## 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%)

BPELSG California Specific Exam-2024	
	Percentage of Questions on the Exam
I. Hydrogeology	21%
<ul> <li>Professional Activities:</li> <li>1. Plan and conduct hydrogeologic investigations</li> <li>2. Analyze results of hydrogeologic investigations</li> <li>3. Evaluate groundwater resources (e.g., aquifer characteristics, sustainability, water quality) to aid in their protection and preservation</li> <li>4. Characterize surface water features and their geologic controls</li> <li>5. Interpret geology to support the design, installation, development, and decommissioning of production water wells</li> </ul>	
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:	25%
<ul> <li>Professional Activities:</li> <li>1. Plan and implement sampling and monitoring programs to characterize geologic media (e.g., soil, groundwater, soil vapor) and assess potential impacts</li> <li>2. Analyze and interpret results of environmental geologic investigations</li> <li>3. Plan and implement contaminant mitigation and remediation of impacts to geologic media</li> <li>4. Interpret geology to support the design, installation, development, and decommissioning of groundwater monitoring and remediation wells</li> </ul>	
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	28%
Professional Activities:	
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	
A Characterize evolute and provide recommendations reporting geologic and exismic	
4. Characterize, evaluate, and provide recommendations regarding geologic and seismic	
nazarus	
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	
A. Engineering geology and seismology data concertion and analytical requirements for the	
B. Castagia factors applicable to the design and construction of flood control systems and	
B. Geologic factors applicable to the design and construction of flood control systems and	
C. Coologie features related to pating foulting	
C. Geologic features felated to active faulting	
D. Geologic nazards 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.,	
liqueraction) and slope instability	
G. California laws, regulations, and guidance documents related to soll and foundation	
H. Procedures, methods, and geologic / seismic considerations related to soil and foundation	
investigations for structures and grading	
L 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	10%
Professional Activities:	
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	

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	16%
Professional Activities:	
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	
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	