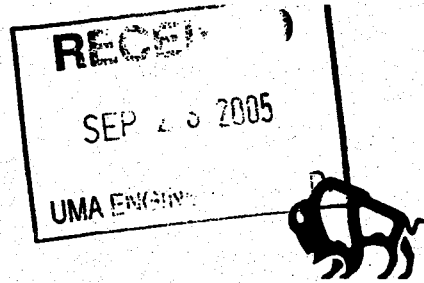


Appendix E
Groundwater Exploration Permit

Manitoba

Water Stewardship

COPY



Infrastructure & Operations
Box 16 – 200 Saulteaux Crescent
WINNIPEG MB R3J 3W3
Phone: (204)945-7424
Fax: (204)945-7419

September 20, 2005

FILE: 10.1.6
(Pembina Valley Water Cooperative)-4

Mr. Sam Schellenberg, CEO
Pembina Valley Water Cooperative Inc.
Box 1180
ALTONA MB R0G 0B0

Dear Mr. Schellenberg:

This is in regard to your application under The Water Rights Act, on behalf of Pembina Valley Water Cooperative Inc. (PVWCI), for authorization to construct a supply well (or wells) at an unspecified location in Townships 4 and 5, Range 9 east, and divert groundwater for municipal purposes at a maximum continuous rate of 50L/s (660 lpm). I understand that a potential well site has now been located on SE 22-5-9E and that you have indicated a desire to have a groundwater exploration permit issued authorizing well construction and aquifer pump testing at this site.

Attached herewith is a **Groundwater Exploration Permit** issued to PVWCI in response to this application. This letter shall also form an integral part of the permit.

The permit authorizes PVWCI to carry out exploration test drilling and to construct test wells, supply wells and monitoring wells, and to conduct aquifer pump testing on SE 22-5-9E in order to explore for groundwater. The purpose of the pump testing is to determine if sufficient water is available from a well to be completed at this location, and from the aquifer, to support the project and to determine potential long term drawdown impacts associated with the withdrawal of water. Note that during testing, pumping must cease if any local water supplies are negatively impacted as a result of the testing. PVWCI would further be responsible to correct any water supply problems or provide temporary water supply to anyone whose water supplies are negatively impacted as a result of the tests.

Please note the following requirements that would need to be met and the information that would need to be supplied pursuant to the issuance of a water rights licence for the project, once pump testing is complete and provided the pump testing and the impact assessment results are positive.

Prior to undertaking construction of any works authorized by the permit, the permittee is required to retain the services of a hydrogeologist registered with APEGM, who would be required to:

- 1) Plan and supervise the drilling of boreholes, test wells, production wells, observation wells, and pumping tests as authorized by this permit.
- 2) Conduct aquifer pumping tests, as required by the permit, and as further deemed necessary by the hydrogeologist, in accordance with Form H (attached).

COPY

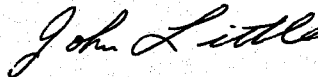
- 3) Carry out a field inventory of private wells within two miles radius of the project supply well. The inventory would address, but would not be limited to, such things as; a) spatially referencing inventory sites on plans and aerial photographs, and b) obtaining (where practical) static and pumping water levels at inventoried wells including basic information on well construction such as well depth, casing diameter, and pump intake setting.
- 4) Assess the potential long term impacts of the project's planned withdrawals on the groundwater flow regimes in both the Upper and Lower Sand Unit aquifers as well as the sandstone and carbonate aquifers.
- 5) Assess the potential long term impacts of the project's planned withdrawals on streams, wet lands and bogs in the affected area.
- 6) Prepare and submit to the Water Licensing Branch a technical report on the exploration and testing results as more specifically described in the Groundwater Exploration Permit. The report shall contain all basic information on test holes, test wells, supply wells and pump testing, including measurements of water level drawdown and recovery during testing as well as water level information obtained from area observation wells. More specifically, the report must be in as complete a form as possible that will provide the reviewing agency the ability to scrutinize the reports findings, conclusions and recommendations.

Further action on licensing will be held pending submission of the required information.

The supervision, assessment, and reporting requirements outlined in this letter and the Permit are related solely to the project's water rights licensing requirements as provided for under *The Water Rights Act*. Other assessments and information may be required to satisfy other provincial or federal regulations, for example a licence under the Environment Act. Issuance of a Water Rights Licence in due course will be contingent on meeting all water rights licensing requirements as well as obtaining all other required approvals and licences.

Please contact John Little directly at 945-7424 should you have any questions regarding the requirements outlined in this letter, the attached permit, or water rights licensing aspects of this project.

Yours truly,



for Rob Matthews, P. Geo.
Manager, Water Licensing Branch

Cc: J. Little
S. Wiecek, UMA Engineering Inc.

Groundwater Exploration Permit

Manitoba
Water Stewardship
Water Licensing Branch

200 Saulteaux Crescent
Winnipeg, Manitoba
R3J 3W3



Pursuant to *The Water Rights Act*

Pembina Valley Water Cooperative Inc.

is hereby permitted to construct a water well or wells on the following described lands to explore for groundwater:

	SE	22	5	9	E
LSD	OR QUARTER	SECTION	TOWNSHIP	RANGE	E OR W

for municipal purposes, subject, however, to the following conditions:

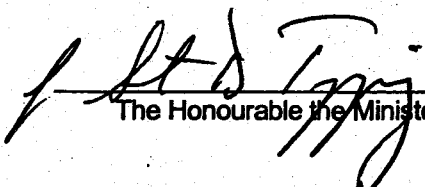
- Prior to undertaking construction of any works authorized by this permit the permittee is required to retain the services of a hydrogeologist registered with APEGM, who would be required to:

 - Plan and supervise the drilling of boreholes, test wells, production wells, observation wells, and aquifer and well pumping tests as authorized by this permit as more specifically described in Section 5 (Recommendations) of the September 2005 UMA Engineering Inc. Supplemental Groundwater Supply, Phase 1 Groundwater Exploration Report for Pembina Valley Water Cooperative Inc.
 - Conduct an aquifer pumping test on the supply well in accordance with Form H (attached), for a minimum of 72 hours.
 - Carry out a field inventory of private wells within a 2-mile radius of the project supply well. The inventory will need to determine the number and location of private wells in the area that may be possibly affected by the proposed operation of the project supply well.
 - Prepare and submit to the Water Licensing Branch a technical report on the study results and on the drilling of wells and pump testing of wells, which would contain, but not be limited to, such things as; well driller's reports for test wells, supply wells and observation wells, a general plan showing the location of these wells, and a detailed plan showing the location of the supply well with dimensions to two property lines, geologic sections through the area which would show both the geologic and stratigraphic detail as well as the water table in the Upper Sand Unit and the piezometric water levels in the Lower Sand Unit and the bedrock sandstone aquifers, a plan or plans showing elevation contours of the water levels in both the Upper and Lower Sand Units, an analysis of the well pumping test with calculations of storativity and transmissivity, a plot of projected zero aquifer water level drawdown resulting from the projects operation after 20 years and plots of the five, 10 and 20 year "time of travel" captive areas. The report would more specifically address the yield capacity of the aquifer at the supply well location, and the projected drawdown that is expected to occur at all major area wetlands and bogs. Also, the report would describe the effect of proposed pumping on the existing groundwater flow system and the pumping effects on wetlands and bogs and if adverse impacts are expected to occur at these wetlands and bogs.
- During the pumping tests, pumping must cease immediately if any local water supplies are negatively impacted as a result of the tests. The permittee is also responsible to correct any water supply problems or provide temporary water supply to anyone whose water supplies are negatively impacted as a result of the tests.
- This permit expires within twelve (12) months of the date of issuance.

For further details please contact John Little at 945-7424.

Issued at the City of Winnipeg in the Province of Manitoba, this 19 day of September A.D. 2005.

RA 05/09/05


The Honourable the Minister of Water Stewardship