
Norwegian Oil and Gas training curriculum

Basic search and rescue course

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FOREWORD

This training curriculum has been compiled for course providers approved by Norwegian Oil and Gas to provide the basic search and rescue course.

The training is intended to provide competence on the emergency response function for search and rescue.

In this context, competence means *the ability to perform tasks and master complex challenges*.

The contact for this training curriculum in Norwegian Oil and Gas is the manager, expertise development.

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See [Norwegian Oil and Gas 002 Recommended guidelines for safety and emergency preparedness training](#) and requirements for safety and emergency response training.

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1 INTRODUCTION

1.1 Purpose

This training curriculum describes requirements for the content and execution of the search and rescue refresher course.

The training is designed to provide competence on:

- organisation of emergency response
- fire and extinguishing agent theory
- use of extinguishing agents
- physiology
- protective equipment
- search and rescue

1.2 Learning outcomes

After completing the training, the participant must be able to:

- conduct search and rescue operations with the correct use of extinguishing and protective equipment
- describe the organisation of emergency response on offshore facilities
- use their knowledge of fire and extinguishing agent theory to extinguish a fire
- use the correct extinguishing agent to extinguish a fire
- describe the physiological burdens of search and rescue operations in hot and smoke-filled surroundings
- use protective and breathing equipment correctly and conduct safety checks of the equipment

1.3 Target group

The target group for the training is personnel who are to function as members of a search and rescue team.

2 CONTENT

2.1 Parameters for conducting the course

Teaching at the course centres must reflect a good safety culture.

Theory: one instructor per 25 course participants.

Practical exercises: one instructor per five course participants.

Duration of the course is five days.

- One course day is eight hours with a minimum of six hours of effective training
- One hour is 60 minutes

A minimum of 18 hours of practical exercises.

During practical exercises, the challenges and degree of difficulty must be increased in line with the rising level of mastery.

During practical exercises, the instructor will observe and give immediate feedback, and time must be allotted for feedback and guidance after the exercise is over.

The team must be observed to ensure that it has understood the response involved, and the way risk and risk-reduction measures are handled.

2.2 Teaching materials

Teaching materials used during the course must be tailored to the competence objectives specified in this training curriculum.

2.3 Prior knowledge

Basic safety and emergency preparedness course.

Personnel with a smoke diver function in the search and rescue team must submit valid documentation that the medical examination and physical tests (fitness test and strength requirements) have been conducted. [See the Norwegian Oil and Gas guidance.](#)

2.4 Facilities and equipment

The training can be conducted through classroom teaching, e-learning, simulator use and use of other appropriate facilities and equipment.

Efforts must be made to use the same type of equipment found on offshore facilities.

Practical exercises should be conducted in the most realistic possible manner with regard to flames, heat and noise.

2.5 Training curriculum

Participants must be given an introduction before the course starts which reviews the purpose of the course, assessments, the timetable and safety measures.

See the training curriculum set out in table 1 below.

Table 1: Training curriculum

Topic		1.0 ORGANISATION OF EMERGENCY RESPONSE		
Competence objectives After completing the training, the participant will be able to:	Specification of competence objectives	Method	Learning environment	References
1.1 Outline a typical emergency response organisation	The participant must be able to outline; <ul style="list-style-type: none"> the structure of an emergency response organisation and explain the search and rescue team's role and responsibility in it the purpose of lines of command in an emergency response organisation other emergency response teams on the facility, their roles and responsibilities 	Theory lesson(s) E-learning	Classroom	
1.2 Outline the commonest behavioural patterns in emergencies, and which factors affect these.	The participant must be able to outline; <ul style="list-style-type: none"> the commonest behavioural patterns in an emergency examples of stress factors which could influence their own level of performance and that of others measures for mastering their own stress 			
1.3 Outline terms and expressions related to emergency response	The participant must be able to outline; <ul style="list-style-type: none"> defined situations of hazards and accidents (DSHA) performance requirements 			

Topic	2.0 FIRE AND EXTINGUISHING AGENT THEORY			
Competence objectives After completing the training, the participant will be able to:	Specification of competence objectives	Method	Learning environment	References
2.1 Outline the conditions for a fire to start	The participant must be able to outline; <ul style="list-style-type: none"> • the fire triangle (including pyrolysis) • flashpoint • ignition temperature • explosion area • forms of fire spread • classification of flammable liquids • function of a gas meter 			
2.2 Outline the methods which can be used to fight a fire	The participant must be able to outline requirements for extinguishing a blaze on the basis of the fire triangle. The participant must be able to outline; <ul style="list-style-type: none"> • different types of extinguishing agent • different types of manual extinguishing equipment, their areas of application and their limitations • materials and fire classes 			
2.3 Outline various type of permanent fire extinguishing systems used on the facility	The participant must be able to outline; <ul style="list-style-type: none"> • different types of permanent extinguishing systems used • which limitations apply for the search and rescue team when stationary extinguishing systems are activated • methods for isolating electrical installations • various types of active and passive fire protection 			

<p>2.4 Outline hazards posed by fires in gas and liquids under pressure</p>	<p>The participant must be able to outline the following: Relevant gases on facilities;</p> <ul style="list-style-type: none"> • forms of storage • relevant causes of gas leaks • damage potential • safety arrangements • techniques for preventing and fighting gas fires • Boiling Liquid Expanding Vapour Explosion (BLEVE) 			
<p>2.5 Outline conditions where CO₂ can form and the hazards of smoke diving</p>	<p>The participant must be able to outline;</p> <ul style="list-style-type: none"> • inadequate O₂ supply • ignition temperature for CO • explosion area for CO • backdrafting and flashover 	<p>Theory lesson(s), demonstration and observation (ignition of smoke gases)</p>		

Topic	3.0 USE OF EXTINGUISHING AGENTS			
Competence objectives After completing the training, the participant will be able to:	Specification of competence objectives	Method	Learning environment	References
<p>3.1 Use available extinguishing agents and equipment, and combine these in an effective manner</p>	<p>The participant must be able to select the correct extinguishing agent and technique;</p> <ul style="list-style-type: none"> • combined water/powder (liquid fire, minimum two m²) • foam (liquid fire, minimum four m²) • powder (liquid fire, minimum four m²) • water spraying • water curtain • CO₂ <p>The participant must demonstrate fire extinguishing with the use of water spraying and be able to demonstrate normal paying out. They must also demonstrate the use of at least two other extinguishing agents.</p> <p>The participant must demonstrate cooling of equipment, structures and plant which need to be cooled/protected.</p> <p>The participant must demonstrate a safe and effective response to fire involving gas and/or liquid under pressure.</p> <p>The participant must have mastery of all positions in the team and of the available extinguishing equipment.</p>	Practical exercises	Fire drill field	<p>Defined in the guidance to the Norwegian regulations on smoke and chemical diving</p>

Topic	4.0 PHYSIOLOGY			
Competence objectives After completing the training, the participant will be able to:	Specification of competence objectives	Method	Learning environment	References
4.1 Outline the respiratory system	The participant must be able to; <ul style="list-style-type: none"> • describe how the respiratory system functions • explain which respiratory technique best replaces air in the lungs • outline acute injury/toxic effects which can arise from incorrect respirator use • describe the body's reaction to CO and CO₂ 	Theory lesson(s) Practical exercises E-learning Demonstrations	Classroom/ utility room	
4.2 Describe factors which have a negative effect on the body when smoke diving	The participant must be able to outline physiological reactions during smoke diving; <ul style="list-style-type: none"> • physical strain • heat effects • stress 			

Topic	5.0 PROTECTIVE EQUIPMENT			
Competence objectives After completing the training, the participant will be able to:	Specification of competence objectives	Method	Learning environment	References
5.1 Use protective and breathing equipment, and conduct safety checks and emergency procedures with the aid of this equipment	<p>The participant must be able to;</p> <ul style="list-style-type: none"> • describe the difference and distinguish between full- and half-face respirators • prepare, use and check protective and breathing air equipment • reset protective and breathing air systems • outline requirements for and limitations of firefighter clothing <p>The participant must be able to conduct safety checks;</p> <ul style="list-style-type: none"> • assembly check • functional check • buddy check <p>The participant must be able to demonstrate the use of emergency procedures with;</p> <ul style="list-style-type: none"> • loss of regulator • closed cylinder valve • loosened mask clips 	Theory lesson(s) Practical exercises Demonstrations	Fire drill field	
5.2 Outline protection against chemicals	<p>The participant must be able to outline;</p> <ul style="list-style-type: none"> • protective equipment • zone divisions • removal 	Theory lesson(s) E-learning	Classroom	

Topic	6.0 SEARCH AND RESCUE			
Competence objectives After completing the training, the participant will be able to:	Specification of competence objectives	Method	Learning environment	References
6.1 Outline the organisation of a search and rescue team	<p>The participant must be able to describe the team's;</p> <ul style="list-style-type: none"> • responsibilities and duties • roles: search and rescue leader, 1st person, 2nd, 3rd etc 			
6.2 Implement a safe and efficient response in relation to plans, preparations, methods of execution, and follow-up	<p>The participant must be able to demonstrate how the list of priorities is used;</p> <ol style="list-style-type: none"> 1. own safety 2. save life 3. contain fire 4. extinguish fire 5. normalisation <p>The participant must be able to implement the exercise with their attention concentrated on;</p> <ul style="list-style-type: none"> • preparing a strategy for the response • assessing risk before and during the response • resources required • communication flow and forms • securing the incident site • learning lessons and improvement (debriefing) <p>The participant must demonstrate that they perform in accordance with plans, and that the whole team acts in accordance with these.</p>	Practical exercises	Fire drill field	

6.4 Communicate effectively within the team	The participant must be able to use various forms of communication; <ul style="list-style-type: none"> • verbal • walkie-talkie • signing • confirming 	Theory lesson(s) Practical exercises	Exercise area	
6.5 Outline various forms of fire ventilation	The participant must be able to outline; <ul style="list-style-type: none"> • natural ventilation • overpressure ventilation • negative pressure ventilation 	Theory lesson(s) Demonstration	Classroom, exercise area	
6.6 Demonstrate lifesaving first aid	The participant must be able to; <ul style="list-style-type: none"> • use various types of stretchers • ensure unobstructed airways • prevent circulatory failure • demonstrate cardiopulmonary resuscitation • outline measures to prevent suspension trauma 	Demonstration Practical exercises		
6.7 Outline techniques for conducting safe search and rescue	The participant must be able to describe such techniques as; <ul style="list-style-type: none"> • reference points • escape routes • safeguarding retreat • starting to return before reserve air alert • moving calmly • good communication • keeping low when working in smoke-filled spaces • secure entry 	Theory lesson(s) Practical exercises	Classroom/ exercise area	
6.8 Outline the fall rescue team's duties and responsibilities	The participant must be able to outline; <ul style="list-style-type: none"> • conditions where the resources can be used • cooperation with the fall rescue team 			Norwegian Oil and Gas guideline 113

3 ASSESSMENT AND DOCUMENTATION OF TRAINING

3.1 Assessment

The participant must be assessed during all practical exercises.
Should the participant fail the practical exercise, they must be given a reason.

On completion of the training, the participant will take a practical test.

Should the participant be assessed as falling short of the competence objectives, the participant must be failed.

3.2 Documentation

A course certificate must be issued on passing the course.

4 REVISIONS

The following revisions have been made to this document:

Revision:	Date: