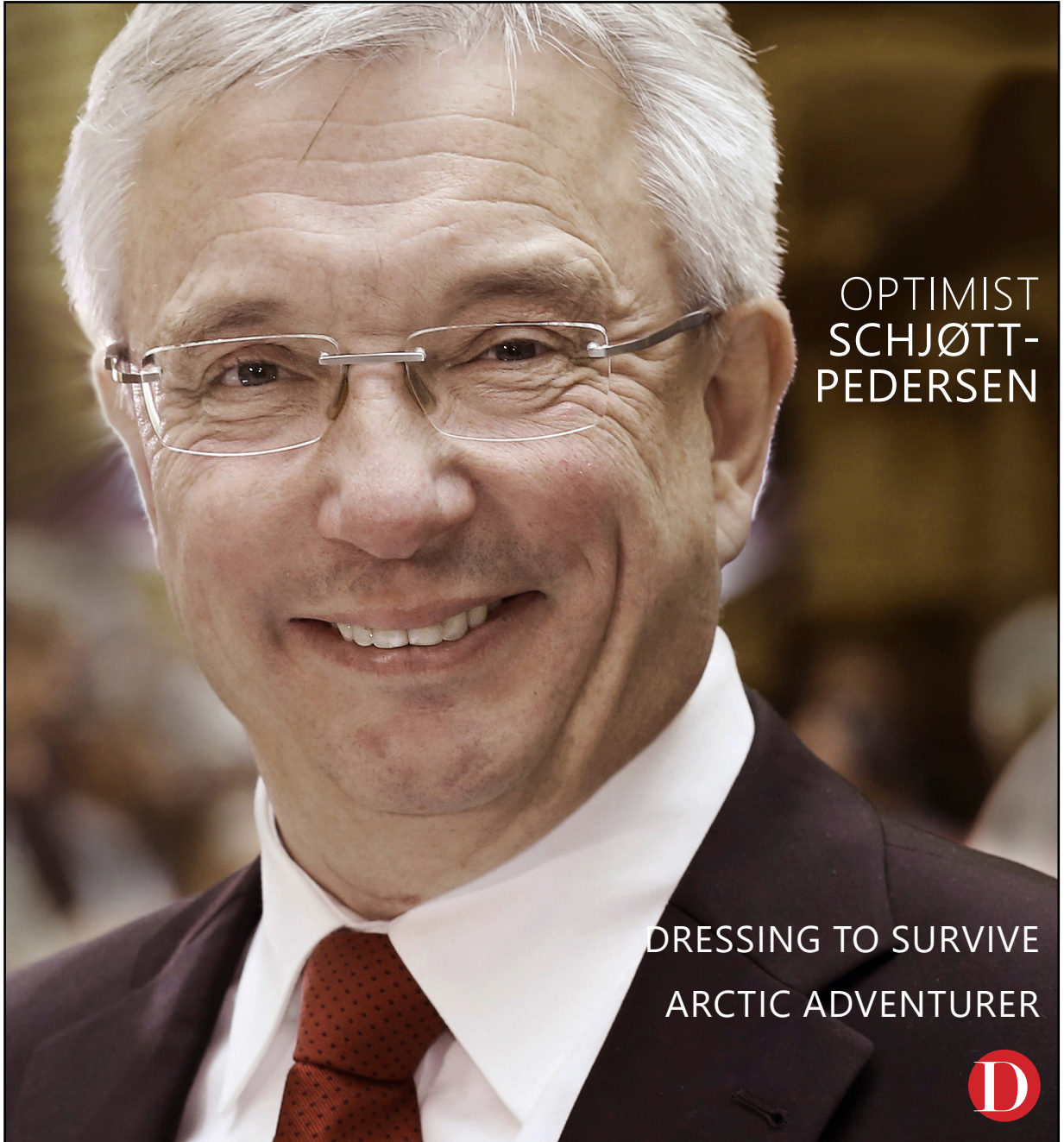


DIALOGUE

A JOURNAL FROM THE PETROLEUM SAFETY AUTHORITY NORWAY



OPTIMIST
SCHJØTT-
PEDERSEN

DRESSING TO SURVIVE
ARCTIC ADVENTURER





CONTENTS

4

LONG-TERM
APPROACH

9

EXPLORING
TOGETHER

10

SURVIVAL
SUIT STORY

19

OIL OPTIMIST

22

READY TO CARE

26

A DIFFERENT
ARCTIC STORY





ALL CLEAR FOR THE BARENTS SEA?

Welcome to a new edition of our *Dialogue* magazine.

Our topic this time is safety in the far north – one of the PSA's main priorities for 2015 and the subject of its big Arctic Safety Summit in Tromsø during late October.

Dialogue is intended to contribute to openness and discussion on important safety aspects in the petroleum sector. We address some key issues in this area on the following pages.

Finn Carlsen, the PSA's director of professional competence, kicks off by urging companies to take advantage of the current retrenchment in the industry to assess alternatives and think along new lines – not least in the Barents Sea.

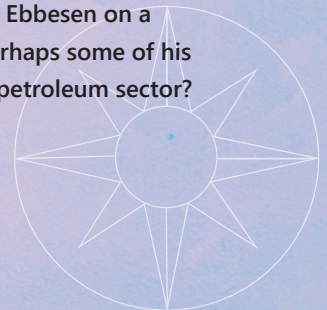
You can also read an interview with Karl Eirik Schjøtt-Pedersen, the new director general of the Norwegian Oil and Gas Association and an avowed optimist who believes passionately in the future of the industry – regardless of the present downturn.

Lack of infrastructure and long distances are among the challenges in the far north. We take a close look at the challenge posed for acute medical care by lengthy travel times – and how the specialists are thinking of overcoming it.

We also review the history of the survival suit on the NCS, a part of offshore emergency preparedness which has gone from voluntary to compulsory use and from a minimum solution to high-tech gear.

Finally, we join adventurer and Polar explorer Lars Ebbesen on a strenuous and dramatic journey to the North Pole. Perhaps some of his experiences from the Arctic wastes could benefit the petroleum sector?

Enjoy
Øyvind Midttun
Editor



D BY: INGER ANDA

TIME TO TAKE THE LONG VIEW

The oil industry currently faces big demands. But reduced activity offers a golden opportunity to plan for future safety in the Barents Sea, says Finn Carlsen, director of professional competence at the PSA.





Important milestones for the northernmost NCS in both 2015 and 2016 raise many questions, not least within the PSA's area of responsibility. We have asked

Carlsen for answers to some of them.

At a time when many projects on the NCS have been put on hold, how important is it that the industry plans for safe exploration drilling and development far from land in the Barents Sea?

It's very important. The level of activity in the Barents Sea has been very high during recent years. Many discoveries have been made, and several are under development.

These waters are also reportedly attracting great interest in the forthcoming 23rd licensing round and in this year's awards in predefined areas (APA).

We believe that the industry should make positive use of this downturn from a safety perspective. It's got a chance to stand back, assess alternatives and think afresh.

Put briefly, the companies should use this phase in a sensible and forward-looking way. A long-term approach is a concept we'll be repeating often in connection with the Barents Sea.

Why is a long-term view so important?

Long-term planning is the way to arrive at the right solutions. The industry and the individual company must not be tempted to choose short cuts during downturns – and give a lower priority to work on research and standardisation. Short-term thinking now could close off acceptable solutions in safety terms later.

It's important to solve many issues relating to logistics and emergency preparedness in the Barents Sea, for example. Challenges related to great distances must be assessed in a long-term perspective – and the same applies to a number of other conditions in the far north.

Is a lot more work needed to understand – and overcome – the safety challenges in the Barents Sea?

To some extent. Knowledge is the key to safe operation. At the PSA, we want the industry to complete the safety-related projects it's launched, and to work on solutions to outstanding issues.

The Norwegian Oil and Gas Association, for example, has identified a number of important issues related to activity in the far north where the industry needs to find answers and appropriate measures. We expect action to be taken here.

At the same time, we've defined six learning projects of our own, which have been given a high priority for 2015 and the next two-three years.

Could safety standards be relaxed in the Barents Sea to help reduce costs?

No. But the industry can come up with solutions which satisfy the regulatory requirements in a cheaper and simpler manner. We must be open for that – as long as the safety standards are met.

Standards are a fundamental element in the Norwegian regulations. Are these in place for the Barents Sea?

No. A good deal of work remains to be done

here. But a lot is also happening. Norway has been very active in developing standards, in part through the Barents 2020 project.

The industry is generally well under way with producing norms for far northern petroleum operations. And technical committee 67 (TC67) of the International Organisation for Standardisation (ISO) is working on six specific standards in this area.

Standardisation, both generally and for the far north in particular, is important for safety and has a high priority with us.

Both the PSA and others have called for a collaborative approach in the Barents Sea. Has this been achieved with the Barents Sea exploration collaboration (Basec)?

The formation of Basec is very positive, as is the fact that Statoil and the others behind this initiative decided to open it up. Sixteen companies will now work together on solutions for far northern exploration.

But such collaboration should be expanded. Specifically, we're challenging the industry to establish a corresponding project for development and production solutions in the Barents Sea.

The industry stands to gain a lot from that, including in safety terms.

During the PSA's Arctic Safety Summit in Tromsø in October, it also hosted the first regular meeting of the Arctic Offshore

Regulators' Forum. What is that?

As the name suggests, it's a collaborative body for regulators in Canada, Finland, Greenland, Iceland, Norway, Russia, Sweden and the USA.

It'll discuss and evaluate challenges and opportunities in order to contribute to a high level of safety for the petroleum sector in the Arctic. That'll be an important basis for unified communication with the industry.

Why is the PSA giving priority to its AORF membership?

The big international oil companies, such as Statoil, Eni and ExxonMobil, are now making a commitment to the Arctic. They also operate on the NCS, of course.

It's important that we have a dialogue with other regulators on their follow-up of company activities in Arctic areas to achieve experience transfer and knowledge sharing.

Regulation is also high on the agenda. A number of the countries in the AORF are currently assessing their rules with regard to operations in the far north.

In Norway, we've opted for an integrated approach to regulation, with the same safety requirements applied across the whole NCS.

At the same time, as I say, we see there's a need to develop a number of standards aimed directly at the operations in the Barents Sea.



FINN CARLSEN,
director of professional
competence at the PSA



ACTION NEEDED NOW

Proposals must be put into practice after the big collective effort on safety in the Barents Sea, maintains Henrik S Fjeldsbø in the Norwegian Union of Industry and Energy Workers (IE).

A very wide-ranging report on health, safety and working environment challenges in the far north was presented by the Norwegian Oil and Gas Association in late 2014.

Work on this study had been under way since 2010, and more than 180 people from 62 companies, organisations and government authorities took part.

Fjeldsbø, who is responsible for HSE at IE, believes that this report – which covered a large number of topics and proposals – must play a key role in future work on Barents Sea safety.

“We want the industry to work on the challenges it defines – and to take action. Defined problems have no value until they’re turned into measures.”

He identifies four areas in particular from the report which should be given priority: communications and weather data, telemedicine, helicopter technology and winterisation.

“We’re talking about vast distances in the Barents Sea,” he emphasises. “It’s not realistic to operate with the same assumptions as we do today.”

TAKING A **BASEC** APPROACH

No less than 16 operator companies have now joined forces to overcome challenges posed by exploring the northern NCS. And their results will be shared openly with the industry.

The Barents Sea exploration collaboration (Basec) was launched this spring to lay the basis for increased coordination and cost-effective solutions in these waters.

"We're focusing attention on challenges facing the exploration side of the business in the short and long terms," says Statoil's Åshild Tandberg Skjærseth, chair of the management committee.

"Joint solutions for such operations in the Barents Sea will help to maintain a good level of safety and emergency preparedness."

TOPICS The work is concentrated on five main topics – metocean and ice, environment and oil spill response, logistics and emergency preparedness, mobile drilling units, and health and the working environment.

All the participating companies are contributing their in-house experts to these five work groups.

"We're well under way, with the first results due this autumn," says Skjærseth. "They'll be open to all operators and licensees on the NCS, and to relevant government agencies."

Basec was originally established by Statoil, Eni, GDF Suez (Engie), Lundin and OMV, she reports.

"The aim was to bring together operators with experience from the Barents Sea or who had operations under way there, in order to share experience and learn from each other."


"But we quickly realised that a great deal of interest existed in joining the collaboration, including among operator companies with less experience of far northern exploration.

"That prompted us to open up the project to more participants, so that Basec today has a total of 16 members."

The work relates to a number of the subjects identified in the major industry project on health, safety and working environment challenges in the far north.

Concluded last year, this study was led by the Norwegian Oil and Gas Association to learn more about northern operations and ensure a common understanding of the issues involved.

It identified important challenges related to the working environment, emergency preparedness, logistics and design, communication and weather forecasting.

"The Basec collaboration will run to the end of 2017 with opportunities to extend this period if the members wish," explains Skjærseth. 

BASEC PARTICIPANTS

- Statoil
- Eni
- Lundin
- OMV
- GDF Suez (Engie)
- Chevron
- Repsol
- Total
- Det Norske Oljeselskap
- ConocoPhillips
- Wintershall
- Edison
- Norske Shell
- E.ON
- Tullow Oil
- Dong



IT WAS UP TO EACH COMPANY in the 1970s to decide whether their employees should wear a survival suit on the NCS. Nor was smoking banned during helicopter flights. This photograph from the Norwegian Petroleum Museum's archive shows workers on their way out to Statfjord A. (Photo: Aker/Norwegian Petroleum Museum)



SUITED FOR SAFETY



BY: ØYVIND MIDTTUN

It can save the wearer's life if they fall in the sea, and nobody is allowed on the NCS without one. But it took a disaster for the survival suit to be made mandatory in Norway's offshore sector.

High-tech and specially tailored safety garments have been developed for Arctic conditions today, yet the position was very different in the early years of Norwegian oil history.

When the *Alexander L Kielland* accommodation rig (flotel) overturned at the Edda platform in the North Sea on 27 March 1980, only a few of the 212 people on board had a survival suit.

The permanent rig crew were among them, along with some of the residents from other companies – but many of these had left the suits at their workplace on the platform.

In the chaos which occurred when the flotel first began to turn turtle, just eight people managed to don their suits. Four were saved, while the others were among the 123 who died.

LIFEJACKET "Before survival suits appeared on the market, all you had in the event of an

accident was a boiler suit and a lifejacket," says Terje Gorm Hansen, chief executive of Hansen Protection in Moss.

Formerly part of the Helly Hansen group, this factory south-east of Oslo has been producing survival suits since the mid-1970s. And progress has been huge.

"Among our earliest products was a two-piece wet suit in neoprene," says Hansen. "It protected against the first cold shock on hitting the water, but wouldn't keep you warm for long.

"Then came the dry suit. We began developing it in 1976, with the fishing fleet as our first market. It provided some thermal protection, and kept you warm for two hours in cold water."

The oil companies also eventually became aware of the survival suit. Several deaths among people who fell into the sea focused attention on preparedness for such incidents.

"To start with, they preferred to have their own corporate livery on the suits," recalls Hansen. "I remember we turned



EXTENSIVE TESTING and trials were needed to develop new and improved survival suits in the 2000s. (Photo: Hansen Protection) →



them out in blue, red and black.

“Little existed in the way of regulations in those days. Far less attention was paid to safety than today. But the Kielland disaster changed everything.”

HELICOPTERS A possible requirement to wear survival suits had been under discussion even before the flotel overturned, based on offshore accidents involving helicopters.

Thirty-four people died in such incidents on the NCS during the five years from 1973

to 1978, starting with a Sikorsky S61N which lost its tail rotor on the way to Ekofisk on 9 June.

This machine made an emergency landing on the sea and then overturned. All 17 people on board escaped, but four drowned or died of hypothermia before rescuers arrived an hour later.

Four years later, on 23 November 1977, another Sikorsky crashed on the way to Ekofisk with the loss of all 12 people on board.



THOUSANDS OF NEW SURVIVAL SUITS leave Hansen Protection's factory in Moss every year. (Photo: Hansen Protection)

One survivor wearing a lifejacket over an ordinary dark suit was observed in the sea, but efforts to save him proved fruitless.

It became mandatory after this accident to fit an emergency beacon on helicopters, but no obligation was imposed for people to wear survival suits during flights over the sea.

A third Sikorsky carrying 18 people crashed in the North Sea on 26 June, this time on its way to Statfjord A. Once again, all those on board were killed.

That accident led to an extensive debate on helicopter safety, including mandatory use of survival suits. An official study in 1979 concluded that, despite the crashes, helicopters were the best way of transporting North Sea personnel.

The report discussed whether survival suits should become compulsory. A counter-argument was that their buoyancy could hamper evacuation if an overturned machine was sinking.

MANDATORY “It was not until after the Kielland disaster that these garments became mandatory,” confirms historian Trude Meland at the Norwegian Petroleum Museum in Stavanger.

This happened in the autumn of 1980, six months after the flotel sank, when the Norwegian Maritime Directorate ordered everyone on a mobile unit to be provided with a suit. The same requirement was imposed for fixed installations.

Published in 1981, the official Norwegian inquiry report into the Kielland

disaster had the following to say:

“The commission is aware that it will now be a requirement for each person to have a personal survival suit, which must also be worn during transport to and from the platform. The commission agrees that the survival suit is made obligatory rescue equipment on a platform.

“Given the sea temperatures prevailing on the NCS, people who accidentally end up in the sea for one reason or another will not escape with their lives without a survival suit unless they are recovered from the sea very quickly.

“A survival suit significantly extends the time people can stay in the sea. In the present case, a man in a survival suit was rescued alive from the sea about two and a half hours after the accident. Without that garment, he would certainly not have survived such a lengthy time in the sea.”

IMPROVED Survival suits have been steadily improved over the decades since they became mandatory. Extra functions have been added to meet constant new requirements and guidelines from the industry.

The Norwegian Oil Industry Association (OLF – now the Norwegian Oil and Gas Association) published guidelines on area emergency preparedness in 2000.

These introduced further requirements related to rescuing people from the sea in the event of helicopter accidents or evacuation from a facility.

Work on these recommendations revealed that the suits used until then would



not properly protect someone in the sea. Deficiencies included poor sealing and lack of spray protection.

That prompted the OLF to introduce new specifications for such garments.

COMMITMENT The industry's commitment in this area has been praiseworthy, says special adviser Bryn Aril Kalberg in the PSA's logistics and emergency preparedness discipline area.

"Survival suits are an important component of preparedness in the petroleum sector and a key part of protection for the individual offshore worker," he says.

After many years of monitoring the industry's efforts with these garments, he says: "It's done good work here. The quality of the suits is crucial for the prospects of surviving an accident."

UPGRADED A new and improved type of suit was ready in 2007. This featured a number of upgraded capabilities – including a much greater ability to insulate the wearer.

While earlier models provided little or no insulating capacity, the redesigned garments are able both to cool and warm their user.

A phase-change material in the fabric, comprising small capsules of paraffin wax,

makes it possible to store surplus heat from the body in the suit itself.

If an accident happens and the wearer ends up in the sea, this stored warmth can be returned to them.

All in all, indeed, today's suits have very different properties than those available in the 1980s – not least better sealing and protection against water intrusion.

Other advances include respiration systems for underwater evacuation, an anti-spray hood to protect the face, and advanced personal emergency beacons.

The last of these operate both on the international 121.5 megahertz emergency frequency and with automatic identification systems (AIS) via the satellite-based US GPS and its Russian Glonass counterpart.

TAILORED A survival suit specially tailored for the Barents Sea has also been developed through a three-year collaboration between Hansen Protection, the Sintef research foundation and operator Eni Norge.

This recent innovation has been optimised for climate and other natural conditions found in the northernmost part of the NCS.

Its creation relates to Eni Norge's development of the Goliat oil field off western Finnmark county, which incorporates the



A SPECIAL SURVIVAL-SUIT MODEL has been developed for use in the northernmost areas of the NCS. Features include additional insulation.
(Photo: Hansen Protection)

northernmost staffed production platform off Norway.

The new suit is now being worn by everyone travelling offshore from Hammerfest.

BETTER Today's survival suits are better than they have ever been, believes Roy Erling Furre, second deputy leader of the Norwegian Union of Energy Workers (Safe).

"I've personally tried most of the models both on a helicopter and in the sea," he explains. "Today's types unquestionably protect well against both hypothermia and drowning.

"As we move further into the Barents Sea, however, we must accept that even more improvements may have to be made to these garments."

As a representative for several thousand offshore workers and a survivor of a notorious passenger-ferry wreck in 1999, he is among those who have followed the development of survival suits most closely over the past 20 years.

Sources: Ptil.no, Norsk oljehistorie, Norwegian Petroleum Museum, Norwegian official reports and White Papers.





D BY: EILEEN BRUNDTLAND

OIL OPTIMIST

The industry may be hit by cost cuts, falling oil prices and rising unemployment. But the new director general of the Norwegian Oil and Gas Association takes a positive view of its future.



PEOPLE IN FINNMARK, NORWAY'S NORTHERNMOST COUNTY, have changed their self-image, says Karl Eirik Schjøtt-Pedersen, director general of the Norwegian Oil and Gas Association and a local boy himself. Instead of feeling their home is an outpost, they realise that it now lies at the heart of events. *(Photo: Norwegian Oil and Gas, Bård Gudim)*

Karl Eirik Schjøtt-Pedersen is travelling the length and breadth of Norway to explain how crucial the petroleum sector is for the country – and doing so with great enthusiasm.

“The Norwegian welfare state rests entirely on revenues from the oil and gas industry,” he explains. “It accounts for a fifth of total national value creation.

“And it provides a quarter of the government budget, corresponding to all spending on higher education, hospitals, roads, railways, the police and defence put together.

“Add the fact that roughly 300 000 people in Norway work directly or indirectly for the petroleum sector, and it becomes clear that challenges here have a direct impact on the economy.”

But Schjøtt-Pedersen emphasises that many participants in the public debate are wrong to think that the industry’s current retrenchment was sparked by declining oil prices.

“Statoil and the other companies took action to cut costs before that drop. Although it’s been reinforced by the price fall, what’s happening now is an active effort to make the industry competitive for the future and thereby avoid being a passive victim of prices.”

He believes that the present position is a wholly necessary restructuring to secure control over a level of prices which had become too high.

“Investment on the NCS quadrupled from 2000 to 2013, with a record number of parallel projects. That created sharp competition over labour, equipment and materials, and drove prices up.

“Everyone, including the unions, agreed that this couldn’t continue. So I feel there was

a unanimous sense in the industry that costs had to be reduced.

“The companies are very unhappy that many people are losing their jobs, but I nevertheless haven’t heard a single one of the big oil players say they regard the outlook as negative.”

VISITING Since taking over as director general in the spring, Schjøtt-Pedersen has devoted considerable time to visiting the association’s member companies nationwide.

He has registered great enthusiasm in the industry over the forthcoming 23rd licensing round, and says the companies are now preparing intensively to compete for exploration acreage in the Norwegian Sea and the newly opened Barents Sea South-East area.

The optimism he sees in the far north is gratifying for somebody who hails from the small town of Vardø near the Russian frontier.

“People in Finnmark county have changed their self-image from a feeling of being an outpost to a realisation that they’re in the centre of events,” he says.

“Huge hopes are being expressed along this far northern coast over the arrival of oil operations which can contribute to jobs and help young people to remain.

“So our concern at Norwegian Oil and Gas is to facilitate expertise enhancement which allows youngsters to win such work. It’s also important to develop the supplies industry to create a strong industrial base.”

ADVANTAGE Schjøtt-Pedersen highlights safety as an important competitive advantage, particularly as oil operations move even further north.

“The industry wants to be as well prepared

as possible, so we initiated a project in 2010 on health, safety and the working environment (HSWE) in the far north.

"This has been a collaboration between the companies, the unions and government authorities, and the results have been presented in a report which provides important input for continued work on safety in these areas."

At the same time, he maintains that the challenges facing the industry in the far north are not fundamentally different from those it has encountered before.

He also points to the differences between the Norwegian Arctic and the waters off Canada, for example, where the climatic conditions are far tougher.

RESTRUCTURING Schjøtt-Pedersen has no problems accepting that the present position of the industry calls for restructuring. Such action has always characterised Norwegian society in modern times, from shipping and shipbuilding to the oil business.

He now envisages that experience from the petroleum sector can contribute to the development of renewable energy as well as other economic activity.

"We must be open to change, because that's what creates progress," he emphasises. "But it's wrong for certain people to give the impression that we have to restructure because of a need to decide what Norway's going to do when the oil age is over.

"Petroleum will remain a totally dominant industry in our country for many years to come. So asking what we're going to do *alongside* rather than instead of it would be more appropriate."

He points to the Johan Sverdrup develop-

ment in the North Sea, which is due to remain on stream until 2069. "So the people who're going to work on that field in its late life aren't even born yet."

REJECTED Claims that the world will no longer want Norwegian petroleum are rejected by Schjøtt-Pedersen, who points to the conclusions of the UN's intergovernmental panel on climate change (IPCC).

These indicate that oil and gas deliveries from Norway will still be essential even within the two-degree ceiling for global warming.

"People need energy to escape from poverty," Schjøtt-Pedersen points out. "Although most of us hope that more of this can be renewable, the world will need petroleum for a long time to come.

"That makes it all the more important for oil and gas to be produced in the most environment-friendly way. And we must stop seeing the industry only as a source of climate problems.

"It's also a contributor to their solution. Don't forget that emissions are halved every time a unit of coal is replaced by natural gas."

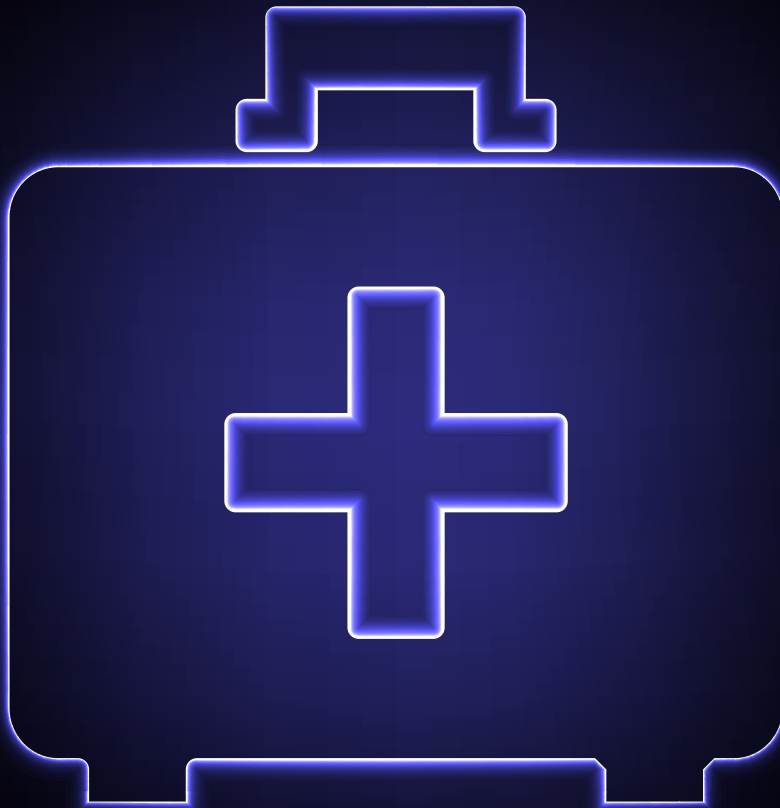
POLITICIAN Schjøtt-Pedersen has had a long career as a politician in Norway, both as a member of the Storting (parliament) for the Labour Party and in various ministerial posts.

However, Norwegian Oil and Gas was high up his personal list of dream jobs when he opted to retire from politics at the 2013 general election.

And the current downturn has done nothing to dampen his enthusiasm. "It's easy to be excited about representing an industry of such significance and potential," he declares. **D**

TREATMENT AT A DISTANCE

The steady northward move of Norway's petroleum operations is taking them ever further from civilisation and hospitals. But that does not need to mean a long way from health care.





BY: EILEEN BRUNDTLAND

Medical evacuation becomes challenging in the Barents Sea because of the distances involved, and makes big demands on emergency response plans.

In the south-eastern sector opened for exploration in 2013, for example, flying time to and from the blocks furthest from land is likely to be two hours each way.

Communication over great distances is a familiar problem to Torkjel Tveita, professor and consultant at the intensive care unit of Tromsø University Hospital in northern Norway.

“One of the most distinctive features of health provision in this region is precisely the long transport stretches involved,” he observes.

“We’ve overcome this challenge with an approach where we start treatment already in the patient’s home in order not to waste valuable time en route to hospital.”

As an example, he cites a person living far from the nearest hospital who experiences chest pains. Specially trained paramedics fly to this patient and do an electrocardiogram (ECG).

The results are transmitted to the hospital. If an acute heart attack is diagnosed, the paramedics can start immediate treatment to open a blocked artery. Important time is saved.

HYPOTHERMIA Tveita has done considerable research on involuntary loss of body heat (hypothermia), where successful trials have also been conducted in taking the hospital to the patient.

“When people get so chilled that they suffer heart failure, they must be warmed up in a heart-lung machine,” he explains. “That used to be possible only in hospital, but small models in a transportable size have now been developed.

“Imagine somebody has fallen in the sea and got so cold their heart has stopped beating. With a helicopter 90 minutes away, the total journey time could make saving the victim unrealistic.

“But flying in a mobile heart-lung machine with qualified personnel who know how to connect it up means we’ve not only taken a bit of the hospital to the patient, but half the intensive care unit.”

THREE HOURS According to the petroleum industry’s own guidelines, it must not take more than three hours from the time an injury is reported until the patient reaches hospital.

That cannot be achieved in remoter areas, such as Barents Sea South-East. Alternatives proposed include increased medical preparedness and more use of telemedicine.

Tveita agrees that the latter can help to improve acute medical interventions on an



offshore installation. But a life-threatening injury requiring long-distance transport calls for a completely different level of expertise, he emphasises.

"While telemedicine is OK for making a diagnosis, you need to be aware of its limitations. Advanced medical treatment requires specialist knowledge and equipment at both ends of the phone line.

"We may also have to think in terms of more stringent health requirements for personnel who're going to work far from land in the Barents Sea."

UNNECESSARY For his part, Roy Erling Furre, second deputy leader at the Norwegian Union of Energy Workers (Safe), believes the system must be so good that tougher standards of this kind become unnecessary.

"I'd prefer to see what improvements can be made to emergency preparedness,

so you don't have to be Superman to go offshore," he says. "Don't forget these are supposed to be ordinary workers."

But he nevertheless agrees that medical staff on the facilities will need to have additional expertise.

"Although the industry is initially due to operate in waters close to land, weather conditions in the Barents Sea are less predictable than elsewhere," Furre notes.

"You may be unable to get a helicopter in the air, or have to wait offshore until a Polar storm has passed. That's when the nurse or doctor on board needs to be sufficiently well qualified."

NOT CLEAR Furre maintains that the regulations related to medical preparedness are not clear enough with regard to conditions in the far north.

"Our current rules were largely drawn up for activity in the established areas of



TORKJEL TVEITA
Tromsø University
Hospital



ROY ERLING FURRE
Safe



PÅL IDEN
County medical
officer for Rogaland



the NCS, where we know the challenges well. I wouldn't exclude the need for new requirements eventually."


Responsibility for supervising medical preparedness on the NCS rests with the Norwegian Board of Health Supervision, through the county governor of Rogaland.

County medical officer Pål Iden points out that the HSE regulations assign responsibility for ensuring adequate health services on a facility – regardless of its location on the NCS – to the operator.

"It's up to the industry to make risk as-

sessments and define the acceptance limits. As the regulator, we'll check that these meet the requirements for prudent activity.

"Regulations in Norway are developed through collaboration between companies, unions and government, so the authorities will be in close consultation on solutions in any event."

Tveita is blunt about the key element in medical preparedness: "As with all other aspects of medicine, this primarily involves prevention. That is and will remain the most important part." 

"When people get so chilled that they suffer heart failure, they must be warmed up in a heart-lung machine."

Torkjel Tveita

D BY: MORTEN GJERSTAD

TAKING IT TO EXTREMES

The Arctic Ocean poses big mental and physical challenges. Polar explorer and adventurer Lars Ebbesen says the key to a successful expedition there is to be honest – with yourself and others. →



Three quick jabs with a pole on the smooth ice skin forming over the open lead through the pack ice is meant to see if it will hold. Under his skis, Ebbesen feels it sway.

Newly frozen ice in the Arctic Ocean is extremely strong and unyielding, even when only a couple of centimetres thick, and this should be secure enough. All the same, he gives a fourth jab to be on the safe side.

And that is when it happens – the pole goes right through the ice, which disintegrates around him in seconds. Not the sort of accident you want on an Arctic trek.

"It's like playing high speed chess with Nature," Ebbesen observes laconically. "You don't have an hour to think about your next move."

As one of Norway's most experienced adventurers, he has been challenging Nature worldwide for 30 years. And he shared his experience of the high north at the PSA's Arctic Safety Summit in Tromsø in October.

MULTIPLE CHOICE The choices you make when moving on skis in the desolate wastes of the pack ice are manifold. You may have to decide whether open water is reflected in the clouds on the horizon, for example.

Another question could be whether to move along the edge of a partly frozen lead or to try to cross to the next floe? Take the sledge on the first attempt or go back for it?

"The mental effort is profound," Ebbesen says. "You're constantly making new decisions. At the same time, you have to remember to eat properly, navigate right, look after



GETTING EVERYONE to pull together is important on an expedition. (Photo: Lars Ebbesen)

your gear and check your body temperature so you don't sweat or cool too much."

He is better equipped than most to take such decisions. Backpacking in Asia led him to mountaineering in the Himalayas and Andes, and to dog sledding, ski sailing and kayaking in Greenland.

Other activities included sailing across the Atlantic and rafting in the Grand Canyon, until his urge to explore led him north to one of the most desolate places on Earth.

"People have reached the North Pole before, of course, but we wanted a way to stretch the limits," explains Ebbesen. "We wanted to get there *faster* than anyone before."

WEATHERBOUND He was in a party of five which had been weatherbound for a good while and was now behind schedule. They finally donned their skis and disappeared into the pack ice.

The group came to a lead which had

LARS EBBESEN was carrying a 15-kilogram rucksack, pulling a fully-laden sled and wearing skis when he fell into the water. (Photo: Egil Nilsen) →

barely begun to freeze over. That was when Ebbesen suddenly found himself in the icy water – with rucksack, skis and sled.

“It looked like we could follow its inner edge for a while and thereby avoid the crumpled pack ice,” he says. “I rounded a hummock and lost touch with the others. The ice looked in poor condition, so I gave it an extra jab with my pole.”

Plunged into the freezing water, he fortunately remained calm enough to get

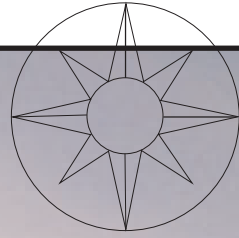
one arm on the ice and his comrades were quickly on the scene to drag him out.

That left him soaking wet, exposed to the wind in 40 degrees of frost. But they could not get the tent up there, on bad ice. They had to continue for 30 minutes before making camp.

After a long night drying clothes in the tent, they continued their journey the following day, eager to make up for the lost time.

“My woollen socks seemed dry enough





SEA ICE WHICH HAS BEEN BROKEN up and driven together by wind and current is called pack ice. The floes are forced up and over each other, forming big hummocks of fractured ice. *(Photo: Egil Nilsen)*

when we started," Ebbesen explains. "Although my feet eventually got cold, I walked them warm again."

That continued for the rest of day – cold, warm, then cold again. "I thought I was in control, but had quite simply deceived myself," he admits.

HAZARDS Before any expedition, the potential hazards – and how each of them can best be overcome – have to be carefully thought through. Tent fires, cold, ice obstacles, open leads, illness, infections, inadequate food – all pose a risk.

People in the past generally devoted more time to gaining experience before setting off on a long trip. Today, ambitious goals can be set without the same solid grounding.

That is because lessons can be learnt from others. Ebbesen says that the strength of Norway's Polar explorers has been their willingness to share experience.

"Many others have benefitted from my mistakes," he maintains.

MISTAKE In retrospect, Ebbesen's big mistake was a refusal to be honest with himself. Although he saw that his toes had

developed extensive frostbite, he continued to trudge forward.

He developed blisters on his feet and inflammation in his toenails. The latter eventually fell off, but he remained extremely reluctant to call for help.

Ten days after falling through the ice, Ebbesen collapsed. He could not move another step. The expedition had to summon assistance and he was evacuated by air the following day.

His frostbite was treated first in Canada and then in Norway. Everything looked fine, the doctors concluded. But the pain gradually worsened.

Back home in Oslo, he met a doctor who had served with the armed forces in northern Norway. "He took off my bandages, tut-tutted and said an immediate operation was needed," Ebbesen recalls.

REFLECTING While he suffered no lasting disability from this accident, it nevertheless gave him plenty to think about. He admits to reflecting over the whole incident afterwards.

"Mentally speaking, I'd undoubtedly taken my eye too much off the ball when we set out. I'd been doing too many other



AFTER 10 DAYS IN PAIN, Lars Ebbesen was flown out by Borek Air – which specialises in rescue flights to areas with little infrastructure. (Photo: Lars Ebbesen)

things right up to the last minute.

“Zen Buddhists talk about approaching new things with an empty cup. You have to reset yourself to zero and create the space to accommodate the experience – or there’s no more room in the cup.”

GUIDE Today, Ebbesen helps others to find out what they should fill their “cup” with. Together with fellow Norwegian adventurer and Polar explorer, Børge Ousland, he works to prepare and organise extreme expeditions for people who want challenges.

“The desire to test yourself is inherent in us from our childhood,” he says. “We humans want to push the limits.”

“Some people aren’t drawn north by the physical test alone, but by the sense of isolation and lack of aids – which can otherwise be hard to achieve in an increasingly interconnected world.”

COLLABORATION Honesty is crucial when seeking to reach a goal like the North Pole

together, Ebbesen emphasises. “Most things in life involve collaboration. Everything’s stripped away on an expedition. All strengths and weaknesses emerge.”

Nobody is willing to admit during the first week that they are uncertain, in pain or tired. People find this extremely difficult to do.

The fear is that one team member will begin to lag behind. If that happens, the assigned rest time is not enough to get back on one’s feet properly. The whole expedition suffers.

“I want complete honesty,” says Ebbesen. “Are you feeling pain? Have you slept badly? Do you think we’re moving too fast? You must dare to say that you’re having a bad day.”

“It’s a question of starting from scratch each time. Be sharp, clear and alert. Out of your comfort zone. Don’t rely on earlier experience. You can make soup from laurels – they’re no good for anything else.” **i**



LARS EBBESEN has devoted much of his life to extreme expeditions worldwide. (Photo: Egil Nilsen)

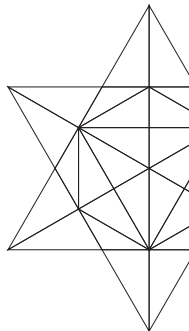
OPEN LEADS present a demanding challenge to all travellers in the Arctic Ocean. (Photo: Lars Ebbesen)



"Victory awaits him, who has everything in order
– luck we call it.

Defeat is definitely due for him, who has
neglected to take the necessary precautions
– bad luck we call it."

Roald Amundsen (1872-1928)



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