



ENGINEER 1/2 **(Electrical/Facilities)**

DEFINITION

Under general supervision, perform a variety of electrical engineering and administrative tasks of moderate difficulty requiring the use of some independent judgment in connection with the operations, support, and engineering design of a large water utility; assists other engineering disciplines; performs other related work as required.

DISTINGUISHING FEATURES

Engineer 1 is the entry level in the electrical engineering series. Under close supervision, incumbents in this classification perform a variety of engineering and administrative tasks of some difficulty. Assignments are given in specific terms and are subject to frequent review while in progress and upon completion, except where tasks are well defined by established standards, policies and procedures. Assignments may cover the entire field of electrical engineering. A basic knowledge of electrical engineering fundamentals is required. There is limited latitude for independent judgment. Duties may sometimes require the direction of subprofessional staff.

Upon recommendation of the immediate supervisor and approval by the department manager, incumbents in this class may advance to Engineer 2 classification after gaining experience and achieving proficiency which meets the Engineer 2 requirements (at least 2 years).

Engineer 2 is the intermediate level in the electrical engineering series. Under moderate supervision, incumbents in this classification perform a variety of engineering and administrative tasks of moderate difficulty requiring the use of some independent judgment. Assignments are given in general terms and are subject to infrequent review while in progress and upon completion. Assignments may cover the entire field of electrical engineering. A working knowledge of electrical engineering fundamentals and some experience in solving electrical engineering problems of moderate difficulty is required. There is some latitude for independent judgment and action in well-defined areas of work. Duties may sometimes require the direction of subprofessional and professional staff. Assignments are given in general terms and are subject to infrequent review while in progress and upon completion. Assignments may cover the entire field of electrical engineering. A working knowledge of electrical engineering problems of moderate difficulty is required. There is some latitude for independent judgment and action in well-defined areas of work. Duties may sometimes require the direction of professional, technical and trades staff.

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



1. Prepares maintenance programs for District power systems in accordance with NFPA 70B (Recommended Practice for Electrical Maintenance).
2. Performs reliability centered maintenance (RCM) analysis and tasks in accordance with District guidelines. Administers the documentation and review of RCM packages.
3. Inspects facilities and recommends corrections based on current national codes, water industry standards, or practices of the electrical trades as appropriate.
4. Reviews plans and specifications, and participates in the development of capital projects conducted by the Engineering Department.
5. Reviews the work conducted by contractors and District employees and reports findings to the Facilities Engineer.
6. Conducts load studies, analyzes operational procedures, and develops recommendations for operational changes based on the data gathered.
7. Prepares O&M Manuals for the existing District power systems.
8. Prepares estimates of costs and quantities and makes reports on maintenance projects.
9. Checks electrical maintenance projects for conformity with plans and specifications.
10. Periodically inspects and tests existing electrical installations and reports on the condition of such equipment.
11. Reviews design drawings, checking for compliance with codes and standards and maintenance requirements.
12. Writes special or technical reports covering the results of tests, investigations or studies.
13. Keeps abreast of significant developments in the fields of electrical engineering and water treatment and supply.
14. Prepares schedules for power system periodic testing and calibration.
15. Reviews test results and recommends corrective action.
16. Establishes and maintains power system operations and maintenance library.
17. Performs start up of electrical systems.



18. Performs equipment evaluation studies.
19. Develops test specifications for District power systems.

CLASSIFICATION REQUIREMENTS

Education and Experience

Engineer 1 Either a bachelor's degree in an engineering curriculum which is accredited by the Engineers' Council for Professional Development, or an Engineer-In-Training Certificate. No work experience is required.

Engineer 2: Two years, within the past ten, of practical engineering experience gained after obtaining either (1) a bachelor's degree in an engineering curriculum which is accredited by the Engineers' Council for Professional Development; or an Engineer-In-Training Certificate. An advanced degree in an accredited engineering curriculum may be substituted for one year of the required experience.

Knowledge, Skills and Abilities

General knowledge of physics and chemistry. Ability to: apply engineering principles to the solution of specific electrical engineering problems; inspect and test electrical equipment; build and maintain effective working relationships with people at all levels in the organization and outside of the organization; develop and implement RCM packages in accordance with District requirements, write technical reports which are clear and concise; train others in the use of electrical test equipment; develop standard maintenance procedures and documentation, and electrical materials management and standards; generate, read, and evaluate electrical drawings, including single line, P & ID's, riser, and interconnection diagrams; provide technical interface between crafts, and engineering staff or equipment vendors, as required; act as project engineer on operations and maintenance projects to provide contract administration, oversight of equipment erection, and customized technical training, and conduct start-up testing; participate in a technical support role in various department programs such as methods improvement, facility modernization, assembly, startup, and testing services, vendor selection and evaluation, equipment evaluation and selection, maintenance and reliability procedures improvement, equipment upgrade or modernization programs; and participate in the planning and scheduling of maintenance staff.

Engineer 1: In addition to the above, general knowledge of electrical engineering principles, terms and formulae, cost estimating methods and the properties of materials. Knowledge of safe work practices including OSHA regulations, as they relate to the position and the ability to identify workplace hazards and/or unsafe conditions and take appropriate action to correct same is required.



Skill and ability to apply engineering principles to the solution of routine professional engineering problems; prepare drawings, details, maps, profiles, graphs and compilations of numerical data; use job-related computer software; write memos, letters and technical reports which are clear and concise; and communicate effectively.

Engineer 2: In addition to the above, working knowledge of electrical engineering principles, terms, formulae and methods with particular reference to the water works industry. Working knowledge of: higher mathematics; the Electrical Code of the National Board of Underwriters; the Electrical Safety Orders of the State of California Division of Industrial Safety; safe work practices including OSHA regulations as they relate to ability to identify workplace hazards and/or unsafe conditions and take appropriate corrective action.

Other Requirements

Incumbents must possess a California driver's license and have a satisfactory driving record. Incumbents must be able to perform the essential functions of the job including the ability to sit for extended periods; to reach above or below shoulder height; hear, speak, and see sufficiently to perform essential job functions; walk, bend, and climb to inspect facilities; periodically drive vehicle to conduct inspections.

Adopted: 6/16/00

Approved: Human Resources Manager