



Dam/Impoundment Safety Inspection and Management Services

CEC develops sensible solutions for dam and impoundment projects, providing a streamlined approach to engineering that accounts for management of risk, addresses regulatory obligations, protects the environment, and minimizes bottom-line costs.



DAM/IMPOUNDMENT DESIGN

CEC engineers prepare site plans that minimize a structure's impact on the site while meeting storage volumes and local and state environmental requirements. Typical services range from conceptual planning, storage/volume analyses, erosion and stormwater management, hydraulic and hydrologic studies, geotechnical explorations, structure design, stability analyses, spillway design, liner systems, pumping systems, alternatives analyses, and permitting.

DAM INSPECTION AND MAINTENANCE SERVICES

CEC engineers perform inspections for a variety of dam structures and appurtenant features, including low- and high-hazard structures, earthen dams, concrete spillways, bypass channels, emergency spillways, and weirs. CEC provides cost-effective recommendations for the maintenance and remediation of the structures. CEC also offers turnkey design-build solutions to address significant defects and issues, including spillway repairs, seepage, slope distress, erosion, and embankment settlement.

DAM BREACH ANALYSES AND INUNDATION STUDIES

Using regional and site-specific survey information, CEC analyzes proposed and existing dam and impoundment structures to assess the potential impacts of a dam breach/failure on the surrounding environment. Using HEC-HMS and other modeling software, CEC analyzes the structure for "sunny-day," Probable Maximum Flood (PMF), and similar design scenarios. CEC determines limits of the potential impacts specific to floodwave attenuation and the localized increases in water surface elevations, and uses modeling data to prepare the exhibits required for both permitting and emergency action planning.

EMERGENCY ACTION PLANS AND OPERATION & MAINTENANCE PLANS

CEC manages the development of an Emergency Action Plan (EAP), which includes coordinating with local and state emergency management agencies, first responders, and law enforcement, as well as establishing criteria for the implementation of emergency measures. CEC prepares site access plans based on the results of the breach analyses, establishes dam and impoundment monitoring criteria during severe precipitation events, and prepares an Operation & Maintenance Plan for the structure. These documents establish criteria for clients to perform self-inspections and provide guidance on the requirements for periodic maintenance.

IMPOUNDMENT SAFETY INSPECTION & MANAGEMENT SERVICES

- Dam Permitting
- Probable Maximum Flood Studies
- Confined Space Culvert and Piping Inspections
- Hydraulic, Hydrologic and Seepage Analyses and Modeling
- Geotechnical Investigations and Embankment Stability Analysis
- Impoundment Modification, Rehabilitation or Upgrades
- Construction Management
- Construction Quality Assurance
- Erosion and Sediment Control Design and Planning
- Green Impoundments and Landscape Aesthetics
- Dam and Impoundment Closures