Shasta-Sustainable Resource Management, Inc.
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Summary:

This is technical work involving the installation, repair and maintenance of high and low voltage electrical systems and equipment, and maintenance of devices that monitor and control the automated systems involved in the processing of waste and generation of steam and electricity in Waste to Energy Facilities. This position includes all aspects of electrical, pneumatic, hydraulic, mechanical, instrumentation and control systems.

Work requires the performance of skilled tasks to be in accordance with trade practices in the installation, repair and maintenance of electrical wiring, motors, transformers, process controls, field instrumentation, electromechanical and solid-state modular control equipment and other related systems.

Work is performed under the general supervision of the Instrumentation and Electrical Supervisor, through the use of planned work requirements, established practices, manuals, incumbent expertise and supervisor's instruction.

CRITICAL ELEMENTS OF PERFORMANCE

Inspects, calibrates, maintains, troubleshoots and repairs instrumentation and electrical components of equipment in the areas of power generation, steam generation, steam distribution control, electrical switch gear, CEM system, communication/security system, cooling water system, fire protection system, all water systems, and fuel systems.

Installs, maintains, calibrates and repairs mechanical, pneumatic and hydraulic instrumentation within manufacturer's specifications. Installs pipe and/or tubing to process connection.

Troubleshoots low, medium or high voltage motors, transformers and cable systems to locate faults using electrical test devices. Performs realignment of high voltage switchgear, LCS and MCC breakers as required by plant conditions. Strips and realigns electrical busses.

Installs conduit, cable, receptacles, boxes, raceways, motor controllers and panel boards. Determines conduit wire size and grounding requirements as per electrical code regulations.

Installs, operates, repairs, adjusts and troubleshoots PLCs, switchboard monitoring controls, and remote activation controls requiring specialized skills.

Reworks and fits valves, regulators, actuators, cams, pressure reducers, transmitters and flow control valves, with various tools and instruments.

Inputs and interprets PLC and HMI computer commands; evaluates data, ensuring proper systems operation and makes entries into computerized maintenance control system. Updates plant drawings to reflect changes and provides written documentation of work performed. Enters same into computerized maintenance system.

Maintains and repairs building components such as lighting systems, vent fans, small HVAC equipment and fire detection equipment.

Installs, configures, and maintains plant process and data acquisition computer systems on the company-wide LAN.

Performs related work, as required and/or assigned.

Primary Duties and Responsibilities:

Thorough knowledge of local, state and federal codes applicable to the installation, repair and maintenance of processing plant and related equipment.

Considerable knowledge of all aspects of instrumentation, repair techniques, advanced theories of operation and troubleshooting techniques in the mechanical field.

Considerable knowledge of electrical installation, repair and maintenance practices and procedures, as they apply to an industrial setting.

Knowledge of and ability to interpret electrical schematics, blueprints, specifications, technical manuals, control circuit diagrams and power distribution diagrams.

Knowledge of basic algebraic equations and basic physics pertaining to pressure-temperature relationships, boiler plant operation and turbine operation principles.

Knowledge of safety and environmental precautions and hazards of industrial plants.

Working knowledge of local, state and federal environmental laws and regulations regarding Power Plant emissions.

Skill at diagnosing and troubleshooting equipment failure problems.

Skill in the use of tools, materials and equipment used in the electrical and maintenance field.

Skill in interpersonal relations and the exercise of good judgment and discretion in order to deal effectively with employees, vendors, customers, and the general public.

Ability to work from drawings and specifications and to understand and carry out oral and written instructions.

Essential Functions:

Must:

- Read, understand, and apply information such as safety rules, operating and maintenance instructions, and procedure manuals. Read, analyze and interpret professional journals, technical procedures, or governmental regulations. Read and comprehend vendor manuals, instruction manuals, technical data, work orders, and training materials.
- Write routine reports and correspondence
- Speak effectively with colleagues and other employees of organization
- Interpret a variety of instructions furnished in written, oral, diagram, or schedule form
- Communicate clearly and concisely both verbally and in writing; as well as communicate (2-ways-speak and hear) clearly via in-situ intercom system and two-way radio.
- Demonstrate basic math skills to apply them as needed to complete required job functions.
- Define problems, collect data, establish facts, and draw valid conclusions.
- Recognize operational inconsistencies and hazards and display proper judgment in responding to them.
- Demonstrate logical and sound judgment in choosing courses of action.
- Required to identify and effectively use basic and precision measuring tools to calculate and determine lengths, surface areas, and volumes as necessary while performing maintenance tasks on a routine basis.
- Required to use reference materials and basic formulas to calculate lengths, surface areas, and volumes as necessary while performing maintenance tasks on a routine basis.
- Maintains and follows all Company environmental compliance, health and safety requirements policies, procedures and rules.
- Completes all required Environmental Management System and Compliance Training.

Certificates and Licenses:

Other - Licenses as required by State, Federal, Environmental and/or Health/Safety Regulatory agencies.

Regular exposure to:

- Working near moving mechanical parts
- Work in high, precarious places
- Wet or humid conditions (non-weather)
- Airborne particles
- Dust, toxic or caustic chemicals
- Extreme cold (non-weather)
- Extreme heat (non-weather)

Outdoor weather conditions and risk of electrical shock.
Periodic noise in work environment

Works in areas under adverse conditions that may require the donning and use of personal protective equipment including, but not limited to, the following with average fatigue:

- negative pressure respirator
- positive pressure respirator
- self contained breathing apparatus (steel or composite bottle)
- "TYVEK" suit
- Hardhat
- Approved safety shoes
- Eye protection (corrected or otherwise)
- Rubber suit and gloves
- Chemical resistant suit
- Head resistant outerwear
- Flame resistant outerwear
- Approved hearing protection
- Work gloves
- Safety harness

Regularly required to:

- Stand
- Walk
- Use hands to finger, handle, and feel
- Reach with hands and arms
- Climb and balance on heights often greater than 4 feet
- Stoop, kneel, crouch, twist, bend, push, pull, crawl
- Squat, reach overhead, reach forward, reaching waist

Kneel, repetitive use of foot control and upper extremity

- Speak, hear, see, and smell
- Sit occasionally
- Specific vision abilities required by this job include Close vision, Distance vision, Peripheral vision, Depth perception, ability
- to adjust focus and full color vision
- Ascend and descend stairs and stationary vertical ladders as part of normal work activity and emergency egress situations
- Moderate to heavy lifting in a safe manner
- Move about all areas of the plant, including catwalks, deck grating, wet and muddy areas, and uneven surfaces
- Use machinist tools and align motors

Operate a 1.5 inch fire hose operating at 125 psi line pressure to the extent required to extinguish fire
Operate fire extinguishing equipment ranging from hand held extinguishers to 200 lb portable units
Access confined spaces and pressure vessels through standard 12" by 16" manways
Operate other equipment including, but not limited to, industrial forklifts, manlifts, skid steer type loaders, and other mobile equipment

Teamwork/Cooperation:

Share expertise with others
Keep emotions under control
Contribute to positive team spirit
Accepts feedback from others

Shows respect and sensitivity for cultural/work style and learning style differences
Treats people with respect

Skills & Abilities	Lead	1st Class	2nd Class	3rd Class
Plant Knowledge and Theory - understanding of plant process, process control, plant systems and systems interrelations including knowledge of plant equipment and instrumentation; electrical operating procedures and standards to support cost effective, safe and efficient equipment and instrumentation maintenance, calibration and operation	Proficient	Proficient	Developing	Not Required
Hand Tools & Portable Power Tools - knowledge, skills, and abilities required to properly identify and safely and effectively use and maintain hand tools and portable power tools on a routine basis while performing maintenance tasks.	Proficient	Proficient	Proficient	Proficient
Mechanical Fasteners - knowledge, skills, and abilities required to properly identify and safely and effectively maintain and install various types of threaded fasteners and retaining rings. Knowledge, skills, and abilities required to identify ASTM and SAE fastener grade markings, thread standards, torque requirements, and washer requirements for the specific task at hand.	Proficient	Proficient	Proficient	Developing
Codes & Standards - Knowledge of state, federal, and local electrical codes and environmental regulations pertaining to acceptable instrumentation. Knowledge and understanding of the National Electrical Code required to ensure all electrical maintenance and installation is performed in strict compliance with the applicable codes and regulations.	Proficient	Proficient	Proficient	Practicing
Blue Print Reading - knowledge skills and ability to read and interpret power plant piping and instrument diagrams. Ability to identify equipment and piping line material specifications through symbology and line number designations.	Proficient	Proficient	Practicing	Developing
Reference and Documentation Abilities - Reading and interpreting DCS drawings loop sheets, SAMA symbol drawings, ladder logic drawings, electrical prints, and schematics	Proficient	Proficient	Practicing	Developing
Computer Skills - Working knowledge and understanding of Windows based Word Processing and Spreadsheet programs	Proficient	Proficient	Practicing	Developing
Computerized Maintenance Management System - knowledge and understanding of the Computerized Maintenance Management System.	Proficient	Proficient	Practicing	Not Required
Project Management Software - Working knowledge and Understanding of Windows based Project Management Software.				
Troubleshooting Skills - knowledge, skills, and abilities required to safely and effectively use voltmeters, megohm meters, high voltage test equipment and other electrical test equipment in a safe and effective manner while performing electrical troubleshooting and repair tasks	Proficient	Proficient	Practicing	Developing
Equipment Maintenance and Repairs - Knowledge, skills, and abilities in all aspects of routine equipment inspections, preventive maintenance, and repair.	Proficient	Proficient	Proficient	Practicing
Low, Med, Voltage Power Distribution - knowledge, skills, and abilities to safely and effectively troubleshoot and maintain all low voltage, and medium voltage electrical distribution equipment associated with the power plant facility	Proficient	Proficient	Proficient	Practicing
High Voltage termination and testing - Knowledge of power generation, distribution, metering, and protective relaying for high voltage systems	Proficient	Proficient	Practicing	Not Required
Conduit, Lighting, Power - Knowledge, skills and abilities to properly install, repair and maintain plant conduit, lighting and power systems per all applicable Codes and Standards.	Proficient	Proficient	Proficient	Proficient
Motor and Control Centers - Knowledge, skills and abilities to properly maintain, replace, troubleshoot and analyze motors and associated control equipment.	Proficient	Proficient	Proficient	Practicing
Test Equipment - use of voltmeters, ammeters, megohm meters, and high voltage test equipment.	Proficient	Proficient	Practicing	Developing
Instrumentation - maintenance, repair, replacement and calibration of instruments used to measure and control variables such as pressure, flow, temperature, motion, and force.	Proficient	Proficient	Practicing	Developing
Control Valves - knowledge, skills, and abilities required to safely and effectively install, calibrate, troubleshoot, and maintain all control valve, air dampers, and slide gate actuator and control devices associated with the operation of the power plant	Proficient	Proficient	Practicing	Not Required
Hydraulic and Pneumatic Systems - knowledge, skills, and abilities required to safely and effectively troubleshoot, maintain, and repair electrical-hydraulic and electrical-pneumatic systems as part of normal maintenance procedures.	Proficient	Proficient	Practicing	Developing
Crane Controls & Power - knowledge, skills and ability to perform all calibration, preventive, and repair maintenance procedures on the refuse crane electrical, instrumentation, and control equipment with minimal supervision	Proficient	Proficient	Practicing	Developing
DCS System - knowledge, skills, and abilities required to safely and effectively troubleshoot, tune, and maintain the facilities Distributed Control System	Proficient	Proficient	Practicing	Developing
New Equipment Installation - Conduct acceptance and performance tests on new equipment	Proficient	Proficient	Practicing	Developing
PLC - knowledge, skills, and abilities required to safely and effectively troubleshoot, repair, and tune all control system related equipment associated with the power plant facility	Proficient	Proficient	Practicing	Not Required
CEMS - knowledge, skills and ability to perform all calibration, preventive, and repair maintenance procedures on the plant Continuous Emissions Monitoring (CEM) system's electrical, instrumentation, and control equipment	Proficient	Proficient	Developing	Not Required
Turbine Controls & Components - knowledge, skills and ability to perform all calibration, preventive, and repair maintenance procedures on the steam turbine, generator, and turbine generator auxiliary electrical, instrumentation, and control equipment	Proficient	Proficient	Practicing	Not Required
Supervisory Skills - effectively supervise department and contractor personnel in accordance with all Work Rules, Policies and Procedures, and complete all planning, scheduling, and budgeting duties as required to support the safe and efficient operation of the facility.	Proficient	Practicing	Developing	Not Required

Legend	
Proficient	Thorough Knowledge and Understanding of; Requires minimal supervision
Practicing	General Knowledge and Understanding of; Requires moderate supervision
Developing	Basic Knowledge and Understanding of; Requires moderate or frequent direct supervision;
Not Required	No direct skill required at entry level

Education/Experience:

Class	*1st*	*2nd*	*3rd*
Education	High School or equivalent		
Experience	Minimum of **8 years** experience in the Industrial or Power Industry Electrical and Instrumentation Maintenance Field, or a minimum of **2 years** experience as a 2nd class E&I Technician	Minimum of **5 years** experience in the Industrial or Power Industry Electrical and Instrumentation Maintenance Field, or a minimum of **2 years** experience as a 3rd class E&I Technician	Minimum of **3 years** experience in the Electrical or Instrumentation Field.
Certificates & Licenses	**Other** - Licenses as required by State, Federal, Environmental and/or Health/Safety Regulatory agencies.		