

Company CEO: \_\_\_\_\_

Company Name

Product demonstration station officials: \_\_\_\_\_

**Safety**

**Check here if the company has their PASSED safety inspection card**

Companies without their safety inspection PASSED card cannot participate in the product demonstration.

**Check here if tamper seal on fuse is still intact**

Companies with a broken tamper seal on their fuse must see the safety inspectors before their ROV enters the water.

**Check here if the company presented you with a JSA (Job Safety Analysis)**

<b>Organizational and Operational Effectiveness (up to 10 points)</b>	Points	
<b>Up to 4 points - Teamwork/Collaboration &amp; Communication</b>		
Chain of command evident	0	1
Roles clear and executed well	0	1
Composure under pressure	0	1
Supportive of each other and communicate well with each other	0	1
<b>Up to 2 points - Project Management</b>		
Task plan is well thought out to maximize score	0	1
Alternate plans available and all team members are aware of the plan	0	1
<b>Up to 2 points - Problem Solving &amp; Ability to Deal with Obstacles</b>		
Awareness of time	0	1
Adjusting timeline to adapt to situations	0	1
<b>Up to 2 points - System Design &amp; Control/Electrical</b>		
ROV deployed by the end of the 5-minute set-up period	0	1
ROV is under control of pilot and prepared to perform tasks	0	1
<b>Total Organizational and Operational Effectiveness (out of 10)</b>		<b>Total</b>

<b>Bonus points for weight</b>	Points		
<b>Weight bonus (up to 10 points)</b>	0	5	10
ROV is less than 15 kg – 10 bonus points			
ROV is between 15.01 kg and 20 kg – 5 bonus points			
ROV is between 20.01 kg and 25 kg – 0 bonus points			
Vehicles heavier than 25 kg may not compete			
	<b>Judge initials:</b> _____		<b>Total</b>
	<b>CEO initials:</b> _____		

**Fuses:** ROV systems are allowed one replacement fuse during the product demonstration. In the event that the ROV system blows the second fuse during the demonstration, time will stop, the demonstration run will be over, and no additional points will be earned. Companies should have adequate replacement fuses on hand, MATE will not provide replacements.

Task # 1: Marine Renewable Energy (up to 70 points)	Points			
<b>Judges' Notes:</b> Companies must complete the steps of task 1.1 "Install a floating solar panel array" in order. Companies must complete task 1.3 "Pilot into resident ROV docking station" as the final task.				
<b>1.1 up to 40 points – Install a floating solar panel array</b> 10 points – position a solar panel array amongst floating wind turbines 5 points each, 15 points total – moor the panel array to three anchor 5 points – remove the power port cover 10 points – install the power line connector into the power port	0	10	5	15
<b>1.2 up to 15 points - Remove biofouling from the foundation and mooring lines of floating wind turbines</b> 5 points – remove 1 to 2 biofouling from turbines 10 points – remove 3 to 5 biofouling from turbines 15 points – remove 6 biofouling from turbines	0	5	10	15
<b>1.3 up to 15 points - Piloting into "resident ROV" docking station</b> 15 points – docking autonomously or 10 points – docking manually	0	10		15
<b>Total Task # 1 (out of 70)</b>				<b>Total</b>

Task # 2: Heathy Environments From the Mountains to the Sea (up to 170 points)	Points			
<b>2.1 up to 30 points – Create a 3D model of a diseased coral head</b> o up to 30 points – autonomously 15 points – 3D model of the coral head is created 5 points – diameter measurement displayed on the model & is within 2 cm 5 points – height measurement displayed on the model & is within 2 cm 5 points – total area of diseased coral is displayed on the model & is within 2 square cm or	0	15	5	5
o up to 20 points – manually 5 points – measure the diameter of the coral head within 2 cm 5 points – measure the height of the coral head within 2 cm 5 points – calculate the total area of diseased tissue within 2 square cm 5 points – use the dimensions to create a 3D model of the coral head or	0	5	5	5
o up to 10 points – manually (paper) 5 points – create a technical drawing on paper of the coral head 5 points – the proper diameter, height and area of diseased coral displayed on the technical drawing	0	5	5	
<b>2.2 up to 15 points – Identify reef organisms using eDNA</b> 10 points – collect a water sample from above the coral head 5 points – use the eDNA data to identify coral reef fish species	0	10	5	
<b>2.3 up to 30 points – Administer Rx to diseased corals</b> o up to 10 points – light 5 points – position the simulated UV light source over the diseased area of coral 5 points – irradiate the diseased area of coral with simulated UV light	0	5	5	

<ul style="list-style-type: none"> <li>o up to 20 points – probiotics                             <ul style="list-style-type: none"> <li>10 points – place a tent over the diseased area of coral</li> <li>5 points – insert a syringe filled with "probiotic" fluid into the port</li> <li>5 points – inject a "probiotic" fluid into the tent</li> </ul> </li> </ul>	0	10	0	5	0	5	
<b>2.4 up to 15 points - Monitor and protect seagrass habitat</b> <ul style="list-style-type: none"> <li>5 points – compare images to determine recovery of a seagrass bed</li> <li>10 points – install an Eco-Mooring system to protect habitat</li> </ul>	0	5	0	10			
<b>2.5 up to 30 points - Reintroduce endangered native Northern Redbelly Dace fry</b> <ul style="list-style-type: none"> <li>5 points each, 10 points total – search two potential sites for invasive predatory fish species to determine which one is safe for release</li> <li>5 points – transport the fry to the safe release area</li> <li>5 points – allow the fry to acclimate to local conditions</li> <li>10 points – release the fry</li> </ul>	0	5	10				
<ul style="list-style-type: none"> <li>5 points – transport the fry to the safe release area</li> <li>5 points – allow the fry to acclimate to local conditions</li> <li>10 points – release the fry</li> </ul>	0	5	0	5	0	10	
<b>2.6 up to 30 points - Ensure the health and safety of Dillon Reservoir</b> <ul style="list-style-type: none"> <li>10 points – inspect the buoy ropes for damage</li> <li>5 points – determine the lift capability of your ROV</li> <li>10 points – lift the container</li> <li>5 points – return the container to the surface, side of the pool</li> </ul>	0	10	0	5	0	10	
<ul style="list-style-type: none"> <li>5 points – determine the lift capability of your ROV</li> <li>10 points – lift the container</li> <li>5 points – return the container to the surface, side of the pool</li> </ul>	0	5	0	10	0	5	
<b>2.7 up to 20 points - Monitor endangered Lake Titicaca giant frogs</b> <ul style="list-style-type: none"> <li>10 points – fly a transect</li> <li>5 points – count the number of frogs</li> <li>5 points – install a long term camera into a designated area</li> </ul>	0	10	0	5	0	5	
						<b>Total</b>	
						<b>Total Task # 2 (out of 170)</b>	

<b>Task # 3: MATE Floats! 2023 (up to 60 points)</b>	Points													
<b>3.1 up to 60 points – MATE Floats!</b> <ul style="list-style-type: none"> <li>5 points – prior to the competition, building an operational vertical profiling float</li> <li>10 points – float communicates with mission station prior to descending</li> <li>o up to 50 points – float completes vertical profiles                             <ul style="list-style-type: none"> <li>o up to 10 points – float completes 1st vertical profile                                     <ul style="list-style-type: none"> <li>10 points – float completes 1st profile using a buoyancy engine or</li> <li>5 points – float completes 1st profile not using a buoyancy engine</li> </ul> </li> <li>10 points – float communicates to mission station after vertical profile</li> <li>o up to 10 points – float completes 2nd vertical profile                                     <ul style="list-style-type: none"> <li>10 points – float completes 2nd profile using a buoyancy engine or</li> <li>5 points – float completes 2nd profile not using a buoyancy engine</li> </ul> </li> <li>15 points – float communicates to mission station after vertical profile</li> </ul> </li> </ul>	0	5	0	10	0	5	10	0	10	0	5	10	0	15
													<b>Total</b>	
													<b>Total Task # 3 (out of 60)</b>	

Penalty Points (deduct 5 points for each infraction)	No. of Infractions		
<b>Safety:</b> Product demonstration officials may deduct points for safety violations. Minor violations are a 5 point penalty. Major violations may be 10 or more points. Product demonstration officials may also disqualify a company for extreme safety violations. <b>Note: An official's decision to disqualify a company due to safety concerns is final. If there is a safety concern, please contact the lead safety inspector or competition coordinator.</b>			
<b>Tether Pulling:</b> Company members cannot pull on the tether to assist in moving or turning the vehicle. Judges should issue a warning for the first infraction and begin deducting points AFTER the first infraction.	a		
<b>Illegal communication:</b> Company members at the side of the pool may not communicate visual evidence of the ROV status such as location of vehicle, need to turn, that the vehicle is stuck, etc.	b		
<b>Debris:</b> Companies that leave debris (e.g. parts of their ROV, including weights and flotation) in the pool at the end of the product demonstration time, or leave debris that a diver must retrieve will receive penalty points. Product demonstration props are NOT considered debris. A company constructed collection basket is considered debris if it is still in the water, not under control of the ROV, when product demonstration time ends.	c		
<b>Diver Assistance:</b> Any diver assistance (if available) must be requested by the company and will result in a 5 point penalty. The clock does not stop during diver assistance.	d		
<b>Total Penalty Points</b>	(total a + b + c + d ) plus safety violations	<b>Total</b>	
	X 5 =		

TIME BONUS (1 point for every minute and 0.01 point for every second under 15 minutes)			
Duration of Product Demonstration: _____			
Minutes under 15 remaining: _____ X 1 point = _____			
Seconds remaining: _____ X 0.01 point = _____			
<b>Time bonus</b>	<b>Total</b>		

<b>TOTAL PRODUCT DEMONSTRATION SCORE</b>		<b>Grand Total</b>	
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Official's initials: \_\_\_\_\_

Company CEO's initials: \_\_\_\_\_