

**Presentation to  
EFI Standards & Certification Conference,  
Moscow, Russia, 27-28 May 2004**

**Moving towards  
global standards for the  
oil & gas industry**



**Alf Reidar Johansen, Hydro, Norway  
Chairman, OGP Standards Committee  
Don Smith, OGP, Technical manager, UK**

# Firstly - what is OGP?

The International Association of Oil & Gas Producers  
formed in 1974.

OGP members include private and state-owned oil and  
gas companies, service companies, national and  
regional associations.

Members produce more than half of the world's oil  
and about one third of its gas.



Offices in London and Brussels

# OGP vision

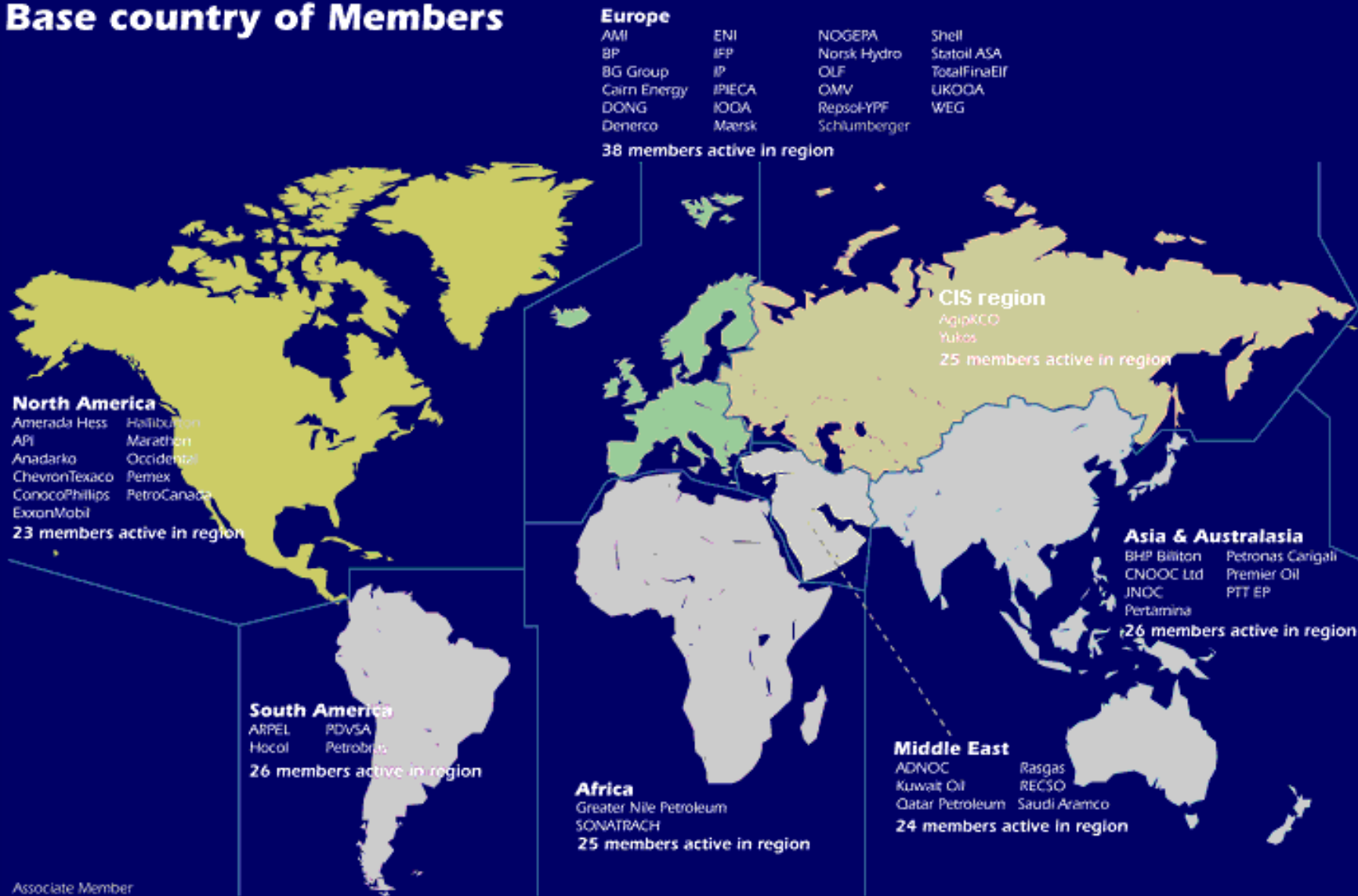
To work on behalf of all the world's upstream companies to promote responsible and profitable operations

# OGP mission

- To represent the interests of the upstream industry to international regulatory and legislative bodies
- To achieve continuous improvement in safety, health and environmental performance and in the engineering and operation of upstream ventures
- To promote awareness of corporate social responsibility within the industry and among stakeholders



# Base country of Members



Associate Member

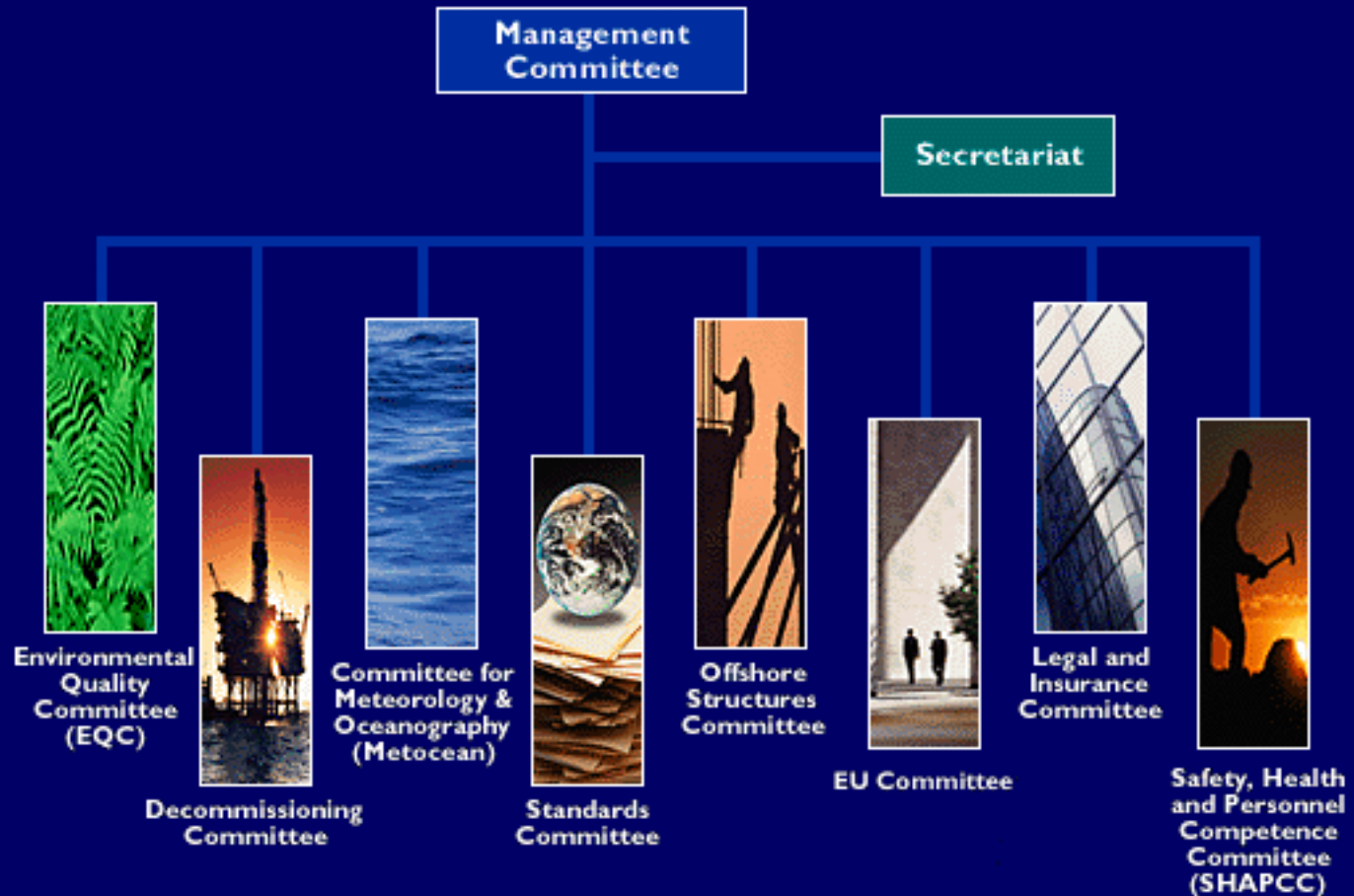
# Global experience

- OGP has access to a wealth of technical knowledge and experience with its members operating around the world in many different terrains.
- OGP collate and distil this valuable knowledge into a range of reports and guidelines. Some for general use while others are restricted to OGP members.



Documents at [www.ogp.org.uk](http://www.ogp.org.uk)

# OGP Organisation



# Why make ISO/IEC standards?

- To facilitate global trade
- Transfer and maintain an international experience & best practices carrier, for improved solutions
- Offers global expert networking possibilities
- Open, voluntary participation & use of standards
- Simple and safe design and fabrication
- Reduce need for company specifications
- Reduce need for national regulations



Made for & made by the E&P industry

Therefore OGP takes an interest in standards



TC67  
Materials, equipment and offshore  
structures for petroleum,  
petrochemical and natural gas  
industries



Executive and  
Management  
Committees

SC 2  
Pipelines



SC 3  
Drilling and  
workover fluids  
and cements



SC 4  
Drilling and  
production  
equipment



SC 5  
OCTG



SC 6  
Refinery  
equipment



SC 7  
Offshore  
structures



WG 2  
Conformity  
Assessment



WG 4  
Reliability  
engineering &  
technology



WG 5  
Aluminium  
alloy pipe



WG 7  
Materials for  
use in H<sub>2</sub>S  
containing  
environments



WG 9  
Life cycle  
costing

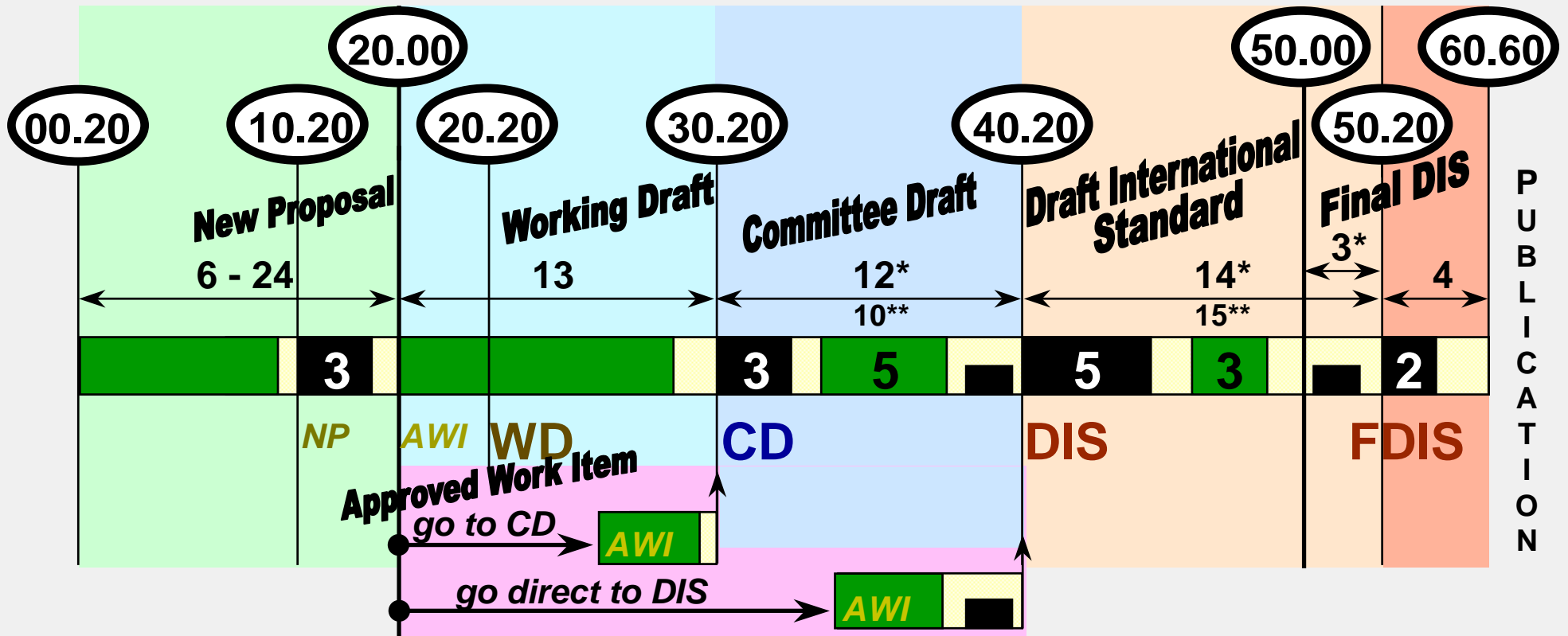


# ISO/TC67 Working Groups

- Established and tasked by parent committee (e.g. SC7)
- Convenor is appointed
  - Project Leader(s) appointed for each work item (standard to make/revise)
- Experts are nominated by the P-Members
  - Experts act in a personal capacity, not as representatives
  - Should keep close contact with their P-Member and other stakeholders
- Convenor and Project Leader responsibilities:
  - Defined in ISO Directives Part 1 and in document TC67 N435
  - Decides when the document is ready for CD (Committee Draft).
- Has wide freedom for its working processes (Panels etc.)
- WG remains for maintenance and interpretations



# ISO TC67 "Typical" Programme



Technical Work, Consensus Building  
 Secretariat Administration  
n Enquiry and Voting (months)

20.00 ISO Stage Nos.  
 = French version: prepared for DIS  
 \*\* not until FDIS  
 Time in Months

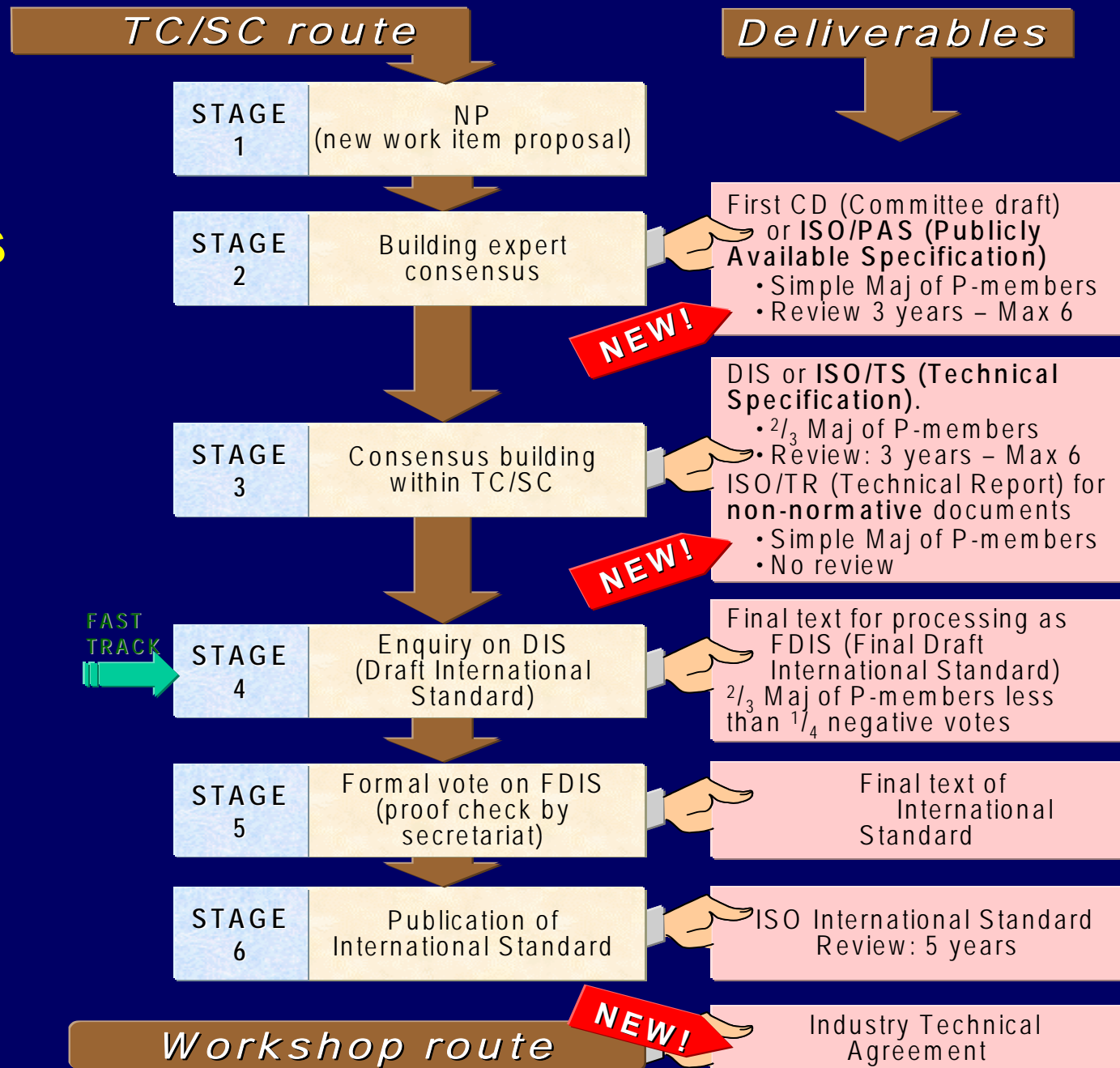
PUBLICATION

# Work and review by Stages

- **WD** – technical content developed and synthesised in the Working Group under the Project Leader
  - When assembled and ready for wider review, the WD is sent to the Committee Secretary for CD distribution.
- **CD** – detailed technical review by Members (incl. mirror/national committees and organisations) for consensus
  - WG address the comments; consider 2<sup>nd</sup> CD if major changes
  - TC67 and SC7 recommend a comments register
- **DIS** – review, comment and vote by all 148 ISO Members
  - WG address the comments with Committee Chairman & Secretary
  - ISO CS require a comments register
- **FDIS** – proof copy: Final Vote “Yes” or “No” – no comments



# New ISO Deliverables



# ISO Directives



## Consolidated Procedures for the technical work of ISO

... a text comprising ...

ISO/IEC Directives, Part 1,  
4th edition

ISO Supplement  
1st edition

ISO Change Notifications  
At current texts

---

Last modified 2001.05.29

Provided for convenience only  
This document is available only in electronic form

---



## ISO/IEC Directives, Part 2

Directives (ISO/IEC), Partie 2

---

### Rules for the structure and drafting of International Standards

Règles de structure et de  
rédaction des Normes  
Internationales

Fourth edition, 2001



## Consensus (ISO definition)

General agreement, characterized by the absence of sustained opposition to substantial issues by any important part of the concerned interests and by a process that involves seeking to take into account the views of all parties concerned and to reconcile any conflicting arguments.



Note: Consensus need not imply unanimity.

# Standard Committee membership <sup>1)</sup>

Representative	Company	Country	ISO TC67	CEN TC12
Wilson Barbosa de Oliveira	Petrobras	Brazil	M	*
Anatoly Baryshnikov	Eni	Italy	H	H
Gerhard Froelich	WEG	Germany	H	H
Alf Reidar Johansen (C)	Hydro	Norway	*	*
Alain Loppinet	BNPe	France	M	C
Martin Maeso	Energy Institute	UK	*	*
David Miller	API	USA	M	*
Neil Reeve	Shell	Netherlands	H	M
Alain Samne	ISO	Switzerland	Program mgr	*
Cheryl Stark	BP	USA	C	*
Mike Swidzinski	ConocoPhillips	UK	*	*
Graham Thomas	EUROPIA/BP <sup>2)</sup>	UK	H	H
Richard Torgersen	ExxonMobil	USA	H	*
Ramon Torra	Repsol-YFP	Spain	*	*
Gilles Trican	Total	France	H	H

C = Chair H = Head of delegation M = Member of delegation

Note <sup>1)</sup> Plus corresponding members from: BG, ChevronTexaco, DONG, Mærsk, Petro-Canada, Premier and Saudi Aramco. <sup>2)</sup> EUROPIA liaison.



# OGP SC Terms of References

The main role is to serve as a forum for sharing information on standards work, agreeing issues, coordinating and developing recommendations and positions on standards issues of interest and value to the E&P industry worldwide. Specifically to:

- monitor and promote development of international standards
- share best practices of companies in-house standardisation work
- liaise with standards organisations, such as API
- stewardship of the OGP's liaison memberships with ISO and CEN
- seek to influence efficient use of resources
- identify areas where the OGP should take a pro-active role
- review progress, ensure priorities are suitable for OGP members
- ensure that OGP members are adequately represented
- promote use of standards within member companies



# OGP position on standards

The OGP has been a catalyst for change in industry 's approach to standards and strongly supports the internationalisation of key standards used by the petroleum and natural gas industries. OGP 's position on standards is:

- development and use of ISO and IEC standards should be promoted
- development of standards should be based on a consensus of need
- “users” should be represented on standards work groups
- duplication of effort should be avoided
- standards should be simple and fit for purpose
- International standards should be used without modification wherever possible
- company specifications should be minimised and written, where possible, as functional requirements.

The adoption of this approach is expected to minimise barriers to trade, enable more efficient worldwide operations, and improve the technical integrity of equipment, materials, and offshore structures used by the petroleum and natural gas industries.





**International  
Association  
of Oil & Gas  
Producers**

standards/

# International Standards Bulletin

## Global standards used locally worldwide

### Executive summary

A new set of international standards for a wide selection of vital oil and gas industry materials, equipment and offshore structures is emerging from the international standards organisations, ISO and IEC. These standards are primarily the responsibility of ISO Technical Committee (TC) 67 and IEC TC 18. They are developed using a consensus process that includes more than a thousand oil industry experts from around the globe and an international review and approval process.

87 ISO standards for the oil and gas industry have now been issued, including 17 published in 2002. A further 17 are planned for publication this year. Many of these standards are based on familiar API specifications and other relevant industry documents. IEC is also publishing important standards for the offshore industry, some of which are shown inside this bulletin.

The international oil and gas industry and national standardisation organisations support these standards for worldwide applications. American, European and other standards bodies are now adopting them for regional and national use.

For industry, they will reduce costs and delivery time, and facilitate trade across national borders. For regulatory authorities, the standards offer support for goal-setting and functional regulations, while achieving higher levels of safety through better design.

These standards are now being implemented widely in oil and gas provinces around the world, replacing existing industry, regional and national standards and eliminating or reducing the need for company-specific specifications.

For details, see wall-chart inside.



# OGP Standards bulletin 2004

## ISO Standards for use in the oil & gas industry

ISO 10418	Basic surface safety systems	ISO 15156-1	Selection of cracking resistant materials for use in H <sub>2</sub> S environments	ISO 3977-5	Gas turbines – procurement	ISO 13704	Calculation heat tube thickness
ISO 10423	Wellhead & christmas tree equipment	ISO 15156-2	Cracking-resistant steels and cast irons for use in H <sub>2</sub> S environments	ISO 10424-1	Specification for rotary drilling equipment	ISO 13705	Fired heaters for general service
ISO 10434	Bolted bonnet steel gate valves (Rev)	ISO 15156-3	Cracking-resistant alloys for use in H <sub>2</sub> S environments	ISO 10434	Steel gate valves	ISO 13706	Air-cooled heat exchangers
ISO 13533	Drill-through equipment (BOPs)	ISO 15138	HVAC offshore	ISO 10437	Special-purpose steam turbines	ISO 13707	Reciprocating compressors
ISO 13534	Hoisting equipment - care/maint RP	ISO 15544	Emergency Response	ISO 10438	Lubrication, shaft-sealing and oil-control systems, Parts 1-4	ISO 13709	Centrifugal pumps
ISO 13535	Hoisting equipment - specification	ISO 15663	Life Cycle costing, Parts 1-3	ISO 10439	Centrifugal compressors	ISO 13710	Reciprocating positive displacement pumps
ISO 13626	Drilling and well-servicing structures	ISO 17292	Metal ball valves	ISO 10440-1	Rotary PD process compressors	ISO 14961	Flexible couplings – general
ISO 13702	Control & mitigation of fire & explosion	ISO 17776	Assessment of hazardous situations	ISO 10440-2	Rotary PD packaged air compressors	ISO 15547	Plate heat exchangers
ISO 13703	Offshore piping systems	ISO/TS 29001	Sector-specific quality management systems	ISO 10441	Flexible couplings – special	ISO 15649	Piping
ISO 14224	Reliability/maintenance data			ISO 10442	Integrally geared air compressors	ISO 15761	Steel valves DN 100 and smaller
ISO 14692	GRP piping, Parts 1-4			ISO 15631	Reciprocating gas compressors	ISO 16812	Shell & tube heat exchangers
ISO 14693	Drilling equipment			ISO 15691	High speed enclosed gear units	ISO 21049	Centrifugal and rotary pumps shaft sealing



ISO 13637 Mooring MODUs  
ISO 13625 Marine drilling riser couplings



ISO 13819-2 Offshore Structures Fixed Steel  
ISO 19900 Offshore Structures  
ISO 19901-2 Seismic design for offshore structures  
ISO 19901-4 Offshore structures - part 4: Geotechnical and foundation design  
ISO 19901-5 Offshore structures - part 5: Weight control



ISO 3185 Linepipe  
ISO 13623 Pipelines  
ISO 13847 Pipeline welding  
ISO 14313 Pipeline valves  
ISO 14723 Subsea pipeline valves  
ISO 15589-1 Cathodic protection for on-land pipeline systems  
ISO 15589-2 Cathodic protection for offshore pipelines  
ISO 15590-1 Pipeline induction bends  
ISO 15590-2 Pipeline fittings  
ISO 21329 Test procedures for pipeline mechanical connectors

ISO 13628-1 Subsea production systems (Rev)  
ISO 13628-2 Subsea flexible pipe systems  
ISO 13628-3 Subsea TFL pumpdown systems  
ISO 13628-4 Subsea wellhead & christmas trees  
ISO 13628-5 Subsea control umbilicals  
ISO 13628-6 Subsea production controls  
ISO 13628-7 Completion/workover riser system  
ISO 13628-8 ROV interfaces  
ISO 13628-9 ROT intervention systems  
ISO 13628-10 Bonded flexible pipe



ISO 10405 Care/use of casing/tubing  
ISO 10407-1 Drill stem design  
ISO 10414 Field testing of drilling fluids, Part 1-2  
ISO 10416 Drilling fluids - lab testing  
ISO 10417 Subsurface safety valve systems (Rev)  
ISO 10426-1 Well cementing  
ISO 10426-2 Testing of well cements  
ISO 10426-3 Testing of deepwater well cement  
ISO 10426-4 Preparation and testing of atmospheric foamed cement slurries

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 (Rev)  
ISO 11960 Casing and tubing (Rev)  
ISO 11961 Drillpipe  
ISO 13500 Drilling fluids

ISO 13503-1 Measurement of viscous properties of completion fluids  
ISO 13678 Thread compounds  
ISO 13679 Connection testing  
ISO 13680 CRA seamless tubes for casing and tubing  
ISO 14310 Packers and bridge plugs  
ISO 15136-1 Progressing cavity pump systems  
ISO 15463 Field inspection of new casing, tubing and plain end drill pipe  
ISO 15546 Aluminium drillpipe  
ISO 16070 Lock mandrels and landing nipples  
ISO 17078-1 Side-pocket mandrels



Standards in **brown** issued in 2003  
Standards in **green** are a priority for 2004 issue  
Many of these standards are adopted by API, CEN and other recognised standards bodies

# Key ISO standards - Drilling



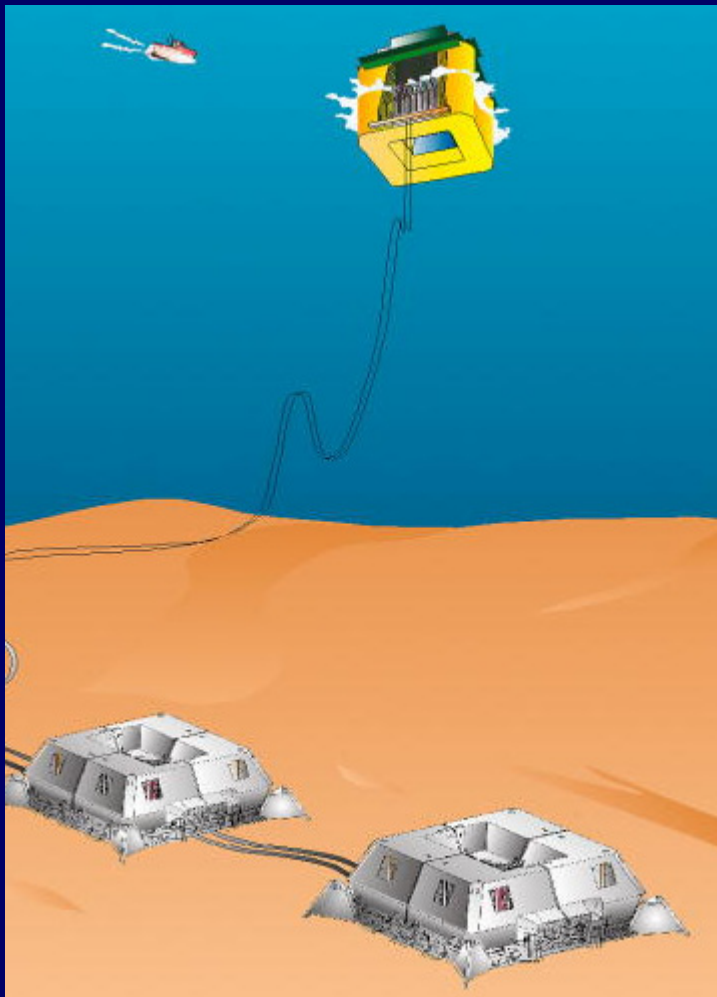
- 11960 Casing and tubing (API 5CT)
- 15546 Aluminum alloy drill pipe
- 15156 Materials for H<sub>2</sub>S environments (NACE 0175)
- 10423 Wellhead & christmas tree equipment (6A)
- 11961 Drillpipe (5D)
- 13679 Connection testing
- 13500 Drilling fluids
- 14310 Packers & bridge plugs

# Key ISO standards – Offshore structures



- 19900 Offshore structures
- 19901-4 Geotechnical and foundation design
- 19901-5 Weight control during engineering and construction (NS)
- 13637 Mooring MODUs
- 13625 Marine drilling riser couplings

# Key ISO standards – Subsea production



- 13628-1 Subsea production systems (API 17A)
- 13628-2 Flexible pipe (API 17J)
- 13628-4 Subsea wellhead & christmas tree (17D)
- 13628-5 Subsea control systems
- 13628-6 Control umbilicals
- 13628-8 Remotely operated vehicle (ROV) interfaces on
- 13628-9 Remotely operated tool (ROT) intervention system

# Key ISO standards - Pipelines



- 3183 Linepipe (API 5L+)
- 13623 Pipelines
- 13847 Pipeline welding
- 14313 Pipeline valves
- 14723 Subsea pipeline valves
- 15589 Cathodic protection
- 15590 Pipeline bends / fittings
- 21329 Test procedure for pipeline connectors (planned for 2004)

# Key ISO standards - Refineries

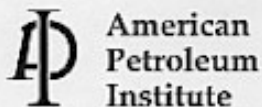


- 13709 Centrifugal pumps (API 610)
- 10437 Steam turbines
- 10439 Centrifugal compressors
- 13704 Heater tube thickness
- 13706 Air-cooled heat exchangers (API 661)
- 15649 Piping
- 10434 Steel gate valves
- 13707 Reciprocating compressors

# Air-Cooled Heat Exchangers for General Refinery Service

API Standard 661, Fifth Edition  
March 2002

ISO 13706: 2000, Petroleum and Natural Gas Industries—Air-cooled Heat Exchangers



Helping You  
Get The Job  
Done Right.™



EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

EN ISO 13706

April 2000

ICS 75.180.20

English version

Petroleum and natural gas industries - Air-cooled heat exchangers (ISO 13706:1998)

Industries du pétrole et du gaz naturel - Echangeurs de chaleur refroidis à l'air (ISO 13706:1998)

Erdf- und Erdgasindustrien - Luftgekühlte Wärmeaustauscher (ISO 13706:1998)

This European Standard was approved by CEN on 15 April 2000.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.



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

Central Secretariat: rue de Steassart, 36 B-1050 Brussels

# Key IEC standards – Offshore installations



- 61508 Functional safety of electronic safety-related systems
- 61511 Functional safety – Safety instrumented systems for the process industry sector
- 61892 Electrical installations - Mobile and fixed platforms:
  - 1 General
  - 2 Systems (2004)
  - 3 Equipment
  - 4 Cables (2005)
  - 5 Mobile units
  - 6 Installations
  - 7 Hazardous areas

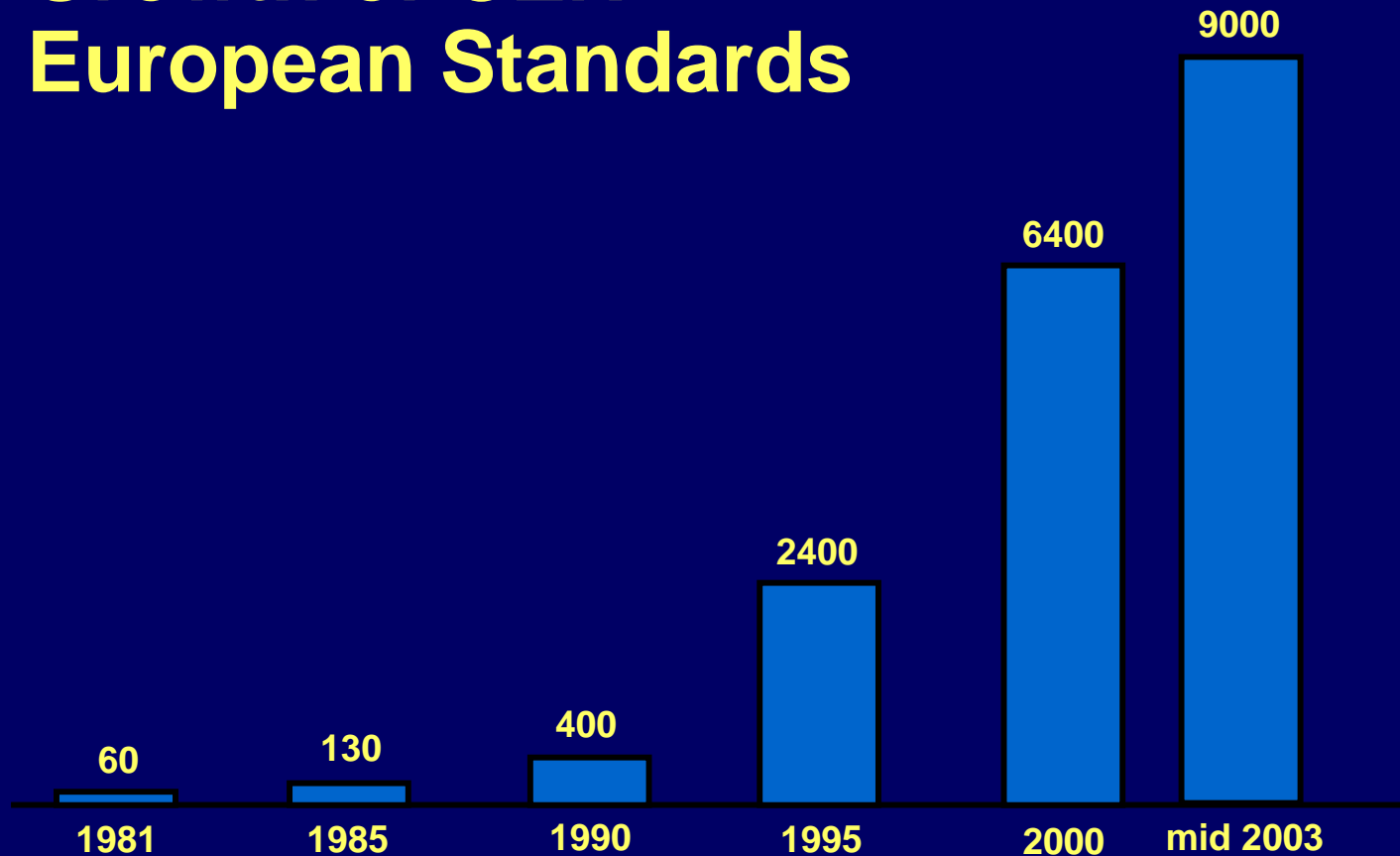
# Pattern of change – Work in BSI



Note: Typical for all European Standards Bodies



# Growth of CEN European Standards



Cumulative number of published CEN standards



# Example: Shell's standardisation policy



- Maximize use of common industry standards (ISO/ IEC if possible)
- Minimize additional company requirements
- Ensure variations justified (technical and commercial)
- Ensure continuous improvement (feedback from users)
- Influence external standards bodies. Participate actively in the technical committees and working groups of key external standards



Benefits are maximized when all companies use the same common industry standards

# Shell's technical standards needs

**Mr. Neil Reeve, Shell Standards Manager,  
Shell Global Solutions, The Hague:**

**“Shell is an international company trading in an international industry, using international (and national) suppliers under many different regulatory regimes. Shell prefers to use International Standards, and has a plan to manage this.”**



Shell Global Solutions

# ISO TC67 Challenges

- **Resources**
  - technical experts and time to do the work
  - support funding through companies or Standards Development Organizations
  - new technology not being addressed
- **Proposal to Gosstandart, Russian & CIS companies and technical experts**
  - become active members in all relevant subcommittees and work groups
  - encourage others (companies, consultants, universities) to become involved
  - contribute Russian & CIS developed technology for worldwide use



# WTO Technical Barriers to Trade

- International agreement adopted by over 140 countries around the globe.
- TBT Annex 3, Code of good practice:
  - Equal treating of products
  - No creation of standards with unnecessary obstacles to international trade
  - Base national standards on international ones
  - Harmonize standards as widely as possible
  - Avoid duplication with international standards work
  - Publish work programmes every six months

..... see TBT Annex 3 for more .....



# International Regulators Forum

- IRF includes regulators from: Australia, Brazil, Canada, Mexico, Netherlands, Norway, UK & US.
- OGP Std Com dialogue with IRF about:
  - **Harmonization of national and industry standards** in ISO (particularly TC67) and IEC
  - **Avoiding unjustified national differences** in the regulations affecting international trade
  - Interest regulators to work in ISO/IEC



# Regulator's use of standards

- Example: Norwegian offshore facilities regulation (1 of 5 key regulations) makes references to a large number of recognised standards:
  - 22 IEC, 26 ISO (many based on API)
  - 2 API, 6 EN - European Standards
  - 15 Det Norske Veritas (DNV), 1 IMCA
  - 6 Norwegian Standards
  - 39 NORSOK, 2 NORDTEST
  - ... and some others ....



# Statements on standards

- With quotes from recent ISO Focus:
- “Standardize when it is possible and timely and definitively before technical regulations are brought into the game”  
..... F. Abram, ISO  
Technical Programme Manager TC22 Road  
Vehicles
- “ISO is a well-tuned international instrument which can complement national regulatory efforts”  
..... Vadim Koutenev, Chair of World Forum  
for Harmonization of Vehicle Regulations.



# Concluding remarks

- Our O&G industry has the knowledge and resources to develop the standards we need to be basically self-regulating.
- We can eliminate the need for detailed regulatory intervention by proactive standards work.
- Work with your national regulators and standards body to adopt and reference international standards.



# ISO/TC67 Vision



Global  
Standards Used  
Locally  
Worldwide



Join the work

&

Capture the value added  
by making use of the new  
ISO & IEC standards

[www.iso.ch](http://www.iso.ch) / [www.iec.ch](http://www.iec.ch)

