

Novel Coronavirus (COVID-19) – Guidance for Diving Contractors

This Information Note has been prepared by IMCA Diving Division Members and members of the Diving Medical Advisory Committee (DMAC). It is also fully endorsed by the Working Committee of the International Diving Industry Forum (IDIF).

1 BACKGROUND

The novel Coronavirus disease, now named COVID-19, is a respiratory illness that can spread from person to person. It was first identified during an outbreak in Wuhan, China in December 2019 and has since spread worldwide with increasing signs that it is spreading easily in the community. There is currently no vaccine to protect against COVID-19, and no specific treatment for the infection.

The best way to protect against infection is to avoid being exposed to the virus that causes COVID-19.

The aims of this Information Note are to:

1. Offer guidance to diving contractors on preventing the spread of the virus; and
2. Give considered advice on how to respond to suspected cases of COVID-19 among offshore commercial diving teams (surface supplied and saturation).

How COVID-19 spreads

When someone who has COVID-19 coughs or exhales, they release droplets of infected fluid. Most of these droplets fall on nearby surfaces and objects – such as desks, tables or telephones. People can catch COVID-19 by touching contaminated surfaces or objects and then touching their eyes, nose or mouth. If they are standing within one metre of a person with COVID-19 they can catch it by breathing in droplets coughed out or exhaled by them.

Symptoms

Most persons infected with COVID-19 experience mild symptoms and recover. The symptoms are:

- ◆ A dry cough;
- ◆ High temperature (a fever);
- ◆ Shortness of breath;
- ◆ Runny nose;
- ◆ Sore throat;
- ◆ Body aches and pains.

However, some go on to experience more serious illness and may require hospital care. Risk of serious illness rises with age. People with weakened immune systems and people with conditions such as diabetes, heart and lung disease are also more vulnerable to serious illness.

2 PREVENTIVE MEASURES

The key measure to prevent divers (especially in saturation) from acquiring COVID-19 is to prevent the virus from getting onto the diving operation. This is a difficult task, but the more a company can do the less likely the possibility of a COVID-19 infection on-board.

Travel

The ongoing situation with the COVID-19 outbreak is rapidly evolving, and cases have now been detected worldwide. In order to protect personnel and business continuity, contractors are advised to screen personnel 14 days before mobilisation to identify higher risk individuals.

Please note, the list of affected countries is rapidly evolving, and the latest list may be found on the World Health Organisation (WHO) website:

<https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports>

It is important that personnel involved in any diving operations understand the issues involved with COVID-19 and, most importantly, how to protect themselves and others. Some very good advice which is kept up to date is issued on the WHO website and this should be 'issued' to all involved personnel 14 days prior to any mobilisation, or earlier if possible:

<https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public>

Companies must also follow local and national guidance and regulations on the issues as these will vary around the globe and will change as the situation develops. Be aware that local regulations may mandate quarantine periods or even total travel bans.

Screening

Companies should do all they can to prevent the COVID-19 virus being taken onto a diving project, and particularly onto a saturation diving project. This may entail consideration of some enhanced screening prior to the personnel deploying.

One such screening method is the use of a questionnaire prior to deployment.

The questionnaire in Appendix 1 is an example of such a screening tool. If possible, a Pre-Deployment Questionnaire of this sort should be completed by crew members 14 days before the planned date of mobilisation. Typically, symptoms become apparent within 5 days of initial infection. The incubation period is up to 14 days, so it is prudent to review all personnel travel and health issues during this time period before mobilisation.

Note: it is important that the Contractor has access to suitable medical expertise that can assess the questionnaire in the event of a positive response to any of the questions.

Upon arrival at the embarkation point (helicopter terminal or port), contractors may also wish to provide personnel with key information on COVID-19 and implement pre-embarkation checks. An example of a COVID-19 Pre-Embarkation Information Sheet is included in Appendix 2. An example of a COVID-19 Pre-Embarkation Check Sheet is included in Appendix 3.

Note: it is important once again that the contractor has access to suitable medical expertise that can assess the questionnaire in the event of a positive response to any of the questions.

3 GENERAL PRECAUTIONS AT WORK

- ◆ Consider closing down communal areas such as gyms, cinemas, saunas etc. If this is not possible enhanced cleaning regimes should be introduced in these areas.
- ◆ Where possible maintain a distance of at least one metre between individuals.
- ◆ Regularly clean surfaces (e.g. desks and tables) and objects (e.g. doorknobs, handles, handrails, telephones, keyboards etc.) with appropriate disinfectant.
- ◆ Promote regular and thorough handwashing by employees, contractors and customers.

- ◆ Put sanitising hand rub dispensers in prominent places around the workplace. Make sure these dispensers are regularly refilled.
- ◆ Display posters promoting handwashing.
- ◆ Ensure that face masks and/or paper tissues are available at your workplaces for those who develop a runny nose or cough at work, along with closed bins for hygienic disposal. The use of face masks does not protect against infection, but they may be used by a person with symptoms to reduce the risk of infecting others.
- ◆ Coughs and sneezes should be caught in a handkerchief and the handkerchief binned as soon as possible, followed by handwashing or sanitising. Use your sleeve if a handkerchief is not available.
- ◆ Avoid touching your face.

4 PRE-SAT HEALTH EXAMINATION

As a part of a standard pre-sat health examination before the divers go into saturation, it is recommended that the divers are asked again about any symptoms of infection. Due to the nature of the COVID-19 infection the examination must always include temperature measurement and auscultation of lungs.

5 DIVING SPECIFIC PRECAUTIONS

Disinfection and hygiene procedures should be reviewed and approved by the contractor's specialist diving medical advisers.

Cleaning and Disinfection of Saturation Diving Equipment

It is common practice to share diving helmets among the dive team. It may be possible to issue each diver with his own oral-nasal mask and to fit it prior to his lock-out. However, the microphone and nose clearing pad would need to be changed too. If this is not practical, the oral nasal mask and the demand regulator should be sanitised after each use with the appropriate 'hat-wash'. Consideration should be given to locking out the hats that have been used at the end of each bell run to be cleaned by the technicians and replaced with hats that have been cleaned.

It is recommended that contractors review their current helmet cleaning product and their procedures for the disinfection of diving equipment to ensure the active ingredient in their hat-wash is effective against the Coronavirus. The same should apply to chamber cleaning products. It may be necessary to contact the manufacturer for clarification. Contractors are reminded that the mixing of sanitising products should never be practiced.

Sanitising procedures and products recommended by one helmet manufacturer can be accessed by clicking the following link:

<https://www.kirbymorgan.com/sites/default/files/pdf/bulletins/Bulletin-3-2020.pdf>

Users of other makes of diving helmets should refer to the user manual for that particular helmet.

It is recommended that any tissues or cloths used to clean oral nasals and helmet interiors within the bell are collected in a plastic bag to be locked out of the system at the end of the bell run.

It may be appropriate to reinforce the cleaning regimes within saturation diving systems in excess of those described in **DMAC 26**, which recommends twice weekly cleaning of the chambers as a minimum. It is suggested that table surfaces, medical locks, bunk rails and door handles within the sat chambers are cleaned at least three times a day using a suitable germicidal cleaning agent. Cloths should only be used once and then discarded in plastic bags to be sent out through the medical lock. Records of cleaning activities should be logged and retained.

Pre-sat briefings and toolbox talks must emphasise the need for cleanliness, good personnel hygiene and early reporting of any symptoms (however minor).

Hand washing and information posters may be laminated and posted inside the sat system.

Hygiene Considerations

In order to prevent the COVID-19 virus entering the saturation chamber the full support chain of the vessel/site has to be fully involved to maintain the strict hygiene requirements. This is necessary to prevent contamination of the food and materials required for the diving personnel. It is not just the Life Support Crew who are the handlers of supplies to the divers. These considerations will also help to protect the rest of the topside support crews.

All personnel in supporting roles, including galley personnel and Life Support Crews, should adhere to good hand washing and respiratory hygiene to avoid the risk of passing any potential viruses into the chamber.

Dive Technicians who are involved in the assembly and servicing of diving helmets are advised to do the same.

The virus has a lipid envelope (fat membrane) surrounding it which is destroyed by detergent. This means hand washing is a very effective control of the virus picked up from touching contaminated surfaces. >60% alcohol gel hand sanitiser is also an effective control but is not available for use in saturation. Correct hand washing technique is the prime control to prevent contamination.

Medical personnel working with COVID-19 cases use the following personal protective equipment (PPE):

- ◆ Apron;
- ◆ Medical glove;
- ◆ Appropriate mask;
- ◆ Eye shield.

For saturation support use, where the Life Support team personnel are not in direct contact with patients and no coughing/sneezing is local to the handling area, safety spectacles are considered to be suitable eye protection rather than a full eye shield.

Personnel handling items emanating from a chamber containing an infected patient, either through routine medical lock or other chamber operations, will also require the apron, medical gloves and mask. Good hygiene precautions are also necessary in disposing of any food waste, food containers, and in handling cutlery etc. until fully washed with detergent, preferably in a dish washer.

Laundry items which are or may be contaminated should be cleaned by standard machine washing at 60°C or above using normal washing detergent. This should kill the virus and no special washing criteria are required to further sanitise the laundry. The divers' laundry does not need to be isolated and washed separately.

Handling of the items should be carried out using the PPE described above.

Diving Plant Considerations

Environmental Control Units (ECUs) – Condensate from the environmental control system should not pose a COVID-19 infection risk. Nevertheless, measures should be in place to collect it in a container, avoiding splashes, spray or aerosol.

During the period of the pandemic, until the high risk of the viral infection has passed, saturation chamber systems should be operated as isolated units insofar as is possible. The aim is to prevent spread of the virus throughout the entire system if the virus was to be introduced. This includes separating chamber ECUs where practicable.

Reclaim Systems – Whilst the coronavirus is not considered to be air transmittable and should not be carried through a diver or chamber gas reclaim system, it is recommended that gas reclaim systems are not utilised without a secondary barrier provided by a filtration system.

One diver gas and chamber reclaim system manufacturer's system does provide filtration to entrap particles to a size of 0.01 microns. The Coronavirus is approximately 0.05 – 0.20 microns in size and should be retained within

the filter. It is important therefore to verify the nature of the filters in any reclaim system and ensure the manufacturers' recommendations on replacements are followed. If filtration is inadequate, open circuit should be adopted and chamber gas vented to atmosphere in a safe location.

Cleaning and Disinfection of Surface Diving Equipment

Surface supply operations should follow the same regime as described above on the work site to clean helmets and masks. Particular attention should be given to the cleaning and disinfection of the chamber and BIBS masks in SurDO₂ operations and following any treatment within a DDC.

6 SUSPECTED CASES OF COVID-19

The standard response to a suspected case of COVID-19 is to isolate the patient and minimise contact with potentially unaffected personnel. Effective isolation within a saturation system may be dependent on the size and configuration of the sat system. A diver cannot be isolated alone in a chamber. He must have another diver with him, or possibly two, depending on team sizes. Isolation should be implemented at the first signs of symptoms and maintained until a diagnosis is forthcoming.

The saturation environment has significant challenges for isolation and treatment of a patient. The patient's close contacts must all be considered to be at risk and isolated to the maximum practicable extent. The patient should use a medical mask whenever possible to prevent further dispersion of infected droplets within the chamber system. In addition, the patient should not use communal facilities, such as the wet lock and table, at the same time as his teammates. These communal facilities should be cleaned and disinfected prior to and after the patient's use.

'Isolation' means that the patient and his teammates are in a separate chamber from the other saturation divers, with either a dogged door which will prevent droplet transfer, or preferably a negative pressure differential against the adjacent chamber (the patient chamber need only be 2-3 m shallower). This will mean any gas transfer is into the isolated chamber rather than out of it. The isolated chamber should also be served by a dedicated environmental control system.

It is acknowledged that in some cases it may not be possible to isolate as described above due to limited system size or configuration. In this case, affected divers should be allocated bunks as far from the other divers as possible and strict hygiene measures implemented to minimise contact between the divers. This isolation advice should also be followed for non-symptomatic divers with a suspected or confirmed COVID-19 case.

The Diving Contractor and his Diving Medical Adviser, together with Diving Superintendent and Medic, should develop a contingency plan prior to the commencement of operations to identify:

- ◆ Isolation possibilities and operational capabilities specific to the configuration of the dive system;
- ◆ Arrangements for transportation to appropriate destinations e.g. to ports with access to suitable medical facilities for critical COVID-19 patients. Such facilities should include Intensive Care Units (ICU).

Definitive diagnosis of a COVID-19 case requires laboratory testing of samples swabbed from suspected individuals. Issuing and subsequent testing of sample kits is normally co-ordinated through the medical systems of local regulatory authorities. Contractors should determine what arrangements are in place in their region of operations.

As the only way one can make a positive diagnosis is through testing and analyses, this should be done where possible.

If testing is not an option, likely cases based on signs and symptoms should be treated as positive cases requiring isolation and referred to the Diving Medical Advisers for review, advice and support. The Diving Medical Adviser will determine if the patient should be decompressed.

COVID-19 cases have developed with complications requiring significant medical support in a period of 5 days after first onset. It is therefore likely such a diagnosis will include a requirement for decompression. Consideration should be given to limiting the saturation storage depth to allow normal decompression within a 5-day time period.

No medication (including non-prescription medication) is to be administered without specific instructions from the diving medical adviser.

Suitable arrangements must be in place to continue isolation after surfacing and during any subsequent treatment.

Following decompression, the chamber must be deep cleaned and disinfected with appropriate cleaning products. BIBS must be removed, cleaned and disinfected (including the exterior of the supply and dump hoses). Loose equipment and chamber furnishings should be removed, cleaned and disinfected separately. Personnel performing the cleaning and disinfection must wear appropriate PPE.

7 CONCLUSION

COVID-19 poses a serious risk to the diving population. The nature of the work means close contact is unavoidable and offshore diving projects are normally conducted in remote areas without easy access to medical facilities. The most effective way to minimise the impact of COVID-19 is by preventing the virus arriving at the work site through rigorous pre-mobilisation and pre-embarkation screening and excluding individuals who may have been exposed to the virus.

The diving population tends to be in generally good health. If the virus affects the diving workforce, in most cases it should not develop into serious illness. Nevertheless, until a diagnostic test for offshore use is readily available, a case of airway infection in a saturation chamber is likely to necessitate decompression, abortion of the operation and the vessel going to shore. It is essential therefore that all possible measures are taken to minimise the introduction and spread of the virus.

The evolution of the virus and its spread is a dynamic situation and further guidance may be produced as more information on COVID-19 becomes available.

Example of Pre-Deployment Questionnaire

1. Within the last 14 days, have you travelled to, through or from any countries other than the country of intended embarkation?

YES

NO

If the answer IS "YES", list the countries here:

2. Have you had any close contact with a person who has a confirmed COVID-19 infection or is under investigation for COVID-19 infection?

YES

NO

3. Do you currently have? (check all that apply):

Fever

Cough

Sore Throat

Shortness of Breath

Name:

Date:

NOTE

It is important that the contractor has access to suitable medical expertise that can assess the questionnaire in the event of a positive response to any of the questions.

Example of COVID-19 Pre-Embarkation Information Sheet

The Coronavirus (COVID-19) Key facts

- Originated in Wuhan, China in December 2019
- Currently spreading to other parts of the world
- COVID-19 may present severe symptoms that may prove to be fatal, particularly in those with underlying health issues such as asthma or other conditions with the respiratory system
- There is currently no medical vaccine for COVID-19

Symptoms of COVID-19

Current known symptoms of COVID-19 include;

- Fever
- Coughing
- Sore Throat
- Breathing Difficulty
- Fatigue
- Body Aches

Symptoms usually develop within 2 to 14 days. During this time the virus can be spread to others. It is spread through ingestion, inhalation. The virus also survives and lives on surfaces and objects.

How to protect yourself and others

- **COMPLETE THE PERSONAL SCREENING QUESTIONNAIRE ON THE BACK OF THIS INFORMATION SHEET**
- Avoid large groups of people
- Avoid those displaying any symptoms of COVID-19
- Self-isolate yourself and communicate your actions to the Vessel Master
- Catch your cough and sneezes in a towel or tissue, then dispose of it and wash your hands
- Wash your hands as the **PRIMARY** method of hygiene for at least 20 seconds with soap and warm water
- Use alcohol sanitiser gels as a **SECONDARY** means of hygiene, **NOT** in place of hand washing
- Monitor trusted news sources for up to date information

Contact the Medic **IMMEDIATELY** if you experience any COVID-19 like symptoms described above.

Example of COVID-19 Pre-Embarkation Check Sheet

COVID-19 Screening Questionnaire: General Information			Completed by Medic	Completed by Crew Member
Name:		Company:		
Travelled From (<i>country</i>):				
Travelled through (<i>country</i>):				
Date of Arrival in in this country		Country of Residence:		

COVID-19 Screening Questionnaire: Medical Information			Completed by Medic	Completed by Person
Body Temperature:		Any visual signs of illness:	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Describe symptoms:				
Do you currently have or have had in the last 14 days any of following symptoms ?;			Comments / Observations	
Fever	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
Cough	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
Body Aches	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
Sore Throat	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
Nausea / Vomiting	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
Shortness of Breath	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
Fatigue	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
Any unexplained illness	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
In the last 14 days have you visited any High Risk areas as defined by the WHO or local national guidance	Yes <input type="checkbox"/>		No <input type="checkbox"/>	
If yes, identify which country(<i>ies</i>)				
Have you ever been to a healthcare facility where confirmed or suspected case of 2019 Novel Coronavirus were being treated?	Yes <input type="checkbox"/>		No <input type="checkbox"/>	
Have you ever been in contact with a confirmed or suspected case of 2019 Novel Coronavirus (COVID-19)?	Yes <input type="checkbox"/>		No <input type="checkbox"/>	

Please note, that you have a duty of care and obligation to yourself and others who you may knowingly, or unknowingly infect with COVID-19. It is therefore vital that this questionnaire is completed with factual and honest information regarding your health.

Examiner

Examinee

Medic Name: _____

Name: _____

Medic Signature: _____

Signature: _____

Date: _____

Date: _____

NOTE

It is important that the contractor has access to suitable medical expertise that can assess the questionnaire in the event of a positive response to any of the questions.