

CALIFORNIA SPECIFIC EXAMINATION (CSE) BLUEPRINT (July 2013)

TOTAL %	TOPIC	
45%	General Geology Practice - Assesses knowledge of geologic investigation techniques, field practice, feasibility studies, health and safety risk assessment, and ethical standards of practice.	
23%	General Geology Practices Applied to California - Collect, analyze, and interpret available California geological and geophysical data, maps, sections, and reports. Prepare, analyze, and interpret logs derived from California borings, trenches, and test pits. Identify, map, and evaluate geologic, geomorphic, and seismic hazards. Develop feasibility studies of mitigation and remediation recommendations.	
	<u>California Knowledge base as it pertains to geology:</u> sources for current and historical information, procedures for analyzing various types of data and information, ASTM D2487 (USCS), ASTM D422 (Particle-size analysis), Seismic Hazards Mapping Act, mineralogy and associated hazards, rocks and soils and associated hazards (liquefaction, landslides, expansion), and procedures for geological feasibility studies (viability, cost-benefit, impact)	
	22%	Health, Safety, and Professional Ethics - Plan and design fieldwork programs for geological investigations, ensuring health and safety protection of workers, the public, and the environment. Assess risks to human health and safety, as well as to the environment, associated with geology projects. Conduct professional work in compliance with ethical standards and legal requirements.
	<u>California Knowledge base as it pertains to geology:</u> Cal/OSHA regulations (trenching, shoring), procedures for assessing health and safety risks, Health and Safety Code Division 20, Code of Regulations (CCR) Title 22, Division 4.5 (Environmental Health Standards for the Management of Hazardous Waste), distribution of naturally occurring toxic substances (asbestos, radon, mercury), and Business and Professional Code Section 12.5.	
7%	California Geology - Assesses knowledge of the associations and distributions of rocks, faults, stratigraphic relations, tectonic features, and related hazards found in California. -- Plan sedimentologic, stratigraphic, geomorphic, structural, and tectonic investigations in California and evaluate results. Evaluate earthquake mechanisms, faulting, and paleoseismic history, as well as their related hazards.	
	<u>California Knowledge base as it pertains to geology:</u> basic sedimentology, stratigraphy, and paleontology, geomorphic provinces and associated geological processes and hazards, tectonic framework, CGS Note 42 (Fault Rupture Hazard Zones), fault systems and their associated hazards, history of major earthquakes and probability of future occurrences, procedures for identifying surface and subsurface faults, Special Publication 42 (Alquist-Priolo Zoning Act), and CGS Note 31 (Faults and Earthquakes in California).	
48%	Applied Geology Practice - Assesses knowledge of hydrogeology, environmental geology, engineering geology, mining geology, and energy resource development applied to California with a focus on the major issues in each subarea of geologic practice as well as California laws, regulations, and guidelines related to geology.	
18%	Hydrogeology - Plan California hydrogeological investigations and evaluate results. Evaluate California water resources, assess aquifer yield, and determine sustainability. Design and develop California groundwater supply, monitoring, observation, extraction, production, injection, and cathodic protection wells. Manage and protect California groundwater resources. Plan and manage the decommissioning of various types of wells in California.	
	<u>California Knowledge base as it pertains to geology:</u> procedures for planning and evaluating hydrogeological investigations; California Statutory Water Rights Law; California Water Code; Porter-Cologne Water Quality Control Act (California Water Code Division 7); major groundwater basins, their characteristics (recharge) and issues related to their management; California Well Standards 74-90 and 74-81; scope of practice for C-57 Well Driller licensees; methods and procedures for preventing well cross-contamination, managing and protecting groundwater resources; seawater intrusion locations and related management issues; and drilling methods and their application to geologic conditions.	

18%	<p>Environmental Geology - Plan environmental geologic investigations and evaluate results. Develop, manage, and protect surface water resources in California. Plan sampling programs for water, soil, and soil vapor to assess hazards and risks. Remediate surface water and groundwater resources in California.</p>
	<p><u>California Knowledge base as it pertains to geology</u>: procedures for planning and evaluating environmental geologic investigations; ASTM E2247 and ASTM E1527 (Standard Practice for Environmental Site Assessments: Phase I); Preliminary Endangerment Assessment (PEA) Guidance Manual for hazardous waste sites; State agencies that regulate water (their procedures and resources); geologic factors applied to the development, management, and protection of surface water resources; Health and Safety Code Division 104, Part 12 (Drinking Water); ASTM E1903 (Standard Practice for Environmental Site Assessments: Phase II); ASTM E2600 (Standard Guide for Vapor Encroachment Screening on Property involved in Real Estate Transactions); fate and transport of chemicals in the vadose and saturated zones; methods and procedures for conducting water, soil, and soil vapor tests; Leaking Underground Fuel Tank (LUFT) Manual guidelines; methods and procedures for remediating surface water and groundwater resources; Comprehensive Environmental Response Compensation and Liability Act (CERCLA) process for cleaning up hazardous waste sites.</p>
9%	<p>Engineering Geology - Plan engineering geology investigations and evaluate results. Evaluate geologic factors concerning flood control and prevention in California. Provide geological recommendations for engineering design, site development, land use, and watershed management in California. Develop programs for geologic, geomorphic, and seismic hazard mitigation in California. Develop programs for land and watershed restoration in California.</p>
	<p><u>California Knowledge base as it pertains to geology</u>: procedures for planning and evaluating engineering geology investigations; procedures for seismological investigations to identify earthquake hazards and fault creep; CGS Note 48 (Engineering checklist); California Building Code (CBC); procedures for identifying and characterizing mass wasting (Landslides, rock fall, soil creep); geologic factors applicable to the design and construction of flood control systems and water resources infrastructure; forestry practices for watershed management; methods of ground improvement (grouting, lime treatment, geo-textiles); Department of Toxic Substances Control (DTSC) requirements for construction and monitoring of landfills; CCR Title 27 Division 2 Chapter 3 (Standards for Construction of Waste Management Units); coastal processes (bluff erosion, sea level rise) and associated hazards; methods and procedures for mitigation of various geologic, geomorphic, and seismic hazards and for land and watershed restoration; and CGS Special Publication 117A (Guidelines for Evaluating and Mitigating Seismic Hazards).</p>
3%	<p>Energy Resources and Mining Geology - Plan exploration, development, and production of energy resources in California. Provide recommendations for the design of energy development operations in California. Provide recommendations for the closure, reclamation, and restoration of energy operations in California. Provide recommendations for the closure, reclamation, and restoration of mineral extraction operations in California.</p>
	<p><u>California Knowledge base as it pertains to geology</u>: distribution of energy resources (oil, gas, geothermal); design considerations of the energy development operations; procedures for geologic evaluation of the closure, reclamation, and restoration of energy operations; and procedures for geologic evaluation of the closure, reclamation, and restoration of mineral extraction operations.</p>