B. C. TAP WATER ALLIANCE

Caring for, Monitoring, and Protecting British Columbia's Community Water Supply Sources

A Summary Report, by Will Koop, on:

CanWell 2004 - The bi-annual Pan Canadian convention and conference on groundwater (a gathering of professionals from the groundwater industry and academics from Canada and abroad) Kelowna, Grand Hotel, April 22-24, 2004

Sponsored by the BC Groundwater Association (www.bcgwa.org)

[Note: all quotations below were transcribed from video tape recording.]

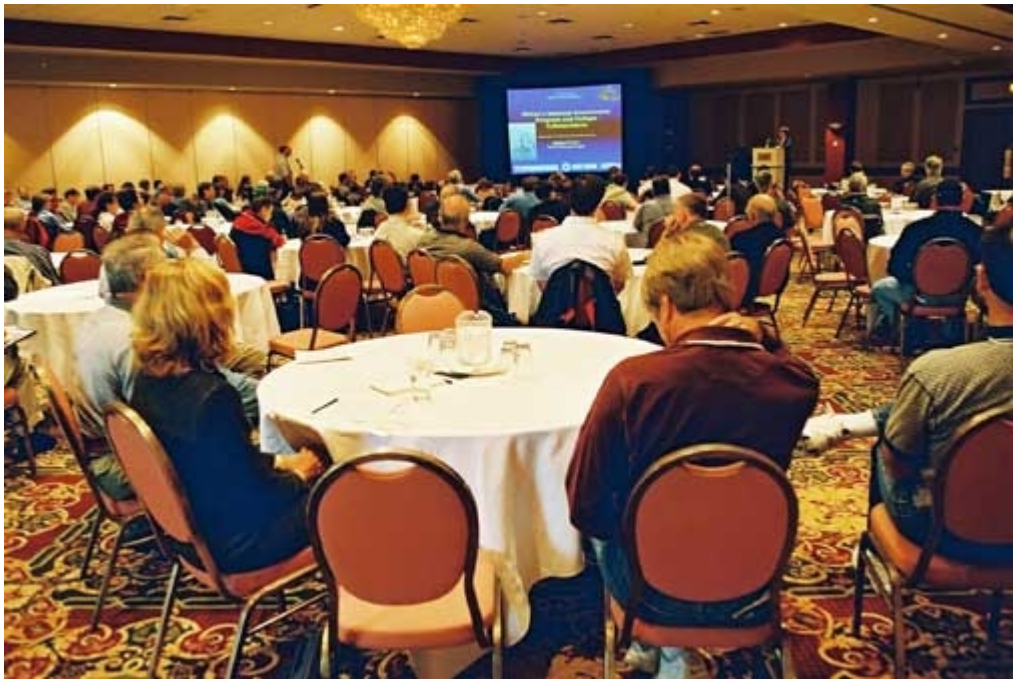

TABLE OF CONTENTS:

1. MINISTER BARISOFF ANNOUNCES GROUNDWATER LEGISLATION TO BE INTRODUCED IN FALL 2004

Upon the advice of a delegate at the national conference on drinking water held in Calgary three weeks earlier (see our website for summary details), I attended most of the groundwater conference workshops held in Kelowna (all day Thursday and Friday morning April 22-23), sponsored by the BC Groundwater Association. Because of our focus since 1997 on domestic surface drinking water supplies, the conference became an important opportunity for our organization to expand our collective horizons to listen to and meet groundwater experts. Hopefully, now, we intend to include a section on groundwater on our website in the near future. As the case in Calgary, I also circulated our recently published newsletter, *Natural Source Protection: High Time for a Change*, to conference delegates, which is posted on our website.

Bill Barisoff, the new BC Liberal Party Minister of Water, Land and Air Protection (who replaced Joyce Murray in the recent Cabinet shuffle), MLA for the newly formed riding of Penticton - Okanagan Valley, former opposition critic for Agriculture, and former Deputy Chair of the Select Standing Committee on Agriculture and Fisheries, kicked off the conference proceedings by announcing that his party government was intent on introducing groundwater legislation in five months time in September 2004, legislation that won't come into force until September 2005. This announcement was greatly applauded at the conference. BC remains the only provincial jurisdiction "without regulations to protect groundwater" (as stated by Lynn Kriwoken, BC Ministry of Water, Land and Air Protection, during her workshop), despite ongoing pleas for such over the course of many decades. The obvious question, as to why such legislation has been delayed for so long, while groundwater sources were compromised and licences unregulated, may be related to its delicate and political nature. There should be an accurate summary analysis made on why groundwater legislation has been put out to pasture for so long. Correspondingly, it took many decades before the passage of the *Drinking Water Protection Act* (with its obvious weakness overlooking "protection"), recently passed in May 2003. In September 2002, the BC Minister of WLAP established the Ground Water Advisory Board.

Posted on our website is a transcript of a presentation by Val Gwyther in February 1953 delivered at the annual BC Natural Resources conference, where he provided a strong visionary statement 51 years ago for such legislation:

> "**Recommendations**. Revisions to the Water Act or the passing of a Ground Water Act to protect this resource and its users is of utmost importance. The ground water resource is closely related to our surface waters inasmuch as they are dependent on each other. It appears that administration of both resources should be coordinated under the one branch, the Water Rights Branch. Powers of the Comptroller under a revised or new act must be far reaching for the protection of present users and the resource."

Minister Barisoff (second from left) mingles with groundwater experts after his speech.

2. MAIN CONFERENCE SPEAKERS

A wide variety of groundwater experts and top provincial and federal government administrators spoke at the Kelowna conference. They included Paul Wilson (New Brunswick government Manager of the Water Planning Section, overseeing the implementation of Source Drinking Water Protection Strategy for surface and ground water supplies), Matt Uza (Ontario Ministry of Environment's Senior Policy Analyst, Water Policy Branch), and Dr. Alfonso Rivera (since 1999, Natural Resources Canada's and Geological Survey of Canada's Chief Hydrogeologist, and chairman of the twenty member National Ad-Hoc Committee on Groundwater). Oddly, there were no groundwater speakers representing the BC government. Following recent government cuts, staff transfers and retiring personnel, BC now has only two groundwater administrators remaining to serve the entire province. Three guest speakers, which included two top government (J.F. Donzier, Mathieu Ahyerre) and one industry representative (Herve Buisson) from France spoke about the historical and recent issues that French municipal and District governments face. Hans Schreier, a professor at the Institute of Resources and Environment (University of BC), with international experience, summarized the conditions and future challenges of groundwater sources in the Lower Mainland (located east of Greater Vancouver) from years of data collected, analyzed and synthesized by UBC students. Murray Joureay, (a Vancouver geologist with Natural Resources Canada, and part of a Sustainable Resources Initiative in the Georgia Basin in Western Canada where he coordinates an inter-disciplinary project aimed at building a web base of architectural framework to situate and promote the use of integrated earth science information).

3. THEMES FROM SELECTED CONFERENCE SPEAKERS

(a) **Dr. Alfonso Rivera** stated, in the context of discussions about source protection and assessments, that Canadians are in great need of a national vision. As highlighted in our recent newsletter, we also believe that Canadians need **A New Strong Charter on Water**. Rivera highlighted that **"water is our most precious (renewable) natural resource,"** that "groundwater is a geological resource, an environmental resource, and an economic resource," that "access to clean water strongly influences development in Canada," and that "water is central to our national wealth." Alfonso stressed that "surface-groundwater links need to be better understood."

Rivera presented statistics from 1996 evaluating the division of fresh surface and groundwater consumption in Canada into seven major sectors. Measured in millions of cubic meters, are: Agriculture (4,098), Mining (681), other primary resource industries (231), Manufacturing industry (6,397), electrical power (28,664), other industries (880), and domestic use (3,922), for a total of 44,873. Of this total, Industry uses 71% of Canada's surface waters, Agriculture 11%, and Domestic uses 17%. In terms of groundwater nationally, Industry uses 14%, Agriculture 43%, and Domestic uses 43%. So, eight years ago, 43% of, or 10 million Canadians relied on groundwater for their drinking sources.

(b) The French delegates.

(i) **Jean Francois Donzier** (partial background: the French government gave him the responsibility to set up the International Office for Water and has been its general manager since 1991; former Governor of the World Water Council; permanent Technical Secretary of the International Network of Basin Organizations; on the Board of Directors of several water foundations). Donzier related the

origins behind a recent legislative framework of the European Parliament and of the Council (Directive 2000/60/EC, October 23, 2000) "establishing a framework for the Community action in the field of water policy." As of May 1, 2004, the Member States of the European Union will increase from 15 to 25, to be increased to possibly 28 with the accession of other eastern European blocks. All will begin to embrace a policy on water resources.

Donzier highlighted the new European Community framework directive: **"Water is not a commercial product like any other, but, rather, a heritage which must be protected, defended and treated as such."** Linked to this, he defined the upcoming challenges: (1) "preventing the deterioration of water resources; (2) reducing the emissions of substances; (3) achieving a "good status" for water and aquatic environments." These are to be based on a number of integrated principles: for new water policy; "the principles of precaution and preventative action, as well as the principle of priority remedial measures at the source of the threats to the environment"; "the "polluter-pays" principle"; "the principle of the recovery of costs of services linked to water use "including environmental and resource costs";" "decision making "at a level as close as possible to the sites of water use and degradation";" "a river basin approach"; "a combined approach aiming at reducing pollution at the source by defining emission limit values and environmental quality standards"; and "involvement of the public as a condition for success." Included is a "transparency of costs and polluter-pays principle: do the current prices cover the costs of the service, i.e., the operating and renewal costs; does the implementation of the polluter-pays principle allow charging to polluters the costs equivalent to the environmental damage they cause?; what is the sharing of the charges between the different economic sectors (households, industry, farming, etc.)." All of this will be harmonized through a common directive, including "the definition of common frames of references" between all European States (before 2006). The objective of the European Community vision is to "achieve a "good status" for surface and ground waters before 2015", where progress will be identified by report cards.

The Timetable for the European Union Water Framework Directive:
2003- Transposition and designation of the relevant authorities in the river basin districts;
2004 - Inventory: characteristics, impacts of human activities and economic analysis, creation of a register of protected areas;
2006 - Operational program for the monitoring of water status, National measures for environmental quality standards for priority substances, beginning of a public enquiry for the management plan;
2009 - First management plan, definition of the measurement programs;
2010 - Use of the cost recovery principle;
2012 - Application of the combined approach (controls and limit values of emissions), beginning of the measurement programs;
2015 - The environmental objectives of water quality waters are achieved.

Integral to the achievement of these results, is the critical role of River Basin Committees.

(ii) **Mathieu Ahyerre,** with the Department of Water in France, summarized the recent history of French water law. 1964 marked the beginning of the federation of French water management, the French water law, with the creation of national water agencies. In 1992, France passed another water law, provisions of the Master Plans for Water Management, which became an influential template and framework directive for the European community. There are three main actors that share supervision planning of fresh water in France: the State, Municipalities, and the River Basin Organizations. These new directives were recently strengthened and revised with attending legislation passed at the beginning of April 2004. In France, there are 6 river basin (catchment)

territories, the River Basin Committees or Water Parliaments.

For instance, the Seine-Normandy Basin Committee, which is marked by agricultural pollution, is an area of 100,000 square kilometres, which includes the City of Paris, and is divided into 8 regions with 25 counties that include 8,700 municipalities with a population of 17 million. The Seine-Normandy River Basin Committee, whose role is to define the policy of the basin and then transcribed into the Master Plan for Water Management, has 118 members, which consist of 45 local authority representatives, 45 stakeholder representatives, 21 state representatives, and 7 professional representatives. Also is the Seine-Normandy Water Agency, which is a public body under the Ministry of the Environment, that includes 7 regional offices with 500 employees, that enforces the Master Plan for Water Management. Its financial program objectives are (1) to protect the natural patrimony and water quality, (2) lower pollution from municipalities, agriculture, and industry, (3) protect drinking water resources. To do this, the Water Agency bills consumers (inhabitants, industry, agriculture) for degradations to water quality, under the qualification that "the polluter should pay".

(c) **Hans Schreier** has developed an impressive interactive computer software data tool that details all the various levels of information collected over time by his graduate students about aquifers in the Lower Fraser Valley. There are 73 aquifers in the Lower Fraser Valley, five of which Schreier focussed on: Agassiz, Hatzic, Abbotsford, Brookswood, and Hopington. The reason he chose these particular aquifers for his presentation was related to the amount of farming activity in the area: cattle, poultry, manure, and the influence that these activities have on polluting groundwater with nitrates. Along with these concerns are farming practices that directly pollute surface waters. Over a period of ten years (1991-2001) the amount of chickens were doubled, from 8 million to 16 million. Dairy cows have also increased over the same period, where the Lower Mainland now has the distinction of the having the highest dairy farm density in Canada. Some of Schreier's findings show: "agricultural intensification is clearly evident in the Lower Fraser Valley; nitrate seems to be a good indicator of land use impacts on aquifers; significant relationships were found between land use and nitrate; agriculture and septic systems appear to have an impact on water quality in several aquifers; shallow wells seem to be most prone to contamination (there is migration of nitrates to deeper aquifers as well); source control is the only measure to effectively control non-point sources of pollution."

A question from the floor to Schreier about his recommendations on the future management of aquifers in the Fraser Valley. His response: more recharge to some aquifers naturally, particularly with the looming problems we face about global warming. Some agencies in the world are redirecting treated stormwater to aquifers, which Schreier advises against, due to the presence of unwanted heavy metals, etc., that would contaminate groundwater sources. Regarding agriculture, he says we have to rethink agriculture, particularly in terms of regulating waste.

(d) **Matt Uza**. Summarized that groundwater research began to fall off the map in the early 1990s in Ontario - "Walkerton changed all of that". He said Ontario does not have a groundwater act, but it is dealt with through a number of legislations: in the Ontario *Water Resources Act* (brought about in the early 1960s) contains *Wells Regulation* (a permit is needed with more that 50,000 litres of withdrawal per day) since amended with new regulations; in the *Safe Drinking Water Act* (December 2002) that includes *Drinking Water Systems Regulation* (Part 2 of the Report of the Walkerton Inquiry was Recommendation No. 67, "The provincial government should enact a Safe Drinking Water Act to deal with matters related to the treatment and distribution of drinking water"); and the *Source Water Protection Framework*. Part and parcel with the future of Ontario

drinking water legislation is source water protection. Part 2 of the Walkerton Inquiry provided 22 recommendations related to source water protection, protection being one of five necessary components (the other four: treatment, distribution, monitoring, response). The proposed Source Protection legislation will include "watershed-based source protection plans", "establishment of/ amendments to watershed boundaries", "organization of watersheds into "watershed regions" to gain efficiencies", and "governance" (local boards and committees). As part of the evolution of the changes related to the Walkerton Inquiry, the Ontario government circulated a White Paper to Ontario residents/stakeholders for consultation in March 2004.

(e) **Paul Wilson**. There are 30 municipal surface water supplies in New Brunswick, serving 21 Municipalities for a population of 300,000 (40% of the Province). There are over 55 Municipal Groundwater supplies serving a population of 150,000 (20% of the Province). The remainder are on private wells for 27 Municipalities, serving a population of 300,000. Source protection concerns and studies began in the late 1980s, later legislated through the *Clean Water Act* and the *Wellfield Protection Program*.

(f) **Murray Journeay**. Accomplished jointly through staff with Geological Survey of Canada and Simon Fraser University, the team focussed on an intensive multi-index computer groundwater-mapping project over the southern Gulf Islands. Their work was also coordinated with the provincial government, Islands Trust, and local citizen groups. As part of the mapping project that shows all the related factors to groundwater sources, is the importance of establishing a comprehensive decision-making process between the actors, decision support tools, and negotiated concepts, particularly with scenarios about projected population growth. Murray stressed the importance of bridging the gap between decision-making (government policy) and science, between intent and actions. Alan Kohut, the former BC Ministry of Environment's senior groundwater specialist, now a consulting engineer, praised Journeay and his team's work as the finest he has seen to date.

> *"Source protection must be adopted as a critical element in long-term groundwater management strategies for both municipalities and rural residents. Management strategies that include both wellhead protection and modification to land-use practices have had proven results in protecting groundwater quality. Because source protection requires land-use restrictions, it is a difficult concept for municipalities to adopt because it places restrictions on economic development."* (*Linking Water Science to Policy: Groundwater Quality*, page 18, from a Canadian Council of Ministers of the Environment (CCME) sponsored workshop, March 21-22, 2002.)

4. DEPUTY PROVINCIAL HEALTH OFFICER SEAN PECK - NO MORE "BARBED WIRE FENCES" (except for cattle?)

Friday morning, the second day of the conference workshops, began with a presentation by Deputy Provincial Health Officer Sean Peck, who, as was announced during the introduction, will shortly be retiring from government (May 31, 2004). Peck summarized the recent rise of waterbourne disease outbreaks in BC since 1990, the passage of the *Drinking Water Protection Act* in May 2003, and the corresponding implementation of the *Drinking Water Action Plan*. He also stated that Walkerton

was a large Wake-Up Call for the Province behind the triggering of the recent legislation (as we've noted in our written presentations, the government has been asleep behind the wheel on this issue for thirty odd years, witnessed, for instance, by numerous complaints and annual resolutions by the Union of BC Municipalities, and by a 1991 declaration by an association of health officials and lawyers). As part of the new legislation reorganization structure, Peck stated that Barry Boettger will be moved from his present portfolio to that of the new Provincial Drinking Water Officer, in charge over the other proposed 20 Drinking Water Officers.

Peck indicated "microbiological contamination is the key risk driver in BC", and that "increasingly we are talking about turbidity as a surrogate". Of central interest, he stated that, according to the new *Drinking Water Protection Act*, "the role of the water supplier is to provide safe drinking water in accordance with the Act and Regulations." Of course, as the BC Tap Water Alliance has pointed out, the provincial government, which continues to sanction "multiple land use planning" activities in drinking water supplies with impunity, wrongly transferred this "burden" to provincial water purveyors following a political decision in the 1980s to do so.

Delegates posed several questions to Peck from the floor mike after his presentation. One was a relevant question regarding the possible impacts to the Lower Mainland's groundwater system from composting hundreds of thousands (millions) of chickens infected by the recent bird flu virus. ***Peck:*** "I've not been made aware that we've got any contamination with water supplies. I know that they are being very careful to compost the dead chickens, and make sure they meet the required temperatures that will kill the viruses. They are also being very careful to ensure that wherever there is disposal of the dead carcasses it is done either in a sanitary landfill or in an incinerator. I'm not aware that there are any issues. I know that in other jurisdictions, like in the UK, they started burying animals, and it started contaminating the water supplies, but I'm not aware that its something equivalent, I'm sure it isn't."

I asked the last question. "Will Koop, with the BC Tap Water Alliance. Our group has been concerned prior to the *Drinking Water Protection Act*, during, and after its passage, about the real meaning of protection in surface and groundwater sources in British Columbia. And we really think this is a critical oversight, the fact that the government is still not protecting our sources due to its policies of integrated resource management. Specifically, I would like to ask you a question on one of those parameters. And I did ask this to Barry Boettger, two weeks ago in Calgary at the national drinking water conference. This relates to cattle in domestic drinking watershed sources. And I'm wondering, the concerns that we keep raising with the government, where are we headed in dealing with this particular question?"

Peck: "Will. I hope I can give a similar answer to Barry, whom I work with. The way I look at it is this. There is a huge amount of economic activity in watersheds in British Columbia. Back in 1986 I went to Australia and observed a new reservoir they put in place, which had recreational facilities and things like that. So I said to myself, I think the days of having barbed wire fences around watersheds are in the past, because there is so much economic activity. But, what the *Act* does is enable a source to tap assessment; to assess what is the harm in that water source, what is the potential contamination. And just to get a simple answer from Cranbrook. They actually put a fence two kilometers around the water intake to be quite sure that cattle didn't get into the water source. And secondly, they've taken measures to make sure the young calves didn't get anywhere near the streams. By that means it reduced the hazard enormously. It's not quite as good as putting a barbed wire fence right around the source. But I think if you take that approach, to try and identify where

the hazard is, and realize the contamination of the water source, that is the most rational way of dealing with it on a system by system basis."

Cranbrook had a large cryptosporidium outbreak from their water supply related to cattle grazing in 1996, which Peck included in his presentation on waterbourne disease incidents. It seems, from Peck's vague answer to our question, that the Ministry of Health continues to tolerate cattle grazing in domestic water supplies because of political pressure related to "economic activity".

5. 30th ANNIVERSARY OF THE OKANAGAN BASIN STUDIES

Coincidental to the Groundwater conference was the unannounced fact that it marked, almost to the day, the 30th anniversary of the completion of the Okanagan Basin Study and the release of the thick main report and twelve thick technical supplement reports (about 6,000 pages in total) in March 1974. The Study was a three-year collaborative effort and agreement between the federal and BC provincial governments to study the water resources and their long-term planning and projected population demand on them in the Okanagan Basin. It was this planning process that allowed Okanagan decision-makers and the public to envision future water planning practices.

According to technical supplement eleven (*Public Involvement*), this was the first public planning process embarked by both governments, and included comprehensive public consultation within three Regional government Districts, with the establishment of seven public task forces. Prior to the establishment of the Basin Study was the creation of the Kelowna and District Executive Committee for Okanagan Pollution Control in early 1965, and the Okanagan Basin Water Board in May 1969. One of the central public criticisms of the Study by the task forces, echoed by the concerned public in newspapers, radio interviews and television broadcasts, was a deficiency or oversight in the October 1969 Terms of Reference that excluded examining forest management practices in the Okanagan and their influences on water quality and timing. From 1912 to the time when logging was accelerated in the early 1960s (the new mandate for sustained-yield logging and the establishment of Tree Farm licences) very little logging took place in the Okanagan, as the Irrigation and Improvement Districts had established Forest Reserves on much of the Public forestlands in the Okanagan to protect drinking and irrigation waters, Reserves that were later ignored by government and industry. There was also no reference in the Basin Study reports to the many *Land Ac*t Watershed Reserves created in late 1973 by a government Task Force on Community Watersheds. Forestry practices also influence groundwater resources.

In 1975, the Okanagan Similkameen Parks Society published a 34-page report, *Is Everything All Right Up There?*, on the recent logging operations in the Okanagan. The report, which was also forwarded to the Peter Pearce Commission on Forest Resources, was critical of the Okanagan Basin Study reports, particularly Supplement One (Task 180, Appendix E), the report by professional forester Robert Willington and company:

> "While on the one hand we had from the forest industry a continuing public relations assurance that everything was all right "Up There", on the other hand we had the evidence before our eyes that everything was not all right. Visits to the new clear-cut areas at the time of spring runoff, for example, showed us that every sloping skid trail was alive with a muddy stream which ultimately found its way into streams and reservoirs that provide the valleys below with life-giving water. We saw logging roads eroded with meltwater, landslips into

streams, blocked culverts. In Okanagan Lake, Vaseaux Lake and Okanagan River, we can see each May to July the silt plumes extending out into the clear water.

We made mild protests to the officials of the Okanagan Water Basin Agreement study, in 1973 before the study concluded. But assurances were given that water quality in streams from forests would be examined. We were also assured by forest officials that erosion problems existed for only the first year or two on clear-cut areas. But slowly the truth came through. If more land was to be clear-cut each year, then each year until the timber was all out - that is "forever", in the a sustained yield forestry system - there would be erosion and siltation problems as a part of the logging system. As for the Basin Agreement Study, the water quality study did not report on the effect of clear-cutting, slash burning, and logging erosion on water quality - it suggested instead that increased clear-cutting, and moving to a pulpwood economy, would help provide increased water quantity. It did not even point out that the quantity might come all at one time during a hot spring runoff (Okanagan towns like Kelowna live annually in fear of a flood threat from the spring runoff)."