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Petroleum, petrochemical and natural gas industries — Calculation and reporting production efficiency in the operating phase

Industries du pétrole, de la pétrochimie et du gaz naturel — Calcul et rapport d'efficacité de la production dans la phase d'exploitation

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Foreword

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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*.

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 expenditure as well as operating expenditure. Revenue loss caused by production loss will affect the profitability of such industry and for a specific plant operatorship.

Production efficiency (PE) is a term often used by operators for historic production availability in the operating phase. PE is a reported measure, and it can be compared with the predicted (or targeted) production availability made during a project development stage. Furthermore, PE is forecasted and tracked during the operating phase to allow tracking of performance. ISO 20815:2018 addresses production assurance activities including analytical methods for predicting production availability, and also includes a production loss categorization.

This document supports this production loss categorization with a harmonized approach for calculating and reporting production loss and production efficiency in the operating phase, including forecasting during this life cycle phase. This will enable precise and consistent feedback of production performance for use in production and operational planning to achieve optimal PE for the operators and associated industry stakeholders. Focus is given to actual produced volume and reference production volume, e.g. production potential that will depend on reservoir and well constraints, plant/process constraints, export/transportation constraints and market constraints. Standardization of PE reporting across the industry will drive consistency and provide better quality PE information and communication for operators and partners.

Petroleum, petrochemical and natural gas industries — Calculation and reporting production efficiency in the operating phase

1 Scope

This document provides requirements and guidance for reporting of production performance data and production loss data in the operating phase by use of production loss categorization. It supplements the principles of ISO 20815:2018, Clause E.3 and Annex G by providing additional details.

This document focusses on installations and asset elements within the upstream business category. Business categories and associated installations and plants/units, systems and equipment classes are used in line with ISO 14224:2016, Annex A.

The production loss categories given in Annex A are given at a high taxonomic level and supplements the reporting of failure and maintenance parameters as defined in ISO 14224:2016, Annex B.

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*

ISO 20815:2018, *Petroleum, petrochemical and natural gas industries — Production assurance and reliability management*

3 Terms, definitions and abbreviated terms

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 Terms and definitions

3.1.1
achieved production potential
production potential (3.1.43) that in retrospect can be verified as the maximum achievable production in a given time period

Note 1 to entry: Achieved production potential is the sum of the achieved production and the estimated *production loss* (3.1.40) occurring in the four production potential elements: *well production potential* (3.1.58), *plant production capacity* (3.1.34), *export capacity* (3.1.12) and *market potential* (3.1.26).

Note 2 to entry: Achieved production potential can vary over time.