

# **Medical fitness test for employees working on offshore wind parks and other offshore installations**

S1 - Guideline

Association of the Scientific Medical  
Societies in Germany (AWMF e.V.)



The following guideline was compiled with utmost care and in accordance with applicable scientific standards. Neither the authors nor the medical societies involved (German Society for Occupational and Environmental Medicine – DGAUM e.V., German Maritime Health Association – DGMM e.V.) nor institutions (authorities, trade associations) assume any liability for the conduct of the investigation. The appropriate guidelines for quality assurance of individual examinations are to be observed. The application of these recommendations must take individual circumstances into consideration, and be done at the discretion of an occupational physician, or a physician with additional qualifications in occupational medicine. It is the responsibility of the company operator to ensure that such examinations are performed.

For the purpose of simplification, this text only makes reference to people in the masculine form. However, the text explicitly applies to both genders.

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## Introduction

In Germany, offshore wind parks (OWP) are being planned, built and operated in the North and Baltic Seas. In line with this, new challenges in the industry are arising, including the need for new employee health and safety regulations. The duties performed on wind energy plants (WEA) or on transformer platforms are characterized by considerable physical exertion, work at great heights and within restricted spaces, exposure to heat and cold, as well as by shift work. It is clear to all governing parties involved that offshore work places a certain amount of physical and mental strain on the employees and, as a result, certain physical and medical safety concepts, particularly with regard to the physical suitability of employees, must be developed. In many of the neighbouring North Sea countries, such as Great Britain, the Netherlands and Norway, similar work environments in the oil and gas production have been known for many years. In these cases, rules concerning the suitability of employees working on oil and gas platforms have long existed [1-4]. The “Hardanger Agreement” [5,6] describes the mutual recognition of certificates of fitness between these countries.

The present guideline is based on the recommendations of the “Offshore” WG of the DGMM, by occupational physicians experienced in this particular area, and was developed in cooperation with DGAUM, representatives of authorities and professional and industrial associations, as well as offshore employees, to help determine the health suitability of employees working on OWPs. The guideline draws on the German Occupational Safety and Health Act [7], and takes into account certain elements of the examinations laid out in the various regulations of the oil and gas industry in the previously mentioned neighbouring North Sea countries. It presents the industry standard for aptitude tests for jobs on OWPs within the German Exclusive Economic Zone (GEEZ), describes the examinations and provides criteria on how to assess certain potential illnesses of employees with respect to their offshore suitability.

Jobs on OWPs are varied. This is reflected in the legally-prescribed risk assessment process, in which an occupational physician is to be involved. Ultimately, the extent and content of offshore-aptitude investigations depend on the individual risk assessment of each specific workplace. In each case, the recommendations presented in this guideline are to be taken into consideration.

It should be emphasized that the final decision regarding eligibility to work lies with the employer. However, the results of the physical fitness screening should factor into the employer's decision.

## **1. General notes**

### **1.1. Legal framework**

Almost all offshore workplaces in the German maritime area are located within the EEZ, where German law is not always directly applicable. However, in accordance with the United Nations Convention of the Law of the Sea [8], special extended coverage clauses were developed. As a result, the Occupational Safety and Health Act, according to § 1, para. (1), also applies to the EEZ. This guideline bases itself in particular on the Occupational Safety and Health Act.

The regulation on occupational medical care (ArbMedVV) [9] is also based on the Occupational Safety and Health Act and is therefore similarly applicable in the EEZ (see ArbMedVV 1 para. (2)). This particular regulation, however, is not a subject of this guideline.

### **1.2. Specific health requirements of the offshore workplace**

The offshore workplace is located far from the mainland in a potentially hostile environment, where qualified medical care is typically not available. In addition, adverse weather conditions may cause long delays for urgent transports to the mainland, which can further aggravate health problems that were perhaps initially minor.

When screening employees for offshore assignments, the physician must carefully assess physical and mental fitness with respect to the special demands and circumstances of the offshore work environment. The employee should be fit for the duties of the offshore workplace, as well as sufficiently able to withstand stress.

### **1.3. Requirements of the examining physician**

The physician performing the examination must follow specific occupational medicine standards. In order to fulfil the requirements and thoroughly perform the examination, an occupational medicine qualification (such as a specialization in occupational medicine, or additional qualifications in industrial medicine), relevant work experience and the appropriate equipment are required. The physician must be sufficiently informed with respect to the workplace and the range of duties of the potential employee in question. Furthermore, he must ensure that the demands of the mandatory safety training can be met.

If the doctor does not possess the necessary expertise or equipment for certain investigation procedures, he must then consult with other specialists who fulfil these requirements.

#### **1.4. Hazards of the offshore work environment**

The examining doctor must have sufficient knowledge of the individual tasks and workplace conditions of each potential employee. In addition, he should take into account the specific risk assessment for the workplace in question.

##### **Offshore living and working conditions**

These include in particular:

- Significant physical exertion (e.g., climbing stairs, ladders, connectors)
- Tasks to be performed at great heights
- Exposure to heat and cold
- Helicopter and boat transport during swell
- Windlass work
- Absence from home for long periods of time
- Shift work (see also Offshore Working time regulation [10])
- Limited privacy
- Adverse weather conditions, which can delay or prevent medical assistance or evacuation from the offshore site
- Emergency situations, including the evacuation from the offshore site; these may result in extreme physical exertion, exposure to unusual temperatures and smoke, as well as immersion in cold water
- Spatial confinement
- Medical facilities are usually far away

While mainland work may be compatible with phases of illness or accident-related physical limitations, these are usually unacceptable for activities in an offshore work environment. This may lead to temporary or permanent restriction from work.

The insufficient physical and mental endurance of an offshore employee may neither cause unnecessary risks for his colleagues nor problems for the safe operation of the plant. The examination also, of course, serves the employee's own safety.

Because these conditions are strenuous and potentially health-compromising, it follows that offshore employees must undergo an occupational medicine health screening.

As alcohol and drug consumption leads to considerable danger for the self, as well as others, it is recommended that the operator develop company regulations regarding the drug and alcohol testing of potential offshore employees. If necessary, these should be incorporated into the examination.

## **1.5 Visitors**

Representatives from external companies and organizations often visit offshore plants. Because risks associated with offshore work in part depend on the length of the offshore stay, visitors generally have a lower risk than employees who work full time or primarily on the offshore facility.

The following procedure is recommended:

No certificate of fitness for offshore work is necessary for visits up to 12 hours. However, visitors should be medically interviewed prior to the visit, in accordance with the health conditions listed in Form D. If none of the items apply, and their the document has been signed, they may be considered fit for an offshore visit. This form is to be presented to the operator before embarkation or helicopter departure. It is valid for one month.

The diagnosis of an illness or health issue does not completely rule out a visit, however special preparations or considerations must be made.

## **1.6. Physical examination**

### **Medical history**

The identity of the offshore employee (e.g. by government-issued ID or passport) must be verified to prevent the issuing of false certifications.

Employees should complete a detailed questionnaire on their medical history, social background and past employment (see Form A). All questions answered "Yes" must be discussed with the employee, and the results of said discussion must be documented in writing. The employee's signature of the filled-out questionnaire confirms the accuracy and completeness of the information. The employee must be fully aware of the significance of this signature.

### **Health status assessment**

A complete clinical examination, including dental status, forms the basis for subsequent evaluation. A urinalysis (at least consisting of tests for glucose, proteinuria, erythrocytes and leukocytes) and blood analysis (blood count, ALT, gamma-GT, creatinine, blood glucose (if necessary HbA1c), cholesterol, as well as erythrocyte sedimentation rate or CRP) are necessary. A respiratory function test, ECG and stress ECG, as well as a visual test, are also always part of the initial and subsequent investigations.

The following levels of physical performance of offshore employees are required: at least 2.1 watts/kg of body weight for men and 1.7 watts/kg of body weight for women, at a heart rate of 150/min (W150) or less. An initial hearing test should be carried out and, depending on the physician's assessment of the particular work environment and the individual's risk profile, repeated on subsequent

examinations. A chest x-ray is not mandatory for the initial assessment unless otherwise indicated by the prospective employee's medical history or at the discretion of the physician.

Further examinations (e.g. blood analysis, stool cultures, special eye examinations) can be carried out to either further explore diagnostic findings or to assess fitness for specific work requirements (e.g., kitchen or catering staff, crane operators or members of rescue or fire-fighter teams). Tetanus vaccinations must be verified.

### **1.7. Assessment of physical fitness**

Physical fitness for offshore activities is determined on the basis of clinical examination findings. The assessment can be influenced by the following factors:

- Location of offshore sites and availability of on-site medical care
- Prognosis of the efficacy or possible side effects of a necessary pharmacological treatment
- Risk of relapse or acute deterioration, which may require medical intervention
- Health risks caused by the offshore environment
- The projected frequency and duration of offshore assignments
- Availability of specialized medical care
- Age should not itself be an obstacle to fitness of offshore work, but must be considered in conjunction with all other examination results. The minimum age is 18 years in all cases.

#### **Firemen and rescue team members**

Although fire-fighting teams posted on offshore facilities are not considered professional fire-fighters, they nevertheless must fulfil the physical requirements for fire-fighting as well as for search and rescue activities in emergency situations.

#### **Physical disabilities**

If the examination uncovers a physical disability, a possible adjustment of the workplace should be taken into consideration prior to the final assessment of fitness. This must include an evaluation of the person's abilities to carry out the necessary rescue and emergency escape tasks. Since occupational safety is the priority, no safety-hindering compromises may be involved in the adaptation of the workplace.

### **1.8. Medical certificate of fitness**

The examining physician issues the occupational medicine certificate of fitness for activities in offshore workplaces (Form B, in both German and English).

The certificate will be delivered to the examinee, whereafter he may present it to the appropriate authority. In cases where the potential employee is deemed unfit for offshore work, Form C is to be completed and forwarded to both the employer and

the examinee. In conflict cases or when a second medical opinion is desired, members of the working groups of the medical professional societies involved in this guideline (Offshore guideline group of the DGAUM and the Offshore WG of the DGMM) should be consulted.

### **1.9. Frequency of fitness examinations**

All employees will be examined before beginning an offshore assignment and every two years thereafter. This stipulation is in accordance with international regulations.

If he wishes, the employer may assign more frequent investigations, e.g. following risk assessment.

The examining doctor may also request more frequent examinations should it be deemed medically necessary. In case of certain medical conditions, a follow-up or explorative assessment may be required.

The physical condition of employees must also be reassessed following injury or illness. This may result in further examinations. This renewed medical assessment is indicated when a person was absent from work for more than six weeks.

### **1.10 Medical confidentiality**

The examinations discussed in this document are subject to medical confidentiality.

The requirements of the data protection law shall apply.

### **1.11 Forms**

The forms for the examining doctor for the medical examination/investigation, as well as the certificates of (un-)fitness, are provided in the appendices (see Forms A-D). The issued certificates must not be the same as the sample forms provided here, however the content may not differ.

Upon request, the results of the examination can be included in the Personal Safety Logbook.

## **1.12 General considerations and instructions concerning health risk assessment within the scope of the aptitude test for offshore activities**

The issuance of a certificate of fitness essentially depends on two factors:

- The ability of the examined person to meet the requirements of the workplace and
- The ability to do so safely

The determination of fitness for offshore work must consider the points covered in 1.12.1 – 1.12.3.

### **1.12.1 Physical abilities**

Regardless of their assigned professional activities, all offshore workers must be able to arrive at and evacuate their place of work. This may include putting on and taking off survival suits, body warmers, rescue vests and/or "air pockets," entering and leaving a helicopter via ladder (also under water), fastening and unfastening of safety belts, and climbing ladders and stairs on platforms while wearing the necessary equipment and while carrying personal belongings. Additionally, offshore workers must be able to independently arrive at a previously-specified rendezvous point and enter a rescue vehicle. As such, the examining physician should consider these tasks when assessing the employee for fitness to work offshore. Specifically, the following abilities should be examined: walking/running, climbing up and down stairs and ladders, bending, kneeling, crawling, squatting, the ability to hold and reach items (body height, arm length) as well as to handle and operate them, and the full use/dexterity of the hands.

### **1.12.2 Safety**

The question of safety at the offshore work location depends, in part, on the occurrence of adverse health events. Whether the situation can still be considered "safe" depends on the following factors:

- Type of adverse event,
- Probability of occurrence,
- Consequences in case of occurrence and
- Whether or not measures can be initiated to reduce the probability of occurrence or to mitigate the consequences of occurrence.

### **1.12.3 Medical history and risk of diseases**

Organic or functional illnesses, which cause (or probably cause) reduced consciousness, or impairment of cognitive or physical functions will significantly and unfavourably influence the examined person in his ability to work offshore, as well as his security, the security of his colleagues, and the safe operation of the plant. The assessment of fitness to work therefore comprises a risk evaluation, which must consider the following two factors:

1. What is the probability of occurrence of a condition which could impair the individual health and ability of the test person?

2. What are the consequences of an illness that has a higher probability of occurring? Would it substantially affect the working ability or require an immediate medical evacuation or first-aid/rescue measures?

So could, for example, the risk of occurrence of a mild disease, which would only marginally affect the employee's fitness to work and would not require first-aid or rescue measures be acceptable.

The manifestation of a severe and suddenly-occurring disease, however, which would require first-aid from colleagues and urgent helicopter evacuation, would lead to an unacceptable risk to colleagues, to the safety of the plant and to the safety of the people involved in the rescue. Such an above-average risk level for a specific illness or health issue is not to be accepted under any circumstances. Chapter 2 gives an overview on the risk evaluation of individual diseases.

## **2. Determination of risk for specific medical conditions**

### **2.1 Infectious diseases**

Open tuberculosis infections, gastroenteritis or sexually transmitted diseases are not acceptable for offshore work. Screening for pulmonary tuberculosis should be limited to persons originating from high-incidence countries (>50/100000). HIV infection is acceptable provided there is no reason to anticipate therapy side effects or acute emergencies. Manifested AIDS is not compatible with the conditions of the offshore workplace.

Special examinations apply to catering staff, which go above and beyond the demands of the Protection against Infection Act (IfSG), in an effort to best prevent an outbreak of acute illness at sea. This includes the gastrointestinal tract, the respiratory system and the skin (see Annex 1 - Catering staff).

### **2.2. Malignant neoplasms**

Employees with histologically confirmed cases of malignant disease are generally not suitable for offshore activities. However, each case is to be considered individually, with both the development and prognosis being taken into account. In such situations, the progression and the likelihood of complication, of the disease as well as its treatment, must be carefully weighed.

It is recommended that examiners collect all relevant information from the treating physician prior to making a final decision. It may be necessary to limit the validity of the certificate of fitness to ensure appropriate medical follow-up.

### **2.3 Digestive disorders**

Any person suffering from a digestive disorder with severe or recurring symptoms should be referred to a qualified medical specialist for diagnosis and assessment in terms of fitness for offshore work.

#### **2.3.1. Special circumstances**

Painful dental decay, infections of the oral mucosa, severe gum disease, or diseases of the mandibular joint are not acceptable for offshore work. Dental extraction, replacement or other orthodontic treatments do not categorically exclude offshore compatibility, as long as they are in good condition and do not hinder the proper use of the PSA/rescue facilities.

Esophageal disease, such as reflux or stricture, is acceptable provided it has been properly diagnosed and/or treated. Endogastritis that has been examined and satisfactorily treated is also acceptable.

Peptic ulcerations are not acceptable for offshore activities. The employee may return to offshore work after or while receiving targeted therapy (e.g. eradication therapy) provided he is generally symptom-free. Intestinal disorders such as ulcerative colitis or Crohn's disease are acceptable as long as they have been definitively diagnosed and treated, and only cause minor symptoms.

Hemorrhoids, fistulae or fissures that cause severe pain, recurring bleeding or impaired bowel movements, etc., are unacceptable for offshore work. Perianal abscess is also generally not acceptable, unless successfully treated.

The presence of gallstones must be clarified and, if necessary, treated by a medical specialist. Patients who are asymptomatic, either with or without treatment, are fit for offshore employment.

## **2.4 Disorders of the liver and pancreas**

Persons suffering from liver disease must provide a report from a specialist, including blood-clotting function. Liver diseases are not acceptable if in an advanced stage and/or if there are complications such as esophageal varices or ascites.

Due to the possible side effects, those with chronic active hepatitis requiring Interferon treatment are unfit for offshore work.

Chronic or recurring pancreatitis also are not acceptable.

## **2.5 Cardiovascular system**

Any acute or chronic disease of the cardiovascular system with symptoms that would significantly reduce an employee's performance in the offshore workplace is unacceptable. In addition, any necessary medications or side effects thereof may not impair work performance.

It is to be noted that all persons with such restrictions must still be able to successfully complete the survival training.

### **2.5.1. Congenital heart disease**

With the exception of atrial septum defects or small ventricular septum defects without hemodynamic significance, all congenital heart conditions should be individually assessed by a cardiologist before arriving at a final decision.

### **2.5.2. Valvular heart disease**

Employees suffering from significant adverse hemodynamic effects as diagnosed by a medical specialist cannot be considered for offshore work. If the examinee has successfully undergone heart valve surgery or has only a minor congenital heart condition, offshore work can be considered provided there are no symptoms and the operative/minimal-invasive therapy has been completed. It should be

noted that patients who continue to receive strong anticoagulants (such as Warfarin) are subject to significant risk of extended bleeding in case of trauma (see also chapter 2.12.3).

### **2.5.3. Ischemic heart diseases**

Myocardial ischemia may be tolerated under certain circumstances.

All patients with documented coronary heart disease that have not been surgically or minimally-invasively treated should be following an optimized medication regimen and should be symptom-free for a period of at least 4 months.

They must be able to tolerate a complete ergometric assessment to the point of physical exhaustion without showing any cardiac symptoms or signs of myocardial ischemia (e.g., angina) in the ECG. Those exhibiting suspect changes or abnormalities should receive an additional assessment from a cardiologist. Employees wanting to return to offshore work who have symptoms despite pharmacological treatment or who show signs of myocardial ischemia in the ECG must also undergo cardiologist assessment prior to the occupational health screening.

Such persons need to be advised with respect to preventive measures and risk factors such as smoking, obesity, diabetes and hypercholesterolemia.

### **2.5.4. Myocardial infarction**

Employees who have suffered a heart attack may be considered for offshore work after 4 months, provided a cardiology consultation documents the following:

- Subjective absence of symptoms,
- No evidence of myocardial ischemia. This can be assessed with an ergometric test (according to German "G26.III" criteria), without chest pain or ischemic changes in the ECG,
- Should an abnormal ergometric test require cardiac catheterization for further clarification, the results of the examination must show no high-risk vascular changes in the coronary vessels and the ejection fraction of the left ventricle must exceed 40%.

If the diagnostic findings of a coronary angiography indicate the need for a minimally-invasive procedure (stent/PTCA) or a coronary bypass, the employee must wait a minimum of 4 months following successful treatment in order to be considered for offshore work. This is conditional on confirmation from the treating cardiologist on the success of the procedure and on an ergometric test that doesn't yield any evidence of coronary ischemia.

The increased risk of bleeding from the administration of platelet aggregation inhibitors and/or oral anticoagulants requires special consideration concerning the possibility of injury.

The physician should ensure that the employee is sufficiently informed and accepting of the generally recognized risk factors for vascular disease, including

nicotine abuse, a high BMI, lack of physical activity and high cholesterol levels (if necessary, the cholesterol-lowering medications may be prescribed).

It should be noted that such offshore persons are still required to successfully pass the complete survival training.

As a rule, employees suffering from such conditions are not qualified for fire-fighting tasks. This also must be taken into account when assigning tasks.

### **2.5.5. Heart transplant**

Persons with a history of heart transplant may not be considered for offshore employment because they are dependent on immunosuppressants.

### **2.5.6. Cardiac arrhythmia**

A statement from a cardiologist is required for any employee suffering from cardiac arrhythmia that leads to impaired cardiac function or temporarily limits physical performance. Persons taking medication for cardiac arrhythmia may be considered for offshore employment as long as they have received an appropriate assessment from a cardiologist.

### **2.5.7. Pacemaker and implantable cardioverter defibrillator (ICD)**

The necessity of an cardiac pacemaker does not preclude qualification for offshore work. However, a cardiologist should ensure that the patient has not experienced any syncope or presyncope following implantation of the pacemaker and that no complications are to be expected in conjunction with the offshore assignment. During offshore operations, employees must have their pacemaker identification card with them.

Employees who are dependent on a pacemaker must document that the function of the device is not likely to be adversely affected by any electromagnetic energy they may encounter before they can be issued a certificate of fitness for offshore work. The regulations of the facility operator must be observed, and a separate risk analysis may be required. The use of a security harness, e.g., against fall, may not mechanically affect the implanted device in position and function.

Persons with overdrive-anti-tachycardia pacemakers or ICDs should not be employed at offshore locations, as syncope cannot be ruled out. In particular cases, an exception may be justified. If, for example, over the past 2 years there has been no incidence of syncope or documentation of an administered high-energy shock. Furthermore, no severe cardiac function disorders may be present. In all case, a specialist assessment is required.

## **2.6 Hypertension**

Arterial hypertension without complication and well-controlled by treatment is generally acceptable.

## **2.7 Vascular disorders**

Thrombophlebitis or phlebothrombosis (deep vein thrombosis) with or without embolism in the past 3 months is not acceptable. Recurring cases that have not been further investigated are also unacceptable.

Varicose veins are generally not problematic, unless they lead to eczema, ulcers, or other complications.

Arteriosclerosis or other vascular diseases with clear signs of impaired blood circulation, such as intermittent claudication (so-called "window shopper's disease") or abdominal or thoracic aortic aneurysms are not compatible with offshore employment. Symptomatic peripheral vascular disorders must also be ruled out before offshore employment can begin.

Diseases of the carotid arteries should be thoroughly investigated in order to assess the stage of the disease (sclerosis) as well as any potentially associated risks.

## **2.8 Pulmonary circulation**

Patients with a history of multiple pulmonary embolisms will need to undergo a thorough examination. Even a single occurrence requires careful assessment from a medical specialist. The results of this report can then be used to assess fitness for offshore work.

## **2.9 Cerebro-vascular disorders**

### **2.9.1. TIA/Stroke**

Patients who have suffered a temporary ischemic attack (TIA), a stroke or a cerebral haemorrhage during the last six months are to be classified as high-risk and are generally not suitable for offshore works.

Employees affected from such attacks (TIA) do not normally suffer from residual effects or complications. There is however an increased risk for a renewed cerebral event, which must be evaluated with respect to the intended duties, possibly also requiring a neurological consult. In all cases, a detailed clinical examination that reveals the underlying condition must take place, and all potential risk factors must be identified and, if possible, treated.

In cases of persisting weaknesses or deficits, it must be determined if the requirements of the corresponding sections are completely fulfilled. An early re-examination is necessary after one year at the latest.

It is to be noted that such affected persons also have a statistically higher risk of future cardiovascular disease. This risk must be assessed in conjunction with any further evidence of arteriosclerotic vascular diseases.

## **2.10 Psychiatric conditions and drug abuse**

Persons with untreated psychiatric and psychological illnesses and disorders are unfit for offshore activities. Even when receiving therapy, employees will often be deemed unfit because of the potential side effects of medication and possible non-compliance.

Drug and alcohol abuse result in exclusion from offshore activities. In cases of past dependency problems, employees must document successful therapy and abstinence for at least one year.

## **2.11 Disorders of the nervous system and the sensory organs**

Diseases of the nervous system may have negative consequences with respect to the following requirements; they should be individually assessed:

- Is the affected person in the position to participate in the offshore survival training?
- Can the affected person perform his normal activities freely without endangering his and others' safety?
- If necessary, is the affected person able to leave the plant via rescue helicopter or ship?
- Can any negative side effects of drugs that would influence his offshore performance be ruled out?

The affected person must be further evaluated if the results of therapy (or the forgotten intake of medication) could lead to the following symptoms:

- Changes in the state of consciousness
- Reduced cognitive abilities, in particular concerning memory or concentration
- Muscle weakness
- Disturbance of balance and/or coordination
- A reduction in mobility that prevents safe manoeuvring on and around the plant, particularly in emergency situations
- Disturbances of sensory function, which could hinder his ability to work on the plant or react in an emergency situation.

### **2.11.1. Epilepsy**

Diagnosed epilepsy with recurring epileptic seizures of any kind is not compatible with working on offshore facilities.

Exceptions have to be justified and it is recommended to obtain the opinion of a neurologist.

### **2.11.2. Multiple sclerosis**

Employees with multiple sclerosis should be individually assessed. Those with minor or primarily sensory symptoms are most likely fit for offshore work. However, severe and limiting symptoms may occur, in spite of good medical treatment, even in cases of mild multiple sclerosis. If such symptoms exist, the candidate is not suitable for offshore work.

### **2.11.3. Migraine**

The majority of cases are straightforward and respond well to treatment, and therefore should not interfere with an employee's fitness for offshore work.

More severe cases may lead to episodic protracted incapacity and could cause temporary unfitness for offshore work. In such cases, before a certificate of fitness is denied, a neurological assessment should be obtained, along with an optimized therapy regime for minimizing symptoms.

### **2.11.4. Narcolepsy / Obstructive sleep apnoea syndrome / insomnia**

The risk associated with these disorders lies in the increased likelihood of accidents due to lack of attention or the inability to sufficiently concentrate on a given task.

Employees affected by these conditions should be examined and assessed with particular care.

It is probable that persons who experience unpredictable phases of sleepiness during normal waking hours, as a result of narcolepsy, obstructive sleep apnoea syndrome (OSAS), or sleep disorders, are not suitable for offshore work. People who have undergone successful therapy that can also be continued at the offshore site (e.g., CPAP masks) may be considered fit for offshore activities.

## **2.12 Disorders of the blood and hematopoietic organs**

Due to the complex nature of haematological disorders, occupational physicians should consider obtaining specialist opinion before issuing or denying a certificate of fitness.

In many cases, it may be appropriate to issue a certificate for a shorter term to allow for closer monitoring of the employee's health. The following points on specific conditions should be observed.

### **2.12.1. Anaemia**

Severe symptomatic anaemia cannot be tolerated until it has been sufficiently investigated and successfully treated.

Minor asymptomatic anaemia may be tolerable if the employee is receiving suitable medical care.

Thalassemia trait and other asymptomatic cellular disorders do not preclude an employee from working offshore. However, the symptoms associated with Thalassemia Major and other impairing cellular disorders, as well as their therapy, make the affected persons unfit for offshore activities.

### **2.12.2. Polycythaemia**

Primary polycythaemia (polycythaemia rubra vera) is usually unproblematic, provided its treatment is not interrupted by the cycles of offshore work, and that blood values are in the normal range.

Secondary polycythaemia is a ground for exclusion.

### **2.12.3. Bleeding disorders**

Thrombocytopenia increases the risk of sufferers to haemorrhage after traumatic injuries. When the platelet count is very low, persons can also experience spontaneous bleeding. A platelet count below 65,000 rules out employment at an offshore site.

Haemophilia and its associated health concerns are only compatible with offshore activities when accompanied by sufficient therapy and close monitoring, preferably in consultation with the treating haematologist.

Drugs that inhibit or influence coagulation, such as vitamin K antagonists (Phenprocoumon, Marcumar or Warfarin) or the so-called new oral anticoagulants (NOAK) Rivaroxaban (Xarelto), Dabigatran (Pradaxa) and Apixaban (Eliquis), require special attention. Offshore employees are again to be informed regarding the possible danger of uncontrollable bleeding while on the job.

If the employee must take vitamin K antagonists (Phenprocoumon/Marcumar/Warfarin), the INR value should have been within the therapeutic range during the last 2 months prior to examination (depending on the indication, usually INR 2-3). When under NOAK therapy, laboratory controls are not possible; nevertheless, the reliable intake must be assured, and no signs of or tendency towards spontaneous bleeding should be observed (e.g., nosebleeds, bleeding gums, spontaneous bruising, etc.).

If oral anticoagulation with a vitamin K antagonist and target INR > 3 is indicated, as is the case for mechanical heart valves or recurrent pulmonary embolisms, the person will not be deemed fit for offshore. A combined medical treatment with oral anticoagulants and thrombocyte aggregation inhibitors may require specialist evaluation in particular cases.

### **2.12.4. Malignant blood diseases**

Immunosuppressant treatment or chemotherapy is not compatible with the conditions of the offshore workplace.

### **2.13 Musculoskeletal disorders**

If examination of the musculoskeletal system results in pathological findings, possible functional/physical restrictions of the employee must be assessed. This not only refers to the assigned, particular duties of the employee, but also to other general activities of offshore work, such as helicopter flights, wearing survival gear, the ability to climb up and down stairs and ladders, and the ability to carry out emergency measures and their associated tasks.

Illnesses, injuries, or disabilities that may be associated with progressive deterioration or relapse do not necessarily preclude a person from offshore work. However, such employees should be subject to appropriate, and if necessary, shorter review cycles.

### **2.14 Skin diseases**

Skin conditions resulting in physical limitations may not be compatible with offshore work.

This also applies to skin disorders or symptoms that can be expected to deteriorate or intensify while working under the conditions of the offshore environment. This includes contact with oil, detergents, epoxy resins or other substances. This is especially true when the use of these substances is mandatory, despite having taken all reasonable measures to replace them with other materials.

### **2.15 Endocrine system and metabolic disorders**

All cases of endocrine and metabolic disorders require comprehensive examination and, if applicable, specialist reports before a certificate of fitness for offshore work can be issued.

Non-insulin-dependent, well-adjusted and stable diabetes mellitus is usually tolerable for offshore activities, although a restricted period of certification may be considered. Employees with insulin-dependent diabetes are generally not suited for offshore activities. Exceptions may be made, for example if the patient's HbA1c values have remained stable for at least 1 year, no complications occur and the person does not suffer from hypoglycaemia unawareness. However, such cases must be carefully weighed.

Exceptions are also possible in cases where new medications have been prescribed (which could lead to attacks of hypoglycaemia), provided the above-mentioned conditions are fulfilled.

Thyroid disorders that yield regular hormone values upon testing, or thyroid diseases that are medically well-controlled, can generally be tolerated. More frequent examination may be necessary.

Gout requires individual assessment. If the condition is treated with appropriate medication, it should not be an obstacle to offshore activities.

Other endocrine diseases such as Addison's disease, Cushing Syndrome, etc. must be reviewed individually, if necessary with additional specialist reports. Generally, however, such disorders and the corresponding symptoms rule out employment on offshore facilities.

### **2.15.1 Obesity**

All cases of obesity require individual assessment. Cases in which an employee's mobility or general health is affected, or in which the extra weight may endanger the general safety of offshore work, are not compatible. When the Body Mass Index (BMI) exceeds 30, all other potential risk factors must be carefully reviewed during assessment. The period of certificate validity should be shortened. A BMI greater than 35 is not compatible with the conditions of the offshore workplace. For tasks that require personal protection equipment (PSA), the maximum intended weight load must be checked. This is not the duty of the examining doctor, but rather the employer. Such items should be noted in the certificate. Furthermore, it must be determined and noted that the potential employee is able to pass through a standard-sized helicopter window in case of emergency rescue.

### **2.16 Genitourinary system**

Employees with bladder and/or kidney stones are not suited for offshore assignments. Recurring kidney stone colic without evidence of stones requires further specialist assessment. In general, kidney stones can be successfully treated with surgery or lithotripsy. Following successful treatment, employees must wait 3 months before they can be considered for offshore work.

Recurring urinary tract infections are not compatible with offshore assignments unless the employee has been successfully treated.

All kidney diseases that may lead to acute kidney failure such as nephrosis or nephritis, etc., cannot be tolerated. If diseases such as kidney cysts or hydronephrosis affect both kidneys at once, offshore employment also cannot be granted. This also applies to persons who have undergone unilateral nephrectomy and whose remaining kidney is diseased. A report from a specialized physician may be required.

Significant incontinence or active enuresis (bed-wetting) is not compatible with the conditions of the offshore workplace.

Acute prostatitis is also unacceptable. Employees with symptomatic prostate enlargement or urethral stricture that result in urination problems are not suitable for offshore assignments. Known prostate cancer requires a statement from a medical specialist. Testicular diseases such as hydrocele, testicular cancer, etc., require careful examination, and possibly specialist opinion.

Gynaecological disorders such as metrorrhagia (extended menstrual bleeding), hypermenorrhea (heavy menstrual bleeding) or dysmenorrhea (painful menstrual bleeding) must be assessed in terms of their extent and may lead to exclusion from offshore employment. Infectious diseases of the pelvic area, uterus and/or vagina need to be examined and assessed by a gynaecologist.

Acute sexually transmitted diseases cannot be tolerated. For the procedure regarding HIV infection, see chapter 2.1 (Infectious diseases).

Pregnant employees working on offshore platforms should be carefully assessed, particularly with respect to occupational health laws and maternity protection regulations. Any pregnancy-associated complications or disorders that may cause complications are incompatible with offshore work (see Annex 4).

## **2.17 Respiratory system**

Obstructive respiratory illnesses such as chronic obstructive bronchitis, emphysema and asthma can all cause significant reductions in individual fitness levels. The extent of pulmonary disease should be assessed on the basis of spirometry results as follows:

A forced vital capacity (FVC) below 70% of predicted value and forced expiratory volume in 1 second (FEV<sub>1</sub>) below 65% of predicted value are a sign of moderate to severe incapacitation of pulmonary function and are not acceptable.

Fibrotic lung disease with significant symptoms or reduced oxygen diffusion rules out employment at an offshore site.

A past history of spontaneous pneumothorax generally rules out offshore work, unless it was a single episode that did not occur in the last year and the patient underwent successful surgery.

Other pulmonary diseases that cause a significant reduction in respiratory function, as well as chronically recurring diseases (e.g., bronchiectasis accompanied by frequent infections) are also not tolerable.

Open tuberculosis is not acceptable until the treatment has been completed and the treating physician certifies that the patient is no longer infectious.

Acute or past asthma requires, in addition to the evaluation of the test results, a careful assessment of the patient history.

Asthmatic disorders have a broad clinical spectrum, which ranges from mild and irregular phases of illness with minimal symptoms and no significant functional impairment to severe and frequent phases of illness associated with pronounced symptoms and significant functional impairment. If an asthmatic tendency is found in an applicant for offshore work, the following should be considered

- spectrum of the disease and severity of functional impairment,

- physical capability (with regard to the work requirements, including emergencies)
- bronchial hyper-reactivity from work-related asthma triggers: exertion, cold air, dust, chemicals, anxiety, food allergens, etc.
- ability to use protective respiratory equipment of class 2 or 3
- side effects of medication
- expected complications
- requirements of the workplace.

A candidate must be able to meet the following criteria if he wishes to be accepted for offshore work, in spite of asthmatic disease:

- clinically minor symptoms that do not cause any functional impairments under therapy,
- stable progression of disease with rare and predictable asthmatic episodes,
- no severe asthma attacks or hospitalizations within the last 12 months,
- normal capability, i.e., no stress-induced symptoms,
- protective respiratory equipment, if required, can be used without problem.

If deemed necessary, physical fitness may be verified with a cardiopulmonary exercise test, whereby the fitness levels mentioned in section 1.6 must be achieved without any problems caused by respiratory diseases.

## **2.18 Ear, nose, and throat**

Acute and/or chronic conditions of the ears, nose, sinuses or neck may impact overall fitness, and so the compatibility with safe offshore work. These conditions may affect hearing and language recognition, recognition of warnings, or sense of balance to such an extent that offshore activity cannot be permitted. Again, the underlying illness must be taken into consideration.

### **2.18.1. Hearing**

If the hearing loss in the better ear exceeds 35dB(A) at low frequencies (0.5, 1 and 2 kHz), or 60 dB(A) at high frequencies (3, 4 and 6 kHz), the employee is not suitable for offshore work, unless a further examination by an ear-nose-throat specialist confirms that the candidate's hearing ability is sufficient for working safely at offshore facilities and for participating in rescue drills.

It is permissible to use hearing aids, however the affected person must be able to meet the required hearing standards even without the hearing aid.

These requirements apply as well to crane operators and emergency rescue teams.

### **2.18.2. Balance**

Employees with any form of acute or chronic balance impairment are not suitable for offshore work. If, however, there have been no symptoms for a minimum of three months following treatment, therapy, or medication, it can be assumed that the employee is once again eligible. If applicable, the candidate may have to be assessed by an ear-nose-throat specialist, taking the specific circumstances of offshore work into consideration.

### **2.18.3. Other ENT disorders**

Any acute or chronic eardrum perforations may affect hearing ability or the ability to participate in required survival drills.

Acute ear infections rule out offshore employment. Chronic ear infections need to be thoroughly assessed, particularly in regard to hearing limitations or a possible perforated eardrum, the latter of which would preclude participation in the survival training. Acute or chronic sinus infections, recurring tonsil or throat infections as well as laryngeal infections could all adversely affect compatibility with offshore work.

## **2.19 Eyes**

Any disease of the eyes and/or any visual impairment that significantly restricts the offshore worker in his ability to safely perform his tasks, thereby potentially endangering himself and his colleagues, cannot be tolerated. Disorders such as cataracts and glaucoma, corneal and vitreous disease, iris infection, illnesses of the choroid and retina, etc., require investigation and/or assessment by an ophthalmologist.

Visual acuity with or without glasses/contact lenses must be at least 0.7 with both eyes open and may not fall below 0.1 without glasses/contact lenses. A crane operator must have a visual acuity of at least 0.7 in the better eye and 0.5 in the worse eye.

If the employee only fulfils the required visual acuity with the aid of glasses or contact lenses, the certificate must contain a special clause wherein it is stated that a pair of glasses or other visual aid must be carried on his person at all times during work hours, and which is carefully secured against loss or damage. In addition, the employee must bring along a spare set of glasses or contact lenses.

With regard to spatial vision, the candidate must be able to distinguish objects at least 100 seconds of arc.

The field of vision must be normal. Larger losses of field of vision are not acceptable for offshore work, especially if corresponding retinal segments are affected. Further assessment by an ophthalmologist may be required.

Colour perception must meet the requirements of the corresponding workplace. Candidates must be able to properly identify the colours in two recognized test systems (e.g., Stilling/Velhagen or Ishihara colour charts). In cases of doubt, candidates should undergo an additional ophthalmological examination with an anomaloscope. The anomalous quotient should be between 0.7 and 1.4.

These requirements also apply to crane operators and emergency rescue teams. A functional monophthalmia is not permitted.

## 2.20 Medications

For offshore workers who require prescription medications or who self-medicate, the possibility of adverse side effects must be taken into consideration. The following general advice applies:

The physician **must** take into consideration that any medication taken by offshore workers represents a risk for the employee and third parties, not just in terms of its desired effects, but particularly when taken in combination with additional medications, for which the potential side effects are rarely predictable. Every physician must therefore assess the probability of potentially adverse effects and factor this information in the final decision regarding fitness for offshore work.

Employees must inform the examining physician all of medications, along with their dosages. Employees are to be reminded to procure a sufficient supply of their required medications, lasting more than the projected period of offshore work. All dosage changes have to be communicated to the physician, along with reports of all adverse effects.

Psychoactive drugs, anti-emetics, strong analgesics, etc., should be particularly carefully considered with respect to their compatibility with offshore activities. The dosage, the combination of different psychoactive drugs and the potential for addiction must all be considered by the doctor. In cases of doubt, a certificate of fitness should be not be issued.

# ANNEXES

## ANNEX 1

### CATERING STAFF

The following procedures should be applied to all persons who will or are likely to handle food. Assessment should occur prior to hiring and every year afterward (minimum requirement; more frequently if necessary). The examination consists of the mandatory basic assessment for all offshore workers with the addition of at least the following elements:

Detailed information about the symptoms of a possible gastrointestinal infection or disease and subsequent preliminary measures should be communicated.

Thorough clinical examination of organs or organ systems that may be involved in the transmission of infectious diseases.

Laboratory screening of a stool sample for enteropathogens at the initial examination and, in the case of suspicion, thereafter for gastrointestinal disease.

In the case of a positive result, further examination should be discussed with a specialist in infectious disease (e.g. public health official or gastroenterologist) to assess the significance of the findings.

Chest x-rays are only indicated if there are clinical signs of pulmonary infection.

It is important to request that members of the catering crew report all medical problems. Symptoms that may be associated with infectious disease require further investigation, particularly under the following circumstances:

- confirmed or suspected gastrointestinal disease or any suspicion of such a disease,
- close contact with a person infected with gastroenteritis,
- return from an area with a known high endemic presence of gastrointestinal infectious diseases.

The affected person must immediately cease work and a stool sample should be taken. The person may not return to work until a negative result has been returned. In the case of confirmed gastrointestinal disease, three negative samples are required before the affected person can return to working with food.

The standard guidance provided by the Protection against Infection Act is under no circumstances sufficient.

## ANNEX 2

### Basic standard of health for fire-fighter and emergency response teams

#### Introduction

The employers are obligated to make preparations for potential offshore emergencies. This consists of a variety of measures that are listed in the protection and safety concept and include both preventive and reactive actions. A skilled emergency response team (ERT) is a vital element in the implementation of response measures and must perform a number of tasks, including the rescue of injured persons and fire fighting. These persons usually also have other full-time assignments on the offshore facility.

Fire-fighting tasks require a significantly greater degree of health and fitness to ensure that these tasks can be performed adequately.

#### Responsibilities and tasks of fire-fighters and emergency response teams

The exact tasks of an ERT depend on both the location and type of offshore facility. Employers assigned with emergency prevention responsibilities should perform a risk evaluation in order to determine the most likely emergency scenarios that may occur in the workplace. Once this process is complete, the team can be assembled. This differentiation of duty is important, as it determines the level of physical fitness that is required for active participation in the ERT. The responsibility to appoint a local team lies with the employer.

The following aspects should provide aid in making the assignments:

**ERT tasks demand** a high level of physical exertion during fire-fighting or during the rescue of injured persons, and may last for several hours. Tasks may include:

- Extended use of heavy protective respiratory equipment
- Repeated or sustained lifting and carrying of injured persons
- Fire-fighting, including handling of hoses and the cooling of adjoining facilities
- Moving foam barrels
- Search and rescue in smoke-filled/hot environments
- Manual rescue of injured persons from various levels of the offshore facility (support columns, etc.)

#### Health and fitness requirements for fulfilling ERT tasks

Medical assessment of fitness for ERT tasks depends on the following medical fitness and screening examinations:

#### Initial and subsequent examinations

All persons that wish to qualify for ERT training and tasks must first undergo an aptitude test. The frequency of subsequent medical ERT certification trainings is based on the frequency of other offshore fitness examinations.

The notes below pertain to various health restrictions that may affect a person's suitability for ERT tasks. Special attention must be paid to visual acuity and pulmonary function standards.

**Vision:** – In addition to the requirements of all offshore workers regarding vision: monophthalmia is not acceptable. Severe myopia or hyperopia must be corrected by the wearing of suitable goggles.

**Hearing** – the requirements comply with those of all offshore workers.

**Pulmonary function** – All ERT members who will be using protective respiratory equipment must meet the following minimum standards: FEV<sub>1</sub> and FVC must be 80% of the predicted value with a FEV<sub>1</sub>/FVC ratio of at least 70%.

**Cardiovascular function** – Any form of physically limiting cardiac disease or myocardial ischemia will lead to the exclusion of employees from ERT tasks. Mild hypertension, under pharmacological treatment if applicable, can be tolerated provided the medication (e.g., beta blocker) does not negatively affect the required physical performance.

**Nervous system** – History of epilepsy, recurrent periods of unconsciousness, vertigo, or impaired coordination are not acceptable for ERT members.

**Psychiatric disorders** – Fear of heights or claustrophobia is not tolerable, nor is alcohol or drug abuse.

**Musculoskeletal system**- any impairment that may interfere with an ERT member's ability to perform the required physical activities cannot be tolerated. Special attention should be paid to chronic back problems.

**Skin** – No beards/mustaches should be worn as both can interfere with the tight fit of a respirator mask. Infectious skin diseases, particularly in the facial area, may also be aggravated by the use of respirator masks.

#### **Fitness test for ERT members**

ERT members must document an appropriate minimum cardiovascular performance. Any scientifically validated method may be used for this purpose. The occupational fitness examination for wearing heavy respirators (fire service regulation) is particularly well documented and should be used in this context.

Any participant who is to take part in **training for emergency and fire-fighting teams**, e.g., in respirator training, must have been examined in accordance with the above standards.

#### **ERT support: Team activities**

Although some experienced employees may not be able to meet the required health and fitness requirements for active participation in ERT, they may nevertheless have indispensable experience and/or knowledge that qualify them for the following appropriate ERT activities:

- Leadership and supervision,
- Organization of drills,
- First Aid.

This loosened restriction allows for the involvement of experienced personnel in the ERT to a certain degree, but may not be abused to circumvent the requirements for a full appointment to the ERT with all obligations.

## **ANNEX 3**

### **Offshore work and pregnancy**

The appropriate legal regulations are to be observed. It is to be clearly recognized that pregnancy is not a medical condition. Nevertheless, all health risks a pregnant employee may encounter in the offshore environment must be carefully weighed.

The employer of a woman who wishes to work offshore while pregnant must perform a separate risk evaluation and discuss the results with the employee in question. The decision on fitness for offshore work that is reached on the basis of this assessment must be documented in writing.

#### **Factors to be considered in the risk evaluation of the work environment:**

Due to the remote location of the offshore facility, pregnant employees have no direct access to gynaecological and obstetric hospital services. This is a significant difference to the workplace circumstances on the mainland. Furthermore, the extra time required to reach a mainland medical facility via helicopter presents an increased risk. In case of inclement weather, offshore facilities may be isolated for several days, which can further compound the situation. Gynaecological emergencies such as miscarriages or premature births cannot be handled in offshore facilities and may endanger the life of the patient. The risks associated with the helicopter transfer, in addition to noise and vibration, include in-flight emergencies as well as emergency water landings, all of which may pose a serious threat to the pregnant woman and her child. Even "usual" symptoms of early pregnancy, such as nausea and vomiting, may lead to unfitness for offshore work. Symptoms of advanced pregnancy such as fatigue and reduced mobility also represent a significant safety risk. It is therefore recommended to explain the above problems to pregnant employees and to generally deny permission for offshore work. Exceptions have to be justified in writing and require the approval of the pregnant woman, the offshore physician (occupational physician), and the employer.

If following risk evaluation offshore work is still a reasonable option, the following conditions must be met in all cases:

- A physician has assessed the pregnancy as low-risk. An ultrasound examination to rule out extrauterine pregnancy is mandatory,
- The employee understands and accepts the additional risks of offshore work during the pregnancy as listed here,
- The occupational physician of the offshore facility has been notified and approves the offshore employment of the pregnant woman.

**Under no circumstances should a pregnant woman work at or visit an offshore facility if she is past the 24th week of gestation.**

## **ANNEX 4**

### **Abbreviations**

(available in the German version of the guideline only)

## ANNEX 5

### Bibliography

1. Oil & Gas UK: Medical Aspects of Fitness for Work Offshore: Guidance for Examining Physicians. Issue 6, March 2008 <http://www.oilandgasuk.co.uk/publications> or [http://www.medicinamaritima.ro/en/offshore/guides/UK\\_OIL\\_GAS\\_UK.pdf](http://www.medicinamaritima.ro/en/offshore/guides/UK_OIL_GAS_UK.pdf) (last download 10.12.2014)
2. Nogepe, ed. Netherlands Oil&Gas Exploration and Production Association. Industry Guideline nr 15. Medical Aspects of Fitness for Work Offshore: Guidance for Examining Physicians. Version 2 (13-02-2013) <http://www.nogepe.nl/en-us/download-guidelines> (last download 10.12.2014)
3. Norwegian Directorate of Health: Regulations regarding health requirements for persons working on installations in petroleum activities offshore. (Version 02.2012) Helsedirektoratet, ed. Oslo, 2012 <http://www.helsedirektoratet.no/publikasjoner/veileder-til-forskrift-om-helsekrav-for-personer-i-arbeid-pa-innretninger-i-petroleumsvirksomheten-til-havs/Publikasjoner/veileder-til-forskrift-om-helsekrav-for-personer-i-arbeid-pa-innretninger-i-petroleumsvirksomheten-til-havs-engelsk.pdf> (last download 10.12.2014)
4. Renewable UK: H&S Guidelines: Medical Fitness to Work – Wind Turbines. Guidelines for near offshore and land based projects. Issue 2 - Jan 2013 <http://www.renewableuk.com/en/publications/index.cfm/medical-fitness-to-work>
5. UKOOA, NOGEP, The Norwegian Oil Industry Association: Memorandum of Agreement between NOGEP, OLF and UKOOA, July 2000 (Hardanger Agreement) [http://www.accedo-gmbh.de/hardanger\\_abkommen.pdf](http://www.accedo-gmbh.de/hardanger_abkommen.pdf) (last download 10.12.2014)
6. County Governor of Rogaland, Norway: Working offshore in Norway with British and Dutch medical certificates, Dec 2012. <http://www.fylkesmannen.no/en/Rogaland/Health-and-care-services/Offshore-health-services/Helseerklaring/Acceptance-of-British-and-Dutch-medical-certificates/> (last download 10.12.2014)
7. Gesetz über die Durchführung von Maßnahmen des Arbeitsschutzes zur Verbesserung der Sicherheit und des Gesundheitsschutzes der Beschäftigten bei der Arbeit (Arbeitsschutzgesetz - ArbSchG) vom 07.08.1996, Änderung 19.10.2013 <http://www.gesetze-im-internet.de/arbschg/> (last download 10.12.2014)
8. Seerechtsübereinkommen der Vereinten Nationen, 10.12.1982. BGBl 1994 II S. 1798 <http://www.bsh.de/de/Meeresnutzung/Wirtschaft/Windparks/Grundlagen/SrUe.pdf> (last download 10.12.2014)
9. Verordnung zur arbeitsmedizinischen Vorsorge (ArbMedVV), 18.12.2008, zuletzt geändert 23.10.2013 <http://www.gesetze-im-internet.de/arbmedvv/BJNR276810008.html> (last download 10.12.2014)
10. Verordnung über die Arbeitszeit bei Offshore-Tätigkeiten (Offshore-Arbeitszeitverordnung – Offshore-ArbZV), 05.07.2013 <http://www.gesetze-im-internet.de/bundesrecht/offshore-arbzv/gesamt.pdf> (last download 12.12.2014)



Colour perception disorder/ weakness ..... No  Yes   
 Night blindness ..... No  Yes   
 Ear disorders (e.g. ruptured eardrum, hearing problems, hearing aid)..... No   
 Yes

Dental problems, prostheses ..... No  Yes

Vertigo, loss of consciousness ..... No  Yes

Cardiovascular diseases  
 (e.g., high blood pressure, chest pain, arrhythmia)..... No  Yes

Respiratory diseases  
 (e.g., shortness of breath, frequent bronchitis, asthma, tuberculosis) ... No  Yes

Infectious diseases ..... No  Yes

Diabetes ..... No  Yes

Kidneys or urinary tract diseases  
 (e.g., kidney stones, chronic urinary tract infection, lack of a kidney) No  Yes

Abdominal organ diseases  
 (e.g., liver, gallbladder, pancreas, intestines)..... No  Yes   
 Digestion problems (e.g., blood in the stool, diarrhoea) ..... No  Yes

Inguinal hernias ..... No  Yes

Disorders of musculoskeletal system  
 (e.g., endoprotheses, back/joint pain, rheumatism) ..... No  Yes

Psychological disorders (e.g., depression, anxiety) ..... No  Yes

Neurological disorders (e.g., seizures) ..... No  Yes

Allergies? If yes, which? ..... No  Yes

For female offshore workers:  
 Are you pregnant? ..... No  Yes

**Physician's notes:**

I hereby declare that the above information regarding my health is true and accurate to the best of my knowledge. Failure to report significant medical problems or intentionally giving incorrect statements on this questionnaire may have legal consequences. The results of this fitness examination may be communicated to my employer.

Place:            Date:    Signature:



**Form B**

CERTIFICATE OF FITNESS

OFFSHORE MEDICAL CERTIFICATE

NAME:

---

FIRST NAME:

Date of Birth:

---

HOME ADDRESS:

---

COMPANY NAME:

---

OCCUPATION:

---

CATEGORY: A (all, supervisor)  / S (operator, specific emergency)

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***This individual has been examined according to the AWMF Guideline "Medical Recommendations" and in my opinion is FIT to work offshore.***

Examining Physician's Name and Address:

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Date of Examination:

Next Examination:

---

Signature (Physician)

---

Signature (examinee)

---

Remarks:

**Form C – Employer**

<p style="text-align: center;"><b>CERTIFICATE OF UNFITNESS FOR OFFSHORE WORK ACTIVITIES</b></p>
---

**CERTIFICATE OF UNFITNESS**

NAME:

FIRST NAME:

DATE OF BIRTH:

HOME ADDRESS:

NAME OF COMPANY:

EMPLOYMENT AS:

TEMPORARY CONCERNS: \_\_\_\_\_ from ...../.....

PERMANENT CONCERNS: \_\_\_\_\_

This individual has been examined in consideration of AWMF Guideline and in my opinion is

**UNFIT for work Offshore**

Name of examining physician: (Stamp)

Date of examination:

Signature:

Remarks:

**Form C - Employee**

<p style="text-align: center;"><b>CERTIFICATE OF UNFITNESS FOR OFFSHORE WORK ACTIVITIES</b></p>
---

**CERTIFICATE OF UNFITNESS**

NAME:

FIRST NAME:

DATE OF BIRTH:

HOME ADDRESS:

NAME OF COMPANY:

EMPLOYMENT AS:

TEMPORARY CONCERNS: \_\_\_\_ from ...../.....

PERMANENT CONCERNS: \_\_\_\_

***This individual has been examined according to the AWMF Guideline  
“Medical Recommendations” and in my opinion is UNFIT to work offshore.***

Name of examining physician: (Stamp)

Date of examination:

Signature:

Remarks:

## Form D

### Memo to Visitors of Offshore Facilities

Factors such as method of travel, the environment of the facility, as well as its physical properties (e.g., size, number of stairs, exposed footbridges, etc.) are important considerations for people planning to visit offshore facilities. Each visitor must display a certain level of alertness, physical mobility, coordination and stamina.

Offshore workers are subjected to regular medical monitoring to ensure that they meet the above requirements. This form of personal protection is also to be extended to you.

Below is a detailed list of health concerns that require special medical attention or action, to best ensure your personal well-being during the visit. If you are affected by one of these conditions or have questions regarding this list, please contact the responsible company or the occupational physician of that company.

Health concerns that require special attention include:

- Acute Infections
- Significant visual impairment
- Significant hearing impairment
- Restricted mobility (particularly with regard to climbing stairs)
  - Fear of heights or flying
  - Tendency to become seasick
  - Diabetes mellitus
  - Epilepsy, fainting, vertigo
  - Cardiovascular problems, including pacemakers
  - Chest pain or shortness of breath under exertion
  - Asthma
  - Gastric or duodenal ulcers
  - Significant prostate problems
  - Recent major surgery
  - Pregnancy

If you wear glasses and your vision is insufficient without them, we advise you to carry a spare pair in case of loss or damage.

If you take regular medication, please make sure to bring a sufficient quantity in an appropriately labelled container. The offshore physician will be available to assist you.

#### VISITOR DECLARATION

I hereby declare that the health concerns listed in the Memo to Visitors of offshore facilities do not apply to me.

.....  
Signature

.....  
Date