1. General Pool Event Rules

a. The ROV must move only under its own power. Teams will incur a 2-minute penalty if they pull or otherwise maneuver the ROV by the tether.

b. If the ROV or tether becomes tangled on the course structure or is otherwise unable to move on its own power, a team member must notify the judge that they would like to try to free the ROV, or request diver assistance to free or retrieve the ROV. Under this circumstance teams may pull on the tether, however the run timer will continue to time the run and a 2-minute penalty will be added to the elapsed time. If the ROV is pulled by the tether or moved by a diver, the ROV must be returned to the location that it was moved from before it may continue competing.

c. The team must use the same ROV that was presented at compliance for both pool events.

d. The ROV may be worked on or adjusted during competition, however the run timer will continue to run.

e. Adjustments to buoyancy, including adding or removing buoyancy materials, may be made at any time including during competition runs.

f. Parts connected to the ROV may be adjusted between the two pool events. However, no parts or materials may be added or removed to the ROV after compliance checks are completed with the exception of buoyancy material.

g. If a Beacon continuous mode activation device (magnet and holder designed to be left on the Beacon in order to set the Beacon into continuous mode) is used, it is not considered part of the ROV and does not have to be attached to the ROV during competition in the obstacle course. However, any part of the ROV designed to hold the Beacon continuous mode activation device is part of the ROV and must remain on the ROV during competition in the obstacle course.

h. A Beacon momentary mode activation device (magnet and holder designed to set the Beacon into momentary mode and not designed to be left on the Beacon) are considered part of the ROV and must remain on the ROV during competition in the obstacle course.

i. Only two team members are allowed on the pool deck in the competition area during an event.

j. The on-deck team members may switch drivers at any time and as many times as they choose.

k. All team members must wear shoes with rubber soles while on the pool deck.

l. Due to the number of teams competing and the short competition period, teams must make necessary adjustments to their ROV and control system before moving to the competition lane. Teams must make sure their tether cable is not tangled and that they are ready to compete with only a short setup period on the pool deck.

2. Obstacle Course Rules

a. Teams will be given a 1-minute setup period after arriving at the pool deck. Teams must make sure they can quickly adjust the ROV's buoyancy and make other necessary adjustments quickly. The lane judges will start the lane timer without delay.

b. Teams will be given up to two run attempts during a 10-minute competition period.

c. Teams may start their second run immediately after completing their first run but must wait for the judge to reset the stopwatch and give the start signal. Teams must move quickly since there is no extra time during the 10-minute period.

d. Teams may abort their first run at any time without completing the course if they are experiencing problems and want to assure they have enough time for a second run.

e. **Course Navigation**:

   i. *Start of run*: The ROV must be surfaced, within 6" of the wall, and under its own power. Team members are not allowed to touch the ROV after the lane judge starts the countdown to start the run.

   ii. The ROV is required to pass through each of the five obstacle course hoops in order starting at the hoop closest to the pool wall. The ROV must surface after clearing the hoop furthest from the pool wall. Surfacing is considered complete when any part of the ROV breaks the water surface. The ROV must re-submerge and pass through each of the 5 hoops in order heading back to the pool wall.

   iii. *End of Run:* The run is complete when the ROV touches the pool wall while surfaced (any part of the ROV breaks the water surface). The run will be aborted if the allotted 10 minutes expires even if the ROV has not completed the course.

3. Rescue & Recovery Mission Rules

a. Teams will be given a 2-minute setup period after arriving at the pool deck.

b. Teams are allowed one 13-minute run for the Rescue & Recovery Mission.

c. **Course Navigation**:

   i. *Start of run*: The ROV must be surfaced, within 6" of the wall, and under its own power. Team members are not allowed to touch the ROV after the lane judge starts the countdown to start the run.

   ii. No tasks are mandatory in order to complete other tasks; however, the Beacon may not be activated once the ROV passes through the cave entry hoop (the blue hoop).

   iii. With the exception of activating the Beacon the remaining tasks may be competed in any order, i.e. retrieve canisters and Recovery ROV sections in any order.

     iv. After activating or bypassing the Beacon the ROV must pass through the Cave entry hoop (the blue hoop). No points will be awarded if the ROV bypasses the Cave entry hoop or exits and goes around the Cave entry hoop.

     v. *Mission Completion (End of Run):* The ROV must exit the mission field through the Cave entry hoop. The mission is complete when the ROV touches the pool wall while surfaced (any part of the ROV is above the surface of the water). The run will be aborted if the allotted 13 minutes expires even if the ROV has not completed all tasks.

     vi. *Scoring:* Teams will only be awarded Finish Time Bonus points if all tasks within the course have been successfully completed. Teams that do not retrieve each canister by descending and ascending through the Vault hoop (the red hoop) will not be awarded Finish Time Bonus points.

d. Task 1 – The Beacon

     i. *Task Requirement*: The ROV must maneuver to the Beacon and either momentarily activate the LEDs (momentary mode) by passing a magnet close to the magnetic switch (marked with an orange robot head sticker) or leave a magnet on the Beacon in a position to turn on the LEDs such that they remain on until the magnet is removed (continuous mode).

     ii. *Scoring:*

          i. Momentary Mode: The judge must acknowledge the Beacon LEDs were turned on for any period of time.

          ii. Continuous Mode: The Beacon LEDs must remain on for the duration of the team's run. If the magnet does not stay in position to keep the Beacon in continuous mode, then only points for momentary mode will be awarded. If the Beacon LEDs switch off and it is found that the magnet stayed in position, but that the Beacon failed, then points will be awarded for continuous mode. Teams do not have to retrieve the magnet at the end of the run, it will be retrieved by a diver and returned to the team. If the continuous mode activation device is dropped and falls to the pool floor then it is considered out of play and may not be retrieved by the ROV.

     iii. *Other Notes:*

          i. Teams may choose to forfeit this task and proceed to subsequent tasks, however once the ROV enters the Cave entry hoop (the blue hoop), the points for this task will no longer be attainable.

          ii. A team may activate the Beacon in momentary mode before attempting to activate the Beacon in continuous mode in order to receive at least the minimum points in case their continuous mode activation fails. If the team activates the Beacon in continuous

mode after activating the Beacon in momentary mode they will receive only the points for the continuous mode activation.

e. **Task 2 – The Vault**
   i. *Task Requirement:* The ROV must open the Vault gate by pushing or pulling the gate latch.
   ii. *Scoring:*
      i. Points will be awarded upon successful unlatching and opening of the Vault.
      ii. Additional points will be awarded for each scored canister (up to 4 canisters) retrieved by the ROV descending through the Vault hoop retrieving the canister and ascending through the Vault hoop with the canister. If 4 canisters that are retrieved through the Vault hoop are scored then the team will receive an additional 2 point bonus.

f. **Task 3 – The Staging Station**
   i. *Task Requirement:* The ROV must retrieve canisters from under the Vault opening and place them on the Staging Station upper platform or the colored sockets on the staging station.
   ii. *Scoring:* Points are awarded for canister placement upon mission completion.
      i. Canisters placed on the Staging Station upper platform may be moved to a socket at any time before the mission is completed. Points will not be awarded for canisters that fall or are knocked off of the Staging Station.
      ii. For canisters placed in the sockets, points will be awarded only if the canisters are placed in the matching sockets. The large canister (blue top) must be placed in the blue socket. The medium size canister (yellow) must be placed in a yellow socket. The small canister (white) must be placed in the orange socket.
   iii. *Other Notes:*
      i. Canisters may be retrieved in any order but may only be retrieved and transported one at a time.
      ii. If a canister is dropped and falls to the pool floor it is considered out of play and may not be retrieved.
      iii. Four extra canisters are provided for each lane since dropped canisters are out of play. Only 4 canisters placed on the Staging Station may be scored; 1 small canister, 2 medium size canisters, and 1 large canister.

g. **Task 4 – ROV Recovery**

    i. *Task Requirement:* The stranded ROV sections must be moved from the recovery area and placed on the Vault platform.

    ii. *Scoring:* Points are awarded for ROV recovery when the mission is complete (when ROV returns to the pool wall and the timer is stopped).

        i. Points will not be awarded for stranded ROV sections that fall or are knocked off of the Vault platform.

    iii. *Other Notes:*

        i. The stranded ROV sections may only be recovered one at a time.

        ii. The mission ROV does not have to pass through the Vault hoop when placing the stranded ROV on the Vault platform.

        iii. If a stranded ROV section is dropped and falls to the pool floor it is considered out of play and may not be retrieved.