

How to Draft a Proposed Scope of Practice A Guide for P.Tech. Applicants

The logo for ASET is located in the bottom right corner of the page. It features the word "ASET" in a bold, white, sans-serif font, set against a dark blue background. The background of the logo consists of several overlapping, curved, light blue and white shapes that create a sense of motion or a stylized wave.

ASET

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Introduction

The purpose of this document is to help you prepare your proposed scope of practice for a P.Tech. application with ASET. It should be used in conjunction with the P.Tech. Experience Spreadsheet.

The definitions of engineering and geoscience from the *Engineering and Geoscience Professions Act (EGPA)* are the definitions that the Joint Board of Examiners uses in evaluating P.Tech. applications and should be used as a guide for everything that you prepare for your P.Tech. application.

Definition of Engineering

The *EGPA* defines the practice of engineering as:

- i. Reporting on, advising on, evaluating, designing, preparing plans and specifications for or directing the construction, technical inspection, maintenance or operation of any work, structure or process
 - a. That is aimed at the discovery, development or utilization of matter, materials, or energy or in any other way designed for the use and convenience of humans, and
 - b. That requires in that reporting, advising, evaluating, designing, preparation or direction the professional application of the principals of mathematics, chemistry, or any related applied subject, or
- ii. Teaching engineering at university

Definition of Geoscience

The *EGPA* defines the practice of geoscience as:

- i. Reporting on, advising on, evaluating, interpreting, processing, geoscientific surveying, exploring, classifying reserves or examining related to any activity
 - a. That relates to the earth sciences or the environment,
 - b. That is aimed at the discovery or development of oil, natural gas, coal, metallic or non-metallic minerals, precious stones, other natural resources or water or that is aimed at the investigation of the surface or subsurface of the earth, and
 - c. That requires, in that reporting, advising, evaluating, interpreting, processing, geoscientific surveying, exploring, classifying reserves or examining, the professional application of the principals of mathematics, chemistry, physics, or biology through the application of the principals of geoscience, or
- ii. Teaching geoscience at a university

Please refer to the definition of engineering or geoscience (as applicable) in drafting your proposed scope of practice. The Joint Board looks to the definitions in assessing applications. Where applicable, highlight how your experience falls in line with the definition. The definitions of engineering and geoscience can also be found on the Instructions tab of the experience spreadsheet.

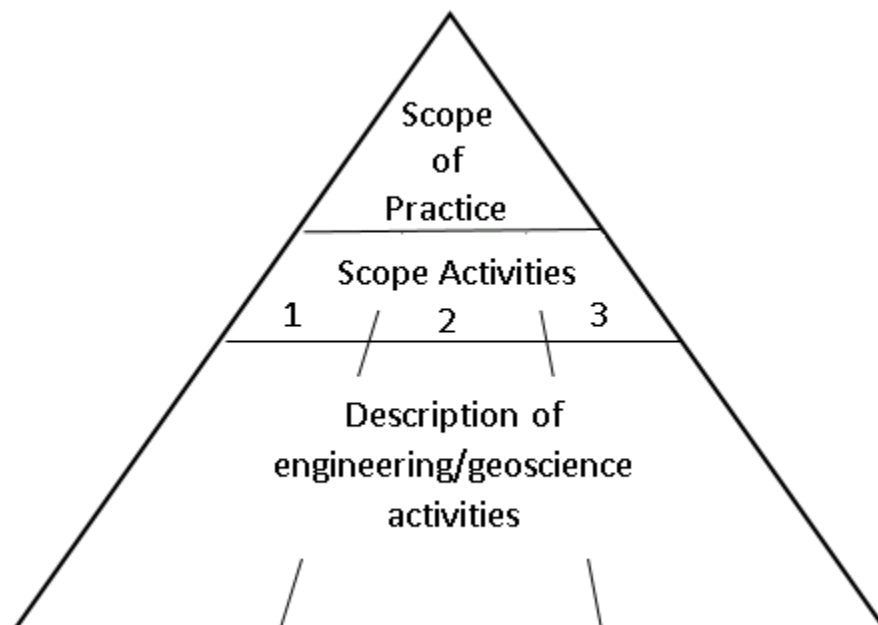
Scope of Practice

A defined scope of practice is a written description of your specific area of professional expertise. It defines the limitations within which a P.Tech.(Eng.) or P.Tech.(Geo.) is permitted to practice engineering or geoscience, respectively. It should be a statement of what you do as an engineering/geoscience technologist.

A scope of practice should be the areas in which you have specialized and developed an in-depth knowledge as a result of your entire career path. You likely had a much broader knowledge base when you graduated from your program, but will have found an area or areas that you have developed in your career and gained a much deeper understanding and knowledge in one or more related areas.

Each professional technologist will have their own independent scope of practice based on their competencies and work experience. The P.Tech. application is therefore a highly individualized process and should be based on your personal experience: not what your firm does, not what a colleague who does similar tasks has as their scope, but your personal work experience.

The proposed scope should be a high level overview of your experience. The Scope Activities break the scope out into specific tasks. The Scope Activity tabs are where you add specific details of what you do and how you do it. It may help to think of these three elements as a pyramid: proposed scope of practice at the top, scope activities in the middle, and the specific details at the bottom, with each level adding more detail and description as you move down the pyramid.



Despite the fact that the scope of practice is the highest level, it may be helpful to start by identifying your scope activities first and using them to then create your scope.

Scope Activities

Scope Activities should represent the major themes in your career, across your different jobs. You may need to deconstruct your resume and identify the activities that you have performed or developed across all of your working history. Scope Activities **are not** specific projects or employers. They are the specific competencies that you have developed professionally over the course of your career. What are the tasks that you have regularly completed across your career? What activities have you specialized in? This designation is a specialist designation and your scope of practice likely will not include every individual activity that you have performed in your career. A scope activity cannot be included in the final scope of practice if you cannot demonstrate that you have at least 24 months experience under the supervision of an APEGA professional member (P.Eng. or P.Geo. respectively). If you do not have enough experience in the task, do not include it.

The scope activities should be the things that you have performed consistently over the course of your career and in which you have developed specialization.

The scope activity consists of two parts: the engineering or geoscience tasks that are being performed and the specific work, structure, or process to which the tasks are being applied.

1. Engineering/Geoscience task:

The defined engineering and geoscience tasks come directly from the definitions of engineering and geoscience from the *EGPA*.

Engineering Tasks for P.Tech (Eng.) applicants	Geoscience Tasks for P.Tech (Geo.) applicants
<ul style="list-style-type: none">• reporting on• advising on• evaluating• designing• preparing plans and specifications for• directing the construction• directing the technical inspection• directing the maintenance• directing the operation	<ul style="list-style-type: none">• reporting• advising• evaluating• interpreting• processing• geoscientific surveying• exploring• classifying reserves• examining

2. Work, Structure, or Process

The second half of the scope activity is where you define *what it is that you are applying the task to*. It is the specific work, structure or process to which the defined task relates.

- Pipelines? SAGD facilities? Upstream or downstream facilities? Gas and well sites?
- Electrical power systems? Transmission substations? Control and safety systems?
- Roads? Sidewalks? Bridges?
- Waste water systems? Soil and ground water remediation?
- Distributed control systems? Programmable logic controllers? Human machine interfaces? Data communications systems?
- Pressure equipment? Pressure piping? Tanks? Refining equipment?

Below is an example of the scope activities that formed a scope of practice that was approved by the Joint Board of Examiners:

The Scope Activities are:

1. **Evaluating** sanitary sewer collection, water distribution systems, storm water management and collection systems, roadways, site grading, shallow utilities for municipal, commercial, residential and land development projects
2. **Directing the technical inspection of** sanitary sewer collection, water distribution systems, storm water management and collection systems, roadways, site grading, shallow utilities for municipal, commercial, residential and land development projects
3. **Preparing plans and specifications for** sanitary sewer collection, water distribution systems, storm water management and collection systems, roadways, site grading, shallow utilities for municipal, commercial, residential and land development projects

The terms in bold are the engineering tasks that the applicant performs, chosen from the definition of engineering, and the second half describes the **specific** structure, work, or process that the engineering task is being applied to.

The same process would apply if you were applying for a scope in geoscience, except the tasks would be the defined geoscience tasks from the definition of geoscience.

Developing your scope activities requires critical evaluation of your work history and identification of the areas in which you have developed a level of expertise. What tasks have you performed across your career and in what areas have you developed specialized skills?

The purpose of the P.Tech scope of practice is to limit your practice to the specific areas of engineering or geoscience that you have developed high level capabilities and competencies in as a result of the sum of your career experience.

Proposed Scope of Practice

The proposed scope should incorporate your scope activities and should be a clear, concise statement of exactly what engineering work you do. It should be immediately clear to another industry professional what you do.

The proposed scope of practice follows a specific formula:

Within the discipline of <discipline> and field of practice of <field of practice here>:
<scope activities> that is the routine application of industry recognized codes, standards, procedures and practices using established engineering or applied science principles and methods of problem solving.

The spreadsheet is designed to help you fill in this formula. The *discipline* and *field of practice* (if applicable¹) can be inserted directly into the scope, as can your scope activities.

¹ The field of practice is optional. If your experience is within a specific field, this can be used to specify a specific industry (for example oil and gas), but if your experience is broader, this is not required. Applicants in the petroleum discipline do not need to specify that they work in oil and gas operations.

For example, a scope activity may be **designing roadways** and the proposed scope of practice could be:

*Within the discipline of civil engineering: **designing roadways** that is the routine application of industry recognized codes, standards, procedures and practices using established engineering or applied science principles and methods of problem solving.*

Going back to the example above of the Joint Board approved scope of practice, the scope activities were:

1. **Evaluating** sanitary sewer collection, water distribution systems, storm water management and collection systems, roadways, site grading, shallow utilities for municipal, commercial, residential and land development projects
2. **Directing the technical inspection of** sanitary sewer collection, water distribution systems, storm water management and collection systems, roadways, site grading, shallow utilities for municipal, commercial, residential and land development projects
3. **Preparing plans and specifications for** sanitary sewer collection, water distribution systems, storm water management and collection systems, roadways, site grading, shallow utilities for municipal, commercial, residential and land development projects

Using these scope activities, the approved scope of practice is:

Within the discipline of civil engineering and field of practice of municipal infrastructure: **evaluating, directing the technical inspection of, and preparing plans and specifications for** *sanitary sewer collection, water distribution systems, storm water management and collection systems, roadways, site grading, shallow utilities for municipal, commercial, residential and land development projects* that is the routine application of industry recognized codes, standards, procedures and practices using established engineering or applied science principles and methods of problem solving

You can quickly identify the discipline and field of practice (underlined), the engineering tasks (bold), and the specific structures and process that the engineering task is being applied to (italics). You should also be able to identify exactly what this applicant does simply by reading this one statement.

Details of Engineering/Geoscience Work

The Scope Activity tabs on the experience spreadsheet are used to detail how you perform each of the scope activities. You need to complete a tab for each scope activity that you have defined.

You are required to detail at least two years of post-graduate work experience specific to your scope of practice that were completed under the supervision and control of a P.Eng. or P.Geo. member of APEGA.

When entering the details of your technical engineering or geoscience-related work experience, please note the following:

- Focus on the technical engineering or geoscience aspects of your work
 - Demonstrate how you use engineering or geoscience theory and calculations in performing the specific task described in the scope activity

- What steps did you take in the design process and what theory and calculations did you use?
- Which specific codes and standards did you use in the work?
- Do you work with specific voltages, building heights, etc.?
- Use the first person: "I designed", "I calculated", etc.
- Focus on the work that you personally did, not work completed as part of a team
- Submit all details in your own words. Please do not submit company drawings, specifications, reports, projects, or photos
- It is not necessary to include the specific calculations use, but to only demonstrate how you used them.

Examples of describing design steps are "I designed XXXXXX by using YYYYYY type of calculations to determine ZZZZZZ" or "I designed XXXX by the following steps: I determined XXXXX by doing ZZZZ", etc.

***Job duties such as *management, reviewing, supervision, cost estimating, project management*, etc. are not included as technical activities and therefore **should not be entered here**. If these job duties are included in the description, the experience spreadsheet will be returned to you for revisions before it is accepted by ASET into the application process.

You should use the full space provided when detailing your experience. Typically applications are stronger when there is more detail provided about how an applicant performs the engineering/geoscience task. The Joint Board needs enough detail to evaluate if you are capable of practicing this engineering/geoscience function independently, and they use the details of engineering/geoscience provided in the Scope Activity tabs to make that determination. Provide enough detail to show that you know what to do and are competent in this area.

Please note that your work experience information, including the proposed scope of practice, will be sent to each of your references so they can comment on the specific time period that pertains to them. Your references will review and confirm the information provided on your Scope Activity tabs and they will provide an opinion if you are qualified and capable to practice independently in each scope activity.

ASET recommends that you complete a thorough review of the document for spelling and grammatical errors, as the Joint Board considers the quality of the application when assessing both professionalism and an applicant's English language skills. If necessary, applicants may wish to type sections of the application, particularly the details of engineering/geoscience, in a word processing document to review the spelling, grammar, and formatting of the text.

If you have any other questions or concerns regarding the P.Tech application process or the drafting of a proposed scope of practice, please contact Monica Stroehaecker, ASET Registration Services Coordinator at monicas@aset.ab.ca or 780-425-02626 ex. 508

Sample Approved Scopes of Practice

The scopes of practice listed below have all been approved by the Joint Board of Examiners and are provided as reference and guidance only. Each applicant must draft their own individual scope of practice based on their work experience.

Within the discipline of chemical engineering: designing, evaluating and directing the operation of pipeline integrity management plans, corrosion mitigation & control programs, in the oil and gas industry that is the routine application of industry recognized codes, standards, procedures and practices using established engineering or applied science principles and methods of problem solving.

Within the discipline of civil engineering: reporting on, advising on, evaluating, directing the design and technical inspection, operation and maintenance of urban and rural earthworks, roadways, curbs, sidewalks, surface drainage systems, signage and traffic signal systems, that is the routine application of industry recognized codes, standards, procedures and practices using established engineering or applied science principles and methods of problem solving.

Within the discipline of civil engineering: design, preparing plans and specifications for and directing the technical inspection of single and multi-family residential, commercial & industrial wood or steel structures and concrete foundations including related building envelope systems (limited to buildings under 1500 square meters in total occupied area and 4 stories or less) that is the routine application of industry recognized codes, standards, procedures and practices using established engineering or applied science principles and methods of problem solving.

Within the discipline of electrical engineering: designing and directing the construction of instrumentation, control and safety systems, and associated wiring (280 VAC and less, including 24 VDC) including control system programming that is the routine application of industry recognized codes, standards, procedures and practices using established engineering or applied science principles and methods of problem solving.

Within the discipline of instrumentation engineering: designing, preparing specifications, directing the construction (including programming, configuration, commissioning), and directing the maintenance of distributed control systems, programmable logic controllers, human machine interfaces and data communications systems for the oil and gas industry, that is the routine application of industry recognized codes, standards, procedures and practices using established engineering or applied science principles and methods of problem solving.

Within the discipline of mechanical engineering: reporting on, advising on, evaluating, designing, preparing plans and specifications for, directing the construction of water and wastewater treatment facilities for oil and gas processes, inclusive of pumping stations and piping systems that is the routine application of industry recognized codes, standards, procedures and practices using established engineering or applied science principles and methods of problem solving.

Within the discipline of petroleum engineering: designing and directing the construction of oil and gas facilities and pipeline systems and preparing plans and specifications for oil and gas process equipment and piping, within the field of oil and gas facility and pipeline construction project coordination and management that is the routine application of industry recognized codes, standards, procedures and practices using established engineering or applied science principles and methods of problem solving.