



January 2021
FLSA: EXEMPT

PLANT ENGINEER

DEFINITION

Under administrative direction of the General Manager performs a variety of engineering and non-engineering activities in the planning, design, and construction of wastewater treatment and collection facilities. Work may include the planning, design, construction, maintenance, and operation of major engineering projects. Participates in the Capital Improvement Program projects of the District in addition to miscellaneous engineering projects and other work related to the wastewater treatment plant and collection system. Performs a variety of routine duties related to field inspections of construction projects on pipelines, pump stations, treatment facilities, and other District facilities; ensures compliance with District's standards and specifications; provides highly responsible and complex technical support to the General Manager; performs field surveys; maintains District's engineering files, ensures compliance with District's standards and specifications; and performs other duties as required.

SUPERVISION RECEIVED AND EXERCISED

Receives general direction from the General Manager. No direct supervision of staff is exercised.

CLASS CHARACTERISTICS

This is professional engineering class, and incumbents must have a working knowledge of various aspects of civil engineering as it relates to planning, design, and construction of wastewater collection and treatment facilities. The duties involve frequent contact with the public, engineers, contractors, developers, and other agencies.

EXAMPLES OF ESSENTIAL FUNCTIONS (Illustrative Only)

Management reserves the rights to add, modify, change, or rescind the work assignments of different positions and to make reasonable accommodations so that qualified employees can perform the essential functions of the job.

- Advise General Manager on status and technical issues related to assigned design work and projects.
- Coordinate Capital Improvement Program projects, including requests for proposals, studies, design engineering, inspection, and construction management.

EXAMPLES OF ESSENTIAL FUNCTIONS (continued)

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- Design/plan/prepare/coordinate a wide variety of engineering design work and inspection of construction projects. Act as project manager on various District projects.
- Design/plan/prepare/coordinate on projects to improve plant process control and implement increased automation at facility.
- May perform or direct the performance of analytical and engineering studies to determine potential computer-based information management and control systems applications in various areas such as: production, treatment, distribution, facilities maintenance, energy conservation, process monitoring and control.
- Prepare/review reports, plans and specifications for a variety of projects, including text, charts, maps, diagrams, and sketches, ensuring compliance with standards and District requirements.
- Perform design work including researching data and determining design criteria in accordance with required standards and codes.
- Prepares reviews and checks engineering drawings, plans, computations, estimates and reports for completeness, accuracy, and soundness of applied engineering principles and District standards.
- Perform Asset Management functions for District database including, but not limited to defining and measuring levels of service, forecasting future demand requirements, establishing base asset database, assessing asset condition, identifying critical assets and business risks, and developing both maintenance and capital investment strategies and plans.
- Administers outside consultant contracts, including writing and issuing request for qualifications/request for proposal (RFQ/RFP), interviewing consultants, reviewing, and evaluating proposals, writing contracts and issuing the notice to proceed in order to begin the project.
- Coordinates progress meetings and reviews work products; assists in or develops the CIP Project Scope and schedule, selects project team, procures professional services, negotiates contracts and task orders, conducts field inspections, investigations, and surveys; reviews and approves progress payments and change orders within authority granted by the District Board.
- Coordinate wastewater collection system construction with operations, municipal public works departments, and other appropriate agencies.
- Analyze problems, identify alternative solutions, project consequences of proposals.
- Interprets drawings and specifications to resolve differences on technical matters, enforces project safety standards, and ensures compliance with District infrastructure standards.
- Assists in review and conditioning of proposed projects, real property matters, CEQA compliance tasks, planning studies and permit processing and tracking.
- May plan, schedule, and coordinate the operation of the production system to meet storage and release requirements, minimize pumping, optimize power generation and to optimize operations.

- Analyzes and determines the economics of alternative wastewater or power generation systems, evaluates bids on specifications for construction work and materials, may prepare or direct the preparation of supply and demand forecasts.
- Prepares or reviews initial studies and drafts of environmental impact assessment reports.
- Provide technical support services for drafting, materials engineering.
- Calculates plan check, inspection and connection fees and prepares conditions of approval; issues plumbing permits; collects connection fees and miscellaneous engineering fees; administers reimbursement agreements, including confirmation of reimbursement amounts.
- Designs and uses a variety of modeling and automated engineering programs to analyze project needs; participates in the review and evaluation of plans, specification and proposals submitted by private engineering firms.
- Prepares and maintains a variety of maps, calculations, plans and records; makes a variety of engineering calculations; provides engineering support to construction inspectors; responds to inquiries and provide information to contractors, developers, other agencies and the public.
- Represents the District in contacts with other utilities, regulatory agencies, governmental bodies, planning agencies, private organizations, consultants, trade and professional associations, technical groups, or developers.
- Represents the District with groups, organizations, committees, professional groups and the public; participates in special projects as assigned.
- Prepares staff reports, Board Summaries, and recommendations and may make presentations to Committees and the Board of Directors.
- Builds and maintains positive working relationships with co-workers, other District employees, and the public. Works collaboratively with Principal Engineer to resolve issues and promote District goals.
- Provide technical input to treatment plant and collection system staff on operations and proposes modifications.
- Performs other duties and responsibilities as assigned or required.

QUALIFICATIONS

Knowledge of:

- Thorough knowledge of civil engineering principles, practices and methods as applied to the planning, design, construction, operations, and maintenance of wastewater collection systems.
- Working knowledge of hydraulics, statistics and engineering economics, structural and pipeline design techniques, engineering mathematics and statistical techniques, engineering materials, surveying, and applicable building codes and standards, construction practices and methods, quantitative analysis, public policy. Civil engineering information sources, state and federal wastewater regulations, state/national/local construction codes, and applicable safety standards.
- Familiarity with process control of an activated sludge, secondary wastewater treatment facility is highly desirable.

- Skill in applying engineering principles and techniques to the solution of civil engineering assignments – preparing plans, designs, sketches, estimates, and draft specifications for wastewater facilities, conducting asset management studies, analyzing engineering data and reports, and drawing sound conclusions.
- Applicable Federal and State and local laws; District, Department, and Division regulations, codes, policies, and procedures.
- General principles for CEQA Environmental Compliance.
- Techniques for effectively representing the District in contacts with governmental agencies, community groups, and various business, professional, educational, regulatory, and legislative organizations.
- Techniques for providing a high level of customer service to public and District staff, in person and over the telephone.
- Record keeping and report writing principles and procedures.
- Computer applications related to the work, such as Microsoft Office Suite software with emphasis in Access, Excel, Word and AutoCAD.

Ability to:

- Develop, implement, and administer goals, objectives, and procedures for providing effective and efficient engineering services.
- Understand, interpret, explain, and apply applicable laws, codes, regulations, and standards.
- Perform complex planning, design, and engineering functions.
- Make recommendations to modify existing policies, strategies, and/or methods to meet unusual conditions as appropriate.
- Make effective public presentations.
- Read and interpret plans and specifications.
- Prepare clear, concise, and comprehensive engineering reports, recommendations, correspondence, policies, procedures, and other written materials.
- Make accurate arithmetic, financial, and statistical computations.
- Analyze data and information using established criteria to determine consequences and to identify and select alternatives.
- Organize and prioritize a variety of projects and multiple tasks in an effective and timely manner; organize own work and set priorities.
- Manage permitting, mapping, and drafting activities.
- Negotiate, prepare, and manage consultant contracts.
- Maintain attention to detail and accuracy while meeting critical deadlines.
- Use English effectively to communicate in person, over the telephone, and in writing.
- Identify and take appropriate action when operating problems occur.
- Use tact, initiative, prudence, and independent judgment within general policy and legal guidelines.
- Respond to public inquiries and requests concerning the District's sewer system and facilities.
- Establish and maintain effective working relationships with those contacted in the course of the work.

EDUCATION AND EXPERIENCE:

Any combination of training and experience which would provide the required knowledge, skills, and abilities is qualifying. A typical way to obtain the required qualifications would be:

Experience:

Four years of experience in Civil, Sanitary, or Mechanical Engineering.

Training:

Equivalent to a Bachelor's Degree from an accredited college with major coursework in Civil, Sanitary, Mechanical, or Environmental Engineering, or a related field.

Required Qualifications:

- Possession of a Class C driver's license required by the State of California, Department of Motor Vehicles, to perform the duties of the position. Continued maintenance of said driver's license in compliance with established District vehicle operation standards, and the ability to be insured for the operation of a vehicle/District vehicle in accordance with the terms and conditions of the District's insurance program are conditions of continuing employment. The California Sanitation Risk Management Authority (CSRMA) driving standards.
- Possession of a valid Certificate of Registration as a professional engineer issued by the California State Board of Registration.
- 8-hour HAZWOPER awareness certificate within one (1) year of employment.

Desirable Qualifications:

- Possession of a Grade III Wastewater Treatment Plant Operator certificate issued by the State of California.

Additional Requirements:

Employee must pass a respiratory fit test within 2 months of employment and adhere to District respiratory policy which specifies facial hair restrictions.

All Carmel Area Wastewater District employees are, by State and Federal law, **Disaster Service Workers**. The roles and responsibilities for Disaster Service Workers are authorized by the California Emergency Services Act and are defined in the California Labor Code. In the event of a declaration of emergency, any employee of the District may be assigned to perform activities which promote the protection of public health and safety or the preservation of lives and property. Such assignments may require service at locations, times, and under conditions that are significantly different than the normal work assignments and may continue into the recovery phase of the emergency.

If a "Local Emergency" is declared during the employee's shift, employees will be expected to remain at work to respond to the emergency needs of the community. If a "Local Emergency" is declared outside of the employee's shift, employees must make every effort to contact their direct supervisor or department head to obtain reporting instructions as Disaster Service Workers.

PHYSICAL DEMANDS

The physical demands and work environment described here are representative of those an employee encounters while performing the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions:

Standing:

- Average Frequency: 2 to 10 times per day
- Average Duration: Short (Less than 1 hour)
- Maximum Frequency: Greater than 9 times per day
- Maximum Duration: Short (Less than 1 hour)
- Surfaces: Field – concrete, asphalt, dirt, gravel, mud, metal grating, sloped and uneven terrain, grass; Office – carpet and tile
- Description: Performs while inspecting a variety of construction projects including water and sewer pipelines, pump stations, lift stations, treatment facilities and buildings, observing work including construction, utilizing a hook to remove or replace covers or lids, utilizing a valve key, digital pressure gauge, pressure recorder, as needed utilizing a shovel, collecting samples, locating and marking utilities including USA (underground service alert), communicating with contractors, coworkers.
- Performs during presentations, communicating with coworkers for public, operating standard office equipment, accessing drawers or shelves.

Walking:

- Average Frequency: 4 to 8 times per day
- Average Duration: Short (Less than 1 hour)
- Maximum Frequency: Greater than 9 times per day
- Maximum Duration: Long (2 to 8 hours)
- Surfaces: Field – concrete, asphalt, dirt, gravel, mud, metal grating, sloped and uneven terrain, grass; Office – carpet and tile
- Description: Performs while walking within the office, to and from construction areas, within the site, relocating tools, and/or inspecting a variety of construction projects.

Sitting:

- Average Frequency: 4 to 8 times per day
- Average Duration: Long (2 to 8 hours)
- Maximum Frequency: Greater than 9 times per day
- Maximum Duration: Long (2 to 8 hours)
- Surfaces: Cushioned vehicle seat, office chair
- Description: Performing various desk station activities including using a computer, reading and writing, driving a vehicle, during meetings and trainings, and performing other described job duties.

Kneeling/Crouching/Squatting:

- Average Frequency: 1 to 3 times per week
- Average Duration: Short (Less than 1 hour)
- Maximum Frequency: 4 to 8 times per day
- Maximum Duration: Short (Less than 1 hour)
- Surfaces: Field – concrete, asphalt, dirt, gravel, mud, metal grating, sloped and uneven terrain, grass; Office – carpet and tile
- Description: Performs while inspecting manholes, meter and valve boxes, retrieving or setting items on and off lower shelves, during a field inspection, retrieving or positing paperwork, plans, files.

Crawling:

Not a job requirement.

Laying on Back/Stomach:

Not a job requirement.

Climbing/Balancing:

- Average Frequency: 1 to 3 times per month
- Average Duration: Short (Less than 1 hour)
- Maximum Frequency: 4 to 8 times per month
- Maximum Duration: Medium (1 to 2 hours)
- Surfaces: Stair or ladder steps, vehicle floorboard
- Description: Performs while ascending or descending 1 to 2 stair flights to access multiple floors, or areas of the plant, plant sites, or when entering or exiting the vehicle cab, 1 step.

Reaching:

Above Shoulder Level:

- Average Frequency: 4 to 8 times per day
- Average Duration: Short (Less than 1 hour)
- Maximum Frequency: Greater than 9 times per day
- Maximum Duration: Medium (1 to 2 hours)
- Description: Performs while accessing or placing files, paperwork or binders and related items on and off upper shelves. Unilateral or bilateral upper extremities from less than full-to-full extensions at each occurrence. A variable to reaching above shoulder level includes employee's height.

Between Waist and Shoulder Level:

- Average Frequency: 4 to 8 times per day
- Average Duration: Medium (1 to 2 hours)
- Maximum Frequency: Greater than 9 times per day

- Maximum Duration: Medium (1 to 2 hours)
- Description: Performs while driving in conjunction with maneuvering the steering wheel, utilizing a computer keyboard and mouse, alternatively the employee utilizes a laptop computer includes reaching within the primary reach zone, utilizing a valve key to open or close the valves, assisting with video inspections, relocating tools or equipment. Unilateral or bilateral upper extremities from a less than full-to-full extensions on each occurrence. Computer keyboarding duties include positioning his/her arms at the side and placing fingers on the computer keyboard.

Below Waist Level:

- Average Frequency: 1 to 3 times per day
- Average Duration: Short (Less than 1 hour)
- Maximum Frequency: 4 to 8 times per day
- Maximum Duration: Medium (1 to 2 hours)
- Description: Performs while inspecting manholes, meter and valve boxes, retrieving or setting items on and off lower shelves, during an inspection, locating and marking utilities including USA (underground service alert), utilizing a shovel and a valve key. Unilateral or bilateral upper extremities from a less than full-to-full extensions on each occurrence.

Pushing/Pulling:

- Average Frequency: 1 to 3 times per week
- Average Duration: Short (Less than 1 hour)
- Maximum Frequency: 4 to 8 times per day
- Maximum Duration: Medium (1 to 2 hours)
- Description: Performs while utilizing a hook to remove or replace a manhole cover, meter cover or lid, utilizing a valve key to open or close a valve, utilizing a wrench during an inspection, as needed a shovel to remove dirt positioned over equipment. Unilateral or bilateral arm use.

Twisting/Rotating:

Waist:

- Average Frequency: Greater than 9 times per day
- Average Duration: Short (Less than 1 hour)
- Maximum Frequency: Greater than 9 times per day
- Maximum Duration: Short (Less than 1 hour)
- Description: Performs during normal body mechanics, performing general office tasks, driving, and performing other described job duties.

Neck:

- Average Frequency: Greater than 9 times per day
- Average Duration: Short (Less than 1 hour)
- Maximum Frequency: Greater than 9 times per day
- Maximum Duration: Short (Less than 1 hour)

- Description: Performs while driving, performing office tasks and other job-related duties, aiding visually, during normal body mechanics. The motion is from center to right back to center or center to left back to center up to 45-degrees.

Wrists:

- Average Frequency: Greater than 9 times per day
- Average Duration: Short (Less than 1 hour)
- Maximum Frequency: Greater than 9 times per day
- Maximum Duration: Short (Less than 1 hour)
- Description: Performs while utilizing basic hand tools including a screwdriver or pliers, while inspecting equipment, as needed utilizing a shovel to transfer dirt, utilizing a hook to remove or replace a meter cover or lid. Unilateral hand use.
- Performs while handling office tasks, and other job-related duties.

Bending:

Waist:

- Average Frequency: 1 to 3 times per day
- Average Duration: Short (Less than 1 hour)
- Maximum Frequency: 4 to 8 times per day
- Maximum Duration: Short (Less than 1 hour)
- Description: Performs while inspecting manholes, meter and valve boxes, retrieving or setting items on and off lower shelves, during an inspection, locating and marking utilities including USA (underground service alert). The motion is in a forward direction up to 65-degrees.
- Performs while handling office tasks, and other job-related duties.

Head/Neck:

- Average Frequency: Greater than 9 times per day
- Average Duration: Short (Less than 1 hour)
- Maximum Frequency: Greater than 9 times per day
- Max Duration: Short (Less than 1 hour)
- Description: Performs while inspecting a variety of construction projects including water and sewer pipelines, pump stations, reservoirs, lift stations, treatment facilities and buildings, observing work including construction, utilizing a hook to remove or replace covers or lids, utilizing a valve key, digital pressure gauge, pressure recorder, as needed utilizing a shovel, collecting samples, locating and marking utilities including USA (underground service alert), during normal body mechanics.
- Performs during normal body mechanics including reading, writing, handling office supplies, paperwork review, and general office tasks.
- Performs while handling office tasks, and other job-related duties.

Wrists:

- Average Frequency: Ongoing -- tasks performed throughout shift
- Average Duration: Short (Less than 1 hour)
- Maximum Frequency: Ongoing -- tasks performed throughout shift

- Max Duration: Short (Less than 1 hour)
- Description: Performs while driving in conjunction with maneuvering a steering wheel, utilizing a valve key, digital pressure gauge, pressure recorders, utilizing a hook to remove or replace covers or lids, collecting samples, during normal body mechanics. Unilateral or bilateral hand use.
- Performs while handling office tasks, and other job-related duties.

Lifting/Carrying:

0 to 10 lbs.:

- Objects: Office supplies, ream of paper, binders, manuals, documents, mail, small packages, writing utensils, telephone handset, chair, laptop computer, vehicle fire extinguisher, electrical cords, broom
- Average Frequency: Ongoing -- tasks performed throughout shift
- Average Duration: Seconds to less than 15 minutes at a time
- Maximum Frequency: Ongoing -- routine tasks performed throughout shift
- Maximum Duration: Short (Less than 1 hour)
- Height: Ground to shoulder or above
- Distance: Average - less than 50 feet including ascending/descending stairs
- Description: Performs a variety of administrative office tasks including receiving mail and small packages, writing, transferring paperwork, using manuals, loading printers, moving light office equipment, filing; stocking and retrieving office supplies from cabinets/shelves and during field inspection work.

11 to 25 lbs.:

- Objects: Medium sized packages, box of office supplies, step-stool, fire extinguisher, half-sized box of printer paper, 4" binder
- Average Frequency: 2 times per day
- Average Duration: Seconds to less than 5 minutes at a time
- Maximum Frequency: 8 times per day
- Maximum Duration: Seconds to less than 5 minutes at a time
- Distance: Less than 50 feet
- Height: Ground to shoulder
- Description: Performs while receiving, transferring, and storing these objects and during field inspection work.

26 to 50 lbs. (two-person lifts):

- Objects: Full file boxes, foldable tables
- Average Frequency: 2 times per month
- Average Duration: Seconds to less than 5 minutes at a time
- Maximum Frequency: 2 times per week
- Maximum Duration: Seconds to less than 5 minutes at a time
- Distance: Less than 50 feet
- Height: Ground to waist
- Description: Performs while moving tables, boxes, and using equipment to perform inspections or when using a dolly.

51+ lbs.

- Not a job requirement.

Grasping:

Simple:

- Average Frequency: Ongoing - tasks performed throughout shift
- Average Duration: Seconds to less than 15 minutes at a time
- Maximum Frequency: Ongoing - tasks performed throughout shift
- Maximum Duration: Seconds to less than 15 minutes at a time
- Description: Utilizing a telephone handset, handling paperwork, writing; any grasping necessary to complete required lifts/carries below 25 lbs.

Fine Manipulation:

- Average Frequency: 1 to 2 hours
- Average Duration: Seconds to less than 5 minutes at a time
- Maximum Frequency: 2 to 3 hours
- Maximum Duration: Seconds to less than 10 minutes at a time
- Description: Utilizing a writing utensil; using computer keyboards/tablets including use of a mouse, touchpad or touch screens; calculator; using telephone, sorting and handling documents. Unilateral or bilateral hand use.

Machines/Tools:

The machines and tools listed here are representative of those an employee encounters while performing the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions:

- Writing utensils
- Computer
- Standard office equipment including copy and fax machines, scanners and printers
- Telephone
- Standard office tools including staplers, stapler removers and other related items
- Vehicle
- Camera
- Engineering tools – survey equipment, GPS unit, scales

Weights and Measures:

The items listed here to be weighed or measured are representative of those an employee encounters while performing the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions:

Items Weighed:

- Six-foot foldable table – 40 lbs.
- Eight-foot foldable table – 48 lbs.
- Metal chair – 19 lbs.
- File box – up to 30 lbs. (full)

PERSONAL PROTECTIVE EQUIPMENT

Depending on the hazard, the employee is required to wear head, hearing, eye, foot, face, respiratory, fall protection, and/or hand protection.

ENVIRONMENTAL ELEMENTS

- Employee is frequently exposed to outside weather conditions.
- Employee is occasionally exposed to high, precarious places.
- Employee is exposed to confined spaces; fumes or airborne particles; toxic or caustic chemicals.
- Employee is exposed to unpleasant smells and odors.
- Employee is exposed to moderate cold, moderate heat.
- Employee is exposed to risk of electrical shock or mechanical hazards.
- Employees in this classification may perform duties that involve a potential risk of exposure to blood-borne pathogens.
- The noise level in the work environment is usually loud.
- Employee, as needed, works indoors, office setting, climate controlled.

NOTICE: The examples of functions, responsibilities, work environment, physical demands etc. listed in this Job Analysis are representative only, and not exhaustive of the tasks that an employee may be required to perform.