




Oxygen Deficiency Hazard (ODH) Policy Quick Reference

<div>Policy</div> <div></div>	It is SURF's policy to protect the health & safety of persons. Because persons exposed to reduced oxygen atmospheres at the facility may experience reduced abilities, unconsciousness, or death, caused by an unintended release of a compressed and/or liquefied gas it is the SURF policy to: <ul style="list-style-type: none">• assess the potential for a possible oxygen deficient environment,• develop control measures, providing equipment to monitor, reduce or eliminate oxygen deficient hazards,• consider additional requirements in underground spaces.				
<div>Scope</div>	This policy applies where any release of a compressed and/or liquefied gas may occur. Emergency response and confined spaces are covered by separate policies.				
<div>Responsibilities</div> <div></div>	Science Director	<ul style="list-style-type: none">• Ensures the requirements of this policy and procedures are implemented for all research projects proposed at SURF.• Ensure qualified persons<ul style="list-style-type: none">○ review and maintain documentation for ODH risk assessments○ maintain records of ODH equipment reliability.			
	EHS Department	<ul style="list-style-type: none">• Responsible for the purchase and maintenance of personal oxygen monitors• Training related to ODH issues.• Provides standardized warning signs.• Maintain records of incidents.			
	Cryogenic Safety Subcommittee	<ul style="list-style-type: none">• Consults and makes recommendations on ODH issues.			
	Engineering Department	<ul style="list-style-type: none">• Oversees the installation and maintenance of facility ODH associated equipment.			
<div>Definitions</div>	ODH Class	ODH classes are based upon the likelihood a fatality could occur and are determined by a risk assessment. (ODH=0 is the lowest hazard, an area highly unlikely to ever experience an oxygen deficiency hazard.) The ODH class determines the required mitigations			
	In-Place Oxygen Monitors	Permanently attached oxygen monitors set to provide a LOCAL alarm at <19.5% and trigger a FACILITY-wide alarm at <18% oxygen.			
<div>ODH Control Measures</div>	ODH Class		0	1	2
	Facility Environment Controls				
	1. Warning Signs			X	X
	2. Ventilation (minimum requirements established)			X	X
	3. In-Place Oxygen Monitors			X	X
	Personnel Working with Cryogenics in ODH Spaces				
	4. ODH Training			X	X
	5. Personal Oxygen Monitor [portable (hand-held) gas monitor]			X	X
	6. Self-Contained Self-Rescuer Available			X	X
	7. Multiple Personnel in Communication				X
8. Medically Qualified				X	
<div>Procedures</div>	<div></div>	<ul style="list-style-type: none">• Quantitative assessment is performed and ODH classification is assigned.• Control measures are implemented; equipment designed and installed.• Response to an indication of ODH (refer to Emergency Response Plan)<ul style="list-style-type: none">○ Observation: >19.5% address issue, <19.5% leave and report○ Local Alarm: <19.5% leave area then determine if the alarm is valid• Facility Alarm: <18% ODH workers shall evacuate to a separate air base. If escaping to a separate air base may not be accomplished in less than 30-seconds, don an SCSR before escaping. Re-entry requires ERT.• Record incidents			