SLOVENSKI STANDARD
SIST EN ISO 20815:2019

01-februar-2019

Nadomešča:
SIST EN ISO 20815:2010

Petrokemična industrija ter industrija za predelavo nafte in zemeljskega plina - Optimizacija proizvodnje in upravljanje zanesljivosti (ISO 20815:2018)

Petroleum, petrochemical and natural gas industries - Production assurance and reliability management (ISO 20815:2018)

Erdöl-, petrochemische und Erdgasindustrie - Betriebsoptimierung und Zuverlässigkeitsmanagement (ISO 20815:2018)

Industries du pétrole, de la pétrochimie et du gaz naturel - Assurance de la production et management de la fiabilité (ISO 20815:2018)

Ta slovenski standard je istoveten z: **EN ISO 20815:2018**

ICS:

03.100.01	Organizacija in vodenje podjetja na splošno	Company organization and management in general
75.020	Pridobivanje in predelava nafte in zemeljskega plina	Extraction and processing of petroleum and natural gas

SIST EN ISO 20815:2019 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 20815

November 2018

ICS 75.180.01; 75.200

Supersedes EN ISO 20815:2010

English Version

Petroleum, petrochemical and natural gas industries - Production assurance and reliability management (ISO 20815:2018)

Industries du pétrole, de la pétrochimie et du gaz naturel - Assurance de la production et management de la fiabilité (ISO 20815:2018)

Erdöl-, petrochemische und Erdgasindustrie - Betriebsoptimierung und Zuverlässigkeitsmanagement (ISO 20815:2018)

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (EN ISO 20815:2018) has been prepared by Technical Committee ISO/TC 67 "Materials, equipment and offshore structures for petroleum, petrochemical and natural gas industries" in collaboration with Technical Committee CEN/TC 12 “Materials, equipment and offshore structures for petroleum, petrochemical and natural gas industries” the secretariat of which is held by NEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by May 2019, and conflicting national standards shall be withdrawn at the latest by May 2019.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

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Endorsement notice

The text of ISO 20815:2018 has been approved by CEN as EN ISO 20815:2018 without any modification.

INTERNATIONAL STANDARD

ISO 20815

Second edition
2018-10

Petroleum, petrochemical and natural gas industries — Production assurance and reliability management

Industries du pétrole, de la pétrochimie et du gaz naturel — Assurance de la production et management de la fiabilité

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 67, *Materials, equipment and offshore structures for petroleum, petrochemical and natural gas industries*.

This second edition cancels and replaces the first edition (ISO 20815:2008), which has been technically revised. The main changes compared to the previous edition are as follows:

— Clause 3: several new terms, definitions and abbreviations;

— Clause 4: new 4.1 and new Figure 2;

— Annexes A, B, C and E: minor changes;

— Annex D: various new text and new figures;

— Annex F: new text in Clause F.3, new Clause F.4, and new figure;

— Annex G and H: some changes in Clauses G.2, G.3, H.1 and H.2;

— Annex I: various changes in Clauses I.7 to I.10, I.18 to I.22, and new Clauses I.23 to I.26.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

The petroleum, petrochemical and natural gas industries involve large capital investment costs as well as operational expenditures. The profitability of these industries is dependent upon the reliability, availability and maintainability of the systems and components that are used. Therefore, for optimal production availability in the oil and gas business, a standardized, integrated reliability approach is required.

The concept of production assurance, introduced in this document, enables a common understanding with respect to use of reliability technology in the various life cycle phases and covers the activities implemented to achieve and maintain a performance level that is at its optimum in terms of the overall economy and, at the same time, consistent with applicable regulatory and framework conditions.

Annexes A to I are for information only.

Petroleum, petrochemical and natural gas industries — Production assurance and reliability management

IMPORTANT — The electronic file of this document contains colours which are considered to be useful for the correct understanding of the document. Users should therefore consider printing this document using a colour printer.

1 Scope

This document describes the concept of production assurance within the systems and operations associated with exploration drilling, exploitation, processing and transport of petroleum, petrochemical and natural gas resources. This document covers upstream (including subsea), midstream and downstream facilities, petrochemical and associated activities. It focuses on production assurance of oil and gas production, processing and associated activities and covers the analysis of reliability and maintenance of the components. This includes a variety of business categories and associated systems/equipment in the oil and gas value chain. Production assurance addresses not only hydrocarbon production, but also associated activities such as drilling, pipeline installation and subsea intervention.

This document provides processes and activities, requirements and guidelines for systematic management, effective planning, execution and use of production assurance and reliability technology. This is to achieve cost-effective solutions over the life cycle of an asset development project structured around the following main elements:

— production assurance management for optimum economy of the facility through all of its life cycle phases, while also considering constraints arising from health, safety, environment, and quality;

— planning, execution and implementation of reliability technology;

— application of reliability and maintenance data;

— reliability-based technology development, design and operational improvement.

The IEC 60300-3 series addresses equipment reliability and maintenance performance in general.

This document designates 12 processes, of which seven are defined as core production assurance processes and addressed in this document. The remaining five processes are denoted as interacting processes and are outside the scope of this document. The interaction of the core production assurance processes with these interacting processes, however, is within the scope of this document as the information flow to and from these latter processes is required to ensure that production assurance requirements can be fulfilled.

The only requirement mandated by this document is the establishment and execution of the production assurance programme (PAP). It is important to reflect the PAP in the overall project management in the project for which it applies.

This document recommends that the listed processes and activities be initiated only if they can be considered to add value.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 14224:2016, *Petroleum, petrochemical and natural gas industries — Collection and exchange of reliability and maintenance data for equipment*

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1.1
active repair time
effective time to achieve repair of an item

Note 1 to entry: The expectation of the effective time to repair is called MART (mean active repair time).

Note 2 to entry: ISO 14224:2016 distinguishes between the terms mean active repair time (MART), mean time to repair (MTTR), mean time to restoration (MTTRes), and mean overall repairing time (MRT). See ISO 14224:2016, 3.59, 3.63, 3.64 and 3.61 for further details.

Note 3 to entry: The mean active repair time (MART) is defined as "expected active repair time" in ISO/TR 12489:2013, 3.1.34. See also ISO/TR 12489:2013, Figures 5 and 6.

[SOURCE: ISO 14224:2016, 3.2, modified — Notes 1 to 2 to entry have been added.]

3.1.2
availability
ability to be in a state to perform as required

Note 1 to entry: For a binary item, the measure of the availability is the probability to be in up state (i.e. in a state belonging to the up state class), see 3.1.59.

Note 2 to entry: In 3.1.4, the figure shows the system is available at time t_1 and unavailable at time t_2.

Note 3 to entry: See ISO 14224:2016, Annex C for a more detailed description and interpretation of availability.

Note 4 to entry: Technical or operational availability (see ISO 14224:2016, C.2.3.2 and Table E.3) or system availability can be used as derived performance measures. Case specific definition of system availability is needed to reflect the system being addressed.

Note 5 to entry: Further terms are given in ISO/TR 12489:2013.

Note 6 to entry: See Figure G.1 for further information.

[SOURCE: IEC 60050-192:2015, 192-01-23, modified — Notes 1 to 6 to entry have been added.]

3.1.3
barrier
functional grouping of safeguards or controls selected to prevent a major accident or limit the consequences

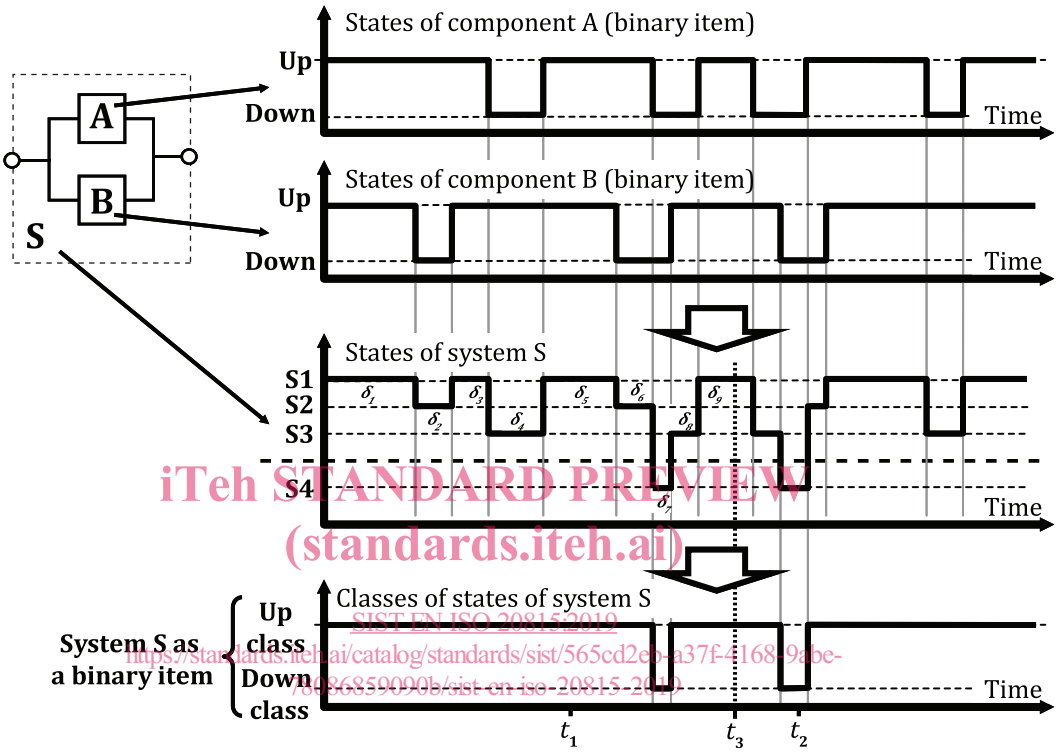
[SOURCE: ISO 17776:2016, 3.1.1]

3.1.4
binary item
item with two classes of states

Note 1 to entry: The two classes can be 'up state' and 'down state'.

EXAMPLE 1 A usual item with an up state (3.1.59) and a down state (3.1.10) is a binary item. Components A and B in the figure below are binary items.

EXAMPLE 2 A system made up of two redundant binary items, A and B, has four states: S_1 (both A and B in up state), S_2 (A in up state and B in down state), S_3 (A in down state and B in up state), S_4 (both A and B in down state). If the system is able to operate as required in states S_1, S_2 and S_3 and not able in state S_4, it is a binary item with the up state class {S_1, S_2, S_3} and the down class {S_4}. This is illustrated in the Figure showing availability behaviour of an 1oo2 system.



3.1.5
common cause failure
failures of multiple items, which would otherwise be considered independent of one another, resulting from a single cause

Note 1 to entry: See also Notes to entry for common cause failures in ISO 14224:2016, 3.5.

[SOURCE: IEC 60050-192:2015, 192-03-18, modified — Note 1 to entry has been added.]

3.1.6
condition monitoring
obtaining information about physical state or operational parameters

Note 1 to entry: Condition monitoring is used to determine when preventive maintenance may be required.

Note 2 to entry: Condition monitoring may be conducted automatically during operation or at planned intervals.

Note 3 to entry: Condition monitoring is part of condition-based maintenance. See also ISO 14224:2016, Figure 6.

[SOURCE: IEC 60050-192:2015, 192-06-28, modified — Note 3 to entry has been added.]

3.1.7
corrective maintenance
maintenance carried out after fault detection to effect restoration

Note 1 to entry: See also ISO/TR 12489:2013, Figures 5 and 6, which illustrate terms used for quantifying corrective maintenance.