



DEPARTMENT OF LICENSING AND REGULATORY AFFAIRS
DIRECTOR'S OFFICE
CONSTRUCTION SAFETY STANDARDS

Filed with the Secretary of State on **June 1, 1994**

This rule takes effect 15 days after filing with the Secretary of State

(By authority conferred on the director of the department of consumer and industry services by sections 19 and 21 of Act No. 154 of the Public Acts of 1974, as amended, and Executive Reorganization Order No. 1996-2, being §§408.1019, 408.1021 and 445.2001 of the Michigan Compiled Laws)

R 408.43106, R 408.43109, R 408.43121, R 408.43155, R 408.43156, and R 408.43162 of the Michigan Administrative Code, appearing on pages 4251 to 4253, 4258, and 4259 of the 1979 Michigan Administrative Code and page 829 of the 1991 Annual Supplement to the Code, are amended as read to follows:

PART 31. DIVING OPERATIONS

TABLE OF CONTENTS

R 408.43101 Scope	1	R 408.43132 Procedures during dive; hand-held power tools and equipment.....	4
R 408.43103 Definitions; A to C.....	1	R 408.43133 Procedures during dive; explosives.	4
R 408.43104 Definitions; D.....	1	R 408.43134 Procedure during dive; termination.	4
R 408.43105 Definitions; F to M.	2	R 408.43141 Post-dive procedures; generally.....	4
R 408.43106 Definitions; N to S.....	2	R 408.43142 Post-dive procedures; record of dive.	4
R 408.43107 Definitions; T to W.	2	R 408.43145 Liveboating; generally.	5
R 408.43109 Emergencies.	2	R 408.43146 Liveboating; procedures.....	5
R 408.43111 Employer responsibilities.....	2	R 408.43151 Equipment; generally.	5
R 408.43112 Qualifications of dive team.	2	R 408.43152 Equipment; breathing gas supply hoses.	5
R 408.43113 Dive team assignments.	3	R 408.43153 Equipment, umbilicals.	5
R 408.43114 Safe practices manual.....	3	R 408.43154 Equipment, buoyancy control.....	5
R 408.43121 Pre-dive procedures; emergency aid.....	3	R 408.43155 Equipment; compressed gas cylinders.	5
R 408.43122 Pre-dive procedures; planning and assessment.	3	R 408.43156 Decompression chambers; operation; construction requirements.	5
R 408.43123 Pre-dive procedures; hazardous activities.....	3	R 408.43157 Equipment; gauges and timekeeping devices..	6
R 408.43124 Pre-dive procedures; employee briefing.	3	R 408.43158 Equipment; weights and harnesses.	6
R 408.43125 Pre-dive procedures; communications.	3	R 408.43161 Recordkeeping; recording and reporting.	6
R 408.43126 Pre-dive procedures; equipment inspection.	4	R 408.43162 Recordkeeping; availability of records.	6
R 408.43127 Pre-dive procedures; warning signal.	4		
R 408.43131 Procedures during dive; water entry and exit. .	4		

GENERAL PROVISIONS

R 408.43101 Scope

Rule 3101. This part pertains to the safe use and maintenance of equipment and procedures of the occupation of diving and the related support operations as used in construction operations. This part does not apply to a diving operation performed solely for recreational instruction purposes using open-circuit compressed-air SCUBA and conducted within the no-decompression limits.

R 408.43103 Definitions; A to C.

- Rule 3103.** (1) "Acfm" means actual cubic feet per minute.
- (2) "ATA" means atmosphere absolute.
- (3) "Bell" means an enclosed compartment, pressurized (closed bell) or unpressurized (open bell), which allows the diver to be transported to and from the underwater work area and which may be

used as a temporary refuge during diving operations.

- (4) "Bottom time" means the total elapsed time, measured in minutes, from the time when the diver leaves the surface in descent to the time that the diver begins ascent.
- (5) "Bursting pressure" means the pressure at which a pressurized device would fail structurally.
- (6) "Cylinder" means a pressure vessel for storage of gases.

R 408.43104 Definitions; D.

- Rule 3104.** (1) "Decompression chamber" means a pressure vessel for human occupancy, such as a surface compression chamber, pressurized bell, or deep diving system used to decompress divers and to treat decompression sickness.
- (2) "Decompression sickness" means a condition with a variety of symptoms which may result from

gas or bubbles in the tissues of divers after pressure reduction.

- (3) **“Decompression table”** means a profile or set of profiles of depth-time relationships for ascent rates and breathing mixtures to be followed after a specific depth-time exposure or exposures.
- (4) **“Dive location”** means a surface or vessel from which a diving operation is conducted.
- (5) **“Dive location reserve breathing gas”** means a volume tank or dependent supply of air or mixed gas at the dive location sufficient, under standard operating conditions, to allow the diver to reach the surface.
- (6) **“Dive team”** means divers and support employees involved in a diving operation, including the designated person in charge.
- (7) **“Diver”** means an employee in the water using underwater apparatus which supplies compressed breathing gas at the ambient pressure.
- (8) **“Diver-carried reserve breathing gas”** means a diver-carried supply of air or mixed gas sufficient, under standard operating conditions, to allow the diver to reach the surface, a bell, or be rescued by a standby diver.
- (9) **“Diving mode”** means a type of diving requiring specific equipment, procedures, and techniques, such as SCUBA, surface-supplied air, or mixed-gas diving.

R 408.43105 Definitions; F to M.

- Rule 3105.** (1) **“Fsw”** means feet of seawater or equivalent static pressure head.
- (2) **“Heavy gear”** means diver-worn deep-sea dress, including helmet, breast-plate, dry suit, and weighted shoes.
 - (3) **“Hyperbaric conditions”** means pressure conditions in excess of surface pressure.
 - (4) **“Inwater stage”** means a suspended underwater platform which supports a diver in the water.
 - (5) **“Liveboating”** means the practice of supporting a surface-supplied air or mixed gas diver from a vessel which is underway.
 - (6) **“Mixed-gas diving”** means a diving mode in which the diver is supplied in the water with a breathing gas other than air.

R 408.43106 Definitions, N to S.

- Rule 3106.** (1) **“No decompression limits”** means a combination of the depth of a dive and the bottom time that permits a diver to return to the surface without decompression, as expressed in the provisions of Volume I Air Diving, revision II, December 1988, and Volume II Mixed Gas Diving, revision III, May 1991, of the United States Navy diving manual which are adopted in these rules by reference and may be inspected at the Lansing office of the department of consumer and industry services. These volumes may be purchased at a cost as of the time of adoption of these rules of \$34.00 and \$24.00, respectively, from the Superintendent of Documents, Government Printing Office, Public Document Department, Washington, DC 20402, or from the Michigan Department of Consumer and Industry Services, Safety Standards Division, 7150 Harris Drive, Box 30643, Lansing, Michigan 48909.
- (2) **“O.H. rule”** means an occupational health rule incorporated by reference pursuant to section 14 of

Act No. 154 of the Public Acts of 1974, as amended, being §408.1014 of the Michigan Compiled Laws. Copies of these rules are available from the Michigan Department of Consumer and Industry Services, 3500 N. Logan, Box 30649, Lansing, Michigan 48909, at no cost as of the time of adoption of this rule.

- (3) **“Psig”** means pounds per square inch, gauge.
- (4) **“Qualified employee”** means one who, by extensive knowledge, training, and experience, has successfully demonstrated his or her ability to solve or resolve problems relating to the subject matter, the work, or the project.
- (5) **“SCUBA diving”** means a diving mode independent of surface supply in which the diver uses open-circuit self-contained underwater breathing apparatus.
- (6) **“Standby diver”** means a diver at the dive location who is available in a sufficient state of readiness to assist a diver in the water.
- (7) **“Surface-supplied air diving”** means a diving mode in which the diver in the water is supplied from the dive location with compressed air for breathing.

R 408.43107 Definitions; T to W.

- Rule 3107.** (1) **“Treatment table”** means a depth-time and breathing gas profile used in the treatment of decompression sickness.
- (2) **“Umbilical”** means the composite hose bundle between a dive location and a diver or bell, or between a diver and a bell, which may supply a diver or bell with breathing gas, communications, power, and heat and may include a safety line.
 - (3) **“Volume tank”** means a pressure vessel connected to the outlet of a compressor and used as an air reservoir.
 - (4) **“Working pressure”** means the maximum pressure to which a pressure containment device may be exposed under standard operating conditions.

R 408.43109 Emergencies.

Rule 3109. An employer may deviate from the requirements of these rules to the extent necessary to prevent or minimize a situation which is likely to cause death, serious physical harm, or major environmental damage if the employer complies with both of the following provisions:

- (a) Notifies the department of consumer and industry services within 48 hours of the onset of the emergency situation and indicates the nature of the emergency and the extent of the deviation from these rules.
- (b) Upon request from the department of consumer and industry services or public health, submits the information specified in subdivision (a) of this rule in writing.

R 408.43111 Employer responsibilities.

Rule 3111. The employer shall be responsible for compliance with both of the following:

- (a) All provisions of these rules of general applicability.
- (b) All requirements pertaining to specific diving modes to the extent diving operations in the modes are conducted.

R 408.43112 Qualifications of dive team.

Rule 3112. (1) The employer shall ensure that each dive team member has the experience and training

necessary to perform assigned tasks in a safe and healthful manner. The training and experience shall include all of the following:

- (a) The use of tools, equipment, and systems relevant to assigned tasks.
 - (b) Techniques of the assigned diving mode.
 - (c) Diving operations and emergency procedures.
 - (d) Familiarity with the contents of the safe practices manual required by R 408.43114.
- (2) All dive team members shall be trained in cardiopulmonary resuscitation and first aid by the American red cross or equivalent organizations.
 - (3) Each dive team member who is exposed to or controls the exposure of others to hyperbaric conditions shall be trained in diving-related physics and physiology.

R 408.43113 Dive team assignments.

- Rule 3113.** (1) The employer or an employee designated by the employer shall be at the dive location and shall be in charge of all aspects of the diving operation affecting the safety of dive team members.
- (2) The designated person in charge shall have experience and training in the conduct of the assigned diving operation.
 - (3) Each dive team member shall be assigned tasks in accordance with the employee's experience or training, except that limited additional tasks may be assigned to an employee undergoing training if these tasks are performed under the direct supervision of an experienced dive team member.
 - (4) The employer shall not require a dive team member to be exposed to hyperbaric conditions against the employee's will, except when necessary to complete decompression or treatment procedures.
 - (5) The employer shall not permit a dive team member to dive or be otherwise exposed to hyperbaric conditions for the duration of any temporary, physical impairment or condition which is known to the employer and is likely to adversely affect the health of a dive team member.

R 408.43114 Safe practices manual.

- Rule 3114.** (1) The employer shall develop and maintain a safe practices manual which shall be made available to each dive team member at the dive location.
- (2) The safe practices manual shall contain a copy of these rules, the employer's policies for implementing their requirements, and all of the following:
 - (a) Operating procedures and checklists for diving operations.
 - (b) Assignments and responsibilities of the dive team members.
 - (c) Equipment procedures and checklists.
 - (d) Emergency procedures for fire, equipment failure, adverse environmental conditions and medical illness, and injury.

R 408.43121 Pre-dive procedures; emergency aid.

- Rule 3121.** (1) A list of all of the following telephone or call numbers shall be kept at the dive location:
- (a) An operational decompression chamber, if not at the dive location.
 - (b) Accessible hospitals.
 - (c) Available physicians.

(d) Available means of transportation.

- (e) The nearest United States coast guard rescue coordination center.
- (2) A first aid kit which is appropriate for the diving operation and which is approved by a physician shall be available at the dive location.
 - (3) When used in a decompression chamber or bell, the first aid kit shall be suitable for use under hyperbaric conditions.
 - (4) In addition to any other first aid supplies, an American red cross standard first aid handbook or equivalent and a bag-type manual resuscitator with transparent mask and tubing shall be available at the dive location.

R 408.43122 Pre-dive procedures; planning and assessment.

Rule 3122. (1) Planning of a diving operation shall include an assessment of the safety and health aspects of all of the following:

- (a) Diving mode.
 - (b) Surface and underwater conditions and hazards.
 - (c) Breathing gas supply, including reserves.
 - (d) Thermal protection.
 - (e) Diving equipment and systems.
 - (f) Dive team assignments and physical fitness of dive team members, including any impairment known to the employer.
 - (g) Repetitive dive designation or residual inert gas status of dive team members.
 - (h) Decompression and treatment procedures, including altitude corrections.
 - (i) Decompression tables.
 - (j) Emergency procedures.
- (2) Decompression, repetitive, and no-decompression tables, as appropriate, shall be at the dive location.

R 408.43123 Pre-dive procedures; hazardous activities.

Rule 3123. To minimize hazards to the dive team, diving operations shall be coordinated with other activities in the vicinity which are likely to interfere with the diving operation.

R 408.43124 Pre-dive procedures; employee briefing.

- Rule 3124.** (1) Dive team members shall be briefed on all of the following:
- (a) The tasks to be undertaken.
 - (b) Operating procedures for the diving mode.
 - (c) Any unusual hazards or environmental conditions likely to affect the safety of the diving operation.
 - (d) Any modifications to operating procedures necessitated by the specific diving operation.
- (2) Prior to making individual dive team member assignments, the employer shall inquire into the dive team member's current state of physical fitness, and indicate to the dive team member the procedure for reporting physical problems or adverse physiological effects during and after the dive.

R 408.43125 Pre-dive procedures; communications.

Rule 3125. An operational 2-way voice communication system shall be provided as follows:

- (a) At the dive location to obtain emergency assistance.
- (b) Between each surface-supplied air or mixed-gas diver and a dive team member at the dive location or bell.

- (c) Between the bell and the dive location.

R 408.43126 Pre-dive procedures; equipment inspection.

Rule 3126. The breathing gas supply system, including reserve breathing gas supplies, masks, helmets, gauges, timekeeping devices, thermal protection, and bell handling mechanisms, when appropriate, shall be inspected prior to each dive.

R 408.43127 Pre-dive procedures; warning signal.

Rule 3127. A warning flag shall be fully displayed when diving as follows: Any person diving or submerging in any of the waters of this state with the aid of a diving suit or other mechanical device shall place a buoy or boat in the water at or near the point of submergence. The buoy or boat shall bear a red flag not less than 14 inches by 16 inches with a 3 1/2 inch white stripe running from 1 upper corner to a diagonal lower corner. The flag shall be in place only while actual diving operations are in progress. A vessel shall not be operated within 100 feet of a buoyed diver's flag unless it is involved in tending the diving operation. A person diving shall stay within a surface area of 100 feet of the diver's flag.

R 408.43131 Procedures during dive; water entry and exit.

- Rule 3131.** (1) A means capable of supporting the diver shall be provided for entering and exiting the water.
- (2) The means provided for exiting the water shall extend below the water surface.
- (3) A means shall be provided to assist an injured diver from the water or into a bell.

R 408.43132 Procedures during dive; hand-held power tools and equipment.

- Rule 3132.** (1) Tools and equipment shall be qualified for underwater use.
- (2) Hand-held electrical tools and equipment shall be de-energized before being placed into or retrieved from the water.
- (3) A hand-held power tool shall not be supplied with power from the dive location until requested by the diver.
- (4) A current supply switch to interrupt the current flow to the welding or cutting electrode shall be:
- (a) Tended by a dive team member in voice communication with the diver performing the welding or cutting.
- (b) Kept in the open position except when the diver is welding or cutting.
- (5) The welding machine frame shall be grounded and a ground wire shall be connected directly to the work.
- (6) Welding and cutting cable, electrode holders, and connections shall be capable of carrying the maximum current required by the work, and shall be properly insulated.
- (7) Insulated gloves shall be provided to divers performing welding and cutting operations.
- (8) Prior to welding or cutting on a closed compartment, a structure, or a pipe, which contains a flammable vapor or in which a flammable vapor may be generated by the work, the compartment, structure, or pipe shall be vented, bled, or purged with a mixture of gases which will not support combustion.

R 408.43133 Procedures during dive; explosives.

Rule 3133. (1) Explosives shall be transported, stored, and used as prescribed in this rule and the

applicable provisions of the construction safety standards commission standard, Part 27. Blasting and Use of Explosives, being R 408.42701 of the Michigan Administrative Code, or the general industry safety standards commission standard, 1910.109, Explosives and Blasting Agents, adopted by section 14 of Act No. 154 of the Public Acts of 1974, as amended, being §408.1014 of the Michigan Compiled Laws.

- (2) Electrical continuity of explosive circuits shall not be tested until the diver is out of the water.
- (3) Explosives shall not be detonated while the diver is in the water.

R 408.43134 Procedure during dive; termination.

Rule 3134. The working interval of a dive shall be terminated when any of the following occurs:

- (a) A diver requests termination.
- (b) A diver fails to respond correctly to communications or signals from a dive team members.
- (c) Communications are lost and cannot be quickly reestablished between the diver and a dive team member at the dive location, and between the designated person in charge and the person controlling the vessel in liveboating operations.
- (d) A diver begins to use diver-carried reserve breathing gas or the dive-location reserve breathing gas.
- (e) When the scheduled work interval has expired.

R 408.43141 Post-dive procedures; generally.

Rule 3141. (1) The employer shall comply with all of the following requirements which are applicable after each diving operation:

- (a) Check the physical condition of the diver.
- (b) Instruct the diver to report any physical problems or adverse physiological effects, including symptoms of decompression sickness.
- (c) Advise the diver of the location of a decompression chamber which is ready for use.
- (d) Alert the diver to the potential hazards of flying after diving.
- (e) Instruct the diver to remain awake and in the vicinity of the dive location for not less than 1 hour after a dive which requires a decompression chamber.

R 408.43142 Post-dive procedures; record of dive.

Rule 3142. (1) All of the following information shall be recorded and maintained for each diving operation:

- (a) Names of dive team members, including the designated person in charge.
- (b) Date, time, and location.
- (c) Diving modes used.
- (d) General nature of the work performed.
- (e) Approximate underwater and surface conditions, such as visibility, water temperature, wind velocity, and current.
- (f) Maximum depth and bottom time for each diver.
- (2) For each dive for which a decompression chamber is required, all of the following additional information shall be recorded and maintained:
- (a) Depth-time and breathing gas profiles.

- (b) Decompression table designation, including any modification.
- (c) Elapsed time since last pressure exposure, if less than 24 hours, or repetitive dive designation for each diver.
- (3) For each dive in which decompression sickness is suspected or symptoms are evident, all of the following additional information shall be recorded and maintained:
 - (a) Description of decompression sickness symptoms, including depth and time of onset.
 - (b) Description and results of treatment.

R 408.43145 Liveboating; generally.

Rule 3145. Diving operations involving liveboating shall not be conducted during any of the following conditions:

- (a) With an inwater decompression time of greater than 120 minutes.
- (b) Using surface-supplied air at depths deeper than 190 fsw, except that dives with bottom times of 30 minutes or less may be conducted to depths of 220 fsw.
- (c) Using mixed gas at depths greater than 220 fsw.
- (d) In rough seas with a wave height of more than 3 feet.
- (e) In other than daylight hours.

R 408.43146 Liveboating; procedures.

- Rule 3146.** (1) The propeller of the vessel shall be stopped before the diver enters or exits the water.
- (2) A device shall be used which minimizes the possibility of entanglement of the diver's hose in the propeller of the vessel.
 - (3) Two-way voice communication between the designated person in charge and the person controlling the vessel shall be used while the diver is in the water.
 - (4) A standby diver shall be available while a diver is in the water.
 - (5) A diver-carried reserve breathing gas supply shall be carried by each diver engaged in liveboating operations.

R 408.43151 Equipment; generally.

Rule 3151. Equipment modification, repair, test, calibration, or maintenance service shall be recorded by means of a tagging or logging system, and shall include the date and nature of the work performed, and the name or initials of the person performing the work.

R 408.43152 Equipment; breathing gas supply hoses.

- Rule 3152.** (1) Breathing gas supply hoses shall meet all of the following criteria:
- (a) Have a working pressure of not less than the working pressure of the breathing gas system.
 - (b) Have a rated bursting pressure of not less than 4 times the working pressure.
 - (c) Be tested initially and not less than annually thereafter to 1.5 times their working pressure.
 - (d) Be tensile tested before being placed into initial service after any repair, modification, or alteration, by subjecting each hose-to-fitting connection to a 200-pound axial load and by passing a visual examination for evidence of separation, slippage, or other damage to the assembly.
 - (e) Be inspected prior to each diving operation for cuts, kinks, soft spots, or bubbles.

- (f) Have their open ends taped, capped, or plugged when not in use.
- (2) Breathing gas supply hose connectors shall meet all of the following criteria:
 - (a) Be made of corrosion-resistant materials.
 - (b) Have a working pressure at least equal to the working pressure of the hose to which they are attached.
 - (c) Be resistant to accidental disengagement.

R 408.43153 Equipment, umbilicals.

Rule 3153. Umbilicals shall meet all of the following criteria:

- (a) Be marked and labeled in 10 feet increments to 100 feet beginning at the diver's end, and in 50 feet increments thereafter.
- (b) Be made of kink-resistant materials.
- (c) Have a working pressure greater than the pressure equivalent to the maximum depth of the dive relative to the supply source plus 100 psi.

R 408.43154 Equipment, buoyancy control.

- Rule 3154.** (1) Helmets or masks connected directly to the dry suit or other buoyancy changing equipment shall be equipped with an exhaust valve.
- (2) A dry suit or other buoyancy changing equipment not directly connected to the helmet or mask shall be equipped with an exhaust valve.
 - (3) When used for SCUBA diving, a buoyancy compensator shall have an inflation source separate from the breathing gas supply.
 - (4) Except when the diver is wearing a variable volume suit, an inflatable flotation device capable of maintaining the diver at the surface in the face-up position, having manually activated inflation source independent of the breathing supply, an oral inflation device, and an over pressure relief device or exhaust valve shall be used for SCUBA diving.

R 408.43155 Equipment; compressed gas cylinders.

Rule 3155. A compressed-gas cylinder shall be in compliance with all of the following provisions:

- (a) Be designed, constructed, and maintained pursuant to the applicable provisions of 29 C.F.R. §1910.101, which were incorporated by reference pursuant to section 14 of Act No. 154 of the Public Acts of 1974, as amended, being §408.1014 of the Michigan Compiled Laws.
- (b) Be stored in a ventilated area and protected from excessive heat.
- (c) Be secured from falling.
- (d) Have shutoff valves recessed into the cylinder or protected by a cap, except when in use or manifolded or when used for SCUBA diving.
- (e) Be subjected to internal inspection for rust and corrosion not less than annually.

R 408.43156 Decompression chambers; operation; construction requirements.

- Rule 3156.** (1) A qualified employee shall be available to operate the decompression chamber for not less than 1 hour after a dive for which a decompression chamber is required. The qualified employee may be a dive team member or another employee who is qualified to operate the decompression chamber.
- (2) The decompression chamber operator shall have available, at the chamber location, necessary treatment tables, treatment gas appropriate to the

diving mode, and sufficient gas to conduct treatment.

- (3) A muffler on each decompression intake and exhaust line and the suction guard on the exhaust line shall be regularly inspected and maintained.
- (4) A 2-way voice communication system shall be provided between the occupants of other separately pressurized compartments and a dive team member at the chamber location.
- (5) A decompression chamber shall be maintained and operated to minimize sources of ignition and combustible materials in each compartment.
- (6) A decompression chamber that is capable of recompressing the diver at the surface to the maximum depth of the dive shall be available at the dive location for dives deeper than 300 fsw.
- (7) The decompression chamber shall be a dual-lock, multiplace chamber and shall be located within 5 minutes of travel time from the dive location.
- (8) A decompression chamber that is manufactured after October 20, 1977, shall be built, stamped, and maintained in accordance with the provisions of ASME code, section viii, 1974, and the addenda thereto through 1989, and the pvho-1, 1990 edition, which are adopted in these rules by reference and which may be inspected at the Lansing office of the Michigan department of consumer and industry services. Section viii of the ASME code and pvho-1 may be purchased at a cost as of the time of adoption of these rules of \$310.00 and \$97.00, respectively, by ordering from the American Society of Mechanical Engineers, United Engineering Center, 345 East Forty-seventh Street, New York, New York 10017, or from the Michigan Department of Consumer and Industry Services, Safety Standards Division, 7150 Harris Drive, Box 30643, Lansing, Michigan 48909.
- (9) A decompression chamber that was manufactured before October 20, 1977, shall be maintained in compliance with the code requirements to which it was built or their equivalent.
- (10) A decompression chamber shall be of dual lock construction and shall be large enough to accommodate a diver and a person or persons to render treatment.
- (11) A decompression chamber shall be equipped with all of the following:
 - (a) An interior and exterior pressure gauge for each compartment that is designed for human occupancy.
 - (b) A built-in breathing system that has a minimum of 1 mask per occupant.
 - (c) A means to maintain the oxygen level in the chamber atmosphere below 25% by volume.
 - (d) A viewport that allows the entire length of all bunks to be seen from the exterior.
 - (e) Illumination that is sufficient to light the interior to allow for the viewing of the occupants, the reading of gauges by an occupant, and operation of installed systems within each compartment.
 - (f) A sound-powered telephone system or other emergency backup communications systems.
 - (g) A means of operating all installed man-way locking devices from both sides of a closed hatch.
 - (h) A capability to supply breathing mixtures at the maximum rate required by all occupants

sufficient to maintain the interior atmosphere below 2% equivalent carbon dioxide by volume.

- (i) A means of overriding and controlling, from the exterior, all interior breathing and pressure supply controls.
- (12) Electrical equipment installed inside the chamber shall be explosion-proof.

R 408.43157 Equipment; gauges and timekeeping devices.

- Rule 3157.** (1) Gauges indicating diver depth which can be read at the dive location shall be used for all surface-supplied dives.
- (2) Each depth gauge shall be dead-weight tested or calibrated against a master reference gauge initially and every 6 months thereafter, and shall also be tested when there is a discrepancy of more than plus or minus 2% of full scale between any 2 equivalent gauges.
 - (3) A timekeeping device shall be available and monitored at each surface-supplied dive location.
 - (4) A cylinder pressure gauge capable of being monitored by the diver during the dive shall be worn by each SCUBA diver.
 - (5) A timekeeping device shall be worn by each SCUBA diver in a position to be monitored by the diver.

R 408.43158 Equipment; weights and harnesses.

- Rule 3158.** (1) Divers shall be equipped with a weight belt or assembly, capable of quick release, except when heavy gear is worn.
- (2) Except when heavy gear is worn or except in SCUBA diving, each diver shall wear a safety harness with all of the following:
 - (a) A positive buckling device.
 - (b) An attachment point for the umbilical to prevent strain on the mask or helmet.
 - (c) A lifting point to distribute the pull force of the line over the diver's body.

R 408.43161 Recordkeeping; recording and reporting.

- Rule 3161.** (1) The employer shall record and report occupational injuries and illnesses pursuant to department of consumer and industry services requirements of Part 11. Recording and Reporting of Occupational Injuries and Illnesses, being R 408.22101 et seq. of the Michigan Administrative Code.
- (2) In addition, the employer shall record the occurrence of any diving related injury or illness which requires any dive team member to be hospitalized for 24 hours or more, specifying the circumstances of the incident and the extent of any injuries or illnesses.

R 408.43162 Recordkeeping; availability of records.

- Rule 3162.** (1) Upon request of the director of the department of consumer and industry services or the director of the department of public health, the employer shall make available for inspection and copying any record or document required by these rules.
- (2) Upon the request of any employee, former employee, or authorized representative, the employer shall make available for inspection and copying any record or document required by these

- rules that pertains to the individual employee or former employee.
- (3) Records and documents required by these rules shall be retained by the employer for the following periods:
- (a) Dive team member physician reports — 5 years.
 - (b) Safe practices manual — current document only.
 - (c) Depth-time profile — until completion of the recording of the dive or until completion of decompression procedure assessment if there has been an incident of decompression sickness.
 - (d) Recording of dive — 1 year, but 5 years if there has been an incident of decompression sickness.
 - (e) Decompression procedure assessment evaluations — 5 years.
 - (f) Records of hospitalizations — 5 years.
 - (g) Equipment inspections and testing records — current entry or tag until equipment is withdrawn from service.



Michigan Occupational Safety and Health Administration
PO Box 30643
Lansing, Michigan 48909-8143
Ph: 517.322.1845

The Department of Licensing and Regulatory Affairs will not discriminate against any individual or group because of race, sex, religion, age, national origin, color, marital status, disability, or political beliefs. Auxiliary aids, services and other reasonable accommodations are available upon request to individuals with disabilities.