

PROFESSIONAL AFFAIRS



Innovation in Establishing the Standard of Care in a Self-Regulated Profession

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SUMMARY

Under Law, professional geoscientists have a duty of care that they must adhere to when they carry out their activities. The question is, when a duty of care exists, what is the standard of care that is owed? Geoscience regulators in Canada and around the world are working with geoscientists to develop innovative solutions in establishing the standard of care that must be met. By clearly establishing what our expectations are concerning standard of care, we are setting common ideals and goals as a professional community. Both society, geoscientists and employers of geoscientists look to regulatory associations for guidance on professional practice, therefore regulators need to strive to support and educate their members by developing tools and resources that allow members to meet the standard of care expected of them. The paper describes innovative approaches being offered to assist members of Engineers and Geoscientists BC and is based on an oral presentation given by the author at the International Geology Congress in Cape Town South Africa in August 2016.

RÉSUMÉ

En vertu de la loi, les géoscientifiques professionnels ont un devoir de diligence auquel ils doivent se conformer dans l'exercice de leurs activités. La question qui se pose est la suivante: lorsqu'il existe un devoir de diligence, quelle est la norme de diligence à respecter? Les organismes de réglementation géoscientifiques au Canada, et ailleurs dans le monde, travaillent de concert avec les géoscientifiques à l'élaboration de solutions novatrices pour établir la norme de diligence à respecter. En établissant clairement nos attentes concernant les normes de diligence, nous établissons des idéaux et des objectifs communs en tant que regroupement professionnel. La société, les géoscientifiques et leurs employeurs attendent des associations de réglementation des conseils sur les usages professionnels. Les organismes de réglementation doivent donc s'efforcer de soutenir et former leurs membres en dotant des outils et des ressources qui leur permettent de respecter les normes d'usage en vigueur. L'article qui suit, et qui décrit les approches novatrices proposées aux membres de la *Engineers and Geoscientist British Columbia* est basé sur une présentation orale donnée par l'auteur au Congrès international de géologie à Cape Town, en Afrique du Sud, en août 2016.

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INTRODUCTION

In accordance with Tort Law, professional geoscientists have a duty of care, which requires adherence to a standard of care while performing any acts that could foreseeably harm others (Andrews 2013). The first question to ask is, when a duty of care exists, what is the standard of care that is owed? The standard of care owed is generally accepted as that care which would be expected of any reasonable and competent professional geoscientist in the same circumstances. The next question then is – how can we as a professional community and we as a regulatory body best ensure that individual geoscientists (our members) have all the support necessary to operate with the care expected of reasonable and competent professionals in all circumstances?

Geoscience is a self-regulated profession in Canada; but what does that mean? Self-regulation is a privilege granted by the government to those professions that have demonstrated that they can put the interests of the public ahead of their own personal or business interests. In Canada, geoscience is regulated at the provincial and territorial level, with 10 regulatory associations. Three associations regulate geoscience only, and the remaining seven regulate geoscience and engineering

together. In order to practice as a professional geoscientist in Canada you must be registered with the regulatory association in the province(s) and/or territory(s) that you work within.

GEOSCIENCE REGULATION IN BRITISH COLUMBIA

In British Columbia, the geoscience and engineering professions are regulated by Engineers and Geoscientists BC under the authority of the Engineers and Geoscientists Act and under the Bylaws of the Association (Engineers and Geoscientists BC 2014). Engineers and Geoscientists BC is governed by a council of elected members, licensees and government appointees. It was initially founded in 1920 as an engineering regulator with geoscience activity added in the early 1990's.

Engineers and Geoscientists BC, which is the business name of the Association of Professional Engineers and Geoscientists of British Columbia, is a proactive and innovative regulator that has developed multiple programs and resources for practitioners to aide them in meeting their professional obligations and standard of care. These resources include, practice advisory services, the Practice Review Program, quality management guidelines, professional practice guidelines, the Organizational Quality Management Program, and continuing professional development opportunities.

Engineers and Geoscientists BC receives numerous inquiries every day from its members, provincial and local government representatives and the public regarding professional practice and professional reliance issues. As a result, Engineers and Geoscientists BC has developed a system, which ensures that these inquiries are responded to efficiently and effectively. Several practice advisors (both professional engineers and professional geoscientists) are available to answer professional practice related questions by email, telephone and in person. All inquiries are tracked in a database system, which facilitates consistency in advice and allows advisors to track the various trends in inquiries. These trends will often be used to develop articles, bulletins and frequently asked questions for the Engineers and Geoscientists BC website.

One of most important programs that Engineers and Geoscientists BC has implemented is the Practice Review Program (Engineers and Geoscientists BC 2005). The program began as a consequence of a rooftop parking deck collapse in 1988. The official report, published following a Commission of Inquiry into the cause of the collapse, contained recommendations on how to prevent a similar event from happening in the future (Closkey 1988). One recommendation was that Engineers and Geoscientists BC should develop a practice review process where a percentage of its members would be audited annually. Although, the initial reason for the implementation of the Practice Review Program was due to poor engineering practice, there are also examples of poor geoscience practice. These include the Bre-X scandal in the late 1990's, which lead to the Mining Standards Task Force – a joint initiative of the Ontario Securities Commission and The Toronto Stock Exchange, (Yuen and Vaughan 2000), which resulted in new reporting standards for mineral exploration and mining activities. These new standards, under National Instrument 43-101, stipulate that all technical reports by issuers must now be pre-

pared by a Qualified Person, who is appropriately experienced and either a professional geoscientist or professional engineer. (Canadian Institute of Mining 2011).

Practice Reviews are quality review checks of a member's professional practices. The review is a peer review procedure conducted by other members, typically in the same area of practice. The review is general in nature focusing on quality management practices, but in some circumstances, an additional review (that is more technical in nature) may be required. Most Practice Reviews are a result of random selection; however, a Practice Review can be initiated as a result of an investigation or disciplinary action. Additionally, members who have a limited scope of practice, Engineering Licensees and Geoscience Licensees, must undergo a practice review 5 years after being granted their membership (<https://www.egbc.ca/Become-a-Member/How-to-Apply/Professional-Membership-and-Licence/Limited-Licence>).

All Engineers and Geoscientists BC members are required to comply with all aspects of the Act and Bylaws. Within the Bylaws there are seven quality management requirements:

1. Retention of project documentation – Professional documentation must be easily retrievable and maintained for a minimum of 10 years after the project is completed or the files are no longer in use.
2. Documented checks of engineering and geoscience work – Professional work must undergo a documented check prior to being delivered to others who will rely on the work.
3. Direct supervision – Professionals must directly supervise any professional work that they delegate to others.
4. Use of seal – Professionals must affix their Engineers and Geoscientists BC seal to all professional documentation that they have prepared or has been prepared under their direct supervision prior to being delivered to someone who will rely on that work.
5. Documented field reviews – Professionals are required to conduct periodic field reviews during the construction or implementation of a project.
6. Documented independent review of structural designs – This quality management requirement is only applicable to professional engineer members and not geoscientists.
7. Practice guidelines – Engineers and Geoscientists BC members must be aware of and comply with the intent of any applicable professional practice guidelines.

Engineers and Geoscientists BC often receives specific questions regarding these requirements, therefore the need for additional guidance was identified. Engineers and Geoscientists BC worked with its members to develop guidelines for the first six of the quality management requirements listed above (Engineers and Geoscientists BC 2013). Such requirements are common to both geoscientists and engineers, in that all professionals should be checking their work, retaining their project documentation and properly authenticating their documents. For more information on these requirements and the guidance provided, refer to Engineers and Geoscientists BC (2013).

Table 1. Engineers and Geoscientists BC Professional Practice Guidelines.**BC Building Code and Related**

AIBC/APEGBC Practice Note 16: Professional Design and Field Reviews by Supporting Registered Professionals
 Building Enclosure Design Guide
 Building Enclosure Engineering Services
 Bulletin 34: Building Envelope Services - Appropriate Professional Practice
 Bulletin K: Letters of Assurance in the BC Building Code and Due Diligence
 Designing Guards for Buildings
 Electrical Engineering Services for Building Projects
 Fire Protection Engineering Services for Building Projects
 Geotechnical Engineering Services for Building Projects
 Guide to the Letters of Assurance in the BC Building Code
 Mechanical Engineering Services for Building Projects
 Housing Foundations & Geotechnical Challenges Guide
 Statement of Compliance under Pool Regulations

Forestry, Natural Resources and Hazards

Management of Terrain Stability in the Forest Sector
 Professional Services in the Forest Sector - Crossings
 Professional Services in the Forest Sector - Forest Roads
 Professional Services in the Forest Sector - Terrain Stability Assessments
 Legislated Landslide Assessments for Proposed Residential Development in BC
 Legislated Riparian Area Assessments in BC
 Legislated Flood Assessments in a Changing Climate in BC
 Flood Mapping Guidelines in BC

Civil

Site Characterization for Dam Foundations
 Legislated Dam Safety Reviews in BC
 Onsite Sewerage Guidelines
 Developing Climate Change Resilient Designs for Highway Infrastructure in BC

Structural

Professional Structural Engineering Services for Part 3 Building Projects
 Professional Structural Engineering Services for Part 9 Building
 Structural Design Issues for Housing and Small Buildings in BC
 Structural , Fire Protection and Building Envelope Engineering for 5 and 6 Story Wood Frame Residential Buildings
 Seismic Retrofit Guidelines

Other

Budget Guidelines
 Intellectual Property
 Shop Drawings
 Sustainability Guidelines
 Expert Witness Guidelines
 Professional Responsibilities for the Design and Installation of Elevating Devices
 Human Rights and Diversity

Another way in which Engineers and Geoscientists BC is helping its members achieve the standard of care expected of them is through professional practice guidelines. These are practice area specific documents that help to establish what to do, not how to do it. They are typically developed where there is a lack of available guidance or clarity in particular areas of practice. Often, Engineers and Geoscientists BC is approached by, and works with, government ministries or other associations to develop these guidelines. When it is determined that a particular guideline is required, Engineers and Geoscientists

BC assembles a group of experts who prepare a guideline, which is subject to review by key stakeholders at different stages. More than 30 professional practice guidelines are now available on the Engineers and Geoscientists BC website, including, for example: Site Characterization for Dam Foundations in British Columbia, Flood Mapping in British Columbia, Management of Terrain Stability in the Forest Sector, and Legislated Flood Assessments in a Changing Climate in British Columbia. A full list of available guidelines is provided in Table 1.

It is evident that Engineers and Geoscientists BC has many tools for its members, which help them in meeting their standard of care, but what about the organizations that employ engineers and geoscientists? Engineers and Geoscientists BC is one of the few professional geoscience and professional engineering regulatory bodies in Canada that does not regulate organizations that provide engineering and geoscience services or products. However, it recognizes that the organizations that employ engineering and geoscience professionals have a significant influence on how their professional employees practice, and because of this, Engineers and Geoscientists BC developed the Organizational Quality Management (OQM) Program. This voluntary program is based on the seven quality management requirements set out in the Act and Bylaws. Any organization that employs professional geoscientists and/or professional engineers, regardless of their size or area of practice can apply to become certified. Currently, more than 250 organizations have become OQM certified; these include organizations from the consulting sector, provincial ministries and local government. The goal of the program is to help organizations support engineers and geoscientists in meeting their standard of care and regulatory requirements. Since the program was implemented in 2012, Engineers and Geoscientists BC has seen a significant improvement in the practice of its members. Prior to the OQM Program being introduced, many professional documents were being produced and delivered without undergoing a sufficient checking process and without the professional's seal; this has greatly improved over the last several years in British Columbia. Additionally, the program has facilitated a greater level of understanding that the health and welfare of the public and the protection of the environment must come first when geoscientists and engineers are carrying out their work. The OQM Program has proven to be a learning opportunity for organizations, professional members, the public and Engineers and Geoscientists BC. For more information on the OQM Program, refer to Engineers and Geoscientists BC (<https://www.egbc.ca/Practice-Resources/Organizational-quality-Management-Program>).

Another important aspect during a geoscientist's career is continuing competence and lifelong learning. Advances in the science and rapid changes in usage of technology require geoscientists to keep current and maintain their standard of practice. Engineers and Geoscientists BC regularly organizes various scientific, technical and non-technical seminars and workshops that can be counted towards the recommended 80 hours of annual continuing professional development (CPD). Additionally, Engineers and Geoscientists BC often collaborates with other associations and groups to offer joint CPD opportunities. For example, Engineers and Geoscientists BC has recently signed on to be a Technical Partner with the Resources for Future Generations Conference taking place in Vancouver, British Columbia, in June 2018. Forming partnerships and connections with other technical associations and groups is something all regulators should strive for to ensure they are offering their members the best available professional practice resources and guidance (<https://www.egbc.ca/Practice-Resources/Professional-Development>).

CONCLUSION

Geoscientists are professionals and with that comes the responsibility to be accountable to our colleagues, the profession and the public. By clearly establishing what our expectations are concerning standard of care, we are setting common ideals and goals as a professional community. Society, government and individual geoscientists and their employers look to regulatory associations for guidance on professional practice, therefore regulators need to support and educate their members by developing tools and resources that allow them to meet this standard of care. By being proactive and establishing practice guidelines and providing practice support for our members, Engineers and Geoscientists BC as a regulator, is fulfilling its duty to hold paramount the safety, health and welfare of the public, protecting the environment and promoting health and safety within the work place.

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