



## Senior Engineer

Class Code:  
475

### DEFINITION

Under direction, performs the most difficult and complex professional civil, electrical, mechanical and/or environmental engineering work in connection with the engineering design and operations support for a variety of facilities, infrastructure, programs, and processes, with the formal responsibility to provide technical supervision and technical and administrative support and guidance to others; analyzes, plans, designs, and implements capital projects and other programs; assists other engineering disciplines; may function as engineer in charge of a project or program; makes presentations to governing boards, civic groups, and other organizations; serves as the technical lead/subject matter expert in assigned area with responsibility to provide direction to sub-professional and professional staff in a lead capacity and may provide technical review of the work of others; and performs related work as required.

### DISTINGUISHING CHARACTERISTICS

**Senior Engineer** is the advanced journey-level classification in the professional engineering series with the formal responsibility to provide technical supervision and technical and administrative support and guidance to other engineers while also performing engineering and administrative work of the highest complexity and difficulty that requires thorough knowledge of engineering fundamentals and substantial professional experience. This classification is distinguished from the Associate Engineer by the responsibility for the technical supervision of other engineers and the increased level of independent judgment and action, decreased level of supervision received, greater responsibilities related to program administration, coordination, communication and outreach. This class is further distinguished from lower level Engineers by serving as the subject matter expert in one or more technical program areas with the responsibility to provide technical and administrative support to other engineers. Assignments are given in general to conceptual terms, and are reviewed infrequently and upon completion. There is considerable latitude for independent judgment and action.

The Senior Engineer is distinguished from the Engineering Supervisor class in that the latter has overall programmatic responsibility for the execution of the projects and programs of the division as well as review and approval responsibility and authority for work products, division budget requests, permits, invoices, agreements and contracts, and other program-related approvals. The Engineering Supervisor class also allocates staff and budgetary resources to meet division and District objectives, coordinates work between sections and divisions, manages employee engagement and performance, including that of the Senior Engineer class, and serves as a member of the District's management team.

### TYPICAL DUTIES

#### **TYPICAL EXAMPLES OF DUTIES MAY INCLUDE BUT ARE NOT LIMITED TO THE FOLLOWING:**

When assigned to any Department:

- Directs, guides, supports, and reviews the work of other engineers and technical staff, either individually or as the lead of a small group of engineers and sub-professional employees; performs the most difficult and complex engineering work related to area of assignment including independently conducting engineering studies and investigations of

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engineering problems (civil, electrical, mechanical, structural, geotechnical, etc.) of substantial difficulty and complexity.

- Manages projects of substantial difficulty, complexity, and size from initial planning and design through construction and startup; responsibilities include: interagency and intra-agency coordination and communication; developing and coordinating project plans and charters; planning and developing Basis of Design reports and budgets; performing engineering economic analyses and alternatives analyses; development of scopes of work and evaluation criteria for selection and procurement of professional services; performing design; preparation of design drawings; coordinating directly with permitting authorities and securing permits; developing environmental documentation; and, managing consultants.
- Anticipates new regulations and helps develop both near-term and long-range plans to help ensure District compliance; prepares comments on proposed legislation to represent the District's interests.
- Develops and implements water treatment and distribution system engineering work plans of substantial difficulty and complexity, including executing comprehensive pilot studies; assists operators and supervisors in the start-up, troubleshooting and optimization of treatment processes; initiates and directs special studies and investigations for improved water quality and treatment performance.
- Develops and maintains written technical and administrative procedures, standards, processes, practices, guidelines, and standards.
- Leads and participates in conducting hydraulic and water quality modeling of the water system using District computer programs.
- Develops, manages, and uses computer models and databases related to the area of assignment; participates in the planning, management and maintenance of such models and databases and provides training and support to others.
- Makes presentations to governing boards, civic groups, other organizations, and the public.
- Participates in the administration and management of the grant application process, including providing input and review of project scope, schedule, and cost; negotiates revisions to agreements and/or revises District contract documents for consistency with grant terms; tracks, prepares, and submits grant reimbursable costs and prepares supporting documentation and financial information as required by the grant terms.
- Prepares or directs the preparation of economic comparisons between alternatives and comprehensive reports that include text, charts, maps, diagrams, and sketches on engineering subjects of substantial difficulty and complexity.
- Responds to questions and inquiries from the general public, developers, contractors, engineering professionals and District staff regarding engineering projects.
- Attends and participates in professional group meetings; stays abreast of new trends and innovations in the field of civil, electrical, mechanical and/or environmental engineering.

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- Performs other related work as required.

### When assigned to Engineering & Technology Services:

- Reviews and checks plans, specifications, contracts, engineers' notes, engineering computations involving higher mathematics, and cost estimates for projects of substantial difficulty.
- Performs construction management work including coordinating and maintaining communication with stakeholders, administering construction contracts and professional services contracts, developing and maintaining detailed schedules and monitoring contract expenditures, reviewing submittals, preparing status reports, managing correspondence and negotiations, managing claims, preparing change orders and staff reports, reviewing contractor progress payments, and performing field work and inspection as necessary.
- Develops, implements, and coordinates commissioning plans and activities including witnessed factory acceptance testing, field acceptance testing, functional testing, control system functional testing, and startup testing.
- Assists in the development of the division budget, projecting and forecasting projects costs and other expenditures; develops CIP cost estimates and performs annual review of CIP budgets to ensure sufficient funds for projects and programs.
- Conducts studies and investigations of the highest difficulty and complexity related to hydraulic and water quality modeling, water usage, planning studies of distribution systems, analysis of performance of hydraulic structures, electrical distribution systems, SCADA control system methodologies and analysis and special studies related to the development of water supply sources.
- Performs engineering design of civil improvements; develops and oversees the development of complex construction drawings and work plans for facilities replacement and upgrade projects.
- Prepares and reviews complex and difficult environmental and permit-related documentation.
- Collaborates with Public Affairs staff to plan and perform public outreach activities prior to the start of projects, and during project implementation, to ensure public awareness and respond to questions and concerns from the public.
- Performs the role of Authority Having Jurisdiction (AHJ), as defined in the National Electric Code, in a Professional Engineer capacity, and lead liaison for electric utility coordination and inspection approval (applies to Senior Electrical Engineer).
- Coordinates and performs all necessary project closeout activities including formally transferring projects to other departments for operations and maintenance.
- May serve as Subject Matter Expert (SME) and Program Lead in an assigned area such as Capital Improvement Program planning, budget management and coordination, Water

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Main Renewal Program, Seismic Upgrades Program, power and controls, Electrical AHJ, distribution system planning, etc.

### When assigned to Operations & Maintenance:

- Serves in a lead role in coordinating ongoing water treatment and distribution system regulatory compliance program; communicates effectively with regulatory agencies; develops and maintains standard operating procedures for compliance; oversees the preparation of required documentation and permit applications, responds to regulatory actions, and completes follow-up measures, as needed.
- Assembles and analyzes complex water quality data, prepares monitoring reports and writes letters relative to results and water quality studies and engineering projects.
- Performs complex and difficult research applicable to improving analytical methods and treatment and distribution practices; reviews and analyzes operating records to help identify improvement needs.
- Develops, plans, and coordinates complex shutdown of District Facilities and water mains in support of maintenance and engineering projects to ensure adequate water supply, pressure, and integrity of water quality is maintained.
- Develops standard procedures for watershed, treatment, and distribution operations personnel.
- Monitors water quality legislation and prepares staff reports providing periodic updates and impact on District operations.
- Develops design standards and operational performance criteria related to projects involving the planning, design, construction, and start-up of new or improved treatment and distribution facilities.

### When assigned to Water Resources:

- Provides technical oversight, reviews, and/or participates in, groundwater flow and quality studies.
- Develops and provides technical oversight of groundwater models to analyze groundwater flows and water quality to predict future sea water intrusion, identify sources of groundwater contamination, predict rates of dewatering from excavations, estimate flow from recharge ponds, and estimate time of travel to wells from setback distances.
- Creates structured computer programs and workflows to analyze groundwater data.
- Performs financial and sustainability analysis of the groundwater basin to facilitate management's recommendation regarding implementation of the Replenishment Assessment Act on groundwater pumping fees and implementation of the Sustainable Groundwater Management Act.
- Performs studies, planning, engineering, and analysis related to water usage and future imported, local, and regional water resources, future water production requirements and

facilities, and distribution system requirements, and analysis of stream flow and special studies related to the development of water supply sources.

- Provides technical oversight of Leaking Underground Fuel Tank and Site Cleanup Program sites, including review of work plans, site investigation reports, monitoring reports, and creating corrective actions plan.
- Provides technical oversight in the creation, use and maintenance of hydrologic databases and models.
- Provides technical oversight and coordinates with appropriate personnel on the implementation of federal, state, and local laws and regulations pertaining to water quality and water supply operations.
- Provides technical oversight on water resources data collection, interpretation, econometric and trend forecasting, regression, and other technical analysis and research in support of water resources planning, water supply development, environmental planning, and water management programs.

## **REQUIREMENTS**

*Any combination of education and experience that would likely provide the required knowledge, skills, and abilities is qualifying. A typical way to obtain the knowledge, skills, and abilities would be the equivalent of:*

### **Education and Experience:**

Possession of a Baccalaureate degree from an accredited college or university with a major in an engineering curriculum accredited by the Accreditation Board of Engineering and Technology, or a related field; and six (6) years of full-time practical engineering experience, which includes two (2) years experience equivalent that that of an Associate Engineer within the District and includes one (1) year of lead experience directing the work of others involved in civil, structural, mechanical, electrical, or hydraulic design, water supply planning, distribution system planning, water quality and environmental compliance programs, economic engineering investigations, or engineering project management. An advanced degree in an accredited engineering curriculum may be substituted for one (1) year of the required experience.

A 75% course completion level in the District's Leadership Skills Training program may be substituted for the one (1) year of the required lead experience.

### **Knowledge, Skills, and Abilities:**

Knowledge of: engineering principles, terms, practices, methods, and the sources of engineering information with particular reference to a water utility; engineering mathematics through calculus and statistical analysis methods; engineering economics and specification and contract procedures; cost estimating methods; effective project and program management practices; construction methods, materials, specifications, and codes; computer programs and languages and engineering applications; pertinent federal, state, and local laws, codes, and regulations; safe work practices as they relate to the position and the ability to identify workplace hazards and/or unsafe conditions and take appropriate action to correct same; District's processes, procedures, practices, guidelines, rules, and standards related to capital project management

and delivery; aquatic chemistry, and microbiology; well construction practices and maintenance; principles of surveying; modern office practices, methods, and computer equipment and applications related to the work, including word processing, database, and spreadsheet software.

Skill and Ability to: apply engineering principles and practices to the solution of engineering problems of substantial professional difficulty; plan, guide, support, and direct the work of others; perform difficult mathematical calculations with speed and accuracy; interpret and prepare drawings, detailed maps, profiles, graphs, and compilations of numerical data; effectively manage projects within established timeline and budget parameters; maintain accurate records and prepare a variety of memos, letters, and technical reports and specifications that are clear and concise; conduct research; analyze alternatives performing financial analyses and economic comparisons and presenting results and recommendations in a clear, concise manner; lead teams, establish priorities, and help groups attain consensus; understand abstract concepts and logically verbalize and employ critical reasoning skills; understand, distill, and clarify others' ideas; perform the essential functions of the job without causing harm to self or others; perform numeric groundwater flow and quality modeling; operate modern office equipment including computer equipment and specialized software applications programs; communicate clearly and concisely, both orally and in writing; establish, maintain, and foster positive and effective working relationships with those contacted in the course of work.

**Additional Requirements:**

- Must possess a valid driver's license and have a satisfactory driving record.
- Must possess California State Registration as a Professional Engineer.
- Possession of a Water Distribution Operator Grade 2 certification, if assigned to Development Services Division or Project Engineering Division, is highly desirable.
- Possession of a Water Treatment Operator Grade 2 certification, if assigned to Project Engineering Division, is highly desirable
- Possession of a Project Management Professional (PMP) certification, if assigned to the Project Engineering Division is highly desirable.
- Possession of a Water Treatment Operator Grade 3 and Water Distribution Operator Grade 3 certification is highly desired is assigned to the Operations and Maintenance Department, and is required if assigned to the Water Production Division.

**Working Conditions/Physical Requirements:**

The essential functions of the job require the ability to sit for extended periods of time when performing office tasks; reach above or below shoulder height; finger dexterity to operate a computer and other office and engineering equipment; speak and hear in person and on the phone; see sufficiently to perform assignments; work long or unusual hours as situations demand; and frequently lift and/or carry objects weighing up to 25 pounds and occasionally up to 55 pounds.

Revised: 12/14, 02

Approved: \_\_\_\_\_  
Human Resources/Risk Manager