

Public Protection Through Licensure

The Fundamentals of Geology Examination is a requirement for a person to become a Licensed Professional Geologist and to offer geologic services to the public in states that register geologists by examination. Pass-fail analyses of the Fundamentals of Geology Examination indicate that nearly 50 percent of the applicants who take the examination are unqualified to practice geology in the 1990s.

Much of today's geological practice affects the health, safety and welfare of the public, the environment, and the economy and feasibility of engineered works. Thus the public should be protected.

Unqualified geologists, who are employed in jobs that affect the public, place an undue risk on the health, safety and welfare of that public. The risks include:

1. The possibility of an error that will cause a loss of life or property
2. The higher costs of supervision
3. The costs of repeating incorrect and incomplete work
4. Lower cost/benefit ratios brought about by an inability to do efficient work

Registration Examinations

The registration examinations used by state boards of geologist registration are carefully developed and designed. The initial step in developing an examination is to carry out a task analysis. The task analysis is based on a survey of registered geologists to determine

1. The amount of time spent on a specific task,
2. The importance of the task in protecting the public, and
3. The extent of competence required for an entry level geologist at the time of initial licensure.

The results of these three independent responses are used to determine the relative significance of the tasks that are performed by geologists and therefore set the blueprint for the examination. If constructing geologic maps is the most significant task, then the examination will have more questions on constructing geologic maps. If, on the other hand, the identification of minerals based on their chemical formula is the least significant task, it may be dropped from the examination all together. The blueprint is the form for the examination and ensures that it represents the practice of the profession.

Subject Matter Experts who represent the full spectrum of the profession, are brought together to write and review questions for the examination. These experts must prepare

questions in their field that other experts will approve. The criteria for a question includes:

1. Does it have only one answer?
2. Is it related to a blueprint task?
3. Is it related to public protection?
4. Is the question clear and direct?
5. Is it written at the entry level?
6. Is it free of trickery?
7. Does it avoid assessing trivia?

If the question passes each of these criteria it will be approved for the examination. After a question has been used on an examination it is reviewed and evaluated by the subject matter experts. The first step in the evaluation of each examination is to require each expert to take the examination. The experts, working as a committee, review each examination question to determine:

1. The correct answer,
2. That there is only one correct answer,
3. That the question meets the criteria.

If the question passes review, the experts assign a difficulty score to the question. The score for each question is combined to determine the degree of difficulty of the examination, which determines the minimum level of competence required for a person to practice geology before the public.

Public Perception

Many people will claim that the use of an examination as a requirement for registration is unnecessary and that it is only used to limit membership. This claim is supported by the fact that a geologist must have a 4-year college degree and be sponsored by their peers and superiors for registration. History, however, shows that a 4-year college degree and recommendations by peers and superiors does not prove that a candidate has the academic preparation or understanding of geology necessary to practice geology that affects the public or the environment.

**Prepared by: The Committee on Professional Licensure
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