

JOB TITLE: Industrial Maintenance Electrician  
EMPLOYEE:  
VRC: Kyle Pletz

DOT #: 824.261-010  
CLAIM #



## **KING COUNTY ON SITE JOB ANALYSIS**

**JOB TITLE** Industrial Maintenance Electrician

**JOB CLASSIFICATION** Industrial Maintenance Electrician

**DOT TITLE** Electrician

**DOT NUMBER** 824.261-010

**DEPARTMENT** Natural Resources

**DIVISION** Wastewater

**# OF POSITIONS IN THE DEPARTMENT WITH THIS JOB TITLE** 9

**JOB STATUS**

Full Time, Career Service.

**ADDRESS OF WORKSITE**

1400 Utah Street West  
Seattle, WA 98199

**CONTACT'S NAME** Bill Lockinger

**CONTACT'S PHONE** 206-263-3901

**EMPLOYER JOB TITLE** Supervisor III

**DATE COMPLETED** 1/8/03

**VRC NAME** Jeff Casem

**DATE REVISED** 8/25/09

**WORK HOURS**

Work schedule is based upon 80 hours every two weeks. The standard work hours in this section are Monday through Friday 8:00am to 5:00pm. Employees have the option to flex their hours and in this instance the employee works 10 hours a day, 6:00am to 4:30, 4 days a week Monday through Thursday or Tuesday through Friday, with 2 fifteen-minute breaks and one 30-minute lunch per shift. On call 24 hours per day.

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### **OVERTIME**

Required on an emergency basis and optional approximately on shift per month.  
Fair Labor Standards Act, Non-Exempt (hourly).

### **JOB DESCRIPTION**

Performs skilled journey-level work by constructing, maintaining, and wiring a wide variety of equipment and conducting preventative maintenance programs within a wastewater treatment facility.

### **ESSENTIAL ABILITIES FOR ALL KING COUNTY JOB CLASSIFICATIONS**

1. Ability to demonstrate predictable, reliable, and timely attendance.
2. Ability to follow written and verbal directions and to complete assigned tasks on schedule.
3. Ability to read, write & communicate in English and understand basic math.
4. Ability to learn from directions, observations, and mistakes, and apply procedures using good judgement.
5. Ability to work independently or part of a team; ability to interact appropriately with others.
6. Ability to work with supervision, receiving instructions/feedback, coaching/counseling and/or action/discipline.

### **JOB SPECIFIC REQUIREMENTS**

Knowledge equivalent to three year's journey level experience in an industrial or manufacturing plant to include national electrical code, principles of electrical distribution and generation, troubleshooting and diagnosis. Electrical test equipment and preventative maintenance, programmable logic controllers and variable frequency drives, basic motors and controls, safety practices and electrical as well as mechanical and environmental hazards. Must have skill in safely using basic hand, power and trade tools; running conduit; installing wire; soldering and splicing; variable frequency drive programming, maintenance and repair; creating or modifying new or existing technical publications and electrical drawings; applying industry codes and guidelines in the design, installation and maintenance of plant electrical equipment; performing basic mathematic functions including algebra and trigonometry; oral and written communications, working independently and computers.

### **ESSENTIAL FUNCTIONS Listed in order of importance**

1. Maintain, troubleshoot and perform preventive maintenance on motor control centers, including associated equipment and control devices.
2. Perform preventive maintenance and repairs to variable frequency and direct current drives including adjustment of speed profiles, troubleshooting and repairs to component levels and replacement when needed.
3. Troubleshoot, reprogram and modify programmable logic controllers; modify control circuits and related control devices and equipment.

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4. Perform preventive maintenance and repair of uninterruptible power supply equipment including the servicing and replacement of batteries.
5. Repair and maintain the methane gas systems, which includes the programmable logic controllers (PLCs), gas compressors and gas drying system and control and operate waste gas burners or flares.
6. Train electrical trainees.
7. Coordinate activities and work cooperatively with those performing other crafts.
8. Write material requests as needed for replacement of defective parts and to obtain additions to spare parts inventory.
9. Troubleshoot, maintain and perform various repairs, including repair of distributive control systems and related hardware. Use hardware available, troubleshoot systems and interpret displayed data.
10. Install, modify and upgrade new and existing electrical systems, fixtures and other related electrical equipment in compliance with municipal and federal electrical codes.
11. Perform maintenance and repairs on low voltage (120-480 volts), medium voltage (4.16 to 12.5 KV) and high voltage (115 KV) switchgear, transformers and power generation and distribution systems as required.

#### **NON-ESSENTIAL FUNCTIONS**

Participating in various committees.

#### **TOOLS, MACHINES, EQUIPMENT, PRODUCTS, AND SERVICES USED**

Various hand tools, roto-hammer, hydraulic hole punch, hacksaw, pipe benders, tool belt, various electrical panels, forklift, batteries, breakers, light bulbs, electric motors, hardware such as screws and bolts, ladder, various lamps and fixtures, drill, spools of wire, bundles of conduit, County vehicle with an automatic transmission, tool pouch, power tools, cordless power tools, voltage sensors, various electrical testers, shop vacuum, computer, laptop computer, junction boxes, various electrical parts, pneumatic impact driver, hand truck, Sawzall-all, cleaning solutions, two-way radio, telephone, fax machine, copy machine, digital caliper, vacuum bottle tester, fish tape, alarms, heat tape, generators, CAT5 and phone lines, doors, gates, electric cart and boom lift/man lift.

Employees also may use protective equipment that may include the following:

Respiratory Protection: 1/2 face respirator

Hearing Protection: Earplugs and earmuffs.

Eye Protection: Safety glasses and goggles.

Foot Protection: Steel toe boots and grounding mat.

Hand protection: Insulated gloves.

Face/Head Protection: Welding hood and hardhat.

Arc flash protection clothing

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**PHYSICAL DEMANDS AS JOB IS TYPICALLY PERFORMED**

Continuously = occurs 66-100% of the time

Frequently = occurs 33-66% of the time

Occasionally = occurs 1-33% of the time

Rare = may occur less than 1% of the time

Never = does not ever occur (such demands are not listed)

**This job is classified as**

Medium, but adjusted to heavy in this particular instance.

**Standing**

Continuously on flat cement, dirt, gravel, and uneven surfaces for up to 30 minutes at a time for up to 7 hours total in a work shift. Most commonly occurs while troubleshooting and wiring panels and electrical equipment.

**Walking**

Occasionally on cement, dirt, gravel, linoleum, carpet and uneven surfaces for distances for up to ¼ mile for up to 15 minutes at a time for up to 3 hours total in a work shift. Most commonly occurs while traversing between buildings, pump stations and work sites.

**Sitting**

Occasionally on automobile seat or office chair for up to 45 minutes at a time for up to 2.5 hours total in a work shift. Most commonly occurs while driving an electric cart to and from pump stations as well as when performing computer work.

**Climbing stairs**

Occasionally for 2 minutes at a time while climbing 3 flights of stairs for up to 16 times total in a work shift. Most commonly occurs while entering and exiting pump stations.

**Climbing**

Occasionally on a ladder to heights of 10 feet for 5 seconds at a time for up to 3 minutes total in a work shift. Most commonly occurs while entering and exiting a truck, installing conduit and fixtures as well as working on electrical equipment in high locations.

**Balancing**

Frequently on uneven ground and ladders at heights of up to 10 feet for up to 1.5 hours at a time for up to 5 hours total in a work shift. Most commonly occurs while traversing on uneven ground and balancing on a ladder when working on electrical systems, ballasts, overhead lighting, panels, conduit and various pieces of equipment.

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### **Bending/Stooping**

Frequently on cement, dirt, gravel, linoleum, carpet and uneven surfaces for up to 30 minutes at a time for up to 5 hours total in a work shift. Most commonly occurs while working on electrical systems or equipment such as outlets, electrical panels, and control panels in lower locations.

### **Kneeling**

Frequently on cement, dirt, gravel, linoleum, carpet and uneven surfaces for up to 30 minutes at a time for up to 5 hours total in a work shift. Most commonly occurs while working on electrical systems or equipment such as outlets, electrical panels, and control panels in lower locations.

### **Crouching**

Frequently on cement, dirt, gravel, linoleum, carpet and uneven surfaces for up to 30 minutes at a time for up to 5 hours total in a work shift. Most commonly occurs while working on electrical systems or equipment such as outlets, electrical panels, and control panels in lower locations.

### **Crawling**

Rare on cement, dirt, gravel, linoleum, carpet and uneven surfaces for distances of up to 5 feet for up to 10 seconds at a time for up to 10 seconds total in a work shift. Most commonly occurs while inspecting the underside of electrical systems or machinery.

### **Operating Controls with Feet**

Occasionally for 30 minutes at a time for up to 1.5 hours total in a work shift while driving a work truck or electric cart.

### **Reaching above shoulder height**

Continuously for up to 10 minutes at a time for up to 2 hours total in a work shift while installing conduit, working on light fixtures, wirings ballasts, rewiring ceiling or upper areas.

### **Reaching at waist to shoulder height**

Continuously for up to 3 hours at a time for up to 9 hours total in a work shift. Most commonly occurs while working on electrical systems and equipment as well as performing computer duties. Worker also reaches while driving a work truck.

### **Reaching at knee to waist height**

Occasionally for up to 5 minutes at a time for up to 1 hour total in a work shift. Most commonly occurs while troubleshooting, repairing or maintaining electrical systems as well as pulling wire, replacing outlets, installing conduit and working on junction boxes.

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**Reaching at floor to knee height**

Frequently on cement, dirt, gravel, linoleum, carpet and uneven surfaces for up to 30 minutes at a time for up to 5 hours total in a work shift. Most commonly occurs while working on electrical systems or equipment such as outlets, electrical panels, and control panels in lower locations.

**Lifting 1-10 pounds**

Frequently for up to 5 minutes at a time for up to 1 hour total in a work shift. Most commonly occurs with weights of 3-5 pounds while using various hand tools such as wire cutters, electrical testers, crimpers, wrenches, sockets, hammers, and pry bars.

**Carrying 1-10- pounds**

Occasionally for distances of up to ¼ mile for up to 15 minutes at a time for up to 45 minutes total in a work shift. Most commonly occurs with weights of 3-5 pounds while transporting hand tools to and from work sites and the County vehicle or shop area.

**Lifting 11-20 pounds**

Occasionally for 5 minutes at a time for up to 20 minutes total in a work shift. Most commonly occurs with weights of 15 pounds while using tools and equipment such as wrenches, impact wrenches, sockets, hammers, pipe benders, tool pouch, Sawzall, drills and pry bars.

**Carrying 11-20 pounds**

Occasionally for 5 minutes at a time for distances of up to 300 feet up to 30 minutes total in a work shift. Most commonly occurs with weights of 15 pounds while transporting hand and power tools from truck to pump station. Tools and equipment may include wrenches, impact wrenches, sockets, hammers, pipe benders, tool pouch, Sawzall, drills and pry bars.

**Lifting 21-50 pounds**

Occasionally for 5 minutes at a time for up to 20 minutes total in a work shift. Most commonly occurs with weights of 35-50 pounds while using power tools such as pneumatic and electric impact wrenches, roto-hammer, pry bars and manipulating pipe benders.

**Carrying 21-50 pounds**

Occasionally for 5 minutes at a time for distances of up to 300 feet up to 20 minutes total in a work shift. Most commonly occurs with weights of 35-50 pounds while transporting hand and power tools from truck to pump station. Power tools may include pneumatic and electric impact wrenches, roto-hammer, and pry bars.

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**Lifting 51-75 pounds**

Occasionally for 5 seconds at a time for up to 8 minutes total in a work shift. Most commonly occurs with weights of 65-75 pounds while moving electric motors, lead acid storage batteries, conduit, hydraulic hole punch set or tool pouch containing multiple hand and power tools. Cranes, hoists and lifting assistance are available on some occasions.

**Carrying 51-75 pounds**

Occasionally for up to 3 minutes at a time for distances of up to 100 feet up to 3 hours total in a work shift. Most commonly occurs with weights of 65-70 pounds while moving electric motors, lead acid storage batteries, conduit, hydraulic hole punch set or tool pouch containing multiple hand and power tools. Cranes, hoists and lifting assistance are available on some occasions.

**Lifting 75+ pounds (must use two people or lifting equipment)**

Rare for 5 seconds at a time for up to 8 minutes total in a work shift. Most commonly occurs with weights of up to 120 pounds while moving lead acid storage batteries once per year. Assistance is required for heavy lifting.

**Pushing and Pulling**

Occasionally for up to 3 minutes at a time with a force of up to 120 pounds for up to 20 minutes total in a work shift while pulling up to wire through conduit and manipulating electrical panels and transformers. The employee also pushes with 15-50 foot-pounds of torque when tightening connections in electrical panels.

**Handling**

Frequently for up to 1 hour at a time for up to 5 hours total in a work shift while using various hand tools, pulling wire and manipulating conduit.

**Operating Controls with Hands**

Frequently for up to 30 minutes at a time for up to 5 hours total in a work shift while driving a county vehicle with an automatic transmission, operating testing equipment, utilizing switches and using power tools.

**Fingering**

Frequently for up to 3 minutes at a time for up to 5 hours total in a work shift while using small hand tools, manipulating wires and using wire nuts as well as performing computer and paperwork duties.

**Feeling**

Rare for 5 seconds at a time for up to 30 seconds total in a work shift while locating obscured wires as well as identifying overheating equipment or excessively vibrating machinery, such as an off balance electrical motor.

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**Talking**

Occasionally for 15 minutes at a time for up to 1 hour total in a work shift while conversing with co-workers, receiving and giving instructions and utilizing a two-way radio.

**Hearing**

Continuously for up to 2.5 hours at a time for up to 9 hours total in a work shift while listening for proper operation of machinery, listening for emergency sirens, driving, listening for danger alarms in wastewater treatment plant, conversing with co-workers, receiving and giving instructions, and utilizing a two-way radio.

**Tasting/Smelling**

Continuously for 3 hours at a time for up to 10 hours total in a work shift while smelling for malfunctioning machinery. Worker is also continuously exposed to strong odors.

**Near acuity—clarity of vision at 20 inches or less**

Continuously for 3 hours at a time for up to 10 hours total in a work shift while assembling, disassembling, repairing, wiring, trouble shooting rebuilding, and inspecting electrical equipment, systems and machinery.

**Far acuity—clarity of vision at 20 feet or more**

Occasionally for 30 minutes at a time for up to 1.5 hours total in a work shift while driving a work truck.

**Depth perception—three dimensional vision**

Occasionally for 30 minutes at a time for up to 1.5 hours total in a work shift while driving a work truck.

**Color vision—ability to identify and distinguish colors**

Continuously for up to 3 hours at a time for up to 9 hours total in a work shift while identifying color of wires and identifying danger alarms at wastewater treatment plant.

**Field of vision—observing an area that can be seen up and down or right or left while eyes are fixed on a given point**

Occasionally for 30 minutes at a time for up to 1.5 hours total in a work shift while driving a work truck.

**TEMPERAMENTS**

Performing repetitive or short-cycle work: Frequently

Performing a variety of duties: Continuously

Working alone or apart in physical isolation from others: Occasionally-Frequently

Working effectively under stress: Occasionally

Attaining precise set limits, tolerances, and standards: Continuously



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Working under specific instructions: Occasionally  
Working with others: Occasionally  
Making judgments and decisions: Occasionally

### **ENVIRONMENTAL FACTORS**

Work is performed in an industrial wastewater setting where the worker is exposed to or in close proximity to heavy operating machinery, high voltage, sewage, adverse weather conditions, uneven surfaces, cat walks/metal grating, noxious or toxic gasses and chemicals, as well as loud noises. The noise level is quiet to very loud. Hearing protection and hard hats are required in some areas. The employee is occasionally exposed hazardous materials including chlorine, liquid oxygen, hydrogen peroxide, sulfur dioxide, sodium hydrochloride, sodium hydroxide, methane, and hydrogen sulfide.

### **Workers are exposed to**

Outside weather: Continuously  
Wet: Continuously  
Humidity/dampness: Frequently  
Fumes: Frequently  
Odors: Continuously  
Dusts: Occasionally  
Gases: Occasionally  
Moving mechanical parts: Continuously  
Vibration: Frequently  
Toxic or caustic chemicals: Occasionally to Frequently

### **POTENTIAL MODIFICATIONS TO JOB**

Lifting assistance for heavy lifting.  
Anti fatigue mats in the shop area for added comfort during extended durations of standing.  
Knee pads for added comfort when kneeling.

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Signature & title of evaluator

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Date

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Signature & title of contact

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Date

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Signature & title of employee

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Date

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### HEALTH CARE PROVIDER SECTION

Check all that apply

☐ The employee is released to perform the described duties without restrictions on performance or work hours.

☐ The employee is released to perform the described duties on a reduced schedule. The recommended schedule is:

\_\_\_\_\_

☐ Temporary until \_\_\_\_\_ ☐ Permanent as of \_\_\_\_\_

☐ The employee is released to perform the described job with the following modifications:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

☐ Temporary until \_\_\_\_\_ ☐ Permanent as of \_\_\_\_\_

☐ The employee is not released to perform the described duties due to the following job functions:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

☐ Temporary until \_\_\_\_\_ ☐ Permanent effective \_\_\_\_\_

☐ The employee is unable to work in any capacity.  
A release to work is: ☐ anticipated by \_\_\_\_\_ ☐ Not expected

The limitations are due to the following objective medical findings:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
Printed or typed name and phone number of Health Care Provider

\_\_\_\_\_  
Signature of Health Care Provider

\_\_\_\_\_  
Date