

VALUING SAFETY CHOICES



PSA 2017-2018



Photo: Morten Gjerstad

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The PSA's main issue for 2018 is valuing safety choices. Kamilla Espeland, pictured to the left and on the front cover, is an apprentice welder at Kværner AS on Stord south of Bergen. This yard has long experience of building offshore facilities for the NCS, and is currently working on installations for the Johan Sverdrup and Aasta Hansteen developments. (Photo: Morten Gjerstad)

DEBATE ON A DILEMMA

Big structures. Risky operations. Vulnerable conditions. How can companies earn good money and still ensure that everyone working for them still goes home healthy and uninjured?

The question is fairly simple. Answering it is much harder.

That is because not all the decisions which a company, an employer, must take can be expressed numerically. In the short and long terms. Here and now.

Players must determine how to make choices which strengthen safety and the working environment without undermining the need to make money and pursue a long-term involvement. Or the opposite.

Valuing safety choices is the PSA's main issue for 2018. Our aim is precisely to address that question and to initiate an industry debate which puts the dilemma into words.

This initiative is being taken in the year when Norway's Storting (parliament) will be receiving a White Paper on health, safety and the working environment (HSWE) in the petroleum sector. That will shape the direction of and ambitions for safety in the Norwegian industry.

A detailed presentation of the background to our 2018 main issue is provided in this issue. It is followed by a preliminary summation of **reversing the trend**, our main issue last year. Enjoy!

Inger Anda
Editor-in-chief

Abbreviations used in this issue

ASD:	Ministry of Labour and Social Affairs
HSE:	Health, safety and the environment
HSWE:	Health, safety and the working environment
NCS:	Norwegian continental shelf
NPD:	Norwegian Petroleum Directorate
PSA:	Petroleum Safety Authority Norway
RNNP:	Trends in risk level in the petroleum activity
WEC:	Working environment committee

PART

1

VALUING SAFETY CHOICES

Safety is the cornerstone of Norway's petroleum sector.

Without a safe industry, value is put at risk – and so are values.

Activity is changing, with new solutions constantly adopted, but protection of human life and health must remain the first priority.

All sides of the industry – companies, unions and government – now have a common responsibility to defend the Norwegian collaboration model and to strengthen the high level of safety built up over many years. To succeed in this endeavour, the value of safety must weigh heavily in all decisions.

Protecting people must be the oil industry's top priority. Anders Oxaas-Dambo works for operator Wintershall, and was involved in developing Maria at the time of this photograph. The Norwegian Sea field came on stream in December 2017. (Photo: Morten Gjerstad)



TIME TO GIVE SUBSTANCE TO WORDS

What do leading executives in the petroleum industry mean when they talk about “putting safety first”? asks PSA director general Anne Myhrvold. Is this truly taken into account when they adopt budgets, approve a maintenance plan or choose new technology?

Valuing safety choices is the PSA’s main issue for 2018, and Myhrvold has called for a broad debate on how the overarching value concept is to be understood and safety’s place in it.

“The industry must ensure that ‘putting safety first’ carries meaning and substance,” she says. “In an overall perspective, we as a regulator are concerned about which values the industry stands for, which ones are emphasised by each company, and how both companies and the sector as a whole apply them.

“Put simply – how is work on safety being pursued, and what financial and ethical value do people assign to this concept?”

She points out that “value” clearly deals with dollars and cents and with cost/benefit, but that “values” cover a much broader range.

“It’s an overarching concept for society as a whole, for Norway and for Norwegian working life, and therefore for the petroleum sector and for each company which forms part of it.

“Value is created for both society and our industry through many factors which aren’t associated with the financial aspect alone.”

Myhrvold notes that petroleum activities are complex and so is working life. This complexity presents many dilemmas, and these in turn require many choices to be made.

“The point is how the petroleum business weights its values against each other,

how you actually choose safety, how you fulfil the ambition to ‘put safety first’.”

MANY ASPECTS

“The safety concept embraces many aspects – including major accidents, the working environment, emergency preparedness, security issues and the natural environment,” she says.

“When we talk about safety work, attention is focused on the commitment to prevent major accidents, undesirable incidents, injuries and illness.

“If the industry and the companies are to succeed in continuing to develop the good HSE level reached over many years, they must take the right measures – and challenge themselves.”

Myhrvold observes that questions include which measures work, which have a good effect, what they cost, and what benefit they confer.

Others relate to the values held and which of them are put at risk when decisions are taken. “What could you win – and lose?” she asks. “Many questions arise, and they must be answered.”

MODEL

In Myhrvold’s view, the debate related to the PSA’s main issue for 2018 should also be considered in relation to the Norwegian model (see page 15).

“Trust, responsibility, risk reduction, prudent operations, continuous improvement – this regime is founded on many fine words,” she points out.

“These terms give us a good framework for interacting and working towards common goals, but are fairly valueless if they lack any real content.”

She believes that taking a closer look at the way all sides of the industry can collectively strengthen work on continued safety improvements will now be very significant.

“We’ll be putting the issue of **valuing safety choices** on the agenda in many contexts during 2018. And we expect the companies to do the same – at the initiative of their managements.”

AMBITIONS

Myhrvold emphasises that the PSA will follow up the ambitions in its main issues through initiatives directed at the industry and through supervision of the companies.

Many of these supervisory activities relate to priority areas identified in this year’s letter of allocation from the ASD (see article on page 10).

“Our ambition is to call great attention to the issue of **valuing safety choices** through dialogue, discussion and operation,” Myhrvold explains.

“This also represents a continuation of the main issue for 2017 of **reversing the trend**. We’re not finished with that by any means. Work on it will also characterise 2018.

“The processes are continuing. We haven’t reached our target.” ①



The PSA's overall goal

The PSA will define the framework for and follow up that the players in the petroleum sector are maintaining a high level of HSE and emergency preparedness, and are thereby also helping to create the greatest possible value for society.



PSA director general Anne Myhrvold wants a broad debate on how the value concept should be understood, and what place safety should occupy in it. (Photo: Morten Berentsen)

Text: INGER ANDA

SUPERVISION IS FUNDAMENTAL

The PSA's work on its main issue will be visible in many arenas during 2018, primarily through dialogue and discussion. An overarching goal of this effort is to look at how the companies make their value choices.

Supervisory activities are also an important instrument for meeting the PSA's goals. These are defined in the allocation letter from the Ministry of Labour and Social Affairs (ASD).

GOALS AND KEY SUPERVISORY ISSUES IN 2018

GOAL: reduce major accident risk in the petroleum sector.

The PSA supervises

- the robustness of technical and organisational solutions
- the risk of hydrocarbon leaks and well control incidents
- robustness against threats and deliberate attacks
- the risk of harm to the natural environment, especially in the far north.

GOAL: working conditions in the petroleum sector will be safe as well as sound.

The PSA supervises

- systematic prevention work related to working environment risk
- managing the consequences of change process
- making provision for genuine worker participation
- working conditions for foreign employees.

LETTER OF ALLOCATION EXPLAINED

The letter of allocation is the PSA's *contract* with its ministry. Established through a process with the ASD, it identifies the agency's most important assignments.

This job is done annually, and priorities are largely set on the basis of the PSA's assessment of conditions in the industry – and where it believes the risk of accidents and harm is greatest. Political guidance is also provided via the ministry.

THE FORMAL DESCRIPTION

A letter of allocation is an annual instruction from the responsible ministry to its various subordinate agencies. Through this document, appropriations voted by the Storting (parliament) are made available to the agency while spending and income frameworks, budget authorities and reporting requirements are established. These documents play an important role in a ministry's overall management of its agencies. ❶



Supervisory activities related to the main issue for 2018 are reflected in the letter of allocation. The PSA's Svein Horn (right) and Gustav W Dunsæd during an audit of the Songa Endurance rig. (Photo: Morten Gjerstad)

Text: INGER ANDA

WIDENING THE DISCOURSE

Safety is not much mentioned in presentations by petroleum industry leaders – except at the PSA’s events. The question is why this subject seems to be less important than oil prices, projects and forecasts in the sector’s public discussions.

Norway’s oil folk regularly get together for conferences, seminars, debates and meetings at home and abroad. When the PSA invites them, speeches and presentations primarily address safety.

“But I observe that this subject is fairly seldom raised when top executives address conferences other than ours,” says PSA director general Anne Myhrvold.

It usually fails to gain a mention apart from a few references to personal injuries, she adds, although noting that Statoil’s CEO is an honourable exception.

Taking care of safety is fundamental for the whole sector. Everyone agrees that the industry’s most important job is to avoid harm to people, the environment and material assets.

“So why isn’t this expressed more clearly at industry events?” Myhrvold asks. “Safety shouldn’t be something discussed because the programme calls for it or only in a PSA arena. It must be a self-evident and integrated part of the industry discourse.”

PRIORITISE

“That said, it’s clear that speeches and presentations in themselves reveal little about how the companies actually prioritise safety,” Myhrvold concedes.

“However, putting safety on the agenda and bringing up its results and challenges in other arenas where the industry meets will be important for attention, and perhaps have an impact.”

Collective awareness is important, she emphasises, and debate can be a driving force. “But gala speeches are not enough to ensure success.

“Good results call for a long-term commitment, continuous attention and specific actions. The level of safety is not maintained and further developed just by talking about it.”

LEADER

The Storting (parliament) wants Norway’s petroleum sector to be a world leader for HSE. This ambition has been in place for many years, and has been important for

work to develop the industry.

“This goal is demanding, and can only be met if the sector is conscious of the long-term implications of its choices,” says Myhrvold. “Our main issue for 2018, **valuing safety choices**, is therefore also a response to the Storting’s target.”

She adds that integrated management and continuous improvement are key conditions for success.

“These principles must form the basis for all safety work in the sector, and must carry heavy weight in decisions taken and measures adopted in the companies and by government.

“The responsibility for taking care of safety and ensuring continuous improvement rests squarely with the management of each company.” ①

Text: ØYVIND MIDTTUN

REPORTING ON THE REGIME



Two documents will help to define the direction of the commitment to safety in Norway's petroleum sector in coming years. A tripartite group delivered a wide-ranging report to the ASD last autumn, which forms the basis for a White Paper on HSWE due this spring. (Photo: NTB Scanpix/Terje Pedersen)

A hard look at basic safety issues in Norway's petroleum sector is set to shape government policy in this area and has clear links with the PSA's main issue for 2018 – *valuing safety choices*.

The Ministry of Labour and Social Affairs (ASD) appointed a work group in November 2016, drawn from companies, unions and government – including the PSA.

This tripartite body was to discuss the existing regulatory regime and supervisory strategy, developments in the petroleum sector, and the status of and trends in the risk picture.

Its report will form an important basis for a new White Paper on health, safety and the working environment (HSWE) due to be submitted to the Storting (parliament) this spring.

The ministry's appointment of this work group was prompted by worrying safety trends in the petroleum sector during 2015-16.

"Economic pressures, change and many serious incidents could be seen," recalls Sigve Knudsen, the PSA's director of legal and regulatory affairs and its representative in the group.

"That highlighted a need to take a closer look. Many important decisions and value choices related to safety are also taken in demanding periods."

CLEAR LINK

He observes that a clear link exists between the PSA's main issue for 2018 – **valuing safety choices** – the report of the tripartite group and the White Paper.

"Safety and the working environment in petroleum activities are very important for Norway's value creation in general – and for our industry.

"This issue interests and affects the great majority – companies and their managements, employees, organisations, regulatory authorities, the government and Storting members."

Knudsen points out that a White Paper is an important document for the whole industry, for the PSA as a regulator and for the politicians.

"The promised document from the ASD aims to tell the Storting about challenges in the safety area and make recommendations which will help to shape policy. **Valuing safety choices** is therefore highly relevant."

COLLABORATION

He believes it is very important to draw at regular intervals on Norway's system of tripartite collaboration to discuss and define the current position, and possible challenges.

"Safety work is complex and will best be clarified when all sides are present and sharpen themselves with each other's perspectives.

"We don't always share the same views, but can make considerable progress by talking to each other, finding good solutions and pulling in the same direction."

Knudsen notes that the composition of the tripartite group itself confirms an important value in the Norwegian regime – the commitment to collaboration between the parties.

CONCLUSIONS

Submitted to labour and social affairs minister Anniken Hauglie in September 2017, the group's report contained many fundamental conclusions and descriptions which the various sides agreed on.

- A high level of HSWE prevails in the Norwegian petroleum industry, but safety challenges and serious conditions have been witnessed in recent years.
- The regime for monitoring HSWE by and large functions well and should be maintained. However, making good use of the latitude in the regime presupposes that the three sides have mutual trust in and respect for each other's roles and responsibilities. This requires the companies to follow up their duty to maintain and continue developing the level of safety. The PSA must be a strong and clear regulator. Bi- and tripartite collaboration is an important cornerstone of the regime, and must be strengthened and further developed.
- The orientation of the regulations, where largely performance-based requirements are combined with the use of standards, is desirable because of rapid developments in the industry and the constant need for companies to adopt the most suitable technology.
- Continuous improvement of HSWE is a precondition for and a common goal in petroleum activities. To ensure efficient operation and continuous improvement, industry and government must at all times stretch for, learn from and adopt new knowledge and innovative technology.
- The annual RNNP survey provides the most important basis for a shared understanding of reality and for communication on the level of risk in the petroleum sector. All sides must continue to support this tool and its ongoing development.

Although the report expresses a high level of consensus, disagreement does exist in some areas and finds expression in the report's dissenting comments.

RECOMMENDATIONS

The report made a number of recommendations directed at the companies, the industry as a whole, and the Safety and Regulatory Fora. Work has been initiated on a number of them.

"We've thoroughly reviewed this document, and many of its recommendations have been incorporated in our plans for 2018," Knudsen reports. ①

Text: INGER ANDA

MODELLING A SAFE INDUSTRY

Norway's petroleum regime is often referred to as the Norwegian model. This complex system can be hard to grasp, but respecting it is fundamental for managing and strengthening safety.



Norway's safety regime is characterised by a clear division of roles and responsibilities between the various sides of the industry. The PSA's Kjell Gunnar Dorum (left) during an audit on Songa Endurance. (Photo: Morten Gjerstad)

Many of the concepts used when discussing this mechanism are probably unfamiliar to outsiders – and even to some of those working in the oil and gas sector.

Put briefly, the model involves a clear separation of roles and responsibilities between employers, employees and government, described in Norwegian parlance as the industry's "parties".

The mutual understanding and respect of these parties for their own role and that of the others is fundamental to the regime.

Repeated breaches of the principles on responsibility and trust, which form the cornerstone of the system, could lead it to deteriorate and come under threat.

SUPPORT All the parties in the industry support the Norwegian model today. That emerges from a report delivered to labour and social affairs minister Anniken Hauglie last autumn.

This document forms one basis for a White Paper on health, safety and the working environment (HSWE) which is due to be completed in the first half of 2018 (read more on page 12).

Underpinning the work group's assessments is a detailed review of existing regulations and supervisory strategy, the position in the petroleum sector and the status of risk trends.

LATITUDE The Norwegian model gives the companies considerable latitude and fairly substantial flexibility – but only if the principles of responsibility and trust are respected.

Trust is perhaps the most important factor of all in this regime (see separate article on page 16).

IN BRIEF TERMS, THE SYSTEM CAN BE EXPLAINED AS FOLLOWS

Responsibility rests with the companies. Each company is responsible for the safety of its own activities. This represents a fundamental principle in the Norwegian petroleum regulations.

That is because only the individual player has the detailed knowledge, the decision-making authority and, not least, the resources to ensure compliance with the regulatory requirements.

The PSA is responsible for establishing

the framework for the industry's activities, and for following up that they are being conducted in a prudent manner.

Its work includes developing the regulations, supervising compliance by the companies and taking appropriate enforcement action (such as issuing orders) after breaches.

The government is responsible for adopting an integrated view of regulating the industry and for ensuring that development of the regulations accords with general trends in the sector.

The PSA is also required to assess whether the standards referred to in the regulations are good enough for use in this context.

Employees must participate

Worker participation is a regulatory requirement in Norway. The principle is that the person exposed to risk must be involved in decisions related to HSWE.

One object is to utilise the overall expertise and experience of the workforce to ensure that issues are adequately addressed before decisions are taken.

Safety delegates and members of the working environment committee (WEC) in each company have a special role – and obligation – in this respect.

Companies must facilitate genuine participation, and ensure that legally prescribed arrangements such as the WEC and safety delegates are used in a good and constructive manner.

Tripartite collaboration a prerequisite

Collaboration between companies, unions and government has long traditions in Norway. Where the petroleum sector is concerned, this means that these parties meet for constructive cooperation.

Such improvement efforts also cover safety and the working environment. Two of the most important arenas for this collaboration are the Safety and Regulatory Fora.

A strong consensus exists that the value represented by tripartite collaboration must be preserved.

Regulations are performance-based

Provisions in Norway's HSE regulations are primarily formulated in terms of performance (functionality). This means they

specify *what* safety level is to be achieved, but not *how*.

That gives the companies great freedom in determining the specific way they are going to comply with the official requirements.

An important advantage of performance-based rather than detailed requirements is that the regulations are not constantly being outstripped by technology.

The alternative might be a regulatory regime which must be constantly revised to keep pace with innovations and new solutions.

Companies own the risk

The division of responsibility in the petroleum sector is crystal-clear – who owns the risk also owns the responsibility for managing it.

From the government's perspective, detailed regulation of the industry is neither possible nor desirable. A basic principle is that regulators *cannot inspect safety into the industry*.

The companies themselves are responsible for ensuring that their activities are pursued prudently and in accordance with the regulatory requirements.

Both guidedog and watchdog

Continuous contact between the PSA and the companies is important for enforcing the regulations. Through such dialogue, the agency plays the role of a *guidedog* for the industry.

In this mode, its concern is to provide insight into and understanding of the regulatory requirements, and to share knowledge and experience. Dialogue aims to reduce risk and contribute to a continuous improvement in safety.

As a *watchdog*, the PSA supervises that the companies operate prudently at all times and can deploy enforcement measures (such as orders) if they fail to do so.

An order provides a powerful, legally binding reaction which is imposed in the event of serious nonconformities.

In acute circumstances, such as a hazard or accident which threatens safety, the PSA has the authority to use even stronger sanctions – such as an immediate halt to activity. ①

Text: ØYVIND MIDTTUN

CONFIDENCE IS A CORNERSTONE

Trust is crucial to the Norwegian regime, with its emphasis on performance-based regulations, giving responsibility to the players, and risk- and dialogue-based supervision.

Companies receive licences for petroleum activities in Norway on condition that they accept independent responsibility to operate safely – and work actively for continuous safety improvements.

The licensing system gives government an important management tool, which helps with qualifying and systematic follow-up of the players in every phase. It also contributes to predictability and knowledge of the companies in the petroleum sector.

Norway's model for the exercise of government authority builds on trust. Regulators check that the industry accepts the responsibility it has been given, meets its obligations and complies with the regulations.

This approach presupposes good and constructive collaboration between government, companies and unions.

Any deterioration in trust would therefore significantly weaken the basis for today's system.

GRADUAL

Trust is not a matter of course. Building it requires a gradual process of dialogue and interaction. A new company entering the NCS may well appear a sound player, but confidence in it takes time to develop.

This is attained through familiarity, knowledge and expertise – and the clear motivation of the players to work on HSE and improvements.

For the PSA to invest trust in the companies, a prerequisite is that they display the ability to operate prudently, possess expertise, and are open, reliable and dependable.

Similarly, the companies must perceive the PSA as clear, competent and independent – including on the difficult issues – before they begin trusting it.

This requires that the way the agency deals with matters, pursues follow-up and uses its enforcement powers is predictable and equitable.

The PSA needs a high level of credibility, authority and integrity, both in

society as a whole and among the players in the industry. Putting its foot down and showing where the line is drawn are significant in winning such a reputation.

ASSESSED

Companies awarded licence interests on the NCS have been carefully vetted in advance, in part for their expertise, capacity and willingness to accept responsibility.

As a result, both the regulations and their enforcement are orientated to support the companies' experience of their own responsibility.

The preparatory study for the 2018 White Paper on HSWE in the petroleum sector concluded that the regime is robust and should be maintained (see article on page 12).

A consensus prevails that Norway's existing regulatory regime provides flexibility and latitude. But this demands that the latitude is exercised in a constructive way, and that the parties follow up their responsibility to maintain and develop the level of safety. ❶

The Norwegian model is based on trust. Should this deteriorate, the basis for today's system would be significantly weakened. Apprentice sheet metal worker Andreas W Stensletten works at Kværner AS on Stord south of Bergen, a yard with long experience of building facilities for the NCS. (Photo: Morten Gjerstad)



Text: ØYVIND MIDTTUN

VALUE IS MORE THAN SUMS



Safety does not always get taken into account in mathematical calculations – because how do you put a price on a high level of safety? And what is *avoiding* a major accident worth?

It might be reasonable to suppose that the PSA's 2018 main issue – **valuing safety choices** – deals first and foremost with the cost/benefit aspect.

And that is naturally one part of this. But the subject covers so much more, emphasises Sigve Knudsen, the PSA's director of legal and regulatory affairs.

"That's because not all value can be expressed in numbers and calculated. Traditional economic methods don't stretch to complex relationships with challenging uncertainties – like managing major accident risk."

He accepts that financial assessments of costs and benefits are important in a decision process, but stresses that it is also necessary to be aware of the limitations of such analyses.

"Several types of analyses – covering financial aspects and risk, for example – are often conducted to establish a robust decision basis," he points out. "Their results help to establish this, but don't comprise the whole of it."

HIGH-RISK

Petroleum operations are a high-risk activity where major accidents can occur, causing the loss of many lives, great environmental damage and extensive financial losses.

"Experience from such incidents has clearly shown the risk associated with petroleum activities. So *preventing* the chance of major accidents will always be our top priority."

Events such as the sinking of *Alexander L Kielland* on the NCS in 1980 and the destruction of Britain's Piper Alpha in 1988 demonstrate the dramatic consequences such disasters can have.

The latest accident with a high body count in Norway's petroleum sector was

the helicopter crash off Turøy near Bergen in 2016, which claimed 16 lives.

This fell within the ambit of the Norwegian Civil Aviation Authority. But incidents with the potential for multiple fatalities and big environmental damage have also occurred during recent years in the PSA's area of authority.

CONSEQUENCES

Apart from the human side, a major accident will also have big consequences for society. Reducing the risk of such incidents is therefore a key justification for regulating HSE.

"The losses experienced by people involved in an accident will normally be much greater than those which appear in the socio-economic assessment," observes Knudsen. "You can't express the *value* of an individual in cash.

"A basic presumption in Norway is that the safety of people and the environment will take precedence over economic considerations.

"Nevertheless, socio-economic and commercial considerations must also be incorporated in the assessments made when we take safety decisions in the petroleum industry."

GUIDELINES

Together with a number of other agencies, the PSA has contributed to creating a set of guidelines for analysing the socio-economic impact of government measures in the petroleum sector.

This document will provide an explanation of how such analyses can be structured, and how they can help to improve evaluations of the consequences of these actions.

Headed by the Ministry of Petroleum and Energy, work on the sector guidelines

has involved other ministries responsible for administering Norway's oil industry as well as executive agencies.

"Socio-economic analyses can help to strike a balance between resource management and safety requirements," observes Knudsen. "But it's important to realise that they're not primarily intended to assess the value of safe operation.

"The purpose of safety activities is to avoid accidents and damage, and it's difficult to measure that and put a value on it."

COMPLEX

Major accidents involving many deaths, extensive environmental damage and big financial losses are often characterised by a complex course of events.

The probability of the incident will also be low, while its consequences are substantial. Another feature is great uncertainty about both probability and outcomes.

"A key place in safety regulation is occupied by the cautionary principle, particularly where uncertainty is high," says Knudsen.

"The same applies to the precautionary principle, which is incorporated in Norway's regulatory requirements on risk reduction.

"These require players to analyse their own operations in detail to determine how hazards can arise and develop, and the possible consequences of the various scenarios."

Safety and emergency preparedness have to be proportionate to risk in each activity. The greater the risk, the more the reduction measures adopted and the more extensive they must be. ❶

Not all values can be expressed in numbers and treated mathematically. Through its main issue of valuing safety choices, the PSA wants to provoke debate on dilemmas which the companies must deal with. (Photo: Morten Gjerstad)

PART

2

HAS THE TREND REVERSED?

To put safety trends back on the right track, the PSA adopted **reversing the trend** as its main issue for 2017.

The ambition was to direct attention at some worrying developments and to generate a top-priority industry effort.

Did the companies take up this challenge?

Has the main issue had an impact?

What picture emerges when the PSA sums up last year?

Some of the answers are presented over the next eight pages.

BACKGROUND

Norway has been an oil nation for more than 50 years. Where safety and the working environment are concerned, this era has involved upturns and downturns, disasters and constant improvement.

From an overall perspective, the country can claim to have established itself at a high level in the safety field and has built up an internationally recognised regime.

However, the PSA saw in 2015-16 that the sector faced clear challenges. Progress on safety had ceased, and the

trend was negative in certain key areas. The industry was under pressure, and affected by decline, cost-cutting and major change processes. It showed symptoms of short-term thinking and a lack of robust planning.

A bad fatal accident occurred in 2015, and a run of serious incidents was experienced in 2015-16. The autumn of 2016 was particularly difficult, with many near misses over a short time.

The PSA grew concerned. It was worried that the trends could mark the start

of a period of stagnation, retreat and decay in safety work.

To put developments back on the right track, the agency launched a main issue of *reversing the trend* at the beginning of 2017.

The goal was to influence the industry to pick itself up and return to continuous improvement. Attention was concentrated on inter-party collaboration, robustness and standardisation.

OBSERVATIONS

So what can the PSA see after a year of reversing the trend? Its observations are many and varied, ranging from good and confidence-inspiring results to more thought-provoking trends.

ROBUSTNESS

What was done: The PSA pursued considerable activity under this peg in a number of disciplines during 2017. That included several audit series.

One involved planning and execution of drilling and well operations. These audits covered technical and operational conditions, involvement of the workforce, planning and execution.

What was seen: Results varied. The PSA noted good and less positive examples of collaboration and necessary involvement in prudent drilling operations. Overall, the quality of risk understanding was uneven.

What was achieved: The PSA has registered better understanding of the robustness concept, and that this involves quality in the whole chain of processes and operations.

A number of companies can also be seen to have recognised the importance of worker participation in achieving robust solutions.

INTER-PARTY COLLABORATION

What was done: Among other activities, the PSA ran several series of meetings and audits in 2017 to look at the safety delegate service and the working environment committees (WECs).

Cooperation between companies and unions as well as worker participation were also among the issues covered by several multidisciplinary audits.

The PSA believes that inter-party collaboration is essential for improving safety and the working environment. It does not mean that the sides must agree, but that they work together in important processes.

What was seen: Through audits, meetings, discussions and conversations, the PSA assembled many good examples of functioning inter-party collaboration.

Unfortunately, it also found instances

of the opposite. In addition, challenges were registered along the operator/contractor axis.

These primarily involve good interaction at the right point and allocating sufficient time to establish genuine participation, not just to provide information.

What was achieved: The PSA's impression is that work in 2017 contributed to greater acceptance of the significance of good inter-party collaboration.

More people recognised that cooperation means a lower level of conflict – and that this provides greater opportunities

for safe, efficient operation and a better basis for preventive safety work.

STANDARDISATION

What was done: The commitment to standardisation has three aspects: putting new industry standards in place, updating existing ones and influencing companies to utilise them.

All the pathways have been followed by the PSA through audits, speeches, meetings and presentations.

What was seen: Unsurprisingly, audits directed at standardisation show clear vari-

ations from company to company. A main trend is that the big players refer more often to their own specific requirements, while smaller ones prefer to reference Norway's Norsok norms and other industry standards.

What was achieved: Standardisation shows a positive trend, and the PSA sees much good progress. The time lag in updating standards has been considerably reduced, for instance.

A clear increase was seen in the use of industrial standards at the expense of company-specific requirements.

See the following pages for more details on the three priorities, inter-party collaboration, robustness and standardisation. ➔

CONCLUSIONS

The question many people ask is simple: is there a conclusion – has the trend been reversed? Giving a clear answer is more complicated.

First and foremost, **reversing the trend** attracted much attention and generated a broad debate both in the industry and in society at large.

This drive has unquestionably raised awareness about the challenges in the safety position. It has also helped to enhance knowledge, and focused attention on inter-party collaboration, the need for robust plans and the importance of establishing, using and updating industry standards.

One year is a short time in which to sum up a major effort. It will probably be possible to come closer to a conclusion after some time has passed.

Assessing the more long-term developments will then be easier, and trends and tendencies can be analysed over a rather longer period.

Through audits and audit series related to **reversing the trend**, the PSA has registered a number of good examples.

Many players are making a substantial contribution to bringing the industry back on track for continuous development. Some less encouraging tendencies have also been noticed.

The following conclusion is therefore clear. Further work on improvement is needed, both overall and within the areas given priority by the PSA last year.

This commitment is being continued in 2018 and for as long as necessary. The PSA's main issue this year, valuing safety choices, represents an extension of the 2017 ambitions. It hopes and believes the industry will take part in this effort. ②

Observations made by the PSA in connection with its main issue for 2017, reversing the trend, cover a wide spectrum. (Photo: Shutterstock)



Text: ØYVIND MIDTTUN

DRIVE TO WORK WELL TOGETHER

Good cooperation between employee and employer helps to secure a high level of HSE in Norway's petroleum sector. Strengthening such "inter-party" collaboration was therefore a key priority for reversing the trend.

Joint action between both sides of industry occupies a central place in all safety activities, and was therefore a natural focus of attention in the PSA's main issue for 2017.

A good climate of cooperation in companies where genuine worker participation prevails makes a positive contribution to work on HSE.

But such inter-party collaboration has been under pressure in recent years, partly as a result of downsizing and increased demands for efficiency.

When no provision is made for true worker participation, the basis for management decisions could be weakened and thereby leave them less firmly entrenched with the workforce.

The ability of the companies to create and maintain robust solutions also relies greatly on good collaboration and trust between management and employees.

PROVISION

"Companies must make provision for genuine worker participation," explains Eve Hølmebakk from the PSA's working environment discipline.

"They must also ensure that legally prescribed institutions such as the work-

ing environment committee (WEC) and the delegate service are used systematically and constructively."

"An important goal of **reversing the trend** has been to help strengthen employee-employer collaboration and focus attention on real involvement," adds colleague Tone Gulbrandsen.

"This is about the way companies facilitate delegate and WEC work in practice," she explains. "That means allocating time for safety activities, building expertise and ensuring sufficiently early involvement in issues of significance for HSE."

The PSA was interested in assessing whether the two sides in the companies had an adequate understanding of roles and sufficient HSE expertise, says Hølmebakk.

"We also wanted to find out if the companies knew enough and implemented processes where systematic worker participation contributed to robust solutions – particularly in relation to rapid and/or extensive changes".

FINDINGS

The PSA pursued a number of activities in 2017 directed at inter-party collaboration and worker participation, and noted

a number of nonconformities to be followed up with the relevant companies.

The main findings from audits and meetings with the industry listed by Hølmebakk and Gulbrandsen are summarised below.

- Good worker participation can exist at a high level in some companies, but the distance between decision-makers and those affected may be great. Such centralised processes can challenge genuine involvement.
- Boundaries between union officials and delegates over involvement and participation may be unclear in a number of companies. Union officials play an important role in protecting worker interests, but cannot replace the legally enshrined safety service. In some cases, the PSA sees that strong union participation can be at the expense of a systematic involvement of the delegates, particularly in connection with change processes.
- A number of companies have little governing documentation which details how participation is to be implemented, and the duties and responsibilities of the delegates. This results in a poor understanding

of how to use the delegate service by some delegates and by line managers. That might also indicate weak operationalisation of requirements for and expectations of the delegates concerning site-specific challenges related to HSE.

- A number of facilities and fields have large and fairly unclear safety areas, which can make it difficult for the delegates to secure an overview of risks in their area.
- Audits reveal that some facilities have no fixed safety delegate meetings and poor documentation of cases.
- A number of audits found (in 2017) that less time was allocated to safety work than before, and that delegates were involved too late in issues. Their opportunities to exert influence were accordingly restricted.
- The PSA's follow-up revealed cases of inadequate expertise about the regulations and lack of training on relevant working environment factors in the safety area. This reduced opportunities to contribute in specific cases. Expertise is also a challenge for WECs. The PSA found that WEC members take a long time to complete

legally prescribed courses. That in turn can help to weaken the quality of WEC work.

- Mandates for a number of WECs are either lacking or unclear, while some large companies have several such committees and sub-committees. That can create unclear mandates and reporting lines between them, and uncertainty over where HSE cases are to be resolved.
- Management and workers are supposed to be equally represented at WEC meetings. The PSA found on a number of occasions that little awareness existed about this principle, and that the employer in many cases had more representatives at meetings than the workers. It could also be unclear who represented the contractors.

MORE TO GET TO GRIPS WITH

Hølmebakk and Guldbrandsen believe that **reversing the trend** has helped to focus greater attention on the importance of well-functioning inter-party collaboration. The PSA's audits contributed to improving many conditions over the year.

"A positive trend now prevails in a number of areas," concludes Hølmebakk. "At the same time, much remains to be done.

"The PSA will remain a driver for strengthened inter-party collaboration. This is the responsibility of the companies, and the two sides must work for it jointly. We'll be continuing to follow up the area in 2018." ²



*Good collaboration between the parties is a prerequisite for successful HSE work.
(Photo: Shutterstock)*



The PSA has seen many positive effects from its stronger concentration on standardisation. (Photo: Shutterstock)

Text: ØYVIND MIDTTUN

SPRUCING UP THE YARDSTICKS

Appropriate and updated standards play an essential role in Norway's regulatory regime. The PSA therefore devotes big resources to this work and keeps a close eye on how the industry develops, updates and applies such norms.

Standardisation was one of the priorities addressed in the 2017 main issue on **reversing the trend**, reflecting the way the petroleum regulations are largely formulated in performance terms.

This means they specify *what* is to be achieved, but not *how*. In many cases, references are made to recognised yardsticks to indicate how the required level of safety can be achieved.

In recent years, the PSA has been aware of challenges both in the *development and updating* of national and international standards, and in their *application*.

This primarily reflects two main factors. One is a substantial expansion in internal company requirements and specifications, which cuts the use of recognised standards.

Second, paying increased attention to costs and efficiency can influence the approach to standardisation and standards, which can in turn reduce their technical level and content.

GOAL

The PSA has set the following strategic goal for its work on standardisation in the petroleum sector.

“The PSA will help to ensure that the industry has relevant standards which meet requirements for detailed specifications, so that users can comply with performance-based, legally prescribed requirements in the regulations.”

To achieve this, it will:

- be a driver in ensuring that the industry fully recognises the important role played by standards as reference documents in the petroleum regulations
- be a driver in ensuring that relevant standardisation work is based on collaboration between companies, unions and government
- follow up how the industry uses recognised standards to meet the requirements of the petroleum regulations
- support organised standardisation work conducted by recognised national and international organisations.

PARTICIPANT

The PSA is a participant in standardisation work pursued by a number of work groups and committees at national and international levels.

As a member of Standards Norway, it takes part in 43 expert groups – including the sector board for petroleum – and in the general meeting. Twenty-four of the 43 are national bodies, while the rest are regional and international.

The PSA is also involved in projects on standards for security and societal safety in order to assess whether these are relevant for the regulations or might affect their further development.

“Through our participation in such work, we’ve contributed to important strategic discussions,” says Svein Anders Eriksson, head of the PSA’s work on standardisation and security.

“This involvement also covers clarifications and decisions on standardisation and the technical content of the resulting yardsticks.

“Where security is concerned, we’ve gained a good strategic opportunity to influence and keep abreast of standards which could become part of the normative basis for new security regulations.”

STRENGTHENED

In line with its ambitions for reversing the trend, the PSA strengthened the priority it gives to standardisation work. Eriksson now believes the trend is positive.

“We see that the industry has closed the gap which opened a few years ago for updating standards and revising those issued by Norsok. The portfolio is now satisfactory.”

He gives credit to Standards Norway for initiating a major digitalisation project which can help to make the use of these norms more efficient.

RESULT

“Another important result of our work in 2017 relates to an issue we’ve been working on since 2007, following a serious incident on the *West Epsilon* drilling rig,” Eriksson reports.

“That prompted us to press the European Commission to give the CEN/Cenelec standardisation organisations a mandate to prepare harmonised standards for safety-critical drilling and well equipment. This was finally achieved last year, and we’re now looking forward to the outcome.”

AUDITS

The PSA has conducted audits of individual players to assess how standards are used to fulfil Norway’s regulatory requirements.

It turns out that smaller companies refer mainly to Norsok and other standards, while the big operators are more likely to apply their own internal requirements.

Through supervision and dialogue with the industry, the PSA is now receiving signals that increasing use is being made of recognised norms.

Among other developments, the tendency is for the large companies to work on reducing their utilisation of internal requirements.

DIFFERENT

“Although the industry supports the main thrust of the work on standardisation, we observe different strategies between the sides here,” says Eriksson.

“Many demanding discussions characterised inter-party collaboration in this area during 2017, and the sides were far apart on certain issues.

“This has prompted Standards Norway’s sector board for petroleum to appoint its own inter-party groups to continue work on the issues.”

COLLABORATION

Eriksson emphasises that, generally speaking, strengthening inter-party collaboration in the standardisation field is important.

“The parties must join forces on further development and use of the standards, and must support their important role in the regulations as a contribution to good and robust solutions.

“It’s important to devote resources to standardisation, so that the industry can secure the potential offered by appropriate and updated norms.”

DISCUSSIONS

He notes that the government-appointed tripartite work group on HSWE in the petroleum industry (see also page 12) pursued important discussions on the regulatory model and the significance of standards.

“The group’s report concluded that today’s regulations, which largely involve performance-based requirements combined with the use of standards, is robust and should be retained.

“That’s an important conclusion and guidance for continued work on standardisation.” ②

Text: ØYVIND MIDTTUN

STANDING UP FOR STURDY SOLUTIONS

Through its audits, the PSA has helped to increase understanding in the industry about the significance of robust approaches in times characterised by cost pressures and cutbacks.

Robustness was one of the priorities addressed in the 2017 main issue on **reversing the trend**. An important part of the PSA's work has been to boost the industry's concern with and initiatives for sturdy solutions.

One requirement here is that companies adopt safety margins which allow them to handle unforeseen events. Potential hazards must be identified and dealt with effectively.

Important prerequisites for achieving robustness include sufficient time, expertise and resources.

Such requirements apply to technology, capacity, expertise, organisation and management of activities in all phases of petroleum operations.

That includes facilities and plants already in operation, new installations and innovative production concepts, and the late life phase.

"One goal of our 2017 main issue was to explore whether the search for efficiency enhancements and cost cuts led to less robust solutions," explains Kristen Kjeldstad.

A member of the PSA's drilling and well discipline, he headed its steering committee for robustness in 2017. "We wanted to ensure that risk was adequately identified and managed," he says.

MIXED

A number of assignments and audits related to robustness were conducted by the PSA's various disciplines during 2017, with mixed results and impressions.

"A series of four audits looked at how various shipowners secured a robust organisation to deal with the integrity of structures and maritime facilities," reports Kjeldstad.

"Our assessments included the robustness of expertise in a phase with big market changes. We also looked at the ability of the companies to handle errors and unexpected events, and to operate reliably when under pressure."

Another issue was to ensure robust modifications and conversions, inspection planning, and execution of inspection and maintenance programmes, he says.

"The results of these exercises were by and large positive. Robustness is generally good where structural safety and maritime conditions on mobile units are concerned.

"Moreover, the shipowners had done a lot of work before our audit began. This review has undoubtedly had an effect in itself, and contributed to the good results."

Results obtained from work on the robustness priority vary. The PSA plans a number of new audits in this area during 2018. (Photo: Shutterstock)



DRILLING

Kjeldstad emphasises that work on the 2017 main issue also exposed weakened robustness, including an audit series focused on planning and execution of drilling and well activities.

“We’d received and obtained a good deal of information in advance which gave cause for concern,” he says. Audits were conducted throughout the year to verify the status.

“One finding was that contractors are generally included in planning and executing such operations on the NCS. But clear differences exist in *how much* they are involved and listened to.

“A lack of participation by drilling contractors and well service companies affects the overall ability to identify and deal with weaknesses and risks in the operations.”

The PSA also noted big challenges related to preserving expertise, capacity and continuity among contractors in the change processes which characterised 2017, he adds.

“We registered the same challenges, too, among drilling and well personnel in some operator companies.

“In addition, we found a number of examples of employees in third-party companies receiving inadequate training in handling hazards and accidents. They also fail to get enough training in and experience transfer from earlier incidents.”

Other observations during the year include a number of cases where people knew too little about the definition of risk in the regulations or about uncertainty.

“We still get some consent applications where the proposed well design is insufficiently robust,” notes Kjeldstad. “Nor have changes to drilling strategy been risk-assessed.”

The PSA has continually asked the companies to correct regulatory nonconformities and weaknesses which were identified during 2017.

POSITIVE

Generally speaking, Kjeldstad and his work group have observed several positive features in the wake of their activities over the year. These include:

- increased knowledge in the industry about specific challenges with planning and executing drilling and well operations
- greater awareness of knowledge gaps and inadequate understanding of the risk concept in the regulations
- more knowledge about uncertainty when planning drilling and well operations.

However, experience from the audits reveals substantial variations between the players and between different operational units in the same company.

“Overall, this indicates that the signals we had received ahead of our drive were correct,” says Kjeldstad. “And we achieved a lot which was positive in 2017.

“Nevertheless, we see a clear need to continue paying attention to the quality of planning and execution of drilling and well operations. So there’ll be more audits in 2018.” ②

PART 3

OTHER RELEVANT ISSUES



Text: EILEEN BRUNDTLAND

FATAL INCIDENT INVESTIGATED

One man died and another was seriously injured in a lifting accident on *Maersk Interceptor* in 2017. A PSA probe found serious deficiencies in materials handling systems and processes.

The two people involved in the mishap, which occurred on 7 December, were installing a new seawater pump. This was being lifted into place when the steel sling holding it broke.

Owned by Maersk Drilling Norge, the drilling rig was working at the time of the accident with wells on Tambar, a North Sea field operated by Aker BP.

CAUSES

The PSA quickly launched an investigation to establish the causes. Such inquiries are primarily intended to contribute to learning, and thereby to reducing the chance of a recurrence.

During a visit to the rig immediately after the accident, the PSA team found serious shortcomings in systems and processes for handling materials.

That included insufficient information in procedures for installing the pump. It also emerged that a number of risks involved in the operation had not been identified in advance.

A site inspection otherwise revealed faults and deficiencies in the lifting equipment being used in connection with the installation.

ORDER

These problems were identified early in the investigation. On 21 December, long before the final report was ready, the PSA opted to issue an order to Maersk Drilling Norge.

This required the company to review systems for follow-up and use of portable lifting equipment on each of its facilities working on the NCS.

All operations related to the installation of seawater pumps on all the company's facilities also had to be reviewed and the necessary measures implemented.

To ensure experience transfer to the whole industry, the PSA held a meeting in the same period with other rig owners who have similar equipment on their units. ③

The final report from the Maersk Interceptor investigation had not been completed when this issue went to press. It will be published on psa.no/investigations as soon as it is ready.

SAFE EVACUATION BOOSTED

After weaknesses were uncovered in lifeboats on the NCS in 2005, both the industry and the PSA have devoted great efforts to improving knowledge about and the condition of these craft.

Additional funds were provided to the PSA by the ASD in 2016 to strengthen lifeboat supervision, and a number of audits were conducted in this area last autumn.

Although regulatory nonconformities were found, the overall impression was that the companies have taken both technical and operational steps to improve and secure acceptable evacuation.

OVERCOME

Structural weaknesses were identified during a lifeboat test on Veslefrikk during 2005. Since then, the industry has worked hard to learn more and overcome the problems which were identified.

The main challenges related to free-fall lifeboats are hull strength, propulsion and the impact of acceleration forces on the human body.

These have been overcome in various ways:

- **hull strength** by reinforcing existing craft or replacing them
- **acceleration forces** reduced by replacing seats and belts or by taking some seats out of use
- **propulsion** by increasing engine power, improving propeller design and launching lifeboats with engine/propeller running.

Quick release of the hook is the critical factor when launching from davits in order to prevent the lifeboat hanging in the falls as the waves rise and fall beneath it.

This requirement has now been met by changing to new and improved hooks for fast and reliable release. ③

INVESTIGATIONS IN 2017

The PSA ran inquiries into five serious incidents last year, compared with eight in 2016 and 10 the year before.

A decline in the number of events requiring a follow-up is positive, but this figure in itself does not mean all that much as long as a life was lost in one of the accidents.

The PSA investigates for various reasons, and concentrates on the most serious incidents. But it can also inquire into circumstances which offer a particular potential for learning.

As a regulator, identifying lessons and transferring experience are its main motives for conducting investigations. They are a key tool for establishing why serious incidents arise, and an important component in supervising the industry.

Investigations in 2017

- Lifting incident on Gullfaks B – 7 March
- Gas leak on Åsgard – 10 March
- Hydrocarbon leak on Gjøa – 21 June
- Hydrocarbon leak at Mongstad — 24 October
- Fatal accident on *Maersk Interceptor* – 7 December.

All the PSA's investigation reports can be found at www.psa.no/investigations. ③

Text: EILEEN BRUNDTLAND

HALTED FOR REPAIR

Goliat found itself high on the agenda again last autumn when the PSA took the unusual step of ordering operator Eni Norge to shut down production from the Barents Sea field.

An audit by the agency in September identified serious regulatory breaches related to electrical safety and ignition-source control on the platform.

Eni was ordered to cease output until it had systematically identified potential ignition sources and repaired faults on a number of explosion-proof (EX) motors.

“Control of ignition sources is crucial for safety on an oil and gas production facility,” explains Bjørn Thomas Bache, one of the PSA’s directors of supervision.

“We felt the position was acute and serious, and incompatible with production. So Eni was told to shut down until the integrity of the EX motors had been clarified and they were fixed.”

This form of reaction is little used by the PSA, because it expects the companies themselves to act when serious regulatory nonconformities arise.

“They’re responsible for operating safely, and are the ones who’re supposed to possess the understanding of risk which forms the basis for this type of assessment,” Bache says.

VERIFY

Before production resumed on Goliat, the PSA returned to the platform to verify that the faults had been corrected. That also marks a departure from normal practice.

“Earlier experience with Eni’s follow-up of our orders had demonstrated to us that this was necessary,” Bache reports.

He emphasises that the PSA has followed up Goliat more closely than other facilities, and is continuing to do so.

“That’s been necessary because of the findings made by our audits, combined with other signals we’ve received.”

DUTIES

When production was to resume, the PSA also chose to invite Statoil – as a partner in the licence – to attend a meeting with Eni to explain how it had discharged its duties in this respect.

“All licensees undertake to contribute actively to the production licence, and this includes checking that the operator is managing the activities well,” Bache notes.

“We assume that Statoil is meeting its obligations as Eni’s partner in Goliat.”

RESUME

The PSA told Eni in December that the authorities considered the order to have been complied with, and that the company could resume production when it was ready.

At the same time, the agency took the opportunity to emphasise that its verification on Goliat did not involve any *approval* of equipment or the safety position.

Responsibility for safety on the field rests with Eni together with Statoil.

“The operator has done a lot of good work since the shut-down,” Bache says. “But we’ll continue to monitor it and Goliat closely during 2018 through new audits and follow-up of earlier nonconformities.” ③



Foto: Eni Norge

Text: ØYVIND MIDTTUN

NORTHERN CONCERN

Extensive work is being pursued with the PSA's encouragement to learn more about HSE challenges on the NCS above the Arctic Circle.

Extra attention has been paid by the agency to this region, where petroleum operations have increased in recent years with more exploration wells and further development of discoveries.

A high level of activity is expected in the future. This has been paralleled by a great deal of discussion about whether the industry knows enough about HSE challenges there.

CLARIFY

"We've been pressing the industry to clarify *location-specific* challenges in the far north and to learn more about them – and about how to handle them in a good way," says Finn Carlsen, the PSA's director for professional competence.

"We've encouraged and made provision for exchanging experience, collaborating and sharing knowledge on this region. And we've launched a number of technical projects ourselves."

With funding from the ASD and the Ministry of Foreign Affairs, the PSA has initiated a total of 19 studies focused on various challenges and issues, he reports.

"These include safety in the working environment, drilling and wells, design, and ice and snow conditions. Other work we're doing deals with suitable facilities and risks in far-northern petroleum activities."

The project period in this commitment runs until 2019. Overviews of all the studies, with links to reports from those completed, are published at psa.no.

RESULTS

The Arctic Safety conference being staged by the PSA in Stavanger during March will present results from the completed projects and the status of the most important safety-related studies under way.

"This is the third time we're bringing together the industry for a major conference on working safely in the far north," observes Carlsen.

"Arctic Safety is an important meeting place and a key arena for discussing the challenges we face with respect to petroleum activities in these waters." ③

UNDER SCRUTINY

An administrative audit of the PSA was initiated last autumn to check that its supervisory practice is in line with the decisions and assumptions of the Storting (parliament).

This review is being conducted by the Office of the Auditor General, which works to provide the Storting with relevant information on the execution and effect of official decisions. The aim is better and more efficient public administration.

ASSIGNMENT

The administrative audit is intended to establish how far the PSA's work on HSE complies with the agency's assignment from central government.

"We take a positive view of the Auditor General's office scrutinising and reviewing our work," says PSA director general Anne Myhrvold.

"As a supervisory authority, we know that audits contribute to learning and provide opportunities for improvement. The Auditor General has checked us several times before, and our experience is good."

The audit involves a review of written documentation and interviews with specialists and managers in the PSA as well as with representatives of the industry and other interested parties.

Tentative plans call for the work to be completed by 1 January 2019.

CHECKING

The Auditor General's office audited 15 ministries and 240 state enterprises in 2016, as well as checking the management of the government's interests in 124 companies.

Twenty-six per cent of its audit work in 2016 concerned administrative audits, and 12 of these were submitted to the Storting for consideration in that year. ③

Text: INGER ANDA

YOUNG AND MIDDLE-AGED

The PSA was established as a separate government agency on 1 January 2004. But it has much more experience than an ordinary teenager.

The body now known as the PSA will be both 14 and 45 years old in 2018. The backstory to this double anniversary has undoubtedly become unfamiliar to many.

COMPONENT

During the first 31 years of its life, the agency was part of the Norwegian Petroleum Directorate (NPD) as its division for HSE on the NCS.

This organisation sat alongside the one managing Norway's offshore oil and gas resources, which involved reporting to two different ministries from 1979.

That system was intended to avoid an unfortunate clash between the government's need for good resource utilisation and concerns over safety and the working environment.

The decision to split the NPD was announced in late 2002 as a consequence of a White Paper on government regulation presented by then labour minister Victor Norman.

This policy document also had consequences for a number of other supervisory and regulatory authorities in Norway, which were transferred out of Oslo.

SUBSTANTIAL

The White Paper had a substantial effect on the NPD, too, but not for geographical reasons. All its functions were specifically to remain on the same site in Stavanger where they had been from the start in 1973.

Far more importantly, however, the NPD's two cornerstones – its safety and resource divisions – were separated. That breached a widely supported integration principle and unleashed much debate, not least internally.

In purely practical terms, the decision meant that the new safety regulator had to be constructed and become fully operational in just one year.

MOVED

During 2003, it acquired the PSA name and moved to one end of the shared office building before becoming a formal part of Norway's petroleum administration on 1 January 2004.

Since then, the NPD and the PSA have acquired separate office buildings but remain on the same site and co-exist as good neighbours.

It was made clear during the split-up that the two new agencies would collaborate on important choices and decisions affecting both safety and resource management.

And such cooperation has indeed been pursued for all these 14 years. As arms of government, both give priority to discussing with and informing each other on key issues and decisions. As neighbours, meeting is neither demanding nor difficult.

The double birthday in April will primarily be celebrated internally. But it can also serve as an important reminder externally of the shared voyage and history of the agencies. ③

Text: ØYVIND MIDTTUN

FACING UP TO **DIGITAL** CHANGE

The industry is in transition, with older systems and work processes challenged by new technology and digitalisation. A number of projects have been launched by the PSA to define both opportunities and possible problems with these trends.

Petroleum activities are becoming ever more dependent on digital systems, and the companies have ambitious plans for increasing their use of such solutions throughout the value chain.

With developments moving fast, the PSA needs to maintain a good overview of both digitalisation and the security of information and communication technology (ICT).

KNOWLEDGE

The PSA initiated a project in 2017 to learn more about digital technology, including an assessment of the way digitalisation affects risk and which safety benefits it can confer.

“Digitalisation provides new opportunities and can overcome many challenges,” notes Linn Iren Vestly Bergh, who heads this work.

“But it’s important to be aware that adopting new technology, processes and ways of working can also present new challenges and forms of risk.

“The companies must view digitalisation from an overall perspective and ensure that they have a good overview of the consequences which changes and new measures could have for HSE.”

DEVELOPMENT

Digitalisation in the petroleum industry primarily concerns further development and use of tools and processes which provide a better basis for decisions, collaboration and automation.

Improved work processes are among the primary goals. Technologies involved include Big Data, robots, autonomous vessels, integrated operations, automation of drilling operations and the “digital oil field”.

SECURITY

Innovative technology and more integrated systems also mean greater complexity and increased vulnerability. The PSA is pursuing several major projects on ICT security during 2018.

This follows a series of audits last spring covering all operators and rig owners related to human, technological and operational (HTO) aspects of ICT security.

The projects now being conducted build further on the lessons from that exercise as well as other experience acquired by the PSA.

“We see, for example, that more data are now being shared between different systems,” observes Espen Seljemo, who is heading some of the ICT security projects.

“At the same time, information from control systems and industrial technology is being made more accessible. Systems being networked introduces data to new vulnerabilities and points of attack.”

The PSA’s commitment to ICT security is intended to run over several years, he explains. This involves an in-depth approach to learning as much as possible about technological trends and their impact on the risk picture.

“We’ll do this in the form of audits, collaboration with companies and unions, and working with national players in ICT security,” Seljemo reports.

“The overall goal of our projects is to make sure that the industry is maintaining a prudent level of ICT security.” ③

Text: ØYVIND MIDTTUN

ENHANCING EXPERTISE

Among the PSA's important jobs is facilitating communication and exchange of knowledge and experience between players. One way to do this involves inviting the industry to conferences, seminars and debates.

A number of events were staged by the agency in 2017, including:

- the working environment when changes are made in the petroleum and fabrication industries
- presentation of RNNP results
- seminar on security
- seminar on leak detection (with the Norwegian Environment Agency)
- seminar on barriers
- risk seminar
- seminar on whistleblowing (with the Norwegian Labour Inspection Authority)
- Safety Forum annual conference
- seminar on structural safety
- presentation of RNNP – acute discharges
- seminar on innovation
- follow-up after ICT audits
- contractor seminar
- Top Executive Conference 2017.

A number of the seminars and conferences are held annually or at fixed intervals.

An innovation in 2017 was a dedicated seminar on innovation. This addressed safety, research and industrialisation, and sparked good discussions on obstacles to and promotion of innovation and what is required to ensure future advances.

Another seminar on this subject will be held next autumn. ③





Text: EILEEN BRUNDTLAND

TALKING THE RIGHT LINGO

Whistleblowing, audits and RNNP figures have exposed challenges related to language. But the regulations are clear – Norwegian must be the first choice in the country’s petroleum sector.

Section 14 of the framework HSE regulations specifies that the Norwegian language, both written and spoken, is to be used as far as possible in the industry.

The guidelines on this provision permit certain exceptions, and employers can refrain from translating documents to Norwegian if they can satisfy certain conditions.

They must demonstrate that using Norwegian is inappropriate, that leaving the document in another language has no significance for safety, and that this is not at the expense of safety.

Norway’s machinery regulations also require the use of Norwegian in user manuals.

APPROPRIATE

“Companies are expected to make provision for and choose an appropriate

language for everyone involved in their activities, so that safety and the working environment are safeguarded,” says Tone Gulbrandsen from the PSA’s working environment discipline.

“We follow this up in audits by such means as reviewing procedures and user manuals. We also check the basis for company decisions to use languages other than Norwegian.”

HAZARDOUS

Almost 40 per cent of offshore personnel responding to the RNNP poll in 2015 agreed wholly or partly that hazardous conditions can occur because of language.

The PSA also receives reports related to this issue from whistleblowers, particularly on English often replacing Norwegian as the working language in the petroleum industry.

Even companies where almost the whole workforce is Norwegian may base their communication on English. That includes governing documents and in many meetings of the working environment committee or on safety.

“This means employees don’t always understand the governing documents or take less part in important discussions in these areas,” says Gulbrandsen.

“Making the wrong language choice could weaken worker participation. We also see that decisions of significance for HSWE are often inadequately explained.

“Many employees could thereby fail to receive important information, which might potentially mean that instructions are not complied with in critical conditions.” ③

Text: ØYVIND MIDTTUN

MANAGING ADVICE

A planned position paper from the PSA aims to improve understanding of how good risk management can protect people, the environment and material assets in practice.

Due to be published in 2018, this presentation will describe important aspects of managing risk but is not intended to form part of the formal petroleum regulations.

It will accordingly introduce no new requirements, but express the PSA's standpoint as a communicator of knowledge and a regulator.

"The paper is intended to help promote further development of risk management by the industry," explains Bjørnar Heide, who has led work on its content.

"We expect that its target audience will regard the suggestions made as a contribution to their work in this area."

INTEGRATION

The PSA paper emphasises that risk management does not function as intended until it has been integrated in other decision-making processes.

"A unified approach ensures that a balance is established over priorities, including between different areas and components in the organisation," says Heide.

"Before decisions are taken, all relevant issues must be adequately addressed, and uncertainty has to form part of the analysis.

"Requirements for robustness play a key part here, because

surprises can occur. This aspect must be given particular emphasis for incidents which have a big potential for occurring."

Knowledge about, involvement with and commitment to safety are core values, he notes. They must be fundamental to all decision processes in every part of the organisation.

DEBATED

The new paper covers selected risk management topics, and a number of issues have been debated in various technical meetings during its preparation.

These sessions have involved government agencies, operators, shipowners, contractors, unions and academics. Through this process, the various players have explained what they consider important for risk management.

Put briefly, the following questions have been addressed:

- what is required to manage risk well?
- what tools can help with risk management?
- what key prerequisites and principles underpin unified and integrated risk management?
- what are perceived to be the biggest challenges?
- what are necessary success criteria? ③

Text: ØYVIND MIDTTUN

TACKLING AN INVISIBLE RISK

Many Norwegian offshore facilities and land plants have reached a critical age for corrosion under insulation (CUI), and the PSA is therefore paying extra attention to this type of problem.

CUI has caused a number of undesirable incidents in recent years, some of them very serious. Findings related to the condition have also been made in a number of the PSA's investigations.

Much effort has been devoted by the agency to boosting industry knowledge of and attention to this issue, with CUI challenges included in work on regulations and standardisation.

The problem has been highlighted in specialist meetings, seminars and conferences as well as meetings with regulators in other countries. Audits have also been focused on CUI.

"Corrosion's nothing new," observes Sandra Gustafsson in the PSA's structural safety discipline. "The challenge arises when it happens under insulation.

"That's hard to detect without extensive stripping of the covering. The corrosion can develop rapidly, particularly under high temperatures in a chlorinated marine climate."

She reports that big variations exist between different facilities in terms of insulation design and company practice for systematic CUI follow-up.

"Lack of suitable inspection tools has also complicated mapping and criticality assessments. CUI hasn't attracted enough attention and priority from operators, so operational parameters are also insufficient."

INCREASED

But Gustafsson emphasises that the PSA is now picking up signs of increased notice being taken of the CUI challenges.

"We see that the companies are thinking along new lines with regard to material choices, design, increased use of stainless steels and improved surface treatment.

"Other areas where action is being taken include the choice of insulation materials, development of inspection tools and collaboration across disciplines."

CUI has found a bigger place on management agendas, she notes, and says that several serious incidents have undoubtedly contributed to this.

"We observe that efforts to improve management of this type of risk have been launched, and several research projects are also under way."

She adds that work on revising standards is being pursued in Norway, the UK and the EU, but wants to see even more initiatives for developing inspection methods.

"That calls for integrating knowledge and for learning from each other so that the risk of serious incidents can be reduced and checked on facilities old and new.

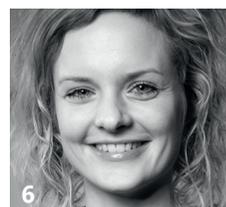
"Steel will go on rusting, so the industry must continue to take the CUI challenges seriously." ③

Photo: Morten Gjerstad





Articles from *Safety – status and signals* can also be read at psa.no/sss2018. Films and videos linked to this issue can be found at psa.no/video. These videos also include the surfer pictured here. (Photo: Morten Gjerstad)



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PRINT RUN

Norwegian: 7 500
English: 2 500

PAPER

Cover: Munken Polar, 300 g
Inside pages: Munken Polar, 150 g

PRINTER

Gunnarshaug Trykkeri

This edition of *Safety – status and signals* went to press on 12 February 2018.

Published 27 February 2018.



SAFETY
STATUS & SIGNALS
2017-2018

ISSN: 1890-4483