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OMHEC

Training Standard

Certificate of Expertise-requirements for skills and competence

for the

Crane Operator and Banksman Offshore

Offshore crane permanently mounted on an offshore installation
in the North Sea area intended for deck work and for materials handling
to and from supply vessels

*certification obligatory by law

This document is developed and issued by the Offshore Mechanical Handling Equipment Committee (OMHEC), Training Sub-committee. (2)

Members: Denmark, United Kingdom, Norway, the Netherlands

Approved by OMHEC date: December, 12 2002

Agreed by the following bodies:

* The Offshore Industry of the involved countries North Sea

*The authority of the involved countries North Sea

D - Danish Energy Authority

UK - Health & Safety Executive

N - Norwegian Petroleum Directorate

NL - State Supervision of Mines

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OMHEC TS	12-12-2002 (proposal)	March, 11 2003	26-11-2001 (1 ^e) 05-12-2001 (2 ^e)	15-02-2002 (3 ^e) 25-04-2002 (4)	03-2003	12-12-2002 (1 st) 11-03-2003(2 nd)

CONTENTS

1. Introduction

- 1.1 OMHEC membership
- 1.2 OMHEC elements
- 1.3 OMHEC objectives
- 1.4 OMHEC training sub committee
- 1.5 OMHEC training standard
- 1.6 References

2. Terms, definitions and abbreviations

3. Training guidance

- 3.1 Introduction
- 3.2 Entrance requirements for personnel
- 3.3 Description of the functions involved in lifting operation

4. Profile of the functions

- 4.1 Main tasks for the function involved in lifting
- 4.2 Skills and knowledge to fulfil the function

5. Training elements

- 5.1 Theoretical & Practical training issues
- 5.2 Assessment & Examination
- 5.3 Instructor & Assessor qualification and experience
- 5.4 Programme

6. Facilities

- 6.1 Classroom
- 6.2 Practical training
- 6.3 Theoretical training
- 6.4 Safety standards
- 6.5 Documentations
- 6.6 Equipment

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1 INTRODUCTION

1.1 OMHEC

The Offshore Mechanical Handling Equipment Committee (OMHEC) comprises of members from the United Kingdom, Norway, Denmark, and the Netherlands all of whom are involved with the safety of lifting equipment and lifting operations offshore.

Members represent regulatory authorities, industry organisations, independent verifications bodies and classification societies. One of the major issues that committee members have involved in over the last years has been promoting the development of the UK Lifting Operations and Lifting Equipment regulations SI 2307 (LOLER).

The committee wishes to express its concern with respect to the safety aspects of lifting equipment and lifting operations offshore. A relatively high number of incidents and accidents, including those resulting in the lost of life, give the background for focusing on the issue of safety relating to design, construction and operation of lifting appliances in the offshore environment.

OMHEC's objectives are to contribute to improved safety in offshore lifting operations and be the arena for work to harmonise good practise in lifting operations in the North Sea area.

The potential dangers involved in the use of lifting equipment necessitates that the highest standards of safety are applied in the elements detailed in Para 1.2.

1.2 Elements:

Design

It is quality of the design that provides the basis for safe equipment and it is Essential that those responsible for the design of offshore lifting equipment, Eg. Cranes take into account the intended operational aspects of the equipment And also the environment in which it is to be used. Organisations And people involved in this area must also have at their disposal the necessary Knowledge of all the aspects involved in the good and safe design of lifting Equipment. This includes static and dynamic design calculations as well as human engineering and, where applicable, ergonomic factors to be used in the design of the workstation for the operator of the equipment.

The design should take into account the requirement for ease of maintenance And inspection during use.

Risk assessment should be used during design to avoid or at least alleviate, failures due to known identified failure modes. This failure mode analysis should also take into account factors That may be present during possible unintended use of equipment.

Manufacturing

All manufacturers of lifting equipment should have a recognised effective quality assurance system in place and organisations that purchase, rent or lease equipment from such manufacturers should incorporate systems, which will verify that such quality has in fact been achieved.

All functions, including safety systems, should, as far as reasonably practicable, be verified for correct operation at the manufacturers premises before the manufacturer releases the equipment.

Operation

All personnel involved with lifting operations should have the necessary training skills and experience of such operations. A competent person or entity should regularly assess such skills utilising industry-recognised codes of practice.

The equipment itself should only be operated within the limits specified by the manufacturer/supplier

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Maintenance

Maintenance and inspection should be carried out in accordance with a plan Prepared from background information supplied by the manufacture, the User of the equipment, and details of the environment prevailing at the worksite.

Verification in use

A competent person or entity should verify that the equipment is ready for Use before it is put into operation.

Whenever the equipment has been modified or subjected to a major repair, a Competent person or entity should verify that the equipment is safe to use and that it will be operated In accordance with the relevant regulations and applied standards.

The user of the equipment should satisfy themselves that the competent person or Entity has the necessary qualifications and experience and that sound quality Principles are adhered to.

1.3 OMHEC OBJECTIVES

OMHEC's objectives are to contribute to improved safety in offshore lifting operations and to be the arena for work to harmonise good practices in lifting operations in the North Sea offshore area. In this respect the exchange of experience of accidents and incidents plays an important part in the committee's work.

The committee has established work groups, with representation from each of the participating countries, to develop documents that will constitute OMHEC's advice in specific areas related to lifting operations.

OMHEC shall also be the arena for information exchange and discussions related to legislative policy, research and development, standardisation of guidance and procedures and other issues relating to offshore mechanical handling equipment. This involves cranes, hoists, winches and lifts used offshore; on offshore installations and applicable (supply) vessels.
The offshore installation can be either fixed or mobile (incl. FPSO's and FSU's).

OMHEC has established two Working Groups which will constitute OMHEC's advice on the question of training of personnel involved in lifting operations and competency of the competent person / enterprise of competence.

1.4 Objective Training Sub Committee (Working Group Training)

"OMHEC aim is to standardise on the training, competency and assessment requirements for all personnel involved with handling and lifting operations in the North Sea Sector"

Members of the Training Sub Committee

United Kingdom (UK)	Arthur Illsley John Day	A1-safety Training Consultants Ltd Shell UK
Norway	Jostein Sekse	Statoil ASA
Denmark	Claus Schiller	Maersk Contractors
The Netherlands	Irmgard Horbach, Chairperson TS sub com.	SBW Trainer for the Infrastructure, spec. Crane Operators on-&offshore

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1.5 OMHEC TRAINING STANDARD

This standard outlines the required training of personnel involved in operation of offshore cranes and it should be considered as a standard for training within the participating countries; Denmark, The Netherlands, Norway and the UK.

This training standard prepared by OMHEC is based on a description of the functions of each category of personnel involved in offshore lifting operations. The categories are;

- Slinger
- Signaller
- Crane Operator

The combination of the Signaller and the Slinger together carries out the functions of the Banksman.

A common set of requirements should apply for personnel working on offshore installations and applicable (supply)vessels.

The training standard has been prepared and structured along the following lines:

- define the functions of each category personnel
- define the necessary skills to fulfil said functions
- define the required training to achieve said skills

What is the purpose of this training standard?

1. To stimulate 'the culture'of SAFE LIFTING OPERATIONS
2. To provide a level playing field for the acceptance of the "Certificate of Expertise" by each of the participating countries N-D-NL-UK
i.e. " working across the borders "
3. To ensure that personnel will have an agreed standard of qualification relating to Crane Operator, Banksman (combination of Signaller and Slinger)

1.6 REFERENCES

NEN-EN 45013 Certification of a person / Competence certification

EN 13852 Cranes-Offshore cranes-Part1: general purpose offshore cranes (CEN TC 147 date 2002-02)
Part 2: Floating Cranes (March 2001)

EN 12077-2:1998 Cranes safety-Requirements for health and safety-Part 2: Limiting and indicating devices
prEN 13586:1999 Cranes –Access

Cranes-Equipment for the lifting of persons-Part1: Suspended baskets

ISO 9926-1:1990 Cranes-Training of drivers—Part1: General

ISO 9928-1:1990 Cranes-Crane driving manual-Part1: General

ISO 15513-1: 2000 Cranes-Competency requirements for Crane Operators, Slings, signallers and assessors

ISO 12480-1:1997 Cranes-Safe Use-Part1: General

HSG 221 Technical guidance on the safe use of lifting equipment offshore- HSE January 2002

BSI British Standard safe use of cranes/part 11 Offshore Crane 7121-11-1998

CITB-NVQ Level 2 (offshore)

OPITO Standards of Competence 2 & 5 / 2000 for offshore Crane Operators (2002)

Danish DEA Order No.1208/2000 § 10-Training of Crane Operators

DEA (Danish Energy Authority) Regulation related to petroleum activity on the Danish Continental Shelf

NORSOK R-003, Rev. 1, September 1997 NORSOK Standard Lifting Equipment Operation

Certification Schedule Inspection &Testing Offshore Crane / The Netherlands Continent

The Netherlands ARBO law & regulations version 01-01-2003 (special chapter 7)

(State Supervision of Mines: Mining regulations SV 48 Certificate of Expertise Crane Operator requirements 1990)

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2 TERMS, DEFINITIONS AND ABBREVIATIONS

Accreditation <i>ISO 15513:2000(E)</i>	Involves the provision of a statement of competency, an award or some other credit arrangement by a training authority, a vocational educational institution, or an accreditation body Process of granting official formal recognition to assessors and other successful candidates of competency
Accreditation body <i>ISO 15513:2000(E)</i>	Organization which oversees the assessment of candidates to prescribed competency/training standards
Assessor <i>ISO 15513:2000(E)</i>	Person who makes judgements on the skills and knowledge of a Crane Operator, Slinger and/or Signaller (both can also function as a Banksman).
Assessment <i>ISO 15513:2000(E)</i>	Process of judging competency against prescribed standards of performance
Banksman	Competent person positioned so that he has an unrestricted view of the load and the crane operator, to give load-manoeuving instructions to the crane driver via hand signals or radio. The banksman may be given responsibility for directing movements of the crane and load instead of the Signaller, provided that only one person has the responsibility at any one time. <i>See also Signaller and Slinger >> Banksman is both function</i>
Boom	A steel lattice, or steel box section structure that forms a lifting mast.
Cargo	Any liquid, solid or gaseous matter transported in an (offshore) container & bundled pipes, tubular, baskets (incl. crew-baskets).
Cargo handling equipment <i>OMHEC-Training cub cie.</i>	A generic term covering equipment to be used as 'load carrier'.
Check <i>NORSOK R-003, Rev. 1-09-1997</i>	A visual and functional assessment (not a specific test and without dismantling) of the condition of the crane, lifting equipment, etc, to confirm that the 'equipment' is safe to operate/use.
Colour Code	A method of marking equipment (normally with plastic tie-wraps or paint) to give a visual indication of its certification/inspection status. This 'coded' colour is changed normally in a period of six months. (but it could also be in a period of twelve months)

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Competent Person NORSOK R-003, Rev. 1-09-1997 ISO 15513:2000(E)	A person who has sufficient theoretical knowledge, practical experience and the required qualities for the task in hand. Is able to perform the activities within an occupation or function to the standard expected in the task.
Dangerous goods NORSOK R-003, Rev. 1-09-1997	Goods classified, and labelled, according to the International Maritime Dangerous Goods – code as hazardous to personnel/equipment.
Examination NORSOK R-003, Rev. 1-09-1997	Verification that the crane can safely continue in service including a functional test of all safety devices i.e. limiting, indicating equipment, brakes, clutches etc. to verify that they operate within the required tolerances. An examination is more than an inspection.
Identification Number	A unique number given to an item of lifting equipment or registration purposes and to facilitate trace ability.
Inspection NORSOK R-003, Rev. 1-09-1997	Looking at the crane for defects and checking the operation of the control as, limiting and indicating devices without loading the crane. This is much more than a casual glance but does not normally require any part of the crane to be dismantled.
Lifting gear NORSOK R-003, Rev. 1-09-1997	Items of lifting equipment which do not form parts of the permanent arrangement of lifting appliance, e.g chain, blocks, slings, shackles, eyebolts, etc.
Lifting equipment TCVT-NI-WG-2-01E	A generic term covering equipment that is located between the load and the crane hook in order to hoist the load.
Lifting Operation	A task concerned with the lifting and lowering of a load. It includes the selection attachment and use of suitable lifting equipment.
Offshore crane NORSOK R-003, Rev. 1-09-1997 TCVT-NI-WG-2-01E	Usually refers to a slewing crane that is permanently installed on an offshore installation and primarily intended for transporting materials to and from supply vessels.

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<p>Offshore container</p> <p><i>NORSOK R-003, Rev. 1-09-1997</i></p>	<p>A transportation unit designed for the safe handling of cargo, which shall be transported via sea, to and from offshore installations and supply vessels. An offshore container is designed for more than one trip.</p>
<p>Offshore installation</p> <p><i>OMHEC statement 07-1999</i></p>	<p>An installation on or above the continental shelf for the purpose of exploring for, or producing, minerals.</p> <p>The installation can be either fixed or mobile. (incl. FPSO's and FSU's).</p>
<p>Pulley (or Sheave)</p>	<p>A grooved wheel over which a rope passes. Pulleys are usually shaft mounted and free to rotate in response to movement of the rope.</p>
<p>RCI</p>	<p>Rated Capacity Indicator. A visual safety device fitted to cranes to indicate to the crane operator that he is operating within the rated capacity of the crane.</p>
<p>Safe Working Load (SWL)</p> <p><i>NORSOK R-003, Rev. 1-09-1997</i></p>	<p>The maximum load (as certified by an independent competent person) which an item of lifting equipment may raise, lower or suspend under particular service conditions.</p>
<p>Signaller</p> <p><i>ISO 15513:2000(E)</i></p>	<p>Person responsible for relaying a crane movement signal to the Crane Operator.</p> <p>Note: See also Banksman and Slinger</p>
<p>Slinger</p> <p><i>ISO 15513:2000(E)</i></p>	<p>Person responsible for attaching and detaching the load to and from the crane load-lifting attachment. Also responsible for correct selection and use of lifting gear and equipment in accordance with the operating lift plan.</p> <p>Note: See also Banksman and Signaller</p>
<p>Toolbox Meeting Toolbox Talk</p>	<p>A (short) discussion held between all members of a lifting operation prior to commencement of work in order to agree on all aspects of the work and the sequential steps to be taken to complete the work. The agreed procedure, hazards and control methods are to be recorded on a TRIC/TRIM card (or similar).</p>

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Training	A programme drawn up to teach a person the necessary skills and knowledge to fulfil a function / job.
Training Standard Offshore North Sea	The required training (skills & knowledge) that personnel involved in North Sea offshore crane operations must meet, specific to the functions of the Crane Operator and the Banksman. <i>It should be considered as the common standard of training within the participating countries; Denmark, The Netherlands, Norway and UK.</i>
Working Load Limit (WLL)	The maximum load, which an item of lifting equipment is, designed to raise, lower or suspend.

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3 TRAINING GUIDANCE

3.1 Introduction

Cranes are used extensively offshore, mainly to transfer cargo between supply vessels and the installation, but also to assist with various installation operations. However, the use of cranes during these operations is not without risk and these risks generally relate to exposure of equipment to ever-changing weather conditions and the variety of lifting operations encountered.

The operational condition of the crane is determined by a number of factors but mainly by the type, regularity and quality of the maintenance carried out.

Laws, regulations and guidance have been introduced by governments and industry bodies in an attempt to aim for a reduction in these risks.

The objective of this Training Guidance section is to define the training elements that are necessary for personnel involved in lifting operations. Special emphasis has been placed on the offshore crane operators elements as they must have the necessary professional skills and competency to carry out their work safely and efficiently.

This section also gives an indication of the basic training skills required by training staff at the recognized training establishments. Also given is a description of the (basic) training elements divided into the theoretical and practical items and the programme of the training course required up to the time that the trainee receives their Certificate of Expertise.

In each of the following tables:

- Number 3.3 gives a description of the functions involved in lifting operation;
 - Number 4.1 indicates the main tasks for the function involved in lifting operation;
 - Number 4.2 indicates Skills and knowledge to fulfil the function;
 - Number 5.1 indicates theoretical and practical training issues & teaching aims
- A cross 'X' is used to indicate applicability.

A profile of the functions, description of the functions and skills and knowledge to fulfil the function, is given in the following parts. It is based on the steps to be taken in an operating cycle.

An operating cycle is defined as all activities commencing with the raising of the load and concluding when the crane is ready to pick up the next load, or the final end of the lifting operation(s).

In order to prevent accidents and damage, as well as near misses, it is important that an assessment be made of the risks involved in a lifting operation, or maintenance activity. Before beginning any lifting tasks, the personnel involved in the lifting operation (crane operator/banksman) should carry out a risk assessment. *This should include an allowance for the environmental conditions prevailing at the time during which the operation will be carried out.*

The duration of the training course and the training method depends on the profile of the target group. For example, as a general guide, the target group to which the program for the Crane Operator Offshore is developed consists of persons who:

- have some knowledge of lifting equipment and are familiar with working at offshore installations;
- have a valid medical offshore inspection certificate;
- have an (technical) intermediate vocational education level in work and thought

3.2 Entrance requirements for personnel

Crane Operator and Banksman (Signaller & Slinger)

1. Relevant experience offshore
2. Practical knowledge of slinging & rigging offshore
3. Medical certificate for the offshore industry (according to national requirements)
4. Crane-Operator: Banksman certificate of expertise

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3.3 Description of the functions involved in lifting operation

Description of the functions	Crane Operator	Banksman	
		Signaller	Slinger
1. Perform planning of lifting operation	X		
q Define responsibilities and conditions.	X		
q Consider need for Permit to Work system	X		
q Check the manifest (1 st line) – documents - certifications (logbook/handover)	X		
q See to, and perform daily maintenance of the crane	X		
q Consideration of pre-job / Toolbox-meeting	X		
q Prepare operation, plan and communicate work instructions	X	X	X
q Select appropriate lifting equipment	X	X	X
q Choose load chart	X		
2. The implementation of regulations and standards	X	X	X
q Ensure that all relevant requirements are implemented			
3. Co-ordinate lifting operation with all personnel involved.	X		
q Set up communication: eg with supply vessel, radio room, banksman, helicopter	X	X	X
q Execute responsibility for the functions stated for Banksman (Slinger and Signaller)	X		
q Ensure the final & overall safety of the working environment	X	X	X
q Control & direct "Ready for lifting"	X	X	X
q Keep an overview of the lifting and landing area	X	X	X
4. General and safety checks of crane, lifting equipment and load	X		
q Start-up checks and checking of safety functions of the crane	X		
q Visual checks (including reading of the logbook / handover)	X		
q Check lifting equipment, lifting equipment	X	X	X
q Check security of the load	X	X	X
5. Instruct and carry out communication procedures	X	X	
q Confirm reliable communication, e.g. between supply vessel, banksman, radio room.	X	X	X
q Using hand signals	X	X	X
q Using radio equipment	X	X	X
q Confirm that the load is ready to lift	X	X	X
q Set up the configuration, the position, the situation	X		
6. Assessment of risks / hazards	X		
q Check environmental conditions and decide "go" or "no go" to lifting, especially weather conditions	X		
q Keep abreast of all procedures and safety regulations pertaining to the areas of responsibility.	X		
q Ensure that sufficient number of persons are involved in the lifting operations	X	X	X
q Evaluate environmental conditions and influence of dynamical loads.	X		
q Know hazards and know how to handle them	X	X	X
q Control load behaviour	X	X	X

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Description of the functions involved in lifting operation	Crane Operator	Banksman	
		Signaller	Slinger
7. Know and assess <u>distribution of forces</u>			
q Calculate composition of forces	X	X	X
8. <u>Lifting operations</u> at the offshore location; deck work and load-unload a supply vessel	X		
q Prepare operation plan and communicate work instructions (lift plan, method statement)	X	X	X
q Correct treatment & handling of dangerous goods	X	X	X
q Correct lifting operations procedures, e.g. for containers, tubular etc.	X	X	X
q Correct handling while bunkering (water, fuel) and transfer of bulk material	X	X	X
q Special lifting operations: personnel lifting operations; tandem lifts; blind lifts, etc..	X	X	X
q Correct use of lifting equipment	X	X	X
9. Observing <u>safety measures</u> when working with and at the offshore crane.	X		
q Controlling of critical emergency situations.	X		
q Emergency procedures by evacuation of personnel	X	X	X
q Report incidents	X	X	X
q Emergency shut down procedures	X	X	X
q Correct interpretation of safety procedures	X	X	X
10. Parking the crane (boom spec) according to the company / manufactures procedures	X		

4 Profile of the functions

4.1 Main-tasks for the functions involved in lifting	Crane Operator	Banksman	
		Signaller	Slinger
1. Plan lifting operations	X	TBI	TBI
2. Implement regulations and standards	X	X	X
3. Co-ordinate lifting operation with all personnel involved	X	X	X
4. General and safety checks of crane, lifting equipment and load	X	TBI	TBI
5. Carry out the communication-procedures	X	X	X
6. Assessment of risks / hazards	X	X	X
7. Know and assess distribution of forces	X	X	X
8. Lifting operations at the offshore location; deck work and load-unload a supplier	X	TBI	TBI
9. Safety measures when working with the offshore crane	X	X	X
10. Parking the crane according to the company procedures	X	TBI	TBI

Note : TBI =To Be Involved

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4.2 Skills and knowledge to fulfil the function		Banksman		
		Crane Operator	Signaller	Slinger
1. Perform planning of lifting operations		X	TBI	TBI
1.1	Experience with the offshore cranes, the various kinds and construction	X	X	X
1.2	Know safety aspects and accident potentials related to operation with offshore cranes	X	X	X
1.3	Know the influences on the operations lifting and lowering with offshore cranes (general)	X		
1.4	Be able to use and understand an offshore crane "load chart"	X		
1.5	Be able to carry out daily maintenance of a offshore crane	X		
1.6	Know the steps to be taken before putting the offshore crane into use (method-steps)	X		
1.7	Know the different types of pre-job and "toolbox meeting" methods	X	X	X
1.8	Be able to select the correct lifting equipment for the job	X		X
1.9	Be aware of other activities on the platform	X	X	X
1.10	Estimate the mass of the load to be hoisted	X	X	X
2. The implementation of regulations and standards		X	X	X
2.1	Know relevant authorities that set out regulations for accident prevention	X	X	X
2.2	Know rules regarding certification of the crane and involvement of the enterprise of competence in all phases of use	X		
2.3	Know the relevant documentation regarding certification and safe use of cranes	X		
3. Co-ordinate lifting operation with all personnel involved		X	X	X
3.1	Know the rules and regulations that apply to the operation	X	X	X
3.2	Know different types of radio equipment and how to use it correct-safely (and their limitations)	X	X	X
3.3	Explain safety aspects regarding use of offshore cranes and how to protect people against accidents	X	X	X
4. General and safety checks of crane, lifting equipment and load (checklists)		X	TBI	TBI
4.1	Know the main parts of the offshore crane	X		
4.2	Know how to carry out the daily checks report	X		

Document code	Lapsed version dated	Current version dated	Drawn up by OMHEC Training sub-com		Approval by members countries OMHEC	Approval board OMHEC North Sea Europe
OMHEC TS	12-12-2002 (proposal)	March, 11 2003	26-11-2001 (1 st) 05-12-2001 (2 nd)	15-02-2002 (3 rd) 25-04-2002 (4)	03-2003	12-12-2002 (1 st) 11-03-2003(2 nd)

Skills and knowledge to fulfil the function	Crane Operator	Banksman	
		Signaller	Slinger
4.3 Know how to maintain and inspect lifting equipment: <ul style="list-style-type: none"> Storage, cleaning, inspection of lifting equipment and completion of relevant documentation Maintenance and inspection of lifting equipment Chain and chain assemblies Colour coding of lifting / handling gear Estimate the dimensions of the load to be hoisted. 	X	X	X
4.4 Necessary knowledge of main parts offshore crane / maintenance programme and how to: <ul style="list-style-type: none"> Check the diesel engine Check the electrical installation Check the hydraulic system Check the RCI, and safety devices , eg travel limit switches Check the upper works (A-frame, rope sheaves, etc) of the offshore crane Understand the instrument panel in the crane cabin Adjust the crane chair correctly Perform visual checks on wire ropes; winches; hoists Perform visual checks on sheaves drums and pulley blocks for wire ropes 	X		
4.5 The steps to be taken before putting the offshore crane into use	X		
4.6 Know how to maintain and inspect load carrying equipment: <ul style="list-style-type: none"> Tanks Transfer equipment / personnel baskets 	X	X	X
5. To instruct and to handle the communication procedures	X	X	X
5.1 Know how to perform hand signals to the required standard	X	X	X
5.2 Understand, comply with and perform the standardized hand signals	X	X	X
5.3 Correct use of crane operation instructions with the aid of radio equipment	X	X	X
5.4 When using radio equipment give clear and correct instructions	X	X	X
5.5. Communication procedure related to "Special Lifts"	X	X	X
6. Assessment of risks / hazards	X	X	X
6.1 Know and understand the influences of the dynamic forces	X	X	X
6.2 Know and understand operational limitations regarding the supply vessel, the crane, the installation and the various types of loads	X	X	X
6.3 Know correct treatment and handling of dangerous goods	X	X	X
7. Know and assess distribution of forces	X	X	X
7.1 Know the influence of dynamics on the load and the crane	X	X	X
7.2 Know the composition of forces & select the equipment	X	X	X

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Skills and knowledge to fulfil the function	Crane Operator	Banksman	
		Signaller	Slinger
8. Lifting operations at the offshore location; deck work and load-unload a supplier	X	TBI	TBI
8.1 Read and interpret data found in tables (crane tables /sling tables)	X	X	X
8.2 Know the function of the RCI (overload safety device)	X		
8.3 Understand the cranes safety functions and limitations/disabilities	X		
8.4 Hoisting slings <ul style="list-style-type: none"> Special lifting equipment Choose the appropriate lifting equipment and use it correctly. 	X	X	X
8.5 Be able to carry out (safe) loading and unloading of the supply vessel: <ul style="list-style-type: none"> Mooring-rope-handling; Containers; Bundled pipes; Scaffolding materials; Materials that carry specific risks 	X	X	X
8.6 Know and be able to carry out correct bunkering procedures	X	X	X
8.7 Hook on the loads safely and move them in accordance with the regulations.	X	X	X
8.8 Perform single and multiple hoisting movements in accordance with the regulations. Special lifting operations: assembly lifting: <ul style="list-style-type: none"> Personnel lifts Tandem lifts Blind lifts 	X	X	X
9. Handle safety measures when working with and at the offshore crane	X	X	X
9.1 Explain safety aspects regarding use of offshore cranes and how to protect people and materials against accidents	X	X	X
9.2 Know and be able to carry out correct reaction in “near miss situations” and when technical problems appears	X	X	X
9.3 Reporting “near miss” situations and completing follow up reports, according to national standard	X	X	X
9.4 Know and be able to carry out emergency shutdown procedures	X	X	X
10. Parking the crane according to the company procedures	X	TBI	TBI
10.1 Be able to park the crane in a correct and safe manner accordance to the procedures	X		

• **Note:**

Please be advised to read the enumerations (bullets “•”) as : “for example but not limited to”, in the tables of section 4.2 Skills and knowledge to fulfil the function and section 5.1. Training issues.

Document code	Lapsed version dated	Current version dated	Drawn up by OMHEC Training sub-com		Approval by members countries OMHEC	Approval board OMHEC North Sea Europe
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5. Training Elements

5.1 Training issues, incl. teaching aims theoretical & practical

* T=Theoretical and P=Practical / 1-4 is the importance

Skills and knowledge for the function <=> training issues	Crane Operator	Banksman		Theory Practice
		Signaller	Slinger	
1. Perform planning of lifting operations	X	TBI	TBI	
1.1 Know the relevant types of offshore cranes and their construction	3	1	1	T
1.2 Know safety aspects and reason for accident related to operation with offshore cranes	3	3	3	T
1.3 Know the influences on the operations when lifting and lowering with offshore cranes (general)	3	2	2	T
1.4 Know and be able to use the "load chart" for an offshore crane	3			T, P
1.5 Be able to carry out daily maintenance of an offshore crane	3			P
1.6 The steps to be taken before putting the offshore crane into use (method-steps)	4			T, P
1.7 Know the different kind of pre-job and "toolbox" methods	3	1	1	T
1.8 Be able to select the correct lifting equipment for the job	4	3	3	T, P
1.9 Know the limit of hooking dealing with other activities on the platform	3	2	2	T
1.10 Assess the mass of the load to be hoisted	3	2	2	T
2. The implementation of regulations and standards	X	X	X	
2.1 Know the authorities that issue and control regulations for relevant accident prevention	2	1	1	T
2.2 Know rules regarding certification of the crane and involvement of the enterprise of competence in all phases of use	3			T
2.3 Know the necessary documentation regarding certification and safe use of cranes	4			T
3. Co-ordinate lifting operation with all personnel involved	X	X	X	
3.1 Know the rules and regulations that apply to the lifting operation.	4	3	3	T
3.2 Know different types of radio equipment and how to use it correctly (Know also their limitations)	4	3	3	T, P
3.3 Explain the safety aspects regarding use of offshore cranes and how to protect personnel against accidents	4	3	3	T
4. General and safety checks of crane, lifting equipment and load (checklists)	X	TBI	TBI	
4.1 Know the main parts of the offshore crane	2	2	2	T
4.2 Know how to use the daily checks report	3	2	2	T
4.3 Know how to maintain and inspect lifting equipment <ul style="list-style-type: none"> • Storing, treatment and registration of lifting equipment • Maintenance and inspection of lifting equipment • Chain and chain assemblies • Colour coding of lifting / handling gear • Estimate the measurements of the load to be hoisted. 	3	3	3	T, P

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Skills and knowledge for the function <-> Training Issues	Crane Operator	Banksman		Theory Practice
		Signaller	Slinger	
4.4 Have necessary knowledge of main parts of the offshore crane / maintenance programme and how to : <ul style="list-style-type: none"> • Check the diesel engine • Check the electrical installation • Check the hydraulic system • Check the RCI - safety devices • Check the upper works (A-frame, rope sheaves, etc) of the offshore crane • Read and operate the instrument panel in the crane cabin • Adjust the chair correctly • Perform visual checks on wire ropes; winches; hoists • Perform visual checks on sheaves drums and pulley blocks for wire ropes 	3			T, P
4.5 Know the steps to be taken before putting the offshore crane into use	3			T, P
4.6 Know how to maintain and inspect load carrying equipment <ul style="list-style-type: none"> • Tanks • Transfer equipment / personnel basket 	3	3	2	T
5. To instruct and to handle the communication procedures	X	X	X	
5.1 Know how to perform hand signals to the required standard	3	3	3	T
5.2 Understand, comply with and perform the standardized hand signals	3	3	3	T,P
5.3 Correct use of crane operation instructions with the aid of radio equipment	3	3	3	T,P
5.4 When using radio equipment give clear and correct instructions	3	3	3	T,P
5.5 Communication procedure related to subject Special Lifts	3	3	3	T,P
6. Assessment of risks / hazards	X	X	X	
6.1 Know and be able to describe the effects of the dynamic forces	3	2	2	T
6.2 Know and understand operational limitations regarding the supply vessel, the crane, the installation and various types of load	3	3	3	T,P
6.3 Know correct treatment and handling of Dangerous Goods	3	3	3	T,P
7. Know and assess distribution of forces	X	X	X	
7.1 Know the effects of dynamics on the load and the crane	3	2	2	T
7.2 Know the composition of forces & select the equipment	3	2	2	T
8. Lifting operations at the offshore location; deck work and load-unload a supplier	X	TBI	TBI	
8.1 Read and interpret data found in tables (<i>crane tables /sling tables</i>)	3			T, P
8.2 Know the function of RCI (overload safety devices)	3			T
8.3 Understanding of the cranes safety functions and limitations/disabilities	3			T
8.4 Hoisting slings <ul style="list-style-type: none"> • Special lifting equipment • Choose the appropriate lifting equipment and use them correctly 	3	3	3	T, P

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Skills and knowledge for the function <-> Training Issues	Crane Operator	Banksman		Theory Practice
		Signaller	Slinger	
8.5 Be able to carry out (safe) loading and unloading of the supply vessel Mooring-rope-handling; containers ;bundled pipes; scaffolding materials; materials, that carry specific risks Re-reeving of crane from single fall to multiple falls and reverse	3	3	3	T, P
8.6 Know and be able to carry out correct bunkering procedures	3	2	2	T, P
8.7 Be able to hook on loads safely and move them in accordance with the regulations. • Re-reeving of crane from single fall to multiple falls and reverse	3	3	3	T, P
8.8 Be able to perform single and multiple hoisting movements in accordance with the regulations. • Special lifting operations; • Assembly lifting • Personnel lifts • Tandem lifts • Blind lifts	3	3	3	P
9. Handle safety measures when working with and on the offshore crane	X	X	X	
9.1 Explain safety aspects regarding use of offshore cranes and how to protect personnel and material against accidents	3	2	2	T P
9.2 Know and be able to carry out correct reaction in “near miss situations” and when technical problems appears	4	3	3	T,P
9.3 Reporting “near miss” situations and how to compile the follow up reports to national standard	3	2	2	T, P
9.4 Know and be able to carry out emergency shutdown procedures	3	2	2	T, P
10. Parking the crane according to the company procedures	X	TBI	TBI	
10.1 Be able to park the crane in a correct and safe manner accordance to the procedures	3			P

Explanation:

T (=Theoretical)

The number behind the cognitive aims (Theory, Practical) indicates the level on which the subject is taught.

The numerical level starts at 1 and runs to 4

- (1) recognizing,
- (2) mentioning / knowledge,
- (3) put into practise / skill competence
- (4) analysing.

The cognitive teaching aims (teaching aims in the field of knowledge and recognition) are indicates as

T (=Theoretical) & **P** (=Practical)

The hands-on, **practical** teaching aims (teaching aims in the field of skill, capability) are stated below under **P (=Practical)**

The number (i.e. 1 to 4) can also be read as a scale of “important- most important” / and/or how many times he/she has to do the same handling/action.

Document code	Lapsed version dated	Current version dated	Drawn up by OMHEC Training sub-com		Approval by members countries OMHEC	Approval board OMHEC North Sea Europe
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5.2 ASSESSMENT / EXAMINATION

Both, the assessment and the (final) examination, consist of a theoretical and a practical part. The assessment technique shall include direct observation, practical tasks, written and oral questions, simulation and a combination of all the techniques.

The (final) examination, will require the candidate to achieve the practical & theoretical attainment targets (min. 75%) in order to gain the definitive Expertise of Competence. The (final) examination shall include practical tasks and written / oral questions (open and Multiply-Choice)

5.3 INSTRUCTOR / ASSESSOR

The qualifications and experience of the instructor and/or assessor should be as follows:-

- (i) Should be familiar with the relevant legal regulations, specific regulations, standards and codes of practice relating to offshore cranes and lifting equipment.
- (ii) Have a thorough knowledge of the relevant assessment documents, methods, procedures and assessment requirements.
- (iii) Have appropriate technical knowledge of the activities that are to be assessed.
- (iv) Have industry experience in the use and operation of the relevant equipment
- (v) Have an overall degree of understanding sufficient carry out a reliable and proper assessment relating to the skills and competence of the candidates involved with the programme.
- (vi) Have the appropriate qualifications and experience.
- (vii) Be able to communicate effectively both in writing and orally in the required languages.
- (viii) Be free from any conflicting interest so that they can make impartial and non-discriminatory decisions.
- (ix) Hold a recognized national assessor's award and be a discipline expert in the areas being assessed, have extensive experience and be actively involved in lifting operations offshore.

The instructor and the assessor should not be the same person on the training course.

The instructor must be a certified offshore crane operator who possesses the necessary teaching skills, experience and qualifications.

5.4 PROGRAMME

I. Basic training course

The programme will be designed to give the delegate maximum opportunity to practice the skills required from a member of an offshore crew, the exercises should be designed to test the skills and knowledge and understanding of the candidate. When necessary delegates should receive further training or coaching in areas where it is felt that deficiencies or lack of understanding exist. To maximise the efficient use of time and ensure effective learning there should be an integration of the three phases of explanation ie (i) theoretical and practical separate (ii) in combination and (iii) a demonstration and practical exercises.

On the last day of the basics training course candidates will take their practical and theoretical assessment. Candidates who pass this assessment will receive a temporary Certificate of Expertise.

Note: At the end of the programme the training provider should identify to the candidate and his employer areas requiring further development and training. Also time should be allowed after the training course and assessment for comment and feedback from the candidate.

II. On the job training offshore location

After finishing the basic training course at the training location, the course will be continued at the offshore location. The continuation of this training will take place under the supervision of an experienced Certified Crane Operator Offshore. The crane operator will provide the candidate with the necessary knowledge and skills over this training period at the offshore location. The temporary Certificate of Expertise entitles the candidate to work on a crane under supervision. This practical period of working on a crane have to be officially recorded by the Offshore Installation Manager on the temporary Certificate of Expertise.

A log book can be used.

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When the attainment targets of the training curriculum are obtained, the candidate can be nominated for the final examination; fulfil the requirements of the final test (practical examination). This will be organized on the offshore crane on the offshore location. One of the most important part of this examination will be is to load-and unload a supply vessel.

Refresher

A refresher training programme will be required and this should be based on the following elements:

- (i) The first refresher training course should take place in the period between the basic training course and the final examination.
- (ii) The second refresher training course should take place 2 –3 years after the candidate has finished their training and gained the Certificate of Expertise.

The expected duration would be a minimum of two days for each of the above refresher programs. Contents of the programme are based on repeating the elementary parts (theoretical & practical) of the training curriculum, with the use and illustration of realistic practical cases.

The objective of the refresher training is:-

1. Involve the candidate in an emergency response training exercise.
2. Update the candidate on new developments: technical aspects, safety devices, regulations etc.
3. Support the training on the job period for the candidate and his supervisor
4. Point out areas for improvement to the candidate.

Re-assessment

A re-assessment training programme should be based on the following elements:-

Note: re-assessment is based on 5.2.

- (i) Confirmation that the required competence is being maintained. The Certificate of Expertise is valid for a particular period and re-assessment should be carried out one year before the expiry date.
- (ii) Where the assessment indicates “not yet competent” in an area or section of the assessment (practical and theoretical), the candidate may be reassessed for that area or section only after additional training in that area or section has been given.
- (iii) A full re-assessment training programme will be required where the candidate has not had practical operating experience on a offshore crane for a period of more than 2 years.

Simulator training

Where simulator training is carried out candidates would be expected to attend courses based along the following lines:-

1. Introductory course

Objectives for this course is to give training and insight for personnel such as line managers, who have responsibility crane and lifting operations. It would also give banksman a better understanding of how the crane and vessels cargo behave and make them more familiar with the crane operator’s function and problems during lifting operations. Personnel that are applying for a crane certificate would also find this level of course beneficial.

2. Retraining course

The retraining courses are aimed at experienced crane operators. The contents are based on the issues of communication procedures, pre-job communication with all personnel involved in the lifting operation (supply vessel, banksman etc.) and ‘safe job analysis’ when for example lifting under marginal conditions. Scenario training with critical simulated situations are also part of this course.

3. Simultaneous training with supply vessel and crane

Simultaneous training between platform personnel and the crew of the supply vessel. Special lifting operations and various critical situations. The most important objective of this training course level is to establish better contact, communication and corporation between all personnel involved with offshore lifting operations .

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6 FACILITIES

6.1 CLASSROOM

- Sufficient capacity for the number of persons in the training group
- Quiet office type environment
- Heating/ (when necessary air conditioning) facilities, a blackboard and/or flip-chart; TV and video recorder; power beam and laptop or sheets and overhead projector.
- Demonstration facilities eg working models of cranes, examples of some types of lifting equipment such as shackles, slings, pipe clamps etc.
- Basic demonstration aids to help understand the principles of hydraulic, pneumatic and electrical crane schematics. Prime mover (diesel and electric drive) examples may include working models.

6.2 PRACTICAL TRAINING

- Offshore crane and wave/supplier simulator
- Crane simulator (Course level dependant on offshore position and candidate competence)
- Loose gear lifting equipment, use of slings, tag lines
- Pipe bundles; single pipes; handling tubulars
- Cargo handling equipment, offshore type containers
- Practical exercises based on the training elements of 5.1, incl. schedule and study guidance
-

6.3 THEORETICAL TRAINING

- Syllabus, based on the theoretical training elements of 5.1, incl.. schedule and study guidance
- Guidance for the instructor / trainer
- Appendices: Hand signals Offshore North Sea
National and industry standards
Relevant legislation etc.

6.4 SAFETY STANDARDS

- Safe systems of work (permits, procedures, company specific procedures toolbox meeting, lifting plans)
- Risk assessment and control measures

6.5 DOCUMENTATIONS

- Equipment pre-use inspection, including certification of equipment
- Crane book
- Crane operations manual
- Maintenance reports, maintenance and inspection manuals
- Logbook: registration hours
- (temporary) Certificate of Expertise

6.6 EQUIPMENTS

- equipment training see also 6.2 and 6.3
- equipment safety: first aid

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