

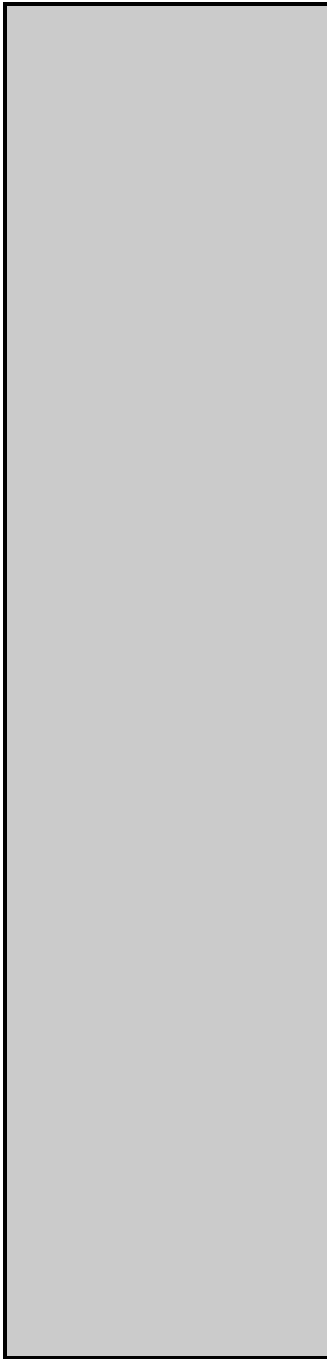
# JOB SAFETY ANALYSIS

Safety Information for the University of California, Berkeley

## ENVIRONMENT, HEALTH & SAFETY – EMERGENCY RESPONSE CLEANING UP AN UNKNOWN CHEMICAL RELEASE OR UNKNOWN ABANDONED MATERIAL

TASK	HAZARDS	CONTROLS
1. Assess the situation to determine if material is contained, if the container is labeled, if a release is threatened (leaking, bulging, hissing, etc), if already released, and if the material poses a danger to the public, ground water, nearby waterways or to the atmosphere. If material is released inside a building, it may be required to determine if material is an inhalation hazard or nuisance and the extent of the release.	Exposure to the material(s).	Avoid contact with material by assessing at a non-contaminated location nearby.  If necessary, use binoculars to obtain clearer visual characterization of material.  If possible, grab a sample without entering contaminated area, if material is not contained.  Obtain information about identity from building occupants if material is inside a building, or from occupants of nearby buildings if material is discovered outside.

		Exposure of the public to the material.	<p>Erect sturdy barriers to keep traffic away from the contaminated area or area around an abandoned container.</p> <p>Surround the contaminated area with a tape with "Do Not Enter, Hazardous Area" or a similar warning printed on it.</p> <p>Post warning signs around the area with a contact name of a person, department and telephone number.</p>
		Harm to the environment when material is outside and is not contained. When material is contained, a release is imminent.	<p>Plug nearby storm drain(s) if any.</p> <p>Create a make-shift-beam for released, or contained material whose release is imminent, by surrounding area or perimeter of released material with absorbent (general use) booms or pigs. Do not enter contaminated area when doing this.</p>
		Physical injury due to physical hazards present at the site.	<p>If possible, clear surrounding area of physical hazards that may pose a danger to responders.</p> <p>While assessing the situation, determine the best possible approach to the contaminated site in order to minimize or eliminate possibility of physical injury or stress.</p>
	2. Select and don the appropriate PPE.	Selection of PPE with inadequate protection.	<p>When selecting PPE, discuss possible hazards and protection with other responders and double-check with experts.</p> <p>If unsure, assume worst-case scenario and use SCBA and chemically-resistant body protection.</p>



	Using a defective PPE.	Before donning a selected PPE, examine it carefully to ensure that it is free from defects.  Perform all required tests for integrity of donned PPE before actual cleanup or response.  To avoid defects of PPE, such as tears and holes, select a larger size of PPE that comfortably accommodates inner clothing.
	Physical injury due to falling and awkward positioning when donning PPE.	Be seated when donning body suit and foot protection. If seating is not possible, don with the assistance of a buddy.  Don PPE at a location that is free from physical hazards and can allow some room for movement.
3. Monitor the atmosphere for toxic gases that may be present. Perform a field analysis (Hazcat) for more information about the material.	Exposure to material.	Wear appropriate PPE free from defects and loose enough to allow free and unrestrained movement  Avoid touching bare skin while inside contaminated area or near the unknown.
	Slipping and falling while performing Task 3.	Assume stable and comfortable position during field analysis.
	Physical injury due to presence of physical hazards at the site, or falling due to awkward positions while monitoring.	Clear monitoring site of physical hazards or, if not possible to clear, work carefully around physical hazards present.  While monitoring, avoid stressful and awkward positions.
4. If material is released, determine the extent of release, the perimeter of contaminated area and determine equipment, and the furniture or fixtures nearby that may be also contaminated.	Exposure to released material.	Follow Controls 3a-1 and 3a-2.
	Incomplete determination of extent or area of release due to impaired vision which may be caused by PPE and/or inadequate lighting in the release area.	PPE should not impair vision.  Ensure adequate lighting at the release site; if necessary, use extra high intensity lighting to illuminate area of release.

5. If unknown material is released, apply neutralizer or absorb as appropriate.	Exposure to material.	Follow Controls 3a-1 and 3a-2. If PPE is damaged, exit contaminated area and change into new PPE free from defects before reentering contaminated area.
	Slipping and falling while performing Task 5.	To avoid slipping and falling, assume comfortable and stable position during clean-up. Take breaks as necessary.
	Injury due to physical hazards present at the cleanup site.	Clear contaminated site of physical hazards or, if not possible to clear, work carefully around physical hazards present.
6. Collect used absorbents or neutralizer and place in a compatible, defect-free container that includes a cover or lid that can be secured to prevent material leakage or spillage.	Exposure to material.	Follow Controls 3a-1 and 3a-2. If PPE is damaged, exit contaminated area and change into new PPE free from defects before reentering contaminated area.
	Physical stress or strain due to repetitive and/or awkward motions.	Avoid performing repetitive motions and assuming awkward positions for long periods of time. When performing repetitive tasks; take breaks as often as necessary.
	Injury due to physical hazards at the cleanup site.	Follow Control 5c-1.
7. If the container is unlabeled and leaking, treat the situation like a release of an unknown and perform Task 3.	Exposure to material.	Follow Control 3a-1 and 3a-2.
	Slipping and falling while performing Task 7.	Follow Controls 3b-1.
	Physical injury due to presence of physical hazards at the site or falling due to awkward positions while monitoring.	Follow Controls 3c-1 and 3c-2.
8. If the container found is not in good condition, transfer material to a more appropriate container located in a nearby clean or decontaminated area.	Exposure to material.	Follow Control 3a-1 and 3a-2. If PPE is damaged, exit contaminated area and change into new PPE free from defects before reentering contaminated area.

		Physical injury due to lifting heavy weight and awkward positioning while transferring material.	Handle weights that are appropriate to one's capability. Avoid awkward postures and movements while handling a heavy container.
	9. Attach lid or cover on the container of the material and secure it to prevent leakage or spillage during further handling and/transfer to a secure location.	Exposure to material that may leak/spill out of the container or/and on the side of the container.	Ensure that the container is not leaking before further handling; if contamination is discovered, repeat Tasks 5 and 6 in proper order. Avoid touching bare skin while in the contaminated site.
		Physical injury due to physical hazards at the site, repetitive motion, and awkward positioning during cleanup.	Remove physical hazards before cleanup, if possible. If not possible, work carefully around physical hazards present at the cleanup area. Avoid performing repetitive motions for long periods of time; take rest periods at appropriate intervals during clean-up if it involves repetitive motions and awkward positions. Avoid stressful motions and positions if possible.
		Injury from pinching of body part if caught while securing container lid or cover.	Secure the lid or cover carefully. Keep threatened body parts away from pinch points.
		Physical stress or injury from handling of heavy container(s).	Follow Control 8b-1.
	10. Final cleanup of contaminated site.	Discovery of other areas of contamination which could lead to exposure to the contaminant.	Follow Controls 3a-1 and 3a-2. Keep PPE on, exiting the contaminated site to change into new PPE free from defects, as PPE gets saturated or damaged during clean-up.
	11. Begin the process for the newly discovered locations starting with Task 4.	Exposure to contaminant found in the newly discovered contaminated areas.	Follow Controls 3a-1 and 3a-2. Keep PPE on, exiting the contaminated site to change into new PPE free from defects, as PPE gets saturated or damaged during clean-up.

<p><b>Other Information:</b> See JSA for transportation of hazardous materials  <b>Contributors:</b> Environment, Health &amp; Safety  <b>Created:</b> June 2005  <b>JSA Library Number:</b> EHS-ER-03</p> <p>For more information about this JSA, contact the <i>Office of Environment, Health and Safety</i> at UC Berkeley, 317 University Hall #1150, Berkeley, CA 94720-1150 (510) 642-3073 • <a href="http://www.ehs.berkeley.edu">http://www.ehs.berkeley.edu</a></p>		<p>Physical injury due to physical hazards at the site, repetitive motion and awkward positions during cleanup.</p>	<p>If possible, remove physical hazards before clean-up. If not possible, work carefully around physical hazards present at the cleanup area.</p> <p>Avoid performing repetitive motions for long periods of time; take rest periods at appropriate intervals during clean-up if it involves repetitive motions and awkward positions.</p> <p>Avoid stressful motions and positions if possible.</p>
	<p>12. Prepare sealed container(s) for transport by labeling and providing secondary containment.</p>	<p>Physical injury due to handling and lifting of heavy weight.</p>	<p>Handle only weights corresponding to one's capability.</p> <p>Avoid awkward positions and motions while handling heavy weight.</p> <p>Use appropriate tool or equipment for handling heavy weight.</p> <p>Obtain assistance from a buddy as necessary.</p>
	<p>13. Transport wastes.</p>	<p>Inadequate controls.</p>	<p>Refer to JSA for transportation of hazardous materials.</p>
	<p><b>Required Training:</b></p> <ol style="list-style-type: none"> <li>1. Training 1 - Proper donning and use of SCBA.</li> <li>2. Training 2 - Proper operations of required monitoring equipment.</li> <li>3. Training 3 - Proper operation of tools that required when handling containers.</li> </ol>	<p><b>Required Personal Protective Equipment (PPE)</b></p> <ol style="list-style-type: none"> <li>1. SCBA at optimum situation.</li> <li>2. Safety glasses or goggles with face shield as appropriate.</li> <li>3. Half or full face respirator if determined to be sufficient.</li> <li>4. Non-slip booties, double gloves appropriate for situation.</li> </ol>	