



Cannabis Industry Engineering Services: Overview

BioLargo Engineering, Science & Technologies has a wide range of services for operators in the cannabis industry. Whether your facility is a producer, a processor, or a handling facility, we're here to help.

Planning and Permitting:

- Initial project coordination with local planning commissions, and siting assessments to obtain favorable setting
- Sustainability goals, philosophy, and associated analysis is an important early planning task that can significantly affect later project decisions and overall direction
- California Environmental Quality Assessment (CEQA), preparation, coordination with local jurisdictions, exemption petitions, and other initial approvals (e.g., Notice of Determination/Exemption) mandatory for a project to move forward
- Environmental Regulatory Compliance and Permitting (Air, water, solid waste, special wastes. This includes implementing both permitting and overall compliance programs for ultimate tracking, documentation, and recordkeeping of information required to demonstrate compliance
- License Renewals (e.g., California Department of Public Health, Department of Food and Agriculture, Bureau of Cannabis Control. The renewal process is continual (generally annual renewal) for multiple agencies involved



Training and OSHA:

- General SOPs – Multiple regulatory authorities mandate developing numerous plans and SOP activities such as inventory control, quality control, transportation, security, sanitation, chemical extraction, and emergency response. Other specifically required plans such as master manufacturing protocol, pest management plan, hazardous material business plan, etc.
- Personnel Training – regulations require that licensees provide training to employees regarding plans, procedures, regulatory requirements and legal ramifications, etc.
- OSHA Compliance - Chemical exposure (THC, CBD, solvents), Health and Safety Plan
- OSHA required training (HazMat right to know, etc.)



Contact us for a free consultation

Randall Moore - President & CEO

865.604.3945

randall.moore@biolargo.com

Waste Management:

- Solid Waste Management
 - ◇ Organic solids – Buds, leaves and plant materials post extraction – ground, wet and petrifiable
 - ◇ Hazardous wastes
 - ◇ Special Wastes (e.g., medical)
 - ◇ Inorganic solids – Rock wool post growth
 - ◇ Cannabis Waste Management Plan – required in most jurisdictions to prevent misdirection of active ingredients
 - ◇ Waste Analysis Plan and numerous related plans are required if hazardous waste is handled
- Specific waste solvents – butane, ethanol, hexane, isopropyl alcohol, carbon dioxide- system certification, and SOPs are required for safe handling, use, reuse/recycling/reclamation, and disposal

Air Quality:

- Air emissions – solvents (butane, ethanol, hexane, isopropyl alcohol, carbon dioxide) – local air district permitting required (activities such as emission inventory, air pollution control technology and equipment selection, establishment of operating parameter limits for control equipment, emission control system O&M plans, etc.)
- Indoor Air Quality – solvent exposure, airborne mold spores – Certified Industrial Hygienist required to provide defensible data
- Local, State and Federal Air Permits – preparation of emission inventories, applicability analysis and preparation of all applicable air permits for growers, processors and handling facilities

Water:

- Water dechlorination – reduce chlorine uptake into the plants and eliminate biological stress through removing chlorine residual from incoming potable waters
- Demineralization – ensure healthy plants and contaminant free product by removing heavy metals, unwanted minerals and non-nutrient components from the incoming water
- Softening – replace calcium and magnesium with micronutrient components to improve yield and product quality
- Disinfection – eliminate the potential for exposure of the plants or product to pathogenic microorganisms through proper pre-treatment and disinfection
- Automated hydroponic nutrient addition – optimize grow rate, product yield and quality with automatic nutrient supplementation to the water source

Wastewater:

- Consulting, Design, Integration, Systems
 - ◇ Sanitary sewer
 - ◇ Irrigation water (nutrient heavy, phosphorous, nitrogen, potassium) High Dissolved Solids
 - ◇ Cleaning/rinsing water – cannabinoids, THC, CBD, suspended solids
 - ◇ Blow down from humification systems
 - ◇ Condensate
- Wastewater Reclamation and Reuse - California Title 22 requirements, pathogens, toxics, etc. This includes grey water and black water solutions