

Climate and the Impact on Standards

ISO Technical Committee 67

Materials, equipment and offshore
structures for petroleum,
petrochemical and natural gas
industries, excluding ships and marine
technology (TC8)

Cheryl Stark

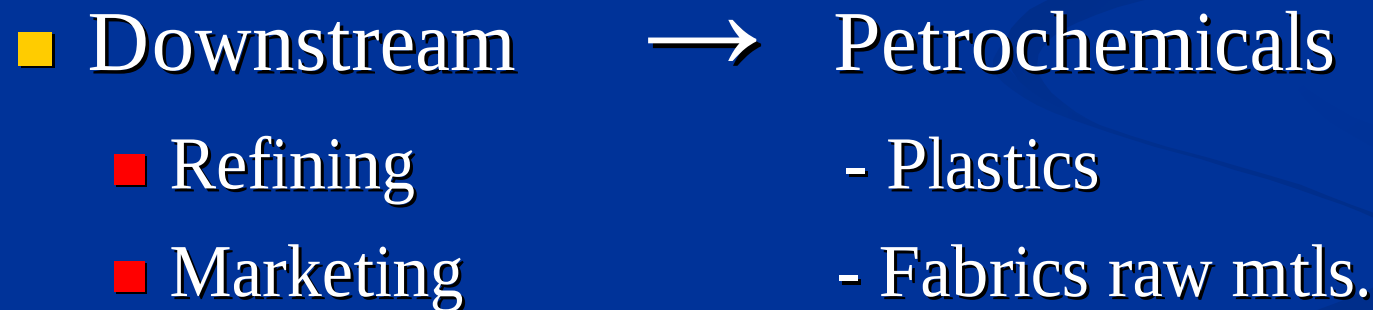
BP, Group Technology Engineering -
Houston

Chair of ISO TC67
1999-present

Petroleum, petrochemical and natural gas industries

■ Upstream and Pipelines

- Exploration & Development
- Exploitation
- Transportation



Geographic Locations

- Upstream and pipelines
 - Over 130 countries for exploration & production
 - Globally diverse
 - Must be able to move product to downstream
- Downstream and petrochemical
 - Predominantly in temperate regions
 - Urban or near urban areas
 - Land-based with government restrictions

ISO / TC 67

- Twenty-six “P”articipating members
- Twenty-six “O”bserving members
- Six subcommittees
- Five TC working groups
- Management committee
- Joint working groups with five TCs
- Estimated project members – over 1000

[illegible]

ISO / TC 67

- 155 items on work program
- 109 published to date
- Average 15 standards published annually
- Average 10-12 new work items annually
 - Augment current standards
 - New technology
 - Five year review

Types of Standards

■ Equipment and hardware

- Casing, tubing, and drill strings
- Blow-out preventer and production equipment
- Subsurface and downhole equipment
- Piping and pipelines
- Offshore structures
- Fluids
- Valves and compressors

■ Informational

- Corrosion resistant alloys
- Life cycle analysis
- Reliability and measurement
- Quality management

Impact of Climate

- Climate has many forms
 - Temperature
 - Elevation
 - Habitat and access
 - Geologic conditions
 - Political
- All influence the service level and applicability of equipment

Climate – Temperature

- Desert
- Jungle
- Arctic
- Temperate
- Tundra

Temperature



Temperature



Climate – Elevation

- Marsh and wetlands
- Bays and lakes
- Mountains
- Offshore – negative elevation

Elevation



Elevation



Climate – Habitat and Access

- Remote, undeveloped
- Rural
- Urban
- Ecologically sensitive

Habitat



Habitat



Climate – Geologic Conditions

■ Exploration and Production

- Ice and permafrost
- Shale
- Carbonate
- Sand
- Granitic
- Alluvial
- Acid gases – H_2S and CO_2
- Water, gas, and oil

Geologic Conditions



Geologic Conditions



Climate - Political

- Safety and health of workers
- Protection of indigenous population
- Preservation of local livelihood
- Capture and transport of product
- Management of waste streams
- Wide variety of attitudes about oil and gas activity

Examples Standards with Climatic Conditions

- 15156-series – Materials for H₂S environments
- 14310 – Downhole equipment – packer and bridge plugs
- 19906 – Arctic offshore structures
- 3183 – Steel for pipelines
- 13709/13710 – Centrifugal and reciprocating positive displacement pumps

TC67 Approach Standards

- Global utility – World Trade Organisation
 - Buy and trade from one area to another
 - Interchangeable parts
 - Compatible and fit for purpose
 - HSSE factors
- Local utility
 - Product service levels
 - Multiple choice designs
 - Government restrictions/acceptance

TC 67 Motto

*“Global standards used locally,
worldwide.”*

The End and Any Questions?

