

# NUWave Job Safety Analysis

All participating members must wear

- Closed toe, non-slip shoes
- Safety glasses
- Gloves
- Non-loose or baggy clothing
- Hair pulled back/away (if necessary)

Pre-launch				
Task	Potential Hazards	Controls	Person Responsible	Initial
Toolbox Talk	<ul style="list-style-type: none"> <li>● Miscommunication</li> </ul>	<input type="checkbox"/> Any team member may call for operations to stop if conditions or actions are unsafe.	All members	JJ
Entering the pool deck area	<ul style="list-style-type: none"> <li>● Slipping</li> <li>● Tripping on tether or tangled tether</li> <li>● Dropping the ROV</li> <li>● Risk of injuries associated with handling heavy and sharp materials</li> </ul>	<input type="checkbox"/> Team members should not run on the pool deck or multitask while walking. <input type="checkbox"/> At least two members must carry the ROV to prevent injuries. <input type="checkbox"/> Mechanical team must be notified of any sharp or potentially dangerous robot components.	All members	JJ
System set-up	<ul style="list-style-type: none"> <li>● Exposure to 120 VAC</li> <li>● Risk of electrocution when connecting wires</li> <li>● Risk of limb getting caught within thruster</li> </ul>	<input type="checkbox"/> Ensure everyone is aware of live wires and all 120 volts are covered. Allow only members of the team with extensive knowledge of the robot's electrical systems to work with the wires. <input type="checkbox"/> Cover the thrusters to ensure they cannot be touched while active	Electrical team	LM

<b>Power up check</b>	<ul style="list-style-type: none"> <li>• Risk of electrocution</li> </ul>	<input type="checkbox"/> All exposed electronic equipment must be kept away from the poolside.	Electrical team	<b>LM</b>
<b>System breakdown</b>	<ul style="list-style-type: none"> <li>• Bringing the wet ROV near live electronics</li> <li>• Getting caught in the thrusters and claw</li> </ul>	<input type="checkbox"/> Keep the ROV a safe distance from any electronics, and immediately dry after removing the ROV <input type="checkbox"/> Cover the thrusters to ensure they cannot be touched while active and making sure people stand clear of the claw	Mechanical team	<b>TD</b>
<b>Tether setup</b>	<ul style="list-style-type: none"> <li>• Tether strain</li> <li>• Tripping over the tether</li> </ul>	<input type="checkbox"/> Ensure the tether is properly supported and having someone deliver the tether as the ROV enters the water <input type="checkbox"/> Ensure everyone is aware of the tether's location as well as their own surroundings	Mechanical Team	<b>TD</b>

<b>Launch</b>				
<b>Task</b>	<b>Potential Hazards</b>	<b>Controls</b>	<b>Person Responsible</b>	<b>Initial</b>
<b>Toolbox Talk</b>	<ul style="list-style-type: none"> <li>• Miscommunication</li> </ul>	<input type="checkbox"/> Any team member may call for operations to stop if conditions or actions are unsafe.	All members	<b>JJ</b>
<b>Poolside Operations</b>	<ul style="list-style-type: none"> <li>• Falling in water</li> <li>• Risk of drowning</li> <li>• Risk of electrocution</li> </ul>	<input type="checkbox"/> Ensure everyone is wearing proper footwear and maintaining awareness of the pool edge <input type="checkbox"/> Keeping computers and other electronics far from the poolside	Mechanical Team	<b>TD</b>

Post-launch				
Task	Potential Hazards			
<b>ROV Retrieval</b>	<ul style="list-style-type: none"> <li>● Risk of electrocution</li> <li>● Risk of falling in water</li> <li>● Risk of drowning</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> If any wires are exposed or the robot displays electrical abnormalities, no team member should enter the water.</li> <li><input type="checkbox"/> Team member assigned to retrieval must wear swimming appropriate attire and have swimming and treading water skills.</li> <li><input type="checkbox"/> All other members must keep their distance from the pool edge.</li> </ul>	Retrieval officer	<b>TD</b>
<b>Packing up materials</b>	<ul style="list-style-type: none"> <li>● Risk of electrocution</li> <li>● Risk of injuries associated with handling heavy and sharp materials</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Thoroughly dry off and neatly return all electronic equipment to assigned bins.</li> <li><input type="checkbox"/> Ensure that no one is handling materials that are too heavy for them.</li> <li><input type="checkbox"/> Ensure that everyone is aware of any potentially sharp objects on the robot.</li> </ul>	All members	<b>JJ</b>