

# AREA HAZARD ANALYSIS

Review Date: 2/20/2007

Title: *SSRL/MSG Shops*

Location (Bldg & Room) *Building 06, rooms 108, 101b, 103b, 105b, 106b, 107b.*

Storage Areas: *SSRL 101 storage cage, 107c, 103c, 4066, 4067, 4065, 4073*











## Instructions:

An Area Hazard Analysis (AHA) is a process that is used to evaluate a work area to 1) determine the hazards that may be present 2) determine appropriate controls for these hazards and 3) provide a mechanism to communicate these hazards to someone entering the area. The AHA covers the facility and equipment within the facility. It does not cover specific jobs/tasks that may be performed in the area. Job/task specific hazards and controls are covered by the JHAM process.






























The AHA should be done by the area manager, in cooperation with the Building Manager. An AHA should be done once for all working areas and whenever there is a change in to the facility or regulations or the introduction of new equipment or new hazard.

Complete instructions and supporting information is available at <web site under development>. Enter information into boxes which will expand to accommodate whatever length of text is entered. Once this AHA is complete, the area responsible person signs.

*Building Manager: Tom Galetto Ex-2097 Pager (650) 424-7140*

Processes / Equipment in Area	Hazards	Recommended Controls & Actions
<p><i>Listed is the type of processes and equipment in the building 06 areas that SSRL/MSG occupies.</i></p> <p><i>The rooms 101b, 103b, 105b, 106b, 107b in this building are considered Industrial areas.</i></p> <p><b><i>SLAC has required training to access these areas. Visitors must be escorted at all times.</i></b></p> <p><i>Industrial areas</i></p> <p><i>Machine tools (Band saws, lathes, belt sanders, punches, shears, sheet benders, hose swaggers, sand blaster grinders, drill presses) and associated waste products (chips, turnings, burrs etc.).</i></p>	<p>Hazards:</p> <ul style="list-style-type: none"> <li> On-going accelerator assembly work in industrial area</li> <li> Rotating equipment such as grinders, drills and sanders</li> <li> Moving saw blades</li> <li> Eye injury from flying objects such as chips, coolant and dust</li> <li> Cuts, lacerations, abrasions, crushing, or amputation from body part caught in machine equipment</li> <li> Poor housekeeping</li> </ul>	<ul style="list-style-type: none"> <li> Use of machine tools allowed only by shop personnel or designees and accordance to SLAC policies and manufactures requirements.</li> <li> <b>PPE:</b> Wear Protective Eyewear accordance (ANSI Z87.1-2003) or better safety glasses with side shields is required in designated areas during equipment usage in industrial areas. (Work area is posted accordingly).</li> <li> <b>PPE:</b> In areas when the work process can expose worker to excessive dust. Wear High-Efficiency Particulate Air (HEPA) respirator. The use of a respirator, if identified as required by IH. Must have current ES&amp;H respirator qualification.</li> <li> <b>Basic training:</b> completion of courses #396 and #219 are required to enter unescorted into SLAC industrial areas. Additional training will be required to work in listed areas of this AHA.</li> </ul>

		<ul style="list-style-type: none"> <li>✚ <b>Required Training:</b> Accordance to MSG technician JHAM applicable to work functions listed in areas.</li> <li>✚ <b>Equipment Guarding:</b> Use point-of-operation guards on all equipment.</li> <li>✚ All machinery is equipped with a power disconnect circuit.</li> </ul>
<p><i>Industrial areas</i>  <i>Welding area Room 105b</i>  <i>TIG welding</i>  <i>MIG welding</i>  <i>Torch brazing</i>  <i>Torch cutting</i>  <i>Plasma cutting</i></p>	<p>Hazards:</p> <ul style="list-style-type: none"> <li>✚ Arc flash</li> <li>✚ Burns</li> <li>✚ Hot parts</li> <li>✚ Electric shock</li> <li>✚ Fume inhalation</li> <li>✚ Fire</li> <li>✚ Flammable gasses</li> <li>✚ Compressed gasses</li> <li>✚ Poor housekeeping</li> </ul>	<ul style="list-style-type: none"> <li>✚ Use allowed by only by authorized personnel and accordance to SLAC policies.</li> <li>✚ Room 105b is a PAFD designated welding area.</li> <li>✚ Weld and braze with proper work area ventilation.</li> <li>✚ <b>PPE:</b> Arc welding fumes will be evacuated through smoke eliminator equipment.</li> <li>✚ Fire extinguisher, fire watch, and fire blankets used accordingly.</li> <li>✚ Fire extinguisher training required for welders and fire watches.</li> <li>✚ Keep all combustibles out of welding area.</li> <li>✚ Hot parts after welding, cutting will be posted with a "Danger Hot" sign.</li> <li>✚ <b>PPE:</b> Wear Welding helmets (ANSI z87.1-1989, SIE certified, CSA Z94.3-92), protective clothing and gloves)</li> <li>✚ Use welding curtains will be used to shield work from passers-by.</li> <li>✚ <b>PPE:</b> Transparent welding curtains will be in compliance to California Fire Marshal requirements, OSHA Standard 29 CFR 1910.252(e)(2)(iii).</li> <li>✚ Compressed gas bottles to be stored upright and secured properly at all times. Cylinders in use must always be fitted with a regulator. Must be capped if not in use.</li> <li>✚ Compressed gas bottles will be properly tagged at all times.</li> <li>✚ All gas welding equipment is to be kept in good operating condition. Replace worn hoses, leaky fittings, regulators and gauges etc.</li> </ul>

<p><i>Industrial areas</i>  <i>Overhead floor operated cranes, Overhead hoist.</i>  <i>Welding area Room 105b - 5 ton</i>  <i>Fabrication area Room 107b - 1 ton</i>  <i>Fabrication area Room 101b – ½ ton chain hoist</i></p>	<p>Hazards:</p> <ul style="list-style-type: none"> <li> Lifting of heavy loads</li> <li> Head injury from swinging load.</li> <li> Cuts, lacerations, abrasions, crushing, or amputation from handling or from landing loads</li> </ul>	<ul style="list-style-type: none"> <li> Use allowed by only authorized personnel or designees and accordance to SLAC policies and manufactures requirements.</li> <li> Crane operators must be trained to operate equipment.</li> <li> Crane operators must perform a pre-shift check list before using crane equipment.</li> <li> Traffic control by barrier or personnel during use.</li> <li> Overhead floor operated cranes must meet ASME B30.17 and OSHA standards.</li> <li> Overhead hoist under-hung must meet ASME B30.16 and OSHA standards.</li> <li> All portable shop cranes will meet ASME PALD.</li> <li> Periodic inspections performed by SLAC CEF crane maintenance department.</li> <li> OSHA Plate V inspection performed for equipment above 4-ton every 4 years.</li> <li> Crane electrical disconnect is labeled.</li> <li> <b>PPE:</b> Wear (ANSI Z89.1-1997, type I, class E) hardhat. People in lifting zone shall wear hard hats.</li> <li> <b>PPE:</b> Wear Safety-Toe Footwear (ANSI Z41.1-1967) or better when in or around crane operation.</li> </ul>
<p><i>Industrial areas</i>  <i>Chemical storage</i>  <i>Flammable liquids</i>  <i>(Acetone, alcohol, isopropanol, spray paint, gasoline, spray lubricants</i>    <i>Combustibles</i></p>	<p>Hazards:</p> <ul style="list-style-type: none"> <li> Fire</li> <li> Inhalation</li> <li> Skin irritant</li> <li> Improper storage</li> <li> Contamination of environment</li> <li> Chemical spillage</li> </ul>	<ul style="list-style-type: none"> <li> Smoking prohibited in building and the outside storage areas.</li> <li> Use flammable liquids sparingly and away from ignition sources.</li> <li> Fire extinguishers are located nearby. Labeled with manufacturer’s label or SLAC NFPA diamonds.</li> <li> Fire extinguisher training for regular occupants of area.</li> <li> The use flammable liquids in accordance to provided MSDS and SLAC policies and procedures.</li> <li> Flammables kept in proper storage cabinets when not in use.</li> <li> Combustibles kept in proper storage cabinets when not in use.</li> <li> <b>Spills to large to contain, evacuate area and call 9-911.</b></li> </ul>

<p><i>All areas</i> <i>Walking and working surfaces</i></p>	<p>Hazards:</p> <ul style="list-style-type: none"> <li>✚ Slips, trips, and falls over transient hazards (power cords, temporarily stored equipment, spills, work-in-progress)</li> <li>✚ Blockage of egress from falling lockers</li> </ul>	<ul style="list-style-type: none"> <li>✚ Remove trip hazards to keep aisles clear.</li> <li>✚ Clean up spills immediately.</li> <li>✚ Do not hurry through work areas.</li> <li>✚ Keep eyes on path while walking.</li> <li>✚ Lockers are secured to wall.</li> </ul>
<p><i>Industrial areas</i> <i>Room 105b</i> <i>Room 103c</i> <i>Compressed gasses</i> <i>nitrogen, Argon, helium, MAP gas, propane, Acetylene, Oxygen</i></p>	<p>Hazards:</p> <ul style="list-style-type: none"> <li>✚ Fire</li> <li>✚ Propulsion</li> <li>✚ Freezing</li> <li>✚ Burns</li> <li>✚ Asphyxiation</li> <li>✚ Flammability</li> <li>✚ Medium &amp; high pressures</li> <li>✚ Flammable Gas leak</li> </ul>	<ul style="list-style-type: none"> <li>✚ Keep cylinders properly stored, segregated clearly labeled.</li> <li>✚ Know dangers of the materials you are working with by reading MSDS.</li> <li>✚ If you are working with gasses in an enclosed space, make sure there is adequate ventilation.</li> <li>✚ Install cap over valve when transporting and storing gas bottles.</li> <li>✚ <b>If a flammable gas odor is detected, evacuate area and call 9-911.</b></li> </ul>
<p><i>Industrial areas</i> <i>Compressed house air</i> <i>Bldg. Nitrogen</i></p>	<p>Hazards:</p> <ul style="list-style-type: none"> <li>✚ Eye injury from blown debris</li> <li>✚ Air injection through skin</li> </ul>	<ul style="list-style-type: none"> <li>✚ <b>PPE:</b> Wear (ANSI Z87.1-2003) or better safety glasses with side shields is required in designated areas during the use of compressed air usage in the work areas.</li> <li>✚ All open compressed air lines to be fitted with an OSHA 29 CFR 1910.242 compliant nozzle limiting pressure to 30 psi.</li> </ul>
<p><i>General working environment</i> <i>Evacuation plan</i></p>	<p>Hazards:</p> <ul style="list-style-type: none"> <li>✚ Improper egress</li> <li>✚ Poor emergency response</li> <li>✚ Unable to evacuate quickly in an emergency</li> <li>✚ Not knowing evacuation gathering area</li> </ul>	<ul style="list-style-type: none"> <li>✚ Post emergency response plan in work area.</li> <li>✚ Know location of exits and fire extinguisher equipment.</li> <li>✚ Never work alone in the area during after hours.</li> <li>✚ Signage: "Fire Extinguisher" signs above each fire extinguisher.</li> <li>✚ Single push or turn handles on exit doors.</li> <li>✚ Doors remain unlocked when occupied.</li> <li>✚ Aisle space maintained.</li> <li>✚ Emergency lighting system in each room</li> <li>✚ Signage: "Exit" or "Not an Exit" on portals.</li> <li>✚ Evacuation gathering area is the east parking area.</li> </ul>

<p><i>Industrial areas</i>  <i>Hazardous Materials</i>  <i>epoxies, adhesives, pipe sealant, thread sealant, gasket sealant, grease, specialty lubricants, cleaning solvents – acetone, alcohol, cutting fluids and oils, paints, gasoline</i></p>	<p>Hazards:</p> <ul style="list-style-type: none"> <li>✚ Exposure to hazardous materials (lungs, skin, eyes)</li> <li>✚ Inhalation</li> <li>✚ Contamination of equipment and environment</li> </ul>	<ul style="list-style-type: none"> <li>✚ Use of hazardous materials allowed by only trained personnel and accordance to SLAC policies.</li> <li>✚ MSDS's are available on the SLAC ES&amp;H web site.</li> <li>✚ Read and observe MSDS's of the hazardous materials during use.</li> <li>✚ All hazardous waste to be disposed of through group hazardous waste coordinator and SLAC Hazardous Waste Group.</li> <li>✚ Use hazardous materials in accordance to provided MSDS and SLAC policies and procedures.</li> <li>✚ <b>PPE:</b> Respirators will used as necessary and accordance to SLAC policies and manufactures requirements.</li> <li>✚ Quantities on the shop floor are limited to &lt;0.5 liter.</li> <li>✚ Containers to be labeled as required by SLAC policy.</li> <li>✚ Do not bring new hazardous materials into this work area without first obtaining your Supervisors approval.</li> <li>✚ All stock quantities stored in appropriate cabinets.</li> </ul>
<p><i>Industrial areas</i>  <i>Lead</i>  <i>Exclude machining, cutting and drilling.</i></p>	<p>Hazards:</p> <ul style="list-style-type: none"> <li>✚ Exposure to hazardous materials (lungs, skin, eyes)</li> <li>✚ Contamination of equipment and environment</li> </ul>	<ul style="list-style-type: none"> <li>✚ Lead handling only allowed by only by trained personnel and accordance to SLAC policies.</li> <li>✚ Cover and label all lead in area.</li> </ul>
<p><i>All areas</i>  <i>Hazardous waste disposal</i></p>	<p>Hazards:</p> <ul style="list-style-type: none"> <li>✚ Exposure to hazardous waste</li> <li>✚ Contamination of equipment and environment</li> <li>✚ Proper disposal of oily and solvent waste.</li> </ul>	<ul style="list-style-type: none"> <li>✚ All hazardous waste is disposed by accordance to SLAC policies.</li> <li>✚ Provided oily and solvent disposal can in work area.</li> <li>✚ Hazardous Waste Disposal for MSG work area is located at building 137. <i>(Michael Swanson Ex 3462 is the hazardous waste coordinator for MSG areas).</i></li> </ul>
<p><i>Industrial areas</i>  <i>Low Conductive Water (LCW), building system, Testing system</i></p>	<p>Hazards:</p> <ul style="list-style-type: none"> <li>✚ Exposure to source of energy (hydraulic).</li> </ul>	<ul style="list-style-type: none"> <li>✚ Use of building LCW system is to be performed by qualified personnel and accordance to SLAC policies.</li> <li>✚ Report leaks to supervisor or building manager.</li> </ul>

	<ul style="list-style-type: none"> <li>⚠ Possible tritium exposure from filter systems &amp; water.</li> <li>⚠ Environmental, storm drain contamination.</li> </ul>	<ul style="list-style-type: none"> <li>⚠ Open lines will be capped or locked &amp; tagged.</li> <li>⚠ Relieve (stored energy) pressure before working on systems.</li> <li>⚠ Sample all spilled or drained LCW.</li> <li>⚠ LCW to be drained in sanitary sewer only.</li> <li>⚠ Radiation survey all filter cartridges before disposal.</li> </ul>
<i>Industrial areas</i> <i>Noise</i>	<p>Hazards:</p> <ul style="list-style-type: none"> <li>⚠ Machine noise</li> <li>⚠ Cutting noise</li> <li>⚠ Air hose blast</li> <li>⚠ Hearing Impairment</li> </ul>	<ul style="list-style-type: none"> <li>⚠ <b>PPE:</b> Wear (ANSI S3.19-1974) or better hearing protection if exposed to prolonged high noise levels, or when posted as mandatory.</li> </ul>
<i>Computer work stations</i> <i>Room 108</i> <i>Room 107b</i>	<p>Hazards:</p> <ul style="list-style-type: none"> <li>⚠ RMI from improper use or bad workstation ergonomics</li> </ul>	<ul style="list-style-type: none"> <li>⚠ Ergonomic evaluation of workstation recommended.</li> <li>⚠ Put in place work station fixes as recommended by evaluation.</li> <li>⚠ Use 107b computer work station for quick documentation retrieval only. Limit time to &lt;5 minutes.</li> </ul>
<i>All areas</i> <i>Lighting</i>	<p>Hazards:</p> <ul style="list-style-type: none"> <li>⚠ Bad light bulbs</li> <li>⚠ Poor lighting over work areas</li> </ul>	<ul style="list-style-type: none"> <li>⚠ Report to supervisor or building manager.</li> <li>⚠ Generate CEF request for light bulb replacement.</li> </ul>
<i>All areas</i> <i>Ventilation</i>	<p>Hazards:</p> <ul style="list-style-type: none"> <li>⚠ Poor air flow, cooling or heating</li> <li>⚠ Dehydration</li> </ul>	<ul style="list-style-type: none"> <li>⚠ Report to supervisor or building manager.</li> <li>⚠ Generate CEF request for HVAC service problem.</li> </ul>
<i>All areas</i> <i>Technician work stations</i> <i>Work station power</i>	<p>Hazards:</p> <ul style="list-style-type: none"> <li>⚠ Fire</li> <li>⚠ Electrical shock</li> <li>⚠ Poor housekeeping</li> </ul>	<ul style="list-style-type: none"> <li>⚠ Do not daisy chain extension cords.</li> <li>⚠ All A/C outlets equipped with a GFIC.</li> <li>⚠ Keep work area clean and free of clutter.</li> </ul>
<i>Road ways around perimeter of building</i> <i>Vehicle traffic</i>	<p>Hazards:</p> <ul style="list-style-type: none"> <li>⚠ Pedestrians not in plain view of vehicle drivers</li> <li>⚠ Vehicles not stopping at designated stop signs</li> </ul>	<ul style="list-style-type: none"> <li>⚠ Report violators to supervisor and or SLAC site security.</li> <li>⚠ Place barricades and cones when working in and around roadways and alleyways.</li> </ul>

	<ul style="list-style-type: none"> <li>⚠ Vehicles driving above designated speed limits</li> </ul>	
<i>Other</i>	<p>Personnel Hazards Communication:</p> <ul style="list-style-type: none"> <li>⚠ Please report any other hazards not on this AHA to your supervisor.</li> <li>⚠ Other unknown Hazards exist in building 06 in rooms and work areas such as lasers, radiation sources, cryogenics, Electrical, etc.</li> </ul>	<ul style="list-style-type: none"> <li>⚠ Hazards Communication</li> <li>⚠ Observe postings and warning signs, barricades, in building 06. Do not enter other SLAC laboratories/rooms in this building. There are unknown hazards in other rooms in this building that are not listed in this AHA.</li> </ul>
<i>Storage Areas: SSRL 101 storage cage, 107c, 103c, 4066, 4067, 4065, 4073</i>	<p>Hazards:</p> <ul style="list-style-type: none"> <li>⚠ Poor housekeeping</li> <li>⚠ Improper storage of equipment or materials.</li> </ul>	<ul style="list-style-type: none"> <li>⚠ Keep aisles clear.</li> <li>⚠ Do not store equipment or materials without the authorization of your supervisor.</li> </ul>

Signatures	Print Name	Signature or Initials	Date
<b>Supervisor Responsible:</b>	David A. Ernst		
<b>Participants:</b>	Robert DiMattia		
	Kirk French		
	Jose E. Guerra		
	Michael Swanson		
	Gary Woodcock		