



Corporate Report

NO: R227

COUNCIL DATE: November 3,

2003

REGULAR COUNCIL

TO: **Mayor &
Council** DATE: **October 29,
2003**

FROM: **General Manager,
Engineering** PROJECT **1203-511**
FILES: **1203-513**
SUBJECT: **Groundwater Exploration Program Update**

RECOMMENDATION

That Council receive this report for information.

INTENT

This report provides Council with an update on the Groundwater Supply Strategy. The program advancements made since the last report to Council in 2002, along with the proposed future direction of the program, are provided in the following text.

BACKGROUND

Development of local, municipal groundwater supplies have been assessed and a multi-year, phased program of groundwater exploration, production, protection, and monitoring is underway.

On June 24, 2002, Council authorized staff to:

1. Secure the City's rights to groundwater as a municipal service area;
2. Undertake a full environmental assessment for an extensive groundwater extraction program in the North and South Surrey Uplands; and
3. Notify the GVRD of Council's decision.

Since that time the following tasks have been completed:

- City staff met with representatives from the GVRD to discuss the City's intent to develop local groundwater supplies. The GVRD is in general agreement with this. In response to this, well field development in North Surrey was removed from the Region's list of alternative sources of future GVWD water supply. There are still a few outstanding issues, such as water quality and infrastructure planning, to be considered as the strategy advances. In the end, it is anticipated that an agreement will be entered into between the two parties, outlining the operating philosophies of each water system.

- A Groundwater Supply Coordinator has been hired to provide general coordination and program management of the Groundwater Supply Strategy.
- Sunnyside Well #2 has been upgraded and commissioned, supplying groundwater to the residents of South Surrey.
- A monitoring well has been drilled at the Newton Reservoir site and seasonal water levels are being recorded.
- A water quality study has been completed to determine the impact of mixing groundwater supplies with GVRD surface water. It was concluded that blending of the two source waters at Sunnyside Well #2 does not adversely impact the water quality. Water quality monitoring of this area is ongoing.
- Partnership on a joint groundwater modeling assignment with the Township of Langley on the shared Brookwood aquifer in Campbell Heights, and the shared Clayton aquifer in North Surrey, is expected to be completed during the early part of 2004.

Environmental Assessment, Phase 1 – Groundwater Exploration Plan

The initiation of the Environmental Assessment will determine where the groundwater resource can be safely and economically developed, on a sustained basis, with minimal environmental, social, economic, health, cultural and heritage impacts. Due to the inherent uncertainties in the scope of the work required for the complete environmental assessment, only the development and supervision of an exploratory drilling program was awarded to the hydro/geotechnical consultant for the project. The next phases of the environmental assessment will be awarded when the location and potential issues associated with that location are known for the production well sites.

A project review team for the Environmental Assessment was created comprising of representatives from the GVRD, Ministry of Water, Land & Air Protection, Fraser Health Authority, and Environment Canada. Peer review services are being provided by a second independent consultant.

Under Phase 1, an exploration plan has now been developed. The plan is based on a compilation of available data and the development of a three-dimensional digital GIS model of the hydrogeology of Surrey. A desktop engineering assessment of functionality and cost was also completed. The following conclusions have been drawn from these reports:

1. Potential and separate aquifers exist in South Surrey, North Surrey and the Clayton-Cloverdale upland areas that could be economically developed for municipal supply to supplement the GVRD water system. These potential aquifers warrant investment in detailed field investigations including test well installation and pumping tests. There are also existing privately owned wells and former municipal wells that potentially could be rehabilitated for municipal supply.
2. It is concluded that costs of \pm \$0.15 per cubic metre are achievable based on theoretical aquifer yields. This compares favorably to the current GVRD cost of \$0.20 per cubic metre, which is anticipated to increase over time to \$0.34 per cubic metre.
3. Municipal wells in Clayton, Fleetwood, Green Timbers, Newton and South Surrey would provide the City with a level of emergency backup water supply to the GVRD system.

Based on a combination of hydrogeological, engineering and cost factors, it is recommended that Phase 2 be initiated and drilling take place at the following locations:

South Surrey Aquifer:

- Sunnyside Park (146 Street & 22 Avenue),

- Chantrell Creek Park (24 Avenue & 137 Street), and
- Crescent Park (26 Avenue & 132 Street).

North Surrey Aquifer:

- Green Timbers Park (98 Avenue & 145 Street),
- South of Tynehead Regional Park (172 Street & 87 Avenue), and
- Clayton Reservoir area (190 Street & 72 Avenue).

The following existing wells will be evaluated and tested:

- Bakerview Park (18 Avenue & 153 Street) (McBeth wells)
- North of the Clayton Reservoir (74 Avenue & 191 Street), and
- 3 Forestry wells in Green Timbers Forestry Park

PROJECT SCHEDULE

The drilling contract will commence in mid-December, subject to Council giving approval to the successful tenderer, and it is anticipated that it will take 7 months to complete the drilling program. Production well and infrastructure construction would follow the results in the spring or summer of 2004.

FUNDING

There are sufficient funds available in the 2003 Water Capital budget to cover the anticipated cost of the exploration program. Overall drilling program cost is anticipated at \$900,000.

CONCLUSION

Staff is proceeding to implement the groundwater exploration program and will also proceed with public advertising to hire a drilling contractor to drill and test production and test wells at locations identified in this report. Neighbouring residents will be notified in advance of any drilling.

Paul Ham, P.Eng.
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PH/VL/JLU/brb

c.c. - General Manager, Finance, Technology & HR Dept.

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