

SENIOR ENGINEER

This class specification indicates, in general terms, the type and level of work performed as well as the responsibilities of employees in this classification. The job functions described are not to be interpreted as being all-inclusive to any specific employee.

DEFINITION

Under general direction, leads and participates in a variety of the most complex and responsible engineering assignments in the planning, design, construction, operations, and compliance of wastewater facilities, infrastructure, systems, and programs; manages major capital projects through all phases of the project management life cycle; inspects and analyzes plant operations, develops solutions, and implements process improvements; serves as subject matter expert and advisor to management staff on assigned plant systems, projects, or programs; researches complex problems, conducts technical engineering-related studies, and recommends operational, program, or policy solutions; provides guidance, technical direction, and training to other engineering staff; and performs duties as assigned.

SUPERVISION RECEIVED AND EXERCISED

Receives general direction from assigned supervisory and/or management staff. Exercises no direct supervision of staff. Exercises technical and functional direction over and provides training to lower-level staff on project and/or day-to-day basis.

CLASS CHARACTERISTICS

This classification is the fourth of four levels within the professional engineering job series responsible for performing the most complex, difficult, and responsible assignments, projects, analyses, and programs assigned requiring advanced knowledge of engineering concepts, practices, procedures, and policies. Positions at this level provide technical and functional direction and leadership to assigned staff. Assignments at this level have significant impact on OC San's operations. Completed work is reviewed only from an overall standpoint in terms of feasibility, compatibility with other work, and/or effectiveness in meeting requirements and expected results. This class is distinguished from the Engineering Supervisor in that the latter has full supervisory authority for planning, organizing, and overseeing the full scope of assigned engineering functions within the department.

EXAMPLES OF ESSENTIAL JOB FUNCTIONS (Illustrative Only)

The following essential job functions are typical for this classification. Incumbents may not perform all of the listed job functions and/or may be required to perform additional or different job functions from those set forth below to address business needs and changing business practices.

- Leads and participates in a variety of complex professional engineering duties in the planning, design, construction, operations, and compliance of wastewater facilities, systems, and programs; oversees and/or prepares, evaluates, and provides comment on detailed designs, drawings, technical specifications, and scopes of work for engineering projects.
- Develops and initiates proposals for new projects; determines project goals, scope of work, staffing requirements, schedules, and budgets; oversees the project bid and proposal processes; solicits and reviews proposals; negotiates contract terms and participates in the selection of consultants and

contractors; establishes project schedule and performance criteria; prepares agenda reports for the Board of Directors.

- Manages engineering design and major capital improvement projects through all phases of the project life cycle, from preliminary design to project closeout; manages the procurement of goods and services for assigned projects; establishes project milestones and key deadlines; interfaces with senior management, the Board of Directors, peers, project staff, consultants, customers, and users as necessary to coordinate project execution; informs stakeholders of project status and possible outcomes; prepares, oversees, and monitors budgets; ensures project progresses on schedule within prescribed budget and with acceptable quality.
- Manages the work of outside consultants and contractors; directs consultants on project planning, preparation, scheduling, and execution of contracts; ensures work is completed on time and in conformance with budgets, schedules, plans, and specifications.
- Provides technical leadership and expertise in preparing designs and specifications; ensures compliance with engineering standards, safety and regulatory requirements, design quality, and stakeholder needs; performs constructability reviews on project designs and ensures projects are constructed in accordance with contract documents, permits, safety requirements, and applicable building codes.
- Leads and participates in commissioning activities, acceptance testing, reliability acceptance testing, and actively troubleshoots issues as they arise.
- Conducts complex engineering calculations, research, analysis, optimization studies, and process modeling within specialized area of assignment; compiles data, reviews reports, and monitors processes; recommends and implements corrective actions.
- Leads engineering planning activities for OC San assets and infrastructure; maintains an asset registry of OC San's critical assets; works closely with Operations and Maintenance staff to identify field issues and evaluate solutions to resolve these issues; develops short to long-term planning for assets maintenance, rehabilitation and replacement; identifies, packages and prioritizes new capital projects.
- Oversees the design, replacement, rehabilitation, and abandonment of plant process areas, collection facilities, and pump stations; reviews plans and technical specifications and provides input on functional and/or safety aspects of proposed plant and collection facilities and rehabilitation projects. inspects, diagnoses, develops, and oversees corrective action plans for the most complex operation and maintenance problems.
- Inspects, diagnoses, develops, and oversees corrective action plans for the most complex operation and maintenance problems; reviews plant process trends, directs corrective action, and coordinates operational activities to optimize plant process and safety.
- Performs complex power system studies of electrical equipment to determine impact of modifications and plan future growth; monitors energy markets; manages energy contracts and budgets.
- Leads and serves as a technical resource in control system engineering for wastewater collection systems, pump stations, and treatment plants; reviews and comments on drawings, plans, and other work submitted by external consultants, engineers, contractors, and developers for conformance with professional codes, standards, and District specifications; designs and commissions new and existing control systems and processes; performs and assists information technology staff with performance monitoring and backups, condition assessment, improvement planning such as upgrades for functionality and reliability improvements, and modifications to and corrective maintenance of SCADA, programmable logic controller (PLC) and distributed control system (DCS) programming, Human machine interface (HMI) systems and graphics.
- Prepares memos and technical reports regarding wastewater treatment management, safety management, and/or air quality management; develops, manages, analyzes, and utilizes relevant database systems and recommends methods to meet compliance requirements.
- Manages studies conducted by and/or in collaboration with other agencies.
- Leads in the development and implementation of regulatory programs targeted at the discharger community to eliminate pollution discharge into OC San's sewage systems; ensures OC San's compliance with various regulatory requirements; performs evaluations of corrective response plans

- and waste management proposals; prepares, finalizes, and tracks correspondence with regulatory agencies.
- Analyzes, interprets, and explains various regulations and policies related to area of assignment; tracks new legislative and regulatory developments related to compliance; develops and oversees the implementation of conformity documents, policies, and procedures; identifies impacts of proposed regulatory changes on OC San's facilities, processes, and operations.
 - Leads activities in the issuance and renewal of industrial wastewater discharge permits; evaluates the most complex permit applications and design drawings; finalizes permit requirements and ensures compliance through enforcement of permit provisions and discharge limits.
 - Serves as a liaison for assigned division with other OC San departments, divisions, and outside agencies; provides staff support to commissions, committees, and task forces; represents OC San with regulatory agencies, contractors, and consultants.
 - Subject matter expert in controls system design, programming, testing, commissioning, networks, and fiber optic systems; programs, tests, and commissions the most complex control systems.
 - Maintains the plant and pump station control system and supports operations and maintenance requested changes; supports operations and maintenance with troubleshooting and modifying existing systems; provides training to operations and maintenance staff.
 - Attends and participates in professional group meetings; stays abreast of new trends and innovations in the field of engineering; researches emerging products and enhancements and their applicability to OC San needs.
 - Assists in the development of policies, procedures, and standards; establishes, manages, updates engineering standards to meet current best practices and engineering design requirements.
 - Organizes and assigns the work of lower-level staff; trains staff in work procedures; reviews work products and provides direction for difficult and/or complex assignments; as a program and/or project leader, may direct, assign, train, monitor, and review the work activities of team members; determines work priorities; oversees quality and quantity of work performed and ensures adherence to established procedures by instructing employees accordingly; is a reference to employees by possessing specialized skills; and develops and implements work improvements.
 - Ensures safety and health procedures and precautions are adhered to, corrects unsafe work conditions/practices, and/or reports unsafe work conditions/practices to assigned supervisory or managerial staff.
 - Performs duties as assigned.

QUALIFICATIONS

Knowledge of:

- Applicable federal, state, and local laws, codes, and ordinances relevant to area(s) of responsibility.
- Modern and advanced principles and practices of civil, electrical, chemical, mechanical, environmental, structural, safety, and/or control systems engineering.
- Advanced principles and practices of construction and project management.
- Operations of wastewater management systems, including air pollution, solids management, odor control, and flow regimes.
- Advanced principles of air dispersion, fate-transport, interceptor odor, and safety and health risk analysis modeling.
- Advanced methods and techniques of engineering plan review and analysis.
- Principles and practices of public agency budget and contract development, administration, and sound financial management policies and procedures.
- Recent and on-going developments, current literature, and sources of information related to the operations of the assigned programs.
- Advanced principles and applications of critical thinking and analysis.
- Principles of advanced mathematics and their application to engineering work.

- Principles of providing functional direction and training.
- Principles and techniques for working with groups and fostering effective team interaction to ensure teamwork is conducted smoothly.
- The structure and content of the English language, including the meaning and spelling of words, rules of composition, and grammar.
- Current equipment and communication tools used for business functions and program, project, and task coordination, including computers and software programs relevant to work performed.
- Human machine interface (HMI) programming and configuration.
- Programmable logic controller (PLC) and distributed control system (DCS) programming using ladder logic and function block.

Ability to:

- Oversee and administer assigned programs and/or projects and promote the individual professional growth and development of less experienced staff; plan, organize, and coordinate the work of assigned staff; effectively provide staff leadership and work direction.
- Independently apply critical thinking and complex analysis to a broad range of situations and in decision making and problem solving.
- Resolve conflict through workable solutions and alternative approaches.
- Identify and implement effective course of action to complete assigned work.
- Conduct complex engineering research projects and studies, analyze complex engineering, operations, and/or compliance problems, evaluate alternatives, make sound recommendations, and prepare effective technical staff reports.
- Manage complex engineering projects, oversee project schedules and budgets and manage contracts and the work of consultants and contractors.
- Analyze, interpret, summarize, and present administrative and technical information and data in an effective manner.
- Prepare, understand, and interpret bid and contract documents, cost estimates, engineering designs, construction plans, technical drawings, specifications, and other contract documents.
- Inspect public works projects for conformance with plans and specifications.
- Identify problems, research and analyze relevant information, develop and present recommendations and justification for solution.
- Prepare and present clear, concise, and logical written and oral reports, correspondence, policies, procedures, legal descriptions, and other written materials.
- Establish and maintain a variety of filing, record keeping, and tracking systems.
- Understand, interpret, and apply all pertinent laws, codes, regulations, policies and procedures, and standards relevant to work performed.
- Perform complex mathematical and engineering computations with precision.
- Effectively represent the department and OC San in meetings with governmental agencies, community groups, various business, professional, regulatory organizations, and in meetings with individuals
- Operate a motor vehicle and travel to various OC San sites, projects, and/or meetings.
- Independently organize work, set priorities, meet critical deadlines, and follow-up on assignments.
- Use tact, initiative, prudence, and independent judgment within general policy, legal, and procedural guidelines.
- Comply with safe work practices and procedures in the workplace.
- Provide a high level of customer service by effectively dealing with the public, vendors, consultants, contractors, and OC San staff.
- Effectively use computer systems, software applications relevant to work performed, and modern business equipment to perform a variety of work tasks.
- Communicate clearly and concisely, both orally and in writing, using appropriate English grammar and syntax.

- Establish, maintain, and foster positive and effective working relationships with those contacted in the course of work.

Employment Standards:

Any combination of education and experience that provides the required knowledge, skills, and abilities may be qualifying as determined by OC San.

1. Bachelor's degree from a college or university accredited by the U.S. Department of Education, with major coursework in civil, mechanical, chemical, electrical, or environmental engineering or a related field, dependent upon area of assignment.
2. Six (6) years of increasingly responsible professional engineering work experience.

Licenses and/or Certifications:

- Must possess a valid California Class C Driver's License.
- Must possess a valid registration as a professional engineer (P.E.) in the State of California.

Disaster Service Workers:

All Orange County Sanitation District employees are designated Disaster Service Workers through state law (California Government Code Section 3100-3109). Employment with the Orange County Sanitation District requires the affirmation of a loyalty oath to this effect. Employees are required to complete all related training as assigned, and to return to work as ordered in the event of an emergency.

PHYSICAL DEMANDS

- Mobility to work in a standard office setting and use standard office equipment, including a computer; to operate a motor vehicle and visit various OC San sites, projects, and/or meetings; primarily a sedentary office classification although standing in work areas and walking between work areas may be required; occasionally bend, stoop, kneel, reach, push, and pull drawers open and closed to retrieve and file information; ability to lift, carry, push, and pull materials and objects up to 35 pounds.
- Mobility to work in changing site conditions; to sit, stand, and walk on level, uneven, or slippery surfaces; to reach, twist, turn, kneel, and bend, to climb and descend ladders.
- Perform light physical work; lift, carry, push, and pull materials and objects averaging a weight of 51 pounds, or heavier weights, in all cases with the use of proper equipment and/or assistance from other staff.
- Vision to read printed materials and a computer screen.
- Vision to inspect site conditions and work in progress.
- Hearing and speech to communicate in person and over the telephone.
- Finger dexterity is needed to access, enter, and retrieve data using a computer keyboard or calculator and to operate standard office equipment.
- Frequent walking in operational areas to identify problems or hazards.
- Climb ladders, install cabling, work around and in low voltage field control panels and hardware; use electrical and networking test equipment; use tools to remove, install and test equipment including servers, network equipment, power supplies, fiber optics and cabling.

ENVIRONMENTAL ELEMENTS

- Office environment with moderate noise levels, controlled temperature conditions, and no direct exposure to hazardous physical substances.
- May work in the field and occasionally be exposed to loud noise levels, cold and hot temperatures, inclement weather conditions, road hazards, vibration, chemicals, mechanical and/or electrical hazards, hazardous physical substances and fumes, dust, and air contaminants.

- Employees may interact with upset staff and/or public and private representatives in interpreting and enforcing departmental policies and procedures.

OTHER REQUIREMENTS

- Probationary Period: All OC San employees, except classifications considered “at-will”, are subject to the probationary period provisions as specified in the applicable Memorandum of Understanding, policies, and/or resolutions. Employees who have not yet successfully completed their initial probationary period serve “at-will” and may be released from employment without cause or recourse to any appeal or grievance procedures.
- Pre-Employment: All employment offers are contingent upon successful completion of OC San’s pre-employment process, which includes a background investigation, a physical examination, and a drug screen.
- Work Location Assignment: Employees will be assigned to a work location based on business needs which may be located at any/all of OC San locations; this work location may be changed at any time.