



# SAFETY MANAGEMENT MANUAL

## ATL 6.6 R/V ATLANTIS SWIMMER QUALIFICATIONS

Originator:

Theophilus Moniz III

Approved By:

Joseph L. Coburn, Jr.

### 1. Purpose

The purpose of this procedure is to set forth the requirements for a swimmer to qualify for Alvin Operations on the R/V Atlantis.

The launch and recovery of the submersible, DSV Alvin, requires the aid of two swimmers. The Chief Mate schedules swimmers on a rotating basis from a pool of qualified personnel. This is a voluntary activity. However, all swimmers should understand that this is a serious and potentially hazardous activity. Safety is of the utmost importance.

### 2. Responsibility

The Master is responsible to establish the criteria for an individual to qualify as a swimmer; the Chief Mate is responsible to see that swimmers are trained in accordance with the criteria.

Qualified swimmers are required to train new swimmers in the proper procedures and safety requirements, and to assess their progress.

### 3. References

Avon Operations  
Alvin Operations

### 4. General

To qualify to be considered for the training, all personnel must:

- Be competent swimmers
- Be in good physical condition
- Be assigned long enough to warrant the training involved

Training consists of:

- Observing two launches and two recoveries of Alvin from the Avon
- Assisting with two launches and two recoveries with the qualified swimmers
- Demonstrating a clear understanding of the overall operation, the specific duties of the swimmer and the uses of all the safety equipment

#### A. LAUNCH PROCEDURES

The following routine describes the duties of a swimmer for a submarine launch.



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1. About 30 minutes prior to the scheduled launch time, the swimmer should be ready for launch, fully turned out in wet suit (if necessary) weight belt, mask, fins, snorkel, etc.
2. The swimmers verify that the sea anchor and pigtail is secured in the Avon – in the event a launch becomes a recovery. The swimmers verify that any PPE (hardhats) required for boat operations are in the Avon.
3. The swimmers verify the charged air tank along with the pressure hoses and fitting are on board the Avon. This is part of the emergency equipment carried aboard the Avon for Alvin.
4. The swimmers check that the basket safeties are properly fairlead and attached.
5. The swimmers check that the manual vent valve is closed.
6. The swimmers take up stations on the sub and conduct a sound powered phone check with the pilot.
7. The swimmers visually check that the main lift line and the tail line are properly attached and the hook is latched.
8. As the sub is hoisted, the swimmers relay any abnormalities to the launch coordinator (i.e. thrusters turning, hydraulic leaks from the A-frame, etc).
9. When the sub is lowered into the water, the swimmers disconnect the main lift line from the T bar. As the line is retracted, the swimmers ensure it does not fetch up on any part of the sub. When the tail line is slacked, one swimmer moves into position to release the hook, which is then retracted. [The ship is also increasing thrust to move away from the sub].
10. One swimmer establishes communications with the pilot using the sound powered phone to verify the basket equipment is secure and that the basket safeties can be removed.
11. Once the pilot has given permission to remove the safeties, the safeties are slacked and freed from the upper hand hold. Both swimmers enter the water but only one should release the safety snap hook at the basket.  
**IMPORTANT: THE BASKET HOOKS ARE REMOVED FIRST, LEAVING THE SPONSON HOOKS ATTACHED TO THE D RINGS. THIS IS TO PREVENT THE SWIMMER FROM BECOMING ENTANGLED IN THE SAFETY LINES AND TAKEN DOWN SHOULD THE BASKET ACCIDENTLY RELEASE.**
12. The swimmers carefully remove the lines, ensuring they do not catch on or dislodge any equipment in the basket. The sponson hooks are then released and the leads to the sail pulled through the light bar. Once the safeties are removed, the swimmers climb aboard the sub again.
13. Communications are re-established with the pilot by one swimmer while the second turns on the sail light. The swimmer informs the pilot “basket safeties are



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off and the sail light is on." The pilot then instructs the swimmers to open the manual vent valve and depart for the Avon.

14. One swimmer carries the safety lines, while the other carries the sound powered phone – taking care not to get it wet.
15. Once the swimmers have boarded the Avon, the operator informs the pilot that the "swimmers are clear of the water."
16. Swimmers act as line handlers on cue from the Avon operator as they come alongside the ship.

### B. RECOVERY PROCEDURES

The following routine describes the duties of a swimmer for submarine recoveries:

1. Swimmers will be ready for the recovery 30 minutes prior to forecasted surface time. They must verify that the sea anchor, sound powered phone, basket safeties, and pigtail are in the Avon as well as the air bottle and hose attachments and fittings.
2. On the signal from the bridge, the Avon will be launched and swimmers will board as described in the Avon operations procedure.
3. The Avon operator drives to the projected surface location and all parties maintain a watch for the surfacing sub.
4. Once on station, the Avon operator places the engine in neutral prior to granting permission for the swimmers to enter the water.
5. One swimmer takes the sound powered phone to the sub and establishes communications with the sub's pilot. That swimmer also closes the manual vent valve and turns off the ID light. The pilot relays that the basket samples and/or equipment are secure or indicates what actions should be taken to secure basket items.
6. The second swimmer attaches the first basket safety (sponson padeye first and basket ring second). He then fairleads the bitter end through the light bar, inboard of light attachments. The line is then passed through the sail jam cleat, and the end is secured to the upper outer sail step. The first swimmer attaches the other safety line to the basket, following the same procedure.
7. The sea anchor is now passed to the swimmers on board the sub. The sea anchor is unrolled into the sail, leaving the snap hook out. One swimmer attaches the hook to the port side padeye. The slack is taken into the sail.
8. The swimmer that remains with the sub communicates with the pilot and advises the pilot on orienting the sub stern to and perpendicular to the ship for recovery. (Should the vessel come too close to the sub, the pilot can thrust away from the vessel.)
9. When the sub is abeam of the ship, the launch coordinator is informed and he directs the line handler on the ship to throw the topline to the Avon. The operator



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maneuvers so that the swimmer can retrieve the line, hook and float and then hauls about 20 feet of line into the boat.

10. As the Avon approaches the submarine, the swimmer in the Avon is poised to go into the water on cue from the Avon's operator. The swimmer moves quickly to the stern of the sub and attaches the towline to the sub's stern tow point. Once the connection is made, the swimmer indicates this by a 'high sign' hand signal. The swimmer then climbs onto the sub.
11. Once the towline slack has been taken up either by the forward momentum of the ship or reeling in the line, the sea anchor is removed from the sail and deployed. The pilot is informed by sound powered phone "under tow, sea anchor deployed."
12. The sub is reeled in under the extended A-frame.
13. The tail line is lowered first and one swimmer moves up to grab the hook and make the connection. The slack is taken up before the main lift line is lowered.
14. The main lift line is lowered next, and both swimmers reach out to grab the eye and slip it over the T bar keeping fingers from pinch points. One swimmer moves back onto the turtle deck and keeps tension on the line by holding it above the eye splice and leaning back until the slack is removed.
15. In order for the swimmers to exit off the sub, one swimmer must cross over to the other side of the sub. There is a critical timing to make this cross over. After the slack has been taken up is the optimum window to cross over – usually from the sub's port side to the starboard side position. The object is to enter the water on the side opposite to the streaming sea anchor. NEVER cross over between the main lift line and the submarine's sail. Always cross between the towline and the main lift line. In rough weather, the launch coordinator may indicate to the swimmers to ride the sub up if this is deemed prudent.

**WARNING: IN HEAVY SEAS THE HEAVING OF THE SHIP CAN BRING THE A-FRAME TELELEG ASSEMBLY DANGEROUSLY CLOSE TO, AND IN CONTACT WITH THE SUB AND SWIMMERS.**

16. Swimmers enter the water and swim towards the Avon as quickly as possible. Timing is important especially in heavy seas. Once aboard the Avon, the operator waits for the sub's landing and replacing safety lines prior requesting permission to return for recovery. [See Avon operator operations].

### C. SAFETY CONSIDERATIONS

The following should be considered prior to every evolution.

1. Weather (wind / sea / swell) is an ever-changing condition, which makes timing critical in many steps described in these procedures. Be aware of the crest and trough of the sea/swell.



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2. DSV Alvin operates in an uncontrollable environment where natural hazards are ever present. Sharks and other predatory animals can appear without warning.  
**STAY ALERT.**
3. Keep arms and legs away from line loops, bights and eyes, and away from thrusters/propellers.
4. Keep clear of drop weights and the basket.
5. Do not free dive under the sub.
6. The main lift line is a braided nylon line. Keep fingers out of the braids when handling. Fingers can be mashed if caught in the braids of the line when a strain is taken.
7. Do not allow watches, goggles, etc. to scratch the safety glass.
8. As Alvin is very expensive to operate, the samples collected are expensive. If samples or equipment are in danger of falling out of the basket, remove them to the Avon. Pay attention because misplacing them in the basket may contaminate samples.
9. Know how and where to hook up the air bottle to blow the sub's ballast tanks.

### 5. Recording

Upon completion of the above requirements to the satisfaction of the Chief Mate, 'Alvin Swimmer' will be added to the Training Section of the crewmember's personnel file in SafeNet.