



Water Update

The restoration of potable water has been the first priority of the current Mayor and Council of the Town of Craik. The following information is provided to further enable the citizens of Craik to make an informed decision when voting on the referendum question :

“Do you agree with crediting the net insurance payment from the loss of the Eco-Centre to the Water Fund?”

Introduction

After extensive research and considering a wide variety of options, Town Council has decided to engage KGS Group, a company of consulting engineers from Regina. KGS is well acquainted with the issues facing smaller rural communities and has recently assisted in restoring potable water to the Town of Radville which has a Mainstream water plant similar to the one in Craik.

Water Source

KGS was asked to explore both surface (reservoir) and ground (well) water sources:

Option #1 Wells

Groundwater sources might be a viable option. However, to determine whether or not, it would require a groundwater exploration program ranging in cost from \$20,000 to in excess of \$50,000. Based on the limited groundwater quality information available, the area groundwater may contain high sulfate, sodium, total dissolved solids and hardness. A high mineralized groundwater would require a membrane (RO-reverse osmosis) system for treatment. Initial estimates (not including any specific treatment requirements) for exploration, well drilling, supply lines, associated electrical work and contingency would be at least \$585,000.

Option #2 Craik Reservoir

Currently, raw water comes from the Craik reservoir. The surface water intake appears to be in good condition. The water has high turbidity, organics, manganese, sulfate, total dissolved solids and hardness levels. Ammonia levels are also above acceptable levels.

Oxygen content is an important element in water quality. Based on tests conducted in July 2016, KGS is recommending the installation of a flexible intake which would allow access to optimum raw water at all seasons.

Surface water typically has higher levels of the natural organics. Trihalomethanes (THMs) are formed when chlorine (used for disinfection) reacts with these naturally occurring organic compounds in the water. One of the issues with our current system is that THM levels have been higher than the maximum allowable concentrations.

Decision

Town Council agreed with the recommendation from KGS that we focus on using surface water from the Craik Reservoir at present.

Site Assessment

Plans to return to potable water include reactivating the original water plant along with using the Mainstream plant. KGS conducted a visual inspection of the original water plant and noted the following:

- The building super structure appears to be in good condition and reasonably well maintained.
- The flocculator chamber appears to be in reasonably good condition.
- The gravity filter contains filter material and may require minor work.
- The clarifier chamber requires some restoration work.
- Generally the concrete work appears to be in adequate condition requiring only a thorough cleaning and the application of a rejuvenating and protective coating.

The Proposal

Coagulation, flocculation and sedimentation will be done at the old treatment plant. The existing gravity filter will be used as a pump well with a submersible pump to transfer the water to the Mainstream filtration system. This part of the treatment will target turbidity and manganese.

The provincial Water Security Agency, having reviewed the full KGS predesign final report has indicated that it is satisfied with the proposed use of the old treatment plant.

The BioCarbon of Mainstream will be replaced with catalytic carbon with re-activation processes. This part of the treatment will target organics, color and odor in the water.

Primary disinfection will be achieved through installation of ultraviolet reactors which will inactivate cryptosporidium and giardia.

Secondary disinfection will be provided through chlorination.

Estimated Costs

Upgrade/Renovation of Old Plant	\$40,000
Replacing Bio Carbon of Mainstream Plant with Catalytic Carbon Media	\$30,000
Chemical Feed	\$20,000
UV System	\$40,000
Pipeline between Old Plant and Mainstream	\$20,000
Process Piping and Installation	\$55,000
Electrical Controls/Upgrades and Installation	<u>\$65,000</u>
	\$270,000
<u>Contingency & Engineering:</u>	<u>\$ 81,000</u>
TOTAL:	<u>\$351,000</u>

Note: These estimates do not include the cost of installing a flexible source intake as recommended by KGS.

Financial Plan

There is currently in excess of \$60,000 in the Water Fund. It is anticipated that the Town of Craik will receive a net insurance payout of approximately \$380,000. Town Council is proposing that during the municipal general election on October 26th, 2016, voting will take place on the following referendum question:

“Do you agree with crediting the net insurance payment from the loss of the Eco-Centre to the Water Fund?”

If the answer is “yes”, there will be adequate funds to cover the estimated costs of this project. If the answer is “no”, the new mayor and council will need to consider other options such as increasing the cost of water services or imposing a special levy.

Time Line

Pilot testing	3 months	Tendering Process	3 months
Construction	3 months	Regulatory Testing	3 months

If the referendum results are positive, work will begin immediately.
The boil water advisory should then end by November 1st, 2017.
