

Safe Work Practice Diving



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1. Introduction

Diving is a potentially hazardous activity and should therefore only be considered if the operations cannot be carried out by other means e.g. ROV, replacement by mechanical means (e.g. lifting frames with automatic releases) as defined in the hierarchy of control measures.

Diving operations shall be done in accordance with this SWP to ensure that the diving activities are being executed in a safe way.

This Safe Work Practice replaces the Van Oord Diving Guidelines (2008)

2. Purpose

This Safe Work Practice provides practical guidance on avoiding hazards and controlling the risks arising from diving activities.

It is aimed for that managers, project personnel as well as diving companies and divers identify the safety issues related to diving operations and take the necessary actions to prevent incidents.

3. Scope

This Safe Work Practice only considers requirements for working in occupational underwater operations up to 50 m, where compressed breathing gas is supplied through surface-supplied breathing apparatus (SSE) and self-contained underwater breathing apparatus (SCUBA) up to 15m.

In the event of diving activities > 50 m (SSE) or > 15 m (SCUBA) please contact the QHSE Department.

For environmental diving activities, requirements are prepared and can be found in Appendix 3.

4. Abbreviations and Definitions

Abbreviations

CPR	Cardiopulmonary resuscitation
IMCA	International Marine Contractors Association
SCUBA	Self-Contained Underwater Breathing Apparatus
SSE	Surface-Supplied Equipment
SWP	Safe Work Practice

Definitions

CPR	An emergency procedure that combines chest compressions often with artificial ventilation in an effort to manually preserve intact brain function until further measures are taken to restore spontaneous blood circulation and breathing in a person who is in cardiac arrest.
Decompression diving	Dives where the diver must make a series of stops during his ascent to allow time for nitrogen to move out of the tissues and back to the lungs. The diver then continues to move closer to the surface between each decompression stop
SCUBA	Is a mode of underwater diving where the diver uses a self-contained underwater breathing apparatus (SCUBA), which is completely independent of surface supply, to breathe underwater
Surface-Supplied Equipment	Equipment supplied with breathing gas using a diver's umbilical from the surface, either from the shore or from a diving support vessel,
Occupational diving	Diving during employment (irrespective of whether diving is the principal function of employment or merely an adjunct to it) and comprising all diving work carried out as part of a business; as a service; for research; or for profit

5. Responsibilities

In Chapter 8 detailed information can be found about the tasks and responsibilities of the Diving contractor personnel.

In Appendix 1 the diving decision flowchart is in place, in this flowchart various responsibilities are stated

6. General Requirements

Prior to contracting a diving company, it shall be verified that the Diving contractor can carry out the operations in accordance with IMCA guidelines or this Safe Work Practice, applicable legislation, regulations, project HSE requirements and general accepted HSE working practices.

In Appendix 1 a flowchart is in place which shows the decisions to be made to ensure that the appointment of a Diving contractor will be done in consistent way.

It is recommended, in case diving can be foreseen on the project, to select a diving company at an early stage of the project to avoid possible downtime due to selection of a Diving contractor.

6.1 Notification to authorities

In various countries occupational diving activities must be reported to the authorities like the Labour Inspection or Port Authority prior to start of the diving.

In the event the authorities must be informed, the Project Manager / Technical Superintendent must ensure that this will be done prior to the diving activities taking place.

7. Diving operations documents

7.1 Review of documents

The Diving contractor shall, prior to commence diving operations, submit following documents to Van Oord for review:

- Hazard Identification and Risk Assessment (see 7.2);
- Diving Operations Manual (see 7.3);
- Dive Plan (see 7.4);
- Job Safety Analysis and Permit To Work (see 7.5);
- Emergency Response Plan (see 7.6);
- Letter of appointment of diving supervisor;
- Certificates of Medical Fitness to Dive for all divers;
- Applicable Training records (e.g. dive certificates, etc.)

In the event there is not enough knowledge available for the review of the documents, please contact the QHSE Department, in this case external expertise will be used for the review of the documents.

7.2 Hazard Identification and Risk Assessment

A competent Diving Supervisor of the Diving contractor's organisation shall carry out the hazard identification (HAZID), risk assessment and identify the means of control to ensure that the diving operations can be safely carried out.

The HAZID is conducted during the preparation phases of the operations and it represents the starting point for the Risk Assessment.

7.3 Diving operations manual

The diving operations manual, which is prepared and maintained by the diving contractor, shall document procedures for the planning and conduct of diving operations, including (but not limited to) the following:

- Responsibilities, duties and competency of persons involved in the diving operation;
- Operation of plant/equipment used in the diving operation e.g. compressor, umbilical's, diving helmets, underwater communication systems etc.;
- Diving procedures; to include but not limited to:
 - Pre-dive preparation
 - Diving activities undertaken
 - Provision of PPE
- Diving emergencies; to include but not limited to:
 - Emergency assistance underwater and on the surface;
 - Emergency communications;
 - First aid;
 - Decompression and recompression;
 - Roles and responsibilities of staff during emergencies, including staff qualifications.
- Associated activity and other hazards i.e. risk assessment (see 7.1)

7.4 Dive Plan

A dive plan shall be prepared by the Diving contractor prior to commencement of the dive. The dive plan should address the following aspects of the diving operation:

- Location where the diving activities will be done;
- Details from applicable permit from authorities;
- The method of performing the task;

- Applicable diving table(s);
- If decompression stoppages (non-emergency) are required;
- Number of personnel to be used;
- The diving equipment, breathing gases and procedures to be used;
- Specific hazards and the methods used to address them (i.e. Risk Assessment) like:
 - Current;
 - Soil pollution;
 - Unexploded Ordnance (UXO);
- Shipping activities nearby;
- Emergency Response Plan (see 7.5).

7.5 Job Safety Analysis and Permit to Work

Prior to the start of the operations a Job Safety Analysis (JSA) must be performed by a competent person of the diving contractor's organisation. The JSA shall be communicated and discussed prior to commencement of the diving operations. All persons involved in the diving operation, including the VO representative, will sign that they have read and understood the JSA and will work in accordance with the JSA. Diving operations are also subject to a diving Permit to Work. In addition to the diving permit, other permits may be applicable. E.g. Lock-out tag-out, hot work, etc.

In addition, just before starting the job, a Last Minute Risk Assessment (LMRA) is conducted with the dive team. Permits to Work are the key to ensuring that the required safety procedures are followed. It is essential that those who issues Permits to Work are competent to do so.

If Van Oord Permit to Work system is used, the template of the Van Oord Diving permit can be obtained from intranet (QHSE-HSE-IN-012-01) or on request, at the QHSE Department. For more information about the Permit to Work system see HSE Instruction: QHSE-HSE-IN-012 Instruction for Permit to Work.

If a Diving contractor or other 3rd party Permit to Work is used this should cover at least the safeguards indicated on the Van Oord diving permit.

7.6 Emergency Response Plan

As part of the dive plan an Emergency Response Plan must be prepared by the Diving contractor. The plan shall be displayed at the dive site or at the dive control panel and shall be accessible to all key personnel. The plan shall include, but not limited to:

- Name, addresses and contact details of the nearest emergency services
- Name, addresses and contact details of nearest medical services and quickest route
- Name, address and contact details of nearest decompression chamber in the event the chamber is not on site
- Name, addresses and contact details of diving doctor
- Name, addresses and contact details of first point of contact of diving team
- Name, addresses and contact details of first point of contact of Van Oord representative
- Radio frequencies
- Emergency boat
- Means of transport

8. Diving Contractor Personnel

8.1 Competency requirements

In Appendix 2 of this document an overview of accepted occupational diving certification and requirements for diving supervisors is included. Any of these certificates are acceptable within Van Oord. This list is not exhaustive and other certificates may also be suitable, if this is the case this shall be verified via QHSE.dredging@vanoord.com.

Competency in first aid, CPR and oxygen resuscitation skills for the diving supervisor and the divers shall be maintained through regular practice and re-certification every year or as stated in the local rules and regulations.

8.2 Diving contractor

In an occupational diving operation, the Diving contractor has the direct responsibility for the safety and health of all persons employed by him.

Responsibilities of the Diving contractor include:

- Planning and assessment of the diving operation including selection of appropriate diving modes and issuance of safety diving rules;
- Appointing suitable diving supervisors in writing to be in immediate control of the diving operations;
- Assigning enough competent divers and supporting personnel to form the necessary diving teams for undertaking the diving operation; and insuring that all team members are over 18 and medically fit to dive;
- Ensuring that necessary plant and equipment are properly maintained and available for immediate use and that a plant and equipment register is kept up-to-date containing maintenance records and test and examination certificates;
- Providing a 'Diving Operations Log Book' (see 9.1) and ensuring that it is properly completed by the diving supervisor;
- Providing necessary information, instructions and training to diving team members on all aspects related to the diving operation including safety diving rules, use of plant and equipment, safe practices and emergency procedures;
- Appointing a medical advisor who is a medical practitioner preferably with special experience in underwater medicine to provide medical cover and to carry out medical examinations for divers; and where the diving operations involves high risk for illness or injury, arranging this medical advisor to be on a call.

8.3 Diving supervisor

A Diving supervisor shall be appointed in writing by the diving contractor's management and acknowledged by the Van Oord Project Manager / Captain. The diving supervisor shall be responsible for the safe conduct of the diving operation and shall always be present while a diver is in the water.

Qualification

A diving supervisor shall be:

- A trained and experienced diver and competent in the diving techniques, equipment and procedures to be used in the diving;
- Trained in recognition and management of diving emergencies;
- Trained in first aid in accordance with the legal requirements for a normal diver. In addition, a diving supervisor shall be trained in the recognition and first aid management of diving related medical problems, and communication findings to medical support.

Duties and responsibilities of diving supervisor

The diving supervisor should not dive while acting as diving supervisor and ensures that:

- All diving operations under his supervision are carried out in accordance with these guidelines;
- The composition and size of the diving team and the level of competence is enough for the assigned operation;
- Every diver is over 18 years and has a valid 'Certificate of Medical Fitness to Dive' issued by a certified dive doctor and is fit to dive at the time the operations start;
- Plant and equipment comply with all legislative requirements and safe practices;
- Appropriate breathing mixture is used, and the supply is adequate for the diving operations and any possible emergency;
- Every diving team member has access to the safety diving rules and is fully instructed on the dive plan and understand one's own duties;
- The 'Diving Operations Log Book' is accurately maintained and that he signs the record daily in respect of each diving operation;
- Decompression for any diver, where necessary, is carried out properly in the water or in a surface recompression chamber.

8.4 Diver

A diver shall:

- Have training and experience in diving that corresponds with the required diving mode and diving operation;
- Be over 18 years of age and have been certified as medically fit to dive within 12 months prior to diving ('Certificate of Medical Fitness to Dive' issued by a certified dive doctor);
- Shall be trained in first aid so that, as a minimum, is able to:
 - Control bleeding;
 - Administer 100 % oxygen;
 - Care for an unconscious patient;
 - Carry out CPR.

8.5 Diver's attendant

Whenever a diver goes underwater or is subjected to pressure, the diver shall be attended by a diver's attendant who is trained in first aid and has a working knowledge of the following:

- The requirements of underwater work;
- Signals in use;
- Decompression procedures;
- Diving plant and equipment in use, including auxiliary items such as pressure gauges, compressors and filters;
- Shall be trained in first aid so that, as a minimum, is able to:
 - Control bleeding;
 - Administer 100 % oxygen;
 - Care for an unconscious patient;
 - Carry out CPR.

The diver's attendant shall not be engaged, other on any task other than that of diver's attendant while the diver is in the water or under pressure.

8.6 Standby diver

A standby diver shall be present whenever a diver is underwater and shall:

- Comply with duties and responsibilities as indicated (see diver);
- Wherever possible, located on the surface;
- If located on the surface, dressed and equipped to enable immediate entry into the water for providing aid or assistance to a diver.

Where two divers are in the water at the same time, one may act as standby diver for the other provided that, at all times, both divers:

- Have no decompression commitment;
- Have visual contact with, and direct access to, each other.

The dive profile of the standby diver shall be planned such as to follow all necessary assistance to be given to a diver without the standby diver incurring a decompression commitment. The only exceptions to this shall be:

- In an emergency;
- When the depth of the water is such that the standby diver will automatically incur a decompression commitment.

9. Records kept by Diver

9.1 Diving Operations Log Book

All divers shall keep and maintain a permanent record (Diving Operations Log Book) of all diving undertaken for the duration of the diver's working life.

This permanent record of diving shall include:

- Diver's name, address, date of birth and signature;
- The diver's photograph;
- Next of kin information;
- Record of medical examinations conducted for the purpose of occupational diving;
- Record of diving activity undertaken;
- Record of accidents and incidents including decompression treatment(s).

The diver's record of diving covering at least the previous seven days' diving activity shall be available on site. The diver's record of dive (including a brief summary of any incidents or accidents) should be entered into this permanent record of diving at the completion of each dive and signed by the diving supervisor for verification.

9.2 Medical fitness certificate

The initial medical examination of the professional diver should be vigorous, and a high standard of medical fitness is required. Each diver must be in the possession of a diving medical fitness certificate.

The minimum age for an occupational diver is 18 years. There is no upper age limit provided divers are able to satisfy the medical standards.

9.3 Imposition of diving restrictions

Where the medical practitioner chooses to impose limitations on the validity of the certificate of fitness to dive, such limitations shall be clearly identified on the certificate.

Divers suffering from compressed air illness (Type I and Type II), dysbaric osteonecrosis or barotrauma must be notified to the relevant authorities, this is the responsibility of the Diving contractor.

10. Planning

A diving operation shall only be carried out after hazards have been identified, their associated risks assessed by a competent person and suitable measures to control risks have been determined and implemented.

A diving operation shall be organized and planned to ensure:

- The competence of the diver is appropriate for the task at hand;
- The diver is in the possession of all possible information relevant to the task at hand;
- The diver is not unnecessarily distracted from the task at hand;
- Adequate surface assistance is available;
- Minimum exposure for the diver to hazards as per the hierarchy of control.

In planning a diving operation, the diving contractor shall give careful consideration to the following conditions / activities:

10.1 Surface conditions

The surface conditions include the state of the water, weather, visibility, tide, currents, water temperature, presence of ships or other craft, and any other surface conditions that could affect the operation.

10.2 In-water conditions

In-water conditions include visibility, temperature, presence of contaminants, obstructions, dangerous marine life, thermoclines, pressure differentials and currents. Divers shall be provided with appropriate protective equipment to prevent contact with water contaminated with chemical, biological, or other hazardous material of sufficient concentration to cause illness or injury.

Where necessary, additional personal protective equipment shall be provided e.g. presence of Portuguese man o' war, box jellyfish.

10.3 Depth of water

Before diving operations commence at any site, the maximum depth of water at the site and the maximum possible depth to which the diver could be exposed shall be ascertained as part of the final check. This shall be verified against the Method Statement and the Dive Plan.

10.4 Communications

The Diving contractor shall establish an efficient and reliable, preferably voice communication system between the diver(s) and the dive control position. If not available an alternative communication system will be agreed upon. E.g. ropes, lines, noise.

All persons in the diving team must be competent and clear in the use and understanding of the English language. In case the command of English is insufficient to communicate during the diving operations one common language shall be established and agreed as the working language.

As a minimum there shall be one person in the team having enough command of English to act as a translator or a translator will be assigned to the team. Diving Supervisors involved in diving must additionally be capable of producing clear written reports, which may include the use of technical English.

10.5 Dive site requirements

Diving operations shall be conducted only from a safe and suitable site or vessel, which at all times provides:

- Suitable access and egress for the divers;
- Means to recover an injured diver from the water; and
- Means of communication to emergency support services.



Suitable access and egress for the divers



Means to recover an injured diver from the water

When diving from a vessel, the International Regulations for Preventing Collisions at Sea (1972) and local rules shall apply. The appropriate signals shall also be displayed when diving.



alfa/alpha flag (diver down)

10.6 Diving equipment records

Where maintenance or tests of equipment is carried out (e.g. for air purity), the diving contractor shall keep and maintain records of such maintenance and test results, together with identification of the equipment, in accordance with the manufacturer's recommendations.

All equipment used in connection with diving operations shall comply with the applicable requirements, and shall:

- Be described in the dive plan;
- Be operated, maintained and serviced in accordance with the manufacturer's instructions;
- Not be altered, modified or changed in any way that might impair the safe and efficient operation of the equipment;
- Not be used if it can be demonstrated that such plant or equipment is not in a safe working condition.

An equipment log book shall be maintained to document any repairs made; and diving operation should not commence until the rescue bottle is replaced or changed to its safe maximum capacity.

10.7 User responsibilities

Both the diving contractor and diving supervisor shall ensure that any equipment is of a type and capacity suitable for the job. The supervisor, diver and diver's attendant shall know the capabilities and limitations of any equipment they use.

10.8 Inspection

Inspection procedures shall be in accordance with the manufacturer's instructions and shall incorporate a list of essential pre-dive checks. This list shall be provided and maintained at each dive location. Before each dive commences, divers shall check the personal diving equipment they intend to use to ensure its operational integrity and efficiency.

10.9 Cleaning and storage

All underwater diving equipment shall be cleaned (and disinfected if necessary), dried and stored in a dedicated area in such a manner as to prevent deterioration, contamination or transmission of disease.

10.10 Breathing gas quality

The Diving contractor shall ensure that the breathing air used in diving operations is in compliance with EN 12021 (Compressed gases for breathing apparatus). Furthermore, air supplied from a compressor shall not be used for diving operations unless the compressor has, within the six-month period preceding the operations and every six months during the operation as appropriate, undergone a test to ensure that the compressed air satisfies the legal requirements.

All breathing gas testing equipment shall be installed, operated and maintained in accordance with the manufacturer's instructions.

10.11 Pressure gauges

Gauge calibration and accuracy shall be in accordance with the manufacturer's requirements.

10.12 Decompression chamber

An on-site decompression chamber shall be available when:

- The depth of diving exceeds 15 m;
- Decompression stoppages are required for a dive.
- Locations where there is no access to a decompression chamber within 2 hours from the operational area

When having an on-site decompression chamber a specific compression chamber first aid kit shall be available. Oxygen resuscitation equipment shall be available at the dive site for immediate use if required. The oxygen equipment used shall be capable of providing a spontaneously breathing patient with an inspired oxygen concentration of 100 %. The equipment shall also facilitate oxygen-enriched artificial ventilation of a non-breathing patient.

10.13 Decompression diving

All diving and decompression operations shall only be carried out in accordance with recognised and industry approved decompression tables which must be included in the dive plan. If, at any time, a diver exhibits signs or symptoms of decompression illness, medical help should be sought.

When carrying out decompression in water, the diver shall always be on a shot rope, lazy shot or a diving stage, and the diver's maximum depth of dive and the depth at any time during decompression stops shall be recorded on the dive record. Divers shall not swim free when carrying out decompression stops.

11. SCUBA Diving

11.1 Restricted use of SCUBA

- SCUBA shall not be used for labour intensive works, so there shall not be prolonged physical exertion required of the diver, e.g. no welding, no cutting, no use of hydraulic tools, no high-pressure cleaning, etc.;
- SCUBA shall not be used if the diving operation requires surface-powered equipment or surface-controlled equipment, e.g. hydraulic power packs, electrical power packs;
- SCUBA can only be carried out with a standby diver;
- SCUBA shall only be used if there is direct access to the surface, e.g. no overhead obstacles, no working under the hull of a ship or pontoon;
- SCUBA shall not be used if where there is a risk of entanglement;
- SCUBA shall not be used if decompression stoppages may be required as per diving table;
- The maximum dive depth shall not exceed 15 m.
- The gas from a diver's SCUBA supply shall be of a purity complying with the legal requirements or EN 12021 and shall not be used for any purpose other than support of the diver, i.e. as a breathing medium or for limited buoyancy control.

If any of the criteria are not met SCUBA shall not be used.

11.2 Personnel required during SCUBA operations

At every SCUBA diving operation there shall be sufficient personnel to ensure that diving is performed safely. In the overview below the minimum required persons are stated. Extra personnel may be required depending on the results of the risk assessment conducted as part of planning and organising a diving operation.

Dive Depth	Number of persons required for SCUBA diving operations			
	Supervisor	Diver	Standby diver	Standby diver's attendant
Up to 15 m	1	1	1	0
	<p>Note1: Where supported by a documented risk assessment, the supervisor may act as the diver's attendant or carry out minimal surface duties, provided this does not compromise the dive team's ability to respond to an emergency. The supervisor shall not be nominated as the diver or standby diver.</p> <p>Note 2: Where two or more divers are in the water at the same time a standby diver may not be necessary for each diver. The number of standby divers and supervisor should be chosen after consideration of the dive profiles of each diver, their proximity to each other, the tasks at hand, water conditions and their ability to assist each other.</p>			

11.3 SCUBA Equipment

Components

For SCUBA diving operations, the underwater equipment used shall comply with the diving industry requirements and shall include the following for each diver:

- An incompressible helmet; a full-face mask; or a half-face mask;
- A cylinder / tank (or cylinders / tanks) of compressed gas;
- A cylinder valve for controlling the discharge of gas from the cylinder(s);
- A cylinder regulator which can be used to control the pressure/volume of gas from the cylinder(s);
- A demand gas supply device incorporating a mouthpiece;
- Fins and knife;
- An inflatable buoyancy control device (optional when using a lifeline);
- A submersible depth gauge.



11.3.1 Requirements for component parts SCUBA

Cylinder valves shall be operated by a hand control distinguishable by touch from any other hand control of the apparatus. It shall not be possible to completely unscrew the spindle from the valve body. The valve assembly should be designed to prevent foreign particles from entering the circuit from the cylinder.

Gas supply safety warning system

The diver's gas supply system shall incorporate one of the following:

- A manually operated reserve valve capable of providing 20 % of the working capacity of the cylinder(s), and which cannot be accidentally operated;
- A second gas cylinder containing sufficient gas to allow safe ascent to the surface from the maximum dive depth, and which has a separate valve that can be easily operated by the diver underwater. The cylinder shall have an over-pressure relief valve fitted if the gas supply is activated by a valve downstream of the reducing regulator;

Cylinder contents gauge

A gauge shall be provided to check the cylinder pressure immediately prior to using the diving equipment. The gauge shall be designed:

- To withstand a pressure of 1.5 times the maximum filling pressure of the cylinder; and
- So that in the event of rupture of the gauge mechanism, the pressure will be relieved in a manner that will not endanger the user.

Lifelines

Where a diver is operating independently, a lifeline complying with industry and legal requirements shall be used.

Except as set out in this chapter, all divers using SCUBA shall use a lifeline complying with industry and legal requirements or a float line consisting of a line between the diver and a highly visible float on the surface or landside. The following requirements also apply to the use of lifelines or float lines:

- Where more than one diver is in the water, lifelines or float lines may be used;
- Where divers are operating in pairs, then a single lifeline or float line to the surface may be used, provided that both divers are secured to each other by a line, i.e. a buddy line. Where

such a system is used, the buddy line shall not be detached from either diver unless both divers are on the surface;

- Where lifelines or float lines introduce an unacceptable risk to the diver's safety (e.g. through entanglement) or when used in situations where no increase in safety is gained, the diving supervisor, after consideration of all aspects of the diving operation, may dispense with using these lines. If lifelines and float lines are dispensed with, additional pre-dive planning covering communications, operational safety, rescue arrangements and emergency transport, shall be conducted and shall consider the on-site conditions. The decision to dispense with the use of lifelines or float lines shall be agreed to, on site, by both the diver and supervisor;
- Where float lines are used:
 - a boat of a size and manoeuvrability that does not present a hazard to the diver shall be used to tend to the diver, if the diving is from a boat;
 - sufficient personnel shall be available to monitor all float lines; and
 - divers operating on float lines shall wear inflatable buoyancy control devices.
- Divers operating on lifelines may wear an inflatable buoyancy control device if desired.
- Where a lifeline or float line is used in SCUBA diving operations, the line shall be independently attached in such a manner that weights and other equipment can be readily discarded by the diver underwater without fouling the lifeline or float line.

Diving suit

Personnel wearing diving suit should have adequate work rest and hydration to prevent heat disorders

12. SSE Diving

12.1 Personnel required during SSE operations

At every SSE diving operation, sufficient personnel shall be present to carry out the diving operations safely. The number of persons for each diving operation shall comply with industry requirements (i.e. IMCA Guidelines). The personnel requirements as mentioned below are minimums only. Extra personnel may be required depending on the results of the risk assessment conducted as part of planning and organising a diving operation.

Dive depth	Number of personnel required for SSE diving operation				
	Supervisor	Diver	Standby diver	Diver's attendant	Standby diver's attendant
Less than 50 m)	1	1	1	1	1
	Remark: Where supported by a documented risk assessment, the supervisor may act as the or carry out minimal surface duties, provided this does not dive team's ability to respond to an emergency. The supervisor shall not be nominated as the diver or standby diver				

12.2 SSE Equipment

For SSE diving operations, the underwater equipment used shall comply with the industry requirements.



Air compressor systems

Where breathing air in SSE diving operations is supplied from a power-driven compressor, the diving contractor shall ensure that the equipment has valid in date certificates. It's the task of the diving supervisor to check this on site.

13. PPE Requirements

Besides the above mentioned gear and equipment, (additional) PPE requirements will be determined in the Job Safety Analysis

14. Reference

Van Oord Documents

- QHSE-HSE-IN-012 Instruction Permit To Work (including diving permit)
- QHSE-MAR-PU-300 RAD Risk Assessment Tool RAT (marine equipment)
- QHSE-PSU-001 Project Risk Assessment Database (PRADA)

International references

- International Marine Contractors Association - IMCA international code of practice for offshore diving (IMCA D 014)
- International Marine Contractors Association – Diving equipment systems inspection guidance note (Design) for surface oriented (air) diving systems (IMCA D 023)
- International Marine Contractors Association - Design for mobile/portable surface supplied systems (IMCA D040)

- International Marine Contractors Association - Dive Technician Competence and Training (IMCA D001)
- HSE UK Approved Code of Practice - Diving at Work Regulations 1997. Approved Code of Practice and guidance

National references

- Arbocatalogus werken onder overdruk: <https://www.arbocataloguswoo.nl/nl/>
- Arbocatalogus waterbouw: https://www.arbocataloguswaterbouw.nl/p/waterbouw/vgm_handboek_3_21#duikwerkzaamheden

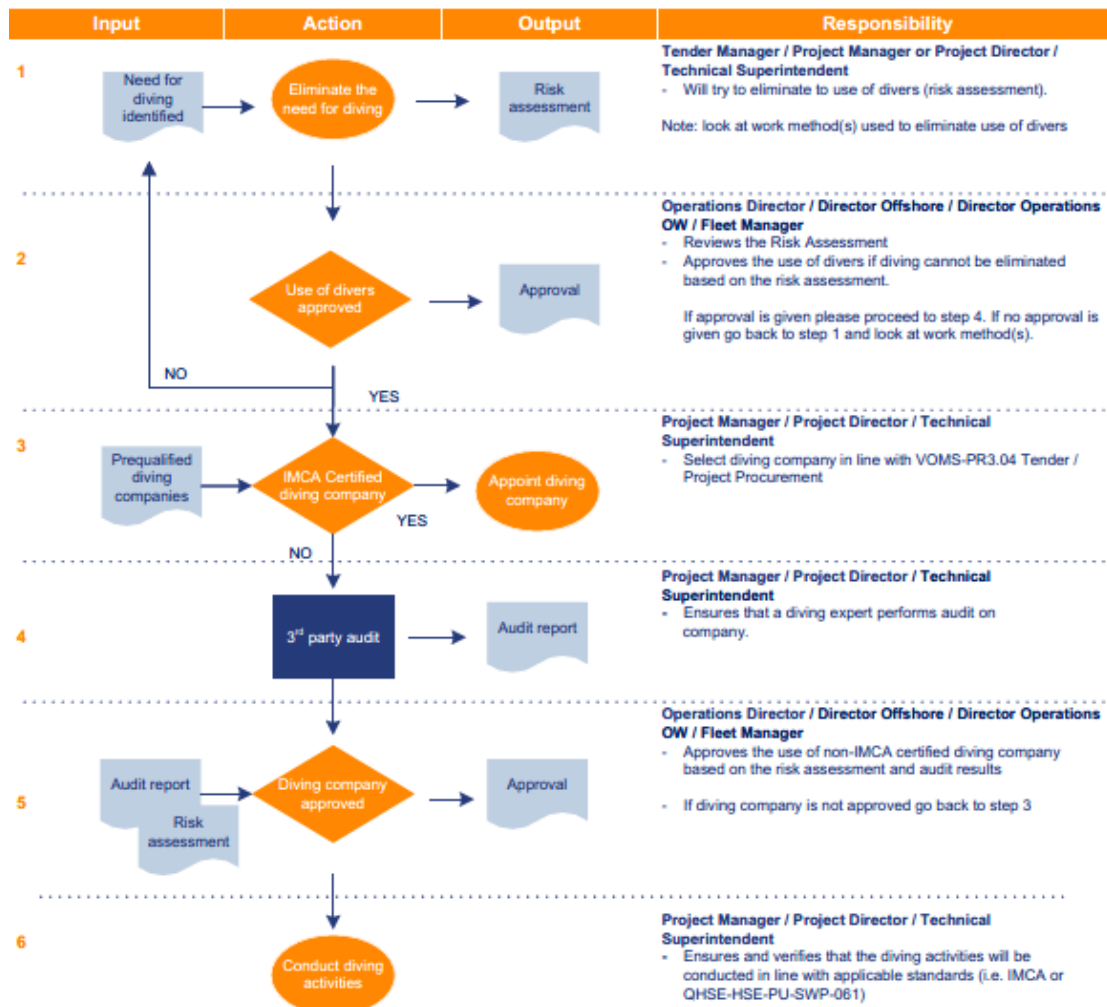
Disclaimer: Local legislative requirements will take precedence over Safe Work Practices.

Appendix 1 - Decision flowchart

QHSE-HSE-PU-SWP-061-01

Van Oord 
Marine ingenuity

Objective To ensure that the appointment of Diving subcontractors is done in a consistent way
Revision 1 – 14-03-2022



Note 1:

In the event diving is taking place on a project follow the functions Project Manager / Project Director and Operations Director / Director Offshore / Director Operations OW

In the event the diving is taking place when the vessel is under control of SMD then the functions Technical Superintendent and Fleet Manager need to be followed.

Note 2:

The following activities are excluded from the requirement to be an IMCA certified company / perform a 3rd party audit. In this event the diving contractor is required to comply with the Van Oord Safe Work Practice - SWP-061 Diving

- A) Visual inspection of vessel propeller (possible damage to propellers)
- B) Removal of an obstacle (rope/net) from a propeller
- C) Single dives for inspection purposes only (including environmental inspections)

For A and B the approval of the Fleet Manager is required.

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Appendix 2 – Overview of accepted diving certifications

Accepted Diving Certifications			
Country	Scuba (Self Contained Underwater Breathing Apparatus)	SSE (Surface Supplied Breathing Apparatus)	Supervisor
The Netherlands	Cat A3	Cat B3 & B4	Diving Supervisor CAT B3 & B4
Great Britain	HSE part IV (HSE Scuba)	HSE Part I	Commercial Dive supervisor
Australia	Part 1 (Occupational SCUBA to 30)	Part 3 (SSE to 50 mtrs)	ADAS offshore Diving Supervisor
Canada	Unrestricted Scuba Diver (40 mtrs)	<ol style="list-style-type: none"> 1. Category 1 Diver 2. Category 2 Diver 3. Surface Supplied Mixed Gas Diver to 70m 4. Unrestricted Surface Supplied Diver to 50m 	DCBC Offshore Air Diving Supervisor
Northern Ireland	Part 4	Part 1	N/A
Norway	Labour Inspection Authority (LIA) Level A Inshore Scuba	Dykkersertifikat Klasse I - Overflateorientert dykker Diving certificate Cl. B	N/A
South Africa	Class IV	<ol style="list-style-type: none"> 1. Class II - Surface-Supplied Mixed Gas Diver 2. Class II - Surface-Supplied Air Diver 	N/A

Accepted Diving Certifications			
Country	Scuba (Self Contained Underwater Breathing Apparatus)	SSE (Surface Supplied Breathing Apparatus)	Supervisor
Spain	1. Técnico en Buceo a Media Profundida 2. Buceador Profesional de Gran Profundidad de Intervenciones 3. Buceador de 1a Clase/Bussejado de 1A Classe	1. Técnico en Buceo a Media Profundida 2. Buceador Profesional de Gran Profundidad de Intervenciones 3. Buceador de 1a Clase/Bussejado de 1A Classe	N/A
Finland	Ammattisukeltajan Ammattitutkinto	Ammattisukeltajan Ammattitutkinto	N/A
Germany	Geprüfter Taucher/Geprüfte Taucherin	Geprüfter Taucher/Geprüfte Taucherin	N/A
Ireland	HSE Professional Scuba	Commercial Surface Supplied Diving	N/A
Poland	1. Dyplom Nurka II Klasy – Diver 2nd Class Certificat 2. Dyplom Nurka I Klasy – Diver 1st Class Certificate	1. Dyplom Nurka II Klasy – Diver 2nd Class Certificat 2. Dyplom Nurka I Klasy – Diver 1st Class Certificate	N/A



Accepted Diving Certifications			
Country	Scuba (Self Contained Underwater Breathing Apparatus)	SSE (Surface Supplied Breathing Apparatus)	Supervisor
Portugal	Professional divers (mergulhadores profissionais) and the equivalent category (categorias) naval qualifications (mergulhadores da Armada): 1. Mergulhador - Chefe - [SCUBA & Surface Supplied to 60m] 2. Mergulhador - 1a Classe - [SCUBA & Surface Supplied to 60m]	Professional divers (mergulhadores profissionais) and the equivalent category (categorias) naval qualifications (mergulhadores da Armada): 1. Mergulhador - Chefe - [SCUBA & Surface Supplied to 60m] 2. Mergulhador - 1a Classe - [SCUBA & Surface Supplied to 60m]	N/A
United States	ADCI Entry Level Diver/Tender ADCI Surface Supplied Air Diver ADCI Surface Supplied Mixed Gas Diver	ADCI Entry Level Diver/Tender ADCI Surface Supplied Air Diver ADCI Surface Supplied Mixed Gas Diver	ADCI Diving Supervisor
IMCA (international)	N/A	IMCA Surface Supplied Diver	IMCA AIR Diving supervisor IMCA Bell Diving Supervisor



Appendix 3 – Requirements for environmental diving activities

Environmental diving activities are considered diving activities required for nature enhancement actions (including ReefGuard programme) and environmental inspections of underwater habitats. For these activities the use of SCUBA equipment is allowed if justified as per Appendix 1 – Decision Flowchart.

The following requirements must be met:

- Dives are not to go deeper than 12 meters
- Diver must be in the possession of a valid dive medical
- Diver should possess a diving certificate comparable to level PADI Advanced or higher
- Diver must have at least 60 logged dives in his/her dive book
- All divers should be familiar with the Van Oord Diving Guidelines
- All divers should be informed on the site conditions
- Always minimum of 2 divers in the water (buddy system) and one person standby
- An Emergency Response Plan must be in place for the activities which includes the locations of the closest shelter and the nearest decompression facility.

The following documents must be used:

- Dive plan (see below)
- Diving registration form (see below)
- Diving permit which must be signed off by Project Manager or deputy.

DIVE PLAN

Project	Name:	Number:
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Date:		Emergency	Name:
Location:			Phone:
Dive Leader:		Deco chamber	Location:
Objective			Name:

Comments	
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Pair (nr)	Name	Briefing	Dive restrictions		Dive				Debriefing	Comments
			MDD (<12m) (m)	DT (no deco) (min)	IN (hh:mm)	OUT (hh:mm)	MDD (m)	DT (min)		
		<input type="checkbox"/>							<input type="checkbox"/>	
		<input type="checkbox"/>							<input type="checkbox"/>	
		<input type="checkbox"/>							<input type="checkbox"/>	
		<input type="checkbox"/>							<input type="checkbox"/>	
		<input type="checkbox"/>							<input type="checkbox"/>	
		<input type="checkbox"/>							<input type="checkbox"/>	
		<input type="checkbox"/>							<input type="checkbox"/>	
		<input type="checkbox"/>							<input type="checkbox"/>	
		<input type="checkbox"/>							<input type="checkbox"/>	
		<input type="checkbox"/>							<input type="checkbox"/>	



DIVER REGISTRATION FORM

Project	Name: Number:
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Name	
Address	Street: _____ Number: _____ Postcode: _____ City: _____ Country: _____
Birth date/place/country	
Van Oord relation	<input type="checkbox"/> staff <input type="checkbox"/> student <input type="checkbox"/> associated diver
Emergency contact details	Name: _____ Relationship: _____ Phone: (+) _____
Diving experience	Certification Agency: _____ <input type="checkbox"/> copy attached Level: _____ Date of issue: / / Number of dives: _____ Date latest dive: / /
Certificate of Medical Fitness	Date of issue: / / <input type="checkbox"/> copy attached
Diving insurance	Company: _____ Policy number: _____ <input type="checkbox"/> copy attached
Diving equipment	<input type="checkbox"/> Personal gear in optimal condition <input type="checkbox"/> Hired gear through accredited supplier
Received and understood safety protocols	<input type="checkbox"/> Van Oord Safe Work Practice Diving <input type="checkbox"/> Site induction

I declare that I completed this Diver Registration Form truthfully and that the attached (copies of) certificates are legally acquired.	
Name: _____	
Place: _____	
Date: _____	
Signature: _____	