

COUNTY OF SONOMA - JOB DEMANDS ANALYSIS

JOB CLASSIFICATION: Water Agency Mechanic/Water Agency Lead Mechanic (5129/5132)

DATE COMPLETED: May 2023

DEPARTMENT: WTR

DIVISION: O & M

PHYSICAL DEMAND STRENGTH RATING: Heavy

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.
Working conditions/environment: Working long and irregular hours, including nights, weekends, and holidays, during response and recovery phases of emergency flood situations and sanitary sewer overflows, PSPS events. Outdoors in all types of weather conditions/temperatures, in daylight and dark. Performs duties: in proximity to water and wastewater, along rivers and ponds, on level and slippery surfaces.						
Drives agency vehicle, including pick-up trucks, throughout the county, including to rugged, remote, and off-road locations; inspects vehicle and reports any issues or damage.	1	O	Tool truck, tool truck with small crane	CA Driver's License	E	
Communicates by phone, in person, email or other means with staff, members of the public, and public and private agencies observe safety practices.	2	F	Computer, phone, radio		E	

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Participates in continuous training to maintain required certifications and licenses, to maintain and enhance knowledge and skills necessary to perform assigned duties, and to stay current on safety protocol and procedures.	3	O	Computer, Vehicle	CA Driver's License	E	
Keeps records (including both electronic and hard-copy paper files), prepares written reports, organize work orders, enter information into the computer, reads engineered plans, maps, calculations, Interprets and works from technical sketches and blueprints.	4	O	Computer		E	
Works in confined spaces, wear SCBA, handle noise producing tools and equipment.	5	F	PPE, Small hand tools	Water Agency confined space training	E	
Works around hazardous sewer gases, exposure to raw and treated sewage, fumes, dust, and air contaminants which may cause eye and skin irritation. Working with Chlorine and Caustic Soda.	6	F	Hand tools, PPE Working with Chemicals, face shield, masks, safety glasses, gloves, safety toe shoes, welding jacket, welding helmet, respirator		E	
Operates crane truck, rigging, backhoe, dozer, excavator, loads and unloads heavy equipment.	7	O	Crane truck; rigs; backhoe	Some assignments may require the possession of a Class B motor vehicle operations license	E	
Certifications: A California Water Treatment Plant Operator Grade T1 certificate is required within 2 years from date of employment	8	F	All	Treatment Grade 1	E	

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Climb ladders and walks on scaffolds, and ride personnel lifts at heights of up to 60 feet, reaching, kneeling, bending, and stooping, crawling, squatting, crouching, stands continuously, grasps with fingers, twists wrists frequently.	9	F	PPE, Fall protection, Hand tools		E	
Welds, fabricates, fits pipe- plastic and metal.	10	F	Hand tools, welding equipment		E	
Repairs maintains constructs, installs, adjusts, calibrate, mechanical, pneumatic, hydraulic equipment and large diesel powered and electrical motors;	11	F	Hand tools, Concrete saw, Jackhammer,		E	
Uses heavy sheet and other varieties of metal to machine, manufacture, fabricate and fit special parts, tools, pipes, and flanges; works in machining, plumbing, carpentry, cabinetry, masonry, and other construction trade activities	12	F	PPE, Iron worker machine, Hand tools, Woodworking tools, Scotchman shear/bender, box/pan brake, lathe, table saw, band saw, pipe threader		E	
Under the direction of a duty operator, controls and adjusts chlorine and caustic soda dosages, operates and maintains valves and pumps affecting water production, and maintains chemical feed pumps and chlorine takes delivery and controls inventory of caustic soda.	13	F	Hand tools, PPE	Treatment Grade 1	E	
Licensing/Testing: Some assignments may require the incumbent to drive heavy equipment	14	O		Class B License		
FOR WA LEAD MECHANIC ONLY						
Managing: Leads a team of 1-10 employees, assign tasks, supervise, direct, plan, schedule. Includes Admin duties detailed in Job Duty #4.	15	F	Computer		E	

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<p>Certifications: A California Water Treatment Plant Operator Grade T1 is required within 2 years of employment and a California Water Distribution Operator Grade D3 is required within 4 years from employment</p>	16	F		<p>Possession of a valid California Class C motor vehicle operator's license. A California Water Treatment Plant Operator Grade T1 is required within 2 years of employment and a California Water Distribution Operator Grade D3 is required within 4 years from employment.</p>	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	1-4,7	F			
2 Walking	1,5,6,9	F			
3 Running	N/A	N			
4 Standing	1,2,5,6,9,10,11, 12,13	F			
5 Bending-Neck	1-16	F			
6 Bending-Waist	1,5,9,10,11	F			
7 Squatting	1,5,9	F			
8 Climbing	1,5,7,9	F			
9 Kneeling	1,5,9	O			
10 Crawling	5,9	O			
11 Twisting (neck)	1-16	F			
12 Twisting (waist)	5,9	O			
13 Repetitive Hand Use	1-16	F			
14 Simple Grasping-Right Hand	1,2,4,9,10,11, 13	F			
15 Simple Grasping-Left Hand	1,2,4,9,10,11, 13	F			
16 Power Grasping-Right Hand	5,7,9,10,11,12	O			
17 Power Grasping-Left Hand	5,7,9,10,11,12	O			
18 Fine Manipulation-Right Hand	2,3,4,5,9,10,11, 12,13	F			
19 Fine Manipulation-Left Hand	2,3,4,5,9,10,11, 12,13	F			
20 Pushing and Pulling (right hand)	1,5,6,7,9,10,11, 12,13	F			
21 Pushing and Pulling (left hand)	1,5,6,7,9,10,11, 12,13	F			
22 Reaching (above shoulder level)	5,6,7,9,10,11, 12,13	F			
23 Reaching (below shoulder level)	1,5,6,7,9,10,11, 12,13	F			
24 Lifting-up to 10 lbs.	1,2,5,6,9,10,11, 12,13	C			
25 Lifting-11-25 lbs.	5,6,9,10,11,12, 13	F			
26 Lifting-26-50 lbs.	5,6,7,9,10,11, 12,13	F			
27 Lifting 51-75 lbs.	5,7,10,11,12	F			
28 Lifting 76-100 lbs.	10,11,12	O			
29 Lifting 100 + lbs.	N/A	N			
30 Carrying 0-10 lbs.	1,2,5,6,9,10,11, 12,13	F			
31 Carrying 11-25 lbs.	5,6,9,10,11,12, 13	F			
32 Carrying 26-50 lbs.	5,6,7,9,10,11, 12,13	F			
33 Carrying 51-75 lbs.	5,7,10,11,12	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
34 Carrying 76-100 lbs.	10,11,12	O			

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	1-16	C			
2 Functional color vision, normal or corrected	4,5,6,9,10,11, 12	F			
3 Functional night vision, normal or corrected	1,4,5,6,10,11, 12,13	F			
4 Functional hearing, normal or corrected	1,2,5,6,7,9,10,1 1,12,13	C			
5 A sense of smell or taste	1,5,6,11,12,13	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	C			
2 Follow Written Instructions	C			
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	O			
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	O			
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	O			
2 Meet time sensitive deadlines	F			
3 Long and/or irregular hours	O			
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	F			
2 Attention divided by issues requiring multi-tasking	O			
3 Work requires precise attention to detail	F			
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	O			

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)	F			
2 Interactions limited to giving/receiving information	O			
3 Interactions exceed giving/receiving information (e.g., advises, persuades, justifies)	O			
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	F			
2 Work Outside	F			
3 Extreme Heat (above 100 degrees)	O			
4 Extreme Cold (below 32 degrees)	O			
5 Excessive Noise (must raise voice to be heard)	O			
6 Vibration (e.g., jack hammer, hammer drill, chainsaw, etc.)	O			
7 Dust, Vapors, Fumes, Smoke	F			
8 Silica, asbestos, etc.	O			
9 Solvents (e.g., gas, turpentine, etc.)	O			
10 Grease, oils	O			
11 Acidic, Caustic Solutions	O			
12 Pesticides	O			
13 Explosives (e.g., dynamite, bomb, etc.)	N			
14 Cleaning supplies, abrasives	F			
15 Other Chemicals (e.g. drugs and other contraband)	O			
16 Human Blood, Body Tissues, or Fluids	O			
17 Human Wastes	F			
18 Animal Blood, Body Tissues, or Fluids	O			
19 Animal Wastes	F			
20 Biological Toxins (e.g., poison ivy, poison oak, anthrax, etc.)	F			
21 Insect Bites (e.g., ticks, mosquitos, spiders, etc.)	O			
22 Biomedical Waste	F			
23 Ionizing Radiation	N			
24 Non-Ionizing Radiation	N			
25 Electrical Energy	F			
26 Walking on uneven, slippery, or rough surfaces	F			
27 Proximity to moving mechanical parts (e.g., equipment, machinery)	F			
28 Proximity to moving vehicles or objects	F			
29 Heights (e.g., rooftop, ladders, scaffolding, etc.)	O			
30 Contact with water, other liquids, humid conditions - not weather related	O			
31 Work Below Ground: (e.g., excavation, trench, etc.)	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			
36 Pulls non-commercial trailers or equipment	O			
37 Operates heavy equipment	O			
38 Other:				

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	x		
2 DOT Commercial Driver Drug and Alcohol Screening			
3 DOT Commercial Driver Physical Exam			
4 Respirator Physical Exam	x		
5 Respirator Questionnaire – Short			
6 Respirator Questionnaire – Standard	x	x	Annual
7 Blood lead level			
8 Hazardous Waste/Emergency Worker physical			
9 Heavy metal screen (mercury, lead, arsenic)			
10 HINT Hearing Noise Sensitivity Testing			
11 Tuberculosis skin test			
12 Vaccine: MMR			
13 Vaccine: Hepatitis B		x	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.

Weight Categories	Most Frequently Used Tools	Most Frequently Used Materials
10 lbs. and under	Wrenches, hand tools,	Small pipe fittings, valves, motors
11 - 25 lbs.	Wrenches, hand tools,	Pipe fittings, valves, motors
26 - 50 lbs.	Ladders, Large wrenches, Ground packing equipment, pneumatic/electric jackhammer/digging spade, drills, sacks of materials, pump parts, bolt sets, flanges, pipe, Shoring.	Concrete, material in buckets, wood,
51 - 75 lbs.	Large wrenches, come-along,	Concrete, material in buckets, wood,
76 - 100 lbs.	Gas tanks, welding equipment, pipe pulling equipment	Concrete, Plywood, pump parts, tools in bucket, shoring, pipe, flanges
Over 100 lbs.	Gas tanks, welding equipment	Plywood, pump parts, tools in bucket, shoring, pipe, flanges



Work truck- Lumber Rack 80-inches high



Work truck with crane for lifting heavy items



C900 PVC Pipe may be loaded to Lumber Rack (80" high) –
Pipe size may vary from diameter of 4" to 24"; typically delivered at 20' long



Welder/Generator Mounted on truck



Hoses – different diameters and weights – up to 62 lbs.
Loaded to trucks on pallet with fork lift



Pump, Valve, and Flange (3 pieces)
3-person team to change



Flange Adaptor = 32 lbs.



“PIG” Test-Ball Plug – 24”- 48” = 125 lbs.
Pictured 12”-24”= 26.9 lbs. (stored overhead)
Variable weight depending on diameter



Pump = 40 lbs.
Carried 20'-25' floor to work truck
(Truck bed = 39" high)



Coupling and Repair Clamps – 48lbs.
Carried 20'-25' floor to work truck
(Truck bed = 39" high)



Generator 50lbs. on 34-inch shelf
Carried 20'-25' floor to work truck
(Truck bed = 39" high)



Salt bags – 40 lbs.



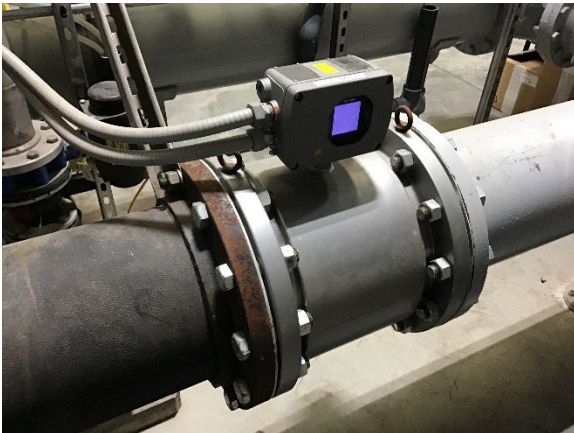
Salt added to Conditioner/Softener
40lbs. from 6-inches to 48-inches high



Ladder in place for overhead work-
Acid lines, Filter Lines, Overhead Meters
(May climb ladders with hand tools, flash light)



Safety Ladder for overhead work-
Acid lines, Filter Lines, Overhead Meters



Meter – install; monitor; repair, as needed
-Found a various heights (Site specific)



Overhead Meter **circled**- Install; monitor; repair, as needed



Jack Hammer – 92 lbs.



Sample of Vault – confined space
Perform repairs and installations
Accessed via Ladder



Sample of Handle to “exercise” valves
~48” high



Sample of Handle to “exercise” valve
~30” high



Bags of Concrete – Up to 80 lbs.



Plywood – 4’ x 8’ x ½” = avg. 43 lbs.

Lead Mechanics and Mechanics work in a variety of locations and settings throughout Sonoma County. Mechanical lift assists (i.e., hoist; fork lift; crane; winch; trolley, cart or hand truck) are used, when possible.

Below is a sample of Items and ranges of heights that items will be handled:

1. C900 PVC Pipe- From ground up to 80”; or lowered into trench or vault
2. Pump- from ground to 39” (truck bed); or lowered into ditch, trench or vault
3. Couplings/Clamps – from ground to 39” (truck bed); or lowered into ditch, trench or vault
4. Construction supplies – from ground to 39” (truck bed); or lowered into ditch, trench or vault