SENIOR ENGINEER – MECHANICAL ENGINEERING
(Job Description)

PURPOSE

The Senior Engineer – Mechanical Engineering, as a subject-matter expert in Mechanical Engineering, provides consulting services and exercises technical supervision throughout the district; coaches, mentors, and trains employees in the field of Mechanical Engineering; and may exercise full supervision of assigned staff.

REPORTS TO

Unit Manager

JOB DUTIES

In addition to the job duties outlined in the Senior Engineer class spec, the following are typical duties performed within this assignment. The duties specified below are representative of the nature and level of duties of this assignment and are not intended to be an inclusive list. The omission of specific statements of duties does not exclude them from the position if the work is similar, related or a logical assignment to this position. Management reserves the right to add, modify, change, or rescind the work assignments of different positions.

1. Manages the ongoing maintenance, repair, rehabilitation, and condition assessment and monitoring of pump projects to ensure the proper operations of the pumps at Pacheco Pump Plant, Coyote Pumping Plant, and Vasona Pumping Plant; prepares a comprehensive Pump Maintenance and Management Plan for each major pumping facility including planning, design, installation, construction, commissioning, and ongoing performance monitoring, PMAP, and condition assessment.

2. Directly develops or supervises the management and documentation of various pumps and mechanical equipment and their condition at water treatment plants and the purification center by performing pump testing, vibration monitoring, and a variety of condition assessments; directly conducts or supervises the failure analysis and development of repair solutions for mechanical problems and poor pump performance; advises on pump and mechanical equipment maintenance strategies.
3. Develops and reviews pump and mechanical equipment engineering drawings and plans on capital and operations projects prepared by consultants and others to ensure work quality and conformance with District and mechanical engineering standards and specifications.

4. Reviews and updates specifications for pumps and mechanical equipment as well as specific technical services such as pump repair, rebuild, alignment, and balancing; standardizes technical and special provisions related to the installation of mechanical equipment.

5. Establishes work, equipment, tool, and design standards and procedures and assists in the development of troubleshooting and repair procedures related to a variety of mechanical equipment such as pumps, pumping stations, pressure regulating stations, water and chemical tanks, process piping, controls, and valves.

6. Develops and/or assists in the development of predictive and preventive maintenance programs associated with the operation of mechanical equipment, including development of preventive maintenance check sheets for equipment, establishing maintenance tactics criteria, choosing predictive maintenance techniques, and conducting predictive maintenance analysis.

7. Provides expert technical support to the corrosion control program; advises on corrosion control strategies; and advises on corrosion control and coatings solutions.

8. Directs and participates in the inspection of facilities, mechanical equipment, tanks, mechanical work, and industrial coatings performed by District, contract staff, and consultants for conformance with contract specifications or permit limitations.

9. Manages the major maintenance and advises on the operation and performance of the Anderson Hydroelectric Facility.

10. Represents the District in coordination and conferences with other utilities, governmental bodies, trade associations such as American Water Works Association (AWWA) and National Association of Corrosion Engineers (NACE), and professional groups.

QUALIFICATIONS

Knowledge of:

1. Mechanical engineering principles, practices, and methods as applied to the design, construction, installation, operation, and testing of mechanical facilities and equipment, including pumping and water treatment plants, aqueducts and large pipelines, heating, ventilating, and air conditioning systems, pumps, valves, meters, instrumentation, and automation.

2. Methods of mechanical power and fluid transmission and control and optimization of performance.

3. Engineering economics and life cycle cost assessment and analysis.

4. Hydraulics as applied to hydraulic machinery and the flow of water.

5. Welding, welding practices, weld failure, and weld testing.
6. Sources of mechanical engineering information and maintenance engineering practices including codes and standards.
8. Hydroelectric power equipment, performance, and maintenance issues.
9. Corrosion control principles, practices, and methods for protecting mechanical equipment, pipelines, and tanks.
10. Principles and practices of project management, including planning, organizing, delegating, scheduling, and controlling.
11. Principles and practices of project budget development and administration, contract negotiation and management, and sound financial management policies and procedures.
12. Pertinent federal, state, and local laws, codes, and regulations with specific emphasis on mechanical engineering and industrial safety such as Personal Protective Equipment (PPE), LO/TO, hot work, hazardous work conditions, and confined space entry.
13. Principles and practices of employee supervision, including work planning, assignment, review and evaluation, and the training of staff in work procedures.
14. Computer software applications, such as Microsoft Office, Computer-Aided Design (CAD), and Computerized Maintenance Management System (CMMS).

Ability to:

1. Deliver complex, technical, and sensitive mechanical engineering projects in an independent and cooperative manner.
2. Design and inspect mechanical engineering design and construction projects.
3. Perform condition assessments and testing.
4. Maintains and repairs large pumps, valves, and water treatment mechanical infrastructure.
5. Perform mechanical engineering tests such as vibration, temperature and flow.
6. Apply mechanical engineering principles and computer programs to resolve engineering problems.

EDUCATION AND EXPERIENCE GUIDELINES

The following combination represents the minimum training and experience requirements for this classification:

Education:

Graduation from an accredited four-year college or university with major coursework in mechanical engineering or a related field.

Experience:

Six (6) years of professional mechanical engineering experience, including at least two (2) years of lead responsibility.

License or Certificate:

Possess and maintain a valid license as a Professional Engineer issued by the California Board for Professional Engineers, Land Surveyors, and Geologists.
JOB DESCRIPTION LEGEND

Established Date:
Employee Groups:
Revisions Dates: 5/2019

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