Management system and supporting standards for oil and gas industry

ISO/TC 67/WG 2 “Operating integrity management for the petroleum, petrochemical and natural gas industries”
version February 2021
Outline

- ISO/TC 67/WG 2 in a nut’s shell
- Background: ISO/TC 67 developments
- Background: IOGP developments
- Operating management standards
- Quality management standards
- Competency management standards
ISO/TC 67/WG 2 in a nut’s shell (1)

Title and scope

• **Title**: Operating integrity management for the petroleum, petrochemical and natural gas industries

• **Scope**: Provide requirements, guidance and tools to support organisations within the petroleum, petrochemical and natural gas industries in establishing and implementing management, quality and conformity assessment processes to reduce operating risk and drive improvement throughout their business activities
ISO/TC 67/WG 2 in a nut’s shell (2)

Membership and organisational structure

- **Membership:** About 60 experts from 16 countries

- **Organisational structure:**
  
  Projects will be explained in this presentation
ISO/TC 67/WG 2 in a nut’s shell (3)

**Roadmap 2025**

**Projects will be explained in this presentation**
Background: ISO/TC 67 developments (1)

Industry events

Montara (left) and Macondo (right) oil spill accidents, also killing people

• ISO/TC 67 adopted the following resolution in 2010:

Resolution 2010/12 (Doha, 2010) – Action plan on recent industry events

In light of the latest Montara (West Australia) and Macondo (US Gulf of Mexico) accidents, ISO/TC 67 requests

— the affected subcommittees to review urgently their existing work programs and work together with outside standards development organizations to coordinate the development of critical or high-priority standards needed to address urgent needs of the oil and gas industry and new or developing regulations;

— to establish an MC ad-hoc group (AHG) to prepare a roadmap/action plan on the ISO/TC67 standards, which should be revised or developed in response to the latest accidents and this AHG to report on their proposals to the ISO/TC67 Secretariat no later than December 31st 2010.

— the MC to discuss and agree on the action plan to be taken ultimately at their meeting in Brussels, February 2011 and to report to ISO/TC 67 accordingly.
Background: ISO/TC 67 developments (2)

Industry events

- **Action plan industry events** was published in March 2011, identifying 31 standards to be updated or newly developed.
- Related to MSS, action plan proposed to develop **new ISO standard** based on inter alia OGP Report 210, IPIECA document, and API RP 75.

ISO action plan proposes standards to combat oil spill disasters

**Press release** by ISO (republished by Standards New Zealand)
Background: ISO/TC 67 developments (3)

Quality management system standard

• Oil and gas industry published first edition of sector-specific QMS standard for product and service supply organizations, supplementing ISO 9001, in 2003

• ISO (TS) 29001 is used as example in plug-in model for ISO MSS:

More information about ISO management system standards (MSS) is available at ISO’s website
Background: ISO/TC 67 developments (4)

Structure for management systems

• Discussion paper on structure for management systems in ISO/TC 67 (through its management committee)
• Establishing AHG Management system standards structure in ISO/TC 67 per resolution 2013/21 (Oslo), ‘allocated’ to ISO/TC 67/WG 2
• Basic ideas for structure of MSS in oil and gas industry:
  – Based on high level structure for MSS (Annex SL)
  – Full standard rather than technical specification
  – Building on existing generic ISO standards and well accepted knowledge sources in oil and gas industry
  – Originally based on concept of umbrella operating management system standard interfacing with a series of existing discipline-specific standards
**Background: ISO/TC 67 developments (5)**

**Structure for management systems**

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Background: IOGP developments (1)

HSE management system guidelines

- IOGP published Report 210 in July 1994
- Model for HSE management system:
Background: IOGP developments (2)

Operating management system framework

- IOGP & IPIECA published Reports 510 and 511 in June 2014
- Key drivers for revision of Report 210:
  - Company management systems have developed considerably
  - Scope of systems has expanded
  - Lessons have been learned and many good practices have been shared across industry
- “Operating” applies to every type of upstream or downstream company activity, from construction to decommissioning, throughout entire value chain and lifecycle of business and its products
Background: IOGP developments (3)

*Operating management system framework*

- OMS framework is designed to help companies define and achieve performance goals and stakeholder benefits, while managing broad and significant range of risks inherent in oil and gas industry
- Key characteristics of an OMS:
  - Providing a holistic approach to risk in context of oil and gas asset operational lifecycles
  - Framework detailing fundamentals, expectations and requirements needed to manage all operating activities
  - Organizations may use it to provide an ‘integrated approach’ to address all operational risks, or may use it in combination with ‘stand-alone’ management systems with a specific risk focus
  - Framework is flexible to allow companies to adjust the system scope to meet their risks and business approach
Background: IOGP developments (4)

Operating management system framework

- OMS framework model: 4 fundamentals underpin 10 elements
Operating management standards (1)

Overview of standards

- **ISO 29010**, Petroleum, petrochemical and natural gas industries — Operating management system — Requirements and guidance for use [*1st edition under development*]
- **ISO 29011**, Petroleum, petrochemical and natural gas industries — Operating management system — Maturity assessment [*1st edition under development*]
- **ISO XXXXX**, Petroleum, petrochemical and natural gas industries — Operating management system — Process safety elements [*proposal for 1st edition under development*]
Operating management standards (2)

**Justification for future ISO 29010**

- Developing an OMS standard (future ISO 29010) was identified as one of the priority items in action plan industry events.
- IOGP & IPIECA welcomed initiative of ISO/TC 67 to develop OMS standard based on their Reports 510 and 511 and provided letter of support as part of justification study (JS) [*required by ISO*].
- IRF (International Regulators Forum) welcomed action plan industry events => OMS helpful tool to demonstrate compliance with safety requirements for (offshore) oil and gas operations.
- WEF (World Economic Forum) supported initiative and referred to IOGP with which they already cooperate in view of standardisation (e.g. JIP33 on standardisation of equipment and packages).
- Taskforce leader for updating Handbook on integrated use of MSSs supported initiative and confirmed no duplication of work.
Operating management standards (3)

Approach for future ISO 29010

• Configure IOGP/IPIECA Report 510 in line with ‘high level structure’ (so-called Annex SL) to develop OMS standard that:
  – Provides a framework consistently delivering business results through discipline related management system requirements and ensure consistency of common processes
  – Incorporates specific operating requirements and standardisation guidance
  – Incorporates latest best practices/lessons learnt and well accepted knowledge sources in oil and gas industry
  – Interfaces with existing ISO standards and provides the detail on how to implement them to manage risks in oil and gas industry

NOTE: Operating management system should not be confused with an integrated management system
Operating management standards (4)

*Status of future ISO 29010*

- DIS version for public consultation close to finalisation

**OMS model (draft)**

[Diagram of the OMS model]

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Operating management standards (5)

Status of future ISO 29010 (continued)

• Well-attended and received 2-day OMS experience sharing session hosted by Equinor (NO) in October 2019

Report and presentations available at ISO/TC 67’s website
Operating management standards (6)

Next steps for ISO 29010

• Finalising DIS version containing requirements and guidance supporting these requirements [target: 2021-Q2]
• Engaging stakeholders by taking part in public consultation and sharing best practices / company models
Operating management standards (7)

Justification for future ISO 29011

• Maturity assessment is based on recognition that organisations will have an OMS at different levels of maturity
• Assessment methodology will aid organisations to:
  — evaluate level of maturity of each OMS requirement
  — identify approaches for improvement
  — prioritize which improvements provide highest level of return
• Over time, this tool can be useful to track achievements of organization’s OMS objectives and performance outcomes for the business
• Maturity assessment can be used by organisations for benchmarking purposes
Operating management standards (8)
Approach for future ISO 29011

• Draft outline available, subject to changes

• Foreword
• Introduction (context)
• Scope (what’s covered)
  • Continuous improvement rather than one-off verification i.e., used at regular intervals to understand the gaps and the achievement of objectives.
  • Covers methodology, tooling
• Normative references
• Terms and definitions
• Benefits of OMS maturity assessment (why)
  • Using a maturity assessment to improve OMS and business performance
  • Specific benefits for organisations at different levels of maturity
• Maturity assessment matrix and scoring system (what)
  • “Technical description” of matrix, scoring system
• Maturity assessment process (how)
  • Assessment approach / methodology
  • Understanding the results
  • Translating results into actions
  • Cyclic process / continuous improvement / metrics
• Reporting
  • How to document the maturity assessment, including different views and representation of findings (qualitative and quantitative)
• Annex A – Maturity assessment matrix (the details)
  • The ISO29010 broken down into elements (sub-clause or requirement or article), each with five categories representing the different levels of maturity. Level of detail to be determined by balancing insight value and complexity
Operating management standards (9)

Status of future ISO 29011

- Elaboration of maturity assessment methodology:
  - elements to be assessed (ISO 29010 requirements)
  - definitions of maturity levels (most likely 5)
  - scoring system
  - example
Operating management standards (10)

Next steps for ISO 29011

- Progressing with developing DIS version [target: 2022-Q1]
- Validating draft assessment methodology with stakeholders
- Engaging stakeholders by taking part in public consultation and sharing usefulness / best practices
- Promoting implementation of ISO 29011 once published [target: 2023-Q3/Q4]
Operating management standards (11)

Status of future ISO document on OMS process safety elements

- Analysis of draft ISO 29010 for alignment with principle process safety frameworks to confirm need for developing ISO document on OMS process safety elements
- Confirmation by Energy Institute to cooperate, building on their process safety management (PSM) framework

![PSM Framework Elements](chart.png)
Quality management standards (1)

Overview of standards (1)

- **ISO 29012**, Petroleum, petrochemical and natural gas industries — Sector-specific quality management systems — Requirements for bodies providing audit and certification of quality management systems for product and service supply organizations [*1st edition under preparation*]
Quality management standards (2)
Overview of standards (2)


- **ISO 13880**, Petroleum and natural gas industries — Content and drafting of a technical specification [1\textsuperscript{st} edition published in 1999, revision under consideration]

- **ISO/TR 13881**, Petroleum and natural gas industries — Classification and conformity assessment of products, processes and services [1\textsuperscript{st} edition published in 2000, revision initiated]
Quality management standards (3)

Objectives for revision of ISO/TS 29001

• Objectives for revision of ISO/TS 29001:2010 were to:
  – Align with ISO 9001:2015
  – Incorporate sector best practices
  – Incorporate sector risk management processes
  – Standardise the sector approach to implement quality and verification requirements
  – Provide clarity on sector documented information requirements
  – Reflect the requirements and guidance within sector complementary quality, technical and conformity assessment standards/specifications
Quality management standards (4)

**Applied approach for ISO 29001**

- ISO/TS 29001 has become full ISO standard building on ISO 9001:2015 with sector-specific supplements, adding value by:
  - Implementing sector best practices
  - Ensuring processes systematically identify and manage organisational and specific product and service risks
  - Incorporating an industry related conformity assessment annex
  - Providing options (data sheet) to avoid over complication
  - Aligning output with IOGP “JIP33” standardisation project
  - Being equivalent to other industry specific QMS standards
Quality management standards (5)

New Annex C in ISO 29001

- Representation of new annex of risk and opportunity management and conformity assessment processes
ISO/TC 67/WG 2 has published three guidance documents, all in support of ISO 29001:2020:

- **Correlation matrices ISO 29001** (compared with ISO/TS 29001:2010, API Spec Q1 (9th ed.) and API Spec Q2 (1st ed.))
- **Guidance for use of ISO 29001** (practical information about when and how to use ISO 29001)
- **Rationale ISO 29001 supplements to ISO 9001** (justification for each supplementary requirement)
ISO/TC 67/WG 2 is actively communicating about ISO 29001:

- **Article "ISO 29001: Leading the way in oil and gas"** (published in *Quality World magazine* issue Nov/Dec 2020)
- **BSI webinar "The new BS EN ISO 29001:2020"** (replay of webinar of 26 October 2020)
- Presentations through LinkedIn (e.g. **N A Putra**)
Quality management standards (8)

Justification for revision of ISO/TR 13881

• Updating ISO/TR 13881 in line with sector practice in order to support and provide further input into ISO 29001:2020, Annex C (new) and JIP33

• Key areas to include in revision include but are not limited to:
  – providing organisations with updated guidance and methodologies for assessing the risk to achieving specified requirements
  – providing updated guidance and methodologies that can be used by organisations to select conformity assessment involvement on their own activities and those of externally provided processes, products and services to assure they will meet specified requirements
  – deciding on continual linkage with ISO 13879 and ISO 13880

• Possible transformation into full ISO standard
Quality management standards (9)

*Status of revision of ISO/TR 13881*

- Project initiation proposal under preparation
- Recruitment of project leader

*Cascading contracting model, illustrating that an organisation at any level in the supply chain can elect to provide products and services using their own processes or to place contracts via a management or execution contractor or directly to package, equipment, component or material providers*
Competency management standards (1)

Overview of standards

• [ISO/TS 17969](https://example.com/iso/17969), Guidelines on competency management for well operations personnel [2nd edition published in 2017, results systematic review to be considered]

• Document developed as recommended by ISO/TC 67’s action plan industry events (see background)
Competency management standards (2)

Possible scope expansion

• Scope might be broadened to cover competency management for all kind of operations in oil and gas sector

Competency management system cycle as included in ISO/TS 17969:2017, Figure 1, illustrating that it can be applicable to all oil and gas operations
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