



Tuesday 29th and
Wednesday 30th
November 2011

Clarion Hotel Royal
Christiana Hotel, Oslo

Day 1 – Tuesday 29th November 2011

08.30 Registration and coffee

09.00 Chairman's welcome

FUTURE OUTLOOK AND STRATEGY FOR ARCTIC DEVELOPMENTS

09.10 Arctic oil & gas prospects for the final frontier

As the global economy slowly recovers from the worst downturn in decades and major unrest impacts the Arab countries, there are many questions regarding the outlook for the global energy industry.

- How long will spare oil production capacity last as output falls from conventional sources and will exploitation of arctic resources be essential in the years ahead?
- Can environmental and human safety be assured in this most pristine and demanding region?
- As a large proportion of arctic reserves are believed to be natural gas can its production be competitive against onshore unconventional gas?

John Westwood, Chairman, Douglas-Westwood (UK)

09.40 The Norway's High North Arctic Strategy

- The next steps in the Government's High North strategy
- Relations with Russia

10.20 Government strategy for the development of Russia's Arctic resources

- A review of Russia's current approach and strategy towards development of Arctic reserves
- Encouraging and governing international involvement

10.50 Questions and discussion followed by morning break

11.20 A way forward after the 'gray zone' resolution – Norway's perspective

- How will the resolution of the gray zone progress oil & gas development in the region?
- What is Norway doing to assist development
- When will the former gray zone see it's first oil & gas development come online – forecasts for the future

11.50 Russian/Norwegian co-operation in the Barents Sea and Arctic Ocean – the key to success

To successfully develop oil & gas in the Arctic, co-operation across the industry is essential and is seen as the key to unlocking reserves responsibly and economically. This presentation will review what co-operation is currently in place and plans for the future.

12.20 Questions and discussion followed by lunch

STRATEGIES FOR PROJECT SUCCESS: COMMUNITY ENGAGEMENT & ENGINEERING CLUSTERS

13.30 Co-management in the Arctic - involving local communities in oil and gas activities

- The Arctic as a homeland
- The importance of early engagement of local communities

- Co-management as a model for bringing stakeholders together
Björn Alfthan, Polar Programme, UNEP/GRID-Arendal (Norway)

14.00 **Oil & gas Arctic project management**

Mikhail Grigoriev, GECON (Russia)

14.30 **Development of oil & gas engineering cluster for the Russian Arctic – a feasibility study**

- Analysis of the present situation with demand/supply of offshore engineering units in the Russian oil & gas market
- Oil & gas engineering cluster for Russia (ROGEC)
- Positive experience of Texas and Aberdeen O&G clusters
- Projects and scenarios of future Arctic oil & gas engineering sector development

Dmitriy S. Tulopov, Executive Director, UVC-Consulting (Russia)

15.00 Questions and discussion followed by afternoon refreshments and **SPEEDY NETWORKING**

*Meet new contacts in a quick, easy and fun atmosphere. Maximise your time at the event in this fun and interactive networking setting. **Bring your business cards!***

15.40 **Lessons for the Arctic offshore from Deepwater Horizon**

- Role of the vessel flag state
- Role of the vessel classification society
- Role of UNCLOS
- Do we need an International Convention for the offshore?
- Coastal state regulation

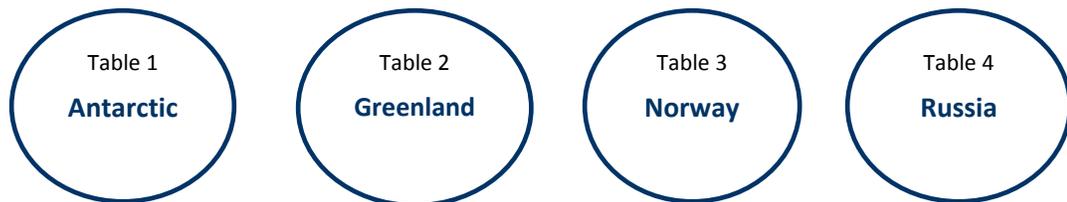
Wylie Spicer Q.C., Counsel, McInnes Cooper (Canada)

16.20 **Oil company panel session**

- The Arctic as a means to meeting the world's increasing energy demands
- Collaboration as the key to success in the Arctic
- Understanding the commercial and economic challenges
- Addressing the technology challenges – bridging the gap in technology know-how
- Overcoming environmental and safety concerns

17.00 **Champagne Roundtable Sessions**

The round table session provides you with a range of different discussion topics and is the ideal place for you to meet with some of the key speakers and other industry experts. You can choose between the tables and discuss specific issues and ideas in an interactive, yet relaxed environment.



17.45 **Networking Drinks Reception**

Mingle with your fellow attendees, speakers and exhibitors over a glass of wine!



THE HUMAN ELEMENT: IMPROVING SAFETY, DECISION MAKING AND PERFORMANCE

09.00 Chairman's welcome to Day 2

09.10 **Supporting human performance in cold climates**

The safety of ships and offshore structures and the lives of those on board depend largely on how prepared and supported the crew is for the challenges of operating in harsh, cold-climate regions. This presentation reviews best practices to outline the physical and cognitive risks to personnel in conditions of extreme cold, including their personal safety and their ability to control the vessel and its systems.

It will also explain how these hazards can affect personnel performance and decision-making, introducing methods for managing the resulting risks, including procedural adaptations to manage exposure times, task allocation and the operability of the vessel, and design adaptations to reduce or remove hazards to the people on board and the ways in which they can work.

Des Upcraft, Ice and Cold Operations Business Manager, Lloyd's Register (UK)

09.50 **EER developments**

- Research into human performance in evacuation, escape & rescue

10.30 Morning refreshments

ENVIRONMENTAL CHALLENGES AND CONSIDERATIONS

11.00 **OSCAR – Oil spill prediction model and contingency tool**

What level of oil spill contingency is appropriate for my activity? The upgraded OSCAR model provides a better basis on which to decide a level of contingency for a particular oil spill hazard. The model represents a step forward in terms of contingency decision support, and brings about the need for revised methodology and standards within the field.

Mark Reed, Øistein Johansen and Ismail Durgut, SINTEF and Anne Langfjæran, Odd Willy Brude, Anders Rudberg and Anders Bergsli, DNV (Norway)

11.40 **Integrated ice management system – why and how**

- Levels and main components of an 'integrated ice management system'
- Situation awareness and response
- Strategic, tactical and operational aspects
- Ice and iceberg monitoring
- Sensors and processing equipment for under water and above the water surveillance
- Response to ice flow
- How to co-ordinate the information flow between the platform and its support ice-breakers
- Information / access levels of an efficient communication system
- What you can see and not see with an ice radar
- How do we know if an iceberg can be towed, 'washed' or pushed away safely

Hubertus F. Wentzell, Representative, Rutter Inc. (Germany)

OVERCOMING TECHNICAL CHALLENGES OF ARCTIC PIPELINES, FPSOs & DRILLING

12.00 **Subsea Arctic pipeline installation**

The presentation is based on a video made during the first subsea pipeline installation in Arctic Canada. Operations took place more than 30 years ago, however technologies developed at that time still remain an impressive example of pioneering engineering.

R.J. Brown, Director, R J Brown Deepwater (USA) and Igor Kopsov, Sales & Marketing Manager - SURF Russia, Technip (Norway)

12.40 Lunch

14.00 **Drilling in the Arctic**

This discussion provides an overview of some of the technological developments and future possibilities as they may affect future of drilling in the Arctic

14.40 **Understanding the key challenges of FPSOs in Arctic conditions**

Addressing design and engineering challenges of FPSOs for operation in Arctic environments

15.20 Refreshment break

FLNG / LNG DEVELOPMENTS FOR ARCTIC APPLICATION

15.40 **Challenges for FLNG projects in the Arctic**

The presentation will discuss the technical issues and challenges facing all offshore LNG installations

16.20 **New LNG containment system for Arctic application**

Aker Solutions have in co-operation with DNV developed a new prismatic and self supporting LNG containment system; Aluminium Double Barrier Tank (ADBT). The ADBT is made from extruded aluminium grade 6082 profiles welded into panels using friction stir welding. The ADBT tank can be used in LNGC's in Arctic and rough weather conditions due to excellent sloshing suppression abilities by the internal tension stays, as well as land storage tanks in Arctic areas. The advantage of the ADBT is that the tank can be built in a yard and transported to its final location fully outfitted.

Trgyve Lund, Project Manager, Aker Solutions (Norway)

17.00 Chairman's wrap-up and close of conference

Seminar A

Monday 28th November 2011 – Clarion Hotel Royal Christiania Hotel, Oslo

Offshore Pipelines in the Arctic

Understanding and addressing the challenges of designing, engineering and operating pipelines in the Arctic and cold regions

This one-day seminar will provide a platform for speakers and delegates to discuss and address the challenges of designing, engineering and operating pipelines in the Arctic and cold regions.

09.00 Registration and coffee	12.50 Lunch
09.30 Chairman's welcome	14.00 Highly insulated, electrically heat-traced pipe-in-pipe for Arctic pipelines
09.40 Industry experience with design, construction and operation – case study?	14.40 Ice gouging – design methods and recommendations
10.20 Challenges for the analysis and design of offshore pipelines in ice environments	15.20 Afternoon refreshments
11.00 Morning refreshments	15.40 Arctic offshore pipeline leak detection systems and challenges
11.30 Investigation of ice-soil-pipe interaction using advanced numerical methods	16.20 Pipeline trenching technologies and challenges
12.10 Construction and installation challenges of offshore pipelines in Arctic environments	17.00 Chairman's wrap-up and close of seminar

Seminar B

Monday 28th November 2011 – Clarion Hotel Royal Christiana Hotel, Oslo

FPSOs for Arctic Operation

Addressing design and engineering challenges of FPSOs in Arctic environments

09.00 Registration and coffee

09.30 Chairman's welcome

09.40 **Arctic challenges and qualifications of new technologies**

This session will address the key challenges and describe initiatives to evaluate the technologies required to match such extreme Arctic conditions, including:

- Review and concept approval of new technologies
- Selection of appropriate ice class for the intended service
- R&D program, including numerical tools for the direct analysis of ships and offshore units in polar conditions
- Rules for navigation and service of ships and offshore units in ice conditions

10.20 **Winterization of offshore facilities for continuous reliable operation**

Design for year-round operation of facilities in the Arctic requires special attention to FPSO integrity, operations, maintenance and emergency response. This presentation will consider each phase of the FPSO life-cycle and provide examples of winterization requirements for each of the engineering disciplines.

11.00 Questions and discussion followed by morning refreshments

11.30 **CASE STUDY – Goliat Field, Barents Sea**

12.10 **Turrets in Arctic service**

When a turret solution is employed on an FPSO/FPU, this will likely have to be quickly disconnected from its mooring and riser system and this should also be possible under high and imbalanced mooring loads. Existing disconnectable turrets are not considered capable of disconnecting under these conditions, making the design of such a turret system unique; innovation solutions are required to overcome these technological challenges. This presentation addresses the turret-specific design requirements for such a mooring system, and presents some potential novel solutions.

12.50 Questions and discussion followed by lunch

14.00 **Ice management - impact of ice loading on FPSOs**

Risk mitigation, through ice management, can play a significant role in the design process for FPSOs operating in Arctic environments through reduced exposure to extreme ice loading events.

14.40 **Offshore LNG installations, regulatory requirements & key safety aspects**

The presentation will discuss issues which affect all offshore LNG installations and will place specific emphasis on the issues facing Arctic projects

15.20 Questions and discussion followed by afternoon refreshments

15.40 **Explosion risk drivers for FPSOs in Arctic environments**

The harsh environment of the arctic requires specialized FPSO safety designs. Enclosed modules are needed to prevent ice and snow exposing the process equipment, and to prevent the cold climate to impose an unduly harsh operator working environment. The following is seen to have significant impact on the explosion risk levels on confined process modules; the module size; the HVAC philosophy; the ignition source isolation efficiency; and the use of pressure release panels. These factors, and their impact on the explosion risk, are discussed in this paper. The presented conclusions are of high importance in future developments in arctic climate.

Dr Joar Dalheim, Jan Pappas and Sverre Nodland, Scandpower (part of Lloyd's Register Group) (Norway)

16.20 **Open Panel Discussion – Addressing the challenges of FPSOs for Arctic operation**

- Offloading considerations
- Mooring considerations
- Design challenges
- Ice management

16.45 Chairman's wrap-up and close of seminar

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 28th November 2011 (seminars)
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