California Specific Examination (CSE) for Professional Geologist Test Plan

Approved March 2024

Effective January 2025

General Definition of geology:

"Professional geological work" is work performed at a professional level rather than at a subprofessional or apprentice level and requires the application of scientific knowledge, principles and methods to 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 acknowledgment of minimal supervision. (Title 16, CCR 3003)

This area of practice is structured into five primary content areas:

I. Hydrogeology (21%)

II. Environmental Geology (25%)

III. Engineering Geology (28%)

IV. Energy Resources and Mining Geology (10%)

V. Geomorphic Processes and General Geology (16%)

** Please note:

The California Specific Exam (CSE) is currently testing to the 2022 California Building Code and ASCE 7-16. The 2025 California Building Code and ASCE 7-22 will be implemented on exams starting in 2027.

BPELSG California Specific Exam-2024	
	Percentage of Questions on the Exam
I. Hydrogeology **<u>Professional Activities:</u>** 1. Plan and conduct hydrogeologic investigations 2. Analyze results of hydrogeologic investigations 3. Evaluate groundwater resources (e.g., aquifer characteristics, sustainability, water quality) to aid in their protection and preservation 4. Characterize surface water features and their geologic controls 5. Interpret geology to support the design, installation, development, and decommissioning of production water wells	21%
Test questions on these professional activities may include one or more of the following:	
A. Methods and procedures for well design, construction, and destruction	
B. Hydrogeologic considerations for selecting well locations	
C. Procedures and techniques for performing and evaluating aquifer testing	
D. Potential adverse impacts of groundwater extraction	
E. Hydrogeologic conceptual models for assessing water quality and aquifer characteristics	
F. Surface water features and their impacts to beneficial use (e.g., stormwater control plans, stream channel profiles, sea water interaction)	
G. Geologic processes, factors, and considerations related to regional water and environmental planning (e.g., basin plans, ground water sustainability plans, timber harvest plans)	
H. California open data portal and other publicly available data resources (e.g., groundwater elevation data, well completion reports)	
I. California laws, regulations, and guidance documents related to well design, sustainability plans, and conceptual site models	
II. Environmental Geology: **<u>Professional Activities:</u>** 1. Plan and implement sampling and monitoring programs to characterize geologic media (e.g., soil, groundwater, soil vapor) and assess potential impacts 2. Analyze and interpret results of environmental geologic investigations 3. Plan and implement contaminant mitigation and remediation of impacts to geologic media 4. Interpret geology to support the design, installation, development, and decommissioning of groundwater monitoring and remediation wells	25%
Test questions on these professional activities may include one or more of the following:	
A. Geologic factors involved in environmental evaluations of land use planning (e.g., school properties, on-site waste treatment systems, waste disposal facilities)	
B. Geologic factors involved in developing a conceptual site model	
C. Geologic conditions and land use practices affecting groundwater and surface water quality	
D. Methods and procedures for planning an environmental investigation	

E. Methods and procedures for preventing cross-contamination	
F. Methods and procedures for collection and analysis of sub-surface data, remote data, in-situ data, and samples (e.g., soil, sediment, water, soil gas)	
G. Contaminants-of-concern affecting California groundwater and land resources	
H. Fate and transport of chemicals in geologic media	
I. Methods and procedures related to remediation and mitigation of soil, water, and soil gas impacts	
J. California laws, regulations, and guidance documents related to environmental investigation, remediation, mitigation, and water quality	
K. California laws, regulations, and guidance documents related to waste disposal facilities	
III. Engineering Geology **<u>Professional Activities:</u>** 1. Plan and conduct engineering geologic investigations 2. Analyze results of engineering geologic investigations 3. Evaluate the geologic factors and processes affecting planning, design, construction, maintenance and vulnerability of civil engineering works 4. Characterize, evaluate, and provide recommendations regarding geologic and seismic hazards	28%
Test questions on these professional activities may include one or more of the following:	
A. Engineering geology and seismology data collection and analytical requirements for the development of California schools, hospitals, and essential services buildings	
B. Geologic factors applicable to the design and construction of flood control systems and water resources infrastructure (e.g., dams, levees)	
C. Geologic features related to active faulting	
D. Geologic hazards related to coastal processes (e.g., bluff retreat, erosion, tsunamis)	
E. Identification, characterization, and mitigation of mass wasting	
F. Investigation methods and analyses for seismically induced ground deformation (e.g., liquefaction) and slope instability	
G. California laws, regulations, and guidance documents related to soil and foundation investigations for structures and grading	
H. Procedures, methods, and geologic / seismic considerations related to soil and foundation investigations for structures and grading	
I. California laws, regulations, and guidance documents related to investigation and evaluation of surface fault rupture hazards	
J. Procedures and methods related to investigation and evaluation of surface fault rupture hazards	
K. California laws, regulations, and guidance documents related to engineering geologic aspects of waste disposal facility development, operations, and closure	
IV. Energy Resources and Mining Geology **<u>Professional Activities:</u>** 1. Identify, map, and characterize economic geologic resources 2. Interpret geology to support energy and mining development operations 3. Provide geologic support for the reclamation and closure of energy and mining operations	10%

Test questions on these professional activities may include one or more of the following:	
A. Identification and characterization of energy and mineral resources and associated hazards	
B. Geologic considerations related to sustainable energy resource generation and storage	
C. Procedures and California laws, regulations, and guidance documents related to geologic evaluation to support development of energy and mineral resources (e.g., exploration, development, injection wells, gas, geothermal, hydropower, oil)	
D. Procedures and California laws, regulations, and guidance documents related to geologic evaluation to support reclamation and closure of energy development projects and surface and subsurface mining operations	
V. Geomorphic Processes and General Geology **<u>Professional Activities:</u>** 1. Interpret geology to support land and watershed protection and restoration 2. Identify, map, and evaluate geomorphic features, surface processes, geologic units, and geologic structures 3. Characterize and differentiate the geological aspects of California geomorphic provinces/regions 4. Identify the types of soil and rock units or formations with potential significance for palaeontologic resources	16%
Test questions on these professional activities may include one or more of the following:	
A. California mineralogy and associated hazards	
B. California geomorphic provinces/regions and their associated geological processes, resources, and hazards	
C. Major California faults, tectonic structures, features, and formations of regional importance	
D. Remote sensing and field methods used to identify and interpret geomorphic features and processes (e.g., lidar, remote imagery, geologic mapping, age-dating)	
E. Geologic factors and California laws, regulations, and guidance documents related to palaeontologic resources, wetlands, and preserves	