PD CEN ISO/TS 17969:2015

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Petroleum, petrochemical and natural gas industries — Guidelines on competency for personnel

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Industries du pétrole, de la pétrochimie et du gaz naturel - Lignes directrices sur la compétence du personnel (ISO/TS 17969:2015)

Erdöl-, petrochemische und Erdgasindustrie - Richtlinien bezgl. der Kompetenz von Personal (ISO/TS 17969:2015)

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European foreword

This document (CEN ISO/TS 17969:2015) 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 AFNOR.

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The text of ISO/TS 17969:2015 has been approved by CEN as CEN ISO/TS 17969:2015 without any modification.

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Foreword

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The committee responsible for this document is ISO/TC 67, *Materials, equipment and offshore structures for petroleum, petrochemical and natural gas industries*.

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Petroleum, petrochemical and natural gas industries — Guidelines on competency for personnel

1 Scope

The purpose of this Technical Specification is to help members of the oil and gas industry develop, implement, maintain and improve their own competency management systems (CMS) for well operations personnel. This Technical Specification supports competency management general principles which can be applied to any operation within the industry.

The annexes to this Technical Specification list example competence profiles for positions responsible for well integrity. Annex A includes an example worksheet which can be used in performing a competency assessment, to help record the assessment results versus expectation, as well as the resulting action plan to address any gaps identified.

This Technical Specification is applicable to all operators, service companies and drilling contractors working on wells and well operations.

2 Terms and definitions

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

2.1
competence
ability to undertake responsibilities and to perform activities to a recognised standard on a regular basis

Note 1 to entry: Competence is a combination of knowledge, practical and thinking skills, and a person's behaviour.

EXAMPLE 1 McCoy's Law: competency = knowledge × skills × behaviours.

EXAMPLE 2 Bloom's taxonomy: competency = knowledge × skills × (technical + ability).

2.2
competency catalogue
hierarchical structured list of the competencies required to perform any task

2.3
proficiency level
level of ability and behaviour attributes within a specific skill

2.4
competency profile
skills and behaviour, each specified at a level of proficiency, required to perform the role or activity in line with the associated risk

2.5
competence assessment
process of judging evidence of an individual's performance against agreed competence requirements

Note 1 to entry: The result of such an assessment, potentially in combination with other factors such as work experience, will determine whether that individual has demonstrated competence and to which proficiency level.

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2.6
rubric
set of assessment criteria used to describe and evaluate the important components of a task

Note 1 to entry: A rubric is an effective assessment tool, because it allows different assessors to arrive at similar conclusions when comparing performance to the guidelines shown on the rubric.

2.7
independent assessor
person carrying out an assessment who is not the direct supervisor of the person to be assessed and who is independent of the direct work group

Note 1 to entry: This person needs to be trained and qualified in assessment and debrief techniques and needs to have competence in the technical skills being assessed.

Note 2 to entry: Independence needs to be demonstrated to ensure that a balanced and fair assessment of a person's competency in the subject is completed.

2.8
safety-critical task
task performed on a safety-critical element which, if performed incorrectly due to lack of technical skills or knowledge or due to behaviour attributes, can lead to a major accident hazard

2.9
safety-critical competency
type of competence required of personnel in order to carry out an operation which, if carried out incorrectly or inadvertently, can lead to a major accident hazard

2.10
major accident
significant emission, fire or explosion resulting from uncontrolled events

3 Competency management system

3.1 General

The purpose of a competency management system (CMS) is to control, in a logical and integrated manner, a cycle of activities within the organization that ensures competency of operations personnel, particularly in safety critical activities. The CMS will enable personnel to be assessed and further developed, contributing to the goal of competent performance at work. A CMS should be user-friendly, workable and practical.

If an organization has no CMS, the recommended first step is to garner support from the very top of the organization. The system should then be constructed, involving resources from multiple levels of the organization, to create a sense of ownership.

This Technical Specification contains a number of examples of competency profiles which can be useful for an organization if it has to create profiles for their own staff.

3.2 Benefits of a CMS

An effective, appropriate CMS provides the following benefits:

— assists with compliance with regulatory requirements;

— provides a continuous performance improvement tool for the work force;

— provides a more comprehensive picture of the requirements for a job than a job description alone;

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— provides an accurate development analysis, enabling targeted and effective development opportunities;

— provides a measure to calculate the success of training and development interventions;

— provides a framework for ongoing coaching and feedback;

— provides the measurement of proficiency in a specific competency;

— may provide a measure of an individual's readiness for a role;

— provides an audit trail of competency assurance.

3.3 Comparison of a CMS with an appraisal system

Performance appraisals generally fall short of the rigour of a competency framework, and therefore are typically not sufficient in isolation to provide a true measure of competence. However, in more recent times many organizations have tried to move to a more competency-based appraisal system in order to provide a more specific measure of performance.

Some key differences between performance appraisals and competence assessment are summarized in Table 1.

Table 1 — Comparison of performance appraisal and competence assessment

Performance appraisal	Competency assessment
Carried out by the line manager or supervisor	Carried out by a competent independent assessor
Subjective measure often based on opinion	Objective measure based on evidence
Measured against high level work areas often focusing on soft skills	Measured against defined standards of occupational competence
A measure of attitude and general performance	A measure of skills, knowledge and behaviour
Quality of judgements rarely verified	Quality of judgements routinely verified

3.4 Creation of a CMS

3.4.1 CMS cycle

The main steps or phases by which a CMS can be established, implemented and maintained follow the traditional quality cycle of 'Plan-Do-Check-Act'. These are illustrated in Figure 1 and described in subsequent sections.

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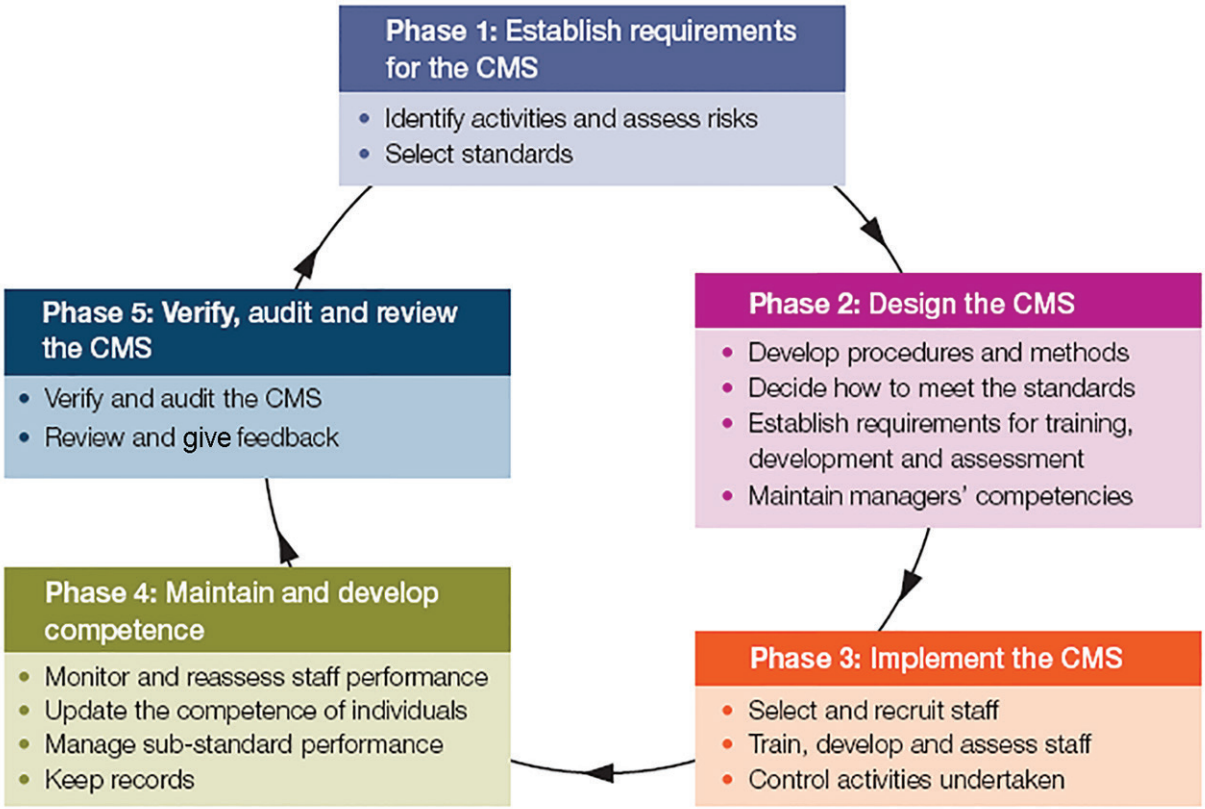

Figure 1 — Competency management system cycle

Establishing a CMS 'from scratch' involves starting with Phase 1. However many organizations can already have some, if not all, elements already in place and so can commence at Phase 5 with a review/audit of the CMS, incorporating this guidance as reference.

For application to operational activities and personnel, the following key elements of an effective CMS have been identified within each relevant phase. Within this Technical Specification, reference is made to specific guidance in these areas:

a) definition of appropriate competency profiles, skills at specified proficiency levels required for operational activities;

b) assessment of personnel and their individual competences;

c) assessment of operational teams and their collective competence;

d) assessment of contract personnel;

e) recommendations for management of assessed shortfalls, gaps in competency, and subsequent development;

f) recommendation for a system for the storage, management and verification of the collected information in a CMS.

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3.4.2 Phase 1 — Establish requirements for the CMS

3.4.2.1 General

Best practice for CMS dictates that the system is tailored to manage the competencies involved with the organization's particular work activities, in proportion to the assessed risks. Nevertheless, it is possible to identify common considerations for a successful CMS.

These best practices are as follows.

a) Description of the CMS in a 'stand-alone' controlled document, which forms a part of an organization's management system. Through the inclusion in the management system, the intent is that the CMS is periodically verified through standard processes.

b) A clearly identified system 'owner', also with responsibility for the overall management system if possible, ensures the CMS is maintained.

c) Clear identification of individual accountabilities for implementation and maintenance of the CMS helps ensure that the system is effective.

d) Time-bound (expiration of) competence proficiency levels ensure that an individual's competency is current.

3.4.2.2 Responsibilities

Identification of suitable competence is the responsibility of management. The employer should ensure that the employee is competent for the tasks which the employer assigns. For this reason, an organization should ensure that its CMS is integrated into the management system as well as their operational methods throughout all levels. Personnel have the responsibility to develop, maintain and demonstrate the required competency for the role they perform.

Employers are required to provide information, instruction and training for their employees and contractors. This includes defining the format and content of competence profiles and standards to be met by employees and contractors, in order to competently perform their roles. The employer should ensure the competence of their personnel, as a part of the CMS, to ensure that the person can perform their work.

Employers are responsible for keeping records of training, certification, work experience and assessment of their employees. Personnel shall also take responsibility for developing and demonstrating their competence.

One critical area of management support is to ensure that personnel are given sufficient time to fulfil the requirements of the CMS. This means there is no expectation for personnel to complete the competence development and assessment tasks during their time off. Sufficient time should be allowed for within their workload.

In accordance with the assessed risk of a task or skill, a period of validity of a specific competence should be enforced by the CMS. Thus, the organization is responsible to clearly document the criteria for re-validation/retention, in line with the risk associated with the skill.

3.4.2.3 Key success factors

The most successful CMSs exist where competence is at the core of an organization's operating culture, and the system is a part of the integrated management system. It is important that senior management endorse and drive the CMS with the usage of the CMS supported and encouraged throughout all management levels and departments.

One key to success is to clearly distinguish the population and activities covered by the CMS, for example safety-critical tasks only.

The development of a competence policy, or the inclusion of a commitment to competence assurance in other high level policies, can also provide a solid backbone for the system. The CMS works best if

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