

COUNTY OF SONOMA - JOB DEMANDS ANALYSIS

JOB CLASSIFICATION: WA Engineer I (1021), II (1022), III (1023), IV (1032)
DEPARTMENT: WTR
PHYSICAL DEMAND STRENGTH RATING: Medium

DATE COMPLETED: January 2024
DIVISION: Engineering

INSTRUCTIONS TO MEDICAL PROVIDERS COMPLETING THIS FORM:

Please use the “Medical Provider Use Only” columns to the right of each section and the “Medical Provider’s Comments & Signature” Section on the signature page to provide work restrictions by indicating whether there is some portion of each function that the employee can perform; designating whether each restriction is temporary or permanent; and, if restriction is temporary, stipulating the expected duration of work restriction(s). To finalize the form, please provide the name of the employee evaluated and additional comments, as appropriate, then sign and date where indicated.

FREQUENCY RATING:

Frequency	Percentage of time per shift	Repetition (# times per shift)	8 Hr Shift	9 Hr Shift	10 Hr Shift	12 Hr Shift
Never/Not Required (N)	n/a	n/a	n/a	n/a	n/a	n/a
Occasionally (O)	1 - 33%	1 – 100	0 - 2.5	0 - 3	0 - 3.5	0 – 4
Frequently (F)	34 - 66%	100 – 500	2.5 - 5.5	3 - 6	3.5 - 7	4 – 8
Continuously (C)	67 - 100%	500+	5.5 – 8	6 - 9	7 - 10	8 - 12

PART 1 - JOB DUTIES/FUNCTIONS:

A. Job Duty/Function	B. Job Duty #	C. Freq Rating	D. Equipment or tools used to perform (Describe)	E. Specialized Expertise, License, Certification Required? (Describe)	F. Essential or Non- Essential	Medical Provider Use Only: For each job duty/function, indicate in this column “Can Perform”, is “Temporarily Restricted” from performing, or is “Permanently Restricted” from performing.
While performing the following duties, employees in this position work in a typical office setting, sitting for long periods of time and routinely using office equipment such as computers, phones, photocopiers, fax machines, etc.; employees occasionally work in the field, working outdoors in all types of terrain, vegetation, and weather conditions, performing duties in both daylight and dark/dim conditions in proximity to water and wastewater, along rivers and ponds, and on level, inclined, uneven, wet, and slippery surfaces.						
Drives county vehicles to off-site job sites including rugged, remote, and off-road locations; inspects vehicles and reports any issues or damage.	1	F	Car, pickup truck	Valid CA Driver’s License	E	

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Communicates in person, by phone, and by email with coworkers, supervisors, other staff, and other agencies (utilities, public agencies, vendors, contractors, etc.) to coordinate activities, provide detailed information regarding the status of projects, and obtain or provide technical information; explains complex codes, policies, and procedures; makes recommendations and gives instructions; responds to general questions.	2	C	Computer, phone	N/A	E	
Performs office support work such as filing, copying, billing, receipting, file research, and file prep; retrieves paper files and rolled plans, weighing up to 25 lbs., from storage areas; carries files and plans; reaches above and below shoulder level to access documents; enters and retrieves data in computer systems; creates, updates, and maintains records; prepares and processes a variety of materials such as letters, reports, memos, schedules, and forms; reviews and revises templates and forms as needed to ensure compliance with changing requirements, and to maximize efficiencies.	3	F	Computer, files, file cabinets, hand truck	N/A	E	
Performs complex and detailed research and analysis of water supply reliability and resiliency; develops and implements efficiency measures and practices for public and private use; evaluates the cost-effectiveness of measures; performs research to collect data and to help determine design criteria according to standards and codes; performs calculations; conducts site investigations including collecting and reviewing technical data to develop designs and operational parameters.	4	O	Computer, phone, sketching tools, plans	N/A	E	
Participates in continuous training to maintain required certificates and licenses, and to maintain and enhance knowledge and skills necessary to perform assigned duties; may be required to drive to off-site locations for seminars or conferences.	5	O	Computer, phone, vehicle, seminars, conferences	N/A	E	
Actively utilizes and implements established safety practices; wears appropriate safety gear; reports and/or corrects unsafe conditions.	6	C	Personal Protective Equipment (e.g., gloves, boots, hearing protection, hard hat), phone	N/A	E	

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Assists with the administration of outside consultant contracts including writing and issuing requests for qualifications and proposals, interviewing consultants, reviewing and evaluating proposals, and coordinating the preparation of contracts.	7	O	Computer, phone	N/A	E	
Prepares comprehensive and complete engineering reports for engineering projects of average professional difficulty; prepares a variety of correspondence, reports, and records; may entail gathering and analyzing data concerning rainfall, runoff, stream flow, water levels, and ground water infiltration.	8	O	Computer, phone	N/A	E	
Prepares requests for work of survey parties in the preparation of topographic maps, boundary surveys, charts, and diagrams; prepares shop drawings, submittals, and O&M manuals.	9	O	Computer, phone	N/A	E	
Goes into field to install groundwater monitoring equipment; uses data from monitoring equipment and specialized computer software to perform hydrologic modeling.	10	O	Computer, phone,	N/A	E	
Works around electrical energy of medium to high voltage (e.g., at plants, around electrical equipment, etc.)	11	O	N/A	N/A	E	
Performs emergency assessments of site, structure, and infrastructure conditions after natural disasters such as earthquakes, fires, and floods, to identify and document safety concerns; works long and irregular hours, including nights, weekends, and holidays, during response and recovery phases of emergency situations; drives throughout the County in the aftermath of a natural disaster; may be temporarily assigned to work at an emergency operation or local assistance center.	12	O	Computer, phone, vehicle	N/A	E	
Conducts site evaluations and inspections of designated permitting projects; investigates complaints; ensures adherence to approved project/design plans; carries gear weighing up to 25 pounds; hikes over uneven, steep, and slippery terrain.	13	O	Computer, phone, other equipment	N/A	E	
In addition to the duties above, Engineer II's also do the following duties:						

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Acts as a resident engineer of projects under construction; is expected to carry out assignments with independent judgment and discretion but is under the general supervision of a professional engineer; works independently and uses good judgement while leading and assisting staff engaged in the performance of daily duties; trains staff, assigns work, and provides advice and technical guidance.	14	C	Computer, phone	Fundamentals of Engineering Certificate	E	
Represents the county and speaks before public bodies, organizations, and committees on matters pertaining to WA initiatives, projects, programs, and activities.	15	O	Computer, phone, public speaking equipment (e.g., microphone)	Fundamentals of Engineering Certificate	N	
In addition to the duties above, Engineer III's also do the following duties:						
Acts as the chief resident engineer on specific maintenance and construction projects of a wide variety of difficulty and complexity; assigns, directs, trains, and reviews the work of subordinate engineers and technical staff; individuals in this class exercise considerable discretion and judgment in the coordination and prioritization of projects including planning, design, contract administration, and operation and maintenance of mechanical, electrical, and control systems for water and wastewater facilities and flood control projects; expected to work independently on complex projects, but lead direction can be received from WA Engineer IV and WA Principal Engineers.	16	C	Computer, phone	Valid Certificate of Registration in CA in one of the following specialty areas: civil, electrical, or mechanical	E	
In addition to the duties above, Engineer IV's also do the following duties:						
Leads a team of engineers; trains staff, assigns works, provides advice and technical guidance as a subject matter expert; resolves the most complex issues; establishes production goals and assists staff in meeting them; analyzes workload and production statistics; recommends and implements actions to improve work processes; is expected to work independently and exercise considerable discretion and judgment in the coordination and prioritization of projects; serves as a technical consultant on mechanical, civil, or electrical installation, modification, operations, or maintenance projects.	17	C	Computer, phone	Valid Certificate of Registration in CA in one of the following specialty areas: civil, electrical, or mechanical	E	

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Analyzes cumulative environmental impacts; documents issues in appropriate written format; ensures compliance with applicable federal, state, and local laws, regulations, and best management practices; researches, reads, and interprets applicable codes, reports, engineered plans, maps, calculations, other specifications, and related documents; recommends approval or disapproval of projects.	18	F	Computer, phone	Valid Certificate of Registration in CA in one of the following specialty areas: civil, electrical, or mechanical	E	
Construction Management Engineers						
Designs and details structures, pipelines, site improvements, and other facilities; performs groundwater modeling and may manage an assigned groundwater area; this specialization includes construction management engineers who frequently work in the field managing construction projects and supervising construction workers to ensure design specifications are followed; construction management engineers frequently work around structural hazards, moving equipment, vibration, excessive noise, dust, and occasionally may be required to enter confined spaces.	19	C	Computer, phone, construction equipment	Eng I: NA Eng II: Fundamentals of Engineering Certificate Eng III & IV: Valid Certificate of Registration in Civil or Mechanical	E	
Electrical Engineers						
Prepares designs for lighting, motor control, process control, telemetry, automation, power generation systems, electronically based systems, generators, substations, and similar projects; frequently works around electrical energy of medium to high voltage.	20	C	Computer, phone, electrical equipment	Eng I: NA Eng II: Fundamentals of Engineering Certificate Eng III & IV: Valid Certificate of Registration in Electrical	E	

PART 2: PHYSICAL DEMANDS

Activity	Examples of Duties/Functions Requiring Activity	FREQUENCY RATING Never, Occasional; Frequent, or Constant	MEDICAL Can Perform	PROVIDER Temporarily Restricted	USE ONLY: Permanently Restricted
1 Sitting (e.g., driving, sitting at desk)	All	C			
2 Walking (e.g., walking around office, job sites, etc.)	All	F			
3 Running	N/A	N			
4 Standing	All	F			
5 Bending-Neck (e.g., computer work, preparing sketches)	All	F			
6 Bending-Waist (e.g., retrieving binders, files, etc.)	All	O			
7 Squatting (e.g., retrieving files; may be required during inspections and other work in the field)	3, 10-13, 19 & 20	O			
8 Climbing (e.g., ladders, stairs, hills)	10-13, 19 & 20	O			
9 Kneeling (e.g., may be required during inspections and other work in the field)	10-13, 19 & 20	O			
10 Crawling (e.g., into pipelines)	19	O			
11 Twisting (neck)	All	F			
12 Twisting (waist)	All	O			
13 Repetitive Hand Use (e.g., computer work)	All	F			
14 Simple Grasping-Right Hand	All	C			
15 Simple Grasping-Left Hand	All	C			
16 Power Grasping-Right Hand (e.g., opening gates)	10-13, 19 & 20	O			
17 Power Grasping-Left Hand (e.g., opening gates)	10-13, 19 & 20	O			
18 Fine Manipulation-Right Hand (e.g., sketches)	9, 16, 19 & 20	O			
19 Fine Manipulation-Left Hand (e.g., sketches)	9, 16, 19 & 20	O			
20 Pushing and Pulling (right hand) (e.g., opening/closing file drawers, car doors, gates)	3, 10-13, 19 & 20	O			
21 Pushing and Pulling (left hand) (e.g., opening/closing file drawers, car doors, gates)	3, 10-13, 19 & 20	O			
22 Reaching (above shoulder level) (e.g., filing; may be required during inspections and other work in the field)	3, 10-13, 19 & 20	O			
23 Reaching (below shoulder level) (e.g., filing; may be required during inspections and other work in the field)	3, 10-13, 19 & 20	O			
24 Lifting-up to 10 lbs. (e.g., files, binders, rolled plans; office materials such as paper, pens, etc.)	All	F			
25 Lifting-11-25 lbs. (e.g., rolled plans, gear used when conducting inspections)	3, 9, 13, 19 & 20	O			
26 Lifting-26-50 lbs. (e.g., Construction Management and Electrical Engineers working in the field may engage in lifting materials and gear weighing up to 50 lbs.)	19 & 20	O			
27 Lifting 51-75 lbs.	N/A	N			
28 Lifting 76-100 lbs.	N/A	N			
29 Lifting 100 + lbs.	N/A	N			
30 Carrying 0-10 lbs. (e.g., files, binders, rolled plans; office materials such as paper, pens, etc.)	All	F			
31 Carrying 11-25 lbs. (e.g., rolled plans, gear used when conducting inspections)	3, 9, 13, 19 & 20	O			
32 Carrying 26-50 lbs. (e.g., Construction Management and Electrical Engineers working in the field may engage in lifting materials and gear	19 & 20	O			

Activity	Examples of Duties/Functions Requiring Activity	FREQUENCY RATING Never, Occasional; Frequent, or Constant	MEDICAL Can Perform	PROVIDER Temporarily Restricted	USE ONLY: Permanently Restricted
weighing up to 50 lbs.)					
33 Carrying 51-75 lbs.	N/A	N			
34 Carrying 76-100 lbs.	N/A	N			

PART 3: SENSORY REQUIREMENTS

Activity	Examples of Duties/Functions Requiring Activity	FREQUENCY RATING Never, Occasional; Frequent, or Constant	MEDICAL Can Perform	PROVIDER Temporarily Restricted	USE ONLY Permanently Restricted
1 Functional vision, normal or corrected	All	C			
2 Functional color vision, normal or corrected (e.g., in preparation of maps and sketches; while at job sites)	All	C			
3 Functional night vision, normal or corrected (e.g., after-hour on-call work for flood response or other equipment/facility emergencies)	12	O			
4 Functional hearing, normal or corrected (e.g., communicating with co-workers in the office and while on job sites)	All	C			
5 A sense of smell or taste (e.g., smelling gas leaks)	All	C			

PART 4: COMPREHENSION LEVEL

Activity	FREQUENCY RATING Never, Occasional; Frequent, or Constant	MEDICAL Can Perform	PROVIDER Temporarily Restricted	USE ONLY Permanently Restricted
1 Follow Oral Instructions	F			
2 Follow Written Instructions	F			
3 Required to sustain concentration	F			

PART 5: NATURE OF TASKS

Activity	FREQUENCY RATING Never, Occasional; Frequent, or Constant	MEDICAL Can Perform	PROVIDER Temporarily Restricted	USE ONLY Permanently Restricted
1 Follow set procedures	F			
2 Organize own work	F			
3 Able to ask questions or request assistance when needed	C			
4 Required to make decisions independently	F			
5 Required to train and/or lead other staff	Eng. II: O Eng. III & IV: F			
6 Required to direct other staff (e.g., planning, goal setting, performance)	N			

PART 6: WORK PACE

Activity	FREQUENCY RATING Never, Occasional; Frequent, or Constant	MEDICAL Can Perform	PROVIDER Temporarily Restricted	USE ONLY Permanently Restricted
1 Tightly scheduled and rapid pace of work activities at high volume	F			
2 Meet time sensitive deadlines	F			
3 Long and/or irregular hours	O			

Activity	FREQUENCY RATING Never, Occasional; Frequent, or Constant	MEDICAL Can Perform	PROVIDER Temporarily Restricted	USE ONLY Permanently Restricted
4 Limited/unpredictable opportunity for breaks	O			
5 Required to perform on-call or emergency work	O			

PART 7: COMPLEXITY/VARIABILITY

Activity	FREQUENCY RATING Never, Occasional; Frequent, or Constant	MEDICAL Can Perform	PROVIDER Temporarily Restricted	USE ONLY Permanently Restricted
1 Variable and unpredictable workflow	O			
2 Attention divided by issues requiring multi-tasking	F			
3 Work requires precise attention to detail	C			
4 Use of judgment in routine matters	C			
5 Requires use of judgment in adapting procedures from one task to another	C			
6 Possible legal ramifications associated with work activities or work product	F			

PART 8: INTERACTIONS WITH OTHERS

Activity	FREQUENCY RATING Never, Occasional; Frequent, or Constant	MEDICAL Can Perform	PROVIDER Temporarily Restricted	USE ONLY Permanently Restricted
1 Works with others (e.g., co-workers, other departments/agencies, public)	C			
2 Interactions limited to giving/receiving information	F			
3 Interactions exceed giving/receiving information (e.g., advises , persuades, justifies)	F			
4 Interactions occur under circumstances of emotional stress	O			
5 Risk of confrontation with violent or assaultive clients or customers	O			

PART 9: ENVIRONMENTAL FACTORS/WORKING CONDITIONS:

Activity	FREQUENCY RATING Never, Occasional; Frequent, or Constant	MEDICAL Can Perform	PROVIDER Temporarily Restricted	USE ONLY Permanently Restricted
1 Work Inside	C			
2 Work Outside	O			
3 Extreme Heat (above 100 degrees)	O			
4 Extreme Cold (below 32 degrees)	O			
5 Excessive Noise (must raise voice to be heard) (e.g., when working at a job site)	O			
6 Vibration (e.g., jack hammer, hammer drill, chainsaw, etc.)	O			
7 Dust, Vapors, Fumes, Smoke	O			
8 Silica, asbestos, etc. (e.g., silica beads, asbestos pipe)	O			
9 Solvents (e.g., gas, turpentine, etc.)	O			
10 Grease, oils	O			
11 Acidic, Caustic Solutions (e.g., caustic soda used at water treatment plants, citric acid used at sanitation treatment plants)	O			
12 Pesticides	N			
13 Explosives (e.g., dynamite, bomb, etc.)	N			
14 Cleaning supplies, abrasives	O			
15 Other Chemicals (e.g., drugs and other contraband)	N			
16 Human Blood, Body Tissues, or Fluids (e.g., inspections at sanitation facilities, pipelines, flood control channels)	O			
17 Human Wastes (e.g., inspections at sanitation facilities, pipelines, flood control channels)	O			
18 Animal Blood, Body Tissues, or Fluids (e.g., inspections at sanitation facilities, pipelines, flood control channels)	O			
19 Animal Wastes (e.g., inspections at sanitation facilities, pipelines, flood control channels)	O			
20 Biological Toxins (e.g., poison ivy, poison oak, anthrax, etc.)	O			
21 Insect Bites (e.g., ticks, mosquitos, spiders, etc.)	O			
22 Biomedical Waste	N			
23 Ionizing Radiation (e.g., may use nuclear gauge)	O			
24 Non-Ionizing Radiation	N			
25 Electrical Energy (medium to high voltage)	F			
26 Walking on uneven, slippery, or rough surfaces (e.g., when working in the field)	F			
27 Proximity to moving mechanical parts (e.g., equipment, machinery) (e.g., when working in the field)	F			
28 Proximity to moving vehicles or objects (e.g., when working in the field; parking lots)	F			
29 Heights (e.g., rooftop, ladders, scaffolding, etc.)	O			
30 Contact with water, other liquids, humid conditions - not weather related: (e.g., water and wastewater facilities; around pipelines with high pressure)	O			
31 Work Below Ground: (e.g., enter pipelines, pits, vaults)	O			
32 Potential exposure to airborne infectious diseases (e.g., clinics, labs, corrections)	N			
33 Operates non-commercial motor vehicles (cars, trucks)	F			
34 Operates commercial vehicles – CDL Class _____ Endorsements _____	N			
35 Operates passenger van to transport clients, inmates, etc.	N			

Activity	FREQUENCY RATING Never, Occasional; Frequent, or Constant	MEDICAL Can Perform	PROVIDER Temporarily Restricted	USE ONLY Permanently Restricted
36 Pulls non-commercial trailers or equipment	N			
37 Operates heavy equipment	N			
38 Other:	N/A			

PART 10: MEDICAL SCREENING, SURVEILLANCE AND VACCINATION REQUIREMENTS:

Please check each of the medical screening, surveillance, and vaccination requirements that apply to the position, and indicate if the requirement applies pre-employment/pre-placement only, or whether there are additional requirements after hire.

Medical Screening, Surveillance or Vaccination	Pre-Hire	Post-Hire	Frequency (one time, annual, etc.)
1 Audiometric Testing	Construction Management Engineers Only		
2 DOT Commercial Driver Drug and Alcohol Screening			
3 DOT Commercial Driver Physical Exam			
4 Respirator Physical Exam	Construction Management Engineers Only	Construction Management Engineers Only	Annual
5 Respirator Questionnaire – Short			
6 Respirator Questionnaire – Standard	Construction Management Engineers Only	Construction Management Engineers Only	Annual
7 Blood lead level			
8 Hazardous Waste/Emergency Worker physical			
9 Heavy metal screens (mercury, lead, arsenic)			
10 HINT Hearing Noise Sensitivity Testing			
11 Tuberculosis skin test			
12 Vaccine: MMR			
13 Vaccine: Hepatitis B		Offered	
14 Vaccine: Influenza			
15 Vaccine: Meningococcal			
16 Vaccine: Pneumococcal			
17 Vaccine: Rabies			
18 Vaccine: Rabies Titer			
19 Vaccine: Tdap			
20 Vaccine: Chickenpox			

PART 11: ADDITIONAL INFORMATION, PICTURES, ETC.