



Job Safety Analysis

Safety Information for The University of North Carolina at Chapel Hill

Energy Services- Co Generation Plant


Boiler Plant Inspection & Maintenance/Respirator SOP



Title	Work Task	Hazards	Controls
<p>Respirator Use: Standard Operating Procedures</p>	<p>1. Pre-Work Planning: Prepare for boiler outage cleaning, inspections, and maintenance operations.</p>	<p>Untrained respirator users; Accident, injury, or illness as a result of lack of employee required safety training.</p>	<p>Review Respirator Use Procedures and Respirator Instruction Manual.</p> <p>Ensure all Power Plant mechanics that may be tasked to perform boiler inspections & or maintenance have received annual respirator medical clearance for use of respirators.</p> <p>Ensure all Power Plant mechanics have been respirator trained.</p> <p>Ensure all Power Plant mechanics have completed required annual respirator fit-test.</p> <p>Schedule respirator medical clearance exams and fit-testing at the University Employee Occupational Health Clinic at 6 – 9119.</p> <p>Inspect each respirator prior to using.</p> <p>Complete required safety training: Review all additional required safety procedures and standards applicable to plant boiler outage operations (e.g. Personal Protective Equipment Requirements, Emergency Response Procedures, Fire Safety, Lockout/Tagout procedures, Confined Space Entry Procedures, in accordance with University and OSHA standards.</p>

Work Task		Hazards	Controls
	2. Inspecting, cleaning, and performing maintenance on the plant mills.	Energized Equipment, Lock Out/Tag Out, Confined Space Entry	Follow all required plant safety procedures to ensure that plant mills are shut down and de-energized, locked out and tagged out, prior to performing maintenance. Follow all plant confined space entry safety procedures for entering into confined spaces.
		Coal Dust	Review and follow manufacturer instructions for donning and proper use before using N95 disposable respirators for protection against coal dust. Perform a user seal check prior to entering the mills.
Work Task		Hazards	Controls
	3. Inspecting contractor work and performing maintenance on the interior of the various plant boiler components.	Energized Equipment/Lock-out tag out/ Confined Space Entry/ Uneven work surfaces/ Poor Illumination inside boilers	Follow all plant lockout and tag out safety procedures to ensure that plant boilers are de-energized and shut down, and locked out, prior to performing inspections or maintenance. Follow all plant safety procedures for entering into plant confined spaces such as the interior of the plant boilers, which are permit-required confined spaces.
		Fly Ash	Ensure that before entering the various areas of the interior of the boiler, adequate illumination is provided (e.g. suitable flashlights) in order to visually view work surfaces which can be slippery, uneven, and dangerous due to limited visibility especially with the full-face air purifying respirator donned. Perform a positive and negative pressure user seal check prior to entering into the boiler. Ensure P100 filters are used with the full face APR.

Work Task		Hazards	Controls
	4. Inspecting and performing maintenance tasks on the interior of the various plants boiler system components such as the “cross-over”, cyclone, “backpass” air heater, etc.	Energized Equipment/Lock-out tag out/ Confined Space Entry/ Uneven work surfaces	Follow all plant safety procedures to ensure that plant boiler systems are shut down, locked out, prior to performing maintenance.
		Fall hazard when entering the “backpass” air heater entry hatch.	Follow all plant safety procedures for entering into plant confined spaces such as the interior of the plant boilers, which are permit-required confined spaces.
		Fly Ash	Ensure the ladder used is inspected prior to use and utilize the buddy system when preparing to enter into the air heater entrance due to entering through hatch at an elevated height. Perform a positive and negative pressure user seal check prior to entering into the boiler. Ensure P100 filters are used with the full face APR.
Work Task		Hazards	Controls
	5. Replacing bag-house filters	Fly Ash	Review and follow manufacturer instructions for donning and proper use before using N95 disposable respirators for protection against fly ash dust prior to handling bag-house filters.
		Potential fall hazard due to working at an elevated height (on top of the baghouse) to assist crane operator by manually removing filters and positioning filters to be lowered.	Ensure fall protection systems are in place prior to working around unprotected edges of the top of the baghouse.
Work Task		Hazards	Controls
	6. Completion of work	Unsanitary Respirator After Use	Inspect used respirator thoroughly: Ensure all tight-fitting elastomeric air purifying respirators are adequately cleaned with warm water and detergent after usage. Refer to manufacturer instructions or UNC-CH EHS Safety Manual Respiratory Protection Instruction for specific instructions.

Training	Required Training: Mechanical Maintenance Online Respirator Training Lockout/Tagout Training Confined Space Training Emergency Procedures	Required Personal Protective Equipment (PPE) <ol style="list-style-type: none"> 1. Eye protection. 2. Hearing protection. 3. Full face air purifying respirator with P100 filters. 4. N95 filtering facepiece respirators
Created	January 7, 2008 by Daniel Gileski (edited and revised by Joseph Sutton)	
Referenced Material	29 CFR Part 1910.134, (OSHA Respiratory Protection Standard) 29 CFR Part 1910.146, (OSHA Confined Space Entry Standard) 29 CFR Part 1910.147, (OSHA Lockout/Tagout Standard)	
Contact Info	For more information about this JSA contact: <i>Department of Environment, Health and Safety</i> UNC-CH, 1120 Estes Drive Extension, Chapel Hill NC 27599 CB# 1650 (919) 962-5507 • http://ehs.unc.edu	 <p>UNC ENVIRONMENT, HEALTH & SAFETY</p>