

Water Use Licensing Report: Carrot-Saskatchewan River Watershed

Protective Process:

Water Rights Use Licensing is done under the authority of the Manitoba *Water Rights Act* which came into force in 1930 when Manitoba took control of its natural resources which had previously been administered by the Federal government. The water use licensing process is the principle mechanism available for ensuring the sustainable development of the province's water resources for beneficial purposes. The Act provides for hydrologically based legal framework that balances human and environmental needs. The licensing process takes into consideration the appropriate social, economic, political and administrative aspects of water management. At the core of the licensing process is the requirement for water to be legally appropriated and put to beneficial use by the licensee.

The intent of water rights licensing is to protect the interests of licensees, domestic users, the general public and the environment with respect to the use or diversion of water or the construction and operation of water control works under licence. In Manitoba, water withdrawals of less than 5500 l/day (25,000 L) generally do not require licensing. These projects are protected under the domestic exemption. Licenses are issued for municipal, agricultural, industrial, irrigation and "other" purposes. Projects that fall into the "other" category include air cooling/heating; aquaculture; fire protection; water bottling; water slides; etc.

The general and specific conditions that are included on all licenses reflect, in part, the information received from the technical and management studies that have been carried out for the project and/or water body. For surface water projects, this determination is based on an analysis of stream flow data, riparian needs, the water use requirements of senior water users, domestic needs, and instream flow requirements. For groundwater projects, this determination is based on an assessment of hydrogeological information including; geological information on aquifers, aquifer sustainable yield estimates and water allocation budgets, where available, as well as the water use requirements of senior users and domestic needs. [Note – Projects withdrawing more than 200 cubic decameters of water in a year are also subject to Environment Act licensing which has a formal public notification and engagement process.]

Water Rights Projects in the Carrot-Saskatchewan River Watershed:

There are a total of eight registered water use projects in the Carrot-Saskatchewan River Watershed and presently five of these are Approved Licensed projects (Approved Licence Issued). There are also two projects with an existing (expired) licence that are waiting to be renewed (Waiting for Assessment of Application). One project currently has a Temporary Authorization to divert groundwater. Residents in this watershed are reliant on both groundwater (5 projects) and surface water (3 projects) sources. There are exactly three Municipal projects, one Irrigation project, one Industrial project, and three Other projects on file for geothermal heating/cooling purposes.

In this watershed, currently 20,018 dam³ is allocated under licence for the groundwater and surface water projects mentioned above. The majority of this water is allocated from the Saskatchewan River for the Town of The Pas for Municipal use, and Tolko Industries for Industrial use. (Figure 1).

Purpose	Allocated Under Licence (dam ³)		Total Allocation (dam ³)
	Groundwater	Surface Water	
Agricultural	0	0	0
Industrial	0	15,000	15,000
Irrigation	0	0	0
Municipal	188	4810	4998
Other	20	0	20
Total	202	19,810	20,018

Figure 1: Amounts Allocated Under Approved Licence

Of the two projects with existing (expired) licences that are waiting to be renewed (Waiting for Assessment of Application), one is for Irrigation use (golf course watering) and one is Municipal (Opaskwayak Cree Nation). Additionally, one other project (construction dewatering) exists that has not received any licence to date but has a Temporary Authorization to use water. (Figure 2)

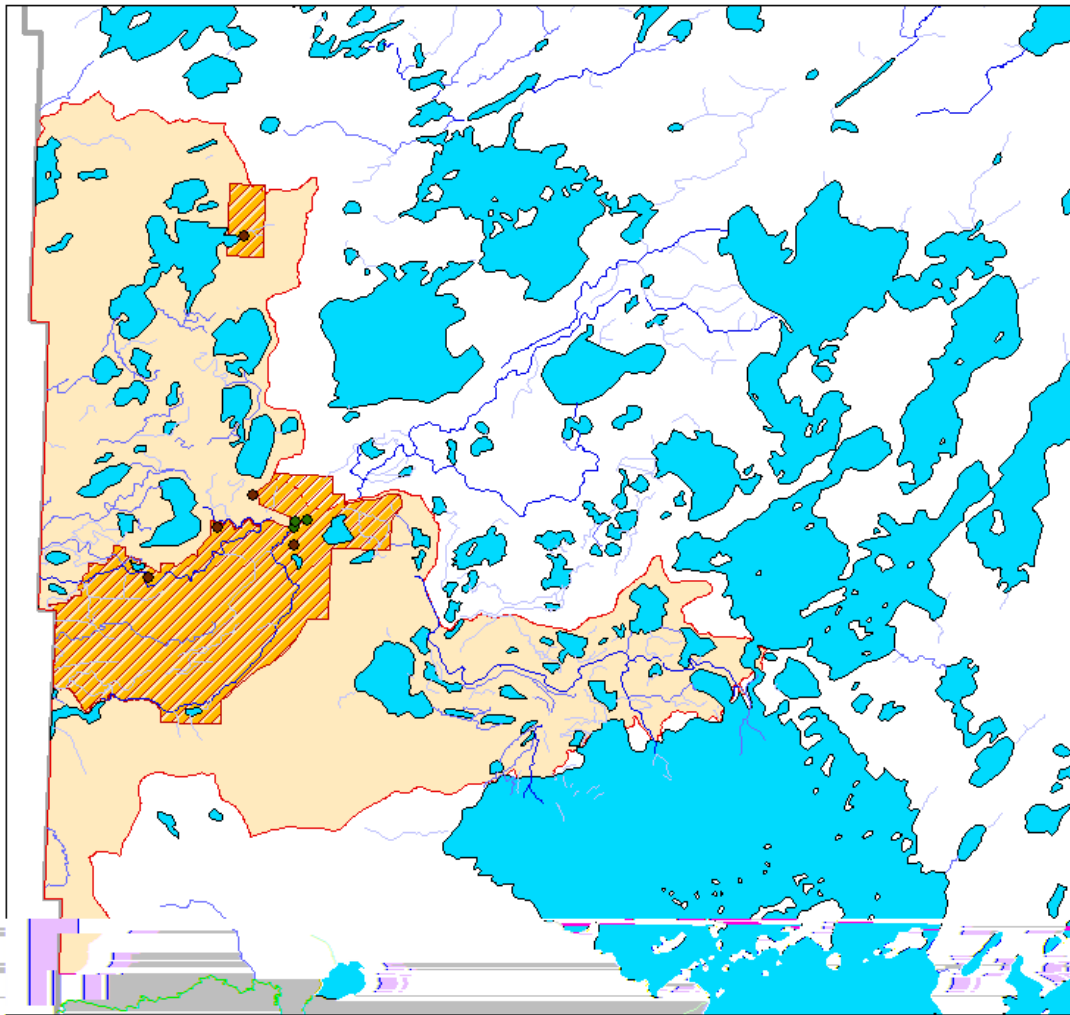
Purpose	Estimated Allocation for future Licence (dam ³)		Total Allocation (dam ³)
	Groundwater	Surface Water	
Agricultural	0	0	0
Industrial	0	0	0
Irrigation	0	38	38
Municipal	690	0	690
Other	0	0	0
Total	690	38	728

Figure 2: Estimated Amounts waiting to be allocated under future Approved Licence




Map:

Figure 3 below illustrates the locations of the Water Use Licensing projects within the Carrot-Saskatchewan River watershed:

Carrot - Saskatchewan River Watershed



Legend

- Ground Water Use
- Surface Water Use
-  Conservation Districts - Manitoba
-  Watershed Boundary
-  Provincial Boundary - Manitoba

0 5 10 20 Kilometers

Figure 3: Location of Water Use Licensing Projects in the Carrot-Saskatchewan River Watershed

Data Gaps:

Aquifer or whole stream budgets have not yet been established in this watershed; therefore, licensing decisions are based on an individual site specific evaluation. Current allocations are believed to be well below the sustainable yield of the major streams and aquifers. Water Budget Models are developed by the Groundwater and Surface Water Management Sections to set allocation limits for major streams and aquifers. These models divide aquifers and waterways into individual sub-basins and reaches. Each sub-basin or reach is assigned a specific amount of water that is available for allocation. By inputting an allocation amount the model computes the amount of water available for allocation at all other points in the sub-basin or along the reach and adjacent reaches affected by the allocation. Such models have not been done for this watershed.

The Water Use Licensing Section evaluates the sustainability of a proposed ground water sourced project by requiring new applicants to hire a professional hydrogeologist to evaluate well and aquifer conditions at the project site.

Basin Yield and Licensed Water Use:

It is often useful to compare the licensed allocation volumes under the Water Rights licensing process with the average annual precipitation volumes for a watershed. To do this we used an average annual precipitation (rainfall and snow) of 443 mm (17.4 inches) as determined from the 1971-2000 period of record at the The Pas A* weather station¹. When we convert this figure to a volume it works out to 2,037,800 dam³ annual average over the Carrot-Saskatchewan River Watershed (approximately 4,600 square kilometers). At this time, the licensed annual allocation volume of all the groundwater projects including the estimated allocation of projects waiting to be licensed in the Watershed is 20,746 dam³. When we express the licensed allocations as a percentage of average annual precipitation on the basin it works out to less than 0.01%, so we have no concerns about water availability in this watershed. Typically the largest component of water "use" in a watershed is the evapotranspiration component. Therefore, future growth in licensed water use in the watershed is likely to come, at least in part, at the expense of the component of the annual water budget that evaporates from the land and water bodies and the component that transpires from the vegetative cover on the landscape.

¹ Stations with an ' * ' indicate that this station meets the United Nation's World Meteorological Organization WMO standards.