



**Professional Engineers**  
Ontario

**FINAL REPORT**  
**TECHNOLOGIST LICENSURE TASK GROUP**

Submitted to PEO Council  
February 28, 2002

## **EXECUTIVE SUMMARY**

On July 13, 2000, PEO President Peter DeVita, P.Eng., proposed that a PEO task group be created to study the licensing by PEO of suitably qualified engineering technologists to practise professional engineering in Ontario, in light of an initiative in Alberta whereby the Association of Professional Engineers, Geologists and Geophysicists of Alberta (APEGGA) had begun granting registered professional technologist (engineering) licences to qualified members of the Alberta Society of Engineering Technologists (ASET), which is OACETT's counterpart in Alberta. This proposal was endorsed by PEO's Executive Committee on August 15, 2000 and ratified by PEO Council at its regular meeting on October 12, 13, 2000. At its meeting of February 15, 16, 2001, Council authorized expanding the task group mandate to include examination of the models of licensing and registration of technologists in jurisdictions additional to Alberta.

The background, mandate and composition of the task group are described in Chapter 1 of this report.

Chapter 2 of the report provides a historical overview of PEO's efforts since the 1950s to regulate the practice of those who work in fields closely allied to engineering, and uses the example of the Regulated Health Professions Act (RHPA) to explain the contemporary understanding of the term "umbrella legislation".

Chapter 3 of the report outlines the case for the licensing of engineering technologists from the public's, OACETT's and PEO's perspectives.

Chapter 4 assesses the licensing provisions for technologists in other Canadian jurisdictions and offshore, as well as examining several different options for PEO to license their practice of both professional engineering and engineering technology. The chapter also briefly touches on a 1996 proposal for "umbrella legislation" for applied science professionals along the lines of the RHPA model. However, believing this approach to be outside its terms of reference, the task group "did not examine umbrella legislation sufficiently to consider it as a model". Nevertheless, the task group advises that "it might be prudent for PEO to develop a formal position on umbrella legislation if one does not exist", because of several noted similarities between the health professions before the introduction of the RHPA and the engineering field.

## **Conclusions**

Chapter 5 presents the task group's conclusions.

The task group found that the provisions for licensing suitably qualified engineering technologists under the existing limited licence provisions of Ontario's Professional Engineers Act are at least as effective as the Alberta registered professional technologist (engineering) model. They are also at least as effective as the provisions in other Canadian jurisdictions. The task group found that offshore jurisdictions could not be directly compared to the Canadian system. However, it also concluded that there is merit in providing a special designation to suitably qualified certified engineering technologists as a means of encouraging them to seek limited licensure, with OACETT providing the initial screening. The task group believes that enabling technologists to take responsibility for a defined area of engineering practice through PEO's limited licence process is to the public's benefit and so should be encouraged by any means that does not lower standards of qualification or practice.

The task group also concluded that in the future, PEO should consider a means whereby limited licence holders could achieve full P.Eng. licensing.

The Technologist Licensure Task Group also took the opportunity provided by its mandate to recommend changes to the experience requirements for achieving limited licensure generally. Under the current provisions of section 46(2) of Regulation 941, applicants for a limited licence require 13 years of experience in engineering work acceptable to Council, including the years spent in obtaining the postsecondary academic training, with at least one year of the experience under the supervision of a person authorized to practise professional engineering in the Canadian province or territory in which the experience was acquired, and at least the last two years of the experience in the professional engineering services to which the limited licence is to apply. The task group recommends that this section be changed such that applicants require 11 years of experience in engineering work, including postsecondary education, with at least six years of this experience being relevant experience in the application of engineering principles after graduation or award of the C.E.T. designation, at least four years of which are under the direct supervision of a professional engineer, with references from three professional engineers, all satisfactory to PEO. The task group believes that reducing the number of years of experience is justified by increasing the quality of the experience, through requiring that a greater number of years be acquired under the direct supervision of a professional engineer and be relevant experience in the application of engineering principles. It should also be noted that this length of supervised experience is in keeping with the experience requirement for P.Eng. licensing.

The task group concluded that limited licence holders should be permitted to acquire a Certificate of Authorization (C of A) to offer or provide professional engineering services in the limited licence holder's defined area of practice. It believes that such a change will encourage suitably qualified individuals to seek limited licensure, which is in the public interest, and that the experience requirements to obtain a limited licence are at least as onerous as those for professional engineers to obtain a C of A.

## **Recommendations**

The Technologist Licensure Task Group is recommending the following in Chapter 6 of this report:

1. That PEO initiate the process required to accommodate the licensing of qualified certified engineering technologists (C.E.T.s) as a special class within the limited licence provisions of the Professional Engineers Act.
2. That OACETT C.E.T.s who meet the academic, experience and other requirements to be set by PEO be granted the exclusive title of "licensed engineering technologist" (L.E.T.) by PEO.
3. That PEO strictly define and enforce a scope of professional engineering practice for each licensed engineering technologist, based on a thorough assessment by PEO of each applicant's qualifications.
4. That section 46(2) of Regulation 941 be amended such that the experience requirement for a limited licence is 11 years, including postsecondary education, with at least six years of this experience being relevant experience in the application of engineering principles after graduation or award of the C.E.T. designation, at least four of which are

under the direct supervision of a professional engineer, with references from three professional engineers, all satisfactory to PEO.

5. That all applicants for licensing as an L.E.T. apply to PEO through OACETT and be required to maintain their C.E.T. status in OACETT as a condition of retaining their L.E.T.
6. That L.E.T.s be held to the same professional practice standards in their defined scope of practice as licensed professional engineers, and be accountable to PEO.
7. That L.E.T.s and other limited licensees be entitled to apply for a Certificate of Authorization to offer to the public or engage in the business of providing professional engineering services to the public, but only within their defined scope of professional engineering practice.
8. That PEO Council authorize the Technologist Licensure Task Group to invite comments on this report, and report back to Council on the results of this consultation before PEO acts on the task group's other recommendations.
9. That PEO Council consider taking steps to amend the Professional Engineers Act such that all limited licence holders and L.E.T.s would become members of PEO with all the rights and privileges attendant thereto.

It should be noted that the proposals to permit limited licence holders to acquire a Certificate of Authorization and to be Members of the association are the ones that would require significant changes to the Professional Engineers Act and Regulation.

# CONTENTS

	<b>Page</b>
EXECUTIVE SUMMARY .....	i
1. INTRODUCTION .....	1
1.1 Background .....	1
1.2 Mandate .....	2
1.3 Task Force Membership .....	2
2. ONTARIO REGULATION OF ENGINEERING-ALLIED OCCUPATIONS .....	3
2.1 Source .....	3
2.2 Preamble .....	3
2.3 Historical Overview .....	3
1950s .....	3
1960s .....	6
1970s .....	7
1980s .....	9
1990s to Present .....	10
2.4 Umbrella Legislation – The Regulated Health Professions Act .....	13
2.3 Registered Professional Technologists (Engineering) – The APPEGA Option .....	15
3. WHY LICENSE ENGINEERING TECHNOLOGISTS? .....	17
3.1 The Public Perspective .....	17
3.2 The OACETT Perspective .....	18
3.3 The PEO Perspective .....	18
4. ANALYSIS OF LICENSURE OPTIONS .....	21
4.1 Separate Licensing by PEO and OACETT .....	21
4.2 Recognition of Technologists by PEO .....	23
4.3 The Saskatchewan Model .....	25
4.4 The Alberta Model .....	25
4.5 The U.K. Model .....	27
5. CONCLUSIONS .....	29
6. RECOMMENDATIONS .....	30
ACKNOWLEDGEMENTS .....	31
APPENDICES	

## 1. INTRODUCTION

### 1.1 Background

The explosive growth of science and technology has changed the environment in which professional engineering is being practised and regulated. The field of engineering is expanding rapidly with work that was traditionally performed by professional engineers now being entrusted to engineering technicians and technologists.

Since the early 1950s, PEO has periodically reviewed the merits of registering as members of the association and regulating the practice of occupational groups allied to engineering (e.g. technicians, technologists, foresters, chemists, physicists and geologists). In 1960, PEO Council sought to include provisions for the examination, classification and registration of various grades of engineering technicians; however, no such provisions were contained in the new Professional Engineers Act that was introduced in the legislature in 1960. Consequently, PEO created the Ontario Association of Certified Engineering Technicians and Technologists (OACETT) in 1961, with PEO retaining responsibility for certifying technicians and technologists.

In 1968, the McRuer Inquiry into Civil Rights reported to the Ontario Legislature that “No self-governing body should have statutory control over others who are not members of the body.” In response to this finding, OACETT established its own Registration Board to replace PEO’s and OACETT developed into an organization separate from, and independent of, PEO.

In 1984, the Certified Engineering Technologist (C.E.T.) title became protected through the OACETT Act, which was passed concurrently with the new Professional Engineers Act. Because PEO and OACETT were unable to define mutually acceptable classes of technicians and technologists to be excepted from the licensing requirements of the 1984 Professional Engineers Act (as enabled by section 12(3)(d) of the Act), in 1988 the Attorney General appointed former Ontario Premier Frank Miller, P.Eng., to head a task force mandated to study this matter. His report recommended that qualified C.E.T.s be granted a “special licence” to practise in one of seven recognized areas of engineering (i.e. electrical, chemical, industrial, civil, mechanical, mineral resources/metallurgy and biological science) and that PEO administer these proposed C.E.T. licences (Appendix 1).

PEO rejected the recommendations of the Miller Task Force in favour of improving the scope and use of the limited licence provisions in the 1984 Act. Some changes were implemented to the limited licence of PEO in the 1990s.

In 1993, the respective Councils of PEO and OACETT created a Joint Management Board (JMB) “to strengthen the constructive and beneficial relationship between their organizations” in accordance with the Policy Document *Blueprint for an Alliance of PEO and OACETT*. The JMB has produced useful dialogue between PEO and OACETT, focused on common concerns. Amongst these is the licensing of engineering technologists within a defined scope of professional engineering practice to better serve the public interest.

## **1.2 Mandate**

On July 13, 2000, PEO President Peter DeVita, P.Eng., proposed that a PEO task group be created to study the licensing by PEO of suitably qualified engineering technologists to practise professional engineering in Ontario, in light of an initiative in Alberta whereby the Association of Professional Engineers, Geologists and Geophysicists of Alberta (APEGGA) had begun granting registered professional technologist (engineering) licences to qualified members of the Alberta Society of Engineering Technologists (ASET), which is OACETT's counterpart in Alberta. This proposal was endorsed by PEO's Executive Committee on August 15, 2000 and ratified by PEO Council at its regular meeting on October 12, 13, 2000. At its meeting of February 15, 16, 2001, Council authorized expanding the task group mandate to include examination of the licensing and registration of technologists in jurisdictions additional to Alberta.

## **1.3 Task Group Membership**

Laurier Proulx, C.E.T., an OACETT member, and Lieutenant Governor-in-Council Appointee to PEO Council, was appointed to chair the task group.

The members of the Technologist Licensure Task Group include current and former officers and members of PEO Council, the Chief Executive Officer and Registrar, other senior PEO staff and PEO members of the PEO/OACETT Joint Management Board. The background and qualifications of the individual task group members are provided in Appendix 7 of this report.

The task group invited OACETT to participate in its discussions at various meetings. President Trevor Onken, C.E.T., and Angelo Innocente, C.E.T. (a past President of OACETT and member of the PEO/OACETT Joint Management Board) provided the task group with OACETT's perspectives to assist the task group in its work.

## 2. ONTARIO REGULATION OF ENGINEERING-ALLIED OCCUPATIONS

### 2.1 Source

This section of the report is reprinted from a historical overview report prepared in 2000 for PEO Council by Connie Mucklestone, PEO Director, Communications.

### 2.2 Preamble

This paper traces discussion of regulation of diverse technical and science practitioners under the aegis of PEO, from when the subject was initially raised in the 1950s to present discussions on “umbrella legislation” and a possible “registered professional technologist” designation. During the past almost 40 years, PEO has adopted, considered, and abandoned several models for regulating allied occupations, which are explained. The provisions of the Regulated Health Professions Act are detailed to explain the current interpretation of the meaning of “umbrella legislation”. The provisions of the Alberta Association of Professional Engineers, Geologists and Geophysicists’ Registered Professional Technologist program are explained. For simplicity, the association is referred to throughout as “PEO”, except where the pre-1993 acronym of “APEO” is directly quoted.

### 2.3 Historical Overview

#### 1950s

Discussion of regulation of the practice or qualifications of occupational groups allied to engineering, through an affiliation with PEO, is not new. As early as 1952, Council passed a motion requesting the Legislation Committee “to study the legal aspects and effects, if any, upon the Association of the suggestion made by the Executive Director to provide a registration procedure for certain groups of scientists”. In the absence of Dr. G. Langford, P.Eng., chair of the Legislation Committee, Executive Director T. Medland, P.Eng., provided the following rationale for the proposed study:

*At the Dominion Council meeting, it was reported by Dr. Jones of CIMM that he believed geologists would shortly apply for legislation to set up a professional group, and that Ontario would probably be the first province.*

*The physicists have already prepared a proposed statute, which may be presented to the legislature in Ontario at the next session.*

*The forestry people, several years ago, did present a Bill to set up forest engineers.*

*Chemists are presently asking questions about licensing.*

*I suggest that if this activity crystallizes, it presents a problem to this Association, a problem sufficiently serious that it should be given study at once. It is of the type that some few years ago was ignored by the Chartered Accountants with the result that two new groups were formed, the Public Accountants and the Industrial and Cost Accountants, with the results that the Chartered Accountants are not today in the favourable legislative position that once existed and it became necessary in 1950 to pass the Public Accountancy Act to make it possible for the three groups to function in a form of amicable agreement.*

*The professional statutes in Alberta have recently been under fire due largely to the absolute monopolistic attitude of the medical and legal professions. The Law Society of Upper Canada is presently receiving much criticism for its position in clinging to the outdated method of Osgoode Hall.*

*I offer a suggestion that may appear radical but I believe it to be worth study.*

*I suggest that we completely amend the Professional Engineers Act by one entitled the Professional Engineers and Scientists Act. I visualize the Act set up in five sections, with professional engineers maintaining the present status and administrative set-up and each of geologists, chemists, physicists and foresters having its own division, embracing definition, qualifications and government. Each group would have a Council of three members, two elected by the group and one appointed by the Lieutenant Governor-in-Council. This group Council would meet quarterly and once a year the Council of the professional engineers and the Council of each of the groups would meet to discuss common problems.*

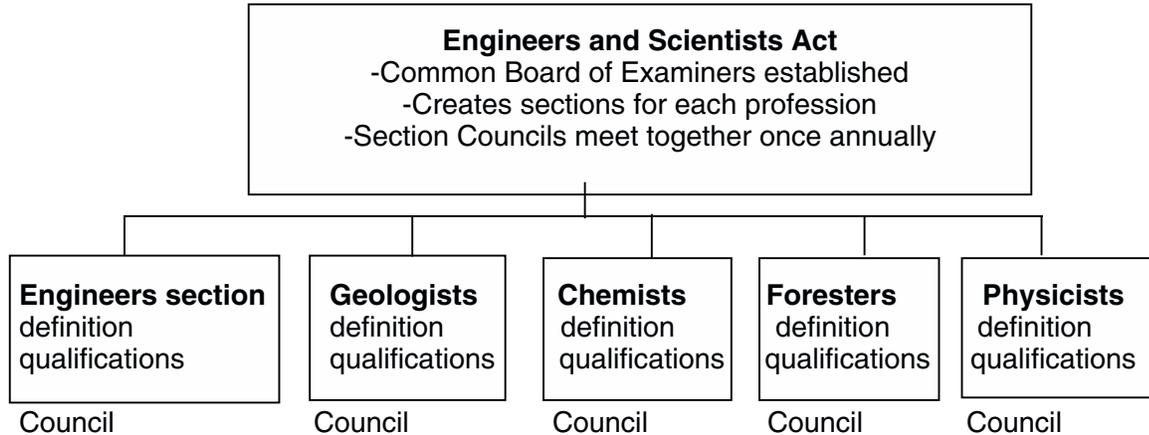
*The Board of Examiners perhaps should be common with members added by each of the new groups. This would provide a clearing house for qualifications that might overlap.*

*An arrangement along these lines would certainly be advantageous to the groups that do not now have legislation, as taken all together, I would guess they would not exceed 4,000. Certainly, no one group would be of sufficient size to warrant the upkeep of a permanent staff.*

*The Association would avoid the possibility of several legislative efforts that would be bound to conflict with our present rights and privileges. It would also give us the best opportunity that we have ever had of tidying up the provisions of the Act.*

*I suggest that if it is decided to study the matter, it should be approached on the basis of seeking legislation not earlier than 1954, which would give ample time to thoroughly consider each word and punctuation mark in the new legislation, which is apparently necessary, if amendments are to be avoided. It might be well to augment the Legislation Committee for this particular purpose with authority to add to its members representatives of the groups being considered. (Council Minutes, July 1952)*

The model being proposed might have looked like this:



Evidently, the committee appointed to undertake this study was slow to begin its task, because the Executive Director reported to Council in October 1956 that it had not yet begun to consider the problem.

At the same meeting, however, the Executive Director also raised the possibility of PEO organizing an “Engineering Technicians Association”, with the following rationale:

*A terrific number of applications are being received from non-graduates; many of whom should not apply for professional standing but in all probability would make excellent engineering technicians. I do not think we need worry too much about the effect on the profession of the number who are writing exams. ... It seems to me that the big worry is that these people are running around loose. I have given the matter much thought and my thinking was brought to a head the other day by a member of the staff of Ryerson who suggested that the Association should organize an Engineering Technicians Association. I suggest that such an Association would be set up on similar lines to our own – with the field of technicians defined. At the outset, it would not be a compulsory membership, probably might never be. The main object would be to give status to an increasingly important group.*

*Certain advantages are at once apparent:*

- 1. The Association would have control of the definition.*
- 2. It would provide a ceiling on the technician and a floor for the profession.*
- 3. It would be a most effective answer to groups that are presently trying to secure legislation that might parallel the Professional Engineers Act. (Council Minutes, October 1956)*

Following this study, Council authorized G. Langford in January 1957 “to prepare within the provisions of the Professional Engineers Act, a procedure for the examination, classifying and registration of various grades of engineering technicians”. The Executive Committee was empowered to put into effect the agreed-on procedure.

Meanwhile, an Act to incorporate the Ontario Professional Foresters Association was passed in the Ontario Legislature in 1957. At PEO’s insistence, the Act included a provision that nothing in it would affect the practice of a profession under a general or special Act, or relieve a person

from the necessity of complying with the provision of any general or special Act relating to the practice of a profession.

The last mention of the possibility of legislation incorporating both engineers and scientists during this decade appears in the Legislation Committee's April 1958 report to Council. This report indicates that little work had been done on the concept, despite its first being raised several years before, but that other provinces were also considering the possibility. The report indicated that the British Columbia association had been considering the concept for a couple of years, and that the Alberta association was "studying a proposed bill to be known as the Engineering and Scientific Professions Act. It will have definitions for a professional engineer, professional geologist, professional geophysicist, professional forester, professional chemist and a definition of each in these branches".

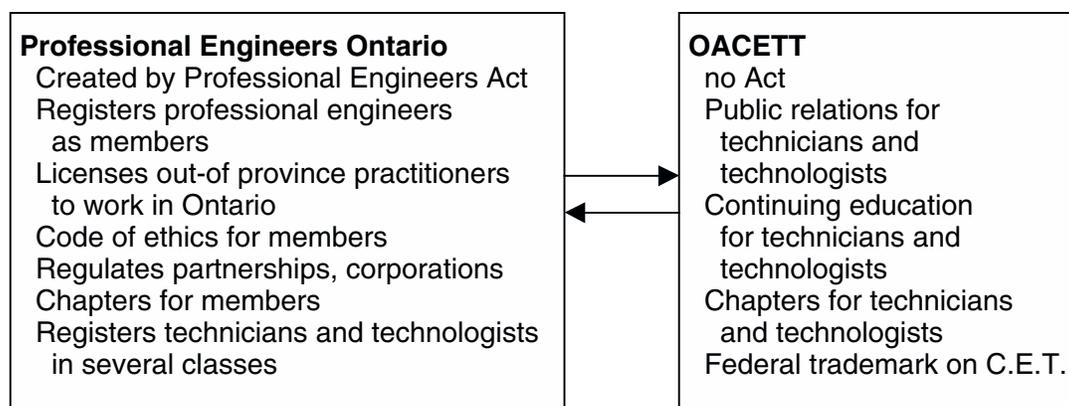
However, when the draft of a new Professional Engineers Act was introduced in the Legislature in 1960, it contained no provisions for bringing in scientists under PEO. Although never spelled out in the record, it appears that broadening the scope of PEO to include other groups was no longer considered to be necessary. One factor might have been the creation of the association's own registration scheme for technicians, later enlarged to include technologists. Another was likely PEO's success in having the terms of the professional foresters' legislation modified so that it would not conflict with the Professional Engineers Act. It was mentioned at the time that the association's success in dealing with the foresters had set a precedent for dealing with similar legislation in the future.

### **1960s**

During the 1960s, the association focused on trying to have passed a version of the Professional Engineers Act that was introduced in 1960 but withdrawn due to member opposition.

PEO's certification of technicians and technologists continued throughout the decade. However, in 1961, the Ontario Association of Certified Engineering Technicians and Technologists was created as an offshoot of the association's certification program. PEO retained responsibility for certifying technicians and technologists, while the new association took charge of public relations and education programs, and organized chapters for its members.

This model of PEO regulating an allied occupation would have looked something like this:



In 1968, the *McRuer Inquiry into Civil Rights* reported to the Ontario Legislature. Recommendation #27 of the McRuer recommendations for self-governing bodies was interpreted as making the certification of technicians and technologists by PEO a problem:

*27. No self-governing body should have statutory control over others who are not members of the body. If employees of members of a self-governing body are required in the public interest to be controlled, this should be done by some form of licensing and not by the conferring of legislative and judicial powers exercisable over them.*

Evidently, the association considered whether the Professional Engineers Act, which was in the Legislature at the time the McRuer recommendations were introduced and was withdrawn, should be rewritten to make the technologist the basic level for the professional engineer licence (thus legitimizing PEO's certification function for engineering technologists). In the end, it appears that the association decided that the revision was more major than it could contemplate, given the desire to have a new Act after almost nine years of work.

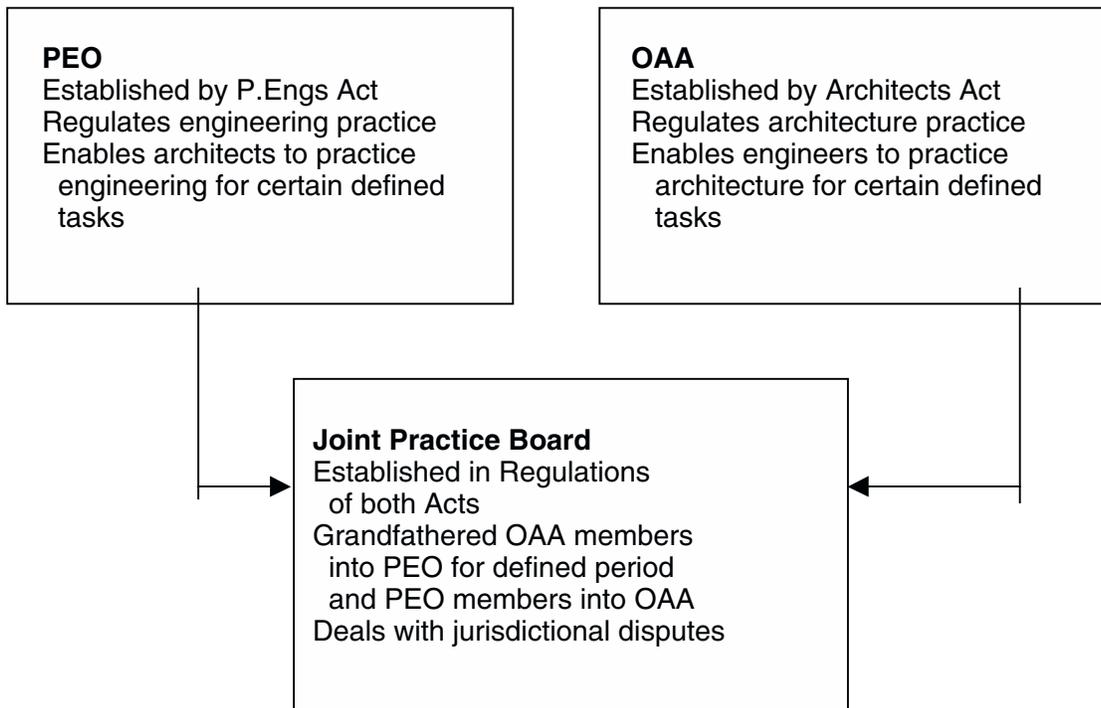
### **1970s**

To satisfy McRuer's concerns, therefore, in 1974 OACETT established its own Registration Board to replace PEO's, and the two organizations became quite separate.

*Professional Organizations Committee Study.* In 1976, the Ontario Law Reform Commission began a review of the professions of architecture, engineering, law and accounting, under a body known as the Professional Organizations Committee (POC). The POC's study unfolded over several years through a series of briefs submitted by stakeholders, POC-commissioned expert papers, a POC staff study making recommendations on various issues within and among the professions, responses to the staff study, public meetings, and a final report.

Architect/engineer interface. The POC report considered the interface between architecture and engineering and recommended a proposal put forward by PEO and the Ontario Architects Association that the Architects Act and the Professional Engineers Act each contain an identical section delineating who would be responsible for which building-design-related tasks. The two associations also recommended that a Joint Practice Board be established to oversee the process for OAA members wishing to become PEO members and vice versa, and to settle any future jurisdictional disputes.

The PEO/OAA arrangement, which still exists, looks like this:



Technologist/engineer interface. In response to briefs submitted by OACETT and others, the POC staff study recommended a full, U.S.-style industrial exemption from the requirement to be licensed for individuals doing engineering work in industry. In its final report, however, the POC rejected the industrial exemption option, while acknowledging that:

*... disadvantages and inefficiencies can result from the imposition of excessive and rigid restrictions on the ability to do engineering work. The rapid rate of technological change which characterizes the engineering field, and the need to make efficient use of our available skilled manpower resources, require flexibility. The public investment in professional and technical education should be protected from arbitrary impediments to the full use of developed human resources. It follows that any regulatory policy should try to avoid causing unnecessarily rigid segmentation of the engineering team.*

*No single regulatory option can fully satisfy all of the various interests involved. For example, flexibility in the substitution of non-professional for professional manpower must give way at some point to those third-party concerns which generate demand-side requirements for licensed professionals. As well, whatever policy is pursued must be amenable to implementation with a minimum of difficulty. It is necessary to avoid confusion in the minds of engineering personnel, their employers, and the public concerning the demarcation between regulated and unregulated functions.*

*... We believe the Professional Engineers Act should be amended so as to clarify the responsibilities of professional engineers vis à vis the other members of the engineering team. In particular, it is important that the legislation provide that the performance of engineering work by non-licensees not be considered a violation of the Act so long as a licensed engineer is professionally responsible to the APEO for the maintenance of*

*engineering standards in the performance of the work.* (Report of the Professional Organizations Committee, April 1980, pp. 85-86).

### **1980s**

*Revised Professional Engineers Act.* The POC recommendation regarding other members of the engineering team is reflected in section 12(3)(b) of the current Professional Engineers Act, which was first passed as Bill 123 in 1984. In addition, section 12(3)(d) of the 1984 Act provided for classes of individuals to be defined and their members excepted by regulation from the requirement to be licensed as professional engineers to take responsibility for specified work falling within the definition of professional engineering. However, no classes of excepted individuals have ever been defined. Section 18 of the Act, meanwhile, enables individuals who don't meet the requirements for full licensing as professional engineers to receive limited licences to take professional responsibility for the work designated in their limited licence.

Coincident with passage of the 1984 Professional Engineers Act, the C.E.T. title became protected in legislation through passage of the OACETT Act. Previously, the title had been protected only by a federal trademark indicating "the services of technicians and technologists in the engineering field", which the POC called "a rather tortuous attempt to protect a designation". As the POC noted, without a statutory base, "the common law offers little protection against the 'unauthorized' use of such designations or against competing designations".

The definition provisions of the 1984 Act also reflected pressure on the government from other occupational groups allied to engineering, most notably the physicists. The "natural scientist" exclusion in the definition of professional engineering is the outcome of these efforts.

*Miller Task Force.* Because PEO and OACETT were unable to define mutually acceptable classes to be excepted from the Act's licensing requirements, in 1988, the Attorney General appointed former Ontario Premier Frank Miller, P.Eng., to head a Task Force on Engineering "to examine whether a designated class of persons (C.E.T.s) should be permitted to practise some aspects of professional engineering". Miller reported in 1989, recommending that qualified C.E.T.s be given a "special licence" to practise in one of seven recognized areas of engineering. He recommended that PEO administer the new licence.

The Miller Task Force envisioned the new licence would be "much broader in scope than we believe was contemplated by the [limited licence provisions of the Act]," which it considered to be necessary to avoid public confusion over more narrowly defined scopes of practice. The task force recommended that the new licence permit its user to perform any engineering act, for any employer, in one area of electrical, chemical, industrial, civil, mechanical, mineral resources and metallurgy, or biological science. "Since the special licence grants wide privileges, the prerequisites for this licence will be stringent," the task force said.

The task force also called for:

- ◆ PEO to stop issuing limited licences;
- ◆ PEO and OACETT to establish a standing committee "to provide a forum for discussion of issues affecting members of both bodies";
- ◆ PEO and OACETT to educate their members about the Professional Engineers Act's new narrower definition of professional engineering (since it noted that few in industry or academe knew that many tasks formerly considered to be engineering could now be performed by technologists);
- ◆ OACETT to be involved in comparing and accrediting C.E.T. courses in Ontario community colleges; and
- ◆ OACETT to require its members to meet accreditation standards before registration.

In its response to the study, PEO agreed that licensing authority for any engineering act should remain with the association, but rejected the special licence option for C.E.T.s because “such restriction could prevent equally qualified non-C.E.T.s from becoming licence holders.” The association proposed instead to examine the scope and use of the limited licence and work to improve it, so long as the public interest continued to be served. PEO and OACETT also began immediate discussions toward creating the recommended liaison committee. These discussions culminated in both organizations signing the *Blue Print for Alliance* document in 1993, and creating the PEO/OACETT Joint Management Board.

*Discussions with Geoscientists.* In 1989, a Committee for the Professional Registration of Geoscientists in Ontario was formed. Early the next year, this committee presented a requested brief to PEO’s Mining and Energy Minerals Committee. The brief asked PEO to consider admission of geoscientists into PEO.

### **1990s**

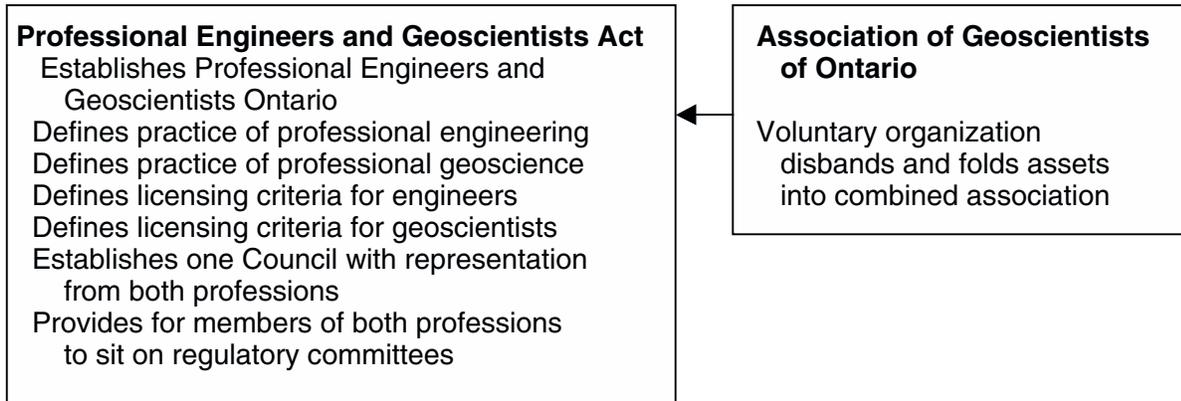
*Discussions with Geoscientists.* As a result of the geoscientist brief, the Mining and Energy Minerals Committee formed a subcommittee to examine geoscientist licensure in more depth. Its 25-page report, which identified three areas of geoscientific practice impacting the public, was received by PEO Council in February 1992.

A year later, Council approved referring the report to PEO’s Fundamental Review, as an “aid in defining the jurisdictions of the applied scientists in multidisciplinary areas, such as the environment, under the Professional Engineers Act.” The Fundamental Review’s External Networks Task Group recommended that PEO work with the geoscientists to develop a parallel licensing model for geoscientists, in tandem with development of a new licensing model for professional engineers. Shortly after, Council approved formation of a PEO/geoscientist Task Group on Geoscientists, whose task was “to work in cooperation with the geoscientific community to establish a licensing regime for professional geoscientists in Ontario. The licensing regime is to have a close association to PEO, including the likelihood of falling under PEO’s regulatory umbrella.”

In 1996, the Association of Geoscientists of Ontario was incorporated. PEO Council, meanwhile, approved amending the Professional Engineers Act to include “a definition of geoscience and licensure of geoscientists, and that the revision create a licensing regime for professional geoscientists in Ontario that is parallel to the licensing of professional engineers in Ontario and to the licensing of geoscientists in professional practice in other Canadian jurisdictions.”

In 1997, Council approved the necessary changes to the Professional Engineers Act to enable PEO to license geoscientists. The revised Act would have enabled PEO to license and discipline geoscientists by processes that paralleled those used for professional engineers and to equally high standards. The Act revision foresaw one combined Council for both professions, which is similar to the way geoscientists are licensed by and integrated into many of the other engineering associations across Canada, and the core regulatory committees comprising professional engineers and professional geoscientists. The composition of particular panels or teams of reviewers or interviewers would depend on which profession an individual was applying to be admitted to or was a member of. Despite the use of the term PEO’s “regulatory umbrella”, the approved Act revisions would not have achieved true “umbrella legislation” as it is currently understood, or even as envisioned by PEO’s Executive Director in the early 1950s.

The regulatory model contemplated to accommodate geoscientists would have looked like this:



Late in 1997, it was decided that PEO members should confirm Council's decision to amend the Act to include geoscientists. PEO members defeated this proposal in early 1998. By 2000, the Association of Geoscientists of Ontario was granted licensing authority by the government. Professional engineers are excluded from the application of the provisions of the Geoscientists Act when practising professional engineering.

*Discussions with OACETT.* PEO began its Fundamental Review of the Profession shortly after PEO and OACETT began working more closely together. In November 1996, OACETT made a presentation to PEO as input to the Fundamental Review. Entitled *Towards the Future*, the presentation included three discussion papers outlining three scenarios for regulating occupations allied to engineering, and in particular engineering technologists.

The first paper, "Is It Time for a Partnership of the Applied Science and Design Professions' Organizations?" considers the need for umbrella legislation in engineering and applied sciences. OACETT identified this scenario as its favoured long-term position. This paper defines umbrella legislation, and suggested that such legislation might be called the Regulated Applied Science and Design Professions Act, similar to the Regulated Health Professions Act. The paper suggests that the umbrella act would set out the provisions common to all of the regulated applied science and design professions, which would each have their own Acts and associated colleges. These bodies would set out the qualifications for licensing or certification and administer the licensing, discipline and enforcement processes.

"If only members of one of the professional organizations are competent to do the work, the work would be restricted to members of only that organization," the paper says. "Where members of two or more of the licensed professions are competent to do work that is restricted by law, the legislation should confer the right to do that restricted work on the members of each of those licensed professions." The paper also notes the need to maintain flexibility as restrictions on fields of regulated practice are developed, and of having mechanisms for licensing and regulating professionals working in boundary areas.

Much of the paper is devoted to the benefits of this "partnership of professional organizations", which it cites as including creating a climate of trust among the organizations, a common culture of continuing learning in applied science and design, and a focus of public awareness. The paper suggests umbrella legislation would also enable creation of a regulatory structure that would be responsive to needs for regulatory reform, and resolution of inter-organizational disputes without government involvement.

The paper suggests PEO, Consulting Engineers of Ontario, OAA, OACETT, Ontario Association of Building Officials, Association of Chartered Industrial Designers of Ontario, Ontario Association of Landscape Architects, Association of Registered Interior Designers of Ontario, Association of Architectural Technologists of Ontario, Association of Geoscientists of Ontario, and the Association of the Chemical Profession of Ontario as organizations that might be interested in partnership.

The second paper, “How PEO Can Recognize C.E.T.s Under the Professional Engineers Act” presents ideas for recognizing members of the engineering team. The first option suggests recognizing the “special relationship between PEO and OACETT and their respective members” by defining OACETT and its members, or OACETT and a subset of its members, as a class under the Professional Engineers Act. Privileges afforded this class might include receipt of *Engineering Dimensions*, on request at cost; being officially called “engineering team members”; and attending PEO annual meetings. The second option suggests excluding OACETT members from the requirement for licensing when doing engineering or applied science technology (similar to the natural scientist exclusion). The third option is a variation of the second, and suggests exempting acts of engineering or applied science technology from the provisions of the Professional Engineers Act when a certified engineering technologist does the act. The fourth option, which OACETT did not endorse, would permit C.E.T.s to do acts of professional engineering that “are minor, necessary and incidental to the practice of engineering technology.” The discussion paper says this approach is loosely based on the cross-practice between architects and professional engineers under section 12(6)(4) of the Professional Engineers Act. This section enables an architect to perform services within the practice of professional engineering “where to do so does not constitute a substantial part of the services within the practice of professional engineering related to the construction, enlargement or alternation of the building and is necessary.”

The third paper, “Limited Licence – Recommendations for Modification to Current Practices” was described as the result of discussions “on the uselessness of the present system”. It discusses perceptions toward, and perceived inadequacies of, the limited licence. Among the inadequacies discussed was the licence’s employer-specific aspect, and the practice of not re-issuing a limited licence when the holder’s responsibilities evolve with a new employer. The paper also notes that most demand-side legislation was written before the limited licence was introduced and thus requires sign-off by a professional engineer, where a limited licence holder might be equally qualified. In December 1999, PEO Council approved removing the employer-specific restrictions from the limited licence and allowing licence holders to retain their licences when their responsibilities evolve to include managing. These Regulation changes are scheduled for approval by the Ontario government shortly.

In April 2000, OACETT reopened discussion of its preferred umbrella licensing option by submitting a paper called *Towards Effective Regulation of the Applied Science Professions*. This paper focuses on umbrella legislation as a mechanism for promoting excellence in “today’s applied science world in which each professional on a team must rely on the competence of each of the others”. It also says umbrella legislation would help the governing bodies of the applied sciences remain relevant to their members, to related professional bodies, to industry and business, to the educational and training systems and to government. Professional engineering, engineering technology, applied science and architectural technology, chemistry, forestry, forestry technology, architecture, geoscience, software development, landscape architecture, industrial design, building and home inspection, food science and technology, agricultural sciences, veterinary science, and land surveying are cited as occupations that might be interested in umbrella legislation.

In the September/October 2000 issue of the *Ontario Technologist*, OACETT reconfirmed that its primary future goal is “to approach the provincial government to formally link a partnership of

professionals under an umbrella legislation. The intent will be to regulate and license all design professionals within the engineering, science and technology fields”.

## **2.4 Umbrella Legislation – The Regulated Health Professions Act**

Often cited as model umbrella legislation, the Regulated Health Professions Act was passed in 1991, and proclaimed on December 31, 1993. Prior to its passage, there were 16 regulated health professions governed by a number of different statutes. The regulatory model used by the different statutes governed scopes of practice for each profession and a professional was licensed to do anything within his or her respective profession’s scope (e.g. anything in the scope of medicine could not be performed by anyone other than a physician).

The Regulated Health Professions Act governs and regulates the practice of 24 health professions, which are organized into 21 regulatory colleges. The regulatory system it establishes is made up of a number of different parts.

The overall or umbrella act, the Regulated Health Professions Act, sets out the legal principles that are common to all the health professions. For example, it outlines the confidentiality rules that apply to all the employees of the various colleges, their Councils and committee members. It also sets up a Health Profession’s Board, which hears appeals from patients or professionals about complaints handled by the colleges. It lists all of the “controlled acts” that regulated health professionals may perform.

The definition of controlled acts is a departure from the “scope of practice” model under which the health professions were previously regulated. Under the RHPA, each profession maintains its own broadly defined area of interest, called a scope of practice, which serves as a guideline for those areas of health service a profession generally provides. However, any person can provide services outlined under a health profession’s scope of practice, so long as he or she does not perform any of the controlled acts allotted to that profession.

To define the controlled acts, the scopes of practice of the professions were reviewed to identify acts that could cause a patient harm. These were categorized into the following 13 broad categories of controlled acts:

1. Communicating to the individual or his or her personal representative a diagnosis identifying a disease or disorder as the cause of the symptoms of the individual in circumstances in which it is reasonably foreseeable that the individual or his or her personal representative will rely on the diagnosis.
2. Performing a procedure on tissue below the dermis, below the surface of a mucous membrane, in or below the surface of the cornea, or in or below the surfaces of the teeth, including the scaling of teeth.
3. Setting or casting a fracture of a bone or a dislocation of a joint.
4. Moving the joints of the spine beyond the individual’s usual physiological range of motion using a fast, low amplitude thrust.
5. Administering a substance by injection or inhalation.
6. Putting an instrument, hand or finger,
  - i. beyond the external ear canal,
  - ii. beyond the point in the nasal passages where they normally narrow,
  - iii. beyond the larynx,

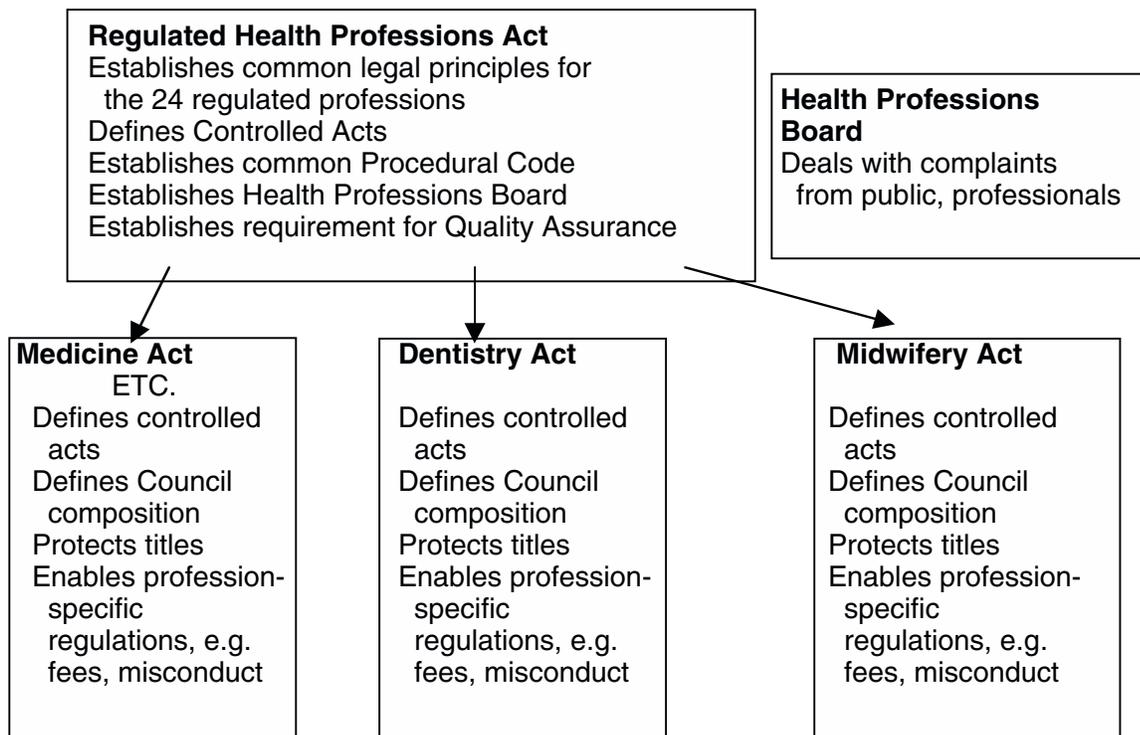
- iv. beyond the opening of the urethra,
  - v. beyond the labia majora,
  - vi. beyond the anal verge,
  - vii. or into an artificial opening in the body.
7. Applying or ordering the application of a form of energy prescribed by the regulations under the RHPA.
  8. Prescribing, dispensing, selling or compounding a drug as defined in clause 117(1) of the Drug and Pharmacies Regulation Act, or supervising the part of a pharmacy where such drugs are kept.
  9. Prescribing or dispensing, for vision or eye problems, subnormal vision devices, contact lenses or eye glasses other than simple magnifiers.
  10. Prescribing a hearing aid for a hearing impaired person.
  11. Fitting or dispensing a dental prosthesis, orthodontic or periodontal appliance or device used inside the mouth or prevent the teeth from abnormal functioning.
  12. Managing labour or conducting the delivery of a baby.
  13. Allergy challenge testing of a kind in which a positive result of the test is a significant allergic response.

The RHPA grants the various health professions the right to perform certain of the controlled acts. Some professions weren't granted the right to perform any of the controlled acts (e.g. occupational therapists and dieticians), while others were granted the right to perform many (physicians were granted 12). However, even where a profession has been granted the rights to perform controlled acts, the RHPA specifies that individual practitioners are entitled to perform only those in which they are competent.

The umbrella RHPA also includes a Procedural Code that sets the rules of proceedings for each college's committees – registration, complaints, discipline, quality assurance and patient relations. The Code also sets out discipline penalties and includes most of the provisions relating to sexual abuse.

In addition to the umbrella legislation, there are short, profession-specific Acts that direct the various professions. These Acts list the controlled acts members of the profession may perform, define the composition of the Council of the profession's college, deal with other profession-specific needs (e.g. title protection), and allow for some profession-specific regulations to be written. The Acts provide the regulatory authority for the colleges, while the regulations provide the details of how to exercise the authority. Regulations made under the individual profession-specific Acts, such as the Medicine Act or the Dentistry Act, deal with such areas as registration, definitions of professional misconduct, fees, and election of Council members.

The Regulated Health Professions model looks like this:



## 2.5 Registered Professional Technologists (Engineering) – The APEGGA Option

The first six Registered Professional Technologists (Engineering) were welcomed into the Association of Professional Engineers, Geologists and Geophysicists (APEGGA) on September 20, 2000.

The process is that those seeking RPT(Eng) standing must submit an application to the Alberta Society of Engineering Technologists (OACETT's equivalent), which forwards the application to its ASET Nominating Committee. This committee decides whether to forward the application to APEGGA. The ASET Nominating Committee makes its decision based on its assessment of whether the applicant has a chance of obtaining the RPT(Eng). Appeals of a decision not to nominate an applicant for the RPT(Eng) are made to ASET. Once an application has been forwarded to APEGGA, an RPT(Eng) nominee is subject to the same APEGGA Board of Examiner (equivalent to PEO's Academic Requirements and Experience Requirements committees) procedures and criteria faced by those seeking the P.Eng., P.Geol., or P.Geoph. This means RPT(Eng) applicants are evaluated on the basis of criteria that take into account (among other things) their:

- ◆ ability to apply technical and ethical standards and codes in a North American context;
- ◆ practical experience;
- ◆ demonstrated good character and reputation;
- ◆ management and communications skills;
- ◆ citizenship (Canadian or landed immigrant);
- ◆ English language competence;
- ◆ supplying satisfactory references;
- ◆ understanding of the societal implications of their work;
- ◆ passing the professional practice examination (the same one written by P.Eng., P.Geol., or P.Geoph. applicants).

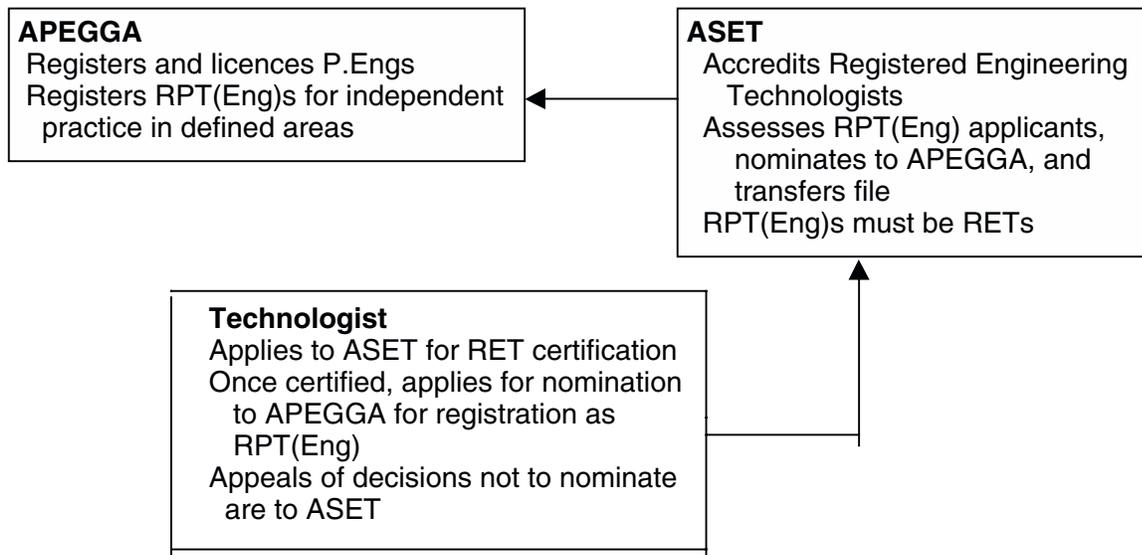
RPT(Eng) candidates must meet several additional criteria:

- ◆ current registration with ASET as a Registered Engineering Technologist (equivalent to OACETT's Certified Engineering Technologist); and
- ◆ six years of work experience of an engineering nature, two of which must be in the applicant's specific area of professional practice and under the supervision and control of a P.Eng.

As part of their APEGGA registration, RPT(Eng)s are granted a defined scope of practice in which they are permitted to work independently. Within their defined area of practice, which they define and provide as part of their application, RPT(Eng)s are able to stamp drawings and take responsibility for their work. The RPT(Eng) stamp is of a different design than the P.Eng. stamp. Examples of current defined scopes of practice for RPT(Eng)s are:

- ◆ "Design of low voltage power, control and instrumentation system for oil and gas production and storage facilities."
- ◆ "Design, inspect, test and report on fire protection suppression systems for industrial, commercial and residential facilities."
- ◆ "Design of sanitary sewage collection systems, storm water collection systems and storm water management systems."
- ◆ "Mechanical Engineering: heating, ventilation, air conditioning, refrigeration, plumbing systems and services for commercial, industrial and institutional facilities."
- ◆ "Coordinate the design and implementation of oil and gas well drilling, abandonment, work-over and completion projects as well as pipeline and facilities construction projects. Coordinate production operations of oil and gas wells, pipelines and facilities."

The relationship of organizations and members in the RPT(Eng) model is like this:



### 3. WHY LICENSE ENGINEERING TECHNOLOGISTS?

#### 3.1 Public Perspective

The public expects to be protected from misapplications of science and technology that might adversely affect its welfare. Most Ontarians lack the esoteric knowledge of scientific principles, engineering practice and technological methods necessary to judge the quality, adequacy or safety of the engineered works, systems and products with which they come in constant contact during their daily lives. Much of this contact is involuntary and indirect. It is imposed upon individuals by society, as a consequence of a common desire to improve our quality of life.

Both the Ontario government and the courts have demonstrated a desire to protect Ontarians from practitioners who misuse science and technology. The government has enacted laws and regulations, and promoted the development of standards for this purpose. The courts have generally abandoned the legal principle of *caveat emptor* (let the buyer beware) in favour of legal interpretations that impose greater responsibilities on the sellers of goods and services, and in particular on the sellers of sophisticated goods and professional services that are judged to be technically flawed or defectively engineered.

The explosive growth of traditional technologies, as well as the rapid evolution of relatively new fields of science (e.g. biotechnology, nuclear physics, computer science, genetic engineering, etc.) over the past several decades have manifestly altered both the technological and societal landscape. Properly applied, these technologies have benefited society. However, when misapplied (or self-servingly applied) they can pose enormous short-term and long-term risks to the public welfare (e.g. Chernobyl, Love Canal, Bre-X, etc.).

The Ontario Legislature recognized the need to regulate the practice of professional engineering 65 years ago, when it amended the first Professional Engineers Act of 1922, which protected only the title of professional engineer, to restrict the practice of professional engineering to professional engineers. This Act has since come before the Legislature for consideration and/or continuation on several occasions. Although a number of amendments have been promulgated to this Act, the principal object of Professional Engineers Ontario (PEO) has remained the same: “to regulate the practice of professional engineering and to govern its members, holders of certificates of authorization, holders of temporary licences and holders of limited licences ... in order that the public interest may be served and protected”. PEO is a self-governing creature of the Act, which exercises delegated authority on behalf of the people of Ontario.

Notwithstanding that many agencies of our federal, provincial and local governments have been created to police the safety of engineered products and engineering services, PEO serves as a primary bulwark against the misapplication of science in Ontario. PEO is mandated to license qualified applicants, set ethical and technical standards for engineering practice, guard against misconduct by its members, and prosecute unqualified and/or unlicensed individuals and corporations who engage in the practice of professional engineering contrary to the public interest or welfare.

Economic pressures imposed by the globalization of free trade have created an environment where the use of unlicensed individuals to do professional engineering work could well be attractive to industry, since these individuals would likely command lower wages than professional engineers. However, the qualifications of such people for the work they are doing have not been vetted through the licensure process. Such practitioners are also not professionally accountable to PEO for the impact of their work on the public welfare.

Because PEO is accountable to the public via the Ontario Legislature for regulating the practice of professional engineering to protect the public, it must adapt itself if it is to meet the challenges posed by economic and social change and continue to effectively fulfill its legislated objective.

### **3.2 The OACETT Perspective**

OACETT was created by PEO on May 27, 1961 out of a PEO certification program for engineering technicians that was begun in 1957. OACETT was structured along PEO lines and was both funded and staffed by PEO for many years. In 1984, the Ontario Legislature passed the OACETT Act for the purpose of enable the Ontario Association of Certified Engineering Technicians and Technologists to grant a protected title to those applicants who meet its certification standards.

Unlike the Professional Engineers Act, the OACETT Act does not confer to certified engineering technologists an exclusive right to a defined area of practice. Nor does it interfere with the right of any person to describe himself/herself as being, or doing the work of, a technologist, engineering technologist, technician or engineering technician. OACETT is not empowered to exercise regulatory authority over the scope of practice or manner in which engineering technology is applied in Ontario, or how it affects the public interest. Consequently, PEO members are not only responsible for their own practice of professional engineering: they are also responsible for the work of the technicians and technologists on whose work they increasingly rely in the course of their work.

Both via the Joint Management Board and this task group, OACETT has advised PEO that its members wish to become full-fledged, licensed practitioners with a defined scope of practice for which they would be fully responsible as distinct members of the engineering team. Their various submissions to PEO since the 1990s are Appendices 3 and 7 of this report.

The licensing of suitably qualified engineering technologists being advocated by OACETT is not unique to Ontario or novel to the field of engineering technology. Engineering technicians and technologists across Canada (and elsewhere in the world) are working with professional engineers associations in other jurisdictions towards the tiered licensing of both engineers and technicians/technologists.

In a brief presented to PEO in November 1996 by the Ontario Association of Certified Technicians and Technologists concerning the future of the engineering community, OACETT presents arguments in favour of the professional licensing of its members. It argues that technicians and technologists deserve to be recognized as separate and distinct contributors to Ontario's industrial growth and well-being. It also argues that the responsibility for protecting the public from the misapplication of science and technology should not be borne by professional engineers alone.

The OACETT vision for the professional certification of its members is modelled after the relationship enjoyed by related professions. The Regulated Health Professions Act serves as the model for the separate licensing of professional engineers and technicians/technologists under umbrella legislation of the kind that OACETT favours.

### **3.3 The PEO Perspective**

In the late 1990s, PEO undertook a review of its core functions of admissions, complaints, discipline and enforcement that overhauled many aspects of its operations in these areas. The primary objective of this exercise was to ensure that PEO fulfills its mandated obligation to

regulate the practice of professional engineering for the protection of the public welfare, in the most effective way.

Strategic planning exercises undertaken at about the same time and subsequently have identified the following threats that challenge PEO's ability to regulate the practice of professional engineering in the public interest.

1. The definition of the practice of professional engineering has not kept pace either with the explosion of technology within traditional areas of engineering or the many new areas of engineering arising out of new areas of science (e.g. software engineering, genetic engineering, nuclear engineering, geoscience, environmental science, etc.).
2. Certain acts of professional engineering are excepted under the Professional Engineers Act from the requirement that they be done by professional engineers (i.e. professional engineering in relation to machinery or equipment, other than equipment of a structural nature, for use in the facilities of the person's employer in the production of products by the person's employer), on the basis that such work has no impact on the third-party public or can be adequately regulated by other statutes and/or government agencies. Government, however, is placing greater reliance on industry to self-regulate, which could see employees pressured to serve their employer at the expense of the public.
3. The lifting of trade restrictions and convergence to a global economy is pressuring Ontario companies to reduce costs in order to remain competitive. Engineered products and engineering services are being imported into and exported out of Ontario at an increasing rate. It is becoming increasingly difficult for PEO to regulate such engineering practices.
4. NAFTA and other international trade agreements being signed by the federal government to encourage economic expansion require a harmonization of the international codes and standards that apply to the practice of professional engineering.

These challenges serve to underscore the increasing responsibilities being shouldered by professional engineers in Ontario.

PEO, in carrying out its mandate, has established admissions criteria comprising an undergraduate university degree in engineering from a program accredited to the satisfaction of PEO, a subsequent period of acceptable professional experience, the successful completion of an examination in professional practice, ethics and engineering law, and good character. With this basis, the association is assured that licensed professional engineers have a body of knowledge and professional attitude that provides them with the background necessary to pursue their careers in their chosen fields.

Individuals who seek licensure as professional engineers and who do not meet the academic portion of these criteria, can make up this deficiency by writing and passing technical examinations.

In addition, the Professional Engineers Act makes provision for the granting of a Limited Licence to individuals who hold either a cognate degree or a three-year diploma in engineering technology, provided they can demonstrate that they have at least 13 years of experience (including years of academic training) in engineering work acceptable to the Council. The expectation is that people admitted by this route will perform in a defined, limited scope of engineering practice at the same level as an engineer, so that there is no lowering of standards.

An argument can be made that many engineers settle into one specialized area of practice where they rely on a narrower body of academic knowledge than that taught at the

undergraduate university level. However, even if an engineer specializes, the engineer's breadth of education is critical to providing an expected professional level of awareness about consequences and factors outside the field of specialization. In particular, it is not so much a question of whether the engineer uses the knowledge directly, as it is that the engineer has the knowledge to use should the situation arise.

## 4. ANALYSIS OF LICENSURE OPTIONS

### 4.1 Separate Licensing by PEO and OACETT

#### *“Independent” OACETT Approach*

Under the existing OACETT Act (Bill Pr25 Chapter Pr7, Statutes of Ontario, 1998) certified technicians and technologists have exclusive rights to the protected titles, C.E.T., C.Tech., and A.Sc.T. The nature of their work is outlined in section 12 under “Description of Work” as the provision of technical services within approved codes and standards.

Although the OACETT Act does not regulate the work of technologists and technicians to protect the public interest, the public interest is addressed in the OACETT bylaws. By-Law 18 requires that members abide by a Code of Ethics (section 7.1.3) and the Rules of Professional Conduct (section 7.1.4). Section 7.1.3.1 of the Code of Ethics states: “...shall hold paramount the safety, health and welfare of the public ...”. Section 7.1.4.2 of the Rules defines professional misconduct as “a failure to make reasonable provision for the safeguarding of life, health or property of a person who may be affected by the work for which the practitioner is responsible”. The Code and Rules are supported by a complaints and discipline procedure. However, the ultimate consequence of this process is only a loss of membership and protected title, rather than a loss of the right to practise.

Acquisition of statutory powers by OACETT to license technologists and technicians for a defined scope of practice would require passage of a new Act as public legislation, revised bylaws, and newly generated regulations to fulfill the obligation to regulate their practice to protect the public interest. In some instances, it may well be that a “licensed” engineering technologist would be as qualified as a licensed professional engineer to take responsibility under specific Codes. The Institute for Engineering Technology Ontario (IETO) would become the qualifying and regulatory body and would be totally separate from the Ontario Services Board (OSB) or member interest body. IETO would also be responsible for the accreditation of engineering technology education programs to ensure quality standards.

The government would require a strong public interest case to support creation of a new licence that would restrict access to work that is currently done by unlicensed people.

This view is clearly articulated in the remarks of the Attorney General during the First Reading November 17, 1983, of the current Professional Engineers Act:

*“It is by now axiomatic that self-governing bodies exist only to serve that interest.”*

*“As a general principle, every person should be free to utilize his or her abilities, education, training and experience in earning a livelihood.”*

*“Therefore, it is wrong to create a restriction on this general principle by establishing licences, unless this legislature is satisfied that licensing is necessary to protect the public.”*

On the same subject more recently, the Manitoba Law Reform Commission wrote:

*“All activities in society involve some risk. This is not itself a reason for regulation. Only where it can be shown that an unacceptable degree of risk results from the unregulated activity are regulatory controls justifiable.”*

In addition to the substantive legislative and organizational changes that would be required and the apparent reluctance of government to establish new licences where there are qualified,

licensed practitioners prepared to take responsibility in areas requiring public protection, definition of an acceptable scope of practice to justify a licence for OACETT members would be a major challenge. The difficulty would be in clarifying the boundary of practice at a time of transitioning workplace responsibilities resulting from rapid technological change, improved preparation of technical personnel and access to improved workplace tools. This situation has been identified and reported recently in the Engineering Work in Canada studies done for the CCPE Canadian Engineering Resources Board by John O'Grady.

### ***“Umbrella” approach***

The 1996 OACETT report *Towards the Future* proposed that the professional associations in the applied science and design areas investigate umbrella legislation to link them as licensing and regulatory organizations. Some benefits perceived by this approach include: enhanced professional competence based on mutual respect as “affiliated” professionals, associated support for professional development, a coordinated effort to increase public awareness and a regulatory structure that is more responsive to regulatory changes. The Regulated Health Professions Act, 1991 (RHPA) was put forward as a model.

A subsequent revision of the OACETT report, titled *Towards Effective Regulation of the Applied Science Professions* (April 2000) focused on the protection of the public and vulnerable interests, citing aspects and possible benefits of the RHPA model.

The RHPA, enacted in 1991, is an “umbrella” Act that provides a framework for the 23 profession-specific Acts that regulate the activities of approximately 220,000 health professionals. Its key objective is to provide high quality care and the Act represents “a shift from profession-centred regulation to public interest regulation”. The Act provides the common legal framework for the health professions and includes a system of controlled acts that replace the previous exclusive scopes of practice; the requirements that each profession have a quality assurance program and that public appointees constitute just under 50 per cent of each profession’s governing body; and descriptions of the duties and responsibilities of the Health Professions Appeal and Review Board, the Health Professions Regulatory Advisory Council, and the regulatory colleges.

Within this structure are the profession-specific Acts that identify a broad area of interest called a scope of practice, reserve titles for each profession, and specify the controlled acts that each profession is authorized to perform.

The RHPA also provides for a review of the legislation every five years, conducted by the Regulatory Advisory Council. Such a review is currently in progress. A report with proposed amendments to the legislation was issued in March, 2001.

Before the RHPA was the Health Disciplines Act, which provided licensing rights for certain professions like medicine, nursing and dentistry. However, the expanding number of health disciplines, concerns that licensing was too restrictive and created a monopoly around the practice, and conflict over the respective scopes of practice prompted the process that resulted in the RHPA. The introduction of the RHPA removed licensing and moved to a registration model, i.e. all health professionals are registered in their broad disciplines, but licensed only for particular controlled acts. The belief is that the RHPA has leveled the playing field for the health professions, given the public more choice, increased public transparency, and serves to protect the public from harm.

The engineering field is similar to the health professions before the RHPA; there are emerging disciplines, perceived restrictions of existing licensing protocol, and apparent overlap of responsibilities in areas of practice. Unlike health professionals, engineers do not normally work directly with the public, but their work can have enormous impact on the public safety and

interest. Accordingly, it might be prudent for PEO to develop a formal position on umbrella legislation if one does not exist. This task group did not examine umbrella legislation sufficiently to consider it as a model.

## 4.2 Recognition of Technologists by PEO

### *Regulation of the Practice by C.E.T.s of Engineering Technology*

The 1996 OACETT report suggested the use of existing legislation to recognize C.E.T.s under the Professional Engineers Act. Sections 7(1)(8) and 7(1)(32), respectively, of the Act permit Council to pass regulations:

*“prescribing classes of persons whose interests are related to those of the Association and the privileges of members of the classes in relation to the association”, and*

*“specifying acts within the practice of professional engineering that are exempt from the application of the Act when performed or provided by a member of a prescribed class of persons, and prescribing classes of persons for the purpose of the exemption”.*

Section 7(1)(8) can recognize the special relationship to PEO of all or a distinct subset (e.g. C.E.T.) of the OACETT membership, without altering the legal relationship between C.E.T.s and P.Engs. The report suggested that section 7(1)(32) can:

- (i) *“recognize the engineering team by exempting OACETT members (C.E.T.s and ASCTs) from possible conflict with the PEO Act when doing engineering or applied science technology” and*
- (ii) *grant an “exemption for the minor, necessary and incidental practice of professional engineering by a C.E.T.”.*

The system proposed under (i) above was recently adopted in Manitoba.

In June 1998, the Manitoba Legislature approved The Engineering and Geoscientific Professions and Consequential Amendments Act (EGP) and The Certified Applied Science Technologists Act (CAST).

In August 1998, the president of the Association of Professional Engineers and Geoscientists of Manitoba (APEGM) wrote that “a major positive aspect” of the new Act is:

*“A long-overdue recognition of the ‘engineering team’ in Manitoba which opens up an opportunity for applied-science technologists and professional engineers to work with increased effectiveness and to focus the team efforts on competing in the Canadian and global economy”.*

This recognition exists in section 66(1)(h) of the EGP Act under “Exceptions”:

*“Nothing in this Act applies to prevent a person who is certified under the Certified Applied Science Technologists Act in an engineering discipline, from engaging in an act that constitutes the occupation of applied science technology”.*

The “occupation of applied science technology” is defined in the CAST Act as meaning the provision of services by certified technologists and technicians:

- a) *in accordance with their academic qualifications, learning and experience, and*
- b) *in accordance with generally accepted practices and procedures within nationally accepted codes and standards, and*
- c) *in accordance with the Association's Code of Ethics, but does not include the practice of professional engineering and the practice of professional geoscience, as defined in the Engineering and Geoscientific Professions Act, or the practice of the profession of architecture within the meaning of The Architects Act".*

The revised EGP Act established a "Joint Board" of CTTAM and APEGM to maintain the professional relationship and cooperation between the associations in the public interest and also to see to the "resolution of issues and disputes respecting areas of practice".

This approach to recognition of the engineering team could be adopted in Ontario. Technologists would be recognized in the Professional Engineers Act. The "Description of Work" in Section 12 of the OACETT Act could form the basis for a restated scope of practice.

A redefined PEO/OACETT Joint Management Board (JMB) could be established in legislation and its mandate modified to accommodate the additional mediation responsibilities.

However, there is an opinion that PEO's role as currently defined in the legislation is only to regulate the practice of professional engineering and license individuals for this practice, which was a response to a June 1997 recommendation of the JMB that the Ontario Professional Engineers Act be amended to add the following exemption/exclusion clause:

*"Would not prohibit a person from practising as an Applied Science Technologist, Certified Engineering Technologist or a Certified Engineering Technician within the meaning of the OACETT Act".*

The JMB had intended the clause to provide formal recognition of the work and responsibilities of technologists and technicians as members of the engineering team. However, subsequent review by the PEO Changes to the Act Task Force advised that "an exemption clause cannot be introduced to cover areas of activity that do not fall under the definition of professional engineering" and the issue was dropped.

### ***Access to the Practice of Professional Engineering by C.E.T.s***

A January 11, 2001 OACETT position statement on technologist licensure to practise areas of professional engineering states that:

*"the 'licensing' of qualified and competent engineering technologists, who perform professional engineering work, would support the PEO mission and enhance the protection of the public welfare".*

With the input of senior PEO staff, the task group determined that a new entity, suggested to be called a Licensed Engineering Technologist (L.E.T.), could be created within the ambit of the limited licence to achieve OACETT's objective. The task group concluded that such a creation would satisfy a number of the proposals in the OACETT position statement. In particular, it could be established to permit OACETT to nominate C.E.T. candidates for the L.E.T. designation and to require L.E.T.s to maintain their C.E.T. status.

The limited licence would remain as an access to limited professional engineering practice for other qualified people (i.e. non-C.E.T.s).

In addition, the task group is of the opinion that regulation of the practice of limited licensees and licenced engineering technologists could be made more effective if they were required to hold a Certificate of Authorization in their specified areas of practice if they engage in the business of providing engineering services to the public. At present, limited licence holders are not permitted to engage independently in the business of providing engineering services to the public.

The task group believes that a new licensed engineering technologist designation under the limited licence would fulfill the objective of the Miller Task Force recommendations of encouraging applicants for technologist licensure (i.e. as a limited licence holder with the L.E.T. designation).

Based on current advice, the task group believes that modifying the Professional Engineers Act and Regulation to implement a licensed engineering technologist designation under the limited licence would be straightforward. Further discussion regarding disciplinary jurisdiction, membership status, fees, applicant nomination by OACETT and other issues is required.

#### **4.3 The Saskatchewan Model**

Subsection 27(2) of the Engineering and Geoscience Professions Act (Chapter E-9.3, Statutes of Saskatchewan, 1996) states: "No person who is not a licensed professional engineer shall engage in the practice of professional engineering".

Meanwhile, subsection 28(m), "Exceptions to Scope of Practice", states that nothing in the Act prevents "a person from practicing as an applied science technologist or a certified technician within the meaning of The Saskatchewan Applied Science Technologists and Technicians Act".

The Engineering and Geoscience Professions Act recognizes technologists but does not give them the right to practise engineering, nor does it mention protection of the public interest.

The SASTT Act, Chapter S-6.01, effective October 1998, does not describe the work or occupation of a technologist as is done in some other provinces, e.g. Ontario, Nova Scotia, Manitoba. Sections 14(2)(a) and (b) of the regulatory by-laws and section 18(1), Registration, refer to the issuing of licences, while section 18(2) refers to the issuance of a restricted licence. There is no mention of what a licence holder may do. At present, it appears that any references to licences in the SASTT Act are misnomers, since there is no exclusive scope of practice for technologists in Saskatchewan. The Saskatchewan Model is therefore not helpful to our task.

#### **4.4 The Alberta Model**

Technologists in the province of Alberta may now follow a progression of credentials from student member to registered professional technologist.

The C.E.T. (certified engineering technologist) title is awarded by ASET (Alberta Society of Engineering Technologists) after completion of an approved academic program, two years of acceptable experience, three professional references and a professional practice examination.

C.E.T.s who have four years of senior experience applying engineering principles, provide three professional references, and successfully completing a three-part, three-hour exam may receive the RET (registered engineering technologist) title from ASET, which is protected under

Regulation 64(2) made under the Alberta Engineering, Geological and Geophysical Professions Act (July 1999) or EGGP Act.

Section 2(4)(c) of the EGGP Act identifies engineering technologists as a special class of person who is defined in Part 9 of the Regulations. Section 64 of the Regulations states that:

*“an engineering technologist is a person*

- a) who engages in the practice of engineering,*
- b) for whose engineering practice a professional engineer accepts responsibility,*
- c) whose engineering practice is subject to the supervision and controls that the professional engineer considers appropriate in the circumstances, and*
- d) who is registered as a registered engineering technologist under this Part”.*

The registration procedure for the RET title requires application to a Joint Registration Board comprising five members from the Association of Professional Engineers, Geologists and Geophysicists of Alberta (APEGGA) and five ASET members.

Part 6 (Sections 79.1-79.95) of the EGGP Act defines a limited licence for RETs by establishing the registered professional technologist (engineering), or RPT(Eng). Section 79.5 provides for an RPT to practise “engineering within the scope of practice specified by the Board of Examiners”. This board includes two members of the public and two RPTs or RETs appointed by the Minister.

The RPT is open only to RETs nominated by ASET, who must have six years of senior experience (including two years under the supervision of a P.Eng.), three professional references, define an acceptable “scope of practice”, successfully complete the APEGGA professional practice exam and retain their RET status (i.e., membership in ASET). The ASET 2000 Annual Report states that as of December 31, 2000, there were 14,500 ASET members, including 1,481 RETs; about 300 RPT registrations are expected. This limited licence in Alberta is available only through the RPT.

Is the Alberta RPT model suitable for Ontario?

At present, ASET does not have its own Act but does award the C.E.T. The RET is also considered to be an ASET credential, which is provided for in the APEGGA Act. ASET is actively seeking its own Act for technologists, which would provide right-to-title, a defined but not exclusive, scope of practice and self-governance.

The RPT is an APEGGA licence, since it permits an RPT holder to practise engineering within a defined scope and assume professional responsibility. ASET has direct control in the nomination of candidates and participates in the subsequent assessment process.

In Ontario, OACETT has already achieved what ASET seeks. The OACETT Act, originally proclaimed in 1984, currently provides right-to-title, a description of work and self-governance.

In addition, section 12(3)(b) of the Ontario Professional Engineers Act permits a person (e.g. technologist) to do engineering work where a professional engineer assumes responsibility for the work (i.e. to practise in the same way as RETs do in Alberta). However, in contrast to the Alberta situation, there is no special designation for C.E.T.s who work in this manner. Indeed, there is no formal recognition of technologists in the Professional Engineers Act.

The Alberta model provides for recognition and joint involvement of the members of the engineering team in the workplace and in the regulatory activity. It defines a clear structure for progression in professional credentials, which allows technologists to work to their abilities,

encouraging development of technical talent for the province. The public is assured that acceptable standards exist, and are overseen by a professional licensing body.

However, some potential drawbacks exist, namely that the RPT holder is subject to discipline under the APEGGA Act but is not a member of APEGGA and holds no voting rights. This is a situation that the McRuer Inquiry on Civil Rights found to be unacceptable in Ontario in 1968. In addition, the progression path itself may be a deterrent in that it requires initial and continuing membership in ASET. If an alternative access mechanism does not exist, qualified individuals who do not wish to attain or maintain membership in ASET are denied admission to the RPT. Finally, it may be of concern to some that non-engineers are involved in assessing applicants for the RPT, which is an engineering licence.

Nevertheless, overall, the Alberta model is well defined, transparent, has legislated links between ASET and APEGGA, and serves the public interest. Further experience will no doubt answer any questions and concerns that have arisen.

The Alberta model has played an important role in the discussions of the task group.

#### **4.5 The U.K. Model**

Preliminary discussion by the task group indicated that this model is too broad due to the number of associations involved, and that titles rather than licences are involved. Recent reviews have resulted in upgraded standards and the revision of the governing structure of engineering in the U.K. Some aspects of the U.K. system are noted.

Engineering designations are governed by the Engineering Council.

However, individuals cannot register directly with the Council. Instead, they must gain membership in (i.e. qualify through) one of the Council's nominated engineering institutions (e.g. Institution of Civil Engineers). The Institution then puts the name of the candidate forward to the Engineering Council for registration in an appropriate category.

The academic background and experience required to register with the Engineering Council as a chartered engineer, an incorporated engineer or an engineering technician is contained in a policy statement known as SARTOR (Standards and Routes to Registration).

The need to address the pace of technological development and the requirements of knowledge-based businesses prompted the U.K. to put in place a review of its professional bodies to ensure that they, among others, are prepared for these changes.

In October 1999, the Chair of the Engineering Council was invited by the Minister of Science to review the activities of the Engineering Council. The Hawley Group, as the review group has come to be known, set out to respond to the "ultimate goal":

*"for the formation of a Body to add value to society and make an effective input to Government policy by being the focal organization developing and capitalizing on synergies within the broader engineering community".*

On October 3, 2001, the Senate of the Engineering Council approved the establishment of an Engineering and Technology Board (ETB), which in turn will set up a separate entity with the interim title, New Regulatory Body (NRB). The ETB will have "a healthy and constructive balance between the profession, business and industry and academia". These bodies are scheduled to commence their activities in January 2002.

Some extracts from Dr. Robert Hawley's presentation *The Rebirth of UK Engineering* on October 31, 2001 at the prestigious Sir Henry Royce lecture may clarify the challenges to be addressed by the new ETB.

*"The pressing demands of business and industry are for practically focused Incorporated Engineers and Engineering Technicians, rather increased numbers of Chartered Engineers.*

*"The ETB will need to make sure that the right prominence is given to Incorporated Engineers and Engineering Technicians, alongside Chartered Engineers. We have to establish genuine parity of esteem. That is what industry – the customer – is telling us".*

This major review of U.K. engineering activity has identified the need to recognize, develop and build on the strengths of the entire engineering community.

In view of the significance of these approved changes, it is not productive to pursue the "old" U.K. model. However, it should be recognized that, insofar as academic qualifications are concerned, the comparison between chartered engineers and incorporated engineers closely parallels that of professional engineers and engineering technologists in Ontario.

The Washington Accord recognizes that the academic training required to be a C.Eng. and to be a P.Eng. is substantially equivalent.

In the case of the I.Eng. the Sydney Accord has been implemented with the Canadian Council of Technicians and Technologists as a signatory.

The merit in the U.K. approach is that it offers flexibility through programs that provide ladders and bridges from one level to another and from one platform across to another.

The British approach however, does have marked differences to the Canadian with regard to the perceived level of qualification required to do engineering work. This is best illustrated by the SARTOR Factsheet, which says in part:

*"Incorporated Engineer (I.Eng.)*

*"A relatively new cadre of professional engineer whose aspirations lie not so much in developing applied science in the solution of engineering problems, as utilizing technology in business and commerce. Until now, the Incorporated Engineer has been seen as a manager of today's technology, rather than an entrepreneurial developer of new business applications. Incorporated Engineers required a detailed understanding of a recognized field to technology, so that they can exercise independent technical judgment and management in that field.*

*"Leading-edge development of new engineering solutions, however, will continue to be one of the key skills of the Incorporated Engineer's fellow-professional, the Chartered Engineer."*

Again, the relevance of this to our circumstances must be weighed in light of the comment made above that the British qualifications do not constitute a licence to practise.

## 5. CONCLUSIONS

The Technologist Licensure Task Group is guided by the premise and policy precedent that PEO shall license individuals for the practice of professional engineering. The task group reached the following conclusions:

1. The licensing of suitably qualified OACETT C.E.T.s to practise professional engineering within a defined, limited scope of practice would serve the public interest.
2. The licensing of suitably qualified OACETT C.E.T.s by PEO will enable these technologists to practise professional engineering within a defined scope, provide PEO the authority to regulate their professional practice, and permit the ethical duties and legal responsibilities to be shared more responsibly and reasonably.
3. The licensing of suitably qualified OACETT C.E.T.s by PEO is timely. Similar initiatives have already been implemented, or are in the process of being implemented in other provinces of Canada, either by amendment of the existing legislation regulating professional engineering practice or by separate legislation defining a scope of practice for technologists. In the opinion of the task group, “separate legislation” would not serve the public or the profession well, because it would create confusion amongst the public, conflict amongst engineering team members, and jurisdictional disputes amongst bureaucracies. Separate legislation would also diminish PEO’s ability to fulfill its mandated function of regulating the practice of professional engineering.
4. The task group studied various models and mechanisms for the licensing of qualified technologists, and it is its unanimous opinion that PEO is the appropriate body to regulate technologists licensed to practise professional engineering in Ontario. The Technologist Licensure Task Group suggests the limited licence provisions that were added to the Professional Engineers Act in 1984 provide a vehicle for such licensure. The task group further suggests that all limited licence holders, including those with the licensed engineering technologist designation, should be eligible to apply for and hold a Certificate of Authorization to provide professional engineering services to the public within their defined scope of practice.

## 6. RECOMMENDATIONS

1. That PEO initiate the process required to accommodate the licensing of qualified certified engineering technologists (C.E.T.s) as a special class within the limited licence provisions of the Professional Engineers Act.
2. That OACETT C.E.T.s who meet the academic, experience and other requirements to be set by PEO be granted the exclusive title of “licensed engineering technologist” (L.E.T.) by PEO.
3. That PEO strictly define and enforce a scope of professional engineering practice for each licensed engineering technologist, based on a thorough assessment by PEO of each applicant’s qualifications.
4. That section 46(2) of Regulation 941 be amended such that the experience requirement for a limited licence is 11 years, including postsecondary education, with at least six years of this experience being relevant experience in the application of engineering principles after graduation or award of the C.E.T. designation, at least four of which are under the direct supervision of a professional engineer, with references from three professional engineers, all satisfactory to PEO.
5. That all applicants for licensing as an L.E.T. apply to PEO through OACETT and be required to maintain their C.E.T. status in OACETT as a condition of retaining their L.E.T.
6. That L.E.T.s be held to the same professional practice standards in their defined scope of practice as licensed professional engineers, and be accountable to PEO.
7. That L.E.T.s and other limited licensees be entitled to apply for a Certificate of Authorization to offer to the public or engage in the business of providing professional engineering services to the public, but only within their defined scope of professional engineering practice.
8. That PEO Council authorize the Technologist Licensure Task Group to invite comments on this report, and report back to Council on the results of this consultation before PEO acts on the task group’s other recommendations.
9. That PEO Council consider taking steps to amend the Professional Engineers Act such that all limited licence holders and L.E.T.s would become members of PEO with all the rights and privileges attendant thereto.

## **ACKNOWLEDGEMENTS**

The task group members are sincerely grateful to the following individuals for assisting them in their work.

1. Former OACETT Presidents Trevor Onken, C.E.T., and Angelo Innocente, C.E.T., for attending various meetings and providing the task group with OACETT's perspectives and their valued personal insights and constructive criticism.
2. Connie Mucklestone, PEO Director, Communications, for the excellent historical overview she prepared for the information of PEO Council and which is contained in Section 2 of this report.
3. Andrea Vecera and Nancy Mastrocola, the PEO staff members who recorded the minutes of the task group meetings and facilitated its work in countless other ways.
4. Pam Plante, of The Becker Engineering Group, who undertook the onerous task of formatting, processing and preparing this report for the task group.

## APPENDICES

- Appendix 1. Miller Task Force Report on Engineering and Engineering Technology (June 10, 1989).
- Appendix 2. *Blueprint for an Alliance of PEO and OACETT* (July 15, 1993).
- Appendix 3. OACETT Submission to PEO (November 1996) entitled *Towards the Future* comprising the following Discussion Papers:
- 1) "Is it Time for a Partnership of the Applied Science and Design Professions, Organizations?"
  - 2) "How PEO can Recognize C.E.T.s Under the Professional Engineers Act."
  - 3) "Limited License – Recommendations for Modification to Current Practices."
- Appendix 4. The APEGGA Technologist Licensure Model
- Appendix 5. The U.K. Multi-Tiered Registration Model
- Appendix 6. The "Technologist Licensure" OACETT Position Statement (January 11, 2001)
- Appendix 7. Task Group Members (Biographical)

## **APPENDIX 7**

The PEO members who were appointed to the Technologist Licensure Task Group are listed below, along with a description of their professional background.

### **Chair**

Laurier Proulx, C.E.T., CMMIII, Lieutenant Governor Appointee to PEO Council (2000-2002), OACETT member since 1974, Project Manager and Director, Department of Corporate Services and City Clerk, Facilities Management Division, City of Kitchener.

### **Members**

Richard W. Braddock, P.Eng., PEO President-Elect, member of the Executive Committee and former PEO Vice-President and East Central Regional Councillor (2000-2001), President (Retired), Mitchel, Pound & Braddock Ltd., member of PEO since 1955.

Denis Dixon, B.Eng., P.Eng., Councillor-at-Large (to April 2003), Co-Chair of the PEO/OACETT Joint Management Board and a PEO-designated Consulting Engineer, member of PEO since 1966.

Ted Wisz, P.Eng., M.A.Sc., M.Sc., Adjunct Professor, Ryerson University, member and past Co-Chair of the PEO/OACETT Joint Management Board, former PEO Regional Councillor, Councillor-at-Large, and Vice-President, member of PEO since 1962.

Norbert K. Becker, Ph.D., P.Eng., former Councillor-at-Large (1997-1999), member of the PEO/OACETT Joint Management Board since 1997, Co-Chair PEO International Mobility Task Force and founder of The Becker Engineering Group, designated Consulting Engineer and PEO member since 1969.

### **Staff Resources**

Roger F. Barker, P.Eng., PEO Chief Executive Officer and Registrar.

Norman S.W. Williams, Ph.D., P.Eng., PEO Deputy Registrar, Admissions.

Ian F. Eng, P.Eng., PEO Deputy Registrar, Complaints, Discipline and Enforcement.

Johnny F. Zuccon, P.Eng., PEO Director, Professional Affairs.

# **APPENDIX 1**

# **APPENDIX 2**

# **APPENDIX 3**

# **APPENDIX 4**

# **APPENDIX 5**

# **APPENDIX 6**

# **APPENDIX 7**