

Title of Task or Employee: Serge Ratkovsky\_\_\_\_\_     Routine     Non-routine    Date 3 Mar 2008

Complete instructions and supporting information is available at <https://www-internal.slac.stanford.edu/esh/SLACsafety/jham/>  
 Enter information into boxes which will expand to accommodate whatever length of text is entered. Once this JHA is complete, all participants should sign in the Acknowledgement section.

Basic Job Tasks or Steps	Potential Hazards	Controls & Recommended Actions
Work at computer work station	<ul style="list-style-type: none"> <li>• RMI from improper use or bad workstation ergonomics</li> </ul>	<ul style="list-style-type: none"> <li>• As needed: Ergonomic evaluation of workstation</li> <li>• Work station fixes as recommended by evaluation</li> <li>• Use of proper keyboarding techniques as recommended by evaluation</li> <li>• <b>ES&amp;H Course 291</b></li> </ul>
Lifting	<ul style="list-style-type: none"> <li>• Back or other strain injury from overexertion</li> </ul>	<ul style="list-style-type: none"> <li>• Get help or use lifting tools for items exceeding 50 pounds. Evaluate in the field as need.</li> <li>• Use proper lifting techniques (Avoid twisting while lifting, use your knees etc.)</li> </ul>
Awkward reaching/contortion	<ul style="list-style-type: none"> <li>• Muscle strain</li> <li>• Head bump</li> <li>• Cuts/lacerations</li> </ul>	<ul style="list-style-type: none"> <li>• Wear gloves</li> <li>• Wear bump caps</li> <li>• Field repair/warning signs of jagged edges</li> </ul>
Work at height/use of ladders	<ul style="list-style-type: none"> <li>• Injury from fall, or from dropped object</li> </ul>	<ul style="list-style-type: none"> <li>• Receive PPE training and adhere to content. Wear fall protective harness where falls of 4 or more feet are possible</li> <li>• Receive ladder training and adhere to content. Use ladders only according to manufacturer's instructions. Stay out of ladder footprint while ladder is in use by another</li> <li>• <b>ES&amp;H Course 200</b></li> </ul>
Walking around shops, beam enclosures, and other industrial areas (i.e. work on RF power supplies in PEP II IR halls [areas with limited	<ul style="list-style-type: none"> <li>• Injury from slips, trips, falls on oily, messy, uneven, or loose surfaces.</li> </ul>	<ul style="list-style-type: none"> <li>• No running</li> <li>• Clean up spills on surfaces</li> <li>• Use good housekeeping/cleanup</li> </ul>

<p>egress, head bump &amp; tripping hazards])</p>	<ul style="list-style-type: none"> <li>• Injury from striking protruding objects</li> </ul>	<ul style="list-style-type: none"> <li>• Keep eyes on path</li> <li>• Use flashlights in tunnels</li> <li>• Avoid unstable surfaces: stacked items, piles of debris, etc.</li> <li>• Place foam or warning colors on head-or body bump hazards</li> <li>• Abide by local PPE rules</li> </ul>
<p>Work in high-noise hazards</p>	<ul style="list-style-type: none"> <li>• Hearing loss</li> </ul>	<ul style="list-style-type: none"> <li>• Avoid high-noise areas</li> <li>• Participate in Hearing Protection Program as needed</li> <li>• Wear ear protection in such areas</li> </ul>
<p>Work on electrical equipment with high-V or other stored energy (cables, trays, electrical outlets, breakers)</p>	<ul style="list-style-type: none"> <li>• Electric shock</li> <li>• Arc flash</li> <li>• Flying objects</li> <li>• High-temperatures/fires</li> <li>• Hazardous vapors/fumes</li> </ul>	<ul style="list-style-type: none"> <li>• Get Low/High Voltage training (Courses 251,274)</li> <li>• Use GFCI where possible</li> <li>• Use good housekeeping/cleanup</li> <li>• Use equipment only according to manufacturer's requirements</li> <li>• Receive Lock/Tag (Course157) training and adhere to Lock/Tag requirements</li> <li>• Adhere to SLAC equipment-specific installation &amp; maintenance procedures</li> <li>• Avoid energized electrical work when possible</li> <li>• Get and adhere to hot work permit when working on energized electrical</li> <li>• Use sufficient lighting during work</li> <li>• Attend PPE training, Course 255. Use safety screen/ gloves/mats/goggles and/or glasses accordingly</li> <li>• <b>ES&amp;H Courses 157, 157R, 251, 255, 274</b></li> </ul>
<p>Control chassis removal</p>	<ul style="list-style-type: none"> <li>• Arc flash from PPS lock falling on exposed 208 VAC</li> </ul>	<ul style="list-style-type: none"> <li>• Use care when removing chassis. Look for loose or impeding items</li> <li>• Disconnect and lock/tag 208VAC source, if</li> </ul>

		<ul style="list-style-type: none"> <li>possible.</li> <li>• Cover hazard</li> </ul>
Walking around site	<ul style="list-style-type: none"> <li>• Slips, trips, falls</li> <li>• Struck by vehicle</li> </ul>	<ul style="list-style-type: none"> <li>• No running</li> <li>• Use good housekeeping/cleanup</li> <li>• Walk only on improved surfaces when possible</li> <li>• Keep eyes on path</li> <li>• Look both ways before entering the Gallery</li> </ul>
Use of government cars, carts, scooters, and bicycles	<ul style="list-style-type: none"> <li>• Injury by collision or spill/wreck</li> <li>• Injury to others, struck by vehicle</li> <li>• Burns/fire from gasoline</li> </ul>	<ul style="list-style-type: none"> <li>• Maintain California Driver's License</li> <li>• Slow down in rain</li> <li>• Drive and ride defensively</li> <li>• Keep hands free to drive/ride</li> <li>• Wear protective headgear on scooters</li> <li>• Adhere to SLAC site traffic requirements and CA auto and bike <i>Rules of the Road</i></li> <li>• Fill tanks only at station</li> <li>• Take care not to spill</li> <li>• Do not fill vehicles from jerry can</li> <li>• Keep ignition sources away while filling (cell phones, smoking, car ignition, static from car entry during filling)</li> <li>• Keep truck beds free from debris that could fall out</li> </ul>
Work in and around man ways	<ul style="list-style-type: none"> <li>• Injury from fall into manhole</li> <li>• Bump to head</li> <li>• Injury from dropped objects</li> <li>• Disease from dead animals</li> <li>• Standing water/entering water</li> <li>• Slip on bad or insufficiently lighted walking surface</li> <li>• Heat stress</li> </ul>	<ul style="list-style-type: none"> <li>• Wear hard hats</li> <li>• Place protective rails around manhole once open</li> <li>• Clearly mark work areas in roadways with cones</li> <li>• Avoid footprint of ladders when workers are using it</li> <li>• Use supplemental lighting</li> <li>• Phone Service Desk to remove dead animals</li> <li>• Use hand lines/backpacks/tool belts to lower/raise objects from man way</li> </ul>

		<ul style="list-style-type: none"> <li>• Take health into account before</li> <li>• Have heat stress monitored by IH (x4105)</li> </ul>
Work around heavy objects. (e.g., power supply lifting w/genie lifts & pallet jacks)	<ul style="list-style-type: none"> <li>• Foot crushing</li> </ul>	<ul style="list-style-type: none"> <li>• Receive PPE training and adhere to content.</li> <li>• Wear safety footwear where objects could crush feet</li> <li>• Avoid placing feet under any possibly-crushing load</li> <li>• <b>ES&amp;H Course 255</b></li> </ul>
Use of chemicals (solder & flux, alcohol, epoxies, paint)	<ul style="list-style-type: none"> <li>• Burn</li> <li>• Poisoning</li> <li>• Environmental contamination</li> </ul>	<ul style="list-style-type: none"> <li>• No eating at workbenches</li> <li>• Wash your hands after use</li> <li>• Perform work outdoors where possible.</li> <li>• Use ventilated areas when indoors</li> <li>• Work away from ignition sources</li> <li>• Use less-toxic or flammable materials where possible.</li> <li>• Seek advice from MSDS/Industrial Hygiene (x4105) when working with new chemicals.</li> <li>• Receive PPE Training and adhere to content</li> <li>• Dispose of waste properly</li> </ul>
Soldering	<ul style="list-style-type: none"> <li>• Burns</li> <li>• Lead poisoning</li> </ul>	<ul style="list-style-type: none"> <li>• Wear protective eyewear</li> <li>• Receive Lead Safety Training (#240)and adhere to content (optional)</li> <li>• Use ventilation at workbenches</li> <li>• Proper disposal of solder residue</li> </ul>
Work in places (Gallery, etc.) potentially occupied by wild animals	<ul style="list-style-type: none"> <li>• Infection/poisoning from contact with wild animals (raccoons/skunks/possums/feral cats/ground squirrels, bees &amp; wasps, mosquitoes, foxes, mountain lions, rattlesnakes, poisonous spiders)</li> </ul>	<ul style="list-style-type: none"> <li>• Use insect repellent and tuck pants into shoes when working in brush or tall grass. Perform tick self-inspections regularly.</li> <li>• Take care in dark places: clear cobwebs with broom or other item rather than with body.</li> <li>• Look carefully under outdoor items before moving them</li> </ul>

	<ul style="list-style-type: none"> <li>• Injury from car collision w/deer</li> </ul>	<ul style="list-style-type: none"> <li>• Look carefully under items/racks in the Klystron Gallery before placing a hand or foot under or into them.</li> <li>• Avoid other wild animals.</li> <li>• Wave and scare mountain lions</li> </ul>
Use of machine tools	<ul style="list-style-type: none"> <li>• Cuts, lacerations, or contusions from contact with point of operation or flying materials</li> </ul>	<ul style="list-style-type: none"> <li>• Use tools only according to manufacturer's instructions (trained/authorized)</li> <li>• Do not defeat guards on point of operation or other moving parts</li> <li>• Wear protective eyewear</li> <li>• Do not wear loose clothing/jewelry while operating</li> <li>• Tie hair back out of operation area</li> <li>• Use ventilation on machine systems</li> </ul>
Work with 2% BeCu	<ul style="list-style-type: none"> <li>• CBD from Be exposure</li> </ul>	<ul style="list-style-type: none"> <li>• No machining BeCu</li> <li>• Work wet w/burned up contacts</li> <li>• Use good housekeeping/cleanup</li> <li>• Consult IH (x4105) as needed, with questions</li> <li>• Dispose of waste properly</li> <li>• <b>ES&amp;H Course 296</b></li> </ul>
Use of compressed air	<ul style="list-style-type: none"> <li>• Debris blown in eye</li> <li>• Injection resulting in blood clot</li> </ul>	<ul style="list-style-type: none"> <li>• Wear eye protection while working with air systems</li> <li>• Use vented nozzles</li> <li>• Wear dust masks for cleaning work</li> </ul>
Cable or other assembly operations	<ul style="list-style-type: none"> <li>• Repetitive motion injury</li> <li>• Eye strain/fatigue</li> </ul>	<ul style="list-style-type: none"> <li>• Use ergonomic tools</li> <li>• Take breaks</li> <li>• Exercise</li> <li>• Contact Medical when starting long-term repetitive work</li> </ul>
Work in High Radiation Areas	<ul style="list-style-type: none"> <li>• Overexposure to ionizing radiation</li> </ul>	<ul style="list-style-type: none"> <li>• Receive <b>Radiation Worker I training</b> and adhere to content</li> <li>• <b>ES&amp;H Courses 115, 116, 219</b></li> </ul>

Work in Rad/Contamination Areas	<ul style="list-style-type: none"> <li>• Overexposure to contamination (radiation)</li> </ul>	<ul style="list-style-type: none"> <li>• Receive <b>Radiation Worker II training</b> and adhere to content</li> <li>• <b>ES&amp;H Course 250</b></li> </ul>
Use of hand tools	<ul style="list-style-type: none"> <li>• Cuts, lacerations, or contusions from contact with point of operation or flying materials</li> </ul>	<ul style="list-style-type: none"> <li>• Use tools only according to manufacturer's instructions</li> <li>• Use right tool for the job</li> <li>• Wear protective eyewear for hammering activities</li> </ul>
Use of forklifts	<ul style="list-style-type: none"> <li>• Injury by collision or spill/wreck</li> <li>• Injury to others, struck by vehicle</li> <li>• Crushing hazard to others</li> <li>• Fire (propane)</li> </ul>	<ul style="list-style-type: none"> <li>• Maintain Forklift certification</li> <li>• Slow down in rain</li> <li>• Drive and ride defensively</li> <li>• Do not operate too close to others</li> <li>• Keep hands free to drive/ride</li> <li>• <b>Adhere to SLAC site traffic requirements and CA auto <i>Rules of the Road</i></b></li> <li>• Keep ignition sources away while exchanging tanks</li> <li>• Wear seatbelts</li> <li>• <b>ES&amp;H Course 283</b></li> </ul>
Use of portable power tools	<ul style="list-style-type: none"> <li>• Cuts, lacerations, or contusions from contact with point of operation or flying materials</li> </ul>	<ul style="list-style-type: none"> <li>• Use tools only according to manufacturer's instructions</li> <li>• Do not defeat guards on point of operation or other moving parts</li> <li>• Plug into GFCI outdoors or wet areas</li> <li>• Wear protective eyewear</li> <li>• Do not wear loose clothing/jewelry while operating</li> <li>• Tie hair back out of operation area</li> </ul>
Modulator trouble shooting/maintenance of ceramic items in modulators	<ul style="list-style-type: none"> <li>• Cuts from broken ceramics</li> </ul>	<ul style="list-style-type: none"> <li>• Wear leather gloves</li> </ul>

Office workers---→Sequence of Basic Job Steps	Potential Hazards	Controls & Recommended Actions
<ul style="list-style-type: none"> <li>• Using computer / data entry / email; talk on phone</li> <li>• Lifting / moving: equipment, boxes</li> <li>• Walking around the site</li> <li>• Driving on-site: personal vehicles; government vehicles</li> <li>• Using chemicals (e.g., cleaning office); Paper cutting</li> <li>• Entering shops or other industrial areas on site</li> <li>• Overwork</li> </ul>	<ul style="list-style-type: none"> <li>• Strains: eye, neck, muscle, carpal tunnel, back problems</li> <li>• Strain; muscle sprain</li> <li>• Trips; falls; sprains; physical elements (uneven pavement, walkways)</li> <li>• Accidents; injuries</li> <li>• Difficulty breathing</li> <li>• Lack of cautions / signage / hand rails -</li> <li>• Stress</li> </ul>	<ul style="list-style-type: none"> <li>• ERGONOMIC: evaluations and implementing results; take breaks</li> <li>• LIFTING: Don't lift more than comfort level; Get hand truck for moving heavy / bulky boxes, equipment</li> <li>• PERSONAL RESPONSIBILITY: Keep self aware, educated, mentally assess tasks before proceeding, if sick stay home and get better; awareness of implications when someone or environment gets hurt -- financially (worker's comp, health costs) and professionally (time away from work, workload impact on others; identify and address stress</li> <li>• TRAFFIC: Follow traffic regulations; report violations</li> <li>• INSTRUCTIONS: Use manufacturer set-up and operating instructions (e.g., new equipment, furniture, cleaning fluids)</li> <li>• SIGNAGE: Follow posted signage in any area on site</li> <li>• STRESS REDUCTION: Clarify tasks and priorities - do what you can; Identify and address self-induced stress, making things</li> </ul>

<ul style="list-style-type: none"> <li>• Reaching high shelves</li> </ul>	<ul style="list-style-type: none"> <li>• Falling objects</li> <li>• <b>Other general hazards:</b></li> <li>• Flu / contagious disease; sick people</li> <li>• Earthquake</li> <li>• Physical barriers (e.g., no elevator, ADA ramps, etc.)</li> <li>• Standing up too fast</li> <li>• Disgruntled co-worker</li> <li>• Leg falling asleep</li> <li>• Unknown/unauthorized personnel in area</li> <li>• Missing/damaged materials or equipment</li> </ul>	<p>seem worse than they are; don't rush; discuss problems at safety meetings; talk to supervisor or peers for reality check; discuss stress at staff meetings</p> <ul style="list-style-type: none"> <li>• PLACEMENT: heavier items on lower shelves</li> <li>• <b>Generally useful practices:</b></li> <li>• EMERGENCIES: Follow emergency procedures/personnel; participate in fire and earthquake drills</li> <li>• GET HELP: ask for help anytime, any reason, any question; safety coordinator; supervisor; peers; ES&amp;H experts; get 2<sup>nd</sup> opinion</li> <li>• SAFETY COORDINATOR: Pay attention to local safety coordinator announcements, advice</li> <li>• WORKING AT HOME: Create mechanism to work at home if not too sick</li> <li>• DEPARTMENT SAFETY MEETING: stand downs; reviews; information sharing; lessons learned; site issues and controls</li> <li>• EARTHQUAKE PROOFING: Ensure bookcases, files cabinets, etc. secured to walls and floors; place Heavy items on lower shelves</li> </ul>
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<b>Acknowledgements</b>	<b>Print Name</b>	<b>Signature or Initialed</b>	<b>Date</b>
<b>Supervisor:</b>			
<b>Participants:</b>			