Mr. Chairman, Board Members and Staff,

On behalf of Statoil, I thank you for the invitation to this important public hearing. Major accident prevention must always be a top priority subject in our industry. This initiative on sharing best practices and experiences on effective process safety performance indicators is appreciated by Statoil. We believe that open sharing of safety knowledge, including HSE results, lessons learned and tools, is an important contributor to a safer operating environment.

In my short introduction, I will cover three main topics:

- I will start by giving a short overview of Statoil;
- I will then go into Statoil's approach to establishing indicators for major accident prevention;
- Finally, I will describe Statoil's Technical Integrity Management Program (TIMP) in more detail.

PART 1 | STATOIL IN BRIEF

Our company

Statoil is an international energy company with operations in 34 countries. Building on more than 35 years of experience from oil and gas production on the Norwegian continental shelf, we are committed to accommodating the world's energy needs in a responsible manner, applying technology and creating innovative business solutions. We are headquartered in Norway with 20,000 employees worldwide, and are listed on the New York and Oslo stock exchanges.

Statoil had an equity production of 1.85 million barrels of oil equivalent per day in 2011. Our current asset portfolio has the potential to deliver 2.5 million boe per day in 2020. Achieving this level of production will imply a growth rate over the next 10 years that is in line with that achieved over the last decade.

Our North America activities are managed out of offices in Houston, TX and Calgary, Alberta, Canada. Statoil North America assets represent approximately 30 percent of Statoil total discovered resources. Our offshore Gulf of Mexico business includes working interest in more than 350 leases, and we currently have six producing fields and 8 fields in various stages of development. In Canada, Statoil is an operator and owns interests in several exploration, development and production licenses offshore. Our U.S. onshore assets include significant acreage in the three largest shale oil plays, generating more than 100,000 barrels of oil equivalent (boe) daily, and we are an operator in our Canadian oil sands business, using the most environmentally recognized technology to recover oil sands crude. Statoil also is among the largest crude oil sellers in the world, and our trading office in Stamford, CT trades several crudes important to the North American market.

The Statoil way

The way we work is as important as the goals we achieve. We believe that competitive returns for our shareholders are best achieved through a values-based performance culture, stringent ethical requirements and a code of conduct which promotes personal integrity.

We set absolute requirements for health, safety and the environment (HSE). We aim to meet the demand for energy needed for further economic and social development, while showing consideration for the environment and making an active effort to fight global climate change.

Safe and efficient operations are our first priority. We have received major recognition for our technical safety monitoring system and our program for safe behavior. We are convinced that all accidents can be avoided, and our goal is zero personal injuries. We emphasise continuous work for an improved HSE performance in all our activities.

We focus on contributing to sustainable development through our core activities in the countries in which we operate. We are committed to openness and anti-corruption work, and to respect for human rights and employee rights. This applies both to our own activities and to the section of the value chain we influence.

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PART 2 | STATOIL'S APPROACH TO INDICATORS FOR MAJOR ACCIDENT PREVENTION

Statoil Chief Executive Officer, Helge Lund, is very clear about safety as a top priority for the company. He states that a Major Accident is one of the most severe threats to the company's robustness in the future.

Based on our experiences and learning from past incidents, Statoil has singled out four areas of particular attention to improve our HSE performance:

- Leadership and compliance to our governing system;
- Improved risk management;
- Simplification and harmonization of work processes and governing system;
- Increased focus on technical integrity and barriers (process safety in US terms).

These focus areas have been the headlines of our safety improvement agenda over the past 5 years. They have proved to be strong tools in a framework for major accident prevention.

Understanding of Risk

Statoil started out as a Norwegian state owned company in 1972, with operations initially in Norway. The Norwegian regulations are risk-based, and strongly emphasize the importance of risk reduction. The operator is "the responsible party" and shall ensure compliance with functional requirements

stipulated in the health, safety and environmental legislation. Reducing the risk of accidents, personal injuries, health injuries and damage to the environment, to the greatest extent possible, is the basic principle for risk management.

To understand and monitor major accident risk at a corporate level, a set of indicators are used.

- Serious Incident Frequency (includes both *accidents* with serious damage/loss and *incidents* with serious potential);
- Actual gas leaks (includes gas leaks categorized based on release rate (volume/time));
- A set of additional monitoring reports, including technical integrity status and benchmark reports.

These indicators and monitoring reports give useful input to benchmarking, learning and improvements at all levels. Recording of hydrocarbon leakages and other "reactive" event data are lagging indicators turning focus to barrier defects, events and consequences after they have occurred. Our focus is turning to better understand the underlying causes of an incident or accident, and to develop leading indicators related to quality of the critical barriers. This can enable us to act more proactively to avoid incidents.

We believe management of safety barriers requires a risk based mindset, with the following steps to be taken:

- Risk analyses of scenarios to identify safety barriers in the relevant chains of event;
- Establish performance standards for the barriers;
- Manage barrier integrity;
- Measure barrier integrity as process safety indicators.

Holistic barrier management

Barrier management can be defined as coordinated activities to establish and maintain barriers to ensure that they maintain their function at any time (from PSA (Petroleum Safety Authority) memo December 2011, translated title: "Principles for barrier management in the petroleum industry").

Different barriers can be of a technical, operational or organizational nature, or a combination. A complete set of indicators for managing Major Accident Risk must cover the Man, Technology and Organization (MTO) perspective. Statoil has this as our framework for developing indicators for Major Accident Risk, and we continuously strive towards identifying monitoring- and verification tools, and indicators to address the holistic perspective.

The Norwegian Petroleum Safety Authority (PSA) drives focus and performance with the Risk Level Norwegian Petroleum Activities (RNNP) program. A considerable amount of data is collected annually, and gives the industry and stakeholders access to valuable trend analyses, benchmark results and good qualitative analyses of HSE results for the Norwegian petroleum activities. Over the last 10 years, RNNP has developed in a tri-partite collaboration (Authorities,

companies and employees), anchoring a common understanding of the risk picture. Statoil puts considerable effort into the data collection and interpretation of results. Conclusions and recommendations from RNNP are evaluated towards established activities and measures.

Examples of leading Statoil tools and indicators in holistic barrier management are:

- Serious Incident Frequency (includes both *accidents* with serious damage/loss and *incidents* with serious potential);

- Technical Integrity Management Program (see more detailed description below);
  - Continuous follow up on selected technical barriers against major accidents and critical elements for production regularity

- Technical Condition Safety;
  - Verification tool based on Statoil's Performance Standards for safety systems and barriers
  - Verifications of all projects before project execution and repetitive verifications of all operating facilities every 5 years

- Installation basic indicator – Technical Condition Safety;
  - Benchmark indicator of Technical Condition Safety scores

- Operational Condition Safety;
  - Verification tool based on selected operational and organizational performance standards and corresponding requirements in work processes
  - Verifications on a risk based selection of facilities

- Psychosocial Risk Indicator;
  - Leading indicator that measures exposure to psychosocial risk factors that may impact workers' health and safety performance
  - Related Psychosocial Risk Management (PRIMA) methodology enables in-depth verification and follow-up of entities at risk

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PART 3 | TECHNICAL INTEGRITY MANAGEMENT PROGRAM (TIMP)

The Statoil definition of Technical Integrity:

"A system or a facility's ability to function as intended and in accordance with regulations (regulatory requirements) and internal provisions".

Technical integrity is vital for safe and effective operation of our facilities. Managing risk in Statoil is everyone's responsibility, directly or indirectly. TIMP provides us with an overview of

the condition of our technical barriers, forming a solid basis when risk is assessed prior to the initiation of operational activities.

Our facilities, onshore and offshore, are very different in terms of age, design, technology and dependencies, but the need for maintaining control of technical integrity is equally important for all of them.

TIMP is a concept containing a work process, a method for risk assessment and a tool for follow-up and visualising technical integrity. The fourth important element is competence, and training of personnel is essential to harvest the full potential of this program. The TIMP concept and its key elements are dealt with in two key training initiatives; "Understanding risk and risk reducing barriers" and "Understanding and use of the CMMS (Computerized Maintenance Management Systems)", two sixteen-hour's workshops that are mandatory for all personnel working with TIMP.

Investigations of potential and actual major accidents often show that organizations experiencing major accidents and incidents were confronted with apparent symptoms of deteriorating safety critical barriers over a long period of time. Unfortunately, the symptoms were either not regarded as being alarming, or they were not treated appropriately.

This highlights the importance of understanding the risk we are exposed to on a daily basis, enabling us to control it and implement relevant risk reducing measures – in time. TIMP does not explicitly assess the risk level on the facility, but the condition of the technical barriers. Through TIMP, these assessments are transparent, well documented and made visible.

TIMP also facilitates experience and knowledge transfer across technical disciplines, facilities, business areas, and the company.

The bottom-up approach

In daily operation, the operators and maintenance technicians record their activities and findings in various computerized systems. These records store lots of information that can be used to analyze the condition of *equipment*, *systems* or entire *barrier functions*. Typical information sources can be:

- Incident reporting;
- Backlog – safety critical maintenance;
- Availability of safety equipment;
- Temporary dispensations;
- Verification reports;
- Test data for safety critical equipment.

These data are put together and structured, enabling the organization to use information to build knowledge about the condition of its facilities. In the "bottom-up approach", we start assessing condition on a detailed level, escalating from equipment, via systems and barriers, to a facility level. These assessments are discussed below.

Equipment assessment

Responsible personnel are appointed for all safety-critical equipment on a facility. These appointed experts assess the data periodically to determine the equipment's current ability to perform its function related to safety. Individual grades ranging from B (good function) to F (function failure) are given to indicate the condition of the equipment. A short statement giving the reason for the grade is also produced.

System assessment

The equipment assessment is aggregated to a system level, where a systems engineer performs a similar, individual assessment of the system as a whole. In this assessment, the equipment grades are also important parameters. The entire system is given a grade and a condition statement in the same manner as the equipment assessment.

Barrier function assessment

In the same manner, an aggregation of equipment and system assessments is made when the barrier function is assessed.

Each barrier function has an assigned *Performance Standard* (PS) that forms the basis for safety system elements performance. This shall be sustained and verified through the lifecycle of the installation.

The specific safety performance standards shall ensure that barriers, safety systems or safety functions:

- Are suitable and fully effective for the type of hazard identified;
- Have sufficient capacity for the duration of the hazard or the required time to provide evacuation of the installation;
- Have sufficient availability;
- Have adequate response time;
- Are suitable for all operating conditions.

The performance standards are assessed based on the equipment and systems assessments, and shall reflect the most serious gaps registered through the previous assessments, based on the given facts and the assessor's knowledge of the barrier. The PS assessments are presented in a bowtie model, providing an "at-a-glance" status of the facility.

Facility assessment

When the equipment, system and barrier assessments have been completed, a meeting takes place, where all the experts participate in a facility evaluation together with operations staff.

This ensures a common understanding of the safety condition of the facility, and a summary report is produced and published following this meeting. Priorities and mitigating measures are decided and implemented to compensate for sub-standard conditions.

Our TIMP experience so far

Nearly two years into the Technical Integrity Management Program, our experience is that even if the work load on our experts may have increased, the understanding and awareness of barrier functions have increased significantly, and the facility is able to prioritize its efforts better, both with respect to safety and productivity.

TIMP is a new way of working with leading indicators. The process with aggregation of information, combined with expert judgment, is in itself an important strengthening of safety culture and awareness. The TIMP portal visualizes the information as a leading indicator of the technical status of the facility. The information is transparent and well documented. TIMP also facilitates experience and knowledge transfer across technical disciplines, facilities and business areas. Together these elements make TIMP a powerful tool.

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Each company and industry brings their own set of experiences and practices to the table. My hope for today is that the exchange of knowledge, information and experiences will produce mutual learning and improvement to help us meeting the ultimate objective; Safe, reliable and compliant operations.

Thank you for listening.