PORT OF FUJAIRAH DIVING CODE

Practice for Commercial Diving

Revision no. 3

Port of Fujairah
ميناء الفجيرة
Port of Fujairah
United Arab Emirates

www.fujairahport.ae

Port of Fujairah Diving Code Practice for Commercial Diving

Revision History

Date	Reason	Revision
17-02-2014	Initial Publication	
01-05-2014	Add Injury / Incident Report Form	Revision no.1
01.11.2022	Revision of the contents, forms and procedures. a) Diving Work Permit b) Diving Project Plan c) Master Declaration d) Accident Report e) Checklist for Diving Company registration or Renewal	Revision no.2
12.10.2023	Documents submission procedure	Revision no.3

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1. Purpose

The purpose of this code is to provide instructions, guidelines and best industry practices in a clear and complete format for Diving Companies/Contractors.

2.Associations

All Diving companies have the right to choose the convenient diving association for them to become a member of it, which they deem appropriate for their business, provided that must be from the following Associations only:

- **The International Marine Contractors Association (IMCA)**
- **Association Of Diving Contractors International (ADCI)**

3.Scope

The Port of Fujairah recommends all individuals, companies, clients, and members of ADCI or IMCA concerned with the safety of commercial diving and underwater operations to follow and comply with the below industry practices publication:

IMCA Members: IMCA International Code of Practice for Offshore Diving.

ADCI Members: International Consensus Standards for Commercial Diving and Underwater Operations.

Nothing contained in the above publication shall be construed to take the place of any law, rule or regulation imposed by the UAE Government and Port of Fujairah. In case the national regulations, codes and/or standards are more stringent than they must take precedence over the above publication.

Diving companies should have a diving management system (DMS), which should contain the management of health, security, safety, environment and quality as a part of the overall company management.

Relevant international Regulations and Guidelines such IMCA,ADCI,HSE,OSHA,NFPA,IMO, standards will be the baseline/reference line for the requirement that have not been referred in this code.

4.Compliance Audit Procedure:

All Diving companies should have the following compliance audit procedure in place

- The International Marine Contractors Association (IMCA) member-**Annually**
- Association Of Diving Contractors International (ADCI) member -**Every 5 yearly**
- Internal-Audit Report by both IMCA/ADCI member companies- **Annually**

The Audit report should be submitted to the Port of Fujairah upon successful completion.

5.Port of Fujairah Requirements

5.1 Diving Operation in Fujairah Offshore Anchorage Area (FOAA)

Requirements:

- Written Approval from the HSE department 48 hrs before the activity.
- Permission from the Control Tower before and after conducting the Diving operation.

Documents Submission

- Diving Work Permit
- Diving Project Plan
- Risk assessment
- Method Statement
- Master Declaration

Restrictions

- Diving companies are not permitted to clean the ship's hull above the waterline.
- Diving operations involving SCUBA are not permitted.
- Scrapping / De-rusting / Removal of paint activities are not permitted.
- Diving operations are not permitted during STS.
- Diving operations at SPM are restricted to daylight only.
- Diving operations at the SPM decompression chamber must be available on-site.

5.2 Diving Operation in Port & Service Harbour

Requirements:

- Written Approval from HSE department 48 hrs before the activity.
- Permission to be taken from the Control Tower before and after conducting the Diving operation.

Documents Submission

- Diving Work Permit
- Diving Project Plan
- Risk assessment
- Method Statement
- Master Declaration

Restrictions

- Diving operations involving underwater Hull Cleaning/Propellor polishing are not permitted.
- Diving companies are not permitted to clean the ship's hull above the waterline.

- Diving operations involving SCUBA are not permitted.
- Under Water Ship husbandry is not permitted at FOTT.
- Main Engine immobilization if any, permission is required from Marine Department.
- If any Navy vessel is around, permission is to be taken from Security Department.

5.3 Diving Operation Involving Hot Work

Requirements:

- Written Approval from HSE department 48 hrs before the activity.
- Permission from the Control Tower before and after conducting the Diving operation.
- Main Engine immobilization permission is required from the Marine Department.

Documents Submission

- Diving Work Permit
- Diving Project Plan
- Risk assessment
- Method Statement
- Master Declaration
- Gas free, Safe for entry and Hot work permit Certificate
- Hot Work-Master Declaration

5.4 Ship's Hull Irregularities Observed during the underwater inspection

During hull inspection or hull cleaning if the divers detect any damages on the hulls of ships at Fujairah Offshore Anchorage or in the Port of Fujairah must be reported immediately to the Port Authority.
Failure in reporting any such irregularities to the Port Authority would invite severe penalties including legal action.

6.Duties, Roles and Responsibilities

Responsibilities

It is a duty of any person, including proprietors and managers of diving companies, who has responsibility for or control over a diving operation to ensure that diving is reasonably practicable, safe and is carried out in a safe and healthy manner. A diving contractor should be appointed to be directly responsible for a diving operation. The following summarizes the responsibilities of various parties directly involved in an industrial diving operation, diving contractor, diving supervisor and diver who are required to comply with the duty imposed under ADCI & IMCA.

6.1 Clients and Their Representative

Definition The client who has placed a contract with a diving contractor for a project. The client will usually be the operator or owner of a proposed or existing installation or pipeline where diving work is going to take place or a contractor acting on behalf of the operator or owner. If the operator or owner appoints an on-site representative then such a person should have the necessary experience and knowledge to be competent for this task; such as marine agents The main contractor carrying out work for the client and overseeing the work of the diving contractor according to the contract. If the main contractor appoints an on-site representative then such a person should have the necessary experience and knowledge to be competent for this task. The installation or offshore manager who is responsible for the area inside which diving work is to take place; The master of a vessel (or floating structure) from which diving work is to take place who controls the vessel and who has overall responsibility for the safety of the vessel and all personnel onboard and will need to inform the diving supervisor of any possible change in position-keeping ability as soon as it is known, so he need to liaise closely at all times throughout the operation with the diving supervisor and the diving contractor.

The Client responsibilities

Agreeing to provide facilities and extend all reasonable support to the diving supervisor or contractor in the event of an emergency. Details of the matters agreed should form part of the planning for the project.
Considering whether any underwater or above-water items of the plant or equipment under their control may cause a hazard to the diving team. Such items include:

- Vessel/floating structure propellers and anchor wires
- Underwater obstructions
- Pipeline systems under pressure test or with a pressure lower than the pressure at the diver work location
- Subsea facilities
- Water intakes or discharge points causing suction or turbulence
- Gas flare mechanisms that may activate without warning
- Equipment liable to start operating automatically
- Appropriate isolations and barriers (mechanical, electrical, optical, hydraulic, instrumentation isolations and barriers)

- The diving contractor will need to be informed of the location and exact operational details of such items in writing and in sufficient time to account for them in the risk assessments;
- Ensuring that sufficient time and facilities are made available to the diving contractor at the commencement of the project in order to carry out all necessary site-specific safety and familiarization training;
- Ensuring that other activities in the vicinity do not affect the safety of the diving operation. They may, for example, need to arrange for the suspension of supply boat unloading, overhead scaffolding work, bunkering etc.;
- Ensuring that a formal control system, for example, a permit-to-work system, exists between the diving team, the installation manager, Port's safety officer and/or the master;
- Providing the diving contractor with details of any possible substance likely to be encountered by the diving team that would be a hazard to their health, e.g. drill cuttings on the seabed. They will also need to provide relevant risk assessments for these substances. This information should be provided in writing and in sufficient time to allow the diving contractor to carry out the relevant risk assessments;
- Providing the diving contractor with information about any impressed current system on the work site or in the vicinity and details of the system. This information should be provided in writing and in sufficient time to allow the diving contractor to carry out the relevant risk assessments;
- Keeping the diving supervisor informed of any changes that may affect the diving operation, e.g. vessel movements, deteriorating weather etc.

6.2 Diving Contractor

Definition

On any diving project there needs to be one company in overall control of the diving operations. This will normally be the company who employs the divers. If there is more than one company employing divers then there will need to be a written agreement as to which of these companies is in overall control. The company in control is called the diving contractor. The name of the diving contractor should be clearly displayed and all personnel, clients and others involved in the diving operation should be aware who the diving contractor is. The diving contractor will need to define a management structure in writing. This should include arrangements for a clear handover of supervisory responsibilities at appropriate stages in the operation, again recorded in writing.

The diving contractor's responsibilities

- A diving project plan;
- An overall quality management system which includes a safety management system;
- Appropriate insurance policies ensuring full compensation for divers involving accidents at work;
- Risk assessments for mobilization/demobilization, the operation of the equipment and work tasks to be undertaken and the contingency/ emergency plans;
- A management of change procedure;
- A safe and suitable place from which operations are to be carried out;

- The diving contractor shall ensure that there are sufficient people with suitable competence to carry out safely and without risk to health both the diving project and any action (including the giving of first-aid) which may be necessary in the event of a reasonably foreseeable emergency connected with the diving project.
- Suitable plant and equipment supplied, audited and certified in accordance with the relevant IMCA or ADCI documents, and including equipment supplied by diving personnel;
- Plant and equipment correctly and properly maintained;
- A suitable plan which includes emergency and contingency plans;
- Sufficient personnel of the required grades in the diving team;
- Personnel holding valid medical and training certificates and qualified and competent in accordance with the IMCA or ADCI Training, Certification & Personnel Competence tables;
- Suitable site-specific safety and familiarization training provided to all members of the dive team;
- Adequate arrangements to ensure that the supervisor and dive team are fully briefed on the project and aware of the content of the diving project plan and the dive plan;
- Project records kept of all relevant details of the project, including all diving operations;
- A procedure for near-miss and incidents/accidents reporting, investigation and follow-up;
- Adequate arrangements for first aid and medical treatment of personnel;
- Clear reporting and responsibility structure laid out in writing;
- Diving supervisors appointed in writing and the extent of their control documented;
- The latest approved version of the diving contractor documents and plans at the work site and being used;
- All relevant regulations/standards complied with as mentioned earlier, such as this code and IMCA or ADCI.

6.3 Diving Supervisor

Definition

- Supervisors are appointed by the diving contractor in writing and are responsible for the operation that they have been appointed to supervise. Unless an offshore manager or diving superintendent has been provided by the diving contractor then the diving supervisor is the diving contractor's representative at the work site. A diving supervisor should only hand over control to another supervisor appointed in writing by the diving contractor. Such a handover will need to be entered in the relevant operations logbook.
- Supervisors can only supervise as much of a diving operation as they can personally control both during routine operations and if an emergency should occur.
- The supervisor with responsibility for the operation is the only person who can order the start of a dive, subject to appropriate work permits etc. Other relevant parties, such as a diving superintendent, offshore manager, ship's master, client representative or the installation manager, can, however, tell the supervisor to terminate a dive for safety or operational reasons.
- There will be times, for example during operations from a DP vessel, when the supervisor will need to liaise closely with other personnel, such as the vessel master or the DP operator. In such circumstances, the supervisor must recognize that the vessel master has responsibility for the overall safety of the vessel and its occupants.

- The supervisor is entitled to give direct orders in relation to health and safety to any person taking part in, or who has any influence over, the diving operation. These orders take precedence over any company hierarchy. These orders could include instructing unnecessary personnel to leave a control area, instructing personnel to operate equipment, etc.

The diving supervisor responsibilities

- They should satisfy themselves that they are competent to carry out this work and that they understand their own areas and levels of responsibility and who is responsible for any other relevant areas. Such responsibilities should be contained in the relevant documentation. They should also ensure that they are in possession of a letter from the diving contractor appointing them as a diving supervisor. Have adequate knowledge, training and familiarization with all life-support and ancillary equipment designated to the diving operations.
- Be fully cognizant of all relevant governmental regulatory agency regulations that apply to the diving operation and the diving mode employed, and the employer's basic safe practices/operations manual. See that all rules and regulations are followed.
- They will need to make sure that the personnel they are to supervise are competent to carry out the work required of them. They should also check, as far as they are reasonably able, that these personnel are fit and in possession of a valid medical certificate of fitness;
- While actually on duty, be in immediate control and available to implement emergency procedures. The diving supervisor is not permitted to dive unless another qualified diver is present who has also been appointed and designated to assume responsibility.
- The diving supervisor must also ensure, prior to commencing a diving operation, in addition to parties directly involved in the diving operation, that masters of craft, pilots of submersibles, harbor masters, managers of off shore installations, pipelines, civil engineering sites, inland waterways, and all persons responsible for anything that affects the diving operation are advised that diving or underwater operations are to be undertaken.
- They will need to check that the equipment they propose to use for any particular operation is adequate, safe, properly certified and maintained. They can do this by confirming that the equipment meets the requirements set down in this code. They should ensure that the equipment is adequately checked by themselves or another competent person prior to its use. Such checks should be documented, for example, on a pre-prepared checklist, and recorded in the operations log for the project;
- They will need to ensure that all possible foreseeable hazards have been evaluated and are fully understood by all relevant parties and that, if required, training is given. In addition, prior to commencement of a project an on-site job safety analysis (JSA) needs to be carried out. If the situation has changed, further risk assessment and management of change will need to be undertaken. They will need to ensure that the operation they are being asked to supervise complies with the requirements of this code and IMCA or ADCI code.
- Personally inquire if all personnel on the dive team are qualified and physically able to perform tasks assigned. Make an assessment of the physical condition of the divers prior to each dive to determine if any physical impairment is present that would be detrimental to the diver's health and safety in the water or under hyperbaric conditions.

- They will need to establish that all involved parties are aware that a diving operation is going to start or continue. They will also need to obtain any necessary permission before starting or continuing the operation, normally via a permit-to-work system from port's safety officer.
- The supervisor will need to have clear audible and, if possible, visual communications with any personnel under their supervision. For example, a supervisor will be able to control the raising and lowering of a diving bell adequately if there is a direct audio link with the winch operator, even though the winch may be physically located where the supervisor cannot see it nor have ready access to it.
- Ensure diving operations are carried out from a suitable and safe location on the surface
- The supervisor will need to have direct communications with any diver in the water at all times, even if another person needs to talk to, or listen to the diver
- Be aware of the procedures to follow to obtain medical support in the event of an accident, either diving or non-diving related. Ensure a two-way communication system is available at the dive location to obtain emergency assistance.
- Develop or modify and produce pre- and post-dive checklists for the operation.
- Ensuring that proper records of the diving operations are maintained.

6.4 The Diver

Definition

The diver is assigned by the diving supervisor or designated diving person in charge (DPIC) to perform various duties.

The diver’s responsibilities

- Inform the diving supervisor if there is any medical or other reason why they cannot dive.
- Ensure that their personal diving equipment is working correctly and is suitable for the planned dive;
- Ensure that they fully understand the dive plan and is competent to carry out the planned task;
- Comply with all commands and instructions from the diving supervisor or designated diving person in charge (DPIC) during the conduct of diving operations.
- know the routine and emergency procedures;
- Ensure that the deepest depth attained during the dive has been established before the ascent.
- Safely transition from the water to the decompression chamber without avoidable delay.
- Report any equipment faults, other potential hazards, near misses or accidents;
- Report any medical problems or symptoms that they experience during or after the dive;
- Check and put away personal diving equipment after use;
- Keep their logbooks up to date and presenting it for signing by the diving supervisor after each dive.
- Maintain a high level of physical fitness.
- Act as a standby diver or tender when directed to do so. Be capable and qualified to carry out all of the duties and responsibilities of the diver as set forth above. (The standby diver is the individual possessing the required training and experience to enter the water at the diving station in order to render assistance to a stricken diver).

7.Diving Process & Team

7.1 Surface-supplied air diving:

Air diving using surface supplied equipment for carrying out work not exceeding 50 meters in depth.

Each diver is required to be continuously tended while in the water.

When diving is conducted in enclosed or physically confining spaces, another diver shall be stationed at the underwater point of entry. The diver stationed at the underwater point of entry is required in addition to any standby diver at the dive location.

Requires that each diving operation have a primary breathing-gas supply that is sufficient to support divers for the duration of the planned dive, including decompression.

For dives outside the no-decompression limits, each diver must: be tended by a separate dive-team member; have a standby diver available at the dive location while the diver is in the water; and have a diver-carried reserve breathing-gas supply, except when heavy gear is worn.

A reserve breathing-gas supply is required at the dive location for dives outside the nodecompression limits.The reserve breathing-gas supply required at the dive location must be on-line and ready for use, and its source must be independent of the primary breathing-gas supply. The reserve breathing-gas supply must be of sufficient quantity and pressure to allow each diver to complete any planned decompression schedule.

For surface-supplied air diving with heavy gear,outside the no-decompression limits, an extra breathing-gas hose must be available to the standby diver, and the hose must be capable of supplying breathing gas to the diver in an emergency. Also, an inwater stage must be provided for the diver(s) in the water.

A diver-carried reserve breathing-gas supply must be provided to a diver in the water when the diver is prevented by the configuration of the dive area from ascending directly to the surface (i.e., when the diver does not have “free access to the surface”), except when the diver wears heavy gear or when the physical space does not permit the use of such a breathing-gas supply. The diver-carried reserve must be sufficient under operating conditions to allow the diver to reach the surface, or another source of breathing gas, or to be reached by a standby diver. Heavy-gear diving is exempted from these provisions because the gear carries its own reserve.

7.2 Mixed Gas Diving

Divers breathing a mixture of oxygen and nitrogen or helium under pressure, whether compressed natural air or an artificial mixture, are at risk of both oxygen toxicity and nitrogen narcosis as the depth increases. The diving procedures will therefore need to specify the maximum depth for the mixture being used. Breathing mixtures other than oxygen and nitrogen (or air) will need to be used when diving takes place deeper than 50 meters of water.

When nitrox diving is carried out the partial pressure should not exceed 1.5 bar absolute. For diving exceeding 50 meters in depth, bell diving should be used in which the diver is transported in a diving bell from the surface to the work site underwater and then returned to the surface in the bell and subsequently to a surface recompression chamber for decompression.

A separate dive-team member is required to tend each mixed-gas diver in the water. A standby diver must be available while a diver(s) is in the water

A separate tender must be assigned to each mixed-gas diver at all times, and a standby diver must be available to assist the mixed-gas diver(s) in the water. Therefore, for mixed-gas diving, a tender cannot be a standby diver unless a qualified dive-team member is available to assume the tender's duties.

When diving is conducted in enclosed or physically confining spaces, another diver must be stationed at the underwater point of entry to assist in tending the diver in the space.

The diver stationed at the underwater point of entry is required in addition to any standby diver at the dive location.

Requires a primary breathing-gas supply sufficient to support divers for the duration of any planned dive, including decompression.

A reserve breathing-gas supply is required at the dive location for all mixed-gas dives.The reserve breathing-gas supply required at the dive location must be on-line and ready for use, and its source must be independent of the primary breathing-gas supply. The reserve breathing-gas supply must be of sufficient quantity and pressure to allow each diver to complete any planned decompression schedule.

When a mixed-gas diver wearing heavy gear is in the water, an extra breathing-gas hose must be available to the standby diver, and the hose must be capable of supplying breathing-gas to the diver in the water during an emergency. Also, an inwater stage must be provided for a diver wearing heavy gear

An inwater stage is required for divers who do not have access to a diving bell for dives deeper than 100 fsw or dives outside the no-decompression limits.

When a closed diving bell is used, a dive-team member must be available in the diving bell to tend the diver in the water.

A diver-carried reserve breathing-gas supply is required when diving outside the no-decompression limits, or when the diver is prevented by the configuration of the dive area from directly ascending to the surface (i.e., when the diver does not have "free access to the surface"), except when heavy gear is worn or when the physical space does not permit the use of such a breathing-gas supply.

7.3 Dive team

Dependant on the requirements of the dive project will depend on the number of divers required in the team, this can only be identified upon completion of the risk assessment. Individuals will perform more than one duty whilst employed in the team and should be competent in the role they are tasked.
At no time shall a diver operate individually without support from the surface, to that effect the dive contractor shall plan in advance the minimum number in the team required to conduct the dive in accordance with international regulations for differing types of diving such as:

Surface supplied diving using air:	1. Dive supervisor 2. Working diver 3. Standby diver 4. Tender for the working diver 5. Tender for the standby diver/first aider
Surface supplied diving using nitrox:	1. Dive supervisor 2. Working diver 3. Standby diver 4. Tenders (2 nos.) Note: Two of which shall be first aid qualified.
Surface supplied diving using mixed gas:	1. Dive supervisor 2. Qualified divers (5 nos.) Note: One of which shall be a qualified diver medic.

The diving contractor will need to specify the size of team based on the details of the project and the risk assessment. For safe operation, this may need to include additional deck support personnel and other management or technical support personnel, such as project engineers or maintenance technicians. The diving contractor will need to provide a sufficient number of competent and qualified personnel to operate and maintain all the equipment and to provide support functions to the diving team, rather than relying on personnel provided by others for assistance (e.g. clients, ship crews, etc.). If personnel who are not employed by the diving contractor are to be used in the diving team for any reason, such as technicians, they will need to be carefully considered for competence and suitability before being included. Such personnel can create a hazard to themselves and others if they lack familiarity with the contractor's procedures, rules and equipment. There will be exceptions to this requirement such as technicians employed by the vessel owner. In such circumstances, these personnel, whose principal duties may be associated with the diving or ship's equipment, may form part of the diving team. Such an arrangement will need to be confirmed in writing, together with the

responsibilities of these individuals. To allow a diving operation to be conducted safely and effectively a number of eventualities should be considered when deciding team size and make up including the following:

- Type of task;
- Type of equipment (air, saturation etc.);
- Deployment method;
- Location;
- Water depth;
- Operational period
- Handling of any foreseeable emergency situations.
- The overriding factor must always be the safety of personnel during operation and maintenance. It is the absolute responsibility of the diving contractor to provide a well-balanced, competent team of sufficient numbers to ensure safety at all times. When a dive is taking place, a diving supervisor (or a life support supervisor for chamber operations only during closed bell/ saturation diving) will need to be in control of the operation at all times. For larger projects, more than one supervisor may be needed on duty and a diving superintendent to be in charge of the overall diving operation. Each supervisor will only be able to provide adequate supervision of a defined area of operations, including dealing with foreseeable contingencies or emergencies. **Minimum Personnel Requirements for all types of diving as mentioned in IMCA or ADCI codes.**

8. Competence, Qualifications and Training of Divers

8.1 Diving Personnel Qualifications and Certifications

All diving personnel engaged in commercial diving and underwater operations must be properly trained in accordance with the IMCA/ADCI rules, regulations and standards.

All diving personnel engaged in commercial diving and underwater operations need to hold a valid certification card reflective of the assigned tasks to be performed. The certification card should be either issued by

1-IMCA
2-ADCI
Or
3-IMCA/ADCI approved schools/Institutes.

It is the responsibility of the Diving company to verify the authenticity of the Certification card.

Basically, any diver (including standby diver and extra diver) or other diving team member who is competent to take part in an industrial diving operation should have the training and experience necessary to perform the assigned task in a safe manner. Regarding competence to dive in a particular diving mode, a diver should have training and experience in various aspects of the respective mode, specified in IMCA or ADCI codes. Documentary proof of competence can be a certificate, obtained by training or assessment of experience up to international standard.

The training and experience in general terms should include:

- Technique of the required diving mode;
- The assigned underwater work;
- The use of tools, equipment and system relevant to the assigned task; and
- Safe practices and emergency procedures.
- Member companies of the ADCI or IMCA employ persons to perform as certified commercial divers in the following categories:
- Entry-level tender/diver.
- Air diver.
- Mixed-gas diver.
- Bell /Saturation diver.
- Air-diving supervisor.
- Mixed-gas diving supervisor.
- Bell /Saturation-diving supervisor.
- Bell /Saturation technician.
- Life-support technician.
- Deck crew/Riggers.

Competence is not the same as qualification. A person who has a particular qualification, such as a diver training certificate, should have a certain level of competence in that area but the diving contractor and the diving supervisor will need to make sure that the person has the detailed competence necessary to do the specific task required during the particular diving operation.

The different members of the diving team will require different levels and types of competence and qualifications as mentioned in ADCI or IMCA codes.

Diplomas issued by a civilian or military educational organization are for the purpose of attesting that an individual has received the necessary basic formal training to enter a vocational field. Such instruments should not be used to verify that the graduate can perform in the field without further on-the-job training and experience with actual demonstration of competency.

9. Medical Fitness of Diver

9.1 Certificate of Medical Fitness to Dive

All diving personnel engaged in commercial diving and underwater operations must be medically fit.
The requirements of the medical examination are as follows:

1. An initial medical examination.
2. Annual medical examination.
3. A re-examination after a diving-related injury or illness as needed to determine fitness to return to diving duty.

A valid Certificate of Medical Fitness to Dive should be issued by a medical practitioner must be with special experience in underwater or occupational medicine. The certificate of medical fitness to dive is a statement of the diver's fitness to perform work under water and is valid for as long as the doctor certifies, up to a maximum of 12 months. The certificate should contain the details specified in IMCA or ADCI codes and should be entered into the Diver's Log Book. A new certificate of fitness should be obtained if the diver has been sick for a continuous period of 10 days or more, or requires hospitalization of 72 hours or more. The physiology of diving and the problems encountered by an ill or injured diver are not subjects which most doctors understand in detail. For this reason it is necessary that any doctor who is involved in any way with examining divers or giving medical advice in relation to divers has sufficient knowledge and experience to do so. The medical examination looks at the diver's overall fitness for purpose. It includes the main systems of the body - cardio-vascular system, respiratory system, central nervous system - and ears, nose and throat, capacity for exercise, vision and dentition. The medical examiner of divers who certifies their fitness to dive needs to have an understanding of the working environment of the diver, which is normally gained by undertaking an appropriate training course. Such a doctor, however, may be unable to give the necessary advice in relation to treatment of decompression sickness or other diving related injury. It is very important that a diver should be physically and psychologically fit before commencing a diving operation. Diving should not be undertaken if the person is suffering from any illness. Common cold and any other respiratory tract infections are temporary disqualifying conditions for diving. To avoid emergencies caused by medical conditions and the development of long term health problems, a diver should be medically examined for fitness before employment for underwater work. He should be examined even before he commences training and at regular intervals of not exceeding 12 months during his career. A person is considered unfit to dive if he has any medical condition which:
May impair his safety or safety of other diving team members while diving;
May be significantly aggravated by diving; or
May significantly increase the likelihood of developing long term health problems associated with diving.
A minimum amount of medical equipment will need to be at a diving site to provide first aid and medical treatment for the dive team. First aid kits should be held in the diving bell, chambers and hyperbaric rescue facility. In addition specialized medical equipment needs to be held at the dive site. The minimum amount will depend on the type of diving, but a standard list has been agreed in ADCI or IMCA codes

9.2 Recognized Doctors to Perform Medical Examination:

The medical examinations are to be performed by licensed physicians qualified to perform commercial diver medical examinations based in UAE.The list of Doctors will be published through NTD (Notice to Diving).

9.3 Medical Management of Diving Accidents and Illnesses.

The Diving companies should have a medical retainer agreement with a licensed physician qualified to perform commercial diver medical treatment in case of emergency & decompression Illness. The list of Doctors will be published through NTD (Notice to Diving).

10. Decompression Illness after Diving

Divers are at risk of decompression illness (DCI) after diving. It is difficult to treat decompression illness if recompression facilities are not immediately available. The diving project plan will therefore need to specify that divers remain close to suitable recompression facilities for a set time following a dive.

The Decompression Chamber must be available inside the Port of Fujairah premises.

The Port of Fujairah permits a maximum of 5 Diving Companies to have a shared Decompression Chamber.

10.1 Air Decompression Policy

It is the Port policy not to plan or perform decompression diving. No exceptional exposure diving will be planned. If an emergency situation occurs where the no-decompression limit is exceeded due to entrapment, entanglement or timing device failure, in-water decompression is permitted to avoid injury to the diver. The U.S. Navy based Standard Decompression. Tables shall be used to calculate decompression depths and times. Normal diving procedures shall be conducted in the Unlimited /No- Decompression. Repetitive diving procedures will be followed carefully; each diver shall always know his repetitive group and last time of reached surface, so that surface intervals can be quickly determined for daily dive planning. The dive team supervisor shall ensure that all divers are trained on the use of standard and repetitive diving procedures.

For all other diving modes less than 30 Meters, all diving companies must have a decompression chamber available in Fujairah for any emergency, but for example if two diving companies share in One decompression chamber, so in case of illness (DCI) of any diver, Port of Fujairah has the right to cease the diving activity for both companies until the patient is treated.

Any diver showing signs or symptoms that cannot be attributed to any other cause must be treated for decompression sickness. Unless the treatment is taken care of by a medical specialist, the diving supervisor is responsible for carrying out first aid and treatment work, and where necessary should consult the diving contractor's medical adviser.

The majority of cases of decompression sickness occur within the hour or two following a dive. If decompression has been shortened or bypassed, the diver may suffer from decompression sickness before he reaches the surface. Occasionally however, decompression sickness may become apparent many hours or even days after a dive. Symptoms that occur after 24 hours (although less likely to be due to decompression sickness) should be referred for medical advice. If there is any doubt about making the diagnosis it should be assumed that the diver is suffering from decompression sickness and should be treated accordingly.

11. Work Planning & Risk Management Process

11.1 Safe Practice Manual

This standard requires that the employer develop and maintain a safe practices manual that includes information and procedures relating to the safety and health of the dive-team members. The manual must contain a copy of the commercial diving operations standard and a statement of the employer's policy for ensuring compliance with the standard. The manual must be at the dive location and available to all dive-team members

The safe practices manual must provide a written operational procedure for each diving mode used by the employer. The POF shall review the manual to determine if it contains safety procedures and checklists for diving operations, assignments and responsibilities of the dive-team members, equipment procedures and checklists, and emergency procedures (at a minimum: fire, equipment malfunction or failure, adverse environmental conditions, and medical illness and injury). The safe practices manual guidance and procedures must be supplemented with additional information specific to each diving operation

The manual should consist of documents such as:

- Dive site description
- Diving mode selection
- Surface and underwater conditions and hazard analysis
- Air supply requirements
- Diving equipment, systems and required support equipment
- Dive team assignments and responsibilities
- No-Decompression limits
- Emergency procedures (accident/near-accident and incident notification, reporting and investigation procedures)
- Evacuation procedures and recompression treatment procedures
- A management of change procedure
- Adverse weather working policy
- Diving/operating/maintenance procedures
- Mobilization/demobilization plans
- Step-by-step work procedures
- Contractors manuals (submitted one time only) and documentation
- Code, standards and reference documents
- Communication and responsibility organigrams
- Equipment audit reports and certification
- permits-to-work
- Minimum gas/breathing mixture requirements
- Any location-specific hazards identified by the client
- Suitable emergency and contingency plans, including: lost bell recovery; rescue of divers from a habitat; and hyperbaric evacuation for surface orientated and saturation diving operations. These should be agreed by all relevant parties

- Prior to commencement of the project a safety management system interface document should be in place, which reflects and defines the safety management interface between client, diving contractor, sub-contractors and third parties. The document should include the relevant documentation and management systems of all parties involved as well as the responsibilities, communication protocol, emergency response, operational procedures and practices for managing health and safety during the project.

Emergency aid.
Diving Supervisor shall determine whether the emergency aid list is complete and is available to all dive-team members. This list must contain the telephone or call numbers of: the nearest operational decompression chamber (if a chamber is not required at the dive location); accessible hospital(s); the available physician(s); the means of transportation available for use in the event of an emergency.

First aid supplies.
Diving Supervisor shall determine whether a first-aid kit is available at the dive location. The first-aid kit provided at the dive location must be appropriate for the diving operations, and approved by a physician. If it is to be used in a pressure chamber, such as a decompression chamber or a diving bell, the first-aid kit must be suitable for use under hyperbaric conditions because some items in a standard kit (such as bottles of liquid, mercury thermometers, or ammonia ampoules) may burst under pressure.A bag-type resuscitator with a transparent hose and mask (so that the operator can see that the diver's air passages are clear).

11.2 Risk Management Process

The diving contractor should have a risk management process in place which addresses the project lifecycle and should include the following:

- Risk identification meetings prior commencement of the development of step by step work procedures
- Final risk assessment when the step by step work procedures have been finalized
- Risk assessments of mobilization/demobilization plans and the contingency and emergency plan
- Mobilization and familiarization of the offshore personnel
- A job safety analysis (JSA) should be completed prior to initiating the work
- A toolbox meeting should be held at the start of each shift or prior to any high-risk operation
- Dive plan. This should be used for each dive to brief the divers. It should contain the tasks to be carried out, hazards, risks and precautions to be taken.

11.3 Risk Assessment

A Risk Assessment is nothing more than a common sense approach to identifying significant hazards; who is likely to be affected by those hazards; the risks associated with the hazards; what measures you will take to control the risks – thus reducing the harm to anyone during diving activities; recording the precautions / procedures you have put in place. The assessment needs to be reviewed periodically while the activity is ongoing or whenever there is a significant change A risk assessment should include the initial risk evaluation and risk

level (e.g. high, medium, low) and, if required, further risk reducing measures and the residual risk level. Based on the risk assessment the decision on whether the work can go ahead safely and what precautions need to be taken can be made. The risk assessment should also identify onshore/offshore personnel responsible for ensuring the precautions agreed during the risk assessment are carried out.

Definitions:

Hazard- anything can cause harm.

Risk - is the chance, high or low, that somebody will be harmed by the hazard.

11.4 Five Steps to Risk Assessment

Step 1: Look for the hazards.
Step 2: Decide who might be harmed and how.
Step 3: Evaluate the risks. Decide whether existing precautions are adequate or more should be done to lower the risk.
Step 4: Record your findings.
Step 5: Review your assessment and revise if necessary.

11.5 Equipment service and maintenance

Equipment such as helmets, masks, bailout systems, regulators, etc., that provide direct life support shall be of a type familiar to the diver and subject to a planned maintenance system. Due to the life-support nature of diving, personnel involved in the operation, maintenance and repair of diving systems and equipment shall have appropriate training and experience in the maintenance and use of type of equipment used. The diving supervisor shall ensure that all diving systems and equipment have been examined and tested prior to diving to determine their condition and suitability for service. No diving operation shall be permitted to commence until all systems and equipment have been thoroughly tested for proper functionality.

11.6 Maintenance Record

Suitable equipment logs shall be established and maintained in a correct and current condition. Life-support equipment shall have a unique identity traceable to the equipment/maintenance log. Entries made in the equipment log shall describe the nature of the work performed, including the dates of modification, repair or test; the name of the individual performing the work or test; and the particular piece of equipment involved. A preventive maintenance program is required for all life-support equipment.

11.7 Environmental Considerations

The safe and efficient deployment and operation of divers is dependent upon suitable environmental conditions. For any given situation the combination of these conditions can be dramatically different and it is the responsibility of the diving supervisor to assess all available information before deciding to conduct, to continue or to finish diving operations. Each diving contractor should normally define clear environmental limits (adverse weather working policy). Diving supervisors should also ensure that they understand the implications of any other limitations which apply to vessels/fixed and floating structures and deployment systems.

11.8 Communications

Effective communications are essential to ensure that all personnel directly involved in operations are made fully aware of the work being undertaken and that during operations all parties are kept aware of the status of any unusual situation. Communications between the diving team and any other relevant personnel (such as marine crew, DP operators, crane operator) are important for safe and efficient operation Effective communications are vital to the safety and success of any operation. To ensure this the diving supervisor needs to be given access to the communications service of the vessel or fixed/floating structure on which operations are based, as and when required. Continuous, two-way voice communications between the diver(s) and the surface will be maintained throughout the diving operation. If communications are lost, terminate the dive and use line pull signals for diver's ascent to surface Communication systems encompass all available media and equipment: word of mouth, reports, telephone, telex, email, fax, radio, etc. All such communications will need to be recorded, and the recording kept for minimum 24 hours before being erased. If an incident occurs during the dive, or becomes apparent after the dive the communication record will need to be retained until the investigation has been completed.

11. 9 Launch and Recovery Procedures and System Certification

Because of the variety of diving systems, support locations and deployment systems, it is not possible to define every launch/recovery procedure and system in this Code. A diving contractor should ensure that the launch and recovery system(s) used for diving operations have been tested and certified by a competent person. It is the responsibility of the diving supervisor to ensure that a safe launch/recovery procedure exists that is understood by all members of both the diving and the support installation crews. The procedure should progress in smooth, logical steps and be designed so that all personnel involved in the operation are fully aware of the situation at all times.

11.10 Hand-held power tools and equipment.

The standard does not require hand-held electric power tools used underwater to have a pressure-sensitive manual control switch. However, when electrically powered hand-held tools are used underwater, and the source of power is supplied from the dive location or a diving bell, the hand-held power tool shall not be supplied with power until requested by the diver. When the diver has finished work with the hand-held electricpower tool, the power to the tool will be de-energized from the dive location

11.11 Welding and burning

Where the dive work involves use of naked flame,then hot work permit and Gas free, Safe for entry and Hot work permit Certificate" shall be provided to obtain approval from HSE-Marine.

A current supply switch must be available to interrupt the current flow to the welding or burning electrode. The switch shall be tended by a dive-team member in voice communication with the diver performing the welding or burning. The disconnect switch must be in the open position unless the diver is actually welding or burning. The diving supervisor shall determine that the welding machine's frame is properly grounded by means of solid, metal-to-metal

contact on all ship's structure and/or shore ground connections. The ground connection also may be checked with a meter. The CSHO also shall determine that the cables,electrode holders and connections are insulated to prevent overheating or breakdown The employer must provide insulated gloves for the diver's protection.
prior to welding or burning on closed compartments, structures, or pipes that contain a flammable vapor or in which a flammable vapor may be generated by the work, they shall be vented, flooded, or purged with a mixture of gases that will not support combustion. "Closed compartments" as used in this paragraph, means any space that is enclosed by bulkheads and overheads (i.e., walls and ceilings), including large diameter pipes and other structures that, because of poor ventilation, could hold or contain a flammable gas or vapor. Prior to hot work, the employer must remove from closed compartments all flammable gases and vapors by ventilating, flooding, or purging with an inert-gas that will not support combustion. Venting alone is not sufficient unless it removes the flammable gases from the compartments. Closed compartments, structures, and pipes already under flow, as in hot tapping operations, meet the requirement for being flooded.
A flooded compartment is not necessarily safe for cutting and welding. During the cutting and welding process, oxygen (from the diver's welding/cutting O2 supply hose), hydrogen (electrolysis generated by the work process), and other gases may collect in the overhead of a compartment, if it is not properly vented (made gas free). Should the diver cut or weld into the area where the gas collects, then a serious explosion can occur. By properly venting the space, gas will not collect and the space will remain flooded. When making vertical cuts/welds, it is best to start high (shallow water depth) and finish low (deeper water depth).
If the Diving operation involves underwater Hull damage/defect repairing, a separate request for Hot Work/Cold Work should be obtained.

11.12 Termination of dive.

This Diving supervisor is responsible for determining when a dive shall be terminated. "Termination" means ending the working interval of a dive. However, it may still be necessary to complete the decompression procedures (when required). The working interval of a dive must be terminated when: the diver so requests; the diver fails to respond correctly to instructions from the dive team (indicating a possible disability of the diver or an equipment failure); communications with the diver are lost and cannot quickly be reestablished (either between the diver and the dive location or diving bell, or between the diver and the designated person-in-charge and the skipper of the support vessel for liveboating operations); or the diver begins to use the reserve breathing gas. Any of these situations requires termination of the dive. The decompression interval should not be omitted after termination of the dive if doing so would add to the diver's overall physical risk, unless the circumstances make inwater decompression impossible or present a greater physical risk to the diver.

11.13 Diving records

The record maintained for each diving operation must include: the names of the dive-team members, including the designated person-in-charge; the date, time, and location of the dive; the diving mode(s) used; a general description of the work performed; the approximate underwater and surface conditions; and the maximum depth and bottom time for each diver.

12. Emergency and Contingency Plans

Emergency procedures are the actions or procedures needed to regain control of a situation and prevent or minimize injury to the diver or support personnel. Accidents and emergencies require a quick response if they are to be prevented from becoming more serious. Before starting diving operation, the diving contractor should make detailed planning and assessment for possible emergencies at all depths and locations and the availability of emergency services. He should also ensure that there are effective means of communication between the diving location, the people who has control of the location and the emergency services. If a diving operation is being carried out without a recompression chamber on site, the diving contractor has a specific responsibility to locate the nearest chamber (in Fujairah) prior to the operation, and to make arrangements to use the chamber in the event of an emergency. General emergency procedures and any procedures specific to the operation as well as information on the arrangements for emergency services should be provided in the contractor manual which should be accessible to all diving team members. The diving contractor's operations manual should contain a section laying out the actions required of each member of the diving team in the event of a foreseeable emergency occurring during operations. The following list, which is not exhaustive, identifies the type of possible emergencies to be considered:

- Dealing with an injured, lost diver or unconscious diver
- Fire in a chamber or around the dive system
- Evacuation from a vessel or fixed/floating structure which is on fire or sinking(emergency evacuation)
- loss of pressure in chambers or bell
- faulty or broken equipment
- Adverse environmental conditions
- Loss of communications
- Fouled or entrapped diver
- Oxygen toxicity
- In addition to the general safety requirements concerned with the prevention of injury or illness to divers, it must always be borne in mind that:
- A diver should not go, and must never remain underwater if he does not feel well
- Any loss of consciousness underwater may prove fatal
- Any illness occurring during or after a dive must be assumed to be due to the dive until it is proved otherwise; and
- Taking drugs or alcohol prior to dive is prohibited
- All divers should have training and experience in first aid and basic underwater medicine so that, in a medical emergency, all diving team members have sufficient knowledge to proceed with appropriate treatment or corrective action in consultation with the diving supervisor. A diver should possess a valid certificate in first aid, including cardiopulmonary resuscitation, issued by organizations such as IMCA, ADCI or equivalent organizations. For diving operations beyond the no-decompression limit or in remote locations where the assistance of a medical practitioner cannot be obtained quickly, at least one member of the diving team should have further training and experience in diving rescue and first aid, and be able to go underwater to perform rescue operation without compromising the team (i.e. not the supervisor). Medical instructions and equipment should be provided at the diving location to enable all diving team members to carry out first aid or to save life in an acute situation. All

accidents and incidents requiring first aid or medical intervention should be accurately recorded in the diving operations log book. A seriously injured or ill diver should be subjected to a brief structured examination before treatment is started and any findings should be reported to the diving supervisor. Any case involving decompression sickness resulted from an industrial diving operation, the patient should be sent to the recompression treatment center.

12.1 Contingency Plan

A contingency plan and appropriate procedures, which have been risk assessed, should be in place. These plans/procedures should include:

- The location and arrangements for medical support
- The personnel and equipment required for the evacuation of a surface supplied diver with omitted decompression. The plans/procedures should cover the method of evacuation of the diver to a designated chamber identified for recompression
- Recovery of an injured or unconscious diver
- Fire in a chamber or around the diving system
- Fire on board the vessel, small craft or on the quayside
- Evacuation from the vessel or quayside in the event of fire or explosion
- Loss of pressure in the recompression chambers
- Faulty or broken equipment
- Approach of severe weather

12.2 Emergency Response Drills

The Port of Fujairah recommends that Diving Companies perform the necessary response drills applicable to their operation & as per Diving Management System (DMS).

The Drill is to be performed on a (03) three-monthly basis and the report must be submitted to HSE-Marine.

Requirements:

•Written Approval from the HSE department 48 hrs before the Drill.
•Permission from Control Tower before and after conducting the Drill.

13. Accident Reporting

Diving accidents or incidents are defined as an injury or diving illness occurring during or as a result from the dive or hyperbaric exposure. A diving incident is any adverse consequence that caused or could have caused injury to personnel and/or damage to equipment, facilities, or the environment. Accidents in diving operations can range from minor injuries and mishaps to life threatening injuries or decompression illness, even loss of life. All accidents and incidents, regardless of the severity or whether or not the employee is injured, must be reported to the Port of Fujairah Harbour Master (thru control tower).All diving accidents requiring medical treatment or resulting in a serious injury or death will be reported in accordance with the Code form. A key element of any successful accident prevention program is the timely reporting and investigation of all accidents and incidents. Determining the root cause of an incident and implementing corrective actions will lead to a continual improvement to the dive operations. All personnel involved in the dive operation, the diver or topside personnel, the supervisor and the DP must freely discuss the incident to determine what went wrong and ways to prevent recurrence. Emergency Response Procedures

At all times Diving accidents or incidents and Near misses are to be reported in a timely manner to Port of Fujairah authorities and submit. Attachment 22(d)-Accident Report.
The following are considered in this category:

- Emergency recovery of an injured or unconscious diver from the water.
- Faulty or broken equipment and equipment failure.
- Treating a diver with decompression illness.
- Operating a diver in contaminated waters.
- Decompression Chamber malfunction
- Near Miss
- Any Other

14. References

i. OSHA Instructions-Commercial Diving Operations
ii. International Consensus Standards for Commercial Diving and Underwater Operations 6.2 Edition
iii. IMCAD014 - IMCA International code of Practice for Offshore Diving - Rev 2.1

15. Forms

Attachment 22 (a)-DIVING WORK PERMIT
Attachment 22 (b)-DIVING PROJECT PLAN
Attachment 22 (c)-MASTER DECLARATION
Attachment 22 (d)-ACCIDENT REPORT
Attachment 22 (e)-CHECKLIST FOR DIVING COMPANY REGISTRATION OR RENEWAL