



International Consensus Standards For Commercial Diving And Underwater Operations **5.37 5.37 POTABLE WATER DIVING OPERATIONS**

5.37.1 GENERAL

The intent of these guidelines is to address some of the more obvious requirements necessary for the conduct of safe commercial diving operations in potable water tanks and reservoirs.

5.37.2 OPERATING PROCEDURES

5.37.2.1 Non-isolated Storage Facility Operations

While the water facility operator may choose to isolate the facility from the system during underwater maintenance activities, it is recognized that isolation of the storage facility in order to undertake routine underwater maintenance may be inconvenient, or even impossible, as a result of system operating or design limitation.

Any diving operation conducted with the water storage facility in a non-isolated status may present potential hazards to the diver. This is due to the differential pressure created by the head of water versus the decreased pressure at the valve outlet location.

Under such conditions, a thorough JHA evaluation of the situation must be considered during planning and assessment and proper steps taken to ensure that the diver and equipment will not be subjected to the differential pressure. (See Section 5:17: Differential Pressure.)

Steps must be taken to ensure that the diver is aware of the fact that a particular valve will be open and that a differential pressure hazard exists. Care must be taken to furnish the diver with a detailed location of open valves and instruct the diver to remain clear of any such openings. The water facility operator **MUST** take part in discussions relative to diver safety in a non-isolated facility and be prepared to take appropriate action as agreed.



5.37.3 ISOLATED STORAGE FACILITY OPERATIONS

In the event that the water facility operator elects to isolate the water storage facility for the conduct of underwater maintenance activities, the facility shall be removed from service and isolated from the system prior to the commencement of any diving activity. All system primary and secondary inlet and outlet valves must be verified as locked and tagged “closed” by the designated person in charge (diving supervisor) of the diving operation.

In the event that storage facility valves must be inspected during diving operations, system valves farther upstream or downstream must be closed.

All valves critical to isolation of the water storage facility must be tagged in either the open or closed position as agreed during planning and assessment. Security of the valve(s) position must be assured, and that no valve can be opened without the expressed permission of both the water facility’s designated person in charge and the designated person in charge of the diving operation (diving supervisor).

Divers shall not enter the riser pipe in an elevated tank unless the tank has been isolated, locked, and tagged in accordance with Lockout/ Tagout procedures.

5.37.4 EQUIPMENT AND PERSONNEL REQUIREMENTS

All equipment and manning levels should be considered the recommended minimum for approaching this diving application, based on one dive and any applicable decompression required. Increased manning levels and additional equipment may be required for any diving in excess of one dive and any decompression required. Proper pre-job planning shall be conducted to ensure that the necessary levels of personnel and equipment are available for diving operations.

NOTE: It is strongly recommended that equipment used in these operations be solely dedicated to potable water operations only.

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5.37.4.1 Equipment

All diving and other equipment used for underwater inspection of potable-water storage facilities shall, wherever possible, be dedicated for that purpose only. If not feasible, all equipment intended for use in a potable-water storage facility shall be certified as having been thoroughly disinfected prior to arrival at the job site, and the dressed diver shall again be disinfected at the potable-water site.

Equipment to be used in potable-water storage facilities should, at a minimum, be disinfected by first removing all visible debris, dirt or other substances and then totally immersed in 200 PPM chlorine solution for a minimum of two minutes prior to use in potable water. Total immersion means that all outside surfaces of the equipment that will have contact with the potable water must be in continuous contact with the 200 PPM chlorine solution. The dressed divers shall be sprayed with a 200 ppm chlorine solution immediately before entering the water. Further information on disinfection procedures is available from the ANSI/AWWA Disinfection Standard.

Any equipment previously used in a contaminated water diving environment should not be used inside a potable water facility.

Scuba shall not be used in potable water facility operations.

- **Diver clothing.** Each diver shall wear a vulcanized rubber or other smooth surface material dry suit in good condition, free from tears, scrapes, damaged areas or other imperfections that may impair the integrity of the suit or serve as a site for bacteriological contamination. Further, the diver's dress, including the diving helmet and suit, shall provide complete encapsulation and isolation of the diver's body from the potable water.
- **Diving helmet.** The diver shall wear a diving helmet (a hard helmet that totally surrounds the diver's head in a dry environment) that is equipped with live voice communications and a neck dam that can be sealed to the suit, and can be fitted to accept a bailout system with shut-off valve. Further, the helmet shall, just as all of the diver's equipment and clothing, be considered a potential source of bacteriological contamination. The use of a diver band mask (any configuration of mask and breathing regulator that does not totally surround the diver's head with a dry helmet) shall be specifically prohibited except in the case of an emergency.

SAFETY

GENERAL REQUIREMENTS

- **For all diving operations intended to take place in an elevated structure, a means of rescue of personnel from the top of the structure shall be provided. A safe and effective means of lowering injured personnel from the top of such tanks will be provided.**
- **A means for rescue of diving personnel from an enclosed space or elevated height must be furnished as applicable, when required.**
When diving operations are being conducted on elevated tanks, increased manning levels shall be considered.