Petroleum and natural gas industries Offshore production installations Guidelines on tools and techniques for
hazard identification and risk assessment

Petroleum and natural gas industries - Offshore production installations - Guidelines on tools and techniques for hazard identification and risk assessment



## **EESTI STANDARDI EESSÕNA**

### **NATIONAL FOREWORD**

Käesolev Eesti standard EVS-EN ISO 17776:2002 sisaldab Euroopa standardi EN ISO 17776:2002 ingliskeelset teksti.

This Estonian standard EVS-EN ISO 17776:2002 consists of the English text of the European standard EN ISO 17776:2002.

Käesolev dokument on jõustatud 06.08.2002 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.

This document is endorsed on 06.08.2002 with the notification being published in the official publication of the Estonian national standardisation organisation.

Standard on kättesaadav Eesti standardiorganisatsioonist.

The standard is available from Estonian standardisation organisation.

### Käsitlusala:

# This International Standard describes some of the principal tools and techniques that are commonly used for the identification and assessment of hazards associated with offshore oil and gas exploration and production activities, including seismic and topographical surveys, drilling and well operations, field developement, operations, decommissioning and disposal together with the necessary logistical support of each of these activities.

### Scope:

This International Standard describes some of the principal tools and techniques that are commonly used for the identification and assessment of hazards associated with offshore oil and gas exploration and production activities, including seismic and topographical surveys, drilling and well operations, field developement, operations, decommissioning and disposal together with the necessary logistical support of each of these activities.

**ICS** 75.180.10

**Võtmesõnad:** alarm systems, assessment, definition, definitions, detection, guide books, hazards, natural gas, natural gas industries, offshore construction works, offshore platforms, oil industries, petroleum, platforms, protection against danger, technology, tools

# **EUROPEAN STANDARD** NORME EUROPÉENNE EUROPÄISCHE NORM

March 2002

180.10

### **English version**

Petroleum and natural gas industries - Offshore production installations

on tools and techniques for hazard identification and risk assessment (ISO 17776: 2000)

Industries du pétrole et du gaz naturel - Installations des platesformes en mer - Lignes directrices relatives aux outils et techniques pour l'identification et l'évaluation des risques (ISO 17776 2000)

Erdöl- und Erdgasindustrie - Offshore-Produktionsanlagen - Leitfaden für Hilfsmittel und Verfahren zur Gefahrenerkennung und Risikobeurteilung (ISO 17776: 2000)

This European Standard was approved by CEN on 2002-01-03.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

The European Standards exist in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, the Netherlands, Norway, Portugal, Spain, Sweden, Switzer-STORY OF THE STORY land, and the United Kingdom.

European Committee for Standardization Comité Européen de Normalisation Europäisches Komitee für Normung

Management Centre: rue de Stassart 36, B-1050 Brussels

Page 2

EN ISO 17776: 2002

### **Foreword**

International Standard

ISO 17776 : 2000 Petroleum and natural gas industries – Offshore production installations – Guidelines on tools and techniques for hazard identification and risk assessment,

which was prepared by ISO/TC 67 'Materials, equipment and offshore structures for petroleum and natural gas industries' of the International Organization for Standardization, has been adopted by Technical Committee CEN/TC 12 'Materials, equipment and offshore structures for petroleum and natural gas industries', the Secretariat of which is held by AFNOR, as a European Standard.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, and conflicting national standards withdrawn, by September 2002 at the latest.

In accordance with the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard:

Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

### **Endorsement notice**

**Contents** 

The text of the International Standard ISO 17776: 2000 was approved by CEN as a European Standard without any modification.

Page

		5
Forew	ord	. 2
Introdu	action	. 3
1	Scope	. 3
2 2.1 2.2	Terms, definitions and abbreviated terms	. 3
3	Hazards and risk assessment concepts	. 6
4 4.1 4.2 4.3 4.4	Hazards and risk assessment concepts  Methods for hazard identification and risk assessment Selection of methods Role of experience/judgement Checklists Codes and standards Selection of structured review techniques Risk management	. 8
4.5	Selection of structured review techniques	.10
5 5.1 5.2 5.3 5.4	General	. 10 . 12 . 12
6	Guidelines for use in specific activities	. 15
Annex	A (informative) Hazard identification and risk assessment concepts	. 16
Annex	B (informative) Structured review techniques	. 22
	C (informative) Hazards identification and risk assessment considerations for offshore E&P activities	
Annex	D (informative) Hazards checklist	
	raphy	60

Page 3 EN ISO 17776 : 2002

### Introduction

Oil and gas exploration and production activities have many hazards and hazardous events associated with them.

Different tools and techniques can be used to identify and assess hazards and risks, and it is important that the approach selected is appropriate to the particular circumstances.

This International Standard identifies some of the tools and techniques that may be used for this purpose in the offshore exploration and production industry and gives guidance on how they may be applied to particular activities. This International Standard incorporates advice and guidance given in other documents used in the industry, some of which are cited in the Bibliography.

This International Standard does not provide a detailed description of the practical application of the various tools and techniques, as this will need to be specifically developed to deal with particular circumstances. In many cases expert advice from competent practitioners will be required to effectively apply the tools and techniques described in this International Standard.

## 1 Scope

This International Standard describes some of the principal tools and techniques that are commonly used for the identification and assessment of hazards associated with offshore oil and gas exploration and production activities, including seismic and topographical surveys, drilling and well operations, field development, operations, decommissioning and disposal together with the necessary logistical support of each of these activities. It provides guidance on how these tools and techniques can be used to assist in development of strategies both to prevent hazardous events and to control and mitigate any events that may arise.

This International Standard is applicable to:

- fixed offshore structures:
- floating production, storage and off-take systems;

for the petroleum and natural gas industries.

This International Standard is not applicable to design and construction aspects of mobile offshore units that fall under the jurisdiction of the International Maritime Organization

This International Standard is not intended to be used as part of certification criteria, and no defect in the management of risks should be inferred if any of the tools and techniques covered by this International Standard are not applied to an installation.

### 2 Terms, definitions and abbreviated terms

For the purpose of this International Standard, the following terms, definitions and abbreviated terms apply.

### 2.1 Terms and definitions

### 2.1.1

### barrier

measure which reduces the probability of realizing a hazard's potential for harm and which reduces its consequence

NOTE Barriers may be physical (materials, protective devices, shields, segregation, etc.) or non-physical (procedures, inspection, training, drills, etc.).

### 2.1.2

### contro

(of hazards) limiting the extent and/or duration of a hazardous event to prevent escalation