



# The Western Canada Group of Chartered Engineers

Members of U.K Institutions of Civil, Mechanical, Electrical, Structural, and Building Service Engineers, B.C., Yukon, Washington & Alaska

## NEWSLETTER of the WCGCE

Volume 01 - May 2014

Dear members of **Western Canada Group of Chartered Engineers**,

Because your Committee strives to communicate more frequently with our members about the interesting activities presented since the last newsletter, this new NEWSLETTER replaces the *ChallENGe* Newsletter that served our members well for many years on semester cycle. Preferences are fore-ever shifting, and we are aware that professionals value 'real time' news in smaller packages more. In combination with a substantially upgrade of our website last year, this compact NEWSLETTER is designed to improve service to our members along this principle. As a result of rising cost of land mail on the one hand, and reduced budget allocations from our contributing institutions on the other hand, correspondence with members is now exclusively by email supported by our website [www.wcgce.org](http://www.wcgce.org) Readers will therefore notice that some articles of the NEWSLETTER provide only a synopsis and refer to the website for more material.

We trust members will enjoy this new compact Newsletter, and look forward to your suggestions about format and content.

### ***Planned Future Activities 2014***

WCGCE SCHEDULE FOR TECHNICAL MEETINGS 2014

| Date                | Venue                 | Subject                                      | Presenter          |
|---------------------|-----------------------|--|--------------------|
| June 11 Wed 7:00 pm | Accent Inns Burnaby   | Chistchurch NZ Earthquake 2011               | Prof Dr Ken Elwood |
| Jul-26 Sat 7:00 pm  | West Vancouver        | BBQ joint social with S2S-APEGBC             | Sea2Sky-APEGBC     |
| Sept 17 Wed 7:00 pm | Accent Inns Burnaby   | Joint Event with ASME, topic to be confirmed | ASME               |
| Nov-18 Tue 7:00 pm  | Vancity Kingsway Bnby | BCIT – topic to be confirmed                 | To be confirmed    |

Technical meetings commence 7:00 pm, following Committee Meeting at 5:30 pm.

### ***Recent Activities 2014 ...***

#### ***Holistic Engineering***

On March 25 Mr. Alan Kay P.Eng, C. Eng. (FICE) presented an interesting talk in Burnaby on the significance of inter-disciplinary thinking and project delivery with the theme HOLISTIC ENGINEERING. Alan explained engineering practice has, by



necessity, included external issues such as environmental and community impacts, and in this evolving world a new kind of engineer is needed; one who can think broadly across disciplines and consider the human dimensions that are at the heart of every engineering challenge.

A detailed summary of this presentation is posted on [www.wcgce.org](http://www.wcgce.org) under Past Events, March 25, 2014.

## ***AGM January 29, 2014***

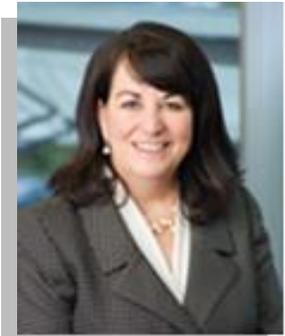
The Annual General Meeting and Dinner for Members and guests took place on **Wednesday January 29 at the Royal Vancouver Yacht Club (RVYC), 3811 Point Grey Road, Vancouver, B.C.** The AGM started at 5:45 and was attended by 12 members including the outgoing committee. Minutes of the AGM-2014 are available from our Hon. Secretary George de Ridder (connect through [www.wcgce.org](http://www.wcgce.org)). The outgoing committee was re-elected by acclamation and the names can be viewed on our website.

The dinner reception commenced at 7:00 p.m. David Harvey (FIStructE, Vice Chairman WCGCE) welcomed the 33 guests and introduced our distinguished guest speakers for the occasion. After a delicious three-course dinner served by the RVYC the attendees were entertained by two excellent presentations, rounding out a successful AGM and pleasant evening by 10:30.

Synopses of the two presentations by the guest speakers are given below:

Ann English, CEO and Registrar, APEGBC

Topic: **Electricity Supply During the 2010 Winter Olympics, Vancouver – the Planned Emergency**



Ms. English is a former director of the BC Hydro 2010 Olympic Initiatives Project, and she gave a clear and very interesting overview of the planning and execution by BC Hydro of providing interruption-free power to the 2010 Olympic Games in Vancouver and Whistler.

By introduction, she pointed out that BC Hydro, a Crown Corporation being the largest utility in BC, provides 1.3 Gigawatts from 33 facilities of which 90% is by hydroelectric generation. According to Ipsos Reid surveys, BCH is one of the Most Respected brands in the province.

Why was reliable power supply so important for the games? The success of a modern Olympics is critically reliant on electricity-based technology to judge and record event performance, and to enable real-time media coverage. The following statistics put some logistics in perspective: the opening ceremony alone drew 3 billion TV viewers; 10,000 accredited media people and 185 daily broadcasters covered the proceedings while 250,000 visitors showed up daily to watch 5,500 athletes and officials from more than 80 countries. The VANOC games workforce to keep all this rolling was 55,000.

Ms. English described the project schedule spanning more than six years. Development of the Supply Strategy was completed by 2007, followed by implementation of distribution extensions to 37 games venue circuits, contingency planning, customer engagements, sponsorship negotiations, system readiness and system freeze when the games commenced in February 2010.

A Corporate Emergency Centre in Edmonds managed operations through a field operations center in Surrey, controlling two branches: Vancouver venues and Whistler venues. Each venue had a dedicated operational crew and a support crew for outside.

Ms. English gave an interesting summary of the contingency plan for GM Place where the hockey final was played, involving standby crews and large diesel generators (1.5 MVA).

A risk assessment identified the following risks: power failure due to equipment; human error; weather; security breach; capacity shortfall. Other general risk factors included business interruption, corporate reputation, environmental incident, employee and public safety.

As the security of the supply systems was a critical factor, with reference to the transformer sabotage legacy of the Utah games, various measures were put in place:

A threat risk assessment was done for each facility. 23 critical stations were hardened, and were given tightened access control and 24 h manned CCTV surveillance, cyber security verification. 6,000 new employee IDs, community policing awareness and security guards were instituted.

Reflecting on the project, Ms. English pointed out the successful uninterrupted supply outcome of the games. The project left a legacy of 37 venue circuits including reusable assets, for example 120 transformers, 8 automated transfer switches, 30 km cabling and 5 utility diesel back-up generators at the Nordic and Cypress venues.

Environmental benefits are recognized by LEED Certification at five of the venues, and complete green energy coverage and carbon neutrality for the project.

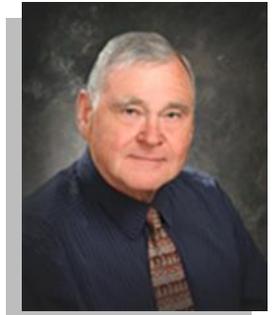
Ms. English brought along a real Olympic Torch which she passed around the audience. She and 30 others carried the torch during the opening of the Games. **For further reading on this interesting subject, please refer to [www.wcgce.org](http://www.wcgce.org) under Past Events/AGM2014**

| BC Hydro 2010 Olympic Initiatives Project Data Sheet   |  |   |
|--|--|---|
| <p><b>Infrastructure</b></p> <p><u>Legacy</u></p> <p>Venue Circuits 37</p> <p>Automatic Transfer Switches 10</p> <p>Circuits Supporting Critical Loads 84</p> <p><u>Reusable Assets</u></p> <p>Transformers 120</p> <p>Automatic Transfer Switches 8</p> <p>Cable length 30 km</p> <p>Utility Diesel Generators (NIA) (backup at Cypress and Nordic) 5</p>       | <p><b>Power Smart Marketing</b></p> <p>Unaided Awareness of BC Hydro sponsorship 49%</p> <p>Team Power Smart (British Columbians) 148,309</p> <p>Power the Games tour – communities reached &gt;60</p> <p>Power Smart Village – estimated visitors during 250,000</p> <p>Ipsos Reid Most Respected BC Brand BC Hydro</p> | <p><b>System Readiness</b></p> <p><u>Distribution System</u></p> <p>Manholes inspected 1,100</p> <p>Manhole Repairs 653</p> <p>Fire Suppression Planned 34</p> <p>Hazard Trees Removed 1,175</p> <p><u>Transmission System</u></p> <p>Animal Mitigation (units installed) 7,250</p> <p>Station Bus Insulators Replaced 5,076</p> <p>Hazard Trees (removed or pruned) 13,799</p> <p>Right of Way Clearing 2,399 ha</p> <p>Lines inspected 10,000 km</p> <p><u>Generation System</u></p> <p>Extended Winter Peak 28 Feb 2010</p> <p>Load Curtailment Contracts 300 MWs</p> <p>Columbia Benefits Secured yes</p> <p>Tie Line Outages Confirmed yes</p> <p>Expected Feb Capacity Surplus &gt;700 MWs</p> <p><u>Customer Care</u></p> <p>Downtown customers contacted 100% (vault mtc and security)</p> <p>Cultural Olympiad sites contacted yes</p> |
| <p><b>Environmental &amp; Sustainability</b></p> <p>Diesel Generators Reduced (compared to Turin) &gt;500</p> <p>Complete Green Energy Coverage yes</p> <p>LEED Certification Support 5 Venues</p> <p>Carbon Neutrality for Project yes</p> <p>Power the Games Tour (low carbon footprint) yes</p>   | <p><b>Vancouver 2010 – the numbers</b></p> <p>5,500 Olympic athletes (and officials)</p> <p>80+ Countries</p> <p>10,000 Accredited Media</p> <p>55,000 Games workforce</p> <p>185 Broadcasters</p> <p>250,000 Estimated Visitors (daily)</p> <p>&gt;3 billion TV Viewers (opening ceremonies)</p>                        | <p><b>Security Preparedness</b></p> <p><u>Distribution</u></p> <p>Pentabolt Replacements 2,671</p> <p>Manhole Sealing (planned) 67</p> <p><u>Substations and Transmission</u></p> <p>1. Stations hardened (cameras, etc.) 13</p> <p>2. Cyber Security Verified yes</p> <p><u>Generation</u></p> <p>Generating Stations hardened 10</p> <p><u>BCH Corporate</u></p> <p>Security Guards (additional) 200</p> <p>New Employee ID's (planned) 6,000</p> <p>Employee Accreditations 150</p>  |
| <p><b>Employee Engagement</b></p> <p>Employee(s)...</p> <p>Working on the Games 250</p> <p>Volunteers at the Games 100</p> <p>Secondes at VANOC (potential) 106</p> <p>Joined Team Power Smart 1,976</p> <p>Olympic Torchbearers 30</p> <p>Reached by 2010 Presentations &gt;4,000</p> <p>2010 Presentations &gt;60</p> <p>2010 Videos (torch relay, etc.) 3</p> | <p><b>Operations</b></p> <p><u>Crew Support During the Games</u></p> <p>Venue Crew 75</p> <p>Olympic Theatre Crew 12</p> <p>Training Sessions 3</p> <p><u>2010 Operations Centre</u></p> <p>Employees 20</p> <p>Hours of Operations 24hrs x 20 days</p> <p>CEC in Operation yes</p>                                      |   |



Michael Bapty P.Eng, FEC, President of APEGBC; Director of Bapty Research Limited;

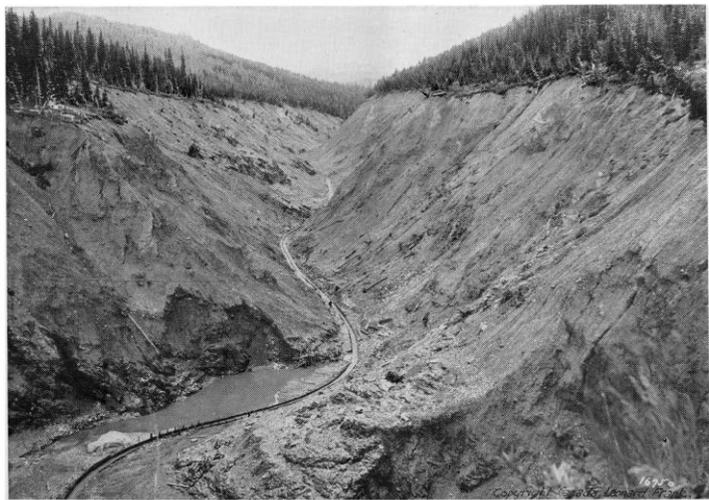
Topic: **Reflections on the History of Mining in British Columbia**



It is a fact that until 1950's most of the mines in the province were discovered by locating and sampling rock outcrop containing valuable minerals. The outcrops were discovered by sheer perseverance of manpower on the ground, by prospectors banging away at rocks, and sampling streambeds.

About a century earlier in 1835, the region's early mining history began. Exploration was spurred by two commodities – placer gold in the Fraser, Cariboo and Kootenays, and coal in Vancouver Island and the Kootenays.

The photograph is of the Lowhee Mining Company in Lowhee Gulch – B.C.'s first gold was found there in 1861 and was mined by hydraulic monitors until 1947. Lowhee Gulch was one of the richest creeks in the



Lowhee Mining Co., Ltd., Cariboo M.D.

Barkerville-Wells area. The sluice walls were over 200 feet high, and it said that Wells is built on the material washed from the creek.



The mine portal is the original opening to the Balmer coal mine in Natel, BC about 1904. The shape is to provide for pressurized ventilation with fresh air from surface. The practice is to avoid moving coal mine exhaust over mechanical fans with risk of sparks in an explosive atmosphere. For further reading on this fascinating storey, please refer to [www.wcgce.org](http://www.wcgce.org) under Past Events/AGM2014



Bob Martin thanked the speakers Anne English and Mike Bapty on behalf of the WCGCE.



Members and guests enjoying the AGM dinner

### ***Next Edition***

The next edition of NEWSLETTER is scheduled for early August, reporting on the June and July events, among others.

### ***Editorial***

The NEWSLETTER is compiled and edited by George De Ridder (Hon. Secretary) serving the executive Committee of the Western Canada Group of Chartered Engineers. Communication about this edition can be directed to [www.wcgce.org/governance/secretary](http://www.wcgce.org/governance/secretary)

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