

## DISAPPOINTED IN LICENSING PROCESS

I have recently gone through the arduous process of licensure with PEO and I would like to give some constructive feedback.

My academic requirements (Washington Accord-accredited)

and experience record are obviously of a suitable standard (five years pre-graduation and 10 years postgraduation experience) to have received my PEO licence two years after the start of the application process. However, the amount of effort required and the elapsed time is rather disappointing. I have had the luxury of moving to Canada to work for the Canadian office of my global company but I can understand the concern from other migrant engineers about the limiting nature of not obtaining a licence, the duration of time this requires, and the prospect of an internationally educated engineer landing here and being unemployable for several years.

The licensing process in theory, I believe, is sufficient and sets the bar at the correct level to verify that a candidate has achieved the required academic qualifications and experience to competently perform their roles. I support this approach fully to protect public safety.

However, where theory and reality depart is often the source of much consternation and I have been somewhat disappointed with how much of this actually occurs.

1. During my university years, I was led to believe that I was obtaining a degree that was recognized by the Washington Accord. Thus, mobility in the global marketplace would not be a problem. However, in Ontario, PEO does not seem to recognize this agreement, which they say is signed by Engineers Canada and not by PEO. As a result, I had to submit all of my academic transcripts and an additional description of the content of every single course I attended at university (around 30 pages)—something that is extremely difficult to do so many years down the line. This effectively means the Washington Accord is worth very little in Ontario.

## FLAHERTY FACILITATED OSPE

It was a meeting at Queen's Park in 2000 that I will always remember. A number of us from PEO, including Pat Quinn, met with then Attorney General (AG) Jim Flaherty and his staff to discuss the final details of proposed changes to the *Professional Engineers Act* regulations to allow the formation of the Ontario Society of Professional Engineers (OSPE).

We discussed the successful results of the referendum, in which PEO

members authorized the creation of this member-interest group for Ontario professional engineers, to be later known as OSPE. Flaherty agreed with the proposal, especially the mandatory assessment against registered PEO members of \$30 for several years. We asked that it be for five years, but he said that three years was all he could agree with and it really should be enough to finance this new society of professional engineers. His final remarks

were: "I hope I do not get 30,000 letters from engineers objecting to all this."

It was his acceptance of all our planning with him and the AG staff that made OSPE a reality.

Bob Goodings, P.Eng.  
Chair, OSPE (2001) and President, PEO (2005)  
Toronto, ON

2. I manage a group of around seven mechanical engineers (mostly Canadian-educated) at my Toronto office, most of whom have been through the licensure process in recent years. I was asked by PEO to elaborate more on my experience and produce additional reports (around 100 pages) to substantiate it. I asked some of my colleagues to review the experience report I submitted and compare this to the information they submitted and there appears to be a discrepancy between the amount of experience information required from locally educated versus internationally educated engineers.
3. I have recently read the articles in PEO's magazine on the Canadian experience requirements and how this could be viewed as discriminatory ("What's in store for the Canadian experience requirement?" *Engineering Dimensions*, January/February 2014, p. 32). I strongly believe that engineers need to understand not only the codes and regulations but, equally importantly, the different design principles and industry practices required to generate competent and effective designs and construction methods in this harsh climate. There are two schools of thought on this—experience and prescriptive learning—and rather than choosing one or the other, I would recommend either as a requirement, or perhaps even both!

Kenneth Murray, P.Eng., Toronto, ON

## FLAHERTY—A FRIEND TO ENGINEERS

Since the *Professional Engineers Act* changes in 1984, one attorney general after another told PEO that advocacy was not its role—which led to the setting up of an advocacy body, and PEO’s intersection with the career of Jim Flaherty.

When I was serving as president, PEO required the consent of government through the attorney general for approval to fund the launch of OSPE from PEO’s retained earnings, and to provide assisted funding from PEO members for a finite time. That attorney general was Jim Flaherty, in ultra-conservative Mike Harris’ government—an environment that would, at first glance, not be seen as too inclined to facilitate an advocacy body.

So it was with some trepidation that I and then Past President Walter Bilanski, Bob Goodings and PEO staff met with Jim and his staff one evening in 2000. I flatter myself that my being Irish and that one of his boys was named Quinn was something of an ice breaker. He welcomed us cordially, came across immediately as a likable, friendly man willing to chat generally for a while, and then listened attentively to our case. He was clearly well briefed, had a very open mind, accepted the need and worked with us to come up with a formula that he could sell to cabinet. In the course of a couple of hours we had his agreement and he did indeed sell it to his colleagues. Although that was my only personal dealing with Jim, every year since, I have been very pleased to receive a Christmas card with the family picture and it has meant a lot to me.

I have met many politicians over a long career but Jim Flaherty stands out in my memory as exceptional, personally charming, working for the public good, firm in his beliefs and open to being convinced by the merits of argument. It is said that success has many fathers and so Jim could be considered the father of OSPE, the launch of which could not have been successful without his support. As a profession, we pay tribute to his memory and offer our gratitude for a lasting gift and our deepest sympathy to his family, friends and colleagues.

Patrick Quinn, P.Eng.

President, PEO (1999, 2006)

Toronto, ON



## KEEPING AN OPEN MIND

Before writing this letter, I have read and reread Mr. Ross’s letter (“Cool it on climate change,” *Engineering Dimensions*, January/February 2014, p. 53) several times and I have to admit I am undecided on which position to take on the controversial topic of climate change.

Way back (longer than I like to remember), I can recall Mr. Beatty, my grades 12 and 13 chemistry teacher, and Mr. Pike, my physics teacher, telling the class that energy is neither created nor destroyed but that it only changes its form, whether it’s latent chemical energy, potential energy, kinetic energy or heat, and heat is the longest form of energy. All other forms of energy eventually degenerate into heat.

If that is true, man’s increasing use of fossil fuels means that more heat is going into the atmosphere, and this may have an impact on climate. Granted, some of this heat may be radiated into space, but the rest must go somewhere on Earth, be it in the air, oceans or soil.

Mr. Ross correctly states that CO<sub>2</sub> is not a pollutant, and that it is necessary for vegetation to grow. All flesh is grass, but it is proven that CO<sub>2</sub> is a greenhouse gas and retains heat in the atmosphere.

But then, the historic and science side of me kicks in. Long before humankind started using fossil fuels, the Earth underwent at least four ice ages, and then glacier retrenchment. What caused those cycles? I have read in journals, etc. and saw in several documentaries that the Earth’s progress through space is very complicated.

The orbit around the sun varies; there have been variances in the inclination of the axis. The axis has a wobble to it. There are variances in the sun’s brilliance and radiation, so maybe all of those play a significant role in climate change. And then there are volcanoes. They vary and most produce huge amounts of heat and emissions.

So to summarize, I don’t know what to accept, but I don’t think anyone can take a hard stance on either position, but keep an open mind and learn.

Clayton M. Morgan, P.Eng., Bowmanville, ON

### ED NOTE:

As climate change has been well debated in *Engineering Dimensions* over many issues, Mr. Morgan’s letter will close the subject in these pages. Should new climate-change-related statutes, regulations, standards, codes, bylaws or rules arise with which PEO licence holders must comply in their professional engineering practice, PEO will endeavour to inform and guide practitioners in adapting to them, to serve and protect the public interest. PEO also encourages practitioners, as engaged citizens, to contribute to public policy formation for this or any other issue for which they believe their input might add value.



**ADDRESSING WATER SUPPLY SAFETY**

The article “The facts about community water fluoridation” by Abbey, Finkelstein and Ito, published in the March/April

2014 issue of *Engineering Dimensions* (p. 34)

does not address the primary concern of water engineers. Whatever the merits are for prescribed fluoridation products under the care of a dental practitioner, it would not concern us as a profession if drinking water supply safety were not involved.

“The addition of fluorides to the water supplies is not coupled with the concern of maintaining or improving the quality of the water or making it safe. No one has suggested that dental caries is a water-borne disease or that water is a cause of dental decay. No satisfactory reason has ever been advanced to show why everyone in a community must be compelled to risk life-long extraordinary exposure to the toxic action of fluorides, particularly when safer, more effective and more economical ways of administering fluorides for caries prevention in children’s teeth have been pointed out and are available.”

The above is an extract from a must-read letter by NYC civil engineer and former commissioner Arthur C. Ford, written a decade after water fluoridation began at: <http://tinyurl.com/pjtv6c2>. The original claims of considerable dental benefits as a result of artificial fluoridation were based on an unsound foundation. See Sutton’s 1960 statistical critique of the first four North American trials. This has been reinforced by engineer-professor Rudolf Ziegelbecker, whose work was pivotal in many European decisions to stop water fluoridation. And there are five Canadian studies that show water fluoridation is ineffective—one of which is Ito’s 2007 master’s thesis study! Each of these items is found at: <http://tinyurl.com/q8h4uu9>. The above fact is reinforced by the US Centers for Disease Control and Prevention 1999/2001 statement that fluoride’s effect is primarily topical,

not systemic. Therefore, it is unnecessary to swallow fluoride. This questions the ethics of maintaining the purity and wholesomeness of public drinking water. The matter of purity has a direct bearing on the people and involves the determination and evaluation of the tolerance of suspect, hazardous or toxic substances.

Sadly, the engineering profession, yet again, is being played by public health over the issue of water fluoridation, when synergistic effects from all sources of fluoride ingestion are not known or studied. Water fluoridation further exacerbates fluoride uptake due to the feedback effect when water is used to reconstitute formula, beverages or prepared foods.

It’s the increased fluoride loading in the body that causes harm. Fetus and child suffer the greatest relative increase in their tissues from low concentrations of fluoride in drinking water, at a time of extreme developmental vulnerability to fluoride’s endocrine disrupting effects. As the original article stated, professional engineers as a body should not stand for being manipulated by dental propaganda into giving their expertise and skill to cause increased fluoride in anyone’s body, especially not the most vulnerable who cannot choose to avoid it. It defiles principles that underlie our profession’s ethics.

Chris Gupta, P.Eng., London, ON

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## FLUORIDE USE IN OTHER COUNTRIES

I note the discussion of fluoridation in the March/April issue, and in the letters column. I was living in Waterloo, Ontario, in June 1981 when a referendum on fluoridation was held. Out of 10,000 votes cast, fluoridation was retained by a margin of 300 votes. During the campaign, a former medical officer of health stated: "Every reputable scientific authority throughout the entire world strongly advocates the addition of fluoride to the water supply...."

That statement motivated me to check on the status in a number of countries. Following are the results of the survey in 1981, published in 1982.

**Australia:** Overall, 66 per cent of the people receive fluoridated water, but only 7 per cent in Queensland.

**Austria:** Water fluoridation is not in use. Supply of fluoride is carried out by use of tablets.

**Denmark:** Water fluoridation is not used. Dentists apply fluoride topically.

**Finland:** There is very little use of water fluoridation. Tablets and topical application are used. Some surface waters are naturally fluoridated.

**Netherlands:** After complex back and forth debate, the result as of 1981 was that fluoridation was not in use.

**New Zealand:** Overall, 65 per cent of the people receive fluoridated water, but some larger towns have rejected fluoridation.

**Norway:** There is no fluoridation. However, there is extensive use of topical application and toothpaste containing fluoride.

**Sweden:** Fluoridation is not used. An official commission concluded that improved oral hygiene and individual fluoride treatment can achieve the required results.

**Switzerland:** Only one town, Basel, is fluoridated. Fluoride is applied through its addition to cooking salt. A recent decision is to increase the level in salt to 250 ppm.

**United Kingdom:** 9 per cent of the people receive fluoridated water.

**West Germany:** Water fluoridation is not in use.

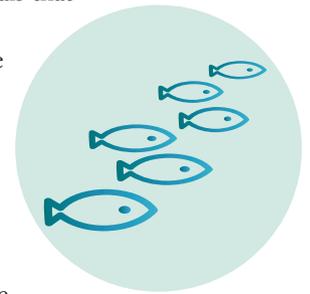
I did not contact Greece and Ireland.

Dr. F. Boettcher, in an article published in 1977, states that in Europe as a whole, on average, only 1 per cent of the people receive fluoridated water. Edward J. Farkas, P.Eng., Toronto, ON

## HEALTH EFFECTS OF WATER FLUORIDATION

The article "The facts about community water fluoridation" by Abbey, Finkelstein and Ito, published in the March/April 2014 issue of *Engineering Dimensions* (p. 34) has missed the promise in its title and failed to present facts on the subject. The authors belong to the list that Sheldon Thomas spoke of in his article "Rethinking the risks and benefits of fluoridation" (*Environmental Science & Engineering Magazine*, January/February 2013). The method used in their article is tautology, as correctly identified by Chris Gupta in his letter to the editor, titled "Supporting evidence" and published in the same March/April 2014 issue of *Engineering Dimensions* (p. 42). Then engineers may be faced with a dilemma whether to accept the tautology of the "list" at face value, or to trust the hard technical facts that they can verify easily on their own. These facts are found in the technical information for products used to "fluoridate" drinking water; and a review of material safety data sheets quickly reveals that hydrofluosilicic acid used to fluoridate comes with health risks contrary to the "benefits" fluoridationists like to promote. For example, section 3 hazard identification of one such document on hydrofluosilicic acid states: "Fluoride is a bone seeker, and excessive amounts will produce weakening and degeneration of the bone structure.

Chronic exposure may cause excess accumulation of fluorine (fluorosis) in the teeth and bones. Severe fluorosis in children weakens tooth enamel resulting in surface pitting. After prolonged high intake in adults bony changes occur characterized by hardening or abnormal density of bone (osteosclerosis), benign bony growths projecting outward from the surface of the bone (exostoses) and calcification of ligaments, tendons and muscle attachments to bone. Ingestion and skin contact may cause an abnormal reduction of blood calcium (hypocalcemia) and kidney damage since fluorides precipitate calcium stored in the body. There may also be heart, asthma, nerve, intestinal and rheumatism problems." Then section 12 ecological information states: "Harmful to aquatic life at low concentrations" and "Can be dangerous if allowed to enter drinking water intakes. Do not contaminate domestic or irrigation water supplies, lakes, streams, ponds, or rivers."



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In his letter, Gupta also asked for the toxicology study that proves hydrofluosilicic acid is at least safe for human consumption. Where is that toxicology study? The list has consistently failed to provide such evidence and referencing the NSF Standard 60, which does call for this study, renders their arguments a sham.

Perhaps most ironic of all is the fact that the authors' arguments do not agree with results of their own research. For example, Dick Ito's 2005 Caledon study conclusion starts with: "We found virtually no difference in caries prevalence or severity between 7-year-old children from schools in non-fluoridated Caledon and schools matched on socio-economic factors, in fluoridated Brampton."

This begs the question: What could be the author's motivation to contradict himself?

Given the above, it would serve well for PEO to have a position statement stating why it does not support water fluoridation.

Gerry Cooper, MBA, P.Eng., Toronto, ON

Vladimir Gagachev, P.Eng., Mississauga, ON

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