yes	Level I	Level I	Yes	No Certification	No Certification
363	Ochapowace	7402	OCHAPOWACE NO. 71	Piped	Level I	583	7	0	0	1100	157	No	1	Low Freq, Low Mag	Sign & Opera	Yes	Level I	Level I	Yes	Level I	Level I
382	Okanese	7420	OKANESE NO. 82	Piped, Trucked	Level I	314	22	0	1	1468	66	No	1	High Freq AND High Mag	Design	Yes	Level I	Level I	Yes	No Certification	No Certification
373	One Arrow	7411	ONE ARROW NO. 95	Piped, Trucked	Level I	459	99	8	1	3346	33	No	2	High Freq OR High Mag	Sign & Opera	Yes	No Certification	No Certification	Yes	No Certification	No Certification
344	Onion Lake	7365	SEEKASKOOTCH NO. 119 - CT	Piped, Trucked	Level I	629	120	5	2	6780	56	No	2	Low Freq, Low Mag	Operation	Yes	Level I	Level I	Yes	Level I	Level I
344	Onion Lake		SEEKASKOOTCH NO. 119 - RC	Piped	Level I	297	59	0	0	2495	42	No	2	Unknown	Unknown	Yes	Level I	Level I	Yes	Level I	Level I
383	Pasqua First Nation #79	7421	PASQUA NO. 79	Piped, Trucked	Level I	603	23	7	contracted out	2601.5	113	No	1	Meets Requirements	Unknown	Yes	Level I	Level I	Yes	Level I	Level I
384	Peepeekisis	7422	PEEPEEKISIS NO. 81	Piped, Trucked	Level I	596	10	1	1	2719	271	No	1	High Freq, Low Mag	Operation	Yes	Level I	Level I	Yes	Level I	Level I
405	Pelican Lake	7446	CHITEK LAKE NO. 191 - Northcore subdivision Lagoon	Piped	Level I	260	53	0	0	2257.3	42	No	1	Unknown	Sign & Opera	Yes	Level I	Level I	Yes	No Certification	No Certification
405	Pelican Lake	NEW001	CHITEK LAKE NO. 191 - Southcore Subdivision Lagoon	Piped	Level I	191	39	0	0	168	4	No	2	Unknown	Unknown	Yes	No Certification	No Certification	Yes	Level I	Level I
355	Peter Ballantyne Cree Nation	7452	DESCHAMBEAULT LAKE	Piped	Level I	1190	205	0	1	6125	29	No	8	Meets Requirements	Unknown	Yes	Level II	Level I	Yes	Level I	Level I
355	Peter Ballantyne Cree Nation	7646	KINOOSAO THOMAS CLARK NO. 204	Piped	Level I	55	11	0	0	629	57	No	1	Unknown	Unknown	Yes	Level I	Level I	Yes	No Certification	No Certification
355	Peter Ballantyne Cree Nation	7388	PELICAN NARROWS NO. 184B	Piped, Trucked	Level I	1342	336	69	1	12071.5	35	No									

First Nation Information			Collection System Information										Effluent Quality		Operator Information						
Band #	Band Name	System #	System Name	Collection Type	Collection Class	Pop. Served	Homes Piped	Homes Trucked	No. of Trucks in Service	Pipe Length	Pipe Length / Connection	Low Pressure Sewer	No. of Pumping Stations	Meets Federal Guidelines (1976)	Cause of Failure	Primary Operator Exists	Primary Operator Treatment Class	Primary Operator Collection Class	Secondary Operator Exists	Secondary Operator Treatment Class	Secondary Operator Collection Class
357	Shoal Lake Cree Nation	7393	SHOAL LAKE NO. 28A	Piped	Level I	887	108	0	0	4265	39	No	1	Meets Requirements	Unknown	Yes	Level I	Level I	Yes	No Certification	No Certification
386	Standing Buffalo	7424	STANDING BUFFALO NO. 78	Trucked	Small System	572	0	183	2			No		Meets Requirements	Unknown	Yes	Level I	Level I	Yes	No Certification	No Certification
387	Star Blanket	7425	STAR BLANKET NO. 83	Piped	Level I	290	16	0	1	1640	102	No	1	Meets Requirements	Unknown	Yes	Level I	Level I	Yes	No Certification	No Certification
387	Star Blanket	16059	WA-PII MOOS-TOOSIS INDIAN RES. (WHITE CALF) NO. 83A	Piped	MTA	88	22	0	0	713	32	No		MTA	MTA	Yes	Not Required	Not Required	Yes	Not Required	Not Required
360	Sturgeon Lake First Nation	7399	STURGEON LAKE NO. 101 - EAST LAGOON	Piped, Trucked	Level I	742	70	38	1	2305	32	No	1	High Freq, Low Mag	Operation	Yes	Level I	Level I	Yes	Level I	Level I
360	Sturgeon Lake First Nation	7398	STURGEON LAKE NO. 101 - WEST LAGOON	Piped, Trucked	Level I	481	33	37	1	705	21	No	2	High Freq, Low Mag	Design & Operation	Yes	Level I	Level I	Yes	Level I	Level I
348	Sweetgrass	7371	SWEET GRASS NO. 113	Piped	Level I	212	54	0	0	2231	41	No	1	Low Freq, Low Mag	Operation	Yes	Level I	Level I	Yes	Level I	Level I
368	The Key First Nation	7407	THE KEY NO. 65	Piped	Level I	331	14	0	0	1005	71	No	1	High Freq, Low Mag	Design	Yes	No Certification	No Certification	No	No Operator	No Operator
349	Thunderchild First Nation	7372	THUNDERCHILD NO. 115B	Piped, Trucked	Level I	453	76	6	2	6861	90	No	2	Meets Requirements	Unknown	Yes	Level I	Level I	Yes	No Certification	No Certification
358	Wahpeton Dakota Nation	7394	WAHPETON NO. 94A	Piped	Level I	292	30	0	0	1458.91	48	No	1	Meets Requirements	Unknown	Yes	Level I	Level I	Yes	Small System	Small System
402	Waterhen Lake	7443	WATERHEN NO. 130	Piped	Level I	666	117	0	1	7665.6	65	No	1	High Freq, Low Mag	Operation	Yes	Level I	Level I	Yes	No Certification	No Certification
365	White Bear	7404	WHITE BEAR NO. 70 - SCHOOL & RESORT LAGOONS	Piped, Trucked	Level I	717	0	18	1			No	1	High Freq, Low Mag	Operation	Yes	No Certification	No Certification	No	No Operator	No Operator
372	Whitecap Dakota First Nation	7410	WHITE CAP NO. 94	Piped	Level I	208	73	0	0	1817.4	24	No	1	Low Freq, Low Mag	Operation	Yes	Level I	Level I	Yes	Level I	Level I
407	Witchehan Lake	7448	WITCHEKAN LAKE NO. 117	Piped	Level I	495	58	0	0	2552.7	44	No	1	Unknown	Unknown	Yes	No Certification	No Certification	Yes	No Certification	No Certification
376	Yellow Quill	7414	NUT LAKE NO. 90	Piped	Level I	125	25	0	1	1653.3	66	No	1	Meets Requirements	Unknown	Yes	Level II	Level I	Yes	No Certification	No Certification

Appendix E
Risk Summary

Appendix E.1

Individual First Nation Water Risk Summary

Table E.1: Individual First Nation Water Risk Summary

Band #	Band Name	System #	System Name	Water Source	Treatment Class	Legend:					
						Source Risk	Design Risk	Operations Risk	Report Risk	Operator Risk	Final Risk Score
406	Ahtahkakoop	6695	AHTAHKAKOOP NO.104	Groundwater	Level I	7.0	8.0	5.0	8.0	1.0	5.6
369	Beardys and Okemasis	6655	BEARDY'S NO. 97 AND OKEMASIS NO. 96	Groundwater	Level I	9.0	3.0	8.0	4.0	1.0	4.8
399	Big Island Lake Cree Nation	6686	BIG ISLAND LAKE NO. 124	Groundwater	Level I	6.0	8.0	8.0	7.0	3.0	6.7
404	Big River First Nation	6693	BIG RIVER NO. 118	Groundwater	Level I	7.0	4.0	8.0	9.0	1.0	5.4
403	Birch Narrows First Nation	6692	TURNOR LAKE NO. 193B	Groundwater	Level I	6.0	3.0	8.0	7.0	1.0	4.8
394	Canoe Lake Cree First Nation	6698	EAGLES LAKE NO. 165C	Groundwater	Level I	7.0	8.0	8.0	10.0	1.0	6.7
378	Carry The Kettle	6663	ASSINIBOINE NO. 76	Groundwater	Level I	6.0	5.0	8.0	8.0	1.0	5.5
401	Clearwater River Dene	6689	CLEARWATER RIVER NO. 222	Groundwater	Level I	7.0	3.0	10.0	10.0	1.0	5.8
401	Clearwater River Dene	6690	CLEARWATER RIVER NO. 223 - THE LANDING	Groundwater	Level I	8.0	8.0	9.0	10.0	10.0	8.9
361	Cowessess	6647	COWESSESS NO. 73	Groundwater	Level II	7.0	6.0	8.0	1.0	1.0	5.2
361	Cowessess	17032	WELL #1	Groundwater	None	6.0	8.0	9.0	10.0	1.0	8.0
350	Cumberland House Cree Nation	6622	CUMBERLAND NO. 20 - PEMMICAN PORTAGE	Groundwater	Level I	5.0	4.0	8.0	5.0	1.0	4.8
350	Cumberland House Cree Nation	6623	CUMBERLAND NO. 20 - RESERVE CENTRE	Groundwater	Level I	4.0	2.0	3.0	6.0	1.0	2.7
389	Day Star	6674	DAY STAR NO. 87	Groundwater	Level II	6.0	3.0	1.0	1.0	1.0	2.1
400	English River First Nation	6687	LA PLONGE NO. 192	Groundwater	Level I	6.0	8.0	8.0	7.0	1.0	6.3
400	English River First Nation	17031	WELL#2	Groundwater	None	5.0	8.0	10.0	10.0	1.0	8.0
390	Fishing Lake First Nation	6675	FISHING LAKE NO. 89	Groundwater	Level II	6.0	3.0	5.0	4.0	1.0	3.6
351	Fond du Lac	6625	FOND DU LAC NO. 227	Groundwater	Level I	5.0	5.0	7.0	8.0	1.0	5.1
391	Gordon	6676	GORDON NO. 86	Groundwater	Level II	5.0	4.0	5.0	1.0	1.0	3.5
397	Island Lake First Nation	6684	MINISTIKWAN NO. 161A - MUDIE LAKE	Groundwater	Level I	7.0	8.0	8.0	8.0	1.0	6.5
370	James Smith	6624	JAMES SMITH NO. 100	Groundwater	Level I	6.0	8.0	10.0	10.0	1.0	8.0
362	Kahkewistahaw	6648	KAHKEWISTAHAW NO. 72	Groundwater	Level II	8.0	3.0	3.0	1.0	1.0	2.9
393	Kawacatoose	6679	POORMAN NO. 88	Groundwater	Level II	9.0	3.0	6.0	6.0	1.0	4.4
367	Keeseekoose	6653	KEESEEKOOSE NO. 66	Groundwater	Level I	5.0	8.0	6.0	4.0	1.0	5.3
377	Kinistin Saulteaux Nation	6662	KINISTIN NO. 91	Groundwater	Level I	5.0	8.0	3.0	7.0	1.0	4.7
353	Lac La Ronge	6631	MORIN LAKE NO. 217	Groundwater	Level I	6.0	3.0	8.0	1.0	1.0	4.2
379	Little Black Bear	6664	LITTLE BLACK BEAR NO. 84	Groundwater	Level II	5.0	5.0	1.0	7.0	6.0	4.2
340	Little Pine	6610	LITTLE PINE NO. 116	Groundwater	Level I	7.0	4.0	2.0	8.0	1.0	3.5
374	Mistawasis	17038	ISLAND LAKE VILLAGE	Groundwater	Small System	5.0	4.0	1.0	8.0	1.0	3.0
374	Mistawasis	6659	MISTAWASIS NO. 103	Groundwater	Level I	7.0	8.0	1.0	8.0	1.0	4.4
374	Mistawasis	17041	PECHAWIS VILLAGE	Groundwater	Small System	6.0	8.0	1.0	5.0	1.0	4.0
374	Mistawasis	17040	SOUTH VILLAGE	Groundwater	Small System	5.0	4.0	1.0	5.0	1.0	2.7
374	Mistawasis	17039	WATSON VILLAGE	Groundwater	Small System	5.0	5.0	1.0	5.0	1.0	3.0
354	Montreal Lake	6635	MONTREAL LAKE NO. 106B - LITTLE RED RIVER	Groundwater	Level I	8.0	8.0	8.0	7.0	1.0	8.0
342	Moosomin	6611	MOOSOMIN NO. 112B	Groundwater	Level I	8.0	8.0	8.0	9.0	1.0	6.7
343	Mosquito, Grizzly Bears Head, Lean Man Fst.Natns.	6612	MOSQUITO NO. 109	Groundwater	Level I	6.0	8.0	1.0	8.0	1.0	4.3
381	Muscowpetung	6666	MUSCOWPETUNG NO. 80	Groundwater	Level I	5.0	8.0	1.0	1.0	1.0	3.5
381	Muscowpetung	15939	MUSCOWPETUNG NO. 80 - SCHOOL	Groundwater	Level I	5.0	1.0	8.0	10.0	1.0	8.0
375	Muskeg Lake	6660	MUSKEG LAKE NO. 102	Groundwater	Level I	9.0	8.0	8.0	10.0	1.0	6.9
392	Muskowekwan	6677	MUSKOWEKWAN NO. 85 - CORE AREA	Groundwater	Level II	8.0	5.0	8.0	3.0	1.0	5.2
380	Nekaneet	17035	MIDDLE CAMP WELL	Groundwater	Small System	10.0	10.0	8.0	10.0	1.0	8.0
380	Nekaneet	6665	NEKANEET NO. 160A	Groundwater	Level I	5.0	8.0	7.0	7.0	1.0	8.0
380	Nekaneet	17034	UPPER CAMP WELL	Groundwater	Small System	10.0	9.0	10.0	10.0	1.0	8.0
408	Ocean Man	6702	OCEAN MAN NO. 69	Groundwater	Level I	4.0	1.0	3.0	5.0	1.0	2.3
363	Ochapowace	6649	OCHAPOWACE NO. 71	Groundwater	Level I	6.0	8.0	1.0	2.0	1.0	3.7
382	Okanese	6667	OKANESE NO. 82	Groundwater	Level II	5.0	3.0	8.0	7.0	1.0	8.0
383	Pasqua First Nation #79	6668	PASQUA NO. 79	Groundwater	Level II	4.0	5.0	1.0	1.0	1.0	2.5
384	Peeppeekisis	6669	PEEPEEKISIS NO. 81	Groundwater	Level II	9.0	4.0	8.0	3.0	1.0	5.0
355	Peter Ballantyne Cree Nation	7105	KINOOSAO THOMAS CLARK NO. 204	Groundwater	Level I	6.0	4.0	8.0	6.0	1.0	5.0
355	Peter Ballantyne Cree Nation	17036	KISKACIWAN NO.208-WELL	Groundwater	Small System	5.0	8.0	8.0	10.0	4.0	7.1
409	Pheasant Rump Nakota	6703	PHEASANT RUMP NO. 68	Groundwater	Level I	7.0	4.0	3.0	1.0	1.0	3.1
385	Piapot	6670	PIAPOT NO. 75	Groundwater	Level II	7.0	3.0	4.0	1.0	1.0	3.1

Band #	Band Name	System #	System Name	Water Source	Treatment Class	Legend:						Final Risk Score
						Source Risk	Design Risk	Operations Risk	Report Risk	Operator Risk	Final Risk Score	
345	Poundmaker	6614	POUNDMAKER NO. 114 - CENTRAL	Groundwater	Level I	8.0	8.0	8.0	10.0	1.0	8.0	
345	Poundmaker	6615	POUNDMAKER NO. 114 - SCHOOL	Groundwater	Level I	9.0	8.0	8.0	10.0	1.0	8.0	
346	Red Pheasant	6616	RED PHEASANT NO. 108	Groundwater	Level I	7.0	4.0	5.0	8.0	1.0	4.4	
364	Sakimay First Nations	6650	SAKIMAY NO. 74	Groundwater	Level I	5.0	8.0	2.0	1.0	1.0	3.8	
347	Saulteaux	6618	SAULTEAUX NO. 159	Groundwater	Level I	6.0	8.0	9.0	10.0	1.0	6.9	
347	Saulteaux	6617	SAULTEAUX NO. 159A - BIRCH LAKE	Groundwater	Level I	5.0	8.0	9.0	10.0	1.0	6.8	
386	Standing Buffalo	6671	STANDING BUFFALO NO. 78	Groundwater	Level II	6.0	5.0	2.0	8.0	2.0	3.9	
387	Star Blanket	6672	STAR BLANKET NO. 83	Groundwater	Level II	6.0	5.0	8.0	2.0	1.0	8.0	
387	Star Blanket	6779	WA-PII MOOS-TOOSIS (WHITE CALF) NO. 83A	Groundwater	Level I	6.0	10.0	3.0	10.0	1.0	5.7	
348	Sweetgrass	6619	SWEET GRASS NO. 113	Groundwater	Level I	4.0	2.0	8.0	5.0	1.0	8.0	
368	The Key First Nation	6654	THE KEY NO. 65	Groundwater	Level I	7.0	8.0	8.0	8.0	7.0	7.7	
349	Thunderchild First Nation	6620	THUNDERCHILD NO. 115B	Groundwater	Small System	4.0	3.0	8.0	10.0	1.0	4.9	
358	Wahpeton Dakota Nation	6642	WAHPETON NO. 94A	Groundwater	Level I	7.0	8.0	9.0	7.0	1.0	8.0	
365	White Bear	6651	WHITE BEAR NO. 70	Groundwater	Level II	8.0	3.0	8.0	5.0	5.0	5.6	
372	Whitecap Dakota First Nation	6657	WHITE CAP NO. 94	Groundwater	Level I	4.0	3.0	3.0	1.0	1.0	2.5	
407	Witchehan Lake	6696	WITCHEKAN LAKE NO. 117	Groundwater	Level I	10.0	8.0	8.0	9.0	1.0	8.0	
388	Wood Mountain	6673	WOOD MOUNTAIN NO. 160	Groundwater	Level I	5.0	6.0	8.0	10.0	1.0	8.0	
376	Yellow Quill	6661	NUT LAKE NO. 90	Groundwater	Level II	6.0	3.0	2.0	6.0	1.0	2.9	
366	Cote First Nation 366	6652	COTE NO. 64	Groundwater GUDI	Level I	10.0	8.0	7.0	6.0	1.0	6.3	
396	Makwa Sahgaiehan First Nation	6682	MAKWA LAKE NO. 129B	Groundwater GUDI	Level I	9.0	8.0	8.0	4.0	5.0	7.1	
344	Onion Lake	6613	SEEKASKOOTCH NO. 119	Groundwater GUDI	Level II	9.0	8.0	9.0	7.0	1.0	8.0	
355	Peter Ballantyne Cree Nation	6637	SOUTHEND NO. 200	Groundwater GUDI	Level II	9.0	5.0	8.0	8.0	1.0	5.8	
355	Peter Ballantyne Cree Nation	6638	STURGEON WEIR NO. 184F	Groundwater GUDI	Level I	10.0	4.0	3.0	4.0	1.0	3.7	
357	Shoal Lake Cree Nation	6641	SHOAL LAKE NO. 28A	Groundwater GUDI	Level II	10.0	8.0	8.0	10.0	5.0	7.8	
349	Thunderchild First Nation	17013	THUNDERCHILD 115C	Groundwater GUDI	Level I	8.0	8.0	8.0	10.0	1.0	8.0	
395	Flying Dust First Nation	6681	MEADOW LAKE NO. 105 - MTA	MTA	MTA	1.0	8.0	3.0	1.0	1.0	3.7	
353	Lac La Ronge	16041	KITSAKIE NO. 156B - MTA	MTA	MTA	1.0	1.0	2.0	10.0	1.0	2.2	
353	Lac La Ronge	6629	LAC LA RONGE NO. 156 - MTA	MTA	MTA	1.0	1.0	8.0	8.0	1.0	3.8	
353	Lac La Ronge		LITTLE RED RIVER 106C - TRUCKED WATER FROM MONTREAL LAKE SIDE	MTA	MTA	3.0	8.0	7.0	10.0	1.0	6.0	
371	Muskoday First Nation	6656	MUSKODAY NO. 99 - MTA	MTA	MTA	7.0	2.0	1.0	4.0	1.0	2.2	
355	Peter Ballantyne Cree Nation	16045	SANDY BAY (WAPASKOKIMAW) NO. 202 - MTA	MTA	MTA	1.0	1.0	3.0	1.0	1.0	1.6	
345	Poundmaker	17037	POUNDMAKER NO.114-18B-WELL	MTA	MTA	3.0	8.0	7.0	10.0	1.0	6.0	
364	Sakimay First Nations	6697	LITTLE BONE NO. 74B	MTA	MTA	2.0	8.0	2.0	9.0	1.0	4.3	
372	Whitecap Dakota First Nation		DAKOTA DUNES CASINO WTP	MTA	MTA	1.0	1.0	3.0	1.0	1.0	1.6	
359	Black Lake	6644	CHICKEN NO. 224	Surface Water	Level II	10.0	8.0	8.0	9.0	6.0	7.9	
398	Buffalo River Dene Nation	6685	PETER POND NO. 193	Surface Water	Level II	8.0	7.0	8.0	5.0	1.0	6.0	
394	Canoe Lake Cree First Nation	6680	CANOE LAKE NO. 165	Surface Water	Level II	8.0	5.0	8.0	10.0	1.0	5.9	
400	English River First Nation	6688	WAPACHEWUNAK NO. 192D	Surface Water	Level II	10.0	8.0	5.0	10.0	2.0	6.3	
352	Hatchet Lake	6626	LAC LA HACHE NO. 220	Surface Water	Level II	9.0	3.0	2.0	8.0	2.0	3.6	
397	Island Lake First Nation	6683	MINISTIKWAN NO. 161	Surface Water	Level II	9.0	8.0	8.0	2.0	1.0	8.0	
353	Lac La Ronge	6627	GRANDMOTHER'S BAY NO. 219	Surface Water	Level II	8.0	8.0	8.0	3.0	1.0	6.1	
353	Lac La Ronge	6632	STANLEY NO. 157	Surface Water	Level II	8.0	8.0	2.0	1.0	1.0	4.1	
353	Lac La Ronge	6633	SUCKER RIVER NO. 156C	Surface Water	Level II	8.0	3.0	2.0	4.0	1.0	2.9	
354	Montreal Lake	6634	MONTREAL LAKE NO. 106	Surface Water	Level II	10.0	8.0	8.0	8.0	1.0	6.8	
373	One Arrow	6658	ONE ARROW NO. 95	Surface Water	Level II	9.0	3.0	8.0	6.0	4.0	5.6	
405	Pelican Lake	6694	CHITEK LAKE NO. 191 (both North and South are served)	Surface Water	Level II	8.0	8.0	9.0	10.0	1.0	7.1	
355	Peter Ballantyne Cree Nation	6700	DESCHAMBEAULT LAKE	Surface Water	Level II	8.0	8.0	8.0	4.0	1.0	6.2	
355	Peter Ballantyne Cree Nation	6636	PELICAN NARROWS NO. 184B	Surface Water	Level II	8.0	8.0	3.0	1.0	1.0	4.4	
356	Red Earth	6640	RED EARTH NO. 29	Surface Water	Level II	10.0	8.0	8.0	1.0	1.0	6.1	
360	Sturgeon Lake First Nation	6646	STURGEON LAKE NO. 101 - WEST PLANT	Surface Water	Level II	10.0	8.0	8.0	8.0	1.0	8.0	
402	Waterhen Lake	17009	WATERHEN 130	Surface Water	Level II	9.0	8.0	1.0	4.0	1.0	4.2	

Appendix E.2

Individual First Nation Wastewater Risk Summary

Table E.2: Individual First Nation Wastewater Risk Summary

Band #	Band Name	System #	System Name	Receiver Type	Treatment Class	Legend:						Final Risk Score
						Effluent Risk	Design Risk	Operations Risk	Report Risk	Operator Risk	Low Risk	
406	Ahtahkakoop	7447	AHTAHKAKOOP NO.104	Creek	Level I	9.0	4.0	8.0	10.0	1.0	6.0	
407	Witchehan Lake	7448	WITCHEKAN LAKE NO. 117	Creek	Level I	10.0	5.0	9.0	10.0	7.0	7.9	
370	James Smith	7376	JAMES SMITH NO. 100	Evaporation	Level I	5.0	8.0	10.0	10.0	1.0	8.0	
340	Little Pine	7362	LITTLE PINE NO. 116	Evaporation	Level I	4.0	3.0	7.0	10.0	1.0	4.5	
381	Muscowpetung	7419	MUSCOWPETUNG NO. 80	Evaporation	Level I	4.0	5.0	6.0	10.0	1.0	3.8	
383	Pasqua First Nation #79	7421	PASQUA NO. 79	Evaporation	Level I	2.0	4.0	1.0	10.0	1.0	2.8	
384	Peepseekisis	7422	PEEPEEKISIS NO. 81	Evaporation	Level I	3.0	4.0	9.0	10.0	1.0	4.8	
409	Pheasant Rump Nakota	7455	PHEASANT RUMP NO. 68	Evaporation	Level I	2.0	2.0	5.0	9.0	1.0	3.2	
386	Standing Buffalo	7424	STANDING BUFFALO NO. 78	Evaporation	Level I	2.0	5.0	3.0	10.0	1.0	3.6	
359	Black Lake	7396	CHICKEN NO. 224	Lake, reservoir	Level I	10.0	5.0	5.0	10.0	8.0	7.1	
398	Buffalo River Dene Nation	7437	PETER POND NO. 193	Lake, reservoir	Level I	10.0	4.0	2.0	8.0	1.0	4.5	
394	Canoe Lake Cree First Nation	7432	CANOE LAKE NO. 165	Lake, reservoir	Level I	10.0	6.0	6.0	10.0	1.0	6.2	
401	Clearwater River Dene	7441	CLEARWATER RIVER NO. 222	Lake, reservoir	Level I	10.0	5.0	6.0	4.0	1.0	5.3	
351	Fond du Lac	7377	FOND DU LAC NO. 227	Lake, reservoir	Level I	10.0	4.0	8.0	10.0	1.0	6.2	
403	Birch Narrows First Nation	16046	TURNOR LAKE NO. 193B - MTA	MTA	MTA	1.0	4.0	4.0	5.0	1.0	2.9	
353	Lac La Ronge	16042	KITSAKIE NO. 156B - MTA	MTA	MTA	1.0	1.0	2.0	1.0	1.0	1.2	
353	Lac La Ronge	0	WASTEWATER TRUCK HAUL SYSTEM	MTA	MTA	1.0	1.0	3.0	1.0	1.0	1.5	
355	Peter Ballantyne Cree Nation	16119	SANDY BAY (WAPASKOKIMAW) NO. 202 - MTA	MTA	MTA	1.0	1.0	3.0	1.0	1.0	1.5	
387	Star Blanket	16059	WA-PII MOOS-TOOSIS INDIAN RES. (WHITE CALF) NO. 83A	MTA	MTA	1.0	3.0	7.0	10.0	1.0	3.9	
347	Saulteaux	7370	SAULTEAUX NO. 159	Other	Level I	6.0	7.0	7.0	10.0	1.0	5.9	
366	Cote First Nation 366	7405	COTE NO. 64	River	Level I	9.0	8.0	6.0	10.0	1.0	6.5	
361	Cowessess	7400	COWESSESS NO. 73	River	Level I	5.0	3.0	8.0	10.0	1.0	4.9	
400	English River First Nation	7440	WAPACHEWUNAK NO. 192D	River	Level I	9.0	5.0	7.0	10.0	1.0	6.0	
404	Big River First Nation	7445	BIG RIVER NO. 118	Sub-surface / Ground	Level I	4.0	3.0	8.0	10.0	1.0	4.7	
394	Canoe Lake Cree First Nation	7450	EAGLES LAKE NO. 165C	Sub-surface / Ground	Level I	2.0	2.0	4.0	10.0	1.0	3.1	
378	Carry The Kettle	7416	ASSINIBOINE NO. 76	Sub-surface / Ground	Level I	1.0	2.0	7.0	10.0	1.0	3.6	
400	English River First Nation	7439	LA PLONGE NO. 192	Sub-surface / Ground	Level I	4.0	8.0	8.0	4.0	1.0	5.4	
362	Kahkewistahaw	7401	KAHKEWISTAHAW NO. 72	Sub-surface / Ground	Level I	1.0	8.0	6.0	10.0	1.0	4.9	
367	Keeseekoose	7406	KEESEEKOOSE NO. 66	Sub-surface / Ground	Level I	1.0	3.0	7.0	10.0	1.0	3.9	
353	Lac La Ronge	7383	MORIN LAKE NO. 217	Sub-surface / Ground	Level I	4.0	3.0	3.0	2.0	1.0	2.7	
354	Montreal Lake	7387	MONTREAL LAKE NO. 106B - LITTLE RED RIVER	Sub-surface / Ground	Level I	3.0	3.0	8.0	10.0	1.0	4.5	
375	Muskeg Lake	7413	MUSKEG LAKE NO. 102	Sub-surface / Ground	Level I	3.0	6.0	2.0	10.0	1.0	3.8	
380	Nekaneet	7418	NEKANEET NO. 160A	Sub-surface / Ground	Level I	1.0	8.0	7.0	1.0	1.0	4.2	
408	Ocean Man	17008	OCEAN MAN NO. 69	Sub-surface / Ground	Level I	1.0	1.0	5.0	9.0	1.0	2.8	
363	Ochapowace	7402	OCHAPOWACE NO. 71	Sub-surface / Ground	Level I	3.0	8.0	8.0	10.0	1.0	5.8	
344	Onion Lake	7365	SEEKASKOOTCH NO. 119 - CT	Sub-surface / Ground	Level I	2.0	3.0	8.0	10.0	1.0	4.3	
344	Onion Lake	0	SEEKASKOOTCH NO. 119 - RC	Sub-surface / Ground	Level I	2.0	4.0	8.0	10.0	1.0	4.6	
405	Pelican Lake	7446	CHITEK LAKE NO. 191 - Northcore subdivision Lagoon	Sub-surface / Ground	Level I	3.0	5.0	4.0	1.0	1.0	3.1	
405	Pelican Lake	NEW001	CHITEK LAKE NO. 191 - Southcore Subdivision Lagoon	Sub-surface / Ground	Level I	3.0	4.0	4.0	4.0	6.0	4.2	
385	Piapot	7423	PIAPOT NO. 75	Sub-surface / Ground	Level I	3.0	3.0	5.0	9.0	1.0	3.7	
345	Poundmaker	7366	POUNDMAKER NO. 114 - SCHOOL	Sub-surface / Ground	Level I	3.0	4.0	8.0	10.0	1.0	4.8	
364	Sakimay First Nations	7403	SAKIMAY NO. 74	Sub-surface / Ground	Level I	1.0	3.0	8.0	9.0	1.0	4.0	
368	The Key First Nation	7407	THE KEY NO. 65	Sub-surface / Ground	Level I	1.0	8.0	9.0	10.0	7.0	6.8	
349	Thunderchild First Nation	7372	THUNDERCHILD NO. 115B	Sub-surface / Ground	Level I	1.0	4.0	8.0	8.0	1.0	4.2	
358	Wahpeton Dakota Nation	7394	WAHPETON NO. 94A	Sub-surface / Ground	Level I	4.0	2.0	6.0	10.0	1.0	4.0	
369	Beardys and Okemasis	7408	BEARDY'S NO. 97 AND OKEMASIS NO. 96	Wetland	Level I	4.0	8.0	8.0	10.0	1.0	6.0	
399	Big Island Lake Cree Nation	7438	BIG ISLAND LAKE NO. 124	Wetland	Level I	4.0	1.0	3.0	10.0	4.0	3.6	
350	Cumberland House Cree Nation	7374	CUMBERLAND NO. 20 - PEMMICAN PORTAGE	Wetland	Level I	4.0	8.0	5.0	10.0	1.0	5.2	
350	Cumberland House Cree Nation	7375	CUMBERLAND NO. 20 - RESERVE CENTRE	Wetland	Level I	4.0	3.0	5.0	10.0	1.0	4.0	
389	Day Star	7427	DAY STAR NO. 87	Wetland	Level I	4.0	2.0	6.0	1.0	1.0	3.1	
390	Fishing Lake First Nation	7428	FISHING LAKE NO. 89	Wetland	Level I	4.0	4.0	8.0	10.0	1.0	5.0	
395	Flying Dust First Nation	7433	MEADOW LAKE NO. 105	Wetland	Level I	4.0	1.0	6.0	10.0	5.0	4.5	

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Wastewater

Band #	Band Name	System #	System Name	Receiver Type	Treatment Class	Legend:						Final Risk Score
						Effluent Risk	Design Risk	Operations Risk	Report Risk	Operator Risk	Final Risk Score	
391	Gordon	7429	GORDON NO. 86	Wetland	Level I	2.0	8.0	5.0	10.0	1.0	4.8	
352	Hatchet Lake	7378	LAC LA HACHE NO. 220	Wetland	Level I	3.0	5.0	4.0	10.0	1.0	4.0	
397	Island Lake First Nation	7435	MINISTIKWAN NO. 161	Wetland	Level I	5.0	8.0	8.0	10.0	1.0	6.2	
393	Kawacatoose	7431	POORMAN NO. 88	Wetland	Level I	2.0	4.0	5.0	10.0	1.0	3.3	
377	Kinistin Sauteaux Nation	7415	KINISTIN NO. 91	Wetland	Level I	3.0	4.0	3.0	10.0	1.0	3.5	
353	Lac La Ronge	7379	GRANDMOTHER'S BAY NO. 219	Wetland	Level I	5.0	4.0	2.0	1.0	1.0	2.8	
353	Lac La Ronge	7381	LAC LA RONGE NO. 156	Wetland	Level I	6.0	2.0	2.0	1.0	1.0	2.5	
353	Lac La Ronge	7384	STANLEY NO. 157	Wetland	Level I	4.0	3.0	2.0	1.0	1.0	2.3	
353	Lac La Ronge	7385	SUCKER RIVER NO. 156C	Wetland	Level I	6.0	2.0	3.0	1.0	1.0	2.7	
396	Makwa Sahgaiehcan First Nation	7434	MAKWA LAKE NO. 129B	Wetland	Level I	4.0	3.0	8.0	10.0	5.0	5.5	
374	Mistawasis	7412	MISTAWASIS NO. 103	Wetland	Level I	4.0	4.0	2.0	10.0	1.0	3.5	
354	Montreal Lake	7386	MONTREAL LAKE NO. 106	Wetland	Level I	6.0	3.0	8.0	10.0	1.0	5.1	
354	Montreal Lake	17055	MONTREAL LAKE NO. 106 - BITTERN LAKE SUBDIVISION	Wetland	Level I	5.0	3.0	5.0	1.0	1.0	2.8	
342	Moosomin	7363	MOOSOMIN NO. 112B	Wetland	Level I	5.0	8.0	1.0	10.0	1.0	4.4	
343	Mosquito, Grizzly Bears Head, Lean Man Fst.Natns	7364	MOSQUITO NO. 109	Wetland	Level I	3.0	8.0	8.0	10.0	1.0	5.8	
371	Muskoday First Nation	7409	MUSKODAY NO. 99	Wetland	Level I	3.0	4.0	2.0	10.0	1.0	3.3	
392	Muskowekwan	7430	MUSKOWEKWAN NO. 85 - CORE AREA & MEC	Wetland	Level I	2.0	7.0	8.0	10.0	1.0	3.3	
382	Okanese	7420	OKANESE NO. 82	Wetland	Level I	2.0	8.0	1.0	10.0	1.0	3.8	
373	One Arrow	7411	ONE ARROW NO. 95	Wetland	Level I	4.0	8.0	9.0	10.0	4.0	6.8	
355	Peter Ballantyne Cree Nation	7452	DESCHAMBEAULT LAKE	Wetland	Level I	3.0	5.0	3.0	1.0	1.0	2.9	
355	Peter Ballantyne Cree Nation	7646	KINOOSAO THOMAS CLARK NO. 204	Wetland	Level I	2.0	6.0	7.0	4.0	1.0	4.2	
355	Peter Ballantyne Cree Nation	7388	PELICAN NARROWS NO. 184B	Wetland	Level I	5.0	8.0	8.0	10.0	1.0	6.2	
355	Peter Ballantyne Cree Nation	7389	SOUTHEND NO. 200	Wetland	Level I	4.0	4.0	5.0	4.0	1.0	3.6	
355	Peter Ballantyne Cree Nation	7390	STURGEON WEIR NO. 184F	Wetland	Level I	6.0	4.0	3.0	1.0	1.0	3.2	
356	Red Earth	7391	CARROT RIVER NO. 29A	Wetland	Level I	4.0	8.0	8.0	10.0	7.0	7.2	
356	Red Earth	7392	RED EARTH NO. 29	Wetland	Level I	3.0	3.0	4.0	10.0	7.0	4.7	
346	Red Pheasant	7368	RED PHEASANT NO. 108	Wetland	Level I	5.0	3.0	5.0	10.0	1.0	4.2	
357	Shoal Lake Cree Nation	7393	SHOAL LAKE NO. 28A	Wetland	Level I	4.0	4.0	6.0	10.0	5.0	5.3	
387	Star Blanket	7425	STAR BLANKET NO. 83	Wetland	Level I	2.0	3.0	6.0	10.0	1.0	3.8	
360	Sturgeon Lake First Nation	7399	STURGEON LAKE NO. 101 - EAST LAGOON	Wetland	Level I	4.0	3.0	10.0	10.0	1.0	5.2	
360	Sturgeon Lake First Nation	7398	STURGEON LAKE NO. 101 - WEST LAGOON	Wetland	Level I	4.0	8.0	10.0	10.0	1.0	6.5	
348	Sweetgrass	7371	SWEET GRASS NO. 113	Wetland	Level I	4.0	3.0	8.0	10.0	1.0	4.7	
402	Waterhen Lake	7443	WATERHEN NO. 130	Wetland	Level I	4.0	2.0	8.0	10.0	1.0	4.5	
365	White Bear	7404	WHITE BEAR NO. 70 - SCHOOL & RESORT LAGOONS	Wetland	Level I	2.0	5.0	8.0	10.0	7.0	6.0	
372	Whitecap Dakota First Nation	7410	WHITE CAP NO. 94	Wetland	Level I	4.0	2.0	8.0	1.0	1.0	3.6	
376	Yellow Quill	7414	NUT LAKE NO. 90	Wetland	Level I	3.0	1.0	1.0	10.0	1.0	2.3	



Appendix F

Protocol and Servicing Costs

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Table F: Protocol and Servicing Costs (Water & Wastewater Combined)

Band #	Band Name	Community Name	Current Population	Current Homes	Forecast Population	Forecast Homes	Zone Markup	Upgrade To Protocol	Per Lot Upgrades to Protocol (Current Homes)	Recommended Servicing	Per Lot Recommended Servicing (Forecast Homes)	Recommended O&M	Per Lot O&M (Forecast Homes)
406	Ahtahkakoop	Ahtahkakoop	1997	392	2730	575	1.147	\$ 1,619,500	\$ 4,100	\$ 10,070,000	\$ 17,500	\$ 1,910,000	\$ 3,300
369	Beardys and Okemasis	Beardys and Okemasis	1241	304	1367	335	1.098	\$ 886,000	\$ 2,900	\$ 4,080,000	\$ 12,200	\$ 1,310,000	\$ 3,900
399	Big Island Lake Cree Nation	Big Island Lake	993	154	1458	270	1.147	\$ 1,901,000	\$ 12,300	\$ 5,950,000	\$ 22,000	\$ 890,000	\$ 3,300
404	Big River First Nation	Big River 118	2400	376	3289	598	1.147	\$ 1,296,000	\$ 3,400	\$ 13,710,000	\$ 22,900	\$ 2,300,000	\$ 3,800
403	Birch Narrows First Nation	Turnor Lake 193B	524	82	787	147	1.504	\$ 289,500	\$ 3,500	\$ 4,620,000	\$ 31,400	\$ 440,000	\$ 3,000
359	Black Lake	Black Lake	1919	220	2707	417	2.491	\$ 5,974,000	\$ 27,200	\$ 26,050,000	\$ 62,500	\$ 800,000	\$ 1,900
398	Buffalo River Dene Nation	Buffalo River Dene Nation	791	227	1085	325	1.222	\$ 2,193,000	\$ 9,700	\$ 8,240,000	\$ 25,400	\$ 840,000	\$ 2,600
394	Canoe Lake Cree First Nation	Canoe Lake	1007	223	1468	338	1.222	\$ 1,905,000	\$ 8,500	\$ 15,880,000	\$ 47,000	\$ 630,000	\$ 1,900
394	Canoe Lake Cree First Nation	Eagles Lake	141	31	206	47	1.222	\$ 2,746,000	\$ 88,600	\$ 3,600,000	\$ 76,600	\$ 155,000	\$ 3,300
378	Carry The Kettle	Assiniboine 76	1002	201	1307	277	1.086	\$ 2,295,000	\$ 11,400	\$ 5,510,000	\$ 19,900	\$ 540,000	\$ 1,900
401	Clearwater River Dene	Clearwater River Dene	1038	163	1606	305	1.504	\$ 1,732,500	\$ 10,600	\$ 11,980,000	\$ 39,300	\$ 700,000	\$ 2,300
366	Cote First Nation 366	Cote 64	664	251	896	367	1.086	\$ 280,000	\$ 1,100	\$ 4,480,000	\$ 14,900	\$ 430,000	\$ 1,200
361	Cowessess	Cowessess 73	712	214	994	308	1.086	\$ 3,338,000	\$ 15,600	\$ 8,520,000	\$ 27,700	\$ 380,000	\$ 1,200
350	Cumberland House Cree Nation	Cumberland House Cree Nation	1042	215	1597	353	1.147	\$ 3,012,000	\$ 14,000	\$ 13,610,000	\$ 38,600	\$ 770,000	\$ 2,200
389	Day Star	Day Star 87	167	50	203	62	1.086	\$ 400,000	\$ 8,000	\$ 2,150,000	\$ 34,700	\$ 267,000	\$ 4,300
400	English River First Nation	La Plonge	146	48	205	67	1.222	\$ 1,367,500	\$ 28,500	\$ 2,300,000	\$ 34,300	\$ 340,000	\$ 5,100
400	English River First Nation	Wapachewunak	802	176	1117	254	1.222	\$ 4,050,700	\$ 23,000	\$ 12,730,000	\$ 50,100	\$ 550,000	\$ 2,200
390	Fishing Lake First Nation	Fishing Lake 89	569	152	740	209	1.086	\$ 155,000	\$ 1,000	\$ 8,590,000	\$ 41,100	\$ 320,000	\$ 1,500
395	Flying Dust First Nation	Flying Dust	464	196	655	291	1.053	\$ 125,000	\$ 600	\$ 1,660,000	\$ 5,700	\$ 530,000	\$ 1,800
351	Fond du Lac	Fond du Lac No. 227	1143	280	1517	373	2.491	\$ 583,500	\$ 2,100	\$ 10,650,000	\$ 28,600	\$ 530,000	\$ 1,400
391	Gordon	Gordon 86	1248	262	1493	323	1.086	\$ 193,000	\$ 700	\$ 13,210,000	\$ 40,900	\$ 580,000	\$ 1,800
352	Hatchet Lake	Hatchet Lake	1521	221	2244	401	2.491	\$ 6,614,500	\$ 29,900	\$ 24,430,000	\$ 60,900	\$ 790,000	\$ 2,000
397	Island Lake First Nation	Ministikwan	1302	181	1888	327	1.147	\$ 2,397,000	\$ 13,200	\$ 14,810,000	\$ 45,300	\$ 1,090,000	\$ 3,300
370	James Smith	James Smith 100	2299	223	3105	424	1.053	\$ 3,131,600	\$ 14,000	\$ 15,450,000	\$ 36,400	\$ 1,320,000	\$ 3,100
362	Kahkewistahaw	Kahkewistahaw 72	621	147	823	197	1.086	\$ 1,060,000	\$ 7,200	\$ 2,620,000	\$ 13,300	\$ 480,000	\$ 2,400
393	Kawacatoose	Poorman 88	1182	182	1533	269	1.086	\$ 727,000	\$ 4,000	\$ 16,310,000	\$ 60,600	\$ 420,000	\$ 1,600
367	Keeseekoose	Keeseekoose 66	747	154	979	212	1.086	\$ 325,000	\$ 2,100	\$ 2,920,000	\$ 13,800	\$ 290,000	\$ 1,400
377	Kinistin Saulteaux Nation	Kinistin	455	92	611	131	1.147	\$ 2,347,500	\$ 25,500	\$ 4,370,000	\$ 33,400	\$ 365,000	\$ 2,800
353	Lac La Ronge	Grandmother's Bay	301	87	425	128	1.222	\$ 2,246,000	\$ 25,800	\$ 4,190,000	\$ 32,700	\$ 570,000	\$ 4,500
353	Lac La Ronge	Kitsakie	657	143	927	210	1.222	\$ 409,000	\$ 2,900	\$ 5,190,000	\$ 24,700	\$ 900,000	\$ 4,300
353	Lac La Ronge	Lac La Ronge	1576	404	2225	620	1.222	\$ 198,000	\$ 500	\$ 5,860,000	\$ 9,500	\$ 730,000	\$ 1,200
353	Lac La Ronge	Little Red River	429	88	606	132	1.222	\$ 18,200	\$ 200	\$ 6,940,000	\$ 52,600	\$ 350,000	\$ 2,700
353	Lac La Ronge	Morin Lake	413	117	583	173	1.222	\$ 2,845,500	\$ 24,300	\$ 4,780,000	\$ 27,600	\$ 800,000	\$ 4,600
353	Lac La Ronge	Stanley Mission	1761	415	2478	594	1.222	\$ 2,474,000	\$ 6,000	\$ 7,080,000	\$ 11,900	\$ 710,000	\$ 1,200
353	Lac La Ronge	Sucker River	345	115	487	162	1.222	\$ 1,237,500	\$ 10,800	\$ 6,300,000	\$ 38,900	\$ 470,000	\$ 2,900
379	Little Black Bear	Little Black Bear 84	212	45	275	60	1.086	\$ 469,500	\$ 10,400	\$ 2,510,000	\$ 41,800	\$ 240,000	\$ 4,000
340	Little Pine	Little Pine 116	1029	233	1453	339	1.098	\$ 2,165,000	\$ 9,300	\$ 11,620,000	\$ 34,300	\$ 890,000	\$ 2,600
396	Makwa Sahgaiehcan First Nation	Makwa Sahgaiehcan	1138	219	1591	332	1.147	\$ 6,191,900	\$ 28,300	\$ 12,280,000	\$ 37,000	\$ 760,000	\$ 2,300
374	Mistawasis	Mistawasis	1462	171	2013	308	1.147	\$ 5,771,000	\$ 33,700	\$ 16,780,000	\$ 54,500	\$ 1,260,000	\$ 4,100
354	Montreal Lake	Little Red River	440	177	625	269	1.147	\$ 3,284,000	\$ 18,600	\$ 6,840,000	\$ 25,400	\$ 570,000	\$ 2,100
354	Montreal Lake	Montreal Lake	1400	260	1988	407	1.147	\$ 2,743,100	\$ 10,600	\$ 9,080,000	\$ 22,300	\$ 1,010,000	\$ 2,500
342	Moosomin	Moosomin 112B	1303	195	1813	322	1.008	\$ 3,289,500	\$ 16,900	\$ 10,020,000	\$ 31,100	\$ 780,000	\$ 2,400
343	Mosquito, Grizzly Bears Head, Lean Man Fst.Natns.	Mosquito 109	680	140	858	184	1.008	\$ 819,000	\$ 5,900	\$ 5,580,000	\$ 30,300	\$ 640,000	\$ 3,500
381	Muscowpetung	Muscowpetung 80	377	84	447	101	1.086	\$ 300,000	\$ 3,600	\$ 1,530,000	\$ 15,100	\$ 810,000	\$ 8,000
375	Muskeg Lake	Muskeg Lake Cree Nation 102	396	123	588	187	1.147	\$ 1,149,500	\$ 9,300	\$ 5,710,000	\$ 30,500	\$ 600,000	\$ 3,200
371	Muskoday First Nation	Muskoday First Nation	671	199	943	289	1.053	\$ 1,069,500	\$ 5,400	\$ 4,760,000	\$ 16,500	\$ 450,000	\$ 1,600
392	Muskowekwan	Muskowekwan 85	516	149	660	197	1.086	\$ 7,652,500	\$ 51,400	\$ 7,490,000	\$ 38,000	\$ 300,000	\$ 1,500
380	Nekaneet	Nekaneet Cree Nation	260	54	375	82	1.05	\$ 3,600,000	\$ 66,700	\$ 7,100,000	\$ 86,600	\$ 305,000	\$ 3,700
408	Ocean Man	Ocean Man	144	57	179	74	1.05	\$ 520,000	\$ 9,100	\$ 400,000	\$ 5,400	\$ 195,000	\$ 2,600
363	Ochapowace	Ochapowace 71	583	131	756	174	1.086	\$ 16,857,000	\$ 128,700	\$ 32,090,000	\$ 184,400	\$ 640,000	\$ 3,700
382	Okanese	Okanese 82	314	63	391	82	1.086	\$ 397,000	\$ 6,300	\$ 7,440,000	\$ 90,700	\$ 320,000	\$ 3,900
373	One Arrow	One Arrow	760	177	1132	270	1.098	\$ 3,725,500	\$ 21,000	\$ 8,140,000	\$ 30,100	\$ 790,000	\$ 2,900

REGION: SASKATCHEWAN

January 2011

Band #	Band Name	Community Name	Current Population	Current Homes	Forecast Population	Forecast Homes	Zone Markup	Upgrade To Protocol	Per Lot Upgrades to Protocol (Current Homes)	Recommended Servicing	Per Lot Reccomended Servicing (Forecast Homes)	Recommended O&M	Per Lot O&M (Forecast Homes)
344	Onion Lake	Seekaskootch 119	3572	710	5166	1108	1.098	\$ 2,457,000	\$ 3,500	\$ 17,500,000	\$ 15,800	\$ 3,400,000	\$ 3,100
383	Pasqua First Nation #79	Pasqua 79	603	142	790	188	1.086	\$ 2,440,000	\$ 17,200	\$ 5,920,000	\$ 31,500	\$ 320,000	\$ 1,700
384	Peepeekisis	Peepeekisis No. 81	596	125	728	158	1.086	\$ 8,583,000	\$ 68,700	\$ 6,690,000	\$ 42,300	\$ 250,000	\$ 1,600
405	Pelican Lake	Chitek Lake	885	181	1289	282	1.147	\$ 2,929,900	\$ 16,200	\$ 7,070,000	\$ 25,100	\$ 1,140,000	\$ 4,000
355	Peter Ballantyne Cree Nation	Deschambault Lake	1190	205	1710	335	1.222	\$ 2,361,000	\$ 11,500	\$ 12,460,000	\$ 37,200	\$ 700,000	\$ 2,100
355	Peter Ballantyne Cree Nation	Kinoosao	55	11	67	14	1.222	\$ 1,029,000	\$ 93,500	\$ 900,000	\$ 64,300	\$ 280,000	\$ 20,000
355	Peter Ballantyne Cree Nation	Kiskaciwan	60	13	85	19	1.222	\$ 562,000	\$ 43,200	\$ 655,000	\$ 34,500	\$ 160,000	\$ 8,400
355	Peter Ballantyne Cree Nation	Pelican Narrows	1342	405	1911	594	1.222	\$ 3,199,500	\$ 7,900	\$ 11,140,000	\$ 18,800	\$ 1,200,000	\$ 2,000
355	Peter Ballantyne Cree Nation	Sandy Bay	520	100	734	153	1.222	\$ 115,000	\$ 1,200	\$ 2,860,000	\$ 18,700	\$ 1,120,000	\$ 7,300
355	Peter Ballantyne Cree Nation	Southend	1553	211	2310	400	1.222	\$ 2,353,500	\$ 11,200	\$ 14,860,000	\$ 37,200	\$ 750,000	\$ 1,900
355	Peter Ballantyne Cree Nation	Sturgeon Weir	60	12	85	18	1.222	\$ 1,615,000	\$ 134,600	\$ 2,015,000	\$ 111,900	\$ 320,000	\$ 17,800
409	Pheasant Rump Nakota	Pheasant Rump	163	28	199	37	1.05	\$ 551,000	\$ 19,700	\$ 400,000	\$ 10,800	\$ -	\$ -
385	Piapot	Piapot 75	683	145	843	185	1.086	\$ 536,000	\$ 3,700	\$ 3,180,000	\$ 17,200	\$ 950,000	\$ 5,100
345	Poundmaker	Poundmaker	922	231	1268	346	1.098	\$ 3,877,000	\$ 16,800	\$ 12,675,000	\$ 36,600	\$ 1,115,000	\$ 3,200
356	Red Earth	Red Earth/Carrot River	1450	198	2070	353	1.147	\$ 10,352,000	\$ 52,300	\$ 16,750,000	\$ 47,500	\$ 780,000	\$ 2,200
346	Red Pheasant	Red Pheasant	960	176	1329	268	1.008	\$ 673,000	\$ 3,800	\$ 4,880,000	\$ 18,200	\$ 1,110,000	\$ 4,100
364	Sakimay First Nations	Little Bone	33	9	45	13	1.086	\$ -	\$ -	\$ 40,000	\$ 3,100	\$ 88,000	\$ 6,800
364	Sakimay First Nations	Sakimay	225	64	268	78	1.086	\$ 1,060,500	\$ 16,600	\$ 900,000	\$ 11,500	\$ 185,000	\$ 2,400
347	Saulteaux	Saulteaux	846	140	1241	238	1.008	\$ 1,210,500	\$ 8,600	\$ 8,030,000	\$ 33,700	\$ 990,000	\$ 4,200
357	Shoal Lake Cree Nation	Shoal Lake 28A	911	110	1305	208	1.147	\$ 5,521,000	\$ 50,200	\$ 13,910,000	\$ 66,900	\$ 535,000	\$ 2,600
386	Standing Buffalo	Standing Buffalo 78	572	190	784	260	1.086	\$ 1,424,000	\$ 7,500	\$ 10,000,000	\$ 38,500	\$ 980,000	\$ 3,800
387	Star Blanket	Star Blanket 83	290	58	355	74	1.086	\$ 554,500	\$ 9,600	\$ 3,840,000	\$ 51,900	\$ 215,000	\$ 2,900
387	Star Blanket	Wa-Pii Moos-Toosis (White Calf) 83A	88	22	112	28	1.086	\$ 2,815,000	\$ 128,000	\$ 2,400,000	\$ 85,700	\$ 420,000	\$ 15,000
360	Sturgeon Lake First Nation	Sturgeon Lake 101	1703	248	2330	404	1.147	\$ 6,460,000	\$ 26,000	\$ 13,280,000	\$ 32,900	\$ 1,330,000	\$ 3,300
348	Sweetgrass	Sweetgrass	675	172	912	251	1.008	\$ 461,500	\$ 2,700	\$ 5,380,000	\$ 21,400	\$ 900,000	\$ 3,600
368	The Key First Nation	The Key 65	331	52	447	81	1.086	\$ 2,655,000	\$ 51,100	\$ 5,070,000	\$ 62,600	\$ 290,000	\$ 3,600
349	Thunderchild First Nation	Thunderchild First Nation	1399	253	1966	394	1.098	\$ 2,249,100	\$ 8,900	\$ 7,740,000	\$ 19,600	\$ 860,000	\$ 2,200
358	Wahpeton Dakota Nation	Wahpeton Dakota	292	63	442	100	1.053	\$ 4,106,900	\$ 65,200	\$ 7,020,000	\$ 70,200	\$ 455,000	\$ 4,600
402	Waterhen Lake	Waterhen Lake	1127	198	1556	305	1.147	\$ 1,343,500	\$ 6,800	\$ 7,070,000	\$ 23,200	\$ 650,000	\$ 2,100
365	White Bear	White Bear 70	717	196	875	248	1.05	\$ 5,576,600	\$ 28,500	\$ 7,130,000	\$ 28,800	\$ 420,000	\$ 1,700
372	Whitecap Dakota First Nation	Whitecap Dakota	308	108	423	165	1.008	\$ 331,500	\$ 3,100	\$ 354,000	\$ 2,100	\$ 540,000	\$ 3,300
407	Witchehan Lake	Witchehan Lake 117	589	69	837	131	1.147	\$ 638,600	\$ 9,300	\$ 7,300,000	\$ 55,700	\$ 485,000	\$ 3,700
388	Wood Mountain	Wood Mountain 160	17	9	20	12	1.05	\$ 301,000	\$ 33,400	\$ 197,000	\$ 16,400	\$ 141,000	\$ 11,800
376	Yellow Quill	Yellow Quill	655	131	849	179	1.147	\$ 326,000	\$ 2,500	\$ 5,050,000	\$ 28,200	\$ 630,000	\$ 3,500