

# ROV Safety Analysis

Linn Benton Community College 2019

BASIC JOB STEPS	POTENTIAL HAZARDS	RECOMMENDED RISK CONTROL MEASURES	RESPONSIBLE PERSON (S)	INITIAL
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## Preliminary Measures

Charging batteries	Overcharging / Causing fire	Have one person to actively monitor battery / always touch power then the ground	Power manager: Jason Pfahler	
	Touching poles / Electrocutation	Wear gloves / only touch alligator clips (and only alligator clips) one at a time	Power manager: Jason Pfahler	
	Dropping battery box / Runaway reaction / Acid burn / Fire / Body contusions	Team lift / use carts /minimize movement /use handles	Power manager: Jason Pfahler	

## Top side (Pre-Checks)

Connect the extension cord to the 120 V AC outlet	Electrocutation / Fire / Shorting the wire close to water	Thoroughly inspect cord and outlet for damage and insure nothing comes in contact with leads when plugging in cord.	Copilot: Jenny Smucker	
Connect everything that is plugged in (Monitor, Air Compressor, Pneumatic Control, DVR)	Electrocutation / Fire / Shorting the wire close to water	Thoroughly inspect cords and outlets for damage and insure nothing comes in contact with leads when plugging in cord.	Pilot: Hunter Cato	
Connect the tether to the switch box	Electrocutation / Fire / Shorting the wire close to water	Thoroughly inspect wires and connector for damage and insure nothing comes in contact with leads.	Copilot: Jenny Smucker	
Connect the switch box to the 48V power supply	Electrocutation / Fire / Shorting the wire close to water	Thoroughly inspect wires and connector for damage and insure nothing comes in contact with leads	Copilot: Jenny Smucker	
Connect airlines to control box	Pinch hazard	Wear gloves	Copilot: Jenny Smucker	
Connect pnumatic control box to compressor	Pinch hazard / Air leaks	Wear gloves / Confirm ouput regulator is [off]	Copilot: Jenny Smucker	

## Bottom Side (Pre-Checks)

Tether (Square SubConn) to PCB (x3)	Electrocutation / Fire / Shorting the wire close to water	Thoroughly inspect plugs for damage and insure nothing comes in contact with leads.	Tether manager 1: Jesse Kayne	
Air hose to VBS [Yellow]	Pinch hazard / Air leaks	Wear gloves / Confirm ouput regulator is [off]	Tether manager 2: Jason Pfahler	
Air hose to claw [Purple] / [Blue]	Pinch hazard / Air leaks	Wear gloves / Confirm ouput regulator is [off]	Tether manager 2: Jason Pfahler	
Connect gray 8-pin plugs from tether to camera	Mix up with Arduino plug/electrical fire	Strict adherence t set up protocol	Tether manager 1: Jesse Kayne	
Connect orange 8-pin plugs from tether to Arduino	Mix up with camera plug/electrical fire	Strict adherence t set up protocol	Tether manager 1: Jesse Kayne	
Tether strain (x2)	Pinch hazard / Snag hazard	Wear gloves / Do not wear lose clothing or watches	Tether manager 1: Jesse Kayne	
2 Thrusters ONLY per PCB [Yellow]	Shorting PCB / Fire	Labels indicating where thrusters can be plugged in	Tether manager 2: Jason Pfahler	
Unravel tether	Trip hazard / Strangle hazard	Have a tether monitor to communicate to team members	Tether manager 2: Jason Pfahler	
All PCB holes are plugged	Short / Electrocutation	Visually inpect plugs / Use dummy plugs	CEO: Trinity James	

**Launch**

Trout grout [on]	Pinch hazard	Use two hands / Do not place fingers in hole	Demonstration assistant: Mike Furrer	
Placing ROV in water	Falling in pool / Snag hazard	Team lift ROV into water / Use legs, not back / Do not use loose-fitting clothing	Demonstration assistant: Mike Furrer	

**Operation**

Tether managment	Tripping on the tether	Take direction from tether monitoring team	Tether manager 1: Jesse Kayne & Tether manager 2: Jason Pfahler	
Retrieval of items	Falling in the pool / Snag hazard / Moving ROV	Team member spotting the retrieveer / Do not wear loose clothing or watches / Communicate with pilot	Demonstration assistant: Mike Furrer	
Retrieval of ROV	Falling in the pool / Snag hazard	Use team lift to extract ROV / no loose clothing	Demonstration assistant: Mike Furrer	