

Job Hazard Analysis



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

Working Job Title: Power Plant Operating Engineer 1

JHA Completed by Mark Kirschenbaum, Asst Director of Campus 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 Operating Engineer 1. 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 inspectionFollow all traffic rulesMaintain current driver's licenseReport problems with state vehicles	Task Specific Training <ul style="list-style-type: none">Driver Safety and AwarenessMonthly shop safety meetings on PPESeatbelt use policy PPE <ul style="list-style-type: none">Seatbelt
Computer work	<ul style="list-style-type: none">Eye strainErgonomic problems such as carpal tunnel and back problems	<ul style="list-style-type: none">Adequate lightingRequest on Ergonomic evaluation from EH&SReview ergonomic info on EH&S websiteTake 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 toolsLocation of exitsLocation of fire extinguisherLocation of first aid kitSafety 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

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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

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Job Tasks	Potential Hazard	Controls & Recommended Actions	Training and Personal Protective Equipment
Perform internal and external cleaning of boilers, including boiler components.	<ul style="list-style-type: none"> Airborne contaminants (such as rust, dried chemical precipitate, ash) Confined spaces (such as steam drum, furnace, mud drum) Ergonomic problems such as lifting, repetitive motion, awkward posture Fall hazard Hazardous chemicals (such as Aerokril, furnace patch, solvents) 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"> Barricades/signs/spotter (if applicable) 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 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 Lockout procedure Location of exits Location of fire extinguisher Location of first aid kit Safety Data Sheets (SDS) for chemical and products Reinforce shop safety standard operating procedures and work practices This job position does not typically perform work on regulated building materials Tool tethering and toe boards (scaffolding) Use temporary lighting (such as flash light, string temp lighting) 	<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) Confined Space Awareness Online Confined Space Entry /Hands On Department specific training Ergonomic Online training (optional) Fall Protection Fire Extinguisher Hands On Fire Extinguisher Online First aid & CPR HazCom/GHS Hepatitis B Vaccination (must be offered) 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 Respirator training & Fit Test (pending boiler ash assessment) Supv LOTO Field Evaluation <p>PPE</p> <ul style="list-style-type: none"> Dust mask -as needed Gloves - as needed Hard hat Head light / temporary lighting Hearing protection - as needed Impact glasses/goggles – as needed LOTO locks or tags Personal fall restraint/arrest equipment Respirator – as required Substantial footwear

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Job Tasks	Potential Hazard	Controls & Recommended Actions	Training and Personal Protective Equipment
Clean fuel oil guns and fuel oil systems	<ul style="list-style-type: none"> Airborne contaminants (such as dust, odors) Ergonomic problems such as lifting, repetitive motion, awkward posture Hazardous chemicals (such as solvents) Hazardous energy (pressure (liquid lines)) Noise Power/Hand tools Slip/trip/fall 	<ul style="list-style-type: none"> Ensure work area is clear from spills and trip hazards 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 Location of exits Location of fire extinguisher Location of first aid kit Safety Data Sheets (SDS) for chemical and products Reinforce shop safety standard operating procedures and work practices This job position does not typically perform work on regulated building materials 	<p>Task Specific Training</p> <ul style="list-style-type: none"> Audiometric Hearing Test Back protection & Lifting Safety Online Bloodborne Pathogens for Non-Lab Online (for First Aid) Department specific training Ergonomic Online training (optional) Fire Extinguisher Hands On Fire Extinguisher Online First aid & CPR HazCom/GHS Hepatitis B Vaccination (must be offered) Hearing Protection/Conservation Online Monthly shop safety meetings on PPE, shop safety standard operating procedures and SDS <p>PPE</p> <ul style="list-style-type: none"> Chemical splash goggles Dust mask -as needed Gloves Hearing protection - as needed Substantial footwear

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Job Tasks	Potential Hazard	Controls & Recommended Actions	Training and Personal Protective Equipment
Assist with the operations of all boilers and all auxiliary equipment (such as combustion control equipment, fuel systems, air compressors, electrical generating equipment, water analysis equipment, fans, blowers, pumps, and turbines)	<ul style="list-style-type: none"> Compressed gasses (such as calibration gas, refrigerant leak) Electrically energized equipment Ergonomic problems such as lifting, repetitive motion, awkward posture Fall hazard 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 Work off ladders 	<ul style="list-style-type: none"> Aerial lift - scissor Avoid exposure to electrical energized equipment 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 If hot, drink water and take necessary rest breaks 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 Reinforce shop safety standard operating procedures and work practices This job position does not typically perform work on regulated building materials Use portable refrigerant monitor (operated by Lead) Use temporary lighting (such as flashlights) 	<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) Fall Protection Fire Extinguisher Hands On Fire Extinguisher Online First aid & CPR HazCom/GHS Hepatitis B Vaccination (must be offered) Hearing Protection/Conservation Online Ladder Safety Hands On Ladder Safety Online Lead Awareness Online MEWP training and scissor evaluation Monthly shop safety meetings on PPE, shop safety standard operating procedures and SDS Overton MWP with scissor & aerial evaluation <p>PPE</p> <ul style="list-style-type: none"> Gloves - as needed Hard hat – as needed Head light / flashlight Hearing protection - as needed Impact glasses/goggles – as needed Personal fall restraint/arrest equipment Substantial footwear

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Job Tasks	Potential Hazard	Controls & Recommended Actions	Training and Personal Protective Equipment
Perform boiler chemical treatment and water treatment testing.	<ul style="list-style-type: none"> Airborne contaminants (such as dust, refrigerant leaks, odors) Ergonomic problems such as lifting, repetitive motion, awkward posture Hazardous chemicals Hazardous energy (pressure -liquid lines) Noise Power/Hand tools Slip/trip/fall 	<ul style="list-style-type: none"> Ensure work area is clear from spills and trip hazards 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 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 Reinforce shop safety standard operating procedures and work practices This job position does not typically perform work on regulated building materials Use portable refrigerant monitor (operated by Lead) Water Treatment Plan 	<p>Task Specific Training</p> <ul style="list-style-type: none"> Audiometric Hearing Test Back protection & Lifting Safety Online Bloodborne Pathogens for Non-Lab Online (for First Aid) 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"> Chemical splash apron – as required Chemical splash goggles Dust mask -as desired Gloves – as required for chemical handling Hearing protection - as needed Splash face shield – as required Substantial footwear

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Job Tasks	Potential Hazard	Controls & Recommended Actions	Training and Personal Protective Equipment
Assist with the maintenance and repair of power plant equipment.	<ul style="list-style-type: none"> Airborne contaminants (such as dust, odors, refrigerant leak) Biological hazards (such as cooling tower –legionella) Compressed gasses (such as acetylene) Confined spaces (such as- pressure vessels, mud drum, firebox) Electrically energized equipment Ergonomic problems such as lifting, repetitive motion, awkward posture Fall hazard Hazardous chemicals (such as solvents, degreasers, cleaners) 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 - scissor Avoid energized electrical work when possible Barricades/signs/spotter (if applicable) Check-in with the control room prior to work Confined space permit (if applicable) Ensure work area is clear from spills and trip hazards Fall hazard work plan (if applicable) Follow industry safety standards for operating power/hand tools Follow regulatory practices/standards for operating forklifts 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 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 Reinforce shop safety standard operating procedures and work practices This job position does not typically perform work on regulated building materials Tool tethering and toe boards Use portable refrigerant monitor (operated by Lead) Use temporary lighting (such as flash lights) Water treatment plan Cooling tower work practice (employee perform Legionella self-test – as directed) 	<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 Electrical: Arc Flash Awareness Online 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 MEWP training with scissor evaluation Monthly shop safety meetings on PPE, shop safety standard operating procedures and SDS Overton MWP with scissor & aerial evaluation Supv LOTO Field Evaluation <p>PPE</p> <ul style="list-style-type: none"> Dust mask -as needed Gloves - as needed Hard hat – as needed Flash light / temporary lighting Hearing protection - as required Impact glasses/goggles – as needed LOTO locks or tags Personal fall restraint/arrest equipment Substantial footwear

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			<ul style="list-style-type: none"> Tyvek coveralls – as desired
Job Tasks	Potential Hazard	Controls & Recommended Actions	Training and Personal Protective Equipment
Power Plant rounds and collect, log and print operational data, change recording charts, and monitor fuel deliveries.	<ul style="list-style-type: none"> Airborne contaminants (such as dust, odors, refrigerant leak) Biological hazards (such as cooling tower –legionella) Compressed gasses (such as CEMS) Ergonomic problems such as awkward posture Hazardous energy (mechanical, heat, pressure (gas or liquid lines)) Heat stress Insufficient lighting Noise Power/Hand tools Slip/trip/fall 	<ul style="list-style-type: none"> Avoid energized electrical work when possible Ensure work area is clear from spills and trip hazards Follow industry safety standards for operating power/hand tools If hot, drink water and take necessary rest breaks 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 Reinforce shop safety standard operating procedures and work practices This job position does not typically perform work on regulated building materials Use portable refrigerant monitor (operated by Lead) Use temporary lighting (such as flash lights) Water treatment plan 	Task Specific Training <ul style="list-style-type: none"> Asbestos Awareness Audiometric Hearing Test Bloodborne Pathogens for Non-Lab Online (for First Aid) Compressed Gas Safety Online 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) Lead Awareness Online Monthly shop safety meetings on PPE, shop safety standard operating procedures and SDS PPE <ul style="list-style-type: none"> Gloves - as needed Flash light / temporary lighting Hearing protection – as required Substantial footwear