

Job Hazard Analysis



University of Washington – Seattle Campus
Facilities Services – Campus Engineering & Operations
Seattle, WA 98195

Working Job Title: Power Plant Mechanic / Lead

JHA Completed by Mark Kirschenbaum, Assistant Director of Utilities

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The Job Hazard Analysis form is designed to help supervisors assess and address health and safety hazards that have the potential to cause serious injury or illness (e.g. power tools, electrical repairs). Supervisors can use this document to train staff on safe work procedures.

The information below is a good faith effort to identify hazards encountered by Power Plant Mechanic / Lead. If a specific job task is not listed below, contact your supervisor to determine if a specific job hazard analysis or work plan is required.

This document will serve as the certification of hazard assessment for personal protective equipment for the above working job title position.

Job Tasks	Potential Hazard	Controls & Recommended Actions	Training and Personal Protective Equipment
Driving vehicles	<ul style="list-style-type: none"> Bodily injury 	<ul style="list-style-type: none"> Daily pre-trip vehicle inspection Follow all traffic rules Maintain current driver's license Report problems with state vehicles 	Task Specific Training <ul style="list-style-type: none"> Driver Safety and Awareness Monthly shop safety meetings on PPE Seatbelt use policy PPE <ul style="list-style-type: none"> Seatbelt
Computer work	<ul style="list-style-type: none"> Eye strain Ergonomic problems such as carpal tunnel and back problems 	<ul style="list-style-type: none"> Adequate lighting Request on Ergonomic evaluation from EH&S Review ergonomic info on EH&S website Take frequent breaks/stretch/move 	Task Specific Training <ul style="list-style-type: none"> Ergonomic Online training (optional) PPE <ul style="list-style-type: none"> None
General use of hand and power tools such as multi-meters, screwdrivers, wrenches, wire strippers	<ul style="list-style-type: none"> Bodily injury 	<ul style="list-style-type: none"> Follow industry safety standards for operating power/hand tools Location of exits Location of fire extinguisher Location of first aid kit Safety Data Sheets (SDS) for chemical and products 	Task Specific Training <ul style="list-style-type: none"> Monthly shop safety meetings on PPE and SDS PPE <ul style="list-style-type: none"> Gloves (as needed) Hearing protection (as needed) Impact glasses (as needed) Substantial footwear
Maintain inventory supplies	<ul style="list-style-type: none"> Ergonomic problems such as carpal tunnel and back problems Work off ladders 	<ul style="list-style-type: none"> Get help or use lifting tools for items exceeding 50 pounds or is an awkward shape Request an ergonomic evaluation from EH&S Set-up work station using ergonomic principles Take frequent breaks/stretch Use hand cart 	Task Specific Training <ul style="list-style-type: none"> Back protection & Lifting Safety Online Ergonomic Online training (optional) Ladder Safety Hands On Ladder Safety Online Monthly shop safety meetings on PPE PPE <ul style="list-style-type: none"> Dusk mask (as needed) Safety glasses (as needed) Substantial footwear
Cell phone usage	<ul style="list-style-type: none"> Inattention leading to bodily injury 	<ul style="list-style-type: none"> Be aware of your surroundings Don't drive and talk unless utilizing a 'hands-free' device 	Task Specific Training <ul style="list-style-type: none"> Driver Safety and Awareness PPE <ul style="list-style-type: none"> None

Power Plant Mechanic / Lead

Job Tasks	Potential Hazard	Controls & Recommended Actions	Training and Personal Protective Equipment
Perform maintenance and repair on Power Plant equipment (such as boilers, pumps, and fans)	<ul style="list-style-type: none"> Airborne contaminants (such as odors, fumes, refrigerant leak) Biological hazards (such as cooling tower – legionella, blood) Compressed gasses (such as welding gasses) Confined spaces (such as cooling towers) Electrically energized equipment Ergonomic problems such as lifting, repetitive motion, awkward posture Fall hazard Hazardous chemicals (such as solvents, degreasers, water treatment chemicals) Hazardous energy (mechanical, heat, pressure (gas or liquid lines)) Heat stress Insufficient lighting Material Handling Noise Overhead equipment Power/Hand tools Regulated materials such as asbestos, lead, silica Slip/trip/fall Scaffolding Work off ladders 	<ul style="list-style-type: none"> Aerial lift Avoid energized electrical work when possible Barricades/signs/spotter (if applicable) Check-in with the control room prior to work Ensure work area is clear from spills and trip hazards Fall protection work plan (if applicable) Follow industry safety standards for operating power/hand tools Get help or use lifting tools for items exceeding 50 pounds, or is an awkward shape Hot Work Permit If hot, drink water and take necessary rest breaks Lockout procedure Location of exits Location of fire extinguisher Location of first aid kit Refrigerant leak work plan (if applicable) Safety Data Sheets (SDS) for chemical and products Shop safety standard operating procedures This job position does not typically perform work on regulated building materials Tool tethering and toe boards Use portable refrigerant monitor (operated by the PPOE lead) Use temporary lighting (such as flashlights) Water treatment plan Cooling tower work practice (if applicable) 	<p>Task Specific Training</p> <ul style="list-style-type: none"> Asbestos Awareness Audiometric Hearing Test Back protection & Lifting Safety Online Bloodborne Pathogens for Non-Lab Online Compressed Gas Safety Online Confined Space Awareness Online Department specific training Fall Protection Fire Extinguisher Hands On Fire Extinguisher Online First aid & CPR Forklift Operator Safety Training HazCom/GHS Hepatitis B Vaccination (must be offered) Hoisting and Rigging Hearing Protection/Conservation Online Hepatitis B Vaccination (must be offered) Ladder Safety Hands On Ladder Safety Online Lead Awareness Online Lockout/Tagout Safety Monthly shop safety meetings on PPE, shop safety standard operating procedures and SDS MWP training with scissor & evaluation Scaffold Safety Supv LOTO Field Evaluation <p>PPE</p> <ul style="list-style-type: none"> Gloves - as needed Hard hat - as required Flashlight / temporary lighting Hearing protection - as required Impact face shield – as required Impact glasses/goggles – as required LOTO locks or tags Personal fall restraint/arrest equipment Safety vest Splash face shield – as required Steel toe footwear Shop coveralls – as needed Welding jacket, hood/shield and gloves – as required Any other PPE as specified by the Power Plant

Power Plant Mechanic / Lead

Job Tasks	Potential Hazard	Controls & Recommended Actions	Training and Personal Protective Equipment
Perform maintenance and repair on Power Plant equipment (such as boilers, pumps, and fans) <u>involving confined space entry</u>	<ul style="list-style-type: none"> Airborne contaminants (such as odors, fumes, refrigerant leak) Biological hazards (such as cooling tower –legionella, blood) Compressed gasses (such as welding gases) Confined spaces (such as secondary containment for fuel tank, boilers, meter vaults) Electrically energized equipment Ergonomic problems such as lifting, repetitive motion, awkward posture Fall hazard Hazardous chemicals (such as solvents, degreasers, water treatment chemicals) Hazardous energy (mechanical, heat, pressure (gas or liquid lines)) Heat stress Insufficient lighting Noise Overhead equipment Power/Hand tools Regulated materials such as asbestos, lead, silica Slip/trip/fall Scaffolding Work off ladders 	<ul style="list-style-type: none"> Aerial lift Avoid energized electrical work when possible Barricades/signs/spotter (if applicable) Check-in with the control room Confined space permit Ensure work area is clear from spills and trip hazards Fall protection work plan (if applicable) Follow industry safety standards for operating power/hand tools Get help or use lifting tools for items exceeding 50 pounds, or is an awkward shape Hot Work Permit If hot, drink water and take necessary rest breaks Lockout procedure Location of exits Location of fire extinguisher Location of first aid kit Refrigerant leak work plan (if applicable) Safety Data Sheets (SDS) for chemical and products Shop safety standard operating procedures This job position does not typically perform work on regulated building materials Tool tethering and toe boards Use portable refrigerant monitor (operated by the PPOE lead) Use temporary lighting (such as flashlights) Water treatment plan Cooling tower work practice (if applicable) 	<p>Task Specific Training</p> <ul style="list-style-type: none"> Asbestos Awareness Audiometric Hearing Test Back protection & Lifting Safety Online Bloodborne Pathogens for Non-Lab Online (for First Aid) Compressed Gas Safety Online Confined Space Entry /Hands On Department specific training Fall Protection Fire Extinguisher Hands On Fire Extinguisher Online First aid & CPR HazCom/GHS Hepatitis B Vaccination (must be offered) Hoisting and Rigging Hearing Protection/Conservation Online Ladder Safety Hands On Ladder Safety Online Lead Awareness Online Lockout/Tagout Safety Monthly shop safety meetings on PPE, shop safety standard operating procedures and SDS MWP training with scissor & evaluation Scaffold Safety Supv LOTO Field Evaluation <p>PPE</p> <ul style="list-style-type: none"> Gloves - as needed Hard hat - as required Flashlight / temporary lighting Hearing protection - as required Impact face shield – as required Impact glasses/goggles – as required LOTO locks or tags Personal fall restraint/arrest equipment Safety vest Splash face shield – as required Steel toe footwear Shop coveralls – as needed Welding jacket, hood/shield and gloves – as required Any other PPE as specified by the Power Plant

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Job Tasks	Potential Hazard	Controls & Recommended Actions	Training and Personal Protective Equipment
Operate machine shop equipment (such as grinders, drill press)	<ul style="list-style-type: none"> Airborne contaminants (such as odors, particulates, fume) Biological hazards (such as contaminated cutting oils blood) Compressed gasses (such as welding gasses) Electrically energized equipment Ergonomic problems such as lifting, repetitive motion, awkward posture Hazardous chemicals (such as cutting oils, solvents, degreasers) Hazardous energy (mechanical, heat, pressure (gas or liquid lines)) Heat stress Insufficient lighting Noise Power/Hand tools Regulated materials such as asbestos, lead, silica Slip/trip/fall 	<ul style="list-style-type: none"> Avoid energized electrical work when possible Barricades/ welding screen Ensure work area is clear from spills and trip hazards Follow SOP for equipment being operated Follow industry safety standards for operating power/hand tools Get help or use lifting tools for items exceeding 50 pounds, or is an awkward shape Hot Work Permit If hot, drink water and take necessary rest breaks Local ventilation (such as welding table vent, smoke eater, fan) Location of exits Location of fire extinguisher Location of first aid kit Safety Data Sheets (SDS) for chemical and products Shop safety standard operating procedures This job position does not typically perform work on regulated building materials 	<p>Task Specific Training</p> <ul style="list-style-type: none"> Asbestos Awareness Audiometric Hearing Test Back protection & Lifting Safety Online Bloodborne Pathogens for Non-Lab Online (for First Aid) Compressed Gas Safety Online Department specific training Ergonomic Online training (optional) Fire Extinguisher Hands On Fire Extinguisher Online First aid & CPR HazCom/GHS Hearing Protection/Conservation Online Hepatitis B Vaccination (must be offered) Monthly shop safety meetings on PPE, shop safety standard operating procedures and SDS <p>PPE</p> <ul style="list-style-type: none"> Gloves - as needed Hearing protection - as needed Impact glasses/goggles/face shield – as required Steel toe footwear Shop coveralls – as needed Welding jacket, hood/shield, gloves – as required See equipment SOP for additional PPE requirements

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Cutting and Welding (stainless steel ,ferrous and non-ferrous materials)	<ul style="list-style-type: none"> Airborne contaminants (such as odors, vapor) Compressed gasses (such as welding gasses) Confined spaces (such as crawl space, ceiling plenums) Ergonomic problems such as lifting, repetitive motion, awkward posture Fall hazard Hazardous chemicals (such as welding rods, solvents, degreasers) Heat stress Insufficient lighting Material Handling (ie, forklift, hoisting/rigging) Noise Overhead equipment Pedestrian traffic Power/Hand tools Regulated materials such as asbestos, lead, silica Slip/trip/fall Scaffolding Work off elevated platforms (lifts, ladders, scaffold) 	<ul style="list-style-type: none"> MEWP lift Asbestos work plan (call Regulated Materials Office) Avoid energized electrical work when possible Barricades (if applicable) Building system shutdown Confined space permit (if applicable) Ensure work area is clear from spills and trip hazards Fall protection work plan (if applicable) Follow industry safety standards for operating power/hand tools Follow regulatory practices / standards for operating a forklift Follow regulatory practices / standards for operating a hoist 4-gas monitor (ie Bacharach) Get help or use lifting tools for items exceeding 50 pounds, or is an awkward shape If hot, drink water and take necessary rest breaks Lead work plan (call Regulated Materials Office) Lockout procedure Location of exits Location of fire extinguisher Location of first aid kit Safety Data Sheets (SDS) for chemical and products Shop safety standard operating procedures This job position does not typically perform work on regulated building materials Tool tethering and toe boards Use temporary lighting (such as flashlights, head lamps) Ventilation – smoke eater, shop fume hood (no fan) 	<p>Task Specific Training</p> <ul style="list-style-type: none"> Asbestos Awareness Audiometric Hearing Test Back protection & Lifting Safety Online Bloodborne Pathogens for Non-Lab Online (for First Aid) Compressed Gas Safety Online Confined Space Entry /Hands On Fall Protection Fire Extinguisher Hands On Fire Extinguisher Online First aid & CPR Forklift Operator Safety HazCom/GHS Hepatitis B Vaccination (must be offered) Hoisting and Rigging Hearing Protection/Conservation Online Ladder Safety Hands On Ladder Safety Online Lead Awareness Online Lockout/Tagout Safety Monthly shop safety meetings on PPE, shop safety standard operating procedures and SDS MWP with scissor & aerial evaluation Respirator training & Fit Test Scaffold Safety Supv LOTO Field Evaluation <p>PPE</p> <ul style="list-style-type: none"> Cooling vest – as needed Coveralls – required for stainless Dust mask -as needed Hard hat – as required Head light / Flashlight / temporary lighting Hearing protection - as needed Impact glasses/goggles LOTO locks or tags Personal fall restraint/arrest equipment – as required Respirator – as required Safety vest – as needed Steel toe footwear – as required Substantial footwear Welding: jacket, hood/shield, gloves – as required

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Working on steam equipment, when the steam is not feasible to be secured completely.	<ul style="list-style-type: none"> Airborne contaminants (such as vapor) Compressed gasses (such as welding gasses) Electrically energized equipment Ergonomic problems such as lifting, repetitive motion, awkward posture Fall hazard Hazardous chemicals (such as solvents, degreasers) Hazardous energy (mechanical, heat, pressure (gas or liquid lines)) Heat stress Insufficient lighting Material Handling (ie, forklift, hoisting/rigging) Noise Overhead equipment Pedestrian traffic Power/Hand tools Regulated materials such as asbestos, lead, silica Slip/trip/fall Scaffolding Work off ladders 	<ul style="list-style-type: none"> Avoid energized electrical work when possible Barricades/signs/spotter (if applicable) Check-in with the control room prior to work Energized electrical work permit & work plan (if applicable) Ensure work area is clear from spills and trip hazards Extension tool Fall protection work plan (if applicable) Follow industry safety standards for operating power/hand tools Follow regulatory practices / standards for operating a forklift Follow regulatory practices / standards for operating a hoist Get help or use lifting tools for items exceeding 50 pounds, or is an awkward shape Follow Hot Work Program (ie soldering) if applicable If hot, drink water and take necessary rest breaks Lift (scissor) Lockout procedure Location of exits Location of fire extinguisher Location of first aid kit Safety Data Sheets (SDS) for chemical and products Shop safety standard operating procedures System shutdown This job position does not typically perform work on regulated building materials Tool tethering and toe boards Use temporary lighting (such as flashlights, head lamps) Ventilation (ie, fan, blower) 	<p>Task Specific Training</p> <ul style="list-style-type: none"> Asbestos Awareness Audiometric Hearing Test Back protection & Lifting Safety Online Bloodborne Pathogens for Non-Lab Online (for First Aid) Compressed Gas Safety Online Confined Space Awareness Online Department specific training Ergonomic Online training (optional) Fall Protection Fire Extinguisher Hands On Fire Extinguisher Online First aid & CPR Forklift Operator Safety HazCom/GHS Hepatitis B Vaccination (must be offered) Hoisting and Rigging Hearing Protection/Conservation Online Instant Upright Scaffold Ladder Safety Hands On Ladder Safety Online Lead Awareness Online Lockout/Tagout Safety Monthly shop safety meetings on PPE, shop safety standard operating procedures and SDS MWP with scissor & aerial evaluation Scaffold Safety Supv LOTO Field Evaluation <p>PPE</p> <ul style="list-style-type: none"> Bump cap -as needed Dust mask -as needed Gloves – leather or heat-rated <u>and</u> long-sleeved Hard hat – as required Head light / Flashlight / temporary lighting Hearing protection - as needed Impact glasses/goggles or face shield – as needed LOTO locks or tags Personal fall restraint/arrest equipment Safety vest – as needed Steel toe footwear as needed Substantial footwear Shop coveralls – as needed Welding jacket, shield, gloves – as required