

# Waste Management

**CEC provides engineering and consulting services for the management and disposal of a broad range of wastes, including municipal, construction/demolition, residual, hazardous, gas exploration wastes, and coal combustion residuals.**

## **SITE SELECTION AND CHARACTERIZATION**

CEC performs “fatal flaw” analysis and related studies that identify potential conflicts with regulatory criteria and existing environmental liabilities. Services include evaluation of the following criteria:

- Permitting Requirements
- Local Planning Issues Such as Access, Zoning, Public Opposition
- Ecological Impacts
- Geotechnical and Hydrogeologic Investigations
- Environmental Liability Issues
- Environmental and Operational Due Diligence
- Operations Optimization

## **DESIGN AND PERMITTING**

Designs are prepared to satisfy regulatory requirements and owner/operator preferences. CEC’s services include:

- Waste Disposal Facility Design and Permitting
- Waste Processing/Recycling Facility Design and Permitting
- Transfer Station Design and Permitting
- Leachate Treatment Design and Management
- Landfill Gas-to-Energy Design and Permitting
- Landfill Gas Management System and Permitting
- Erosion and Sedimentation Control Plans, Stormwater Plans
- Geotechnical and Soils Investigations
- Gas Management System Design
- NPDES Permitting and Monitoring
- Groundwater Monitoring System Design
- Wetlands Delineation and Mitigation
- Hydrogeologic Site Investigation
- Risk Assessment/Environmental Impact
- Waste Characterization Studies
- Construction and Operating Costs

## **GROUNDWATER ASSESSMENT/CORRECTIVE MEASURES**

CEC performs a wide range of groundwater investigation services, including complete rate and extent assessments and remedial design incorporating corrective measures. CEC’s groundwater services include:

- Delineation and Analysis of Aquifer Flow Patterns and Quantities
- Groundwater Modeling and Contaminant Transport
- Design, Installation, and Operation of Remediation Systems
- Design of Pumping Wells and Extraction Networks
- Barrier Systems Design Including Slurry Walls and Cutoff Trenches





Civil & Environmental Consultants, Inc.

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## CONSTRUCTION SERVICES

CEC provides construction management and construction quality assurance (CQA) services for waste facilities. This can include augmentation of services performed by the client through full oversight of contractor(s) performance, schedule, and pay applications. CEC has CQA experience with the monitoring of the following:

- Compacted Soil Liner Construction
- Structural Fill Placement
- Geosynthetics Installation
- Mechanically Stabilized Earth (MSE) Structures
- Leachate Management System Installation
- Gas Management System Installation
- Slurry Wall Construction
- Mitigation and Replacement of Wetlands
- Survey Services For Construction Layout and As-Builts

## MONITORING SERVICES

CEC provides comprehensive monitoring services during construction, operation, closure, and post-closure care of waste facilities. These services include:

- Maintenance/Monitoring/Reporting of Land Fill Gas Systems
- Source Testing Services for Air Monitoring
- Maintenance/Monitoring/Reporting of the Groundwater and Monitoring Network
- Surface water Testing, Reporting, and Management
- Leachate Collection System Testing and Disposal Evaluations