

## **William Neil (Bill) Howell, M.A.Sc., P.Eng. Alberta**

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Retired 28Oct2012 from : Science Research Manager at the Mining and Mineral Sciences Laboratories of Natural Resources Canada (NRCan) in Ottawa : My recent responsibility was to manage and build a new Recycling R&D program, and to find cost recovery funding for it. I have experience in corporate and government business development, market research, management and execution of scientific & engineering R&D and projects, and plant operations. Updated 20Jan2014

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*NOTE: Other versions of my résumé are posted on my website, [www.gcpedia.gc.ca/wiki/Bill\\_Howell\\_home\\_page](http://www.gcpedia.gc.ca/wiki/Bill_Howell_home_page), including a combination functional/ chronological résumé and a résumé with long detailed descriptions of each responsibility (1 to 23 pages).*

### **Natural Resources Canada (NRCan), Ottawa, March 1993 – April 2012**

Mining & Mineral Sciences Laboratories (MMSL) - for most of my responsibilities

<http://www.nrcan.gc.ca/mms/canmet-mtb/mmsl-lmsm/mmsl-e.htm>

I have worked for ~20 years as a "permanent" (indeterminate) federal government employee, mostly related to the management, administration, and marketing of R&D for the mining industry.

**Feb11-Apr12** Title: Science Research Manager – Recycling Technologies Initiative  
Job: To start up & manage an R&D program

Recycling was a major Strategic concept for our Minerals and Metals Sector (both the policy and science areas), that had had several previous incarnations in the past. I started up this brand new (re-incarnated) R&D program with little resources and on two people, growing to 3 mid-way through the year.

I set up a novel “employee sharing” arrangement with a sister lab, and modest cost recovery resulted for our lab. Furthermore, I pushed through a major shift in thinking to change the core of the Recycle programs activities, to target much greater impacts and value that played into our team’s inherent strengths.

However, with government cutbacks, the entire Recycle Strategy was shelved, policy immediately reallocated personnel, with the entire Recycle science R&D program being cut entire several months later. This responsibility was carried at the ~20-35% level at the same time as several other projects and responsibilities (see below).

**Jul10-Dec11** Initiative: Science-Policy Integration Nexus of Expertise (SPINE)  
Job: Team member, author of 5 incomplete reports on fundamental science & concepts (these are posted on my website)

SPINE was a VERY energetic and imaginative initiative of Chrystia Chudczak, at the time a DG of the Minerals and Metals Sector of NRCan. The idea was to sound out user needs and interests with respect to post-[wiki, blog] social media systems such as LinkedIn, and to develop concepts

for the workplace objectives, principles, and user requirements for a pan-federal-government system. Chrystia discussed details with well over 200 individuals in several countries in [government, industry, academia, IT vendors], often with her team in conference calls, and directly involved her team in a hailstorm of information and enthusiasm, as well as several workshops (notably DRDC-led).

SPINE was the first and only chance for me as a government employee to apply some of my extra-work interests related to Computational Intelligence (CI – including neural networks, evolutionary computation, fuzzy systems, particle swarms etc). I wrote 5 very-incomplete (20%) reports on social media issues, and posted them to the government wiki system gcpedia.

**Oct09-Jun11** Title: Chief Building Emergency Officer (CBEO), 555 Booth Street  
Job: Recruit & manage emergency (evacuation) team, revamp manuals, actions & responses to formal external inspections

**Sep08-Dec11** Title: Secretary – Explosives Free Rock Breakage (EFRB) initiative  
Title: Secretary - Hydrogen Mine Introduction Initiative (HMII)  
Job: Sit on Management & Technical committees, work with contracts, consortia tracking, notifications, planning, reports

Explosives Free Rock Breakage Initiative (EFRB, 1 M\$) – 12 organizations  
Hydrogen Mine Introduction Initiative (HMII, ~2.1+ M\$) – 7 organisations

**Dec07-Aug08** Title: Project Manager – Special Apparatus and Facilities

This was a period of mixed project responsibilities. Some examples are :

- a) Perform nano-toxicology review – This issue was potentially of importance scientifically, technically, and commercially, and was a concern to our policy group.
- b) Acting Manager, Business Affairs and Communications (BAC) - It was important to keep the office running for two months plus, and to put out a high-quality annual report of our labs efforts.
- c) NRCan Horizontal Task Team on Renewables and Bioeconomy - This was one of the 5 Horizontal Task Teams as defined by the Deputy Minister for NRCan. Mr. Howell's main focus was the Biofuel/ Bioeconomy side as the sole MMS representative (there were large numbers of Forestry and Energy reps, some CCRS).

**Oct06-Nov07** Title: On leave in Calgary – temporary employment & family  
Job: Campaign work; looking for possibility to stay permanently close to family.

**Nov04-Sep06** Title: Project Manager – Special Apparatus and Facilities  
Job: Build R&D initiatives and external funding in the mining industry

I administered and helped coordinate efforts to build large underground mining R&D consortia with a substantial cost recovery component for our R&D lab. This meant that I established communications with a network of “protagonists” in industry, government, academia and the provinces; I set up and ran conference calls, video conferences and meetings, assisted the project

leaders in the initial concept/cost/schedule, worked on progressively more detailed technical proposals, and contributed to “selling the concept” to help secure the necessary funding.

The most recent large R&D consortia that I worked on was “*Explosive Free Rock Breakage*” (EFRB), which was still under development as of Dec06. This has been a dream for many decades because the elimination of delays in mining by using continuous processes (as with Tunnel Boring Machines (TBMs) for civil engineering projects) rather than the drill-blast-muck cycle would have major benefits for industry. While the EFRB project has not yet been approved, support does seem promising, as we succeeded in sustaining industry in spite of key changes in personnel at companies.

Earlier efforts included building initiatives for:

- “*Dynamic Test Facility for Underground Support Systems*” (~2.5 M\$/ 5 years). Over 9 months, a major concept was built, but tabled in favour of spending a year on preliminary research that we launched with our partners in order to better define the main project. That effort was eventually successful sometime after I moved on to other projects.
- “*Deep Mining Research Consortium*” (DMRC - <http://www.deepminingresearch.org>). I was nominated by NRCan-MMSL (my employer) as a candidate to administer this effort from its startup through to its operation. At the time, it was one of the largest R&D initiatives in Canadian underground mining. Even though our organisation was not ultimately selected as the host, my selection as their lead candidate to administer it shows confidence in my abilities by industry, the government, and academia.

**Dec01-Oct04** Title: R&D Program Manager – Mineralogy and Metallurgical Processing  
Job: Managed 24 research staff, also involving realignment/restructuring

For three years I directly managed 24 people and a cash budget of ~250 k\$ (low point) to ~525 k\$ (normal budget level - not including salaries/ benefits, overhead admin costs, building and equipment). The Mineralogy & Metallurgical Processing (MMP) R&D group was the second largest in MMSL, and had 2 of 3 of MMSL's most senior scientists. Twelve staff had PhDs, three had masters degrees, and eight staff were technicians, mostly with BSc or college degrees. There was only 1/2 of a secretary available for the entire group (less overhead per capita by far than any other R&D group in our lab)! MMP also had a history of prolific publications and high-end instrumentation, but of poor cost recovery performance per-capita and declining priority. There were also significant internal tensions and problems with the groups' direction. On top of that, the lab (MMSL) had its two worst budget years ever by a long shot during this time. My responsibility was considered to be a real challenge.

During my rein as manager, MMP attained the second highest cost-recovery in MMSL (the highest level if “non-official” revenues are included), in spite of enormous resistance against cost recovery by many scientists. A senior scientist who had always lagged in cost recovery also landed a major project during this time following almost decade of very low external support for his work. Furthermore, I organised the MMP program into distinct groups in a manner to allow collaboration, but that kept people into focused, compatible teams and minimized frictions and complications between people.

Under threats of even further cuts to R&D funding, and in spite of vastly improved performance during my "reign", MMP was apparently selected from 8 or 9 R&D programs to be dissolved by an outgoing ADM, but that decision was put off by the incoming ADM.

None of this situation made me particularly popular with many of the staff, but it did win respect from some. I am not at all apologetic for taking tough decisions in a group with intense internal competitions, although I do recognize that with more experience I could have managed things better. I also needed to find a way to avoid getting buried in the bureaucracy. MMP was a positive contributor to essential MMP goals during a very trying time. It also provided an environment that allowed key intermediate scientists to grow and excel in spite of the traditional blocks that hindered their progress before I was manager.

**May00-Nov01** Initiative: Climate Change - Minerals and Metals Action Plan 2000, plus Minerals and Metals Strategy for Regions  
Job: Assistant to Sector lead, develop and compose action plan

**Apr98-Mar01** Initiative: Mining Automation Program (MAP)  
Job: Secretary, Management and Technical Committees

**Apr97-Jan00** Initiative: Diesel Emissions Evaluation Program ([www.deep.org](http://www.deep.org))  
Job: Secretary, Management Board and Technical Committee

I received an NRCan award for my involvement in DEEP, along with other team members.

**Jul96-Apr97** Unit: Transportation Energy Technology Program (TETP), Ottawa  
Job: Research Officer, electric and hybrid vehicles

**Mar93-Jun96** Unit: Mineral Sciences Laboratories (MSL), Ottawa  
Job: Business Development Coordinator, mineral sciences

### **Imperial Chemical Industries (ICI) & CIL; Calgary, Toronto, Montreal; Apr86 to Feb93**

**Nov88-Feb93** Title: ICI Forest Products, Montreal  
Job: Market Research Manager, Chloralkali

My work included the macro-and micro-economic modeling and forecasting of inorganic chemicals and their end-use markets. Major surveys of pulp and paper operations were carried out, production and import-export statistics were monitored, and presentations were made to major clients to explain pricing and market dynamics. I learned a lot about commodity markets, pricing, and client relations (product management and marketing - as an observer).

For the last couple of years my work increasingly included business development projects, which entailed the technical assessment of specialty chemical opportunities, conceptual process layout and costing, and estimates of market size.

**Jan87-Oct88** Title: ICI - CIL Sulfur Products, Mississauga

Job: Research Engineer

**Apr86-Dec86** Title: ICI - Canadian Fracmaster, Calgary  
Job: Research Engineer, Rheology

My main research project was to design and implement rheological research/testing equipment at Canadian Fracmaster, which had just been taken over by ICI.

I did do a range of tests on oilwell stimulation fluids, using an advanced vibrating rheometer. I played around with engineering models for non-Newtonian fluid behaviour, and compared them to field data with a good deal of satisfaction. I also learned routine lab tests for oilwell fracturing fluids and cements, acid jobs.

### **Other Organisations** earlier in my career

**?Sep83 - Mar86?** Title: Energy, Mines & Resources, Ottawa  
Job: Physical Scientist, hydrometallurgy

**?Dec79-Aug81** Title: Alcan, Jonquiere QC  
Job: Process Engineer, AIF3 plant

### **Extra-Job Mega-Activities**

In addition to the descriptions of my past jobs above it is also worthwhile to consider my efforts related to my hobbies:

- neural networks;
- biotech/genetics;
- math, statistics and physics for climate change science and modelling - I have been very active in helping solar physicists (in danger of extinction in Canada!!) get their message across, and to fight for reasonable funding.
- computer languages .

### **Other**

- MAsc Chemical Engineering - U of Ottawa 1986, B.A.Sc. Chemical Engineering - U of Calgary 1978
- Member: International Neural Network Society (INNS, ~1990-on), Institute of Electronics and Electrical Engineers - Computational Intelligence Society (IEEE-CIS, ~2003-on). Past member : Order of Engineers of Québec (OIQ, ~1980-2010?); Alberta APEGGA (2007), Canadian Institute of Mining, Metallurgy and Petroleum (CIM, ~1995-2010?)
- Bilingual (federal government levels EEE in French reading, writing, oral).

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