

**OFFSHORE OILFIELD  
PRODUCTION & MAINTENANCE**  
**EXPLORER CLASS SCORE SHEET**

Team Information Sticker

*ROVs in Extreme Environments: Science and Industry in the Arctic*

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

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

**Safety Check and Set-Up (up to 10 points total)**

- ❑ 5 points – Company presents signed safety inspection sheet.
- ❑ 5 points – Vehicle and control system present no safety hazards.  
Examples:
  - All power cords, power bars, pressurized cylinders, etc. are secured.
  - No hazardous materials are leaking onto the pool deck.
  - Vehicle is hand-launched by team members in a safe manner.

Company is cleared for demonstration: \_\_\_\_\_ (official's initials) \_\_\_\_\_ total points (out of 10)

**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.**

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

**Organizational and Operational Effectiveness (up to 10 points total)**

- |   |   |       |
|---|---|-------|
| • Up to 2 points – Organization                   |   | ✓     |
| ○ Chain of command evident                        | 1 | _____ |
| ○ Roles clear and executed well                   | 1 | _____ |
| • Up to 3 points – Task Plan                      |   |       |
| ○ Task plan is well thought out to maximize score | 1 | _____ |
| ○ Alternate plans available                       | 1 | _____ |
| ○ All team members are aware of the plan          | 1 | _____ |
| • Up to 2 points –Time Management                 |   |       |
| ○ Awareness of time                               | 1 | _____ |
| ○ Adjusting timeline to adapt to situations       | 1 | _____ |
| • Up to 3 points – Team Cooperation               |   |       |
| ○ Composure under pressure                        | 1 | _____ |
| ○ Supportive of each other                        | 1 | _____ |
| ○ Team communicates well with each other          | 1 | _____ |

**Total points (out of 10)** \_\_\_\_\_

**Penalty Points**

**Tether pulling:** Issue a warning for the first infraction. Begin deducting points AFTER the first infraction.

**Illegal communication:** Company members at the side of the pool may not communicate visual evidence of the ROV status (location, need to turn, etc.).

**Debris:** Companies that leave debris (e.g. parts of their ROV, including weights and flotation) in the pool such that a diver must retrieve the debris will also receive penalty points. Product demonstration props are NOT considered debris. A company constructed collection basket is considered debris.

**Diver Assistance:** None is being provided for this mission.

**Fuses**

If a vehicle blows the MATE power supply in-line fuse, the company is allowed one spare. If the vehicle blows the second MATE fuse, the product demonstration performance period is over. The company will receive points for the product demonstration tasks that they have completed up to that point but will not receive a time bonus score.

**EXPLORER Product Demonstration Task Scoring Breakdown:****Task #3: Offshore oilfield production and maintenance (up to 100 points)**

<b>Task #3: Offshore oilfield production and maintenance</b>	<b>Scoring – up to 100 points</b>
<b>Judges' Notes:</b> Companies may complete the steps of Task #3 in any order except for the following: Evaluating the pipeline map, checking and turning valves and verifying the flow through the pipeline (3.5, 3.6, and 3.7). These steps must be completed in order.	
<b>3.1 up to 40 points</b> – testing the grounding of 4 anodes by measuring voltage	_____
<b>3.2 5 points</b> – measuring the height of the top of the wellhead above the sea floor	_____
<ul style="list-style-type: none"> <li>○ <b>5 points</b> - ≤ 5 cm off true height</li> <li>○ <b>0 points</b> - &gt; 5 cm off true height</li> </ul>	
<b>3.3 5 points</b> – measuring the length of the wellhead above the sea floor	_____
<ul style="list-style-type: none"> <li>○ <b>5 points</b> - ≤ 5 cm off true height</li> <li>○ <b>0 points</b> - &gt; 5 cm off true height</li> </ul>	
<b>3.4 5 points</b> – calculating the inclination angle of the wellhead relative to the seafloor	_____
<ul style="list-style-type: none"> <li>○ <b>5 points</b> - ≤ 5 degrees of true angle</li> <li>○ <b>0 points</b> - &gt; 5 degrees of true angle</li> </ul>	
<b>3.5 5 points</b> – evaluating a map to determine which pathways need to be opened or closed to ensure flow through the specified pathway	_____
<b>3.6 10 points</b> – checking all six valves and turning the necessary valves to ensure flow through the specified pathway	_____
<b>3.7 up to 20 points</b> – moving water to verify flow through the correct pathway	_____
<ul style="list-style-type: none"> <li>○ <b>20 points</b> – flow comes out of only the intended pathway</li> <li>○ <b>10 points</b> – flow comes out intended pathway and another pathway</li> <li>○ <b>5 points</b> – flow comes out another pathway only</li> <li>○ <b>0 points</b> – no flow is detected out of any pathway</li> </ul>	
<b>3.8 10 points</b> – Determining the average flow rate, within 0.05 m/s, of water current over a 5 minute period	_____
<b>TOTAL POINTS FOR TASK #3</b> _____	

**SCORING SUMMARY WORKSHEET**

The purpose of this sheet is to allow you to verify and tally scores from the previous pages.

<b>SAFETY CHECK &amp; SET-UP</b>	
Signed safety inspection sheet	0 5
Vehicle and control system present no hazards	0 5
<b>ORGANIZATION</b>	
Company is effectively organized to undertake the product demonstration	0 1 2 3 4 5 6 7 8 9 10
<b>Safety check, set-up, and organization point total:</b>	
<b>Task #3: Offshore oilfield production and maintenance (up to 100 points)</b>	
Testing the grounding of anodes at four specified points	0 10 20 30 40
Measuring the height of the top of the wellhead from the seafloor	0 5
Measuring the length of the wellhead pipe above the seafloor	0 5
Calculating the inclination angle within 5 degrees of the true angle	0 5
Evaluating a map to evaluate what valves need to be opened or closed	0 5
Checking all six valves and turning the necessary valves to ensure oil flow	0 10
Moving water through the pipeline system to verify oil flow	0 5 10 20
Determining the average flow rate within 0.05 m/s	0 10
<b>Task #3 point total:</b>	

<b>PENALTY POINT DEDUCTIONS</b>	
*Illegally pulling tether _____ infractions X - 5	
*Illegal communication _____ infractions X - 5	
*** Leaving debris in the pool _____ infractions X - 5	
Exceeded 5-minute demobilization period _____ minutes X - 1 =	

<b>TIME BONUS</b>	
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 PRODUCT DEMONSTRATION SCORE</b>	

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