QUALIFYING WORK EXPERIENCE REQUIREMENTS – SCHEDULE B

PROFESSIONAL GEOSCIENTISTS ONTARIO

PGO will assess each applicant on the individual merits presented in the application against each of the five quality-based criteria as outlines in the Registration Regulations – O. Reg. 324/16 (the "Registration Regulation"):

- Practical experience in the application of geoscience theory;
    - Practical experience includes the concept of field work where the application of geoscience involves the gathering, observing, analysis and application of processes to raw data, and takes place outside of the office.
    - Practical experience can also include laboratory analyses where the application of geoscience involves the preparation, analysis and application of processes to raw data.
- Practical experience in the understanding of geoscience processes and systems;
- Management of geoscience projects;
- Proficiency in communication;
- Awareness of societal implications of geoscience.

An applicant for registration as a professional geoscientist is required to demonstrate at least 4 years (48 months cumulative) of work experience. The applicant may be granted up to 12 months credit for pre-graduation experience (i.e., summer field work or co-op placements) gained prior to receiving a B.Sc. degree, up to 12 months additional credit for work experience gained during an M.Sc. program, and a further 12 months credit for work experience gained during a Ph.D. program. Postgraduate research-related experience credits will not be granted for course work or exceed actual time spent to complete the degree requirements. The work experience should have been obtained within the ten years before the application for registration.[1]

The work experience requirement is separate and apart from the educational requirements. Meeting the educational requirements, even if it involves additional course work, examinations, or even work experience, does not mean that an applicant will then also meet the work experience requirements. [2]

The applicant must confirm that at least 12 months of the work experience has been obtained in Canada, or in a Canadian work environment, or an equivalent satisfactory to the Registration Committee, to qualify for admission. This experience must be in addition to that obtained at the pre-graduation stage and/or granted for the postgraduate degree credits. Time related to the research and/or thesis portion of a postgraduate degree may be considered to help meet the requirement for geoscience work experience in a Canadian jurisdiction if the work has been conducted under the supervision of a professional geoscientist.

The onus is on the applicant to demonstrate that they have obtained the work experience that meets the requirements of the Registration Regulation. This means that the applicant must

[1] There is a further option of ten years of work experience over the past fifteen years that applies in some circumstances.
[2] Again, there is an exception for someone seeking to use ten years of work experience over the past fifteen years as permitting acceptance of alternative educational qualifications.

provide the necessary information and that the Registration Committee then assesses the information to ensure that it meets the definition found in the Registration Regulation, and that the information is accurate. This guidance document assists applicants in understanding how the Registration Committee assesses the information provided. Accuracy is verified by various means, including use of the work experience record, statements from referees[3], who are asked to validate the work experience, interviews with the applicant, and sometimes other inquiries.

[3] References also provide information about the good character of applicants used elsewhere in the registration process.

CRITERIA FOR ACCEPTABLE QUALIFYING WORK EXPERIENCE

An applicant will have obtained work experience wherein knowledge of geoscience theory is combined with an awareness of the necessity for accuracy, thoroughness and critical thought in all phases of geoscience practice. To supplement knowledge of geoscience theory, the applicant must demonstrate an exposure to, and practical experience in each of the broad areas of practical techniques, management, communication, and the societal implications of the geoscience profession.

An application is required by the Registration Regulation to demonstrate qualifying work experience in each of the following five areas:

1. **Application of Geoscience Theory and Practical Work Experience** – an applicant's practical work experience should include some application of geoscience theory in each of the following five areas:
    a. *Development and implementation*
        i. Of field and/or laboratory investigation programs; including gathering of field and laboratory observations and data.
    b. *Analysis*
        i. Analysis of primary observations and data;
        ii. Analysis of scope of field operations and/or laboratory conditions;
        iii. Spatial and temporal analysis of data;
        iv. Feasibility assessment;
        v. Analysis of performance assessment;
        vi. Analysis of technical merit of project;
        vii. Analysis of safety and environmental issues;
        viii. Technology assessment;
        ix. Economic assessment;
        x. Reliability or uncertainty analysis; or
        xi. Analysis of quality assurance and quality control program.
    c. *Integration and synthesis*
        i. Identification of geoscientific components, including data specification or functionality;
        ii. Project specification and organisation;
        iii. Analytical component selection;
        iv. Integration of components and sub-systems into larger geoscientific systems;
        v. Evaluation, reliability and uncertainty factors in data;
        vi. Technology of data processing and interpretation;
        vii. Human and environmental factors;
        viii. Societal implications of the resultant activity or project; or
        ix. Quality improvements.
    d. *Testing methods*
        i. Devising testing methodologies and techniques;
        ii. Verifying functional specifications and testing efficiency;
        iii. Commissioning, assessing and verifying new technology; or
        iv. Verification of project technology; and
    e. *Implementation methods*
        i. Application of technology;
        ii. Data processing technology and interpretation;
        iii. Optimization techniques;

iv. Process flow and time studies;
v. Implementation of quality control and assurance;
vi. Cost/benefit analysis;
vii. Economic evaluation;
viii. Safety and environmental issues; or
ix. Evaluation and recommendations.

2. **Understanding of Geoscience Process and Systems** – an applicant should have obtained practical geoscience work experience in each of the following three areas:
    a. *An understanding of the function of components of geoscientific work as part of the geosystem. An applicant may have obtained such an understanding through:*
        i. Performance of field work;
        ii. Visits to geoscientific operations;
        iii. Experience in the merits of reliability and uncertainties;
        iv. Understanding of the roles and limitations of computers and software;
        v. Understanding of externally imposed factors; or
        vi. Understanding of the relationship of tasks to other activities or the end use.
    b. *An understanding of the limitations of practical geoscience and related human systems in achieving desired goal. An applicant must demonstrate an understanding of:*
        i. Limitations of technical methods;
        ii. Limits of investigative and sampling procedures;
        iii. Uncertainties;
        iv. Interpretation;
        v. Interpolation;
        vi. The ability to predict;
        vii. Project operating and maintenance philosophies; or
        viii. The difficulties of sampling, times, and project work flow.
    c. *An understanding of the significance of time in geoscientific processes and an appreciation for the sequences and rates of natural occurrence of geoscientific processes in the natural environment.*

3. **Management of Geoscience** – an applicant should have obtained experience in the management of geoscientific projects. Such work experience may include the actual management of projects, supervision of staff, general exposure to a business environment, and management of geoscientific technology. Components of management may involve any of the following:
    a. *Planning:*
        i. Identification of technical requirements;
        ii. Development of concepts;
        iii. Evaluation of alternative methods; or
        iv. Assessment of required resources in order to plan for the societal and environmental ramifications of project implementation.
    b. *Scheduling:*
        i. Establishing interactions and constraints;
        ii. Developing activity or task schedules;
        iii. Allocating resources;
        iv. Assessing the impact of delays; or
        v. Determining and assessing broader project interactions with other projects and the market place.

c. *Budgeting:*
    i. Developing both conceptual and detailed budgets;
    ii. Identifying labour, materials and overhead' or
    iii. Assessing risk of cost escalation, and ongoing review of budgets in light of changes.
d. *Supervision:*
    i. Demonstrating leadership capabilities;
    ii. Organising human resources;
    iii. Motivating teams; or
    iv. Managing technology.
e. *Project control:*
    i. An understanding of the elements of tasks in a greater whole;
    ii. Coordinating phases of project work;
    iii. Monitoring expenditures and schedules;
    iv. Recommending or taking appropriate corrective action when required; or
    v. Activity rates and scheduling of a geoscientific project in relation to equipment.
f. *An understanding of risk assessment as it relates to:*
    i. Personnel;
    ii. Equipment and system performance;
    iii. Technology;
    iv. Product performance;
    v. Accuracy of project results;
    vi. Geoscientific hazard identification; or
    vii. Field equipment breakdown and wear out.
g. *Knowledge and understanding of codes, standards, regulations and laws that govern applicable professional geoscientific activities, overall project activities and end uses of geoscientific activities.*

4. **Communication skills** – an applicant should have a proficiency in both oral and written communication skills. An applicant shall provide, if requested by the Registrar and/or Registration Committee, examples of having fluency skills in the following areas:
    a. *Written work:*
        i. Correspondence;
        ii. Briefs;
        iii. Reports;
        iv. Documents;
        v. Publications; and
    b. *Presentations:*
        i. To co-workers, supervisors and senior management;
        ii. To clients and/or regulatory authorities;
        iii. At workshops and conferences of peers;
        iv. To the general public.

5. **Awareness of Societal Implications of Geoscience** – an applicant should have obtained work experience that recognises societal implications of geoscience practice. An applicant must demonstrate an awareness of economic, safety, environmental or societal consequences with respect to such individual's work experience. An applicant's work experience shall include, but not be limited to, an awareness or and responsibility for:
    a. *The necessity for accuracy, thoroughness and critical thought in all phases and*

levels of geoscience;

b. *The recognition of the value or benefits to society of accuracy in geoscience operations, end products, reports, opinions and assessments to the public;*
c. *The safeguards in place to protect the public interest and identify and mitigate adverse impacts;*
d. *The relationship between planet Earth, geoscience activity and the public at large;*
e. *A demonstrated interest and involvement in broader societal implications of geoscience; and*
f. *The significant role of regulatory agencies on the practice of geoscience.*

Other Experience Considerations

In addition to providing information on the above notes experience criteria, the applicant may submit, in writing, and other pertinent information with respect to additional experience or circumstances for consideration of the Registrar and/or the Registration Committee.

The Use of Interviews

The Registration Committee may interview applicants as part of its assessment process. Applicant's who do not meet the knowledge requirements through their academic history may be invited to interview to discuss potential limitations for registration as a limited professional geoscientist, to see how well they understand the technical concepts of their work. A variety of competencies will be tested in relation to technical expertise and overall work experience. An applicant may also be interviewed if there are questions concerning the relevancy of their work experience to the practice of geoscience. These interviews should not be viewed as oral examinations, and are not intended to require study and preparation. The questions are intended to provide the applicant the opportunity to demonstrate how their work experience has resulted in the practical application of what they learned during their geoscience degree. Answers by applicants that illustrate how they used geoscience concepts in the field, laboratory, or reports, will increase the applicant's chances of demonstrating achievement of the knowledge, and work experience, requirements.