



THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

ENGINEER

Group-Section: Various	FLSA Status: Non-Exempt Bargaining Unit: AFSCME	Salary Grade: 56 Job #: YA27
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JOB SUMMARY

This is the advanced journey level position performing Engineer job duties.

DISTINGUISHING CHARACTERISTICS

Positions at this level are recognized as technical specialist using initiative and resourcefulness in deviating from traditional methods or researching trends and patterns to develop new methods, criteria, or proposed new policies. Decisions regarding what needs to be done include interpreting data, planning of the work, or refining the methods and techniques to be used. The work involves established criteria; formulating projects; assessing program effectiveness; or analyzing variety of unusual conditions, problems, or questions. The work product or service may affect activities, or the operation of other organizations.

OVERSIGHT

Supervision Received: The supervisor sets the overall objectives and resources available. The employee and supervisor, in consultation, develop the deadlines, projects, and work to be done. At this level, the employee, having developed expertise in the line of work, is responsible for planning and carrying out the assignment; resolving most of the conflicts that arise; coordinating the work with others as necessary; and interpreting policy on own initiative in terms of established objectives. In some assignments, the employee also determines the approach to be taken and the methodology to be used. The employee keeps the supervisor informed of progress, potentially controversial matters, or far-reaching implications. Completed work is reviewed only from an overall standpoint in terms of feasibility, compatibility with other work, or effectiveness in meeting requirements or expected results.

Supervision Given: Acts as a lead. Coordinates and reviews work assignments of employees performing the same general work as the lead on a day-to-day basis. Responsibilities may involve solving problems and providing instructions on work procedures.

JOB DUTIES

GENERAL

1. Leads the planning, coordinating, conducting, and monitoring tests, studies, investigations.
2. Represents Metropolitan within area of responsibility with external entities; may negotiate and resolve issues.
3. Leads and prepares technical documents and reports; prepares and makes presentations.
4. Leads and develops, negotiates and administers contracts and agreements; oversees the work of vendors, consultants and contractors.
5. Leads, plans, coordinates, and conducts projects, including monitoring scope, quality, budget, and schedule.

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6. Provides technical expertise within area of responsibility on projects, programs, and issues.
7. Performs special assignments in support of Metropolitan initiatives.
8. Leads and performs technical analyses and provides recommendations to support planning, design, construction, infrastructure reliability and/or operational issues.
9. Leads and prepares and reviews design criteria, plans, specifications, submittals, cost estimates, and budgets.
10. Leads and develops standards, procedures, guidelines, and manuals.
11. May execute mathematical, statistical, and other models.
12. Leads and performs site and construction inspections.
13. May lead or perform emergency response duties.
14. Maintains official records, documents, and data.
15. Acts as Project Manager; plans, coordinates, and conducts projects within area of responsibility, including monitoring scope, quality, budget, and schedule.
16. Performs other related Engineer job duties as required.

SUBSTRUCTURES

1. Leads and assesses potential impacts to facilities from proposed projects, coordinates reviews and provides recommendations.
2. Leads and investigates facility issues and coordinates property issues; may negotiate changes to project.
3. Develops and negotiates utility agreements with external entities to relocate or protect facilities.

HYDRAULICS

1. Leads the design and analyses of hydraulic facilities, structures, and conveyance and distributions systems; may utilize hydraulic modeling software.
2. Oversees and performs inundation studies for reservoirs and dams.
3. Leads, prepares, and reviews hydraulic plans and profiles and emergency dewatering profiles of reservoirs, pipelines and treatment plants.
4. Leads and performs planning, coordinating, and conducting flow tests.

FACILITY PLANNING

1. Leads, plans, coordinates, and conducts feasibility studies for treatment, distribution and conveyance facilities.

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2. Secures program and project authorization and funding.
3. Leads, plans, coordinates, and conducts facility vulnerability studies.
4. Develops infrastructure reliability design guidelines.

DESIGN

1. Leads and prepares the review of engineering design criteria, calculations, plans, specifications, estimates and reports for water treatment, conveyance and distribution systems.
2. Provides and leads technical support during construction.
3. Oversees and performs factory acceptance testing and systems start-up.
4. Leads and performs investigations of existing facilities, structures, processes and equipment to resolve performance, operation, or reliability issues.

PROGRAM MANAGMENT

1. Leads interdisciplinary teams assigned to programs and projects; ensures compliance with project and customer requirements.
2. Leads and develops of scope, budgets, and schedules for projects; monitors expenditures, schedules, quality, and reporting.
3. Secures program and project authorization and funding. Forecasts cash flow for program and projects.
4. Evaluates contractor claims, negotiates settlements, and provides recommendations to management.

INSPECTION

1. Leads, inspects, and verifies contractor's work is in compliance with contract requirements.
2. Oversees and performs the review of submittals, Requests For Information, prepares responses and Field Memorandums.
3. Leads, reviews, and accepts contractor plans, procedures, and schedules; prepares independent cost estimates and schedules; negotiates settlements.
4. Oversees and performs factory acceptance testing and systems start-up and coordinates warranty work.
5. Leads and performs forensic investigations of construction deficiencies.

INFRASTRUCTURE

1. Leads, develops, implements, and conducts infrastructure reliability assessments for safety, code and regulatory compliance.
2. Leads, develops, designs, recommends, and implements measures to prevent failure or rehabilitate assets.

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3. Leads, develops implements, and conducts testing and monitoring of instrumentation programs.
4. Leads and performs forensic investigations of materials and metallurgy issues.
5. Oversees and resolves maintenance issues to ensure safety, code and regulatory compliance.

SCADA

1. Oversees and performs factory acceptance testing and systems start-up.
2. Leads and prepares Automatic Process Control and Programmable Logic Controller software design and operational documents.
3. Leads and develops Automatic Process Control and Programmable Logic Controller program and simulation routines.
4. Leads and provides SCADA system customer and infrastructure support, troubleshooting, and problem solving.
5. Leads, plans, develops, and integrates SCADA hardware and software, configuration updates, and graphics changes.

WATER RESOURCES

1. Leads, develops, and implements water resources programs and projects; including negotiating with external entities; may securing program and project authorization and funding.
2. Reviews, recommends, and proposes regulations and legislation.
3. Develops, negotiates, implements, and administers water resource contracts.
4. May develop and recommend water resource management policy and procedures.
5. Plans, coordinates, and conducts feasibility studies for treatment, distribution and conveyance facilities.
6. Develops and executes mathematical, statistical, hydraulic, and water resource models.

POWER RESOURCES

1. Leads, plans and performs energy scheduling for power operations.
2. Leads, plans, analyzes, directs or coordinates local and regional power activities.
3. Leads, performs or participates in energy settlement and accounting activities.
4. Leads and participates in power contract negotiations.
5. Leads, solicits, analyzes, evaluates and executes power transactions within need, risk and credit guidelines.

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6. Leads, analyzes, evaluates, monitors, and makes recommendations regarding power related legislation, regulations, operations, and developments.
7. Leads, monitors, evaluates, and documents power related regulatory performance and compliance.

PLANNING AND PROGRAMS

1. Leads, develops, implements, and manages water supply and operations programs.
2. Leads, prepares, and analyzes short-term and long-term water demand forecasts.
3. Leads and conducts water systems analyses to assess impacts of water quality, shutdowns, changes in demands and operational objectives.
4. Develops, recommends, and implements water systems operation strategies.
5. Leads, monitors, and evaluates water system activities of external entities for impacts to Metropolitan's water system operations and supply sources.
6. Leads, plans, coordinates, and conducts flow tests.
7. Leads and develops system models and runs simulations.

WATER QUALITY

1. Leads, monitors, evaluates, and responds to water quality related legislative initiatives, regulatory issues and policies. Develops plans and procedures to address legislative and regulatory requirements.
2. Leads the review of, and makes recommendations on proposals, projects, and programs that may have an impact on water quality.
3. Leads, develops, and directs test plans for bench pilot and full scale water quality testing.
4. Leads the analyses and interpretation of data to develop water treatment process design criteria.
5. Leads the analyses and interpretation of data to optimize water quality performance and maintain compliance with drinking water quality regulations.
6. Leads, analyzes and interprets conditions that may adversely impact watershed and source water quality.
7. Leads, reviews, and analyzes water quality data and provides recommendations to ensure compliance with all drinking water quality regulations.

OPERATIONS SUPPORT

1. Leads the assessment of maintenance and testing methods and impacts on operations and maintenance to improve efficiency and reliability.
2. Leads the implementation of and maintains and may develop analytical tools for the analysis and solution of engineering problems.

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3. Leads the analyses equipment functions, evaluates potential failure modes and system impacts; makes recommendations.
4. Leads the compliance of project and customer requirements.
5. Leads field engineering tests and activities in connection with maintenance, inspection, and operations.

ENVIRONMENTAL

1. Leads, oversees, and prepares environmental, health and safety plans for regulatory compliance.
2. Leads the analyses of new and proposed regulations and legislation; assists in the development of policies, procedures and training materials.
3. Leads in planning, coordinating, and conducting environmental, health and safety audits; may develop mitigating or corrective actions.
4. Leads the evaluation of and, applies for, modifies, and maintains environmental permits; may negotiate permits.

EMPLOYMENT STANDARDS

MINIMUM QUALIFICATIONS

Education and Experience: Bachelor's degree from an accredited college or university in a related field and six years of relevant experience, of which two years must have been at the Associate Engineer level; or Master's degree from an accredited college or university in a related field and four years of relevant experience, of which two years must have been at the Associate Engineer level.

General Required Knowledge of: Engineering principles, practices and applications in specific discipline; project management principles and practices; applicable federal, state and local laws, codes and regulations related to area of responsibility; project management; and current office technology and equipment.

Substructures Required Knowledge of: Construction means and methods; construction equipment.

Hydraulics Required Knowledge of: Hydraulic modeling software; water treatment, conveyance and distribution systems and processes.

Facility Planning Required Knowledge of: Water treatment, conveyance and distribution systems and processes; facility planning, infrastructure reliability.

Design Required Knowledge of: Manufacturing and construction means, methods and equipment; applicable engineering design software.

Program Management Required Knowledge of: Manufacturing and construction means, methods and equipment.

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Inspection Required Knowledge of: Manufacturing and construction means, methods and equipment.

Infrastructure Required Knowledge of: Risk and failure analyses.

SCADA Required Knowledge of: Principles and practices of programming languages and control system design; design and development of real time process control applications; SCADA; Spec and implement SCADA software and hardware.

Water Resources Required Knowledge of: California water resource issues; conveyance and distribution systems; groundwater, hydrology, hydraulics and water treatment processes.

General Required Skills and Abilities to: Manage projects; analyze and interpret data; organize; engineering and project scheduling software; prepare and deliver presentations; prepare technical reports and correspondence; use independent judgment and exercise discretion; problem solve; prioritize and multi-task; communicate clearly and concisely, both verbally and in writing; establish and maintain effective working relationships with those contacted in the course of work; work independently and in a team environment; lead and train; and operate current office equipment including computers and supporting applications.

Hydraulics Required Skills and Ability to: Conduct hydraulic analyses.

Design Required Skills and Ability to: Estimate; use engineering design software.

Program Management Required Skills and Ability to: Estimate and negotiate.

Inspection Required Skills and Ability to: Estimate and negotiate.

Infrastructure Required Skills and Ability to: Conduct risk and failure analyses.

Water Resources Required Skills and Ability to: Perform economical and statistical analyses of water resource programs; distribution system modeling; negotiate water resources programs.

CERTIFICATIONS, LICENSES, AND REGISTRATION REQUIREMENTS

Employees in this position may be required to obtain and maintain the following certifications, licensing and registrations:

Certificates

- None

Licenses

- Valid California Class C Driver License that allows you to drive in the course of your employment
- License in good standing as a California Professional Engineer

Registrations

- None

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PHYSICAL DEMANDS, WORK ENVIRONMENT, AND VISION REQUIREMENTS

The physical demands and work environment characteristics described here are representative of those that must be met or may be encountered by an employee to successfully perform the job duties of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the job duties.

Physical Demands: The work requires some physical exertion such as long periods of standing; walking over rough, uneven, or rocky surfaces; recurring bending, crouching, stooping, stretching, reaching, or similar activities; recurring lifting of moderately heavy items such as personal computers and record boxes. The work may require specific, but common, physical characteristics and abilities such as above-average agility and dexterity.

Work Environment: The work involves moderate risks or discomforts that require special safety precautions, e.g., working around moving parts, carts, or machines, or irritant chemicals; etc. Employees may be required to use protective clothing or gear such as masks, gowns, coats, boots, goggles, gloves, or shields.

Vision Requirements: No special vision requirements.