

First Aid Needs Assessment

Guidelines for renewable energy projects

2013

Status of this document

Health & Safety Guidelines are intended to provide information on a particular technical, legal or policy issue relevant to the core membership base of RenewableUK. Their objective is to provide industry specific advice or guidance where current information is either inadequate or incomplete. Health and safety guidelines will be subject to regular review and updating and so the latest version of the guidelines must be referred to. Attention is also drawn to the disclaimer below.

Disclaimer

The contents of these guidelines are intended for information and general guidance only, do not constitute advice, are not exhaustive and do not indicate any specific course of action. Detailed professional advice should be obtained before taking or refraining from action in relation to any of the contents of this guide, or the relevance or applicability of the information herein.

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- Effective first aid provision saves lives – reduces harm and promotes the recovery from an injury or illness.
 - Renewable energy projects present challenges to ensure an effective response is provided taking into account the potential remoteness of sites, extremes of weather and difficulties in access & rescue.
 - First aid needs assessments¹ need to explicitly take account project, site and task specific risk factors when making decisions on the nature and scope of first aid provision.
 - The needs assessment should take account both direct risk factors (nature & severity of harm and complexity of activities performed) and the response times to enable effective provision of first aid.
 - The level of first aid response directly relates to the foreseeable risks and response times/arrangements particular to project, site, or tasks performed.
 - Additional facilities and equipment may be required that take account of the foreseeable first aid support needed and any unique characteristics of the site/ turbine etc. (e.g. rescue equipment).
 - A good uptake of first aid training across the sector is encouraged to ensure effective access to a suitably qualified first aider. Additional training may be appropriate to address specific injuries, medical conditions or applicable emergency response rescue protocols.
 - Any training provided should be based primarily on the needs assessment but also by considering all HSE advice and a review of the suitability of industry specific training options.
 - The provision of any additional or advanced first aid training should be subject to suitable clinical governance protocols.
 - As projects become larger, move further offshore and generally become more complex, more detailed risk assessments integrated into wider emergency planning and response protocols will need to be performed to determine the nature of any response.
 - The interdependence and interrelationships between all contracting parties, particularly for more complex projects, require careful planning and robust communications arrangements to address potential first aid or medical scenarios effectively.
 - The dynamic state of knowledge in the sector demands a regular review of systems and procedures to test their effectiveness based on real incidents as well as wider industry learning and experience.

¹ The terms 'needs assessment' and 'risk assessment' are used interchangeably in these guidelines.

Introduction

These health and safety guidelines provide basic information on how duty holders can assess the provision of adequate and appropriate equipment, facilities and personnel to ensure employees receive proper attention if they are injured or taken ill at work. It sets out the key issues to take into account when conducting a first aid needs assessment. It does not prescribe specific equipment or facilities. In addition it does not specify any particular additional or advanced first aid training requirements where this may be relevant (although further information on training based on HSE guidelines is set out in Appendix I). Both these matters are for duty holders to determine via the risk assessment process. However the guidance does set out an overview of how these decisions might be taken into account.

Background

The rapid growth of the renewable energy sector (wind, wave & tidal) is expected to lead to a significant change in the industrial and employment landscape across the UK. We expect to see a significant increase in the numbers of technicians, engineers, project crew and others working in the renewable energy sector. When coupled with a substantial increase in operating capacity we may expect to see an increased potential for incidents and injuries to arise which could require a first aid response. We also expect to see employees based offshore for prolonged periods which will increase the importance of being able to respond to foreseeable medical conditions and cases of ill-health.

It is the responsibility of every organisation to put in place measures that prevent and reduce the risk of injury and harm to employees and others. However proper planning must also consider when things could go wrong, which should include the provision of adequate and appropriate first aid. While most of the issues are relatively straight forward and can be managed by reference to existing first aid guidance (e.g. HSE guidance), renewable energy projects can present some additional challenges. These include:

- Remotely located sites, impact of poor communications and distance from emergency services;
- Extreme weather conditions (e.g. wind, snow, ice, fog, etc.) and potential risk of hypothermia and other thermal health risks (e.g. heat stress);
- Extreme met-ocean conditions (wave, tidal etc) increasing the risk of potential incidents and impacting on first aid and emergency response;
- Difficult to access and restricted working positions (work at height, confined spaces etc.) such as in the nacelle; and
- Complex and difficult injuries (e.g. suspension syncope, electric shock, major trauma, hypothermia, heat stress etc.) where speed of response and access to apply first aid can be difficult.

Scope of this Document

This guide provides information on the issues to consider when conducting a suitable and sufficient first aid risk assessment as required by the Health and Safety (First-Aid) Regulations 1981. This guide primarily applies to first aid at work risk assessments performed for onshore and near offshore work within the UK. Although consideration is given to the potential risks in relation to projects further offshore.

The guidance does not address the first aid requirements covered by applicable marine legislation or first aid for offshore installations applicable to the Oil & Gas sector, although a summary of their scope and application is included for reference.

This document sets out:

- A general description of first aid including its role and function;
- A summary of the legal context and statutory duties;
- An outline of a recommended first aid needs assessment approach;
- Specific first aid risk factors to consider in the context of renewable energy projects; and
- Additional mitigation measures to prevent and manage first aid scenarios.

First Aid Principles

First aid is the provision of initial care for an injury or illness carried out by a non-medically trained individual. It is typically the application of simple techniques for which the basic principles can be summarised as follows:

1. Preserving life - by applying techniques to enable lives to be saved.
2. Preventing harm - by reducing the risk that the condition will worsen.
3. Promoting recovery – by enabling the start of the recovery process for the illness or injury.

All first aid at work training will adopt a similar approach to tackling an incident that may require a first aid intervention. Typically this would include the following:

- Assess the situation whilst ensuring the safety of the first aider.
- Make the area safe for the injured party and others.
- Assess the casualties and prioritise treatment.
- Send for help as soon as possible.

In every case the first aider must not carryout any treatment that exceeds their competence.

Legal Context

Currently there are no UK regulations or industry standards that specify any particular first aid at work requirements for the renewable energy sector. The legal duties are set out in the relevant health and safety regulations as follows.

The Health and Safety (First-Aid) Regulations 1981

The Health and Safety (First-Aid) Regulations 1981 require employers to provide adequate and appropriate equipment, facilities and personnel to ensure their employees receive immediate attention if they are injured or taken ill at work. The full duties are set out under the regulations and the supporting approved code of practice, but in summary they require duty holders to:

- Provide a suitable number of persons for rendering first-aid to employees if they are injured or become ill at work;
- Ensure persons who provide first aid

are competent and trained taking into account guidance issued by the Health and Safety Executive (HSE);

- Provide additional training where necessary; and
- Inform employees of first aid provision made available.

The Regulations do not place a legal duty on employers to make first-aid provision for non-employees such as contractors or the public. However, HSE recommends that non-employees are included in an assessment of first-aid needs and that provision is made for them. This would be detailed in the records arising out of the risk assessment.

Appendix I sets out further information regarding training for first aid taking into account the announced changes being proposed by HSE.

Marine Legislation

These guidelines do not aim to address the first aid requirements required by marine legislation. However the following regulations could be referred to, not least because they will help inform the likely level of first provision and the competence of the crew that may exist for offshore wind and marine projects. The main regulations that apply are:

- Merchant Shipping and Fishing Vessels (Medical Stores) Regulations 1995
- Merchant Shipping and Fishing Vessels (Medical Stores) (Amendment) Regulations 1996
- Merchant Shipping and Fishing Vessels (Medical Stores) Regulations 1995
- Merchant Shipping and Fishing Vessels (Medical Stores) (Amendment) Regulations 1996
- The Merchant Shipping (Training and Certification) Regulations 1997

Further guidance on the scope and application of these regulations are provided by the Maritime and Coastguard Agency ("MCA"). These include details of recognised training courses for seafarers, the potential contents of ships medical stores and detailed medical guidance for vessels where a doctor is not present.

Offshore Installations (Oil & Gas)

These guidelines do not address the first aid regulations or the recommended first aid provision required by offshore oil and gas installations. However they do provide an informative reference source to help assess the likely level of first provision when working in or adjacent to an offshore oil & gas environment, particularly if personnel are expected to be permanently working offshore.

The main legislation is the Offshore Installations and Pipeline Works (First-Aid) Regulations 1989. The regulations aim to take account of the remoteness and difficulties associated with access to medical and health care expertise. The Regulations require the person in control (duty holder) to provide suitable medical and first-aid facilities, as well as sufficiently trained and competent first-aiders and offshore medics. The person in control should assess the level of first aid and health care provision needed on individual installations or barges.

The person in control has to ensure that adequate health care and first aid is provided for everyone on the installation or barge, including visitors and contractors. This extends to people working on certain associated vessels (e.g. during installation commissioning or decommissioning). The person in control also has to make arrangements for a registered medical practitioner to supervise the offshore medic and give advice if necessary. Detailed information can be found in the Approved Code of Practice and Guidance.

Diving

Although many offshore wind and marine projects will use divers in a variety of roles, the specific first aid requirements pertaining to diving are not addressed here. The requirements are detailed under the Diving at Work Regulations 1997. These require that a diving contractor provides medical and first-aid equipment during a diving project. In the event of a diving medical incident, the diving supervisor remains in control of any action to be taken.

All commercial divers trained in Great Britain are taught basic diving medicine. In addition they must gain a recognised

HSE first aid at work qualification. This provides training in the initial treatment to reduce the effects of the common injuries or illnesses suffered at work, for example bleeding, fractures, shock, burns and respiratory arrest.

General Health & Safety legislation

An important consideration that all duty holders need to take into account, especially for more complex projects, is ensuring that there is proper cooperation and coordination on health and safety matters generally and specifically on the first aid response adopted. The nature of this response will be driven by the first aid risk assessment (see below). In particular the requirements of the Management of Health & Safety at Work Regulations 1999 and the Construction (Design and Management) Regulations 2007 are in particular relevant. The regulations and supporting approved codes of practice make reference to for example:

- The appointment of suitably qualified and experienced competent persons
- Ensuring employees are properly informed, instructed and trained
- Having in place suitable procedures to deal with serious and imminent danger
- Ensuring contacts with external services are in place with specific regard to first aid, emergency medical care and rescue scenarios
- Cooperating with other employers and to coordinate measures with regards to relevant health & safety provision
- Having in place proper arrangements to protect temporary workers
- Ensuring the appointment of suitably experienced and competent contractors and individuals

First Aid Needs Assessment

Employers are required to carry out an assessment of first-aid needs. This involves consideration of workplace hazards and risks, the size of the organisation and other relevant factors, to determine what first-aid equipment, facilities and personnel should be provided. In assessing their needs, employers should consider the:

- Nature of the work and workplace hazards and risks
- Size of the organisation
- Nature of the workforce
- Organisation's history of accidents
- Needs of travelling, remote and lone workers

- Work patterns
- Distribution of the workforce
- Remoteness of the site from emergency medical services
- Employees working on shared or multi-occupied sites
- Impact and coverage due to annual leave and other absences of first-aiders and appointed persons
- First-aid provision for non-employees
- Occupational health monitoring

Further details on the general risk assessment approach are set out in the HSE ACoP. Table 1 below summarises how these might relate to renewable energy applications.

(Note: HSE ACoP is currently being reviewed)

Table 1: Indicative areas to be considered in a first aid risk assessment for renewable energy projects

| Area to consider | Application to Renewables | Comment |
|--------------------------------------|---|--|
| Nature of the work and hazards | Wide variety of activity and hazards: <ul style="list-style-type: none"> · Construction & O&M activity · Onshore & offshore · Work at height · Electrical & mechanical · Etc. | No "typical" work or risk profile. Re-enforces importance of company, project and site specific risk assessments to identify nature and scale of applicable hazards. |
| Size of the organisation | The size of the organisation provides an indication of the potential number of first aiders. | Some "larger" companies operating in the sector may operate more like small businesses—for example due to the particular organisational structures or arrangements adopted. |
| Nature of workforce | A wide cross section of employees operate in the sector – These include technicians, engineers, consultants and a wide variety of contractors. | The workforce can be assumed to be very mobile. Workers may move between projects but also across jurisdictions. |
| Travel, remote & lone working. | Systems of work and company procedures should minimise the risk from lone working. Travel and remote work are often a significant risk due to the location of sites. However operational procedures should prevent/minimise potential for lone working. | Remote sites some distance from emergency medical support and the compounding risk of extreme weather require careful consideration in the risk assessments performed. |
| Work patterns | There are no standard shifts operated in the sector. Control centres will operate 24/7 and there is a trend to more flexible working arrangements to maximise the opportunities during benign weather windows. | H&S risk assessment and HR policies need to be aligned to ensure a consistent and safe approach is adopted regarding working hours, welfare etc. |
| Access to emergency medical services | A key feature of many wind, wave and tidal projects is that their location is often remote from emergency medical services. This is compounded by potential difficulties in locating and accessing sites quickly and safely. | The risk assessment needs to take account how contact and liaison with emergency services will be handled. |
| Shared sites | Where companies share a common site or location the option for sharing resources is possible. Most construction projects and many operational sites in the wind, wave & tidal sector will have this as an option to consider. | Significant H&S and operational benefits can arise where organisations work closely to review and support first aid provision. |
| Leave & absence | No specific comment. However risk assessments need to take this into account. | Experience from other sectors indicates that a precautionary approach in making assessments here should be adopted. |
| 3rd parties | First aid regulations do not require employers to provide first aid for members of the public. | Although not a legal requirement it is good practice to consider the public in the risk assessments. Relevant efforts include visitor centres and sites with open public access. |
| Health status of employee | Duty holders should as part of risk assessment determine if any at risk personnel have underlying health conditions and/or where they are taking prescribed medication. | Duty holders should take medical advice as required where such situations could arise. Should ideally interface with medical fitness assessments where performed. |

Training

These guidelines do not recommend a specified industry response for first aid training. The default position should continue to be to take account the results of the first aid risk assessments performed in addition to ensuring that that the applicable legislative duties have been met. However it is recognised that the additional complexities associated with some renewable energy projects (e.g. remoteness) and the risks associated with increasing response times could mean that a higher level of training for first responders is appropriate.

Appendix I aims to set out in more detail the current position regarding first aid training in the UK (not least taking account recent changes announced by the HSE) and what may need to be taken into account should additional training be seen as necessary as a result of the needs assessments performed.

Key issues for renewable energy projects

There are two main factors that determine the suitability of first aid provision arising out of the risk assessment. These are:

1. The potential Risk – taking account of the:
 - Nature and severity of potential injuries or cases of ill-health; &
 - Scale and/or complexity of activities/ tasks being conducted.
2. The potential Response time – taking account of the:
 - The time for competent emergency responders to get to site; &
 - The ease and speed by which first aid &/or rescue can safely conducted.

Table 2 provides an indicative overview of the first aid risks and response factors to consider.

Table 2: Indicative First Aid Risk & Response Factors

| Factor | Low | Medium | High |
|----------|--|--|--|
| Risk | <ul style="list-style-type: none"> • Cuts/sprains/strains • Simple bone breaks • Eye injuries • Simple medical conditions • Minor burns/scalds • Early stage hypothermia • Minor chemical burns &/OR • Small at risk workforce • Standard work hours • Low risk tasks/activities • Low escalation risk • No public/3rd parties | <p>As low potential but also:</p> <ul style="list-style-type: none"> • Major wounds/trauma • Concussion • Severe eye damage • Anaphylactic shock • Major bone breaks • Serious but stable medical conditions • Major burns/scalds • Electric shock • Later stage hypothermia • Potential spinal injury • Crush injuries • Chemical poisoning • Suspension syncope • Secondary drowning &/OR • Medium &/or variable work force population • Non standard work hours & shifts • Activities/tasks with increased degree of severity • Med escalation risk • Some public &/or 3rd parties at risk | <p>As medium potential but also:</p> <ul style="list-style-type: none"> • Major limb amputation • Multiple trauma • Serious and unstable medical conditions • Suspected spinal injury • Unconscious persons &/OR • High &/or very variable work force population • Multiple and variable standard work hours & shifts • Activities/tasks with greatly increased degree of severity • High escalation risk • Significant numbers of public &/or 3rd parties |
| Factor | Simple | Difficult | Complex |
| Response | <ul style="list-style-type: none"> • Site close to emergency services • Site clearly located with easy access for emergency services • No/limited risk of any access or rescue difficulties • No/ limited risk that speed of response compromised by weather or other factors | <ul style="list-style-type: none"> • Site reasonably close to emergency services • Site potentially difficult to access and locate by emergency services • Some potential difficulties impacting on any access or rescue • Some risk that speed of response could be compromised by weather or other factors | <ul style="list-style-type: none"> • Site remote from emergency services • Site very difficult to access and locate by emergency services • Significant potential difficulties impacting on any access or rescue • Significant risk that speed of response could be compromised by weather or other factors |

IMPORTANT NOTES: This table only provides a very basic summary of the relationship between risk factors and response times. For example, medium risk factors (e.g. major burns) could in practice have a high mortality prediction: while apparently high risk injuries (e.g. major limb amputation) could in practice have a low mortality prediction if proper interventions are applied. For these reasons competent medical advice should always be sought in making any decisions for more complex first aid scenarios. This would be expected to be recorded in first aid needs assessments carried out.

Selected First Aid Response

The following provides a summary of possible approaches that could, depending on the results of risk assessment carried out, be relevant to renewable energy projects. In every case the most effective option will be to put in place health and safety precautions⁷ that prevent and minimise the likelihood and severity of an incident occurring that could require first aid. This would include measures to eliminate the risk of injuries occurring (e.g. designing out hazards) in addition to other risk control measures. The other main prevention approach is the provision of effective medical and fitness to work assessments (pre & during employment) to reduce the chance that cases of ill-health warranting a first aid response would occur.

In every case the equipment, facilities and personnel provided to address the first aid response should meet the requirements set out under the Regulations and the supporting ACoP and guidance. However the risk assessment may identify that additional measures are required. This would need to consider the risk factors and response conditions set out above. Where the risks are deemed relatively low and the response conditions do not present any major concerns a relatively standard approach to first aid can be adopted. However where the risks are more significant and the response conditions could present further challenges, a more sophisticated response is demanded.

Every organisation should review its existing first aid and associated emergency response arrangements to determine what if any further measures are required. The areas to consider would include but not necessarily be limited to:

- Facilities & Equipment: What if any additional facilities and equipment need to be provided to manage the identified first aid risks
- Training: What if any additional first aid and associated training need to be provided. This could include suitable 1st responder training as well as communications training for others involved.

- Procedures: What if any additional procedures need to be developed and communicated to ensure that the first aid response is suitable and effective.

The risk assessments carried out which have taken into account the risk and response factors above combined with any company, project, or site specific requirements will help judge the suitability of first aid provided. A summary of how this could apply are summarised below.

The case studies below also provide some additional context to help make informed decisions.

Low Risk/Simple Response

In most cases where the risks are relatively low and the response issues simple, only a basic level of first aid capability would be required. This could include:

- Facilities & Equipment: Usually only basic first aid equipment will be required. These could include standard first aid kits as set out in the HSE ACoP and where required travel kits. A dedicated first aid room is unlikely to be required but good practice to allocate a room/area assuming suitable accommodation is available.
- Training: The number of trained first aid trainers would be directed by the HSE ACoP. Ratios would typically be at least 1 per 50 employees – but even for a low risk situation, it is good practice to aim for lower ratios.
- Procedures: Standard H&S policies & procedures will normally be adequate. These would include recording the results of risk assessments performed and communicating the information to employees on the location of equipment, facilities and access to first aiders.

Medium Risk/Difficult Response

Where the risk increases and/or where the response times and arrangements could be more difficult an enhanced level of first aid capability would be expected. The role of risk assessments that take account site and activity specific factors become more important. The first aid response should become an integral part of the wider emergency response plans operated by the organisation. Examples that may be appropriate could include:

- **Facilities & Equipment:** First aid equipment likely to be adapted to specific needs identified via risk assessment. This could include additional &/or enhanced first aid kits, dedicated first aid room or arrangements. This could extend to equipment to facilitate rescue e.g. backboards, neck braces etc.
- **Training:** The number of trained first aiders would be directed by the HSE ACoP. Ratios could be as low as 1 per 5 employees or even down to 1 per two employees. It is probably appropriate for the company to provide additional training & advice to address additional risks and precautions identified. This could include additional first aid techniques and support to manage more complex injuries/conditions and/or enhanced support including basic emergency communications skills to help when engaging with rescue services.
- **Procedures:** Policy & procedures to be recorded and communicated to confirm additional first aid measures. These need to cover company and site specific situations as well as covering any travel situations. First aid support to be explicitly covered in wider in emergency response arrangements.

High Risk/Complex Response

The general approach previously set out above would apply equally to the more complex situations. A full risk assessment integrated into wider emergency planning and response protocols will need to be performed to determine the nature of response including any specific facilities & equipment, training or procedures that may be suitable. Areas that are likely to need greater attention in more complex situations could include:

- A more integrated risk management approach that aims to ensure first aid and related medical coverage is part of wider H&S and related systems;
- A preventative and precautionary approach to restrict non essential activities during exceptional situations (e.g. force majeure);
- Routine and dynamic risk assessments that are more evidence based and informed by knowledge and experience from other projects;
- A life cycle approach recognising the changing risk profile (nos of persons at risk and nature/scale of hazards) is taken into account;
- Planning and preparation takes account the more variable and extreme weather &/or metocean factors that can increase the risk of incident and complicate the speed and ease of medical emergency response;
- More effective cooperation and coordination of H&S activity to ensure alignment of systems and approaches with contracting partners, adjacent projects and other stakeholders. This could lead to partnering and sharing of resources;
- More robust employee and contractor tracking and retrieval systems to enable quick access to medical & relevant contact information;
- Effective communication systems (pre/during/post incident) addressing both communication technology (suitability of mobile/satellite/VHF etc.) and agreed communications and business continuity protocols;
- Competence based training as the default basis of identifying and implementing suitable training standards with the move to specialist response teams with more advanced first aid/medical capability;

- Early and on going liaison and communication with emergency services to ensure that policies, plans and programmes made available and kept up to date;
- Regular review and testing of all policies and procedures to ensure they remain effective and up to date.

These examples are indicative only. As the state of knowledge is rapidly changing we would expect to see refinement and clarification of what is seen as emerging industry good practice in this area. Duty holders should therefore keep abreast of developments within the sector and the relevant stakeholders involved. RenewableUK have published on behalf of OREEF (Offshore Renewable Energy Emergency Forum) a circular setting out a reminder and simplified protocol for managing the immediate stages following an actual or potential major incident where 3rd party assistance may be required.

The case studies overleaf put forward are examples of how the above "risk factors" might be taken into account. They are provided for information only and should not be regarded as an official industry recommendation. In particular the dynamic nature of the industry and especially offshore projects means that the scope and suitability of first aid and emergency response arrangements should be kept under regular review.

Case Studies

Case Study 1 – Small Consultancy – Onshore

ABC Wind Energy Design Ltd

Profile

ABC Wind Design Ltd is a small environmental consultancy based in the south of England. They provide planning and related guidance to developers. They employ a team of 6 who are based in a modern office located on a large business park. They are close to a large hospital with a 24/7 accident & emergency department.

Most of the work is office based although they do visit clients – usually at their own offices - but occasionally on site.

All visits to site are carried out during normal working hours and they are always escorted during their visit by the client. They have a clear travel policy that limits the use of cars.

Persons at risk

- 6 office based staff – core hours 08-00 to 18-00
- 2 staff occasionally visit clients premises and sites
- Visitors and public not at risk

Activities

Most work is office based with typically a max of 6 visits to site per year per employee. All site visits are planned & fully escorted. There is effectively no lone working. Employees do not require access to any sites considered hazardous or difficult locations. They endeavour to plan visits to avoid any risk of unnecessary travel or risks associated with poor weather. Core activities are:

- Office based IT including CAD/CAM design
- Visit to client offices
- Occasional site visits to undertake photography and basic site mapping

Risk assessment

Risk

The risk assessment has concluded that the severity of harm is LOW. This is based on the foreseeable risks and in particular:

- Minor risk of cuts/sprains/strains
- Minor risk of eye injuries (dust on site)
- Minimal risk of any escalation

Response

The risk assessment has concluded that the ease of response to the injured person (“IP”) patient is SIMPLE. This is based on the foreseeable risks and in particular:

- Office close to emergency services
- All visits hosted by client with own first aid capability

Current first aid provision

ABC Wind Design Ltd has one first aider with a first aid at work (FAW) certificate and another person with an emergency first aid at work (EFAW) certificate. Standard first aid packs are available at the offices and the manager’s office acts as a temporary first aid room if required.

Additional mitigation:

The company has concluded that no additional first aid response or support is required to comply with legal requirements. However they have decided that it would be good practice to look at some improvements. These include:

- Offering all staff first aid training covering work & home first aid scenarios
- Providing travel first aid kits to all staff

Case Study 2 – Medium sized Operations and Maintenance Company – Onshore Wind

DEF Wind O&M Ltd

Profile

DEF Wind O&M Ltd is a small operations and maintenance company based in the Scottish borders. They undertake a variety of scheduled and breakdown maintenance on behalf of two different owners. They manage 7 sites each comprising between 6 to 10 2.0MW turbines. All sites are unmanned with operations coordinated from a central base which includes a control room and maintenance support functions. The base has up to 10 permanent staff and it also supports a mobile maintenance team comprising 12 operatives

The sites are all no more than an hour's drive from base and are all close to towns with good emergency service provision. A recent exercise with the local fire and rescue service has identified a likely maximum response time of 40 minutes to the base of the most difficultly located turbine. Road access and navigation on site is good with roads in fair condition and the sites generally well laid out. Reasonable access is possible in most weather conditions by means of 4x4 vehicles or equivalent. However extreme weather could compromise access. Key information to aid the risk assessment includes:

Persons at risk

- Operatives all work in 2 man teams.
- Specialist engineers and contractors occasionally need to visit site
- Visitors and public are not considered to be at risk

Activities

Most work is routine O&M necessitating access to all parts of the site and turbine. Examples include:

- Lifting of equipment into nacelle
- Access to turbine via ladder & lift
- Condition monitoring
- Vibration analysis
- Oil analysis
- Infrared thermography
- Ultrasonics
- Fault detect & diagnostics
- Site management & inspections

Risk assessment

Risk

The risk assessment has concluded that the severity of harm is MEDIUM. This is based on the foreseeable risks and in particular:

- Electrical & mechanical hazards
- Crush/trauma

- Fractures
- Electric shock
- Eye injuries
- Burns
- Working at height
- Suspension syncope
- Neck/spinal
- Variability of work hours & workforce numbers
- Some potential for escalation of incidents

Response

- The risk assessment has concluded that the ease of response to the IP/patient is DIFFICULT. This is based on the foreseeable risks and in particular:
- Sites reasonably close to emergency services
- Some potential difficulties impacting on any access or rescue in extreme weather

Current first aid provision

DEF Wind O&M Ltd have one fully qualified first aider and one appointed person based at the office. The company policy requires all maintenance operatives to be at least trained to the equivalent of Emergency First Aid at

Work (EFAW)– but that each team to have at least one fully qualified first aider available. Standard first aid packs are available at the offices and all maintenance operatives are provided with travel first aid kits. When existing certificates expire they are reviewing the scope of industry specific (GWO/RenewableUK) first aid training options.

Additional mitigation

The company has concluded that additional first aid response and support is required. They have therefore put in place:

- Enhanced emergency response and rescue procedures including regular exercises and communications with emergency services
- Additional first aid packs located in turbines (in agreement with site owners) and personal carry packs
- All site operatives to be fully trained first aiders within 12 months
- Identified team leaders provided with additional training covering CPR, suspension syncope, shock & emergency communications skills
- Active participation in industry reporting schemes to review relevant incidents

Case Study 3 – Principal Contractor – Large Offshore Project

GHI Engineering Ltd

Profile

GHI Engineering Ltd offers a full service engineering, procurement, construction, maintenance (EPCM) capability to the offshore wind supply chain. It has over 30 year experience in the oil & gas sector and has acted as principal contractor on 4 offshore wind projects in the last 3 years. GHI Engineering Ltd has been appointed for the construction and build of FOUR 500MW substations located within a renewable energy zone (REZ). The construction phase is not expected to commence for at least 12 months, but they are planning their first aid response with their appointed CDM team and in consultation with the client.

It is estimated that at the peak of construction there could be as many as 80 vessels on-site and upwards of 1200 workers who may be involved in the project as a whole. There are 4 planned phases of SIMOP's to enable sequential commissioning of the substations. The furthest point of the site is 120nm from the mainland. In good weather is estimated SAR capability would be at least 90mins to travel to site – excluding any rescue time.

Most of the construction crew will be based on flotels working a 2 weeks on 2 week off. Work patterns are planned as back to back 12 hours shifts. All employees undergo a medical prior to working offshore.

Persons at risk

- Operative & technicians (Typically 2 & 3 person teams)
- Project & Vessel crew (Vessels)
- Specialist engineers and contractors occasionally need to visit site
- 3rd party vessels and leisure craft crew/passengers

Activities

The project will be carried out across 4 phases. Following consent it is anticipated that this will consist of Geophysical/Geotechnical activities; installation of foundations; installation of substation unit and final commissioning. There will be extensive use of small (survey, crew & equipment transfer) and large (e.g. jack up's, DP, heavy lift) vessels. The use of divers and ROV's is planned for connecting the 33kV inter array and 133kV export cables. They are planning to use a new access system to allow crew and transfer of equipment in wave heights up to 3m.

Risk assessment

Risk

The risk assessment has concluded that the severity of harm is HIGH. This is based on the foreseeable risks and in particular:

- Falls from Height
- Contact with moving parts, rotating machinery
- Electricity & stored energy (pneumatic & hydraulic)
- Injuries arising from working in cramped and confined conditions
- Manual handling of machinery and equipment.
- Slips, trips and falls during transfers and routine tasks
- Suspension syncope
- Secondary drowning
- Restricted work places presenting ergonomic issues
- Potential for 24/7 working & high workforce numbers
- High potential for escalation of incidents

Response

- The risk assessment has concluded that the ease of response to the IP/patient is COMPLEX. This is based on the foreseeable risks and in particular:
- Site remote from emergency services with significant potential difficulties impacting on any access or rescue; &
- Significant risk that speed of response could be compromised by weather or other factors.

Current first aid provision

None for this project. Currently scoping provision.

Additional mitigation:

- Contractor has concluded that due to the number and potential scale of incidents that a bespoke first aid and emergency response approach is essential. This will be integrated into their existing H&S management systems (18001); CDM project plans and wider corporate risk management protocols. The approach they have set out is as follows:
 1. Scoping: First Aid, Medical & Emergency scoping exercise to determine likely availability of trained personnel and equipment available within company as well as sub contactors (e.g large vessel medical support).
 2. Incident review: Review of type and frequency of actual and potential first aid/medical incidents from previous projects and access to industry learning forums.
 3. Risk assessment: Project specific first aid and medical risk assessment that address potential type and scale of any foreseeable injury or condition across life cycle of construction and commissioning phases. Will explicitly take account likely risk of escalation of incidents and difficulties in response during extreme weather/ metocean situations.
 4. Cooperation and coordination: PC to work in partnership with client and CDM coordinator to seek alignment of systems and approaches with contracting partners. Dialogue with adjacent wind farms to seek agreements to share resources.
 5. Employee tracking: PC to implement client approved worker/contactor tracking system that provided real time location, training and medical information available to PC/Client & marine coordinator.
 6. Communication: Key management, supervisors and all first aiders provided with training to enable effective communication skills training with medical and rescue services.
 7. Training: All project/construction crew to have company approved first aid training qualification – with annual internal refreshers. Industry specific training (GWO/ RenewableUK) is expected to act as the default baseline. PC & Client to create specialist emergency response teams who will be provided with more advanced training (e.g CPR, use of defibs, suspension syncope, shock, major trauma management, effects of immersion, hypothermia or hyperthermia, use of and administering of Entonox and oxygen)
 8. Precautionary approach: Project mandate to ensure non essential activities are stopped or restricted in extreme weather or other situations;
 9. Emergency services: Early notification and involvement of emergency services via MCA ERcOP protocols to ensure that policies, plans and programmes made available and kept up to date;
 10. Review and testing: Client & PC to undertake desk top exercise to test emergency response arrangements – with commitment to full exercises after the construction phase starts.

Appendix I

First Aid: Training Requirements

Context & recent changes

As a result of the Löfstedt Review, recommendations were made to clarify the Health and Safety (First Aid) Regulations 1981 with regards to the provision for first-aid under the Framework Directive 89/391. The requirement that the training and qualifications for the appointed first-aid person must be approved by HSE appeared to both go beyond the requirements of the Directive and have little justification. As a result of this it has been agreed to:

- Remove the need for HSE approval of First Aid Training providers; and
- Enable businesses to identify first aid courses that are appropriate for their workplaces and in turn select suitable training providers.

These measures¹, have been set out in the following HSE documents:

- Selecting a first-aid training provider - A guide for employers; and
- The Health and Safety (First-Aid) Regulations 1981 (as amended) - Guidance on Regulations

This Appendix aims to summarise the situation as it relates to the renewable energy sector and specifically the scope and suitability of first aid training for wind, wave and tidal projects.

Legal position

The Health and Safety (First-Aid) Regulations 1981 set out the essential aspects of first aid that employers have to address. The substantive scope and application of the regulations and supporting guidance remain unchanged of which the most significant requirements are the:

- Duty of employer to make provision for first-aid and to:
 - Undertake appropriate “needs assessment” of first aid appropriate to the circumstances (hazards and risks) of each workplace;
 - Provide the necessary first-aid materials, equipment and facilities;

- Ensure the availability of sufficient numbers of first-aid personnel; and
- Check the suitability of first-aid training provisions and capability of providers delivering such training.
- Duty of employer to inform his employees of the arrangements made in connection with first-aid.

Other regulations clarify the scope and application to the self employed, specific industries and potential exemptions from the regulations.

First Aid training options

The first aid training options are set out in Selecting a first-aid training provider - A guide for employers. It provides guidance on the steps duty holders should take to identify and select an appropriate and competent provider to deliver any first-aid training indicated by a first-aid needs assessment under the Health and Safety (First-Aid) Regulations 1981. Further information about carrying out a needs assessment and all other aspects of providing first aid at work can be found in HSE’s guide to the Regulations *First aid at work*² as well as the main text of these guidelines that takes account the particular issues relevant to renewable energy projects.

Standard first aid training options

Where a first-aid needs assessment indicates that trained first-aiders are required, the level of training undertaken should be as identified in the assessment. In situations where the needs assessment identifies no industry specific training needs and/or in cases where additional or more advanced training is not necessary - duty holders should in most cases continue to use the first aid at work (FAW) training or emergency first aid at work (EFAW) training as the default option.

In such cases the training should be sourced via an awarding organisation (AO) which offers accredited, nationally recognised qualifications in both FAW and EFAW (regulated qualifications). These AOs have dedicated quality assurance processes, approving and monitoring their training centres to ensure they deliver FAW and EFAW

training in accordance HSE guidance. Furthermore, their regulators require them to work in compliance with the Assessment Principles for First Aid Qualifications, which can be found on the Skills for Health website (www.skillsforhealth.org.uk).

Industry focussed first aid training

HSE guidance acknowledges that training can be delivered via a provider who operate under industry accreditation schemes (e.g. RenewableUK). In such cases HSE has provided advice on the scope and level of due diligence necessary to enable duty holders select a suitable training provider. Specifically this includes evidence of:

- The qualifications expected of trainers and assessors;
- Monitoring and quality assurance systems;
- Teaching and standards of first-aid practice;
- Syllabus content; and
- Certification.

Duty holders can undertake this assessment themselves. However RenewableUK have through existing accreditation and approvals systems provided access to training providers who have been independently assessed against the criteria set out by HSE. All first aid training providers who have received accreditation against the identified first aid training standard via RenewableUK in partnership with the nominated certification partner³ should fulfil the requirements and expectations set out by HSE. In addition to providing the relevant due diligence, the scope of training involved takes specific account of the:

- Particular risks encountered in renewable energy projects (wind, wave & tidal);
- Other training and competency issues that complement and enhance this training (e.g. work at height & rescue, marine safety training etc.); and
- Familiarity and appreciation of industry specific health and safety arrangements (e.g. site inductions, management systems or emergency response plans).

Additional or advanced first aid

training

HSE guidance recognises that where the work involves higher level hazards (e.g. dangerous machinery) or special hazards (e.g. confined spaces) first-aid requirements are likely to be greater. When combined with the potential complexities associated with renewable energy projects (e.g. remoteness) or the risks associated with increased response times, could mean that a higher level of training for first aid responders/teams is appropriate. In such cases employers may then need to assess the scope and suitability of any additional training provision.

Table 3 summarise some of the generic areas HSE have identified where additional first aid training or resources may be required – subject to the needs assessments performed and how these might apply to renewable energy activities. (Note: This primarily assumes activities relating to large offshore wind projects).

It is recommended that when any additional or advanced training is carried out that this should be subject to suitable oversight by an appropriate clinical governance protocol.

Table 3: Potential Areas for Additional First Aid Training or Resources

| HSE Expectation | Relevance to renewable energy | Possible solution |
|---|--|---|
| Provide sufficient numbers of qualified first-aiders so that someone is always available to give first aid immediately following an incident. | Relevant to most projects. | Ensure that all/most employees have at least basic first aid training to an agreed standard. (Note: This is common industry good practice) |
| Provide additional training for first-aiders to deal with injuries resulting from special hazards or scenarios. | Likely to be relevant but risk profile could vary according to the specific risks/activities of project /activities being undertaken and how this relates to the life cycle phase. | See training options in Table 4 |
| Consider additional first-aid equipment | Relevant – but no standard option. | Options might include additional kits located in turbine; carried by each worker; or available in vessels or vehicles in use on site. Larger projects may have access to first aid facilities with a more extensive range of equipment. |
| Provide one or more first-aid rooms. | Relevant – but no standard option. | Variety of options including use of control rooms, welfare blocks, or dedicated areas or cabins on vessels. Larger vessels or accommodation platforms likely to have dedicated facilities available. |
| Inform the local emergency services, in writing, of the site where hazardous activities or processes are in use | Relevant to all projects both on and offshore. Is a statutory requirement both on and offshore. | These should be set out in all relevant H&S policies and ERP's including where appropriate requirements under the ERCoP. Should normally be accompanied by appropriate training not just for first aiders but also those with responsibilities for putting ERP's into effect. |

1 Scope of these changes excludes Northern Ireland

2 First aid at work: The Health and Safety (First-Aid) Regulations 1981 (as amended) Guidance on Regulations L74.

3 Currently SGS UK Ltd appointed in accordance with - ISO/IEC 17021:2011: Conformity assessment -- Requirements for bodies providing audit and certification of management systems

Scope of additional or advanced first aid training

The requirements for any additional or advanced first aid training should as with all first aid provision be risk assessed based on the specific needs assessments performed. However – as set out in these guidelines this should not be carried out in isolation but form part of a wider integrated risk assessment approach taking account the Emergency Response Plans (ERP) that are required or are in place including taking for example account of the risk profile in line with the operational phase and available medical and first aid assets and resources available.

There are no specific programmes for the renewable energy sector. In the absence of a clearly defined industry specific programme it is essential that professional advice is taken before selecting any particular training solution. However Table 4 below summarises the potential areas that could form part or all of any additional or advanced first aid training.

Table 4: Potential Learning Objectives as Part of Any Additional or Advance First Aid Training

| Learning objective | Potential first aid training need |
|--|---|
| Legal, organisational and personal theory and knowledge | |
| Understanding the medical issues associated with the demographic profile of the workforce | Understanding the relevant demographics of the workforce including the age of the workforce and medical implications associated with prolonged stays remote from medical support. (Primarily offshore) |
| Understand the role of the first-aider. | Understand the role of the first-aider including reference to: <ul style="list-style-type: none"> • Personal & company responsibilities • Defining scope and limitations of competence • Assessing the situation and circumstances in order to act safely, promptly and effectively in an emergency • The importance of preventing cross infection • The need for recording incidents and actions • The use of available equipment |
| Communication skills (patient & emergency services) | Skill and knowledge to be able to effectively communicate and delegate promptly and effectively in an emergency including knowledge of: <ul style="list-style-type: none"> • Relevant emergency response arrangements and legal duties • Use of communication equipment (e.g. VHF, phones etc.) • Terminology and language to assist in effective communication |
| Understanding risks and precautions to enable the transport of a sick and injured patient safely and effectively | Understanding risks and precautions to enable the transport of a sick and injured patient safely and effectively including an understanding of the: <ul style="list-style-type: none"> • Evacuation of casualties • Difficulties of transport by helicopter • Management of a patient during flight • Difficulties of transport by vessel transfer • Management of a patient during vessel transfer • Need for stabilisation of a casualty before transport |
| First aid knowledge, understanding and skills | |
| Understanding signs and symptoms of common medical conditions | Knowledge and understanding to recognise the presence of major illness and provide appropriate first aid of: <ul style="list-style-type: none"> • Heart attack • Stroke • Epilepsy • Asthma • Diabetes |
| Understanding specific medical conditions and performing the appropriate first aid response | Understanding the signs, symptoms and first aid response for: <ul style="list-style-type: none"> • Suspension syncope • Shock • Trauma and crush injuries including major fractures & bleeding • Hypothermia or hyperthermia • Drowning casualty including effects of immersion • Specified hyperbaric medical conditions |
| Understanding and use of specified devices for CPR | Understanding of the use and maintenance of manual and related devices for CPR including: <ul style="list-style-type: none"> • Use of an automated external defibrillator |
| Administer first aid to a casualty. | Administering first aid to a casualty who: <ul style="list-style-type: none"> • Is suffering from the effects of poisons • Is suffering from an injury, including the dressing and immobilisation of injured parts • Has an eye injury • Has been burned or scalded • Has inhaled hot gases or smoke • Is bleeding • Is unconscious Includes the re-dressing of wounds effectively and performing other follow-up treatment which can be performed by the first aid role undertaken. Monitoring and recording the condition of the casualty including neuro observations. |
| Use of and administering of appropriate pain relief | Use of and administering of Entonox including recognising situations in which it is appropriate to use Entonox for the relief of pain, and to administer Entonox safely and effectively. |
| Use of and administering of oxygen | Use of and administering of oxygen including: <ul style="list-style-type: none"> • Use of suction devices, oropharyngeal and nasopharyngeal airways and oxygen supplies. • Understanding of the safe storage of oxygen and related equipment. • Recording the administration and use of oxygen. |

Note: See also previous comments regarding the importance of a robust clinical governance protocol to have oversight of additional or advanced first aid training.

References & Further information

HSE

General information

www.hse.gov.uk/firstaid/

Assessment tool

www.hse.gov.uk/firstaid/assessmenttool.htm

Selecting a first-aid training provider

www.hse.gov.uk/pubns/geis3.htm

First Aid at Work: The health and Safety (First Aid) Regulations 1981 (as amended):
Guidance on Regulations

<http://www.hse.gov.uk/pubns/books/l74.htm>

MCA

The Ship Captain's Medical Guide

www.dft.gov.uk/mca/mcga-shs_capt_guide_chap1.pdf

MSN 1768 (M+F) (Corrigendum)

Ships Medical Stores

MGN 147 (M+F)

Training in First Aid and Medical Care for Fishing Vessel Personnel, Boatmaster's Licence Holders and Small Commercial Vessel Personnel (Not covered by the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers as amended in 1995 (STCW95))

MIN 385 (M)

Proficiency in Medical First Aid and Medical Care Certification Requirements

MGN 96 (M)

Training and Certification Guidance – Part 6. Emergency, Occupational Safety, Medical Care and Survival Functions

Legislation

The Health and Safety (First Aid) Regulations 1981 (As amended)

The Offshore Installations and Pipeline Works (First-Aid) Regulations 1989

RenewableUK

H&S Circular (2012) Incident Response: Offshore Wind and Marine Projects
Offshore H&S Guidelines (2013): Offshore Wind & Marine Health and Safety Guidelines



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Our vision is for renewable energy to play a leading role in powering the UK.

RenewableUK is the UK's leading renewable energy trade association, specialising in onshore wind, offshore wind, and wave & tidal energy. Formed in 1978, we have a large established corporate membership, ranging from small independent companies to large international corporations and manufacturers.

Acting as a central point of information and a united, representative voice for our membership, we conduct research, find solutions, organise events, facilitate business development, advocate and promote wind and marine renewables to government, industry, the media and the public.

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