

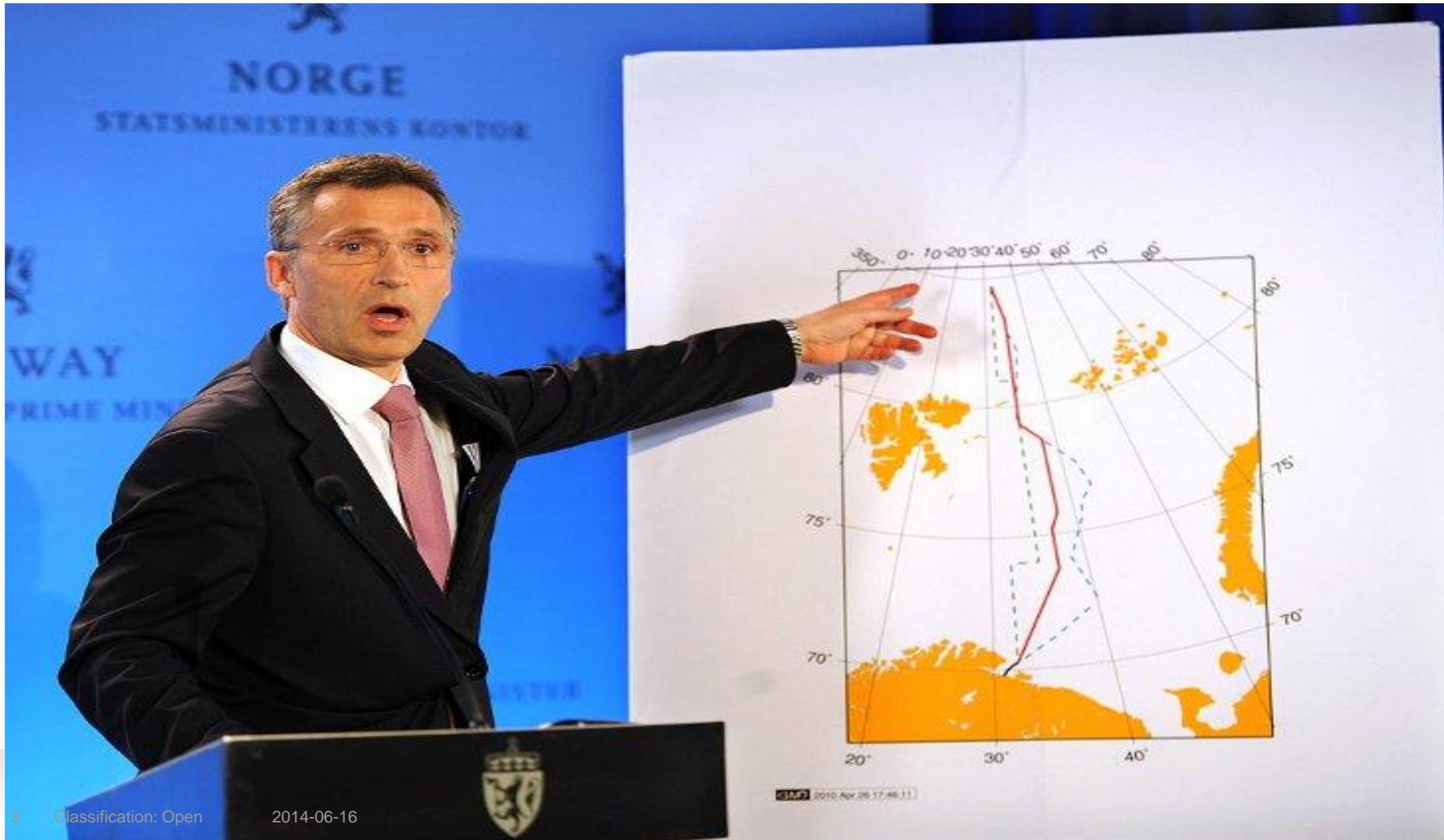
International standardization Arctic Operations (ISO TC67 SC8)

Hermod Ole Johansen

Content

- Forming of Arctic Operations (ISO TC67 SC8)
- Scope for the international subcommittee Arctic Operations
- Development of ISO standards
- The need for additional ISO standards...

Border with Russia is agreed, a “new area”
is to be opened (spring 2011)



Barents 2020

- In autumn 2005 the government launched Barents 2020, which purpose was to:
 - Create a new forum for collaboration on knowledge development between Norwegian and foreign expertise, business interests and authorities through a special grant
 - Barents 2020 represented a new tool in the Norwegian High North policy, with its emphasis on knowledge development in the High North and the cross-border element



03/11/2013
PTIL/PSA
6

Subcommittee Arctic Operations

(ISO TC67 SC8)

Development of Arctic standards under B2020

- The overall aim of the project was to ensure that all oil and gas operations in the Barents Sea, both on the Norwegian and the Russian continental shelf, should be carried out with an acceptable safety level
- The project included all aspects of offshore petroleum activity, i.e. exploration, drilling, production, transportation and support activities
- The project established a very good dialogue between Russian and Norwegian experts for recommendation of industry standards for use in the Barents Sea

Forming of Arctic Operations (ISO TC67 SC8)

- Mrs. Vlada Rusakova, member of Gazprom Management Committee, proposed the forming of a new international arctic operations subcommittee, in a steering committee meeting in the Barents 2020 project, May 2011
- The subcommittee was established with Russian leadership in the ISO TC67 Plenary meeting autumn 2011
- The Norwegian standards body, Standards Norway, was asked to nominate experts and propose New Work Item Proposals
- The kick off meeting was held 14th November 2012 in Moscow, where working groups were formed and New Work Item Proposals discussed
- Work group meetings and 2nd plenary planned 3rd and 4th April 2013 in Rotterdam, followed by plenary meeting in: St. Johns (Canada) autumn 2013, Paris (France) April 2014, Tromsø (Norway) autumn 2014

Subcommittee Arctic Operations

(ISO TC67 SC8)

Why arctic standards?

- Provides an acceptable and uniform safety level
- Provides a predictable HSE framework as references in regulations both on NCS and the RCS
- Are prerequisites for mutual understanding
- Is a provision for continuation of good cooperation between Russia and Norway for safety in the petroleum activities in the High North
- Is a tool for cooperation in safety

Subcommittee Arctic Operations (ISO TC67 SC8)

Scope

Standardization of operations associated with exploration, production and processing of hydrocarbons in onshore and offshore arctic regions, and other locations characterized by low ambient temperatures and the presence of ice, snow and/or permafrost.

- The work will be executed in coordination with the relevant ISO/TC 67 subcommittees and work groups.
- Excluded: Requirements for offshore pipelines that are under SC 2, requirements for offshore structures that are under SC 7.

Purpose and justification

To establish a sub committee to concentrate experience and knowledge in cold-climates and work on specific standards for safe operations in Arctic regions.

Today an increasing number of oil and gas companies focus on Arctic regions in the light of promising oil and natural gas fields. However severe weather conditions and lack of practical experience in cold climates result in great challenges for companies to provide safe and cost effective operations in these regions.

Over the last decades the oil and gas industry has accumulated very valuable practical experience and knowledge in onshore projects in cold climates on one hand and offshore projects in more temperate conditions on the other.

The vision is to build on and extend existing practical experience and solutions and to create a new set of standards that take into the account the specific environmental conditions and help define acceptable levels of safety and security for all facilities and processes associated with Arctic operations exploration.

The subcommittee aims to accumulate knowledge of a number of countries like Canada, Denmark, Norway, Netherlands, Russian Federation, United Kingdom and USA. Countries have experience in different aspects of cold-climate and offshore exploration so the best way to consolidate it is to establish a new subcommittee, the more so as such scope is not included in any existing subcommittee of ISO/TC 67.

Standard Norge

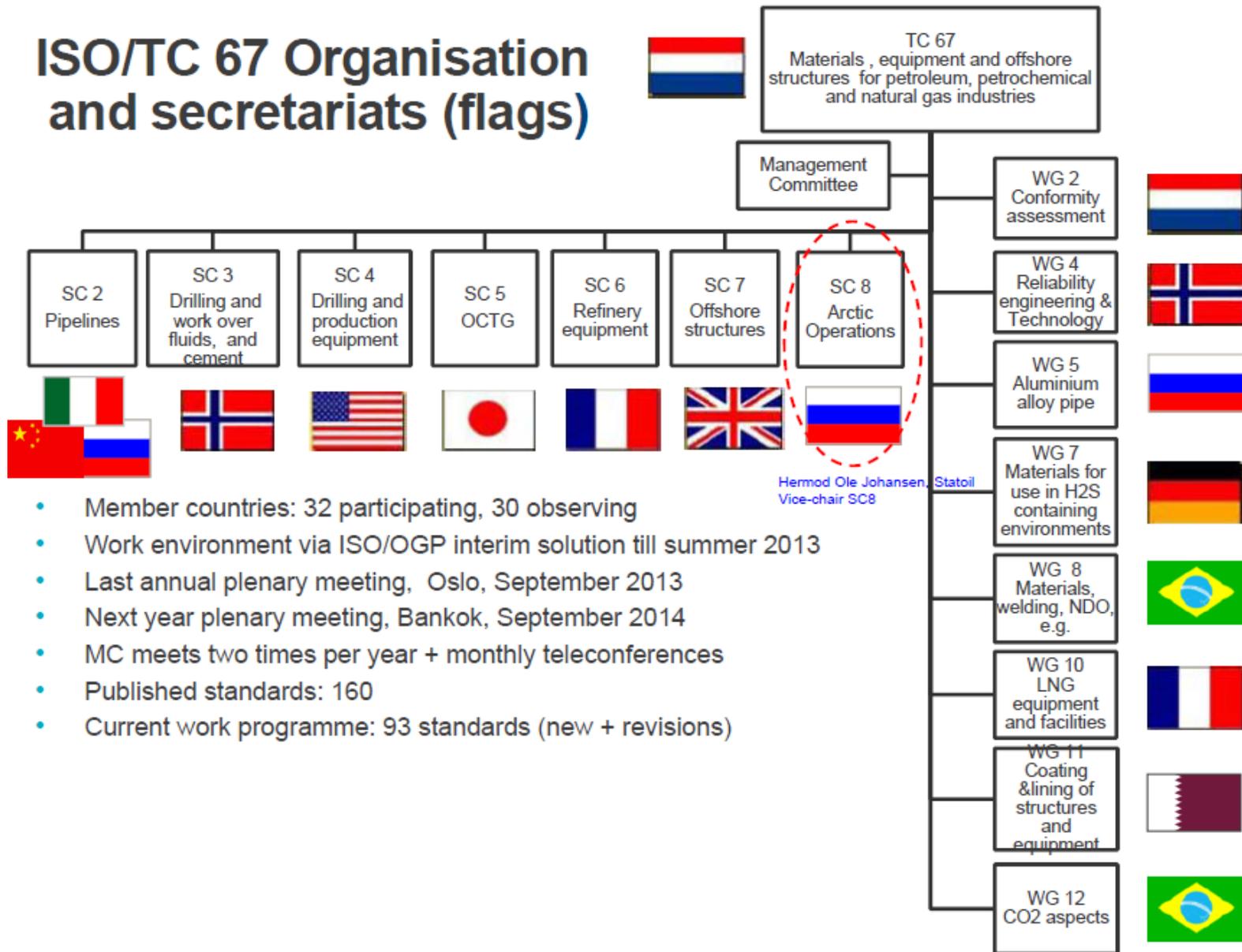


Foto: Nicolas Tourenc

Styreleder Jan A. Oksum og adm. direktør Trine Tveter
NB! Styret har et medlem fra oljeindustrien v/Tor Skjærpe, Petoro.

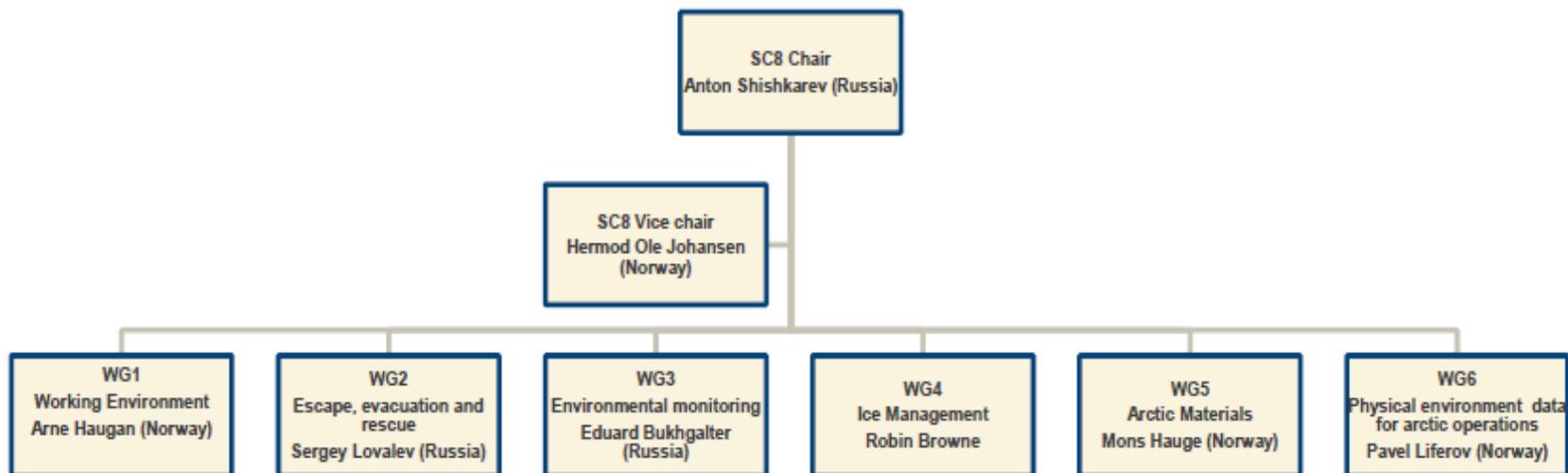
- Privat, uavhengig og non-profit medlemsorganisasjon
- Etablert i 2003 - med røtter tilbake til 1923
- Utvikler standarder på de fleste områder
- Har i dag ca 16 000 Norsk Standard
 - Over 90 % av nye standarder i dag er av europeisk eller internasjonal opprinnelse
- Norges medlem i CEN og ISO
- Ca. 75 medarbeidere

ISO/TC 67 Organisation and secretariats (flags)



- Member countries: 32 participating, 30 observing
- Work environment via ISO/OGP interim solution till summer 2013
- Last annual plenary meeting, Oslo, September 2013
- Next year plenary meeting, Bangkok, September 2014
- MC meets two times per year + monthly teleconferences
- Published standards: 160
- Current work programme: 93 standards (new + revisions)

ISO/TC67 SC8 Arctic Operations – working group structure



Sub committee 8: Chair, Vice-chair, Convenors (leader)

Members of SC8:

9 Participating (P)members

Canada	SCC
France	AFNOR
Italy	UNI
Kazakhstan	KAZMEMST
Netherlands	NEN
Norway	SN
Russian Federation	GOST R
United Kingdom	BSI
USA	ANSI

1 Observer (O) member:

Germany DIN

Liaison:

Liaison-ISO IEC/TC 031
Liaison-External OGP

SC8 membership to ISO/TCs

ISO/TC67/SC8 is a Liaison member of ISO/TC 207 «Environmental management»

ISO/TC67/SC8 Working groups:

Working group	Title	Convenor
ISO/TC67/SC8/WG1	Working environment	Arne Haugan Norway
ISO/TC67/SC8/WG2	Escape, evacuation and rescue	Sergey Kovalev Russia
ISO/TC67/SC8/WG3	Environmental monitoring	(Eduard Bukhgalter) Natalia Pystina Russia
ISO/TC67/SC8/WG4	Ice management	Robin Browne Canada
ISO/TC67/SC8/WG5	Arctic materials	Mons Hauge Norway
ISO/TC67/SC8/WG6	Physical environment for arctic operations	Pavel Liferov Norway
ISO/TC67/SC8/WG7	Man-made islands and land extension	Rob de Jong The Netherlands

ISO TC67/SC8 Arctic operations – Nominated Norwegian experts

Chairman: Mr Anton Shishkarev, Russland

Vice chairman: Hermod Johansen, Norway

Working groups (WG)	Convenor/ Country	Norwegian experts	Secretariat/ Standards body	Coordinating Norwegian Expert groups
1 Working environment in arctic operations - ISO/AWI 18861	Arne Haugan, Norway	Arne Haugan (Statoil), Arild Øvrum (Statoil), Hilde Heber (BG), Anders Rommetveit (Aibel), Hilde Færevik (Sintef), Arne Larsen-Fløysvig (LO)	Standards Norway (SN), Nils-Erik Jacobsen	EG-S
2 Escape, evacuation and rescue from offshore installations - ISO/AWI 18819	Sergey Kovalev, Russia	Rune Bråthen (Statoil), Sigurd Jacobsen (PSA), Karin Klemetsrud (DNV), Paul Skulstad (Scandpower), Kjersti Høgestøl (Norwegian Shipowners' Association)	SN, Roar Heum	
3 Environmental monitoring for arctic offshore exploration - ISO/AWI 18820	Natalia Pystina, Russia	Sam-Arne Nøland (DNV), Lars Petter Myhre (Statoil), Are Børjesson (scandpower), Anne Gunn Rike, Standard Norge	SN, Roar Heum	
4 Ice management - ISO/AWI 19279	Robin Browne, Canada	Pavel Liferov (Statoil), Ove Tobias Gudmestad (UIS), Håvard Myhre (Aibel)	SN, Roar Heum	EG-N
5 Material requirements for arctic operations	Mons Hauge, Norway	Mons Hauge (Statoil), Jørund Furre (Aibel)	SN, Javad Sunde Fahadi	EG-M
6 Physical environmental data for arctic operations - ISO/NP 19067	Pavel Liferov, Norway	Pavel Liferov (Statoil), Ove Tobias Gudmestad (UIS), Håvard Myhra (Aibel)	SN, Anne Gunn Rike	EG-N
7 ((Man-made islands and land extension– Flyttet til SC7 ISO-19906 Arctic structures))	Rob de Jong, Netherlands	Ove Tobias Gudmestad (UIS)	SN, Roar Heum	

Arbeidsprogram og fremdrift ISO TC 67/SC8 Arctic operations

Arbeidsgruppe	Standard/TS	Tittel	Plandatoer i ISO-prosessen
WG1 Working environment	ISO/AWI 18861 (WG1)	Petroleum and natural gas industries. Arctic Operations. Working environment	CD: 2014-03-26 DIS: 2014-09-26 FDIS: 2015-09-26 ISO: 2016-03-26
WG2 Escape, evacuation and rescue	ISO/AWI 18819 (WG2)	Petroleum and natural gas industries. Arctic operations. Escape, evacuation and rescue from offshore installations	CD: 2014-03-26 DIS: 2014-09-26 FDIS: 2015-09-26 ISO: 2016-03-26
WG3 Environmental monitoring	ISO/AWI 18820 (WG3)	Petroleum and natural gas industries. Arctic Operations. Environmental monitoring for offshore exploration	CD: 2014-09-26 DIS: 2014-03-26 FDIS: 2015-03-26 ISO: 2016-09-26
WG4 Ice management	ISO/AWI 19279 (WG4)	Petroleum and natural gas industries. Arctic operations. Ice management	CD: 2014-06-27 DIS: 2014-12-27 FDIS: 2015-12-27 ISO: 2016-06-27
WG5 Arctic materials	ISO TS	Petroleum and natural gas industries. Material requirements for arctic operations	<u>Init: aug. 2013</u> <u>CD: sept. 2014</u> <u>ISO: sept. 2016</u>
WG6 Physical environment for arctic operations	ISO/NP 19067 (WG6)	Petroleum and natural gas industries. Arctic operations. Physical environmental data for arctic operations	CD: 2014-06-04 DIS: 2014-12-04 FDIS: 2015-12-04 ISO: 2016-06-04

Standards Development

Key principles in standard development

1. ISO standards respond to a need in the market
2. ISO standards are based on global expert opinion
3. ISO standards are developed through a multi-stakeholder process
4. ISO standards are based on a consensus

There are three core documents describing basic procedural and [drafting rules to be followed by ISO committees](#), namely

- ISO/IEC Directives, Part 1: Procedures for the technical work
- ISO/IEC Directives, Part 1: Consolidated ISO Supplement - Procedures specific to ISO
- ISO/IEC Directives, Part 2: Rules for the structure and drafting of International Standards



ISO Standards for use in the oil & gas industry

- ISO 10418 Basic surface safety systems
- ISO 10423 Wellhead & christmas tree equipment
- ISO/TR 12489 Reliability modeling/safety systems (New)
- ISO 13533 Drill-through equipment (BOPs)
- ISO 13534 Hoisting equipment - core/main (Rev)
- ISO 13535 Hoisting equipment - specification (Rev)
- ISO 13626 Drilling and well-servicing structures
- ISO 13702 Control & mitigation of fire & explosion
- ISO 13703 Offshore piping systems
- ISO 14224 Reliability/maintenance data
- ISO 14692 GRP piping, Parts 1-4
- ISO 14693 Drilling equipment

- ISO 15156-1 Selection of cracking resistant materials for use in H₂S environments
- ISO 15156-2 Cracking-resistant steels and cast irons for use in H₂S environments
- ISO 15156-3 Cracking-resistant alloys for use in H₂S environments
- ISO 15138 HVAC
- ISO 15544 Emergency response
- ISO 15663 Life cycle costing, Parts 1-3
- ISO 17776 Assessment of hazardous situations
- ISO 20815 Production assurance and reliability management
- ISO 21457 Materials selection
- ISO 23936-1 Thermoplastics
- ISO 23936-2 Elastomers (New)
- ISO/TS 27469 Method of test for offshore fire dampers
- ISO/TS 29001 Sector-specific quality management systems

- ISO 3977-5 Gas turbines - procurement
- ISO 10428 Sucker rods
- ISO 10431 Pumping units
- ISO 10434 Bolted bonnet steel gate valves
- ISO 10437 Special-purpose steam turbines (Rev)
- ISO 10438 Lubrication, shaft-sealing and control-oil systems, Parts 1-4
- ISO 10439 Centrifugal compressors (Rev)
- ISO 10440-1 Rotary-type positive-displacement process compressors (oil-free)
- ISO 10440-2 Rotary PD packaged air compressors
- ISO 10441 Flexible couplings - special
- ISO 10442 Integrally geared air compressors
- ISO 12211 Spiral plate heat exchangers (New)
- ISO 12212 Harpin heat exchangers (New)
- ISO 13631 Reaprocessing gas compressors
- ISO 13691 High speed enclosed gear units
- ISO 13704 Calculation of heater tube thickness
- ISO 13705 Fired heaters for general service (Rev)
- ISO 13706 Air-cooled heat exchangers (Rev)
- ISO 13707 Reaprocessing compressors
- ISO 13709 Centrifugal pumps
- ISO 13710 Reaprocessing positive displacement pumps (Rev)

- ISO 14691 Flexible couplings - general
- ISO 15547-1 Plate & frame type heat exchangers
- ISO 15547-2 Brazed aluminium platefin type heat exchangers
- ISO 15649 Piping
- ISO 15761 Steel valves DN 100 and smaller
- ISO 16812 Shell & tube heat exchangers
- ISO 17292 Metal ball valves
- ISO 21049 Centrifugal and rotary pumps shaft sealing (Rev)
- ISO 23251 Pressure-relieving and depressuring systems (Rev)
- ISO/TS 24817 Composite repair of pipework
- ISO 25457 Flares details
- ISO 27509 Compact Flanged connections (New)
- ISO 28300 Venting of storage tanks
- ISO 28460 LNG - Ship to shore interface

- ISO 13624-1 Marine drilling riser systems
- ISO/TR 13624-2 Marine drilling riser system analysis
- ISO 13625 Marine drilling riser couplings
- ISO 19901-7 Station-keeping systems for floating offshore structures (Rev)
- ISO 19904-1 Floating offshore structures

- ISO 19900 Offshore structures - general requirements
- ISO 19901-1 Metocean design and operating considerations
- ISO 19901-2 Seismic design
- ISO 19901-3 Topside structure
- ISO 19901-4 Geotechnical and foundation design
- ISO 19901-5 Weight control
- ISO 19901-6 Marine operations
- ISO 19902 Fixed steel offshore structures
- ISO 19903 Fixed concrete offshore structures
- ISO 19905-1 Jack-ups (New)
- ISO/TR 19905-2 Jack-ups commentary (New)
- ISO 19906 Arctic offshore structures

- ISO 13628-1 Subsea production systems (Amd)
- ISO 13628-2 Subsea flexible pipe systems
- ISO 13628-3 Subsea TFL pumpdown systems
- ISO 13628-4 Subsea wellhead and tree equipment
- ISO 13628-5 Subsea control umbilicals
- ISO 13628-6 Subsea production controls
- ISO 13628-7 Completion/workover riser system
- ISO 13628-8 ROT and interfaces (Rev)

- ISO 13628-9 ROT intervention systems
- ISO 13628-10 Bonded flexible pipe
- ISO 13628-11 Flexible pipe systems for subsea and marine applications
- ISO 13628-15 Subsea structures and manifolds (New)
- ISO 13628-16 Spec for flexible pipe ancillary equipment (New)
- ISO 13628-17 RP for flexible pipe ancillary equipment (New)

- ISO/TR 10400 Calculations for OCTG performance properties
- ISO 10405 Care/use of casing/tubing
- ISO 10407-1 Drill stem design
- ISO 10407-2 Inspection and classification of drill stem elements
- ISO 10414-1 Field testing of water-based fluids
- ISO 10414-2 Field testing of oil-based drilling fluids (Rev)
- ISO 10416 Drilling fluids - lab testing
- ISO 10417 Subsea safety valve systems
- ISO 10424-1 Rotary drill stem elements

- ISO 10424-2 Threading and gauging of connections
- ISO 10426-1 Well cementing
- ISO 10426-2 Testing of well cements (Rev)
- ISO 10426-3 Testing of deepwater well cement
- ISO 10426-4 Preparation and testing of atmospheric foamed cement slurries
- ISO 10426-5 Shrinkage and expansion of well cement
- ISO 10426-6 Static gel strength of cement formulations
- ISO 10427-1 Bow spring casing centralizers

- ISO 10427-2 Centralizer placement and stop-collar testing
- ISO 10427-3 Performance testing of cement float equipment
- ISO 10432 Subsurface safety valves
- ISO 11960 Casing and tubing (Rev)
- ISO 11961 Drill pipe
- ISO 13085 Tubing aluminium alloy pipes (New)
- ISO 13500 Drilling fluids (Amd)
- ISO 13501 Drilling fluids - processing systems evaluation (Rev)
- ISO 13503-1 Measurement of viscous properties of completion fluids (Rev)
- ISO 13503-2 Measurement of properties of proppants
- ISO 13503-3 Testing of heavy brines
- ISO 13503-4 Measurement of stimulation & gravelpack fluid leakoff
- ISO 13503-5 Measurement of long term conductivity of proppants
- ISO 13503-6 Measurement of leak-off of completion fluids under dynamic conditions (New)
- ISO 13678 Thread compounds
- ISO 13679 Casing and tubing connections testing (Rev)

- ISO 13680 CRA seamless tubes for casing & tubing
- ISO 14310 Pickers and bridge plugs
- ISO 15136-1 Progressing cavity pump systems
- ISO 15136-2 Progressing cavity pump systems - drive heads
- ISO 15463 Field inspection of new casing, tubing and plain end drill pipe
- ISO 15464 Gauging and inspection of threads
- ISO 15546 Aluminium alloy drill pipe (Rev)
- ISO 16070 Lock mandrels and landing nipples
- ISO 17078-1 Side-pocket mandrels (Amd)
- ISO 17078-2 Flow control devices for side-pocket mandrels
- ISO 17078-3 Latches & seals for side-pocket mandrels & flow control devices
- ISO 17078-4 Side-pocket mandrels and related equipment
- ISO 17824 Sand control screens
- ISO 20312 Design of aluminium drill string (New)
- ISO 27627 Aluminium drill pipe thread gauging (New)
- ISO 28781 Subsurface tubing mounted formation barriers

- ISO 3183 Steel pipe for pipeline transportation systems (Rev)
- ISO 12490 Actuation, mechanical integrity and sizing for pipeline valves (New)
- ISO/TS 12747 Pipeline life extension (New)
- ISO 13623 Pipeline transportation systems
- ISO 13847 Pipeline welding (Rev)
- ISO 14313 Pipeline valves
- ISO 14723 Subsea pipeline valves
- ISO 15589-1 Cathodic protection for on-land pipelines (Rev)
- ISO 15589-2 Cathodic protection for offshore pipelines (Rev)
- ISO 15590-1 Pipeline induction bends
- ISO 15590-2 Pipeline fittings (Rev)
- ISO 15590-3 Pipeline flanges (Rev)
- ISO 16708 Pipeline reliability-based limit state design
- ISO 21329 Test procedures for pipeline mechanical connectors
- ISO 21809-1 Polyolefin coatings (3-layer PE and 3-layer PP) (New)
- ISO 21809-2 Fusion-bonded epoxy coatings (Rev)
- ISO 21809-3 Field joint coatings (Amd)
- ISO 21809-4 Polyethylene coatings (2-layer PE)
- ISO 21809-5 External concrete coatings



Standards in brown issued in 2011

Standards in green are a priority for 2012 issue

These ISO standards are only a core collection of several hundreds of International Standards available for the oil & gas industry



ISO Development Process

TC/SC route

Deliverables

STAGE 1 NP
(new work item proposal)

STAGE 2 Building expert consensus

STAGE 3 Consensus building within TC/SC

STAGE 4 Enquiry on DIS (Draft International Standard)

STAGE 5 Formal vote on FDIS (proof check by secretariat)

STAGE 6 Publication of International Standard

First CD or **ISO/PAS**:
• Simple Maj of P-members
• Review 3 years – Max 6

DIS or **ISO/TS** :
• $\frac{2}{3}$ Maj of P-members,
• Review: 3 years – Max 6
ISO/TR for non-normative documents
• Simple Maj of P-members
• No review

FDIS
 $\frac{2}{3}$ Maj of P-members less than $\frac{1}{4}$ negative votes

Final text of International Standard

ISO International Standard
Review: 5 years

FAST TRACK →

NEW!

NEW!

NEW!

Workshop route

International Workshop Agreement

IS Development Timeframes

Possible alternatives- 3 TRACKS

Recommended timeframe	36 months
Accelerated timeframe	24 months
Enlarged timeframe	48 months

The TC/SC has to decide at the beginning of the work which of these timeframes applies.

Norwegian delegation St. Jones 2013 - ISO TC 67/SC8 Arctic operations



There's never been a better
time for **good ideas**

International standardization
Arctic Operations (ISO TC67 SC8)

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