

Job Safety Analysis

Name of Company: The Lincoln Group

Project: Constructing Half-Cut

Task	Hazards	Controls
Operating the thrusters	The propellers on the thrusters could possibly cause injuries, or could be damaged if they come into contact with other objects while running.	Add a motor shroud onto the thruster which covers the propeller yet still allows it to function. This shroud should have openings too small for fingers to fit in, and be strong enough to protect the propeller if the motor hits a wall or object.
Communication between the pilots and other members on the deck during the mission.	Miscommunication, leading to possible injuries to the members, or damage to the ROV.	Each time information is communicated between members it should be stated by the member giving the information, restated by the member that is receiving the information, and confirmed by the member giving the information.
Wiring on the ROV and electronics board	Wiring on the ROV could possibly be improperly waterproofed or have split wrappings leaving exposed wire which could cause electrocution in the water, or on land, as well as sparks on land leading to a fire.	Check the waterproofing and wrappings on all wires multiple times when they are being wired. Also do not touch the electronics board while it is connected to power. In addition to this have a fuse that accounts for the power the electronics usually use, to protect against possible surges.
Cut ends of Zip Ties and ends of the hose clamps	The cut ends of Zip Ties and the ends of the hose clamps are sharp and could cut someone.	For the Zip Ties, put a small amount of hot glue onto the sharp ends to make it smooth. For the hose clamps, wrap the end with electrical tape to smoothen it out and use zip ties to prevent them from protruding.
MOSFETs on the control board.	If the MOSFET is improperly made it could overheat and potentially catch fire. This could destroy the electronic board which could leave the power from the power source without a safe place to flow. While highly unlikely, this could lead to potential burn or electrocution hazards.	Check the MOSFETs during construction multiple times to insure it is correctly made. Once correctly finished epoxy the MOSFETs to ensure that the wires do not disconnect or touch. If the MOSFET begins to overheat, disconnect power promptly and allow it to cool. Check for any wiring or short circuiting issues. Consider replacing it.
Gears on the tool packages	The gears on the tool packages turn, which could pinch fingers or wires causing injuries or damage to the ROV.	Keep fingers away from the tool packages while they are running, and have clear communication with the person operating them. The wires should be secured so that there is not enough slack to allow them to catch in the gears.

Unstable PVC in the frame	Unstable PVC connections could cause the frame to break apart leading to potential safety hazards.	Make certain each PVC part is inserted into the others securely. Continue to check that the frame stays intact periodically.
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Required Training: All new members will receive basic instructions before starting any new task. Any member wanting to use power tools will receive direct instruction from Mr. Bruns about their safe and proper use and potential dangers of using the equipment incorrectly.

Required Personal Protective Equipment: Safety goggles, face shields, heat resistant gloves, masks, and aprons will all be used at appropriate times throughout working on this project.

Contributors: Tool Package Team Member, Luke Merrick; PR Team Member, Tara Wagoner; PR Team Lead, Long Tran.

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