

**BOARD FOR PROFESSIONAL ENGINEERS, LAND SURVEYORS, AND GEOLOGISTS**

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**Definitions of Critical Concepts for the Professional Geologist, Professional Geophysicist, Certified Engineering Geologist, and Certified Hydrogeologist Application Process:**

Earth Science - An all-embracing term for sciences related the Earth (analogous, in educational parlance, to "life science"). It is occasionally used as a synonym for *geology* or *geological sciences*, but its usage is misleading because in its wider scope, earth science may be considered to include such subjects as meteorology, physical oceanography, soil chemistry, and agronomy. CF: *Geological Sciences* ("Glossary of Geology, 4th Edition", American Geological Institute, 1997, page 199).

Geology - The science which treats of the earth in general; investigation of the earth's crust and the rocks and other materials that compose it; and the applied science of utilizing knowledge of the earth and its constituent rocks, minerals, liquids, gases and other materials for the benefit of mankind.

Geological Sciences - Any of the subsidiary specialties that are part of the science of *geology*; e.g., geophysics, geochemistry, paleontology, petrology, etc. CF: *Earth Science* ("Glossary of Geology, 4th Edition", American Geological Institute, 1997, page 265).

Engineering Geology - The application of geologic data, principles and interpretation so that geologic factors affecting planning, design, construction and maintenance of civil engineering works are properly recognized and utilized.

Hydrogeology - The application of the science of geology to the study of the occurrence, distribution, quantity and movement of water below the surface of the earth, as it relates to the interrelationships of geologic materials and processes with water, with particular emphasis given to groundwater quality.

Geophysics - The science which involves study of the physical earth by means of measuring its natural and induced fields of force, including, but not limited to, electric, gravity, and magnetic, and its responses to natural and induced energy and the interpreting of these measurements and the relating of them to the physics of the earth.

Physical Geology - A broad division of geology that concerns itself with the processes and forces involved in the inorganic evolution of the Earth and its morphology, and its constituent minerals, rocks, magmas and core materials ("Glossary of Geology, 4th Edition", American Geological Institute, 1997, page 485).

Professional Geologic Work - Work performed at a professional level rather than at a subprofessional or apprentice level and requires the application of scientific knowledge, principles and methods of geological problems through the exercise of individual initiative and judgment in investigating, measuring, interpreting and reporting on the physical phenomena of the earth. Implicit in this definition is the recognition of professional responsibility and integrity and the acknowledgement of minimal supervision.

Professional geologic work specifically does not include: routine activities such as drafting, sampling, sample preparation, routine laboratory work, etc., where the elements of initiative, scientific judgment and decision making are lacking, activities that do not use scientific methods to process and interpret geologic data, soils engineering, soils sampling, soils testing or other activities in or related to the agricultural application of soils sciences, and mining, mining engineering or other engineering disciplines and/or other physical sciences wherein geological investigation, analysis and interpretation are minimal or lacking.

Professional Geophysical work - Work performed at a professional level rather than at a sub-professional or apprentice level and requires the application of scientific knowledge, principles and methods to geophysical problems through the exercise of individual initiative and judgment in investigating, measuring, interpreting and reporting on the physical phenomena of the earth. Implicit in this definition is the recognition of professional responsibility and integrity and the acknowledgment of minimal supervision.

Professional geophysical work specifically does not include activities wherein the analysis or interpretation of geophysical or geological information is lacking. Such nonprofessional work could encompass party or crew chief and would encompass lesser forms of employment in field parties, the manufacture, assembly or maintenance and repair of geophysical instruments and equipment, computer programming, data processing or retrieval and routine activities normally performed by a technician in acquiring and reporting on geophysical information where the elements of initiative, scientific judgment and decision making are absent. It also does not include those engineering disciplines and other physical sciences wherein geophysical or geological investigation, analysis and interpretation are minimal or lacking.

Independent Evaluation of Scope, Character and Duration of Applicant's Qualifying Geologic Work Experience form - The Board requires a detailed "Independent Evaluation of Scope, Character and Duration of Applicant's Qualifying Geologic Work Experience" form to be completed by the applicant's supervisor in *responsible charge* of the applicant's *qualifying experience* as part of the application for registration and administration of the examination process. This evaluation is documented in the "Independent Evaluation of Scope, Character and Duration of Applicant's Qualifying Geologic Work Experience" form(s) to be supplied by the reference provider(s) and submitted with your completed application to the Board.

Qualifying Experience – only include the number of months you are qualifying the applicant for. Please include a detailed description of the work completed by the applicant.

Responsible Charge - Independent control and direction by the use of initiative, skill and independent judgment of geological or geophysical work or the supervision of such work.

Responsible Position - A position whereby a person having individual control and direction of a geological project exercises individual initiative, skill and judgment in the investigation and interpretation of geological features, or the supervision of such projects. An individual can be considered to be in *responsible position* even though not professional and working as a subordinate employee to a Professional Geologist (PG).

Geologists and Geophysicists Code of Professional Standards - CCR, Title 16, Division 29 §3065 specifies: To protect and safeguard the health, safety, welfare, and property of the public, and California's environmental quality, every person who is licensed by the Board for Professional Engineers and Land Surveyors (Board) as a professional geologist or professional geophysicist, including licensees employed in any manner by a governmental entity or in private practice, shall comply with the professional standards in this section. A violation of any of the following professional standards shall constitute unprofessional conduct and shall be sufficient grounds for disciplinary action.