



| 2009 |

Go first.

Joint innovation in the energy industry

MANAGING RISK





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DNV is a global provider of services for managing risk. Established in 1864, DNV is an independent foundation with the purpose of safeguarding life, property and the environment. DNV comprises 300 offices in 100 countries, with 8,000 employees.

Let's join forces.

At DNV, we work continuously to improve technologies, methodologies and solutions related to the energy sector. Close collaboration with the industry has been key to the results we have produced. This is our simple idea: If we combine our own development resources with those of the industry, we can achieve so much more. Now we invite partners to join us in the pursuit of new achievements. We are also proud to present the results of our ongoing efforts.



Umbilicals are the lifeline between subsea installations and production platforms. DNV is working closely with the industry to identify potential failure modes and develop acceptance criteria to ensure that they perform as intended.



DNV is working actively to find new and more efficient methods to better evaluate and manage the integrity of pipelines. We are involved in several projects related to corrosion and pipeline coatings, all funded by government organisations and the industry.

The growing demand for energy implies a constant need for innovation. Through our involvement with the energy industry, DNV has always been engaged in developing new technologies, methodologies and services. The range of projects currently in progress demonstrates the depth and scope of our initiatives.

DNV has always focused on renewing our knowledge and setting new standards. We issued our first principles for offshore drilling platforms in 1970, and have since issued a large number of new and revised codes. Most of the work is done through joint industry projects. A number of exciting ongoing projects are helping the industry to safely and responsibly improve their business performance. The projects focus on the following segments:

- Deep and ultra-deepwater field development
- Floating offshore installations
- Offshore and onshore pipelines
- Natural gas/LNG
- Refining and petrochemicals
- Power generation and transmission
- Carbon capture and storage
- Wind, wave and tidal energy
- Arctic operations and technology

The efforts are executed worldwide and co-ordinated through the leadership team of DNV Energy. A selection of current projects is listed on the following pages, illustrating depth and extent of our initiatives. They are based on ideas from creative individuals in our worldwide organisation generated from interaction with key customers. We are excited about our ongoing projects and look forward to continue working with the industry to lead the way. Join us in setting new standards for the energy sector. Let's go first.

Ongoing joint industry projects

Name	Sponsors and participants	Segment	Contact
Guidelines for selection and qualification of sites and projects for geological storage of CO2	StatoilHydro, Gassnova SF, Gassco AS, Vattenfall, RWE Dea, BP Alternative Energy, Shell, Schlumberger Carbon Services, BG Group, DONG Energy, IEA Greenhouse Gas R&D Programme & DNV	Carbon capture and storage	Jorg.Aarnes@dnv.com
CO2PIPETRANS - Criteria for CO2 transmission pipelines	StatoilHydro, BP, BG International, Vattenfall, DONG Energy, Shell, ArcelorMittal, Gassco, Gasnova, Petroleum Safety Authority, UK Health and Safety Executive, ILF, State Suoervision of Mines & DNV	Carbon capture and storage	Froydis.Eldevik@dnv.com
Demo 2000 project process qualification	StatoilHydro, Aker Solutions, Vetco Gray, FMC Technologies & DNV	Deep and ultra-deepwater field development	Ketil.Firing.Hanssen@dnv.com
Acceptance criteria for umbilicals	Exxon, StatoilHydro, Shell, Woodside, Aker Kværner, Corning (NSW), Draka, Duco, Nexans & DNV	Deep and ultra-deepwater field development	Stefan.Palm@dnv.com
Intercepting HISC by Ultrasonic Residual Stress Measurement	UltraRS (France), Research Council of Norway, French-Norwegian Foundation & DNV	Deep and ultra-deepwater field development	Majid.Anvari@dnv.com
Improving Fibre Mooring Design Practices	APL, Atlantia, BP, Chevron, Shell, StatoilHydro Bexco, Bridon, Oliviera, Quintas & Quintas, Scanrope, Whitehill, TTI & DNV	Deep and ultra-deepwater field development	Vidar.Ahjem@dnv.com
Safe Service Life of Fibre Moorings	Anadarko, Atlantia, BP, Chevron, Shell, StatoilHydro, Bexco, Bridon, Oliviera, Quintas & Quintas, Scanrope, Whitehill, Diolen & DNV	Deep and ultra-deepwater field development	Vidar.Ahjem@dnv.com
Improved modelling of spreading of oil spills	SINTEF, StatoilHydro & DNV	Deep and ultra-deepwater field development	Odd.Willy.Brude@dnv.com
Integrated operations in the high north	Abelia, Computas, The Norwegian Defence, EPSIS, FMC, IBM, Invenia, IO Center, Kongsberg, National Oilwell Varco, OLF, Posc Caesar, PSA, SAS Institute, StatoilHydro, Tieto, Norwegian Research Council & DNV	Deep and ultra-deepwater field development	Tom.Thomsen@dnv.com
Hydrogen Induced Stress Cracking in Stainless Steels, Phase 3	SINTEF, Chevron, ConocoPhillips, Shell, StatoilHydro, Total, Petrobras, Sumitomo, Tenaris NKK & DNV	Deep and ultra-deepwater field development	Stig.Wastberg@dnv.com
Guideline for specification, installation and in-service inspection of fasteners for the offshore oil and gas industry	StatoilHydro, Technip, Total, Hydratight, Heerema, Subsea7, Petrobras, BP, Vetco Gray, FMC, Petroleum Safty Authority & DNV	Deep and ultra-deepwater field development	Astrid.Kjesbu@dnv.com

Ongoing joint industry projects

Name	Sponsors and participants	Segment	Contact
Elastomers and seals for the offshore oil and gas industry - present applications and future needs	Petrobras, Bel-valves, Peak Well Solutions, Seadrill and DNV	Deep and ultra-deepwater field development	Erling.Skavas@dnv.com
Fracture control	SINTEF, Shell, Gassco, ConocoPhillips, ENI, Technip, StatoilHydro, ExxonMobil, Tenaris NKK & DNV	Deep and ultra-deepwater field development	Stig.Wastberg@dnv.com
IO Centre – Integrated operations in the petroleum industry	NTNU, SINTEF, IFE, AkerKværner, FMC, ConocoPhillips, Gas de France, StatoilHydro, IBM, Kongsberg, Shell, Total, ENI & DNV	Deep and ultra-deepwater field development	Heidi.Brovold@dnv.com
Guidelines for qualification of wear and corrosion protective surface materials for piston rods and other components	StatoilHydro, Transocean Offshore Pipeline Drilling, Smedvig Offshore AS, Rexroth Bosch Group, National Oilwell, Eaton Fluid Power Hydrowa, Scandlines, Stena Drilling, Hunger Hydraulik, Douce-Hydro & DNV	Floating offshore installations	Karl.Petter.Fischer@dnv.com
Qualification of Adhesive Bonding in structural repairs of FPSOs	StatoilHydro, Shell, ConocoPhillips, Petronas, Petrobras, DML & DNV	Floating offshore installations	Dag.McGeorge@dnv.com
MARFILM – use of polymer film to replace conventional corrosion protection coatings	Fjellstrand as, Flensburger Schiffbau Gesellschaft, Fjord1, Tide, Helge Norli AS, 3M, Norleas AS, SINTEF & DNV	Floating offshore installations	Stefan.Marion@dnv.com
Corrosion protection and maintenance of bolting and fasteners	ConocoPhillips, Petrobras, Enviropil and DNV	Floating offshore installations	Karl.Petter.Fischer@dnv.com
Development of guidelines for in-service welding of chemical products lines	Pipeline Research Council International & DNV	Offshore and onshore pipelines	Bill.Bruce@dnv.com
Development of heat affected zone hardness limit guidelines for hot tap in-service weld qualification	US Department of Transport, TransCanada PipeLines, University of Wollongong, BlueScope Steel & DNV	Offshore and onshore pipelines	Bill.Bruce@dnv.com
Procedures for implementing stress corrosion cracking mitigation schemes for ethanol transportation in pipelines	Pipeline Research Council International CC Technologies & DNV	Offshore and onshore pipelines	John.Beavers@dnv.com Narasi.Sridhar@dnv.com
Lined and Clad Pipeline Materials	Shell, Total, Woodside, Petrobras, StatoilHydro, Chevron, Butting, Tenaris, CladTek, Technip, Petrobras	Offshore and onshore pipelines	Morten.Johnsrud@dnv.com
Recommended Practice (RP) for Arctic Offshore Pipelines	StatoilHydro, ENI, ConocoPhillips, Exxon Mobil, JP Kenny, KBR, Reinertsen, Technip, Memorial Univeristy, CTC Marine & DNV	Offshore and onshore pipelines	Simen.Eldevik@dnv.com
New approach predicting failure pressure of interacting corrosion defects	Petrobras, Federal University of RiO de Janeiro, PUC-Rio	Offshore and onshore pipelines	Ana.Souza@dnv.com

Ongoing joint industry projects

Name	Sponsors and participants	Segment	Contact
Method for Qualification of Coatings Applied to Wet Surfaces	US Department of Transport, CC Technologies & DNV	Offshore and onshore pipelines	Sean.Brossia@dnv.com
Field methodology to determine status of corrosion defects	Pipeline Research Council International & DNV	Offshore and onshore pipelines	Joshua.James@dnv.com
Composite patch repair for onshore pipelines	US Department of Transport, Colonial Pipelines & DNV	Offshore and onshore pipelines	Davion.M.Hill@dnv.com
Interpretation and Guidelines for Application of API 1104	Pipeline Research Council International & DNV	Offshore and onshore pipelines	Bill.Bruce@dnv.com
Recommended Practice for Pipeline Integrity management (DNV-RP-F116)	Statoil Hydro, Gas de France, Gassco, CNOOC, DONG ENI & DNV	Offshore and onshore pipelines	Bente.Leinum@dnv.com
Structural integrity during removal of platform	BP, Total, Conoco Philips, Shell and DNV	Offshore installations	Per.Oystein.Alvar@dnv.com
Fatigue during Sea Transports	Total, StatoilHydro, AkerKværner, SINTEF, NTNU & DNV	Offshore installations	Per.Oystein.Alvar@dnv.com
Best Practice for Maintenance Management	StatoilHydro, ConocoPhillips, Tee Key Petrojarl, Tallisman, Gassco, Transocean & DNV	Offshore Installations	Sture.Angelsen@dnv.com
Wave impact loads	ABS, Aker Solutions, Chevron, ConocoPhillips, Offshore Innovative Solutions LLC, Petrobras, SEVAN, StatoilHydro, Marintek & DNV	Offshore Installations	Jorn.Birknes@dnv.com
Standardisation of Wind Turbines through IEC WT01, IEC 61400-1, IEC 61400-3, IEC 61400-23 and ISO 81400-4	Vestas, Siemens, Gamesa, GE, Enercon, Mitsubishi, LM Glasfiber, TPI Composites, Fiberblade, Hansen, SKF, NREL, WMC, ECN, Risø, G. Hassan, DONG, GL TUV Nord, DEWI & DNV	Wind, wave and tidal energy	Erik.Asp.Hansen@dnv.com
UPWIND – The EU Research Programme on wind energy	A number of leading universities in Europe and Risø National Laboratory, Elsam Engineering, GH, GE Wind Energy, Fiberblade Eólica, LM Glasfiber, GL, Ramboll, Fundación Robotiker, SAMTECH S.A., Shell Windenergy, Repower Systems, Vestas, Lohmann und Stolterfoht, QinetiQ Ltd., Smart Fibres, European Wind Energy Association & DNV	Wind, wave and tidal energy	Christer.Eriksson@dnv.com
EQUIMAR - Testing and Evaluation of Marine Energy Extraction Devices in terms of Performance, Cost and Environmental Impact	A number of leading universities in Europe & DNV	Wind, wave and tidal energy	Claudio.Bittencourt@dnv.com
New safety standards for offshore wind farms	StatoilHydro, Vattenfall, Dong Energy, EON, Energinet UK Health and Safety Executive, Danish Energy Authority and DNV	Wind, wave and tidal energy	Tove.Feld@dnv.com

Take advantage.

At DNV, we invest heavily to ensure that the results of our development projects can be effectively applied in the industry. As a partner you will have first-hand access to the output of these efforts, providing you with a competitive edge and enabling you to safely and responsibly improve your performance.



Good environmental performance is increasingly viewed as a business imperative. DNV is supporting the development of cost-effective and safe wind farms through the publication of new codes.



Exploration and production will require new platform solutions and more efficient work processes. In 2009 we will publish a number of rules, guidance notes and recommendations to ensure that the industry quickly can take full advantage of new methodologies and requirements.

The sharing of knowledge is a key driver of progress. Making new methodologies and knowledge available to the industry is therefore an important part of DNV's mission. We do this by launching new services, and we do it by codifying the knowledge in the form of new standards and recommended practices.

In close cooperation with the energy industry we will continue to improve industry standards also in 2009. A selection of new services and codes to be released are presented on the next pages. They cover a wide range of areas – from new methodologies and criteria for riser design and pipeline integrity, to re-licensing of nuclear power plants and sustainability of hydropower projects.

We are eager to see this output applied in real projects and look forward to continue working with the industry to lead the way. Take advantage by making use of the new services, tools and methods for your next project.

Projects about to be completed

Name	Publication	Segment	Contact
Technical and economical uncertainties in the CCS value chain	January 2009	Carbon capture and storage	hans.bratfos@dnv.com
A new Recommended Practice for qualification of CO2 capture technology	October 2009	Carbon capture and storage	Tore.Myhrvold@dnv.com
ORBIT Pipeline, Riser and Subsea – an improved integrated web-based integrity management system covering all assets from well to shore	June 2009	Deep and ultra-deepwater field development	Anders.Hvidsten@dnv.com
Up-grading of the code and software package for DNV RP-O501 Erosive wear in piping systems	December 2009	Deep and ultra-deepwater field development	Oddmund.Kvernold@dnv.com
Updating of DNV-OSS-300 Risk based verification	February 2009	Deep and ultra-deepwater field development	Edwardus.Ng@dnv.com
Updating of DNV-RP-F204 Riser fatigue	October 2009	Deep and ultra-deepwater field development	Oddrun.Steinkjer@dnv.com
Development of DNV-RP-F203 Riser interference	April 2009	Deep and ultra-deepwater field development	Anne.Marthine.Rustad@dnv.com
DNV OS-E406 Design of Free Fall Lifeboats	April 2009	Floating offshore installations	Knut.Ronold@dnv.com
DNV RP-H103 Modelling and Analysis of Marine Operations	April 2009	Floating offshore installations	Arne.Nestegard@dnv.com
DNV OS-E304 Offshore Mooring Steel Wire Ropes	April 2009	Floating offshore installations	Astri.Gaarde@dnv.com
DNV OS-B101 Metallic Materials	April 2009	Floating offshore installations	Astri.Gaarde@dnv.com
A new Recommended Practice on design of polyester mooring ropes	October 2009	Floating offshore installations	Vidar.Ahjem@dnv.com
A new approval program for design of polyester yarns for mooring ropes	June 2009	Floating offshore installations	Vidar.Ahjem@dnv.com
A new Offshore Service Specification for Gas Facilities	April 2009	Natural gas/LNG	Edwardus.Ng@dnv.com
ORBIT Onshore Pipelines – integrated web-based integrity management system covering the entire onshore pipeline system including compressor stations and associated process equipment	January 2009	Offshore and onshore pipelines	Anders.Hvidsten@dnv.com

Projects about to be completed

Name	Publication	Segment	Contact
DNV RP-F116 Pipeline Integrity Management	June 2009	Offshore and onshore pipelines	Bente.Leinum@dnv.com
AUT workmanship style acceptance criteria to be implemented in DNV OS-F101 Submarine Pipeline Systems	October 2009	Offshore and onshore pipelines	Bjorn.Andreas.Hugaas@dnv.com
DNV-OSS-313 Pipe Mill and Coating Yard Qualification	April 2009	Offshore and onshore pipelines	Morten.Solnordal@dnv.com
Updating of DNV-OSS-301 Certification and verification of pipelines	February 2009	Offshore and onshore pipelines	Edwardus.Ng@dnv.com
Pipeline Analysis Toolbox – State-of-the-art tools and methods for advanced pipeline analysis	January 2009	Offshore and onshore pipelines	Olav.Fyrileiv@dnv.com
A new approval scheme for pipe mills based on the requirements in DNV OS-F101 Submarine Pipeline Systems	April 2009	Offshore and onshore pipelines	Edwardus.Ng@dnv.com
Updating of CN 2.7 - 3 Portable offshore units	June 2009	Offshore installations	Per.Oystein.Alvar@dnv.com
Planning and Execution of Marine Operations, General (DNV-OS-H101) + a series of Offshore standards for Design, Load Transfer, Lifting and Subsea Installations	October 2009	Offshore installations	Per.Oystein.Alvar@dnv.com
ORBIT Structures - more efficient and accurate methods for risk based assessment for the strength and integrity of fixed offshore structures	January 2009	Offshore installations	Einar.Landet@dnv.com
Best practice approach for execution of due diligence projects	January 2009	Offshore installations	Christian.Nerland@dnv.com
An integrated approach to how to handle integrity of technical safety barriers	January 2009	Offshore installations	Johan.Ingvarson@dnv.com
A new distinctive approach to safety barriers including continous updating and web reporting	January 2009	Offshore installations	Robin.Pitblado@dnv.com
Web based deliveries of results from safety risk assessments	January 2009	Offshore installations	Ravi.Tahilramani@dnv.com
Verification system for sustainability assessments of hydropower projects	February 2009	Power generation and transmission	Runa.Haug.Khoury@dnv.com

Projects about to be completed

Name	Publication	Segment	Contact
Risk informed decision making in the nuclear industry addressing safety, operations and asset risk	January 2009	Power generation and transmission	Martin.Ruscak@dnv.com
Best practices within integrated management systems	January 2009	Refining and petrochemicals	Ron.Hallmark@dnv.com
A new tool for measuring and improving culture for process safety and asset integrity	January 2009	Refining and petrochemicals	Luiz.Oliviera@dnv.com
A novel approach to asset integrity and process safety – the AIM to WIN game	January 2009	Refining and petrochemicals	Don.Banks@dnv.com
Update of the SCAT tool to include safety barriers and safety culture as root causes	January 2009	Refining and petrochemicals	Mark.Fisher@dnv.com
Computer gaming tools for understanding major fire response needs	January 2009	Refining and petrochemicals	Robin.Pitbaldo@dnv.com
Refinery Risk Manager – improved management of risks and opportunities in the refinery sector	January 2009	Refining and petrochemicals	Graham.Bennett@dnv.com
Value Chain Analysis – a working model to identify key economic vulnerabilities in the oil and gas supply chain	January 2009	Refining and petrochemicals	Graham.Bennett@dnv.com
A better understanding of damage tolerances of composite structures and components	April 2009	Wind, wave and tidal energy	Brian.Hayman@dnv.com
Project Certification of offshore wind farms (DNV-OSS-901)	February 2009	Wind, wave and tidal energy	Tove.Feld@dnv.com
Qualification of renewable energy technology (DNV-RP-J201)	April 2009	Wind, wave and tidal energy	Hans.Bratfos@dnv.com



CAUTION
PROTECTIVE CLOTHING
REQUIRED
IN THIS AREA

Let's get started.

The projects now in the pipeline are no less exciting than those we have completed. Our ambitions are higher than ever and we intend to put our mark on developments in areas ranging from ultra-deepwater and floaters, through LNG and renewables to the challenges of the arctic.



Safety is a key issue in the approval process for an LNG facility. Introduction of risk based verification principles and procedure for design and fabrication of gas liquefaction plants is focus in one of our new projects in 2009.



Developing and operating oil and gas installations in the arctic require new knowledge and new procedures. DNV has i.e initiated a project aiming to develop practises for more accurate design of ice loads on offshore structures to enable a more reliable exploration and exploitation of hydrocarbons in arctic areas.

New ideas are generated every day by our worldwide staff – inspired by close interaction with key customers and partners. Sometimes it is an extension of current knowledge and methodologies. At other times we come up with totally novel knowledge or applications. In both cases we want to work closely with the industry to develop the ideas further.

Our ultimate goal is that the proposals presented on the next pages will materialise in new codes in 2009, 2010 and 2011, depending on the complexity of the issues and projects. The ideas and proposals cover a wide range of issues – new methods and criteria for offshore foundation design, corrosion effects on pipelines, uncertainty within CO₂ transport and injection, performance improvement tool for wind energy plants, improved handling of oil spills, better methods for LNG transfer – and much more. We are excited about our new proposals and the prospect of developing them together with the industry. We hope the portfolio of projects described on the following pages will stimulate your ambitions as well. Let's get started.

Projects in the pipeline

Name	Project description	Segment	Contact
Transport of super critical CO ₂	Materials performance relevant to pipeline transportation of supercritical CO ₂ to handle growing needs for CCS	Carbon capture and storage	Ramgopal.Thodla@dnv.com
Coal gassification	Evaluation and selection of appropriate materials for gassification units	Carbon capture and storage	Sean.Brossia@dnv.com
Updating of DNV-OS F201 Dynamic risers	The Offshore standard will be updated to reflect experiences gained from recent projects	Deep and ultra-deepwater field development	Oddrun.Steinkjer@dnv.com
Recommended Practice (RP) for Foundations (DNV-RP-208)	Develop new RP related to foundation design for offshore structures replacing CN 30.4	Deep and ultra-deepwater field development	Jan.Holme@dnv.com
Web-based Riser Integrity Management	Internet solutions to ensure that the operator gets a fast and effective overview of the integrity	Deep and ultra-deepwater field development	Vigleik.Hansen@dnv.com
Up-dating of DNV-OSS-306	Enhance DNV OSS-306 by improving format and developing a logic, transparent and traceable tool to harmonise workprocess	Deep and ultra-deepwater field development	Leif.Halvor.Moen@dnv.com
Risk based assessment of well integrity	The oil and gas production and CO ₂ injection will scope will be considered with focus on when we develop a method for assessing the condition of wells using a risk based approach	Deep and ultra-deepwater field development	Lars.Tore.Haug@dnv.com Jorg.Aarnes@dnv.com
Wellhead fatigue analysis	Development of new analysis methods in order to ensure that structural integrity of subsea wells is maintained	Deep and ultra-deepwater field development	Lars.Tore.Haug@dnv.com
DNV RP-C209 Ice Effects on Arctic Offshore Structures	More accurate design of ice loads on offshore structures will enable a more reliable exploration and exploitation of hydrocarbons in arctic areas	Floating offshore installations	Gus.Cammaert@dnv.com
A new Offshore Service Specification for design and fabrication of gas liquefaction plants	Introduction of risk-based verification principles and procedures for design and fabrication of gas liquefaction plants	Natural gas/LNG	Edwardus.Ng@dnv.com
Qualification and repair of pipelines with external damage	Qualification methodology of pipelines exposed to high strains with focus on laboratory test and FE analysis	Offshore and onshore pipelines	Birger.Atle.Etterdal@dnv.com
Soil-Pipe Interaction (DNV-RP-F114)	Better methods for analysis of interaction between pipelines and soil to enable a more optimum design and cost-effective operation	Offshore and onshore pipelines	Jan.Holme@dnv.com

Projects in the pipeline

Name	Project description	Segment	Contact
Recommended practice for pipeline system pressure test (DNV-RP-F115)	Develop an RP on system testing with concrete guidance on execution	Offshore and onshore pipelines	Leif.Collberg@dnv.com
Design Criteria for Pipeline Spools (DNV-RP-F117)	Provide design guidelines to allow increased utilisation in bends	Offshore and onshore pipelines	Leif.Collberg@dnv.com
External pipeline corrosion in arctic conditions	A better understanding of the behaviour of complete corrosion protection systems in arctic environments	Offshore and onshore pipelines	Sean.Brossia@dnv.com
Pipeline Risk Management	Objective to improve the basis for risk assessment and protection design of pipelines with respect to 3rd part damage	Offshore and onshore pipelines	Olav.Fyrileiv@dnv.com
Fatigue of girth welds	Guideline for fatigue design of girth welds including calibrated safety factors	Offshore and onshore pipelines	Stig.Wastberg@dnv.com
Residual stress/strain in pipeline girth welds	More and more pipelines see high stress /strain. The scope is to consider an experimental and numerical study of residual stress distribution in the pipeline girth weld.	Offshore and onshore pipelines	Jens.Petter.Tronskar@dnv.com
Future risk profile prediction	The purpose is to develop a framework for projecting failure probability and incorporating future consequence projections to determine a future risk profile. The outcome will be used as a basis of a cost benefit analysis evaluating major operating decisions.	Offshore and onshore pipelines	Neil.Thompson@dnv.com
Onshore pipeline quantitative risk assessment	Development of tools and methodology on Quantitative Risk Assessment for onshore transportation pipelines	Offshore and onshore pipelines	Li.Zhang@dnv.com
Pipeline pre-commissioning	Guideline on how to best perform pre-commissioning activities for offshore pipelines	Offshore and onshore pipelines	Asle.Venas@dnv.com
Updated series of guidelines for approval and building MOUs for drilling and well intervention	A smarter and more flexible way of handling offshore projects aiming at improving delivery of new units in today's market. Jack-ups, semi-submersibles and ships	Offshore installations	Svein.Flogeland@dnv.com
Web-based training for risk based verification	Cost-effective and environmentally friendly implementation of competence qualification within risk based verification	Offshore installations	Edwardus.Ng@dnv.com
SOQRATES	Development of a simplified tool for offshore QRA analysis	Offshore installations	Brian.Bain@dnv.com

Projects in the pipeline

Name	Project description	Segment	Contact
Improved approach and systematics for assessing ageing units	Improved services for floating installations	Offshore installations	Tommy.Bjornsen@dnv.com
Improved and updated Inservice Inspection Programs including credit for planned maintenance systems	Improved services for floating installations	Offshore installations	Tommy.Bjornsen@dnv.com
Next generation tools for quantitative risk analysis	A significant upgrade and modification of software tools PHAST and SAFETI	Offshore installations	Brian.Bain@dnv.com
Remaining life assessment of process plants	A number of assets are operating far beyond the original design life. In the Norwegian sector 33 installations are due for renewal of consent till 2010. DNV will consolidate all the different approaches towards remaining life assessment, in particular for the topside/process systems.	Offshore installations	Sture.Angelsen@dnv.com
NDT Best Practice	The objective is to collect experiences and best practices for the NDT methods used for the oil, gas and energy sector	Offshore installations	Bjorn.Andreas.Hugaas@dnv.com
A new Offshore Service Specification for modification and new-build of refineries	Introduction of modern risk-based verification principles and procedures for design and fabrication of refineries and refinery equipment	Refining and petrochemicals	Edwardus.Ng@dnv.com
Implementation of HAZOP tools in Orbit SIL	ORBIT SIL has been developed to facilitate execution of SIL Analysis. In order to become more efficient we will incorporate a HAZOP spreadsheet in ORBIT SIL for the assignment can be done from inside the same software.	Refining and petrochemicals	Luiz.Oliviera@dnv.com
Storage tank code compliance	Development of a protocol to advise on issues of compliance with relevant regulations with respect to safety and integrity	Refining and petrochemicals	Paul.Mathieson@dnv.com
Performance improvement tools for wind energy	A better understanding of projected and actual performance of wind energy plants	Wind, wave and tidal energy	Bror.Berge@dnv.com
Real time wind data	A new way of providing near real-time processed wind data	Wind, wave and tidal energy	Bror.Berge@dnv.com
Upgrade of Wind Master	Improved capabilities of the Wind Master software tool	Wind, wave and tidal energy	Bror.Berge@dnv.com
Material integrity of wind turbine blades	A better understanding of material degradation and reduced fatigue life as a consequence of marine environment	Wind, wave and tidal energy	Sean.Brossia@dnv.com

Offshore installations is our common term for generic services such as SHE Risk management, Technology Qualification, Verification, Offshore Class, Asset risk management and Enterprise risk management.

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