NOTICE: That a regular meeting of the Public Works and Development Committee will be held at the District Hall, 4936 Barriere Town Road, Barriere, B.C. on May 10, 2010 at 7:30 p.m. for the transaction of business listed below.

Wayne Vollrath, Chief Administrative Officer

AGENDA

1. **ADOPTION OF AGENDA**

   That Council approve the May 10, 2010 Public Works and Development Committee Agenda.

2. **WATER UTILITY**

   a. Infrastructure Stimulus Fund, Project

      Finalization of Project Components

      Memo attached.

   b. Leonie Lake Dam

      Two Engineering companies are providing cost estimates to do a 10 year inspection which is required by the Province.

   c. Water Utility Rates

      Due to intervening issues I have not had a chance to complete a review of rate options and a 5 year plan.

3. **REQUEST FOR PROPOSAL FOR ENGINEERING SERVICES**

   The closing date for the RFP is May 21st @ 2:00 p.m.

   Will the Chair or other Committee members be available to attend? As well would any of the Committee members be available to participate as part of the Evaluation Committee?

4. **GROUNDWATER EXPLORATION PROGRAM UPDATE**

   Report from B.C. Groundwater is attached.

5. **BARRIERE ACRES SUBDIVISION**

Barriere Acres will be providing geothermal heating for the new homes in this subdivision.

IHA will be reviewing the liquid used in the loops to ensure that there is no negative impact on the aquifer.

6. **WATER SYSTEM RIGHT OF WAY**

Armour Mountain Trailer Park.

The District has a water main right of way which is a northerly extension of the right of way for Power Road.

The problem is that runoff is coming out of the modular home park and travelling down the right of way into the trailer park.

The owner of the park has fenced the end of the right of way to keep people from trespassing through his property. The owner is also concerned that the run off may destabilize the bank.

The District will have an Engineer look at this issue to determine what action the District should take.

7. **SHELF READY GRANT PROJECTS**

a. Proposed Feasibility Assessment of Reservoir Construction off Mountain Road. $3500.

b. Proposed Town for Tomorrow Grant

8. **ANNUAL REPORT**

Staff is working on the 2009 annual report. A draft will be available at the next meeting.

This report must be submitted to IHA by June 30.

9. **CLIMATE ACTION BOOTCAMP**

The Committee to consider having the District host a camp.

10. **ARTICLE FROM WATER OPERATORS PUBLICATIONS** – Dealing with Certified Operators and multi Utility Certification.

11. **MRS. SMITH** – Letter advising that she will not pay for garbage pick-up.

12. **OTHER BUSINESS**

13. **NEXT MEETING**

Monday, June 14, 2010 at 7:30 p.m.

14. **ADJOURNMENT**

District of Barriere

MEMORANDUM

Date: May 6, 2010	**File:**
To: Public Works Committee	**From:** Wayne Vollrath, CAO
Re: Infra Structure Stimulus Fund Project Cost Update	

The original alignment authorized by the Committee would have cost $537,000. This left extra funding for increasing the scope of the work. Mr. Borrill advised that we could look at upgrading a section of Barriere Town Road from Barriere Lake Road to Bradford.

However, in view of the conditions on obtaining rights of way over private property, the Committee at its last meeting accepted going back to the original alignment on Barriere Lakes Road and installing a new section on the east side of Lodgepole Drive from Barriere Lakes Road to the supply line on Mr. Smith's property.

The benefits of this alignment include replacing an older section and connections on Barriere Lakes Road as well as a second source of water along Lodgepole and new connection.

The problem is the cost. The attached letter from TRUE indicates a higher cost which is above the grant provided.

The cost is $37,000 higher. I would point out that the project contains a contingency of $74,000. The project could be under the estimated cost and the contingency may not be used. This would mean that all the cost would be covered. However, the contingency could be used on the project so that additional funding would be required.

I believe that there is significant value to the water system by replacing the older sections and connections on Barriere Lakes Road as well as providing a second supply main to the reservoir line as well as replacing the copper connections on the east side of Lodgepole road.

Should the project cost be higher by $37,000 I would suggest that these funds could come from the money we received from the TNRD.

Over time, the District will be looking at having to replace all of the old and undersized portions of our water distribution system.

Wayne Vollrath,
CAO

TRUE
CONSULTING GROUP

May 4, 2010

Our File: 346-131

District of Barriere
Box 219, 4936 Barriere Town Road
Barriere, B.C. V0E 1E0

Attention: Wayne Vollrath, C.A.O.

Dear Sir:

RE: ***District of Barriere – Water System Upgrades – Submission of Detailed Drawings (Barriere Lake Road & Lodge Pole Road)***

TRUE Consulting Group understands it is the preference of the District of Barriere to construct water system upgrade and redundancy along Barriere Lakes Road and Lodge Pole Road rather than looping via the BC Hydro Right-of-Way alignment as previously planned due to challenges faced during negotiation of a Right-of-Way adjacent to Barriere Lakes Road over Lot A Plan 32446.

The implications of this alignment adjustment include the construction of approximately 650m of 350mm diameter watermain along Barriere Lakes Road and Lodge Pole Road as opposed to approximately 325m of 300mm diameter watermain that would be required along the BC Hydro Right-of-Way alignment.

Please find enclosed herewith one (1) copy of the design drawings (Issued for Approval) numbered 346-131-00 to 04. Please note that pages -01 and -02 are essentially the same as those submitted previously to the District on February 15, and pages -03 and -04 consist of new design drawings for Barriere Lakes Road and Lodge Pole Road project components. Please review the enclosed drawings and provide questions or comments to the undersigned. Prior to initiating a tender process, discussion is warranted as it relates to provision of water services along Barriere Lakes Road to Lot A Plan 32446 (Rilcoe), Lot A Plan 23832 and Rem Lot 2 Plan 19510 (east of Barriere Lakes Road). In addition, discussion is warranted in terms of decommissioning of abandoned services along Lodge Pole Road. Presently, TRUE has identified new services from the proposed main to service properties on the north side of Lodge Pole Road. Abandoned services are proposed to be disconnected at the existing corporation stop. These details can be adjusted to suit the preference of the District of Barriere.

As would be expected, the construction costs associated with the Barriere Lakes Road/Lodge Pole Road alignment are greater than the proposed loop via the BC Hydro Right-of-Way due to the increase in pipe length, the implications to existing services, and the fact that construction is planned for developed areas rather than an alignment over largely unimproved lands. Detailed Class 'A' estimates have been prepared for each project component and are enclosed herewith for the information of the District of Barriere. The combined cost of $397,250 for Barriere Lakes Road and Lodge Pole Road components (Parts D and E of the enclosed cost estimates respectively) is over three times higher than the cost associated with the BC Hydro Right-of-Way alignment identified in Part C of the enclosed cost estimate as $125,000.

.../2

Utilizing the Barriere Lakes Road/Lodge Pole Road alignment, the total anticipated project construction cost, including a 10% contingency allowance, is summarized as follows:

Part A – Airfield Road:	$46,000
Part B – Spruce Crescent:	$380,000
Part C – Loop via BC Hydro ROW:	N/A
Part D – Barriere Lakes Road:	$207,900
Part E – Lodge Pole Road:	$189,350
Total Construction Cost with rounding:	$825,000

The total anticipated construction cost of $825,000 as presented above, which includes a contingency allowance and excludes engineering requirements, is approximately $37,000 greater than the available budget for this project of $788,682. It is hopeful that a public tender process will result in bids being received that are less than the Class 'A' construction cost estimate as presented herewith, however should the project costs come in over budget, the District of Barriere should be prepared with a predetermined course of action to deal with any cost overruns for the information of prospective contractors. Options available to the District to reduce the overall project cost may include reduction in project scope, retain existing services along the Lodge Pole Road, etc. A discussion in terms of cost saving options available to the District may be worthwhile prior to initiating a tender process.

TRUE Consulting Group will submit updated drawings associated with this project to Interior Health for its review and approval. We look forward to discussing the final details associated with this project with the District of Barriere at its convenience.

Yours truly,

TRUE CONSULTING GROUP

Dave Underwood, P. Eng.

DU/mb

Enclosures

M:\My Documents\346\346-131\Barriere-Vollrath-Submission Water Systems Upgrades.doc

DISTRICT OF BARRIERE
BARRIERE WATERMAIN IMPROVEMENTS

ITEM NO.	DESCRIPTION	UNIT OF MEASURE.	EST. QUANT.	UNIT PRICE	TOTAL PRICE
Part A - Airfield Road					
1.1	Supply and install the following watermains (including hydrant leads) complete with Class B sand bedding and restoration.				
1.1.1	150Ø C900 DR18	m	150	$ 180.00	$ 27,000.00
1.2	Supply and install the following watermain appurtenances.				
1.2.1	150F x 150F x 150F Tee	ea.	2	$ 850.00	$ 1,700.00
1.2.2	150Ø Gate Valve (HxH, HxF, FxF)	ea.	3	$ 1,200.00	$ 3,600.00
1.2.3	150F x 100H Reducer	ea.	2	$ 700.00	$ 1,400.00
1.3	Supply and install standard fire hydrant assembly (in accordance with standard drawing) (including lead, excluding tee and valve).	ea.	1	$ 4,000.00	$ 4,000.00
1.4	Construct the following tie-in(s) to existing water system. Fittings are included in Item 1.2 or as specified.				
1.4.1	Drawing 346-131-01 Tie to existing 150Ø PVC between Barriere Town Road and Airfield Road	L.S.			$ 1,500.00
1.4.2	Drawing 346-131-01 Tie to existing 150Ø AC on west side of Airfield Road	L.S.			$ 2,500.00

Cost Estimate

Subtotal	$ 41,700.00
Contingency Allowance	$ 4,300.00
Total Cost Estimate	**$ 46,000.00**

DISTRICT OF BARRIERE
BARRIERE WATERMAIN IMPROVEMENTS

ITEM NO.	DESCRIPTION	UNIT OF MEASURE.	EST. QUANT.	UNIT PRICE	TOTAL PRICE
Part B - Spruce Crescent					
1.0	**WATER SYSTEM**				
1.1	Supply and install the following watermains (including hydrant leads) complete with Class B sand bedding and restoration.				
1.1.1	350Ø C900 DR18	m	340	$ 320.00	$ 108,800.00
1.1.2	200Ø C900 DR18	m	45	$ 210.00	$ 9,450.00
1.1.3	150Ø C900 DR18	m	15	$ 180.00	$ 2,700.00
1.2	Supply and install the following watermain appurtenances.				
1.2.1	350H x 350H x 150F Tee	ea.	2	$ 2,500.00	$ 5,000.00
1.2.2	350F x 350F x 350F Tee	ea.	2	$ 2,500.00	$ 5,000.00
1.2.3	350H x 350F x 150F Tee	ea.	2	$ 2,500.00	$ 5,000.00
1.2.4	250F x 250F x 150F Tee	ea.	1	$ 1,000.00	$ 1,000.00
1.2.5	350Ø Gate Valve	ea.	3	$ 6,000.00	$ 18,000.00
1.2.6	250Ø Gate Valve	ea.	2	$ 2,000.00	$ 4,000.00
1.2.7	200Ø Gate Valve (HxH, HxF, FxF)	ea.	2	$ 1,400.00	$ 2,800.00
1.2.8	150Ø Gate Valve (HxH, HxF, FxF)	ea.	6	$ 1,200.00	$ 7,200.00
1.2.9	350Ø 45° Bend	ea.	2	$ 1,800.00	$ 3,600.00
1.2.10	350Ø 22.5° Bend	ea.	1	$ 1,800.00	$ 1,800.00
1.2.11	350Ø 11.25° Bend	ea.	2	$ 1,800.00	$ 3,600.00
1.2.12	350Ø 5° Bend	ea.	2	$ 1,500.00	$ 3,000.00
1.2.13	200Ø 45° Bend	ea.	2	$ 800.00	$ 1,600.00
1.2.14	350H x 250F Reducer	ea.	1	$ 1,800.00	$ 1,800.00
1.2.15	350H x 250F Reducer	ea.	1	$ 1,800.00	$ 1,800.00
1.2.16	200F x 350H Reducer	ea.	1	$ 1,800.00	$ 1,800.00
1.2.17	200F x 350F Reducer	ea.	2	$ 1,800.00	$ 3,600.00
1.2.18	200Ø End Cap with marker post	ea.	1	$ 650.00	$ 650.00
1.3	Supply and install the following water services and appurtenance(s).				
1.3.1	19Ø SDR9 PEX Tubing	m	250	$ 70.00	$ 17,500.00
1.3.2	350Ø x 19Ø Saddle with corporation stop	ea.	20	$ 600.00	$ 12,000.00
1.3.3	19Ø Curb Stop complete with service box and marker post.	ea.	22	$ 350.00	$ 7,700.00
1.3.4	250Ø x 19Ø Saddle with corporation stop	ea.	2	$ 400.00	$ 800.00

ITEM NO.	DESCRIPTION	UNIT OF MEASURE.	EST. QUANT.	UNIT PRICE	TOTAL PRICE
1.0	**WATER SYSTEM (continued)**				
1.4	Transfer existing private water service lines to new curb stops at property line including removal and disposal of of existing curb stops (following potability and pressure testing).	ea.	22	$ 2,500.00	$ 55,000.00
1.5	Supply and install standard fire hydrant assembly (in accordance with standard drawing) (including lead, excluding tee and valve).	ea.	3	$ 4,000.00	$ 12,000.00
1.6	Construct the following tie-in(s) to existing water system. Fittings are included in Item 1.2 or as specified.				
	1.6.1 Drawing 346-131-02 Tie to existing 200Ø PVC (North Spruce Cres.)	L.S.			$ 2,000.00
	1.6.2 Drawing 346-131-02 Tie to existing 200Ø AC (Spruce Cres./Bradford Road)	L.S.			$ 2,000.00
	1.6.3 Drawing 346-131-02 Tie to existing 150Ø AC (Spruce Cres./gravel pathway)	L.S.			$ 2,000.00
	1.6.4 Drawing 346-131-02 Tie to existing 150Ø AC and 250Ø PVC (Spruce Cres./Birch Lane)	L.S.			$ 4,000.00
1.7	Strip and grub ground within the excavation limits and dispose of to an approved off-site location.	m^2	5000	$ 2.50	$ 12,500.00
1.8	Supply and place 100mm min. thickness of import topsoil material acceptable to the District of Barriere complete with broadcast grass seeding of all areas disturbed by construction.	m^2	5000	$ 5.00	$ 25,000.00
	Subtotal 1.0 - Water System				**$ 344,700.00**
2.0	**PROVISIONAL ITEMS**				
2.1	Supply and install 50mm thickness rigid insulation over watermain where 1.8m minimum clear cover is not achieved on Spruce Crescent.	l.m.	40	$ 40.00	$ 1,600.00
	Subtotal 2.0 - Provisional Items				**$ 1,600.00**

ITEM NO.	DESCRIPTION	UNIT OF MEASURE.	EST. QUANT.	UNIT PRICE	TOTAL PRICE
Cost Estimate					
	1.0 - Water System				$ 344,700.00
	2.0 - Provisional Items				$ 1,600.00
			Subtotal 1.0 to 2.0		$ 346,300.00
			Contingency Allowance		$ 33,700.00
			Total Cost Estimate		**$ 380,000.00**

DISTRICT OF BARRIERE
BARRIERE WATERMAIN IMPROVEMENTS

ITEM NO.	DESCRIPTION	UNIT OF MEASURE.	EST. QUANT.	UNIT PRICE	TOTAL PRICE
Part C - Barriere Lakes Road (via BC Hydro Right of Way)					
1.1	Supply and install the following watermains (including hydrant leads) complete with Class B sand bedding and restoration.				
1.1.1	300Ø C900 DR18	m	325	$ 250.00	$ 81,250.00
1.2	Supply and install the following watermain appurtenances.				
1.2.1	300Ø Gate Valve	ea.	1	$ 4,500.00	$ 4,500.00
1.2.2	300Ø 5° Bend	ea.	1	$ 850.00	$ 850.00
1.2.3	300Ø 11.25° Bend	ea.	1	$ 950.00	$ 950.00
1.2.4	300Ø 22.5° Bend	ea.	1	$ 950.00	$ 950.00
1.2.5	300Ø 45° Bend	ea.	1	$ 950.00	$ 950.00
1.2.6	200F x 300H Reducer	ea.	1	$ 1,500.00	$ 1,500.00
1.2.7	200Ø Gate Valve (HxH, HxF, FxF)	ea.	1	$ 1,400.00	$ 1,400.00
1.3	Supply and install standard fire hydrant assembly (in accordance with standard drawing) (including lead, excluding tee and valve).	ea.	1	$ 4,000.00	$ 4,000.00
1.4	Construct the following tie-in(s) to existing water system. Fittings are included in Item 1.2 or as specified.				
1.4.1	Drawing 346-131-03 Tie to existing 200Ø AC (Barriere Lakes Road) by hot tap complete with tapping tee.	L.S.			$ 3,000.00
1.4.2	Drawing 346-131-03 Tie to existing 350Ø AC by hot tap complete with tapping tee.	L.S.			$ 6,000.00
1.5	Supply and install fire hydrant assembly along Barriere Lakes Road including watermain isolation, hot tap connection with tapping tee, 150 HxF gate valve, C900 hydrant lead and fire hydrant assembly complete with tie-rods and thrust block.	L.S.			$ 7,500.00

Cost Estimate

Subtotal	$ 112,850.00
Contingency Allowance	$ 12,150.00
Total Cost Estimate	**$ 125,000.00**

DISTRICT OF BARRIERE
BARRIERE WATERMAIN IMPROVEMENTS

ITEM NO.	DESCRIPTION	UNIT OF MEASURE.	EST. QUANT.	UNIT PRICE	TOTAL PRICE
Part D - Barriere Lakes Road					
1.0	**WATER SYSTEM**				
1.1	Supply and install the following watermains complete with Class B sand bedding and restoration.				
1.1.1	350Ø C900 DR18	m	330	$ 320.00	$ 105,600.00
1.2	Supply and install the following watermain appurtenances.				
1.2.1	200Ø HxF 22.5° Bend	ea.	1	$ 800.00	$ 800.00
1.2.2	350H x 200F Reducer	ea.	1	$ 1,800.00	$ 1,800.00
1.2.3	350Ø End cap	ea.	1	$ 1,200.00	$ 1,200.00
1.2.4	350Ø HxH 22.5° Bend	ea.	1	$ 1,800.00	$ 1,800.00
1.2.5	200Ø End cap	ea.	2	$ 650.00	$ 1,300.00
1.2.6	350Ø Gate Valve (HxH, HxF, FxF)	ea.	3	$ 6,000.00	$ 18,000.00
1.2.7	350Ø 5° Bend	ea.	1	$ 1,500.00	$ 1,500.00
1.2.8	350H x 350H x 150F Tee	ea.	1	$ 2,500.00	$ 2,500.00
1.2.9	150Ø Gate Valve	ea.	1	$ 1,200.00	$ 1,200.00
1.2.10	350Ø FxFxH Tee	ea.	1	$ 2,500.00	$ 2,500.00
1.2.11	200Ø Gate Valve (HxH, HxF, FxF)	ea.	1	$ 1,400.00	$ 1,400.00
1.2.12	350F x 350H x 200F Tee	ea.	1	$ 2,500.00	$ 2,500.00
1.3	Supply and install the following water services and appurtenance(s).				
1.3.1	19Ø SDR PEX Tubing	m	60	$ 70.00	$ 4,200.00
1.3.2	350Ø x 19Ø Saddle with corporation stop	ea.	8	$ 600.00	$ 4,800.00
1.3.3	19Ø Curb stop complete with service box and marker post	ea.	8	$ 350.00	$ 2,800.00
1.4	Transfer existing private water service lines to new curb stops at property line including removal and disposal of of existing curb stops (following potability and pressure testing).	ea.	8	$ 2,500.00	$ 20,000.00
1.5	Supply and install fire hydrant assembly along Barriere Lakes Road including C900 hydrant lead and fire hydrant assembly complete with tie-rods and thrust block. (Tee and valve under Item 1.2).	ea.	1	$ 5,000.00	$ 5,000.00

DISTRICT OF BARRIERE
BARRIERE WATERMAIN IMPROVEMENTS

ITEM NO.	DESCRIPTION	UNIT OF MEASURE.	EST. QUANT.	UNIT PRICE	TOTAL PRICE
1.0	**WATER SYSTEM (continued)**				
1.6	Construct the following tie-in(s) to existing water system. Fittings are included in item 1.2 or as specified.				
	1.6.1 Drawing 346-131-03 Tie to existing 200Ø watermain (Barriere Lakes Road - north tie-in)	L.S.			$ 2,500.00
	1.6.2 Drawing 346-131-03 Tie to existing 200Ø AC (Barriere Lakes Road/Lodge Pole Road)	L.S.			$ 2,500.00
1.7	Supply and place 100mm min. thickness of import topsoil material acceptable to the District of Barriere complete with broadcast grass seeding of all areas disturbed by construction.	m^2	1000	$ 5.00	$ 5,000.00

Cost Estimate

Subtotal	$ 188,900.00
Contingency Allowance	$ 19,000.00
Total Cost Estimate	**$ 207,900.00**

DISTRICT OF BARRIERE
BARRIERE WATERMAIN IMPROVEMENTS

ITEM NO.	DESCRIPTION	UNIT OF MEASURE.	EST. QUANT.	UNIT PRICE	TOTAL PRICE
Part E - Lodge Pole Road					
1.0	**WATER SYSTEM**				
1.1	Supply and install the following watermains complete with Class B sand bedding and restoration.				
1.1.1	350Ø C900 DR18	m	320	$ 320.00	$ 102,400.00
1.2	Supply and install the following watermain appurtenances.				
1.2.1	350Ø 11.25° Bend	ea.	1	$ 1,800.00	$ 1,800.00
1.2.2	350H x 350H x 150F Tee	ea.	1	$ 2,500.00	$ 2,500.00
1.2.3	150Ø Gate Valve	ea.	1	$ 1,200.00	$ 1,200.00
1.2.4	350Ø Gate Valve (HxF)	ea.	1	$ 6,000.00	$ 6,000.00
1.3	Supply and install the following water services and appurtenance(s).				
1.3.1	19Ø SDR PEX Tubing	m	40	$ 70.00	$ 2,800.00
1.3.2	350Ø x 19Ø Saddle with corporation stop	ea.	7	$ 600.00	$ 4,200.00
1.3.3	19Ø Curb stop complete with service box and marker post	ea.	7	$ 350.00	$ 2,450.00
1.4	Transfer existing private water service lines to new curb stops at property line including removal and disposal of of existing curb stops (following potability and pressure testing).	ea.	7	$ 2,500.00	$ 17,500.00
1.5	Disconnect and cap existing water service lines at corporation stops. Existing corporation stops to be located via hydro-vac excavation.	ea.	7	$ 2,000.00	$ 14,000.00
1.6	Supply and install fire hydrant assembly along Lodge Pole Road including C900 hydrant lead and fire hydrant assembly complete with tie-rods and thrust block. Located via hydro-vac excavation (Tee and Valve under Item 1.2)	ea.	1	$ 4,000.00	$ 4,000.00
1.7	Construct the following tie-in(s) to existing water system. Fittings are included in Item 1.2 or as specified.				
1.7.1	Drawing 346-131-04 Tie to existing 350Ø Tee (Barriere Lakes Road/Lodge Pole Road)	L.S.			$ 2,500.00

DISTRICT OF BARRIERE
BARRIERE WATERMAIN IMPROVEMENTS

ITEM NO.	DESCRIPTION	UNIT OF MEASURE.	EST. QUANT.	UNIT PRICE	TOTAL PRICE
1.0	**WATER SYSTEM (continued)**				
	1.7.2 Drawing 346-131-04 Tie to existing 350Ø AC watermain by hot tap connection with tapping tee and full wrap stainless steel sleeve. (Right-of-way -north end of Lodge Pole Road)	L.S.			$ 6,000.00
1.8	Supply and place 100mm min. thickness of import topsoil material acceptable to the District of Barriere complete with broadcast grass seeding of all areas disturbed by construction.	m^2	1000	$ 5.00	$ 5,000.00

Cost Estimate

Subtotal	$ 172,350.00
Contingency Allowance	$ 17,000.00
Total Cost Estimate	**$ 189,350.00**

BC Groundwater
Consulting Services Ltd.
Professional Well Development and Consulting Services

April 9, 2010 File No. 09003.2

District of Barriere
Box 219 - 4936 Barriere Town Road
Barriere, BC
V0E 1E0

Attention: Doug Borrill, Senior Water Treatment Specialist

Project: District of Barriere Deep Aquifer Development Program
Phase 1: Groundwater Exploration

Subject: **PROGRESS UPDATE AND RESULTS OF EXPLORATORY BOREHOLE WATER QUALITY EVALUATION**

Dear Sir,

1.0 BACKGROUND

The District of Barriere ("Barriere") retained BC Groundwater Consulting Services Ltd. ("BC Groundwater") on September 15, 2009 to undertake a groundwater exploration program. This program is the first phase of developing future production well locations. A summary of field program activities and preliminary comments about production well design are presented in our letter dated October 27, 2009. We recommend that you review the document (Appendix A) prior to reading the following progress update. Locations of the exploratory boreholes are presented in Figure 1.

During advancement of the two exploratory boreholes from October 18 - 22, 2009 BC Groundwater collected several water samples during drilling. One reason for collecting these samples was to identify the water quality of the aquifers identified at both sites. Another reason for collecting samples was to determine how much water potability deteriorates with depth. Identification of these trends is important to determine the feasibility and maximum depth of future production wells. A summary of the water quality testing results are presented in Tables 1 and 2. Water classification analyses ("Piper Analysis") are presented in Figures 2 to 4.

BC Toll Free 1 866 851 9414
www.bcgroundwater.ca Office 250 851 9414 Fax 250 851 9419 tcarriou@bcgroundwater.ca
829 Nicola Street Kamloops, British Columbia V2C 2R6 Canada

BC Groundwater collected drill cuttings every 1.5 m (5 ft) during the drilling of both exploratory boreholes. Fifty-five (55) of the cuttings were submitted to a laboratory for sieve analysis (sand and gravel content) and hydrometer analysis (silt and clay content). We have completed review of the laboratory results and prepared production well screen designs for both sites. We expect to complete our designs this month and receive confirmation of the screens from our preferred manufacturer (Variperm Ltd.). We have also begun discussing future production well diameters and costs with qualified drilling contractors and expect to receive their cost estimates this month.

We are very pleased with the results of the deep aquifer exploration program and expect that one or both of the drilled sites will be suitable for the construction of future high-capacity wells. We are planning to submit a draft report to you as soon as we have completed our designs and received confirmation and costs from the screen manufacturer and drilling contractors.

2.0 UPPER BIRCH LANE (EB09-1; SITE A)

Exploratory Borehole EB09-1 (Figure 1; Site A) was advanced to a total depth of 135 m (440 feet) through dry to damp surficial sediments, one aquitard[1] and one aquifer comprised of fine to medium sand with varying silt / clay content. Drilling was terminated in the aquifer due to rising electrical conductivity values which suggested that total dissolved solid concentrations were approaching the Aesthetic Objectives ("AO") of the Guidelines for Canadian Drinking Water Quality. Datalogger monitoring of this borehole suggests a pattern of upward groundwater flow at this location (i.e. deeper groundwater is "under pressure" resulting in upward flow from the bedrock through the aquifers and finally discharging into the base of the river).

2.1 Water Quality Testing Results

A total of four water samples were collected during drilling. A summary of the water quality testing results are presented in Table 1. Each of the bulk samples were collected in a large clean sampling container used specifically for this purpose. Most of the water samples were turbid because of the fine sand and silt present in the aquifer. The bulk samples were allowed to settle for about 30 minutes prior to decant and water sampling. Our standard practice is to analyze each of the water samples for general parameters, alkalinity, nutrients and total / dissolved metals. Given the turbidity of the samples only the dissolved metal values are used for interpretation and forecast of future production well quality. Review of the laboratory testing result suggests the following:

[1] Aquitards are sediments with elevated silt and clay content that reduce the rate of vertical groundwater flow. Thick aquitards (say 10 to 20 m or greater) typically help protect underlying aquifers from surface contamination, such as septic fields. They can also act to reduce live pathogen transport from surface water.

- Groundwater at this location is hard but the maximum total dissolved solids concentration remains below AO throughout the entire borehole. The hardness and total dissolved solids are very similar to the quality of existing Deep Well No. 1.

- All nutrient concentrations are within Maximum Acceptable Concentrations ("MAC") of the Guidelines for Canadian Drinking Water Quality. Fluoride values are low. Chloride, nitrite and nitrate values suggest little or no human impact on current groundwater quality.

- Metal concentrations vary with depth. Dissolved arsenic and antimony exceed MAC in the shallower portion of the aquifer to a depth of 40.5 m (133 ft). Dissolved antimony concentrations appear to increase with depth but this parameter is susceptible to the elevated turbidity of the samples. Dissolved arsenic is not present below 40.5 m (133 ft). Dissolved uranium was detected below 99.1 m (326 ft).

Based on the above discussion, and Piper Analysis results (Figure 2) it is our interpretation that the groundwater in the bedrock upslope of the site contributes considerable recharge to this location. Recharge from bedrock often presents elevated metal concentrations such as that observed in these water samples.

2.2 Future Production Well Water Quality Forecast

Construction of a future high-capacity production well at this location is expected to source groundwater originating primarily from bedrock. Completion of the production well screen into the more permeable sections of the aquifer is expected to reduce antimony, arsenic and uranium concentrations observed to exceed MAC in the exploratory borehole. The presence of uranium in these preliminary samples suggests that evaluation of risk posed from natural radionuclides[2] is necessary.

Our current interpretation is that a future production well at this site will require some form of water treatment for hardness and metals similar to existing Deep Well No. 1. The upward groundwater flow interpreted at this site is expected to isolate future production well(s) from the surface waters (i.e. the Barriere River and its tributaries) and or greatly reduce the effect of surface water influence.

[2] Radionuclides are naturally unstable forms of specific metals (such as lead, radium, thorium and uranium) that undergo radioactive decay. They emit ionizing radiation which can pose a risk to human health. Although the incidence of groundwater presenting excessive gross alpha and gross beta activity is rare it should still be evaluated to confirm the risk is low.

Filtration in addition to water treatment may not be required due to the fine sediments present in this aquifer so long as the well screen is successful in maintaining turbidity at less than 1 ntu. Chlorination, and perhaps UV sterilization as an additional barrier, will likely be required by Interior Health.

2.3 Recommendation

In our next progress update presenting production well screen design, BC Groundwater will recommend conversion of the current exploratory borehole to a test well prior to proceeding with production well construction at this site. Review of laboratory testing information suggests that future production well(s) will require 8 to 15 slot (0.010 to 0.020 inch) screen openings. Confirmation is required that the proposed fine production screen will work effectively to achieve flow rates in the order of 47 - 63 L/s (750 - 1,000 USgpm) from one or two future production wells using very long well screens (in the order of 50^{+} m in length).

Sampling of the test well will also provide accurate information about the actual water quality of this aquifer and allow us to commence preliminary treatability / cost studies. It will also provide the additional information required to determine if a twinned production well system (i.e. two side-by-side wells) can or should be constructed at this site.

3.0 BRADFORD PARK (EB09-2; SITE C)

Exploratory Borehole EB09-2 (Figure 1; Site C) was advanced to a total depth of 102 m (336 feet) through damp surficial sediments, two aquitards and two aquifers. Drilling was terminated in a third aquitard underlying the deepest intercepted aquifer. The presence of angular bedrock fragments in the deepest aquitard may suggest the bedrock contact is very close to the base of the borehole. At the completion of the field program the casing was withdrawn into the most productive aquifer to facilitate water level monitoring. Datalogger monitoring results from the aquifer indentified at a depth of 78 - 99 m (257 - 324 ft) suggest the groundwater level is below the Barriere River at this location. This water level pattern suggests the river is likely an important source of recharge to the target production zone in this productive aquifer.

3.1 Water Quality Testing Results

A total of six water samples were collected during drilling. A summary of the water quality testing results are presented in Table 2. Only the first sample required bulk collection because of turbidity generated from the fine sand present at this location. The remainder of the samples were obtained directly from the drill rig discharge spout. Each sample was analyzed for general parameters, alkalinity, nutrients and total / dissolved metals. Given the turbidity of the samples only the

dissolved metal values have been used for interpretation and forecast of future production well quality. Review of the laboratory testing result suggest the following:

- Groundwater at this location is moderately hard with maximum total dissolved solids concentrations remaining far below AO throughout the entire borehole. The hardness and total dissolved solids are very similar to existing Deep Well No. 2.

- All nutrient concentrations are within Maximum Acceptable Concentrations ("MAC") of the Guidelines for Canadian Drinking Water Quality. Fluoride values are low. Chloride, nitrite and nitrate values suggest little or no human impact on current groundwater quality.

- Metal concentrations vary with depth. Dissolved arsenic exceeding MAC was encountered in only two samples at the top and bottom of the target aquifer: 64.6 m (212 ft) and 90.5 m (297 ft). Dissolved manganese exceeding AO was encountered from 64.6 m (212 ft) to 78.4 m (257 ft). Unlike EB09-1, elevated antimony and uranium were not detected in this borehole.

Based on the above discussion and Piper Analysis results (Figure 3) it is our interpretation that the Barriere River, and perhaps its tributaries, mix with groundwater originating from the bedrock to supply the aquifers identified at this site.

3.2 Future Production Well Water Quality Forecast

Future production well(s) at this location may be easier to construct than at Upper Birch Lane (Site A) owing to the coarse nature of the target aquifer. The lack of uranium present in the preliminary samples suggests a reduced potential for elevated radionuclides. However, testing is still required given the observations made at EB09-1.

A production well completed at this site may require treatment if arsenic and manganese concentrations exceed MAC and AO. However, with careful placement of the well screen it may be possible to completely mitigate the potential for arsenic treatment. The travel time from the surface waters (i.e. the Barriere River and its tributaries) to a future production well constructed at this site requires further investigation. BC Groundwater would like to continue datalogger monitoring of the borehole through the freshet and the summer to help answer this question. Unless a direct connection exists with surface waters we do not expect that filtration will be required. Chlorination, and perhaps UV sterilization as an additional barrier, will be required by Interior Health.

3.3 Recommendation

In our final report BC Groundwater will recommend the following two options:

1. Proceed directly with production well construction into the deeper aquifer identified at this site. The coarse texture of the aquifer suggests that a naturally-developed screen with a screen opening size in the range of 60 to 200 slot (0.060 to 0.200 inches) will be adequate to construct a twinned-well system (i.e. 2 wells side-by-side) capable of supplying in the order of 63 to 157^{+} L/s (1,000 to 2,500^{+} USgpm).

2. Proceed with conversion of the current exploratory borehole into a test well (similar to the recommendation for Site A) prior to proceeding with production well construction at this site. Although we have a high degree of confidence that arsenic concentrations can be controlled by careful placement of the screen, it would be prudent to install a staggered test screen through the entire aquifer profile to test actual water quality prior to constructing a production well. Additional insights gained from a test well will provide the information necessary to better evaluate surface water influence and commence preliminary treatability and costing studies.

4.0 SURFACE WATER INFLUENCE

Comparison of the water quality testing results from the recently drilled exploratory boreholes to the existing production wells and surface waters is presented in Figure 4. A brief discussion is provided below:

1. Water characterization analysis suggests the existing production wells display a high degree of correlation to surface water (the Barriere River and or its tributaries). Some preliminary discussion regarding surface water influence was presented in our August 27, 2009 letter *Technical Review of Potential Interaction Between Existing Community Supply Wells and the Barriere Acres Subdivision Septic Field.*

   Based on the results of this investigation BC Groundwater strongly suggests that Barriere undertake a Groundwater Under Direct Influence assessment of their existing production wells.

   This is typically a two year monitoring program undertaken by the operator in conjunction with a professional. The objective of such a program is to evaluate the susceptibility of the groundwater supply to surface water pathogens. If not already, this assessment will

become part of your Conditions of Permit with Interior Health in the near future. We recommend a preliminary meeting with Interior Health to prepare the scope of this program.

2. Water characterization analysis of the samples obtained during the recent exploratory borehole program suggests that future production well(s) drilled into the deeper aquifers will have a lower potential of surface water influence than the existing wells. Note that production well(s) proposed at Upper Birch Lane (Site A; EB09-1) are expected to present less influence from surface water than Bradford Park (Site C; EB09-1).

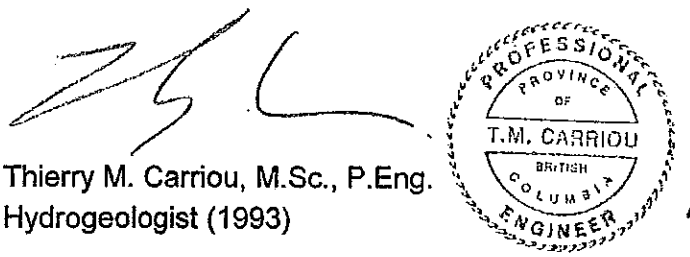
5.0 CLOSURE

We appreciate the opportunity for continued work with the District of Barriere. This letter is being forwarded to Interior Health as per your authorization. We request the opportunity to make a presentation in early May 2010 to Council regarding the results of the groundwater exploration program results. We expect to have fully completed future production well designs and costing by that time. Inviting Interior Health to this presentation would provide a valuable opportunity for feedback.

Please also let us know if you are interested in pursuing evaluation of Groundwater Under Direct Influence at the existing production wells. We would be pleased to arrange a scoping meeting with Interior Health.

Sincerely,

BC Groundwater Consulting Services Ltd.



Thierry M. Carriou, M.Sc., P.Eng.
Hydrogeologist (1993)

APRIL 9, 2010

Cc: Curtis Neville, P. Eng., Public Health Engineer (Interior Health)
Rob Fleming, CPIH, Drinking Water Specialist (Interior Health)

N

SCALE 1:7500

0m 100m 200m

"SHALLOW" EXISTING WELL (PW90-1; 7.1 m)

EB09-1
DRILL SITE "A"

"DEEP NO. 2" EXISTING WELL (PW97-1; 42.1 m)

"DEEP NO. 1" EXISTING WELL (PW93-2; 59.3 m)

EB09-2
DRILL SITE "C"

APRIL 2010

BC Groundwater
Consulting Services Ltd.

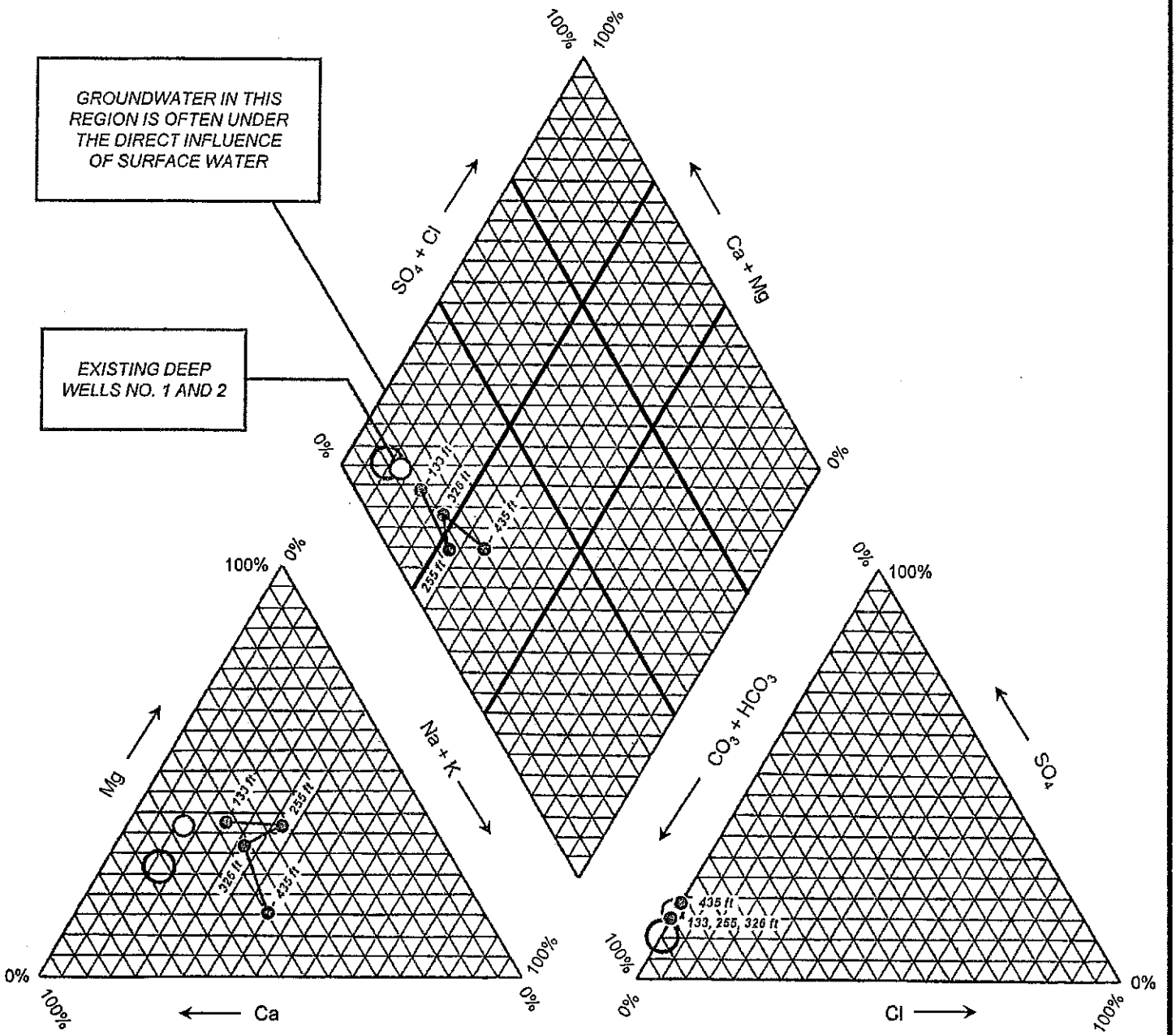
DESCRIPTION **EXPLORATORY BOREHOLE LOCATIONS**

PROJECT DEEP AQUIFER EXPLORATION PROGRAM: APRIL 2010 PROGRESS UPDATE

BCGCS FILE 09003.2

CLIENT **DISTRICT OF BARRIERE**

FIGURE 1



LEGEND

- ○ SURFACE WATER (BARRIERE RIVER SAMPLED ADJACENT TO EXPLORATORY BOREHOLE)
- ◉ DEEP EXPLORATORY BOREHOLE DRILLING SAMPLES (EB09-1; 135 m; 440 ft TOTAL DEPTH)
- ○ EXISTING DEEP WELLS NO. 1 (PW93-02) AND NO. 2 (PW97-02) MAXIMUM DEPTH 70 m (230 ft)

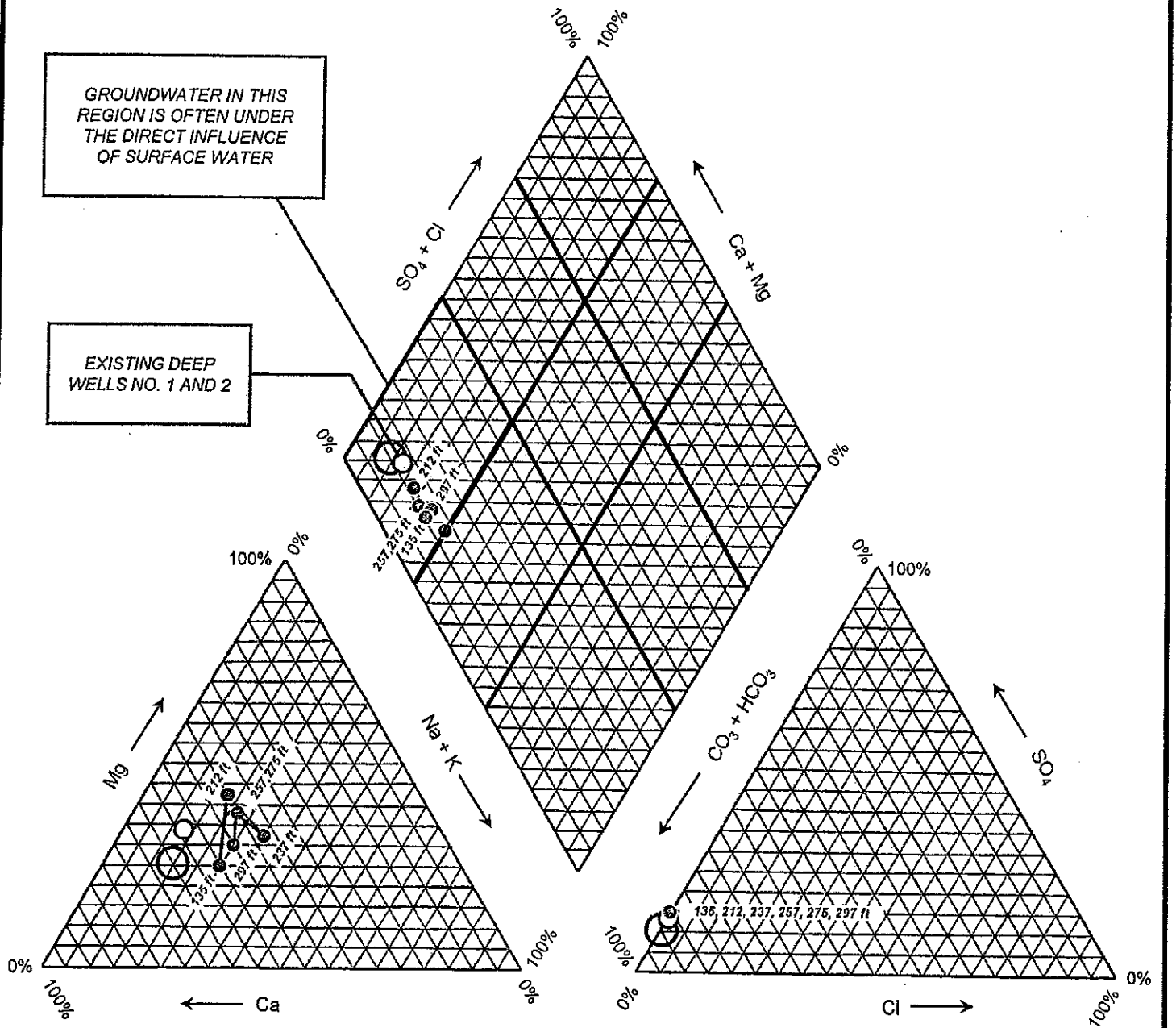
APRIL 2010

BC Groundwater Consulting Services Ltd.

DESCRIPTION **EB09-1 (SITE A) PIPER ANALYSIS RESULTS**

PROJECT DEEP AQUIFER EXPLORATION PROGRAM: FEBRUARY 2010 PROGRESS UPDATE

BCGCS PROJECT **09003.2** | CLIENT **DISTRICT OF BARRIERE** | **FIG. 2**



LEGEND

- SURFACE WATER (BARRIERE RIVER SAMPLED ADJACENT TO EXPLORATORY BOREHOLE)
- DEEP EXPLORATORY BOREHOLE DRILLING SAMPLES (EB09-2; 102 m; 336 ft TOTAL DEPTH)
- EXISTING DEEP WELLS NO. 1 (PW93-02) AND NO. 2 (PW97-02) MAXIMUM DEPTH 70 m (230 ft)

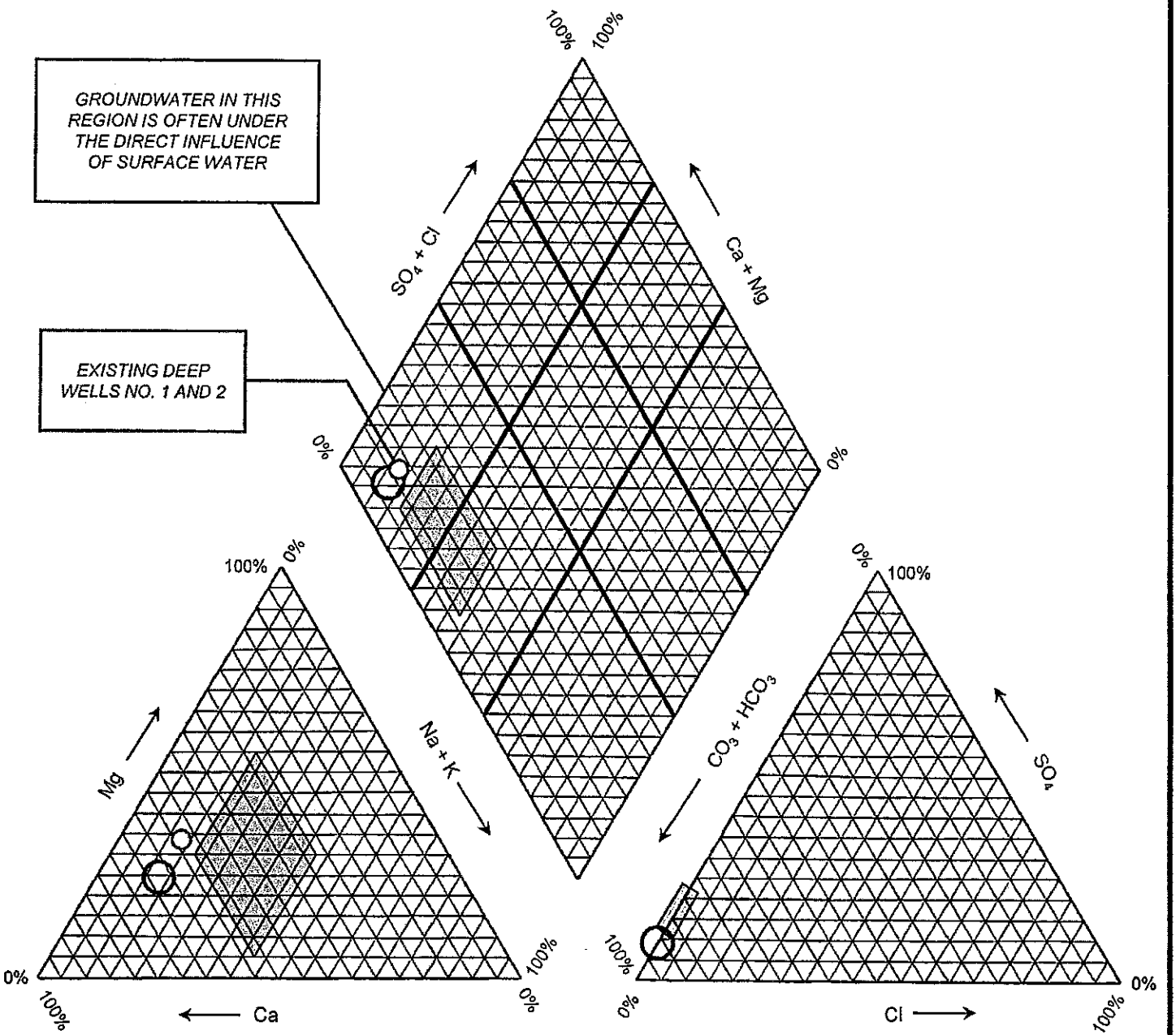
APRIL 2010

BC Groundwater Consulting Services Ltd.

DESCRIPTION **EB09-2 (SITE C) PIPER ANALYSIS RESULTS**

PROJECT DEEP AQUIFER EXPLORATION PROGRAM: FEBRUARY 2010 PROGRESS UPDATE

BCGCS PROJECT **09003.2** | CLIENT **DISTRICT OF BARRIERE** | **FIG. 3**



LEGEND

- SURFACE WATER (BARRIERE RIVER SAMPLED ADJACENT TO EXPLORATORY BOREHOLES)
- DEEP EXPLORATORY BOREHOLE SAMPLES (EB09-1 AND EB09-2)
- EXISTING DEEP WELLS NO. 1 (PW93-02) AND NO. 2 (PW97-02)

APRIL 2010

BC Groundwater Consulting Services Ltd.

DESCRIPTION **PIPER ANALYSIS RESULTS (ALL WELLS)**

PROJECT DEEP AQUIFER EXPLORATION PROGRAM: FEBRUARY 2010 PROGRESS UPDATE

BCGCS PROJECT **09003.2** | CLIENT **DISTRICT OF BARRIERE** | **FIG. 4**

APPENDIX A

OCTOBER 2009 FIELD PROGRAM UPDATE

BC Groundwater
Consulting Services Ltd.
Professional Well Development and Consulting Services

October 27, 2009 File No. 09003.2

District of Barriere
Box 219 - 4936 Barriere Town Road
Barriere, BC
V0E 1E0

Attention: Doug Borrill, Senior Water Treatment Specialist

Project: District of Barriere Deep Aquifer Development Program
Phase 1: Groundwater Exploration

Subject: **PRELIMINARY RESULTS OF EXPLORATORY BOREHOLE FIELD PROGRAM AND PRODUCTION WELL DESIGN OPTIONS**

Dear Sir,

1.0 BACKGROUND

The District of Barriere ("Barriere") retained BC Groundwater Consulting Services Ltd. ("BC Groundwater") on September 15, 2009 to undertake a groundwater exploration program. This program is the first phase of developing a new Production Well site for Barriere.

BC Groundwater submitted a Construction Permit Application (New Well Source) to Interior Health on September 30, 2009 on behalf of Barriere. This application proposed the drilling of up to three Exploratory Boreholes on the east side of the Barriere River in search of an aquifer capable of supporting one or more high-capacity municipal wells (Figure 1). Please refer to *Application for Construction Permit (New Well Source): Exploratory Borehole Drilling Program* prepared by BC Groundwater for additional information regarding the three proposed sites. Verbal approval to proceed with drilling was received from Mr. Curtis Neville, Public Health Engineer (Interior Health) on October 15, 2009. "Official" permits will be received by Barriere this week.

We have prepared this letter to update Barriere regarding the results of the recently completed Exploratory Borehole drilling program and to present some preliminary options regarding Production Well development.

BC Toll Free 1 866 851 9414
www.bcgroundwater.ca Office 250 851 9414 Fax 250 851 9419 tcarriou@bcgroundwater.ca
829 Nicola Street Kamloops, British Columbia V2C 2R6 Canada

Discussion regarding the cost of this groundwater exploration project has already been presented in our Email dated October 8, 2009. The cost of exploration programs varies directly with the total amount of casing advanced. An additional 30 m (100 feet) of casing was advanced beyond the 213 m (700 foot) recommended allowance presented in our October 8, 2009 Email to confirm the aquifer thickness at Exploratory Borehole No. 2 (see below). Based on our October 22, 2009 discussion in the field it is our understanding that Barriere understands and accepts these program costs. Please contact us should you have any questions in this regard.

2.0 SUMMARY OF EXPLORATORY BOREHOLE DRILLING RESULTS

The following two exploratory boreholes were advanced during the period October 18 - 22, 2009 (see Figure 1 for borehole locations):

- Exploratory Borehole No. 1 (Site "A"; EB09-1; Well ID No. 29621)

  This borehole is located adjacent to the existing District of Barriere "Shallow" Production Well (PW90-01; 7.1 m screen depth) at the northern end of Birch Lane. Additional information about this location (Site "A") is presented in the Construction Permit Application (New Well Source) prepared by BC Groundwater on October 15, 2009.

- Exploratory Borehole No. 2 (Site "C"; EB09-2; Well ID No. 29688)

  This borehole is located at Bradford Park. Additional information about this location (Site "C") is presented in the Construction Permit Application (New Well Source) prepared by BC Groundwater on October 15, 2009.

2.1 Exploratory Borehole No. 1 (Upper Birch Lane)

Exploratory Borehole No. 1 (EB09-1; Figure 1) was advanced to a total depth of 135 m (440 feet) through dry to damp surficial sediments, an aquitard[1] and one aquifer comprised generally of fine sand with varying silt / clay content. Drilling was terminated in the aquifer due to rising Electrical Conductivity values which suggest Total Dissolved Solids approaching the Canadian Drinking Water Guidelines. This usually coincides with iron and manganese concentrations exceeding guidelines. The presence of a deeper underlying aquitard, and the depth to bedrock, remains unknown at the site. A total of four water samples were collected during drilling to profile the

[1] Aquitards are sediments with elevated silt and clay content that reduce the rate of vertical groundwater flow. Thick aquitards (say 10 to 20 m or greater) typically help protect underlying aquifers from surface contamination, such as septic fields. They can also act to reduce live pathogen transport from surface water.

groundwater quality of the sediments and aquifer underlying this location. The well was secured with a locked cap. One permanent wireless datalogger will be installed in the borehole to commence long-term groundwater level and temperature monitoring. Monitoring information will be used to assess the pattern of recharge to the aquifer and the degree of interaction with the Barriere River. This information will also be useful to better understand recharge patterns to existing Deep Wells No. 1 and 2.

The depth to groundwater observed in the well was 48.691 m-btoc[2] on October 22, 2009 (casing at 135 m; 440 feet below ground). This "deep" static water level may suggest the aquifer at this location is interconnected with the North Thompson regional aquifer that trends parallel to the North Thompson River valley. Although the aquifer identified at this site has extensive saturated thickness the fine-grained texture will present challenges to successful development of a high-capacity well at this site. BC Groundwater is in the process of submitting select drill cuttings to the laboratory for grain-size analysis.

2.2 Exploratory Borehole No. 2 (Bradford Park)

Exploratory Borehole No. 2 (EB09-2; Figure 1) was advanced to a total depth of 102 m (336 feet) through damp surficial sediments, two aquitards and two aquifers. Drilling was terminated in a third aquitard underlying the deepest identified aquifer. The presence of angular bedrock fragments in this aquitard may indicate the bedrock contact is very close to the base of the well.

Aquifer No. 1 (35 - 66 m; 116 - 216 feet) was comprised of fine sand with varying silt content, which is similar to the sediments encountered at EB09-1. Aquifer No. 2 (78 - 99 m; 257 - 324 feet) was comprised of highly productive sand, gravel and cobbles. It was possible to sustain an air-lift[3] rate of 6 - 12 L/s (100 - 200 USgpm) during the drilling of this aquifer. A total of five water samples were collected during drilling to profile the groundwater quality of the sediments and aquifers at this site. The well was secured with a locked cap. One permanent wireless datalogger will be installed in the borehole to commence long-term groundwater level and temperature monitoring. This monitoring information will be used to assess the pattern of recharge to the aquifer and the potential degree of interaction with the Barriere River.

The depth to groundwater observed in the well was 10.843 m-btoc on October 22, 2009 (casing pulled back to 85m or 280 feet below ground). This "shallow" static water level may suggest the aquifer at this location is recharged principally by the Barriere River, but interconnection with the

[2] Depth to water below top of casing.
[3] This refers to the rate of water production from the borehole caused by the compressed air pumped into the well during drilling to clear the cuttings. The stated air-lift rate applies to a portion of the aquifer typically less than 1 m thick (a very limited thickness compared to the total thickness of the aquifer).

North Thompson regional aquifer cannot be ruled out. The water level in this well is expected to rise during spring freshet with a weak artesian condition possible (less than 1 psi shut-in pressure) if the Barriere River has significant influence on the well.

Aquifer No. 2 has a saturated thickness of about 18 m (60 feet). The coarse aquifer texture is expected to enable successful development of at least one high-capacity well at this site. BC Groundwater will submit select drill cuttings to the laboratory for grain-size analysis.

3.0 PRODUCTION WELL DESIGN

We shall commence well screen and Production Well design upon receipt of grain-size analysis information from the soils laboratory. Final laboratory results (drill cuttings and water samples) are expected by the end of November. Upon completion of the well screen design, BC Groundwater will contact suppliers and qualified drillers to develop Production Well cost estimates. Information regarding screen designs, well construction options and drilling methods will be presented in our draft report. Discussion will also be presented regarding groundwater quality and potential interaction with the Barriere River. We typically require about three months to complete a draft report, solicit input from Interior Health and present results to Council. Datalogger monitoring of the Exploratory Boreholes will be ongoing during this period.

In some cases the most productive aquifer zones coincide with the best groundwater quality. It is often the case, however, that the rate of well production must be balanced against developing zones of the aquifer which exhibit poorer water quality. BC Groundwater will develop screen options aimed at minimizing water treatment requirements. Ongoing monitoring of the dataloggers in the Exploratory Boreholes will assist BC Groundwater with evaluating the potential for Ground Water Under Direct Influence ("GWUDI") over the long-term. As per discussion presented in our work program, we may recommend installing a test screen into one, or both, of the Exploratory Boreholes and undertaking a pumping test to more accurately evaluate groundwater quality, GWUDI risk and treatment / disinfection requirements.

We offer the following preliminary comments about future production wells:

1. Barriere proposes to decommission two of their existing three wells over the next few years because of fouling and surface water influence. Unknowns also exist regarding the long-term impact from the Barriere Acres septic field currently under construction. Barriere will need to make careful decisions regarding the timing of well closure and replacement to maintain adequate supply and redundancy over the next several years. Water conservation will help minimize this challenge.

2. Exploratory Borehole No. 2 (EB09-2; Site "C"; Figure 1) appears capable of supporting one or more high-capacity wells given the considerable thickness of the aquifer and rate of air-lift observed during drilling.

    a. The "standard" option will be to develop a single very high-capacity well at this location using large-diameter production casing (say up to 400 mm or 16 inches diameter). Depending upon the actual pumped yield of the well, and sustainability of the aquifer, it may be possible to develop a single Production Well that could operate at or beyond the maximum rate allowed in British Columbia without an Environmental Certificate (currently 75 L/s or 1,200 USgpm). Based on experience BC Groundwater strongly recommends that Barriere limit the rate of operation to 60 L/s (about 1,000 USgpm) until such time that an Environmental Assessment is completed. Approval to operate beyond 75 L/s (about 1,200 USgpm) requires authorization from the Ministry of Environment.

    b. An "alternate" option would be to advance two wells of moderately high-capacity at this location (production casings not to exceed 300 mm or 12 inches diameter each) with the objective of reaching 60 L/s (about 1,000 USgpm) at each well. Ideally, Barriere would advance and complete these two wells simultaneously to maximize extraction from the aquifer during periods of heavy demand (i.e. summer months) while maintaining redundancy in the event of single well failure. Based on our experience we suspect that approval to operate a "twinned" well system at progressively increasing rates over time (i.e. beyond 75 L/s or 1,200 USgpm) will be supported by the Environmental Assessment Office, so long as operation is backed by ongoing monitoring.

3. Barriere should give serious consideration to installing one or more Monitoring Wells within 100 - 200 m of any future Production Well, especially if there is a desire to increase the rate of pumping to 60 L/s (about 1,000 USgpm) or beyond from a Production Well site. The recently completed Exploratory Boreholes may be suitable for conversion to Monitoring Wells.

4.0 CLOSURE

Upon completion of the draft report BC Groundwater requests the opportunity to present results to Council. We will endeavor to review Production Well options with Interior Health and to have secured realistic drilling cost estimates by that time.

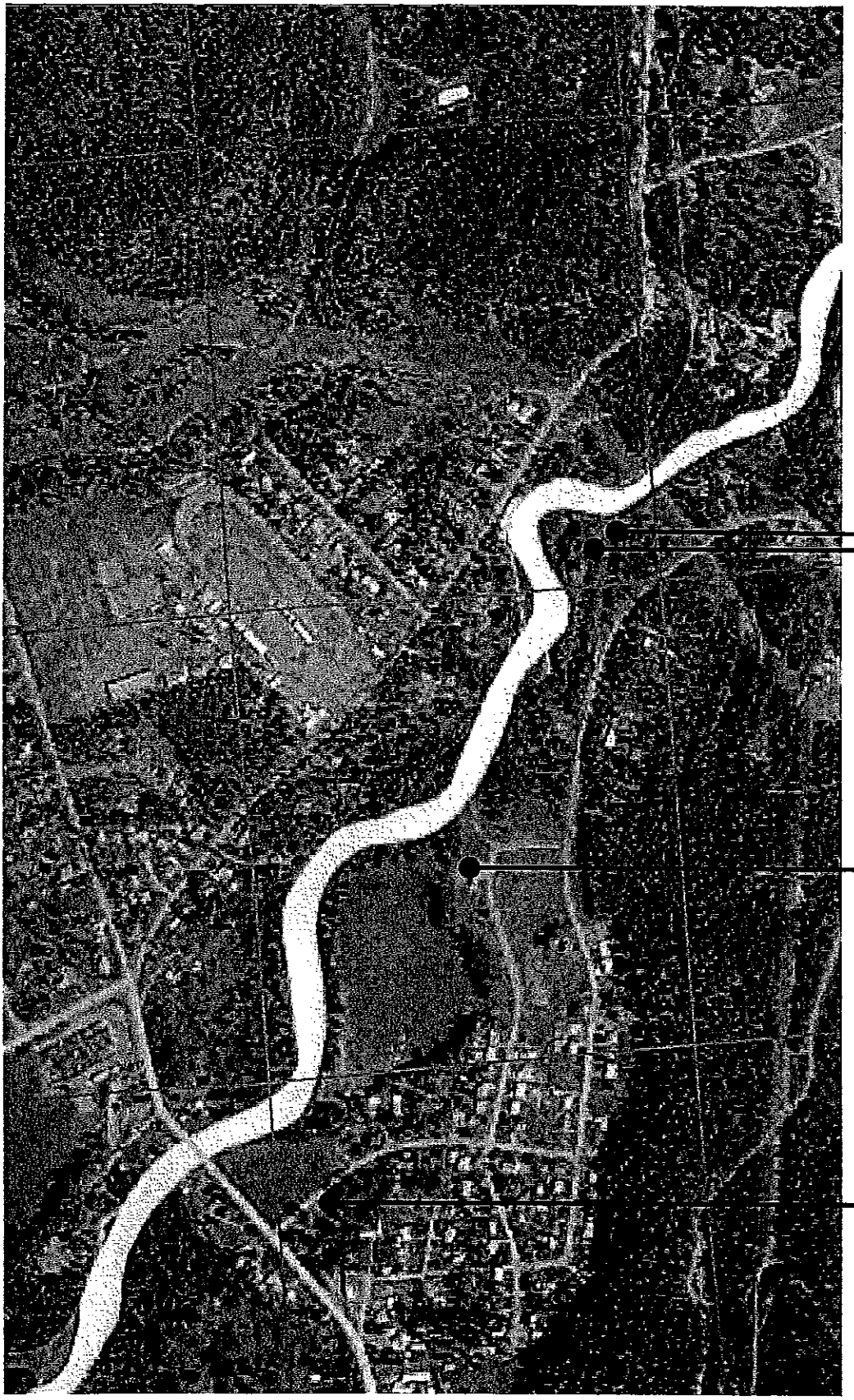
We appreciate the opportunity for continued work with the District of Barriere and look forward to successful development of future production well(s).

Sincerely,

BC Groundwater Consulting Services Ltd.

Thierry M. Carriou, M.Sc., P.Eng.
Hydrogeologist (1993)

Cc: Curtis Neville, P. Eng., Public Health Engineer, Interior Health Authority
Rob Fleming, CPIH, Drinking Water Specialist, Interior Health Authority
Don Bombardier, JR Drilling Central LLP



N

SCALE 1:7500

0m 100m 200m

"SHALLOW" EXISTING WELL (PW90-1; 7.1 m)

EB09-1
DRILL SITE "A"

"DEEP NO. 2" EXISTING WELL (PW97-1; 42.1 m)

"DEEP NO. 1" EXISTING WELL (PW93-2; 59.3 m)

EB09-2
DRILL SITE "C"

OCTOBER 2009

BC Groundwater
Consulting Services Ltd.

DESCRIPTION **EXPLORATORY BOREHOLE LOCATIONS**

PROJECT PRELIMINARY RESULTS OF EXPLORATORY BOREHOLE FIELD PROGRAM AND PRODUCTION WELL DESIGN OPTIONS

BCGCS FILE **09003.2** | CLIENT **DISTRICT OF BARRIERE** | **FIGURE 1**

TRUE
CONSULTING GROUP

April 30, 2010 *Proposal*

District of Barriere
Box 219, 4936 Barriere Town Road
Barriere, B.C.
V0E 1E0

Attention: Wayne Vollrath, C.A.O.

Dear Sir:

RE: *Proposal for Feasibility Assessment of Reservoir Construction off Mountain Road*

It is our understanding that the District of Barriere would like to evaluate the cost implications and feasibility associated with construction of a second water storage reservoir located off Mountain Road at the south end of the community. This proposal has been prepared at the request of District of Barriere in order to complete a preliminary feasibility assessment associated with construction of a second reservoir.

Previous assessments of the District of Barriere's water system have identified a water storage deficiency and have also identified a hydraulic capacity concern at the south end of the distribution system at elevated areas.

In 1996, TRUE Consulting Group (T.R. Underwood Engineering) completed a 5 Year Capital Plan associated with the Barriere water system. The 5 Year Capital Plan calculated a water storage deficiency of 440 m^3 (116,600 USgal) in accordance with Fire Underwriters Survey Guidelines. The 5 Year Capital Plan recommended the consideration of constructing a second reservoir in the Mountain Road area in order to alleviate water storage and hydraulic capacity deficiencies of the District's water system.

In April 2009, Focus Corporation prepared a report titled "Water System Assessment and Recommendations". As a component of this report, Focus identified a water storage shortfall of 1,320 m^3 (350,000 USgal) for the Barriere water system.

On the basis of the findings of the 1996 5 Year Capital Plan prepared by TRUE and the April 2009 Water System Assessment prepared by Focus, the District of Barriere would like to understand the feasibility and costs associated with construction of a second reservoir near the Mountain Road area for its use in subsequent budgeting and planning.

.../2

In order to provide a realistic cost estimate associated with reservoir construction for municipal budgeting purposes, it is proposed to initiate a preliminary feasibility assessment. The primary objectives of the preliminary feasibility assessment would be as follows:

- confirm suitability of topography adjacent to Mountain Road
- identify access potential to prospective reservoir location
- identify land acquisition requirements
- determine volume requirements associated with second reservoir
- evaluate costs associated with various tank material characteristics including cast-in-place concrete, epoxy coated and lined bolted steel, glass fused to steel bolted steel, etc.

On the basis of the findings of the preliminary feasibility assessment, a Class 'C' construction cost estimate associated with reservoir construction would be prepared for the District's use in its planning and budgeting for this project.

The work program associate with a preliminary feasibility assessment would include the following:

- conduct limited topographic survey of the area adjacent to Mountain Road in order to determine the appropriate location associated with reservoir construction and access potential
- determine land ownership information associated with prospective reservoir location
- review of previous water system assessment reporting and review of District of Barriere water usage data in order to indentify appropriate volume requirements for the second reservoir
- determine construction costs of various reservoir material characteristics for the required volume
- determine preliminary costs associated with connection to the District's water distribution system, including communication system, controls, system integration, etc.
- provide the District of Barriere with summary reporting, identifying reservoir feasibility and associated Class 'C' construction costs for various construction materials

In order to conduct the above-noted preliminary feasibility assessment, TRUE Consulting Group estimates the fees and disbursements of approximately $3,500 (excluding taxes). Our fee estimate includes a site reconnaissance inspection and topographic survey as well as involvement by an electrical engineering sub-consultant in order to identify the anticipated costs associated with integrating the proposed reservoir to the District's existing water system, including communication and controls.

.../3

We trust that this proposal adequately communicates our understanding of the subject project and clearly presents our rationale to conduct a preliminary level feasibility assessment. Should there be any questions with respect to this proposal, please do not hesitate to contact the undersigned.

Yours truly,

TRUE CONSULTING GROUP

Dave Underwood, P. Eng.

DU/mb

M:\My Documents\Proposals\District of Barriere\Roadway Assessment\Barriere-Vollrath-Reservoir Construction off Mountain Road.doc

TRUE
CONSULTING GROUP

May 4, 2010

Our File: 346-Misc.

District of Barriere
Box 219, 4936 Barriere Town Road
Barriere, B.C.
V0E 1E0

Attention: Wayne Vollrath, C.A.O.

Dear Sir:

RE: ***Upcoming Towns for Tomorrow Grant Application – Scopes of Works***

The District of Barriere is presently in the process of defining a scope of works for inclusion in its next application under the Provincial Towns for Tomorrow Grant Program. Although applications are not being accepted under this grant program at this time, the District is in the process of identifying its key priorities such that it is prepared if and when the next round of applications is announced by the Provincial Government under this funding program.

Towns for Tomorrow is part of an overall infrastructure program supported by the province of British Columbia. Under this program, 80% of project funding is provided to municipalities and regional districts with less than 5,000 residents, to a maximum contribution of $400,000. Therefore, under this program the District of Barriere would be eligible to receive up to $400,000 by contributing $100,000 of municipal funding for a total available budget of $500,000.

The installation of water meters within the District of Barriere has been identified by District staff as the number one priority for the community. The installation of water meters will not only promote water conservation within the community, but will also provide a tool for use by the District in helping to locate subsurface watermain or water service leaks. The District of Barriere's Public Works department has recognized specific areas within the municipality whereby the condition of copper services has deteriorated significantly due to unsuitable native soil characteristics. The installation of water meters should help to locate services which may be leaking on private properties by simply monitoring unrealistic water usage trends at specific locations. Water meters will also allow the District of Barriere to make significant strides in achieving the Province's "Provincial Living Water Smart Initiative" which will require:

- "by year 2020 municipalities will be 33% more efficient"
- "by year 2020, 50% of all new water for municipalities will come from conservation"

TRUE Consulting Group has prepared an order of magnitude cost estimate associate with implementing water meters at the District of Barriere with the purpose of understanding implementation costs relative to the overall grant funding potential of $500,000. The order of magnitude cost estimate has been prepared on the basis of recent negotiated unit prices as received by the Town of Osoyoos. Please find a copy of these unit prices attached herewith.

.../2

It is important to understand that it is difficult to estimate the total costs associated with installation of universal water meters by way of meter price alone. Retrofit construction costs are difficult to predict due to the nature of the work. Based on our previous experience and on discussion with the Neptune Technology Group, the following allowances can generally be expected when converting to universal water metering:

Description of Work	% of total installation
Pit meter installation (large properties)	2%
Supply and install meter horn	50%
Supply and install ball valves upstream of meter	15%
Plumbing modifications (semi major)	50%
Plumbing modifications (semi major to major)	20%
Crawl space installation	12%

On the basis of the above-noted allowances, the costs associated with universal meter installation for District of Barriere is calculated as follows:

Assumptions,

- number of new residential meters: 424
- number of commercial meters: 91
- number of existing meters that require conversion: 80

Order of Magnitude

Residential meters:	5/8' & 3/4"	= 424 x $390	$165,360
Commercial:	5/8" & 3/4"	= 40 x $390	$7,800
Commercial:	3/4"	= 20 x $500	$10,000
Commercial:	1"	= 20 x $550	$11,100
Commercial:	1.5"	= 4 x $950	$3,800
Commercial:	2"	= 4 x $1,200	$4,800
Commercial:	3"	= 3 x $3,000	$9,000
Install R900 Radio Transmitter Conversions:		= 80 x $215	$17,500
		Subtotal	$229,000

Misc & Others

Pit meter installation (large properties, etc.)	= 10 x $1,200	$12,000
Supply and install meter horn (50%)	= 250 x $50	$12,500
Supply and install ball valves before meter (15%)	= 75 x $50	$3,750
Plumbing modifications semi major (50%)	= 250 x $75	$18,750
Plumbing modifications semi to major (20%)	= 100 x $100	$10,000
Crawl space install (12%)	= 60 x $100	$6,000
Meter reader, software, training, etc.		$20,000
	Subtotal	$83,000
	Subtotal Construction	$312,000
	Contingencies, Software, Engineering, etc. (allow 25%)	$78,000
	Total	$390,000

.../3

The cost estimate of approximately $390,000 as calculated above for the installation of universal water meters represents approximately 80% of the funding that would be available under a Towns for Tomorrow infrastructure grant, leaving approximately $100,000 to apply toward a second project under this grant program. The District of Barriere has several options available in terms of possible improvements and upgrades to its water system that could be presented as a second project. Some examples of possible water system upgrades would include:

- implementation of a SCADA system
- replacement of existing aging water services
- watermain upgrades to improve hydraulic capacity of distribution network and replace aging infrastructure
- implementation of second reservoir adjacent to Mountain Road

Since it appears that approximately $100,000 would be available to apply toward a second project under the Towns for Tomorrow grant program, it is TRUE's opinion that implementation of a Supervisory Control and Data Acquisition (SCADA) system would be the most reasonable second project for the District to consider for inclusion under this program due to the cost implications of other options. TRUE has had preliminary discussions with UES Engineering who indicate that the District should be able to establish a SCADA system for approximately $100,000. SCADA implementation would involve linking various aspects of the District's water system to a SCADA computer to be located at the Municipal Office. The number of components to be connected to the SCADA system at the outset under this project would be determined on the basis of the amount of funding available. The flexibility of SCADA implementation as it relates to scope makes this an ideal project for which to apply any remaining funding available under the Towns for Tomorrow grant program.

The preceding information has been prepared in order to provide TRUE's opinion as it relates to defining a scope of works for the District of Barriere for its upcoming application under the Province's Towns for Tomorrow grant program. Please do not hesitate to contact the undersigned should there by any questions regarding this letter or the Towns for Tomorrow program.

Yours truly,

TRUE CONSULTING GROUP

Dave Underwood, P. Eng.

DU/mb

Enclosures

M:\My Documents\346\346-misc\Barriere-Vollrath-Application-Scopes of Work.doc

TRUE
CONSULTING GROUP

302-1251
October 15, 2009
Updated November 15, 2009
Finalized January 12, 2010

Capital Cost Estimate
Town of Osoyoos
Universal Meter Programme
Municipal System Service Area

Part 1 - Single Family Residential				
- 5/8 x 3/4 Meter	1000	@	$375	$375,000
- 3/4 in. Meter	400	@	$500	$200,000
Part 2 - Motels, Restaurants, Commercial				
- 3/4 in. Meter	3	@	$375	$1,125
- 1 in. Meter	27	@	$555	$14,985
- 1-1/2 in. Meter	14	@	$950	$13,300
- 2 in. Meter	31	@	$1,200	$37,200
- 3 in. Meter	9	@	$3,000	$27,000
Part 3 - Non Single Family Residential in WO1 Account				
- 5/8 x 3/4 in. Meter	128	@	$375	$48,000
- 3/4 in. Meter (commercial)	32	@	$500	$16,000
- 1 in. Meter (commercial)	32	@	$555	$17,760
- 1-1/2 in. Meter (commercial)	3	@	$950	$2,850
- 2 in. Meter (apartments)	9	@	$1,200	$10,800
Part 4 - Strata Developments				
4.1 Install R900 Radio Transmitter (conversions)	330	@	$215	$70,950
4.2 5/8 and 3/4 Meters	90	@	$500	$45,000
4.3 1" Meter	8	@	$555	$4,440
4.4 1-1/2" Meter	27	@	$950	$25,650
4.5 2" Meter	20	@	$1,200	$24,000
4.6 3" Meter	2	@	$3,000	$6,000
4.7 4" Meter	4	@	$4,000	$16,000
4.8 Pit Installations	25	@	$1,500	$37,500
4.9 Detectors - Fire Meters	3	@	$40,000	$120,000
Part 5 - Other Items (applicable to Parts 1, 2 and 3)				
5.1 Install R900 Radio Transmitter (conversions)	20	@	$215	$4,300
5.2 Pit Meter Installation - allow	15	@	$1,200	$18,000
5.3 Supply and Install meter Horn (50%)	835	@	$50	$41,750
5.4 Supply and Install Ball Valves before Meter (15%)	250	@	$50	$12,500
5.5 Plumbing Modifications Semi Major (50%)	835	@	$75	$62,625
5.6 Semi to Major Carpentry (20%)	350	@	$100	$35,000
5.7 Crawl Space Install	200	@	$100	$20,000
5.8 Meter Reader, Software, etc.				$15,000
			Subtotal Construction	$1,322,735
			Contingencies, Engineering, Software, etc. (allow 25%)	$337,265
			Total	$1,660,000

Climate Action Local Government

Bootcamp

Learn about new commitments, practical actions and community engagement

Community Energy Association (CEA) *and* **BC Healthy Communities** are partnering to offer a comprehensive series of workshops that will give local governments a two day "bootcamp" on developing and leading a climate change action strategy.

Topics: Technical

Module 1: Climate and energy introduction – obligations, climate and energy impacts, overcoming resistance

Module 2A (Operations Option): BC Climate Action Charter, carbon neutral definition, inventory development and maintenance, practical and economic actions to reduce emissions, financial case considerations, offsets

– or –

Module 2B (Community Option): Bill 27 OCP & RGS obligations, target-setting, policy and regulatory tools, funding sources, examples of actions, rules of thumb, economic development

Topics: Engagement

Module 3: Engaging Your Community on Climate Change – An Integrated Approach

Residents and community organizations have a critical role to play in achieving emissions reductions, and engagement needs to be an intentional and explicit component of a local government climate action strategy. This workshop will focus on:

- Community engagement approaches, best practices, social marketing and behaviour change
- Identifying starting points to build community engagement into your local climate initiatives

Who to attend

- Mayors, Councillors, and Directors
- CAO's, CFO's, city managers, First Nations administrators
- Local government staff who will have to implement carbon neutral operations, Climate Action Charter commitments, or Bill 27 OCP emissions reduction target obligations.
- Advisory committee members or other community stakeholders

Learning outcomes

- Understand new commitments
- Be able to develop practical plans
- Be able to sell plans to senior staff and council
- Understand approaches for addressing climate change through community engagement
- Be able to design and execute community engagement strategies

Contact To book a bootcamp for your community and for more information on pricing or agenda, please contact:

Kerri Klein, BC Healthy Communities
604-874-9433
kerri@bchealthycommunities.ca
www.bchealthycommunities.ca

Dale Littlejohn, Community Energy Association
604-628-7076 cell 604-785-5130
dlittlejohn@communityenergy.bc.ca
www.communityenergy.bc.ca

BC Healthy Communities
People. Place. Potential.

Community Energy Association

Community Energy Association

First stop for local governments connecting communities, energy, and sustainability

The Community Energy Association, with the support of its partners including the Province of BC and the Union of BC Municipalities is the 'first stop' for local government leaders addressing energy sustainability and greenhouse gas reduction. CEA welcomes City of North Vancouver as the newest CEA member.

Feature Service

Climate Action Local Government Bootcamp

Feature Event

Build to Zero

CEA News

- 2009 Energy & Climate Action Awards - Winners
- Climate Action Bootcamp
- Community Energy Association Engages Norm Connolly as Executive Director

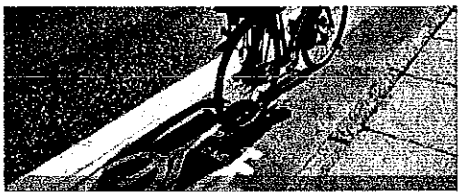
Hot Topics

- Funding Your Community Energy and Climate Change Initiatives
- JOIN the CEA Governments and Energy LISTSERV
- Heating Our Communities - Renewable Energy Guide for Local Governments in BC
- Energy Efficiency & Buildings - A Resource for BC's Local Governments
- Utilities and Financing - Renewable Energy Guide for Local Governments in BC
- Community Energy & Emissions Planning Guide
- Policy And Governance - Renewable Energy Guide for Local Governments in BC
- Powering Our Communities - Renewable Energy Guide for Local Governments
- 2008 Energy Survey Report
- Community Energy Association Engages Norm Connolly as Executive Director

Donate to CEA

The Community Energy Association is a Canadian registered charity. All financial contributions are eligible for charitable tax receipts. Click here for more information on how to donate.

Make A Donation



Take Action

- Set Direction
- Carbon Neutral Corporate Operations
- Community Actions
- Engage Others

read more >>

Community Energy Benefits

- Daily Decisions: Energy Use for Decades
- Save Money and Help the Economy
- Improve the Environment
- Make Communities More Livable

read more >>

Showcase and Awards

- Energy & Climate Action Awards
- Apply for Energy & Climate Action Awards
- Case Studies

read more >>

Resources

- Executive Briefs
- CEA Publications
- CEA Presentations
- Library - Valuable Links

read more >>

Carbon Neutral Kootenays Project

Welcome to the Kootenay Regional Carbon Neutral Action Strategy project. The regional districts of East Kootenay, Central Kootenay and Kootenay-Boundary in collaboration with the Columbia Basin Trust have worked together to make this exciting project happen.

CEA Members and Partners

Navigation

- create content
- Home

security activities and needs for incorporating more food security initiatives in their local government. The survey results will be published in the March newsletter.

A new resource providing guidelines and examples of best practices to help local governments develop **age-friendly and disability friendly** Official Community Plans (OCPs) will be on the Healthy Communities Committee website shortly. This online resource will give local governments advice on how to use their OCP to make their communities more accessible and inclusive for people of all ages and abilities.

The Accessible Community Bylaws Guide is a vast document covering nine model accessibilit laws with hundreds of recommendations and one employment policy designed to give BC governments a practical tool for planning, and to serve as a knowledge resource for anyone wa a comprehensive understanding of community accessibility. SPARC BC (Social Planning and Res Council of BC) hopes that the Bylaws Guide will serve as a catalyst for positive change and be us engage the wider community in planning for accessibility.

The Accessible Community Bylaws Guide is available at: www.sp bc.ca/the-accessiblecommunity-bylaws-guide.

Quesnel Hosts Province's First Climate Action Bootcamp

On November 3-4, 2009 the City of Quesnel demonstrated their local leadership to address climate change by hosting the first Climate Action Bootcamp in B.C. The Climate Action Bootcamps are being facilitated by the Community Energy Association and BC Healthy Communities as part of both organizations' commitment to support local governments on the road to sustainable, healthy and carbon neutral communities.

Approximately thirty participants attended the two day workshop including the Quesnel Mayor, members of council and staff as well as members of the Cariboo Regional District, local community organizations and industry representatives. "The workshop presented an excellent forum to engage, educate, and unite a broad spectrum of community members, politicians and municipal staff on the topic of climate change. The Bootcamp created a common understanding that there is a need to move through this process with an engaged community to create sustainable policies", commented Mayor Mary Sjostrom.

The first day of the Bootcamp was delivered by the Community Energy Association and covered topics such as Carbon Neutral local governments, carbon offsets, target setting for community-wide emission reductions, and overcoming resistance to climate action. The second day was delivered by BC Healthy Communities and focused on approaches for community engagement in climate action activities. The day supported Quesnel to clarify their role in public engagement and climate action and discuss what climate action looks like in their community.

"There will be many opportunities for com engagement and involvement," added Cou Mike Cave, the City's Environmental Ac Committee Chair. "Sustainability must be and endorsed by the masses to succeed. I'm to see as many people involved in this pro possible."

For further information about the worksh Quesnel, please contact:
Matt Wood, Communications Supervisor
Phone: 250.991.7475

To find out more about the Climate Action Boo and how to book one, please contact Kerr Provincial Facilitator, BC Healthy Comm at: Email: kerri@bchealthycommunitie Phone: 604-874-9433. Website informat http://www.bchealthycommunities.ca/C What%20We%20Do/Workshops.asp

The Challenges of Finding Certified Operators

Many managers and supervisors are facing an increased number of operators retiring from the water and wastewater industry. An increasing number of operators within the next five to ten years will be pulling the plug and enjoying retirement after working in the industry for numerous years. Unfortunately, there doesn't seem to be a large pool of qualified and certified operators in the province of BC looking for work.

When I first started out in the water and wastewater industry in the mid 1990's, you could count on one hand (maybe two), the total job postings available within the province. This was also somewhat before the internet so this could perhaps count for the low number of remote postings available. At any given time these days there are at least a couple of postings available for certified operators of which, many are repeat or open postings trying to fill certain positions. This is a great time to be an operator who is flexible and willing to relocate. However, many of us operators do not want to move and relocate to a new position or we can't afford to move to many of the locations where the job postings are due to housing prices. How do utilities go about finding certified operators to fill there vacant positions?

Some utilities have been very proactive and progressive in filling operator positions for the future. They have began training and educating their operators years prior to a new treatment process being built to ensure that they have certified and qualified operators in the future when the new process comes on line. Not all utilities have this luxury of investing and training operators for any length of time prior to new positions being created or older operators retiring. Smaller utilities are sometimes hiring locals for positions, knowing that they will not move away once they acquire their experience and certifications. Hiring locals is a great move for some utilities as they can train these future operators and allow them to move up the certification ranks.

Other utilities have increased their benefits or pay for operator rates to try to make job openings more appealing. Some utilities are basing the operators wages on certifications levels held which can help the more certified operators receive higher pay. With the recent introduction of the Multi-Utility Certification levels, this should assist some of these operators in achieving their higher levels of certification in a shorter length of time.

Some Operators have begun to realize now that to achieve their higher levels of certification, more CEU's are required. These operators have taken any course offered to them through work or have even taken home or correspondence courses through California State or Thompson Rivers University. The more CEU's held by an operator the better off they are when they wish to apply to write their level 3 or 4 exams as this seems to be the major hurdle for some operators when applying to write their upper level exams.

Basically, with shortages of certified Operators in the province, there has never been a better time to be an certified Operator and if there ever is a bidding war for Operators in BC in the future, sign me up!

Multi Utility Certification and what does it mean to me?

Operator I and II certification exams normally take 1 and 3 years in each field to be eligible to write. With the introduction of the Multi-Utility Certification, Operators who work in 2 or more utilities (water treatment, water distribution, wastewater treatment and wastewater collection) can now write their Level I and II exams in Multi-Utility certification much faster. An operator can write a Multi-Utility exam in any of the four certification fields if they meet the following conditions described below. This allows some operators to reach intermediate levels of certification must faster.

To be able to write for a Multi-Utility certification Level I or II, the operator must meet the following requirements:

- The utilities worked in must serve a permanent population of 10,000 or less.
- The Utilities must be classified as a Level 1 or higher facility
- For Level I – Multi- Utility certification – the Operator must have worked a minimum of 12 calendar months in 2 or more utilities (water or wastewater treatment, water distribution, or wastewater collection) of which a minimum of 1,000 hours in 2 or more utilities, and must have worked 500 hours in the utility being applied to be certified in and pass the Level I exam
- For a Level II – Multi-Utility Certification – the operator must have worked a minimum of 36 calendar months in 2 or more utilities, a minimum of 3,000 hours total in those utilities, and must have worked a minimum of 1,500 hours in the utility being applied to be certified in and pass the Level II exam.

To upgrade your certification from Level I – Multi-Utility or Level II – Multi-Utility, once you have reached 1,800 hours work experience (3,600 hours for Level II) all you need to do is to complete the application and forward it to the EOCP office with confirmation of your work experience hours. Once approved, you will be issued a new certificate in the category applied for. In fact, the first operator to be granted a Multi-Utility Certificate in Water Treatment has already applied and been granted certification in Level I – Water Treatment.

For more details on this new certification, please contact the EOCP office at **eocp@eocp.org**

EOCP Director Pat Miller presenting the Multi-Utility Presentation at the ABC Annual Conference.

PLEASE NOTE PENALTY DATE AND SUBMIT PAYMENT ON OR BEFORE THIS DATE.

3 cheques: $31.25/each

DISTRICT OF BARRIERE
P.O. BOX 219
BARRIERE, BC V0E 1E0
(250) 672-9751

BILLING DATE
April 06, 2010

PAST DUE AMOUNT	CURRENT CHARGES	AFTER PENALTY DATE PAY	LAST DATE BEFORE PENALTY	AMOUNT NOW DUE	AMOUNT PAID
13.50	107.25	~~120.75~~	May 06, 2010	~~120.75~~	93.75
			Account Number		
			1215130000		

- 13.50
93.75 ÷ 3 = $31.25

SMITH, BARBARA
PO BOX 445
BARRIERE, BC V0E 1E0

3 cheques enclosed.
Best I can do!

||"1215130000||

AGAIN: I WILL NOT PAY $54.00/year FOR GARBAGE PICKUP. SINCE JAN. 1, 2010 UNTIL APR. 9, 2010 I STILL DO NOT HAVE A BAG OF GARBAGE. I BURN CARDBOARD & SHRED PAPER & PUT IT INTO MY COMPOST ALONG WITH EVERYTHING ELSE. SO, I DON'T EVEN HAVE RECYCLE BAGS VERY OFTEN - IT TAKES A LOT of PLASTIC, FOIL & TINS TO FILL A BLUE BAG.

SO, FOR ME - YOUR FEE FOR PICKING UP GARBAGE I DON'T HAVE IS EXORBITANT. FURTHERMORE, I NEED TO EAT - MY INCOME WON'T COVER YOUR FEES. WHY ARE YOU SO HARD ON SENIORS? I HOPE I AM NOT GOING TO HAVE TO SELL & MOVE & START OVER, BUT IT LOOKS LIKE I AM NOT GOING TO HAVE ANY CHOICE. I KNEW INCORPORATION WAS NO GOOD!