



OIL&GAS^{UK}

HEALTH & SAFETY REPORT 2017





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1. Foreword

Welcome to the 2017 Oil & Gas UK *Health & Safety Report*, which documents the major trends, issues and themes relating to our sector's health and safety performance in 2016.

Sadly, the industry saw a fatality offshore last year. Investigations continue but the lessons learnt from the accident, which occurred during the unpacking of an offshore container, will be shared across the sector. Such incidents serve to remind us that whatever we are doing, we can never be complacent.

Indeed, the data published in this report does go some way to reinforce that industry is retaining its focus as it demonstrates improving overall performance in offshore safety. There has been a further reduction in the sector's three-year rolling average, non-fatal injury rate where UK oil and gas remains lower than other comparable industrial sectors, such as construction, manufacturing, and transport and storage. The over-seven-day injury rate in 2016 was the third lowest since this measure was first calculated in 1996, while the specified injury rate has fallen by over 40 per cent since 2013.

Similar positive trends are reported in process safety, where dangerous occurrences such as hydrocarbon releases, dropped objects, and fires and explosions must by law be reported to the Health and Safety Executive. Last year, the number of dangerous occurrences was the lowest on record, 62 per cent lower than the 2000-01 peak.

Prevention of hydrocarbon releases remains an industry priority and the overall downward trend seen over the last decade has been sustained. In 2016, the number of major and significant process releases, which are those with the potential to escalate, was the lowest on record. Good progress is also being made in reducing the backlog in safety-critical maintenance, which is essential to the integrity of our offshore assets.

The industry's work to improve safety performance is delivering. However, we need to maintain focus and strengthen collective determination to drive further improvement.

Any queries on content or feedback should be directed to Mick Borwell, Oil & Gas UK's health, safety and environment policy director, on mborwell@oilandgasuk.co.uk.



Mick Borwell,
Health, Safety and Environment Policy Director, Oil & Gas UK

2. Key Findings

Personal Safety Performance

- Tragically, there was a fatality on the UK Continental Shelf (UKCS) in 2016 during unpacking of an offshore container. The official investigation is ongoing and lessons that can be learnt from this incident will be shared with industry.
- The industry's three-year rolling average, non-fatal injury rate per 100,000 workers continues to improve from 430 in 2015 to 415 in 2016. The rate remains lower than other comparable industrial sectors in the UK such as manufacturing, transport/storage and construction.
- 2016 saw the third lowest over-seven-day injury rate since the measure was first calculated in 1995-96 at 301 per 100,000 workers. Strains and sprains remain the most common type of injury.
- The specified injury rate decreased to its lowest recorded level to 73 per 100,000 workers last year. This is a decline of 43 per cent from 2013 when the relevant RIDDOR¹ reporting categories were revised.
- The UKCS' lost time injury frequency (fatalities and lost work day cases per million man-hours) remains below the European average for offshore operations at 0.57 incidents per million man-hours in 2016.

Process Safety Performance

- Dangerous occurrences – such as hydrocarbon releases (HCRs), fires or explosions, and dropped objects – are at their lowest on record at 292 in 2016. This is 62 per cent lower than the 2000-01 peak.
- Dropped objects are the most frequent, constituting 20 per cent of all reports of dangerous occurrences closely followed by HCRs at 18 per cent.
- There has been a sustained downward trend in the total number of process HCRs (produced hydrocarbon releases) since a peak in 2004. The number of major and significant process releases, those with the potential to escalate, have been reducing since before 2000 and, in 2016, the numbers reported were the lowest on record and less than 20 per cent of those reported in 1997.
- The total number of safety-critical maintenance hours in backlog has declined since the peak in 2014.
- The total number of open level 3 verification non-compliance findings has remained consistent at around ten. The number of overdue findings is showing a steady decline and is at its lowest since reporting began.

¹ Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013 (RIDDOR).

Operator Safety Performance Benchmarking

- Performance overall for the 32 participating installation operators is encouraging; the rates of dangerous occurrences and reportable injuries last year are below the ten-year average for the group.
- Dangerous occurrence frequency per million man-hours for these installation operators is at a historical low at 4.43.
- Reportable injury frequency for these installation operators increased from 1.54 in 2015 to 1.61 in 2016, but it is still lower than any other year in the last decade.
- There were more operators (six) in 2016 with no dangerous occurrences than in any other year since benchmarking began in 2006.
- Nine operators experienced no reportable injuries in 2016, against an average of six in the preceding decade.

Offshore Helicopter Operations

- Thirteen offshore workers tragically lost their lives in an accident involving a Super Puma Airbus EC225LP helicopter in the Norwegian North Sea in April 2016. Although the European Aviation Safety Agency cleared this helicopter type to fly, the Norwegian and UK Civil Aviation Authorities suspended flights by this model pending further investigation and testing².
- After almost three accident-free years, a non-fatal accident occurred on the UKCS in 2016, increasing the UKCS five-year average all accident rate from 0.72 to 0.95 per 100,000 flying hours.
- At the end of 2016, the UKCS active helicopter fleet numbered 65 aircraft and comprised a mix of airframe types, including Sikorsky S92, AH175 and AW189 helicopter types to replace the suspended Super Pumas (H225 and AS332L2).

² As Oil & Gas UK went to print with this report, the flight suspension was lifted for UK and Norwegian operations.

3. 2016 Performance

In Summary

It is important to manage the health and well-being of the offshore workforce effectively, given the remoteness of the worksite and the often demanding nature of the work they perform. A suite of occupational health-related legislation regulates the offshore working environment to ensure that risks to health are controlled.

In addition, it is industry policy that all persons working offshore are examined regularly by a medical professional and deemed medically fit for work before travelling offshore. The Oil & Gas UK medical guidance and the registered examining doctors who conduct assessments in line with this guidance help to ensure that the workforce is medically fit for work offshore.

The UK offshore oil and gas industry is also committed to protecting people, the natural environment and assets by maintaining safe operations. The industry continually strives to improve personal and process safety, using performance indicators to monitor how well this is being managed. Personal safety metrics point to industry's performance in managing risks to an individual. However, to minimise harm to people, the primary focus for a major hazard industry must be on process safety, and the effective containment of hydrocarbons and the associated hazards.

The over-seven-day injury rate in 2016 was the

3rd

lowest on record

The specified injury rate is at its lowest recorded level



The three-year average non-fatal injury rate



is less than half that of construction and transport

Major accidents occur rarely and leading indicators must be assessed in addition to lagging indicators, such as hydrocarbon releases. Leading indicators such as maintenance backlogs and overdue verification findings are used to monitor how well safety and environmental critical elements are being managed.

Process safety performance indicators, while perhaps not as obviously about safety as the injury statistics, are critical to measuring performance and ensuring the industry continues to manage major accident risk effectively.

Looking at 2016 specifically, it is difficult to discuss the improvements that were recorded in most areas of safety performance without acknowledging the tragic fact that the industry experienced a fatality in this period. That a member of the UK offshore workforce lost his life is a reminder of the hazards inherent in the offshore working environment, and the need for industry to stay focused on managing the risks.

Maintenance backlog is being tackled by industry



Year-on-year reductions reported

Dangerous occurrences are at their lowest:

62%



lower than the 2000-01 peak

Since 2004, the number of process hydrocarbon releases maintains a downward trend



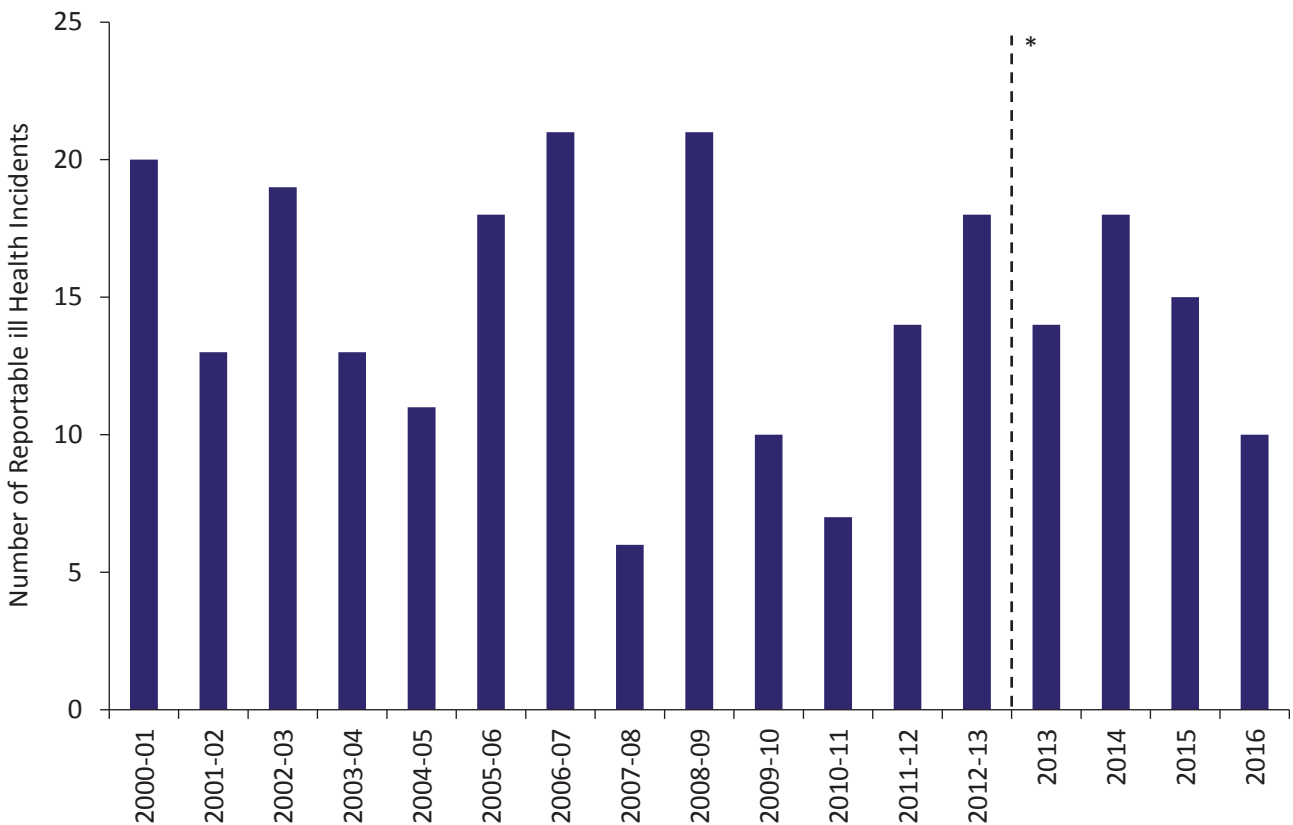
3.1 Health

Occupational Health and Hygiene

Oil & Gas UK's Occupational Health and Hygiene Technical Group continues to provide the opportunity for its members to share lessons learnt, develop good practice and identify relevant topics to be addressed. Its membership includes industry practitioners, relevant subject matter experts and representatives from the Health and Safety Executive (HSE), who come together to improve occupational health management offshore. Ongoing projects include developing an OPITO-accredited training and competence standard for offshore medics to ensure consistent quality in delivering healthcare offshore, and updates to the *Offshore Environmental Health and First Aid and Medical Equipment Guidelines*.

The number of RIDDOR³ reportable cases of ill health offshore has fluctuated over the years, although the annual average reported since 2000 has been just under 15. In 2016, ten ill health reports were recorded. Occupational diseases are specified illnesses linked to work activities, and of the reports last year, seven were related to musculoskeletal conditions, primarily Hand Arm Vibration Syndrome (HAVS). This is a condition where users of vibratory tools and machines suffer from impaired blood circulation and damage to the nerves in the hand and arm. The remainder were cases of occupational dermatitis and chicken pox.

Figure 1: Number of RIDDOR Reported ill Health Incidents



³ Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013 (RIDDOR).

Examining Doctors' Assessments and Training

The Oil & Gas UK guidance for medical fitness to work offshore is recognised as a global standard in the industry. The list of examining doctors on the Oil & Gas UK register that can carry out such assessments includes practitioners from 60 countries across Europe, Asia-Pacific, the Americas and Africa⁴.

To register, medical professionals must complete the association's Introduction for Oil & Gas UK Registered Doctors training. The training course is designed to give delegates knowledge of life and work offshore so that they have a better understanding of the standard of medical fitness required. In 2016, following attendee feedback and to improve efficiency, the content of the course was revised to optimise time to debate and develop consensus on reasons for issuing restricted certificates. Eighty-five new doctors were trained and registered in 2016, bringing the total number of registered examining doctors to over 1,000.

Oil & Gas UK also hosts an annual Examining Doctors Conference to bring together registered doctors from across the world, providing them with essential updates and networking opportunities. Over 70 doctors from across four continents attended the 2016 conference.

Each year, the registered doctors carry out medical assessments of offshore oil and gas employees around the globe using the Oil & Gas UK *Medical Aspects of Fitness for Offshore Work: Guidance for Examining Physicians*⁵. The doctors are asked to submit a statistical return, indicating the total number of medicals they have performed and the numbers of cases in which individuals have failed to pass their assessments. Perhaps unsurprisingly in the current downturn, the number of medicals performed fell below 100,000 in 2016. The failure rate has remained consistent, between 1 and 1.4 per cent each year.

Figure 2: Examining Doctors Statistics

Year	Total Number of Medicals Conducted	Number of Medicals Failed	Percentage of Medicals Failed
2010	56,850	784	1.4
2011	59,900	665	1.1
2012	93,219	1,284	1.4
2013	113,006	1,333	1.2
2014	118,597	1,285	1.1
2015	111,651	1,125	1
2016	99,104	1,125	1.1

As in previous years, the most common reasons for individuals being declared unfit to work offshore were blood pressure (23 per cent), diabetes (12 per cent) and cardiovascular disease (9 per cent). Weight issues (8 per cent) and musculoskeletal problems (3 per cent) were also recurring factors in the failed assessments. The picture was broadly similar for those issued with restricted and limited duration certificates, although for these categories, eyesight problems and certain types of medication were also prohibiting factors. Just over 6 per cent of the certificates issued were restricted or for limited duration (3.2 per cent and 3.6 per cent, respectively).

⁴ Find out more about Oil & Gas UK's Register for Examining Doctors at www.oilandgasuk.co.uk/doctors

⁵ *The Medical Aspects of Fitness for Offshore Work: Guidance for Examining Physicians* is available to download at <http://bit.ly/medicalguidelines>

In 2016, Oil & Gas UK worked closely with OPITO, HSE and industry to include the new Compressed Air Emergency Breathing System for helicopter transit into the mandatory in-water Basic Offshore Safety Induction and Emergency Training for offshore workers (BOSIET). Prior to this, personnel travelling offshore had received dry training with the system. The move to shallow-water training was delayed due to the regulator's perception that this increased risk to personnel during training, particularly for those individuals with respiratory illnesses (see section 5.1 for more information). Ongoing work in 2017 will include an update to *Medical Aspects of Fitness for Offshore Work: Guidance for Examining Physicians* to address fitness to train as well as fitness to work.

Medical Evacuations

Since 2015, the industry has funded its own offshore search and rescue (SAR) helicopter and back-up service to supplement the rescue, recovery and medevac (medical evacuation) cover available to offshore workers in the central North Sea. In 2016, the primary cause of the medevacs conducted by the industry SAR service was suspected cardiac issues.

3.2 Personal and Process Safety

Personal Injuries and Fatalities

A review of safety performance last year is overshadowed by the fact that the industry saw a work-related fatality in December. The fatality occurred during unpacking of an offshore container. The official investigation is ongoing and lessons that can be learnt from this incident will be shared with industry. Figure 3 shows work-related fatalities at offshore installations recorded since 1996 (excluding helicopter incident figures, which are covered in section 4 of the report). Over the last decade, there have been seven work-related fatalities. This is significantly lower than the 19 fatal injuries in the decade before, but it clearly demonstrates that the industry can never be complacent about safety.

Figure 3: Fatal Injuries Offshore

Year	Number of Fatalities	Year	Number of Fatalities
1996-97	2	2006-07	2
1997-98	3	2007-08	0
1998-99	1	2008-09	0
1999-00	2	2009-10	0
2000-01	3	2010-11	0
2001-02	3	2011-12	2
2002-03	0	2012-13	0
2003-04	3	2013-14	2
2004-05	0	2015*	0
2005-06	2	2016	1

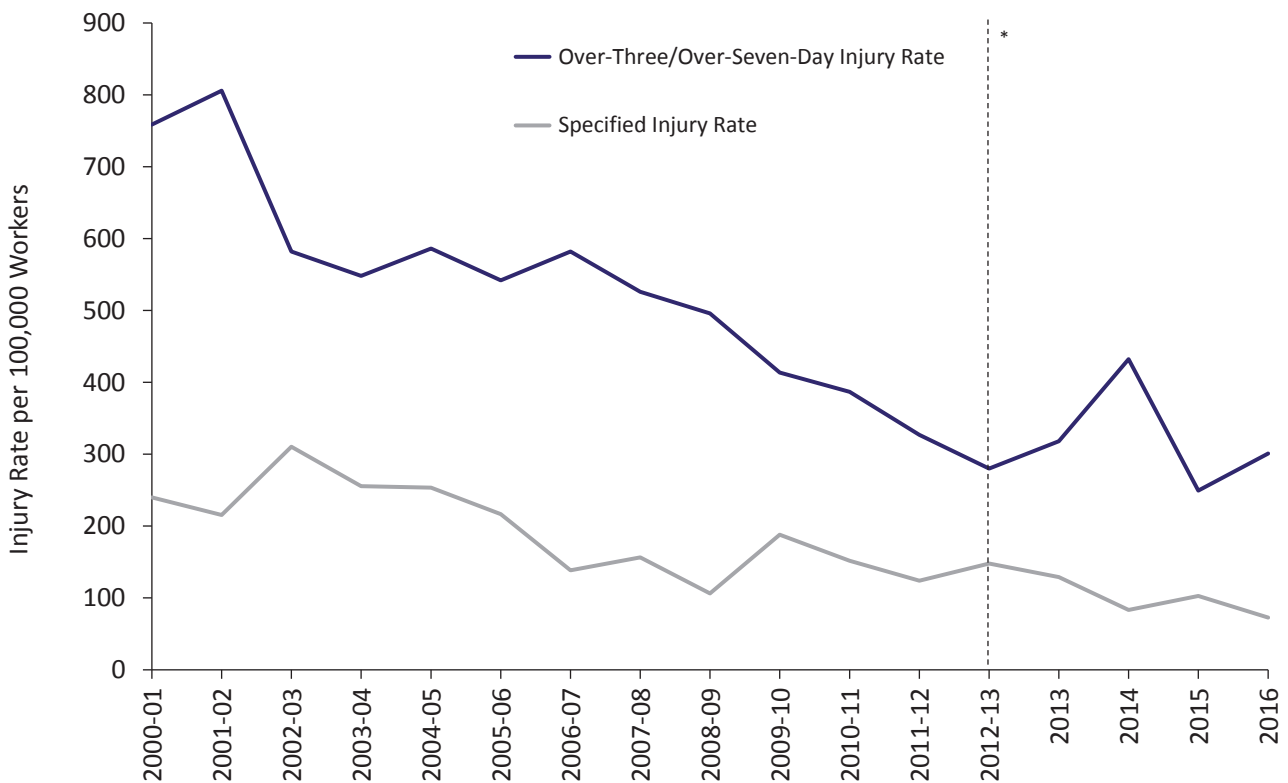
* Reporting period changed from fiscal to calendar year

It is important to continue to monitor performance and examine trends to determine whether and where changes need to be made, and use this information to determine industry’s actions. Monitoring the non-fatal injury rate will maintain focus on improving safety performance and, in turn, prevent tragic incidents like the fatality that occurred last year.

The non-fatal injury rate is calculated from the number of over-seven-day and specified injuries reported to the HSE⁶, as well as offshore population figures calculated from Vantage POB data. The breakdown of over-seven-day and specified injuries per 100,000 workers since 2001 is given below. The over-seven-day injury rate has increased from 249 in 2015 to 301 injuries per 100,000 workers in 2016. However, 2015 represented a historic low, and although any increase is unwelcome, the rate for 2016 remains the third lowest since the measure was first calculated in 1995-96. Strain and sprains remain the main causes of over-seven-day injuries last year.

The specified injury rate decreased to just under 73 per 100,000 workers – its lowest recorded level. This represents a decrease of 43 per cent since 2013 when the RIDDOR category “major injury” was redefined to “specified injury”.

Figure 4: Over-Seven-Day and Specified Injury Rate per 100,000 Workers



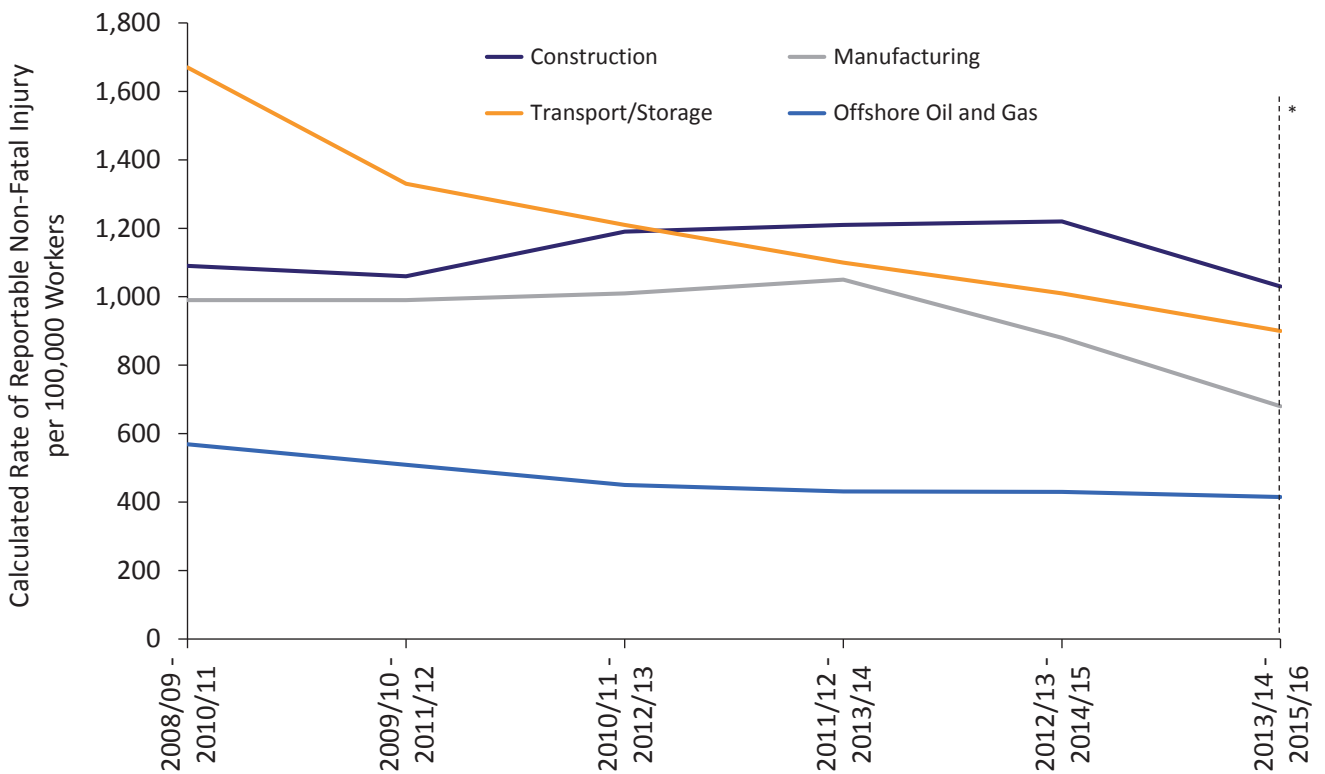
*Period of reporting changed from fiscal to calendar year

Source: Health and Safety Executive, Vantage POB

⁶ Defined list of reportable injuries in Regulation 4 of RIDDOR 2013.

Comparison across sectors helps to give a sense of how well the industry is managing the risks to its personnel overall. Despite the major hazards associated with the sector, Figure 5 below shows that the three-year average non-fatal injury rate per 100,000 workers for offshore oil and gas remains below other comparable industry sectors, and is less than half that of construction and transport. Rather than a measure of the relative levels of overall safety within these sectors, the low injury rate within the offshore oil and gas industry when compared with the other industries is more likely an indicator of the mature health and safety culture that exists offshore.

Figure 5: Three-Year Rolling Average Reportable Non-Fatal Injury Rate per 100,000 Workers for the UK Offshore Oil and Gas Sector Compared with other UK Industry Sectors

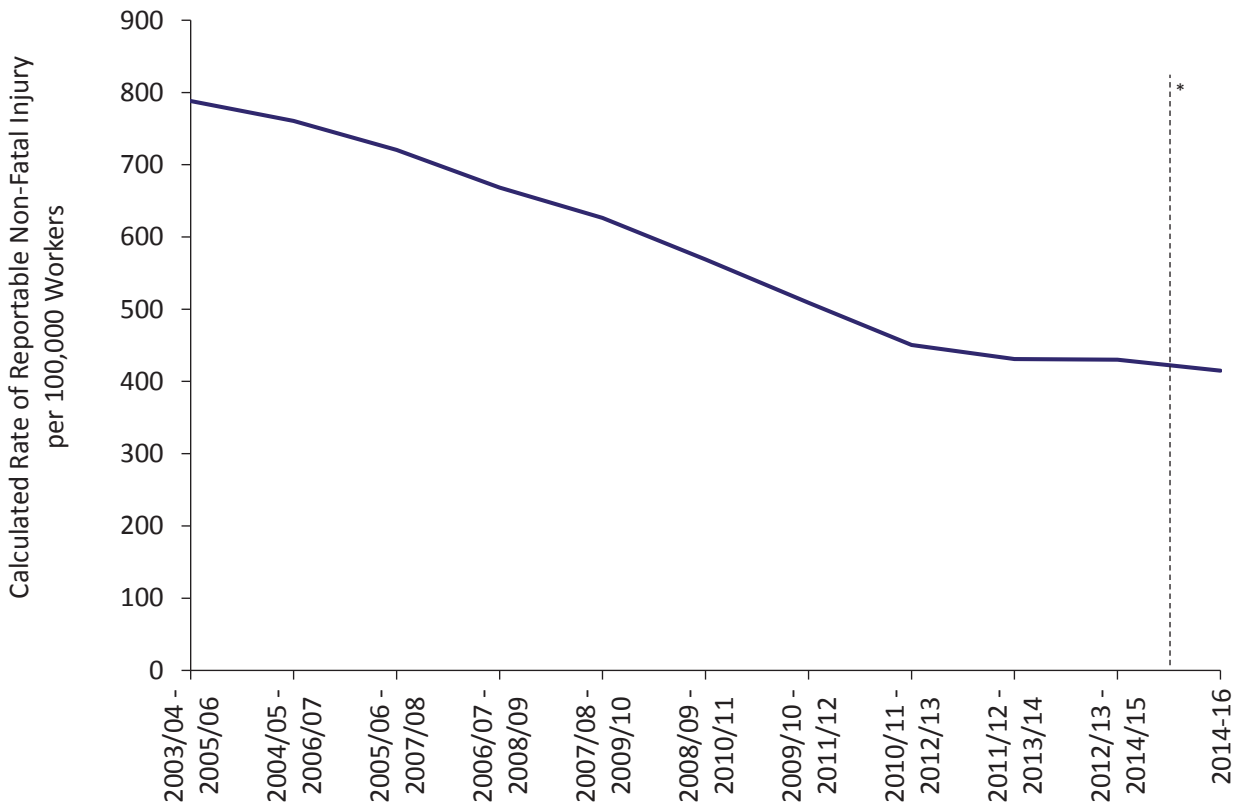


*Offshore oil and gas reported for 2014-2016 calendar year

Source: Health and Safety Executive

The scale used in Figure 5 means that the oil and gas sector performance appears to flatten out in recent years. Figure 6 shows the offshore oil and gas data to a scale relevant to the sector performance, demonstrating more clearly the downward trend in non-fatal injury rate.

Figure 6: Three-Year Rolling Average Reportable Non-Fatal Injury Rate per 100,000 Workers for the UK Offshore Oil and Gas Sector

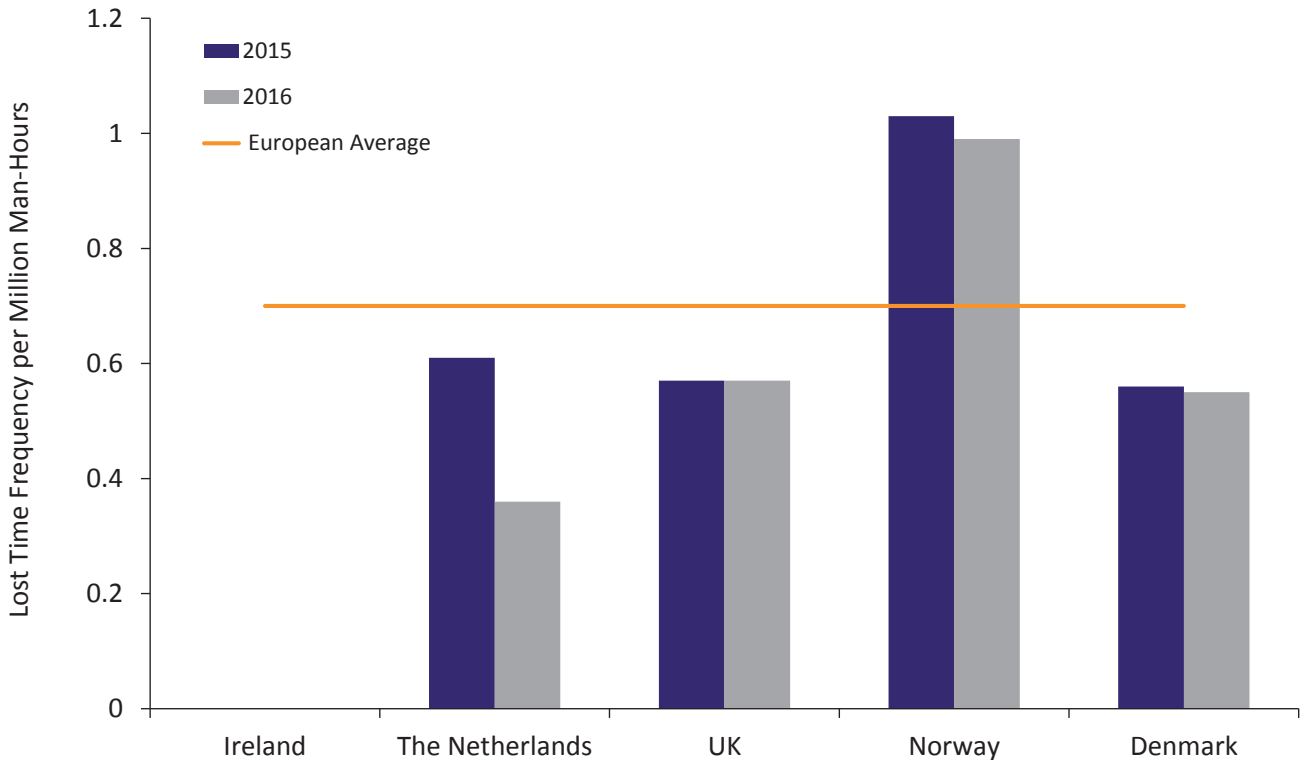


*Period of reporting changed from fiscal to calendar year

Source: Health and Safety Executive

Figure 7 compares the UK offshore oil and gas industry's performance with other European offshore sectors, based on the lost time injury frequency data from the International Association of Oil & Gas Producers (IOGP)⁷. This demonstrates that the UK remains below the European average.

Figure 7: Lost Time Injury Frequency for Oil and Gas Sectors Surrounding the UK



Source: International Association of Oil and Gas Producers

Dangerous Occurrences

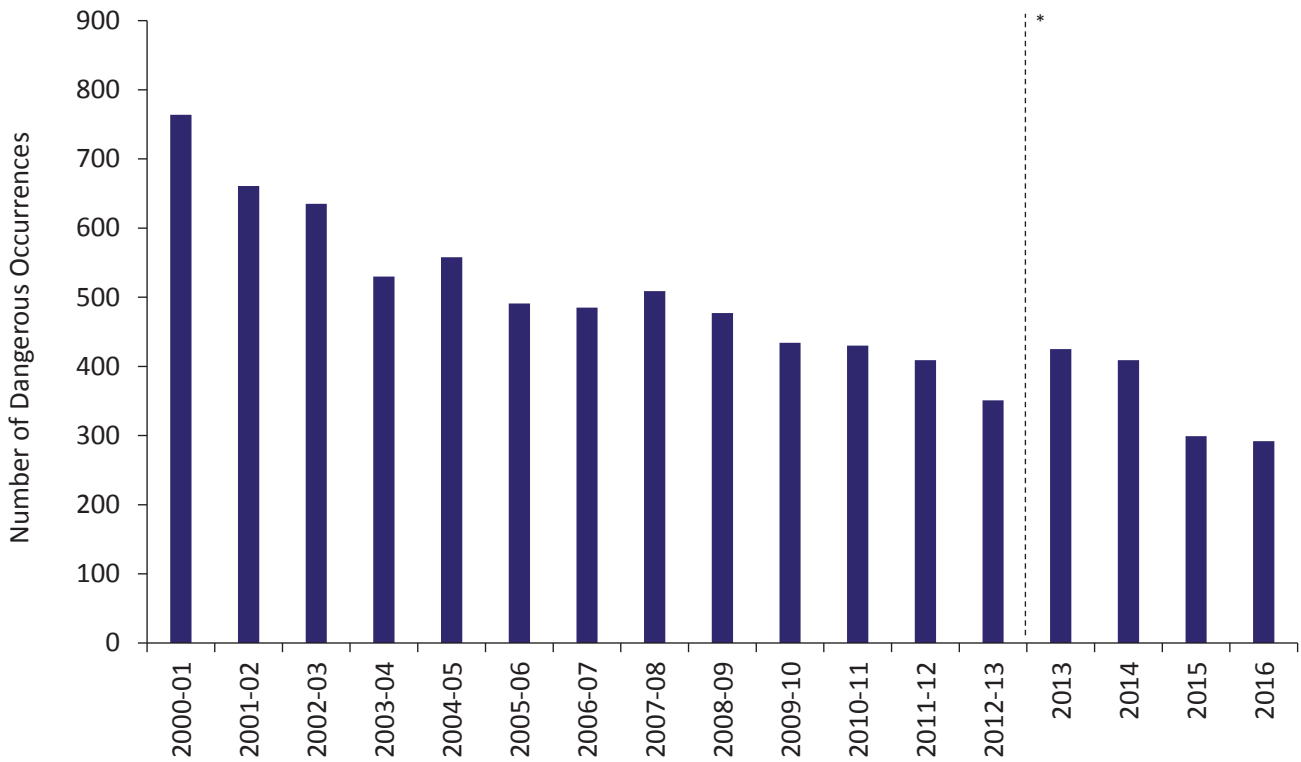
Dangerous occurrences are categories of incidents defined in the RIDDOR regulations⁸ that have high potential to cause serious injury. It is a legal requirement to report these events to HSE.

As seen in Figure 8 opposite, there remains a downward trend in the overall number of dangerous occurrences since the peak in 2000-01. 2016 saw 292 such incidents. This is the lowest on record and 62 per cent lower than in 2000-01.

⁷ The IOGP data are voluntarily submitted by its members before being validated by its Safety Committee. It should be noted that IOGP membership is limited to international exploration and production operators, and therefore incident frequencies per country are based on submissions from these member operators only.

⁸ See www.legislation.gov.uk/uksi/2013/1471/schedule/2/made

Figure 8: RIDDOR Reportable Dangerous Occurrences

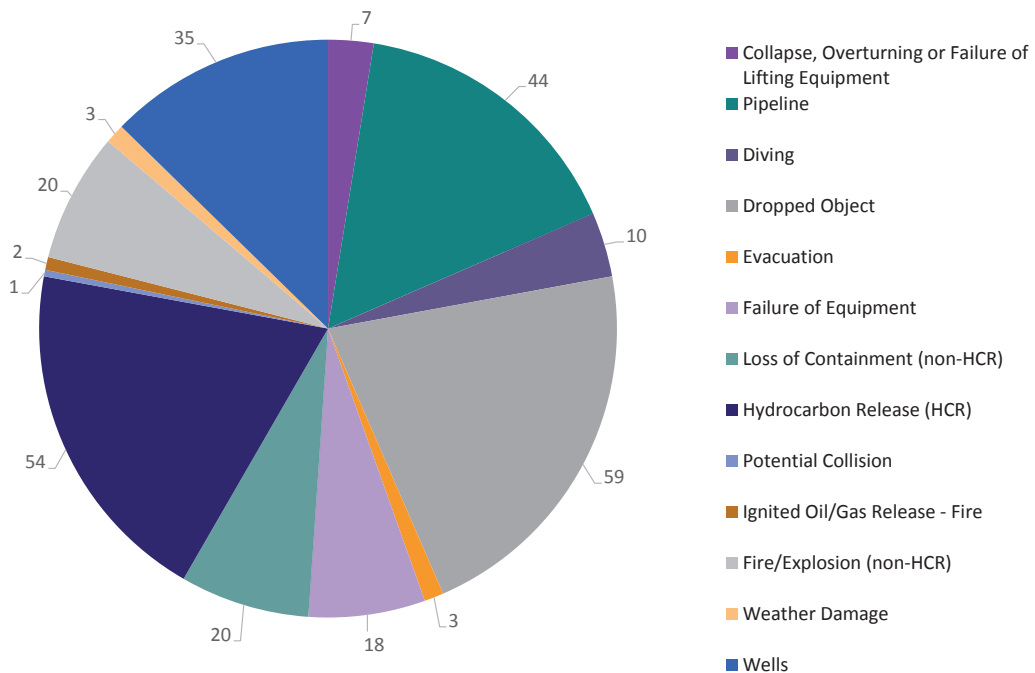


*Period of reporting changed from fiscal to calendar year

Source: Health and Safety Executive

The chart below breaks down the dangerous occurrences by category. Dropped objects are the most frequent type of incident, making up 20 per cent (59), closely followed by hydrocarbon releases at 18 per cent (54).

Figure 9: Breakdown of Reportable Dangerous Occurrences*



*Excludes 16 uncategorised incidents

Source: Health and Safety Executive

Hydrocarbon Releases

The HSE has collated data on hydrocarbon releases (HCRs) within the offshore oil and gas industry since 1996, following the recommendation of the Cullen Report.

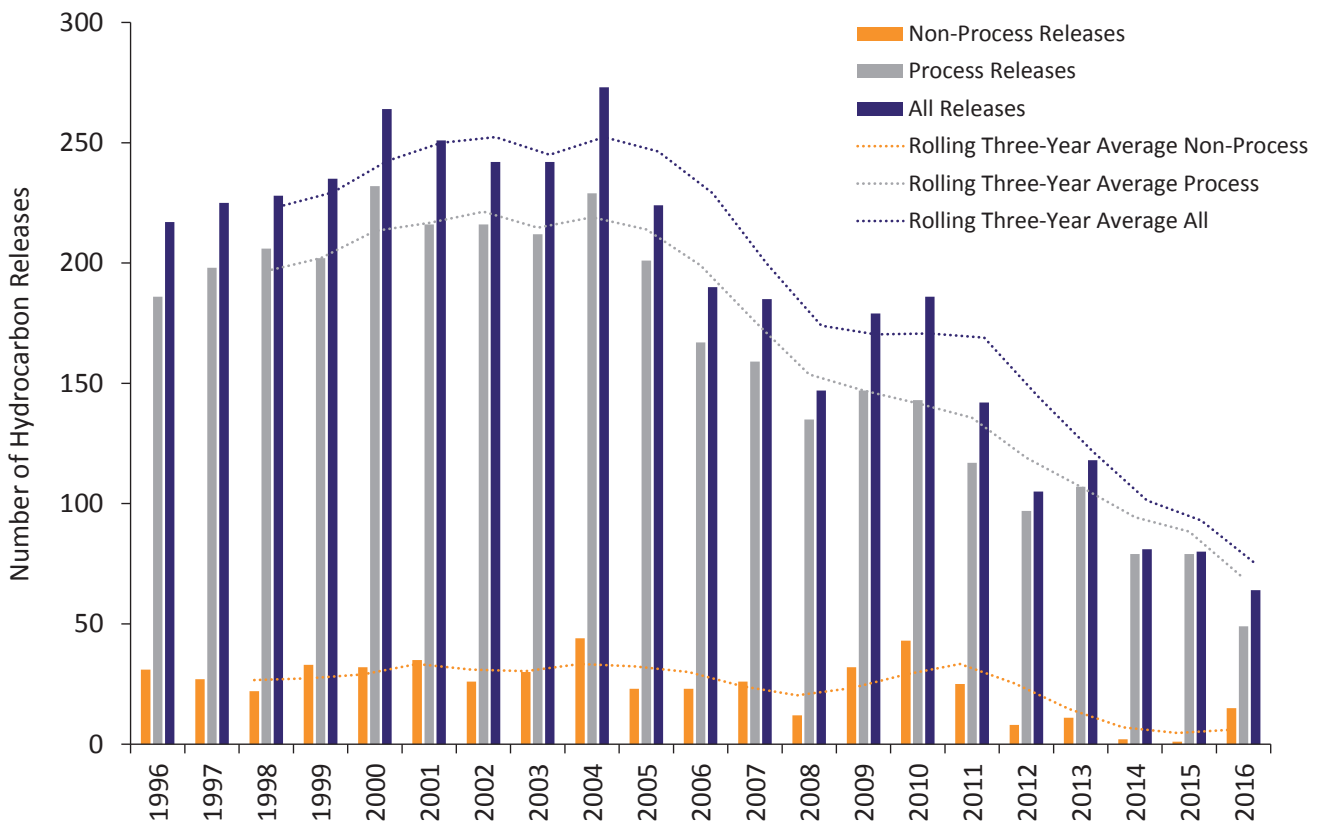
However, the EU Implementing Regulation, which came into force as part of the EU Offshore Safety Directive in July 2015, has changed the criteria for what is considered a reportable release. During the transitional period and until all installations have transferred to the new Safety Case Regulations (SCR) by July 2018, the industry in effect has a dual reporting regime for HCRs. Some installations are still required to report under the 2005 SCR and some under 2015, and although it is possible for operators to choose to follow the 2015 reporting requirements prior to transition of the Safety Case, there has been no standard industry approach.

In order to keep the data comparable over time, the 2016 HCRs reported below are those which, irrespective of the regime under which they were reported, meet the RIDDOR criteria in the regulator’s opinion⁹.

In addition, changes to the reporting and classification of non-process releases (i.e. unintentional release of fluids such as diesel or hydraulic fluid) in 2014 and 2015 means that a direct comparison year-on-year is not straightforward across the dataset.

The graphs below separate out the process and non-process releases for historical data to the present day. Process-related releases (release of produced hydrocarbons) are the significant performance indicator.

Figure 10: Number of Hydrocarbon Releases Occurring Offshore*



*Excludes ten unclassified releases

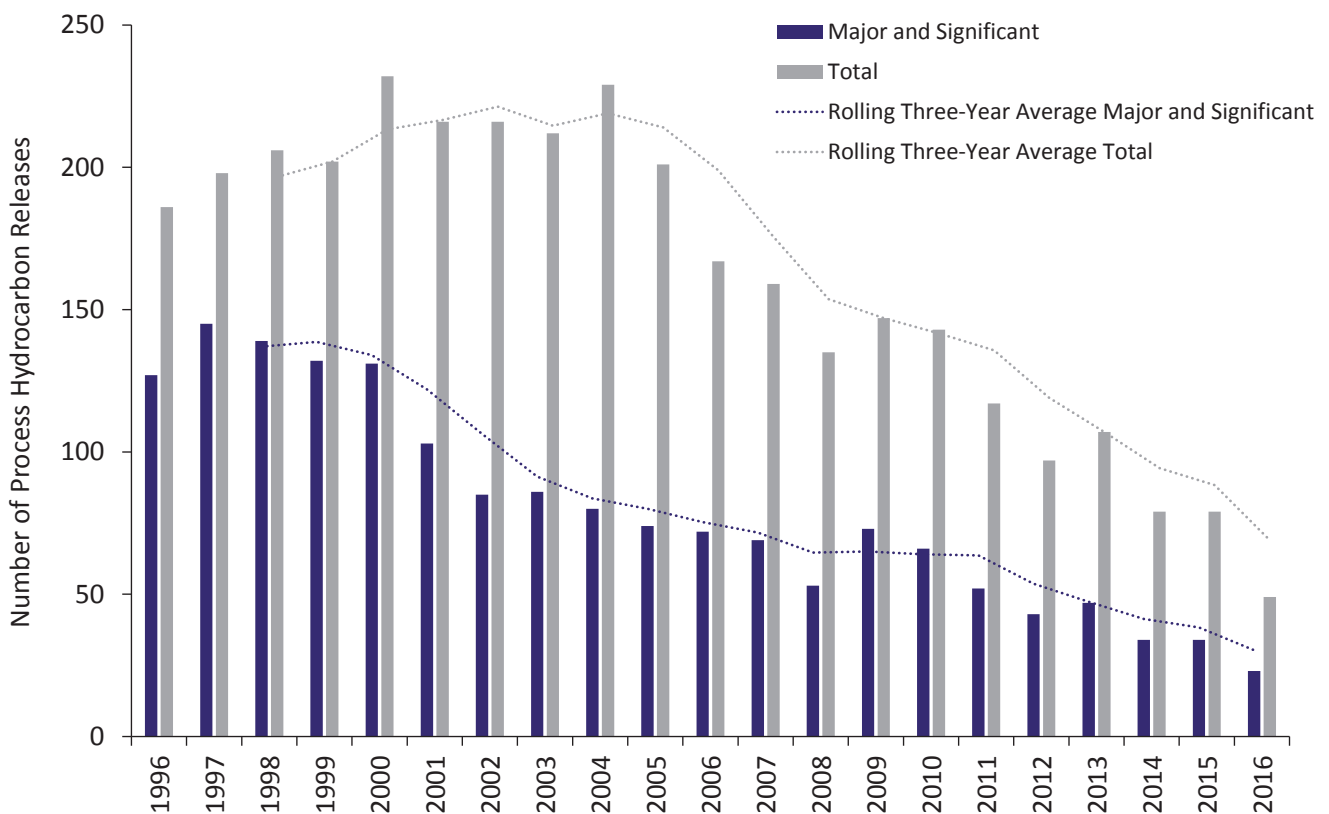
Source: Health and Safety Executive

⁹ See www.legislation.gov.uk/uksi/2013/1471/schedule/2/made

A more detailed look at the process releases is provided in Figure 11. This shows a sustained downward trend in the total number of releases since a peak in 2004. The greatest decrease occurred in the years leading up to 2008, which coincides with the Asset Integrity Key Programme initiated by the HSE and committed to by industry. Since then, performance has largely been sustained at below 2008 levels.

More specifically, the number of major and significant releases, which are those with the potential to escalate, have been reducing since before 2000. In 2016, the number of major and significant process releases reported (23) was the lowest on record and less than 20 per cent of the figure reported in 1997.

Figure 11: Number of Process Hydrocarbon Releases Occurring Offshore



Source: Health and Safety Executive

3.3 Operator Safety Performance Benchmarking

Every year, Oil & Gas UK conducts a benchmarking exercise so that installation operators can compare their own safety performance against the industry average. Other trade associations monitor and report the safety performance of marine and drilling contractors, which are therefore not included.

Thirty-two installation operators were included in the benchmarking exercise for 2016 data. Participating companies receive their individual results, but for the purposes of presenting the aggregated anonymised data, each company is allocated a letter. Note that the same identifier is not assigned to the same operator for each of the categories shown.

The following figures list the participating companies and present the anonymised results from key elements of the benchmarking exercise. The average frequency rate for those companies is calculated to the industry standard of incidents per million man-hours based on a 12-hour working day.

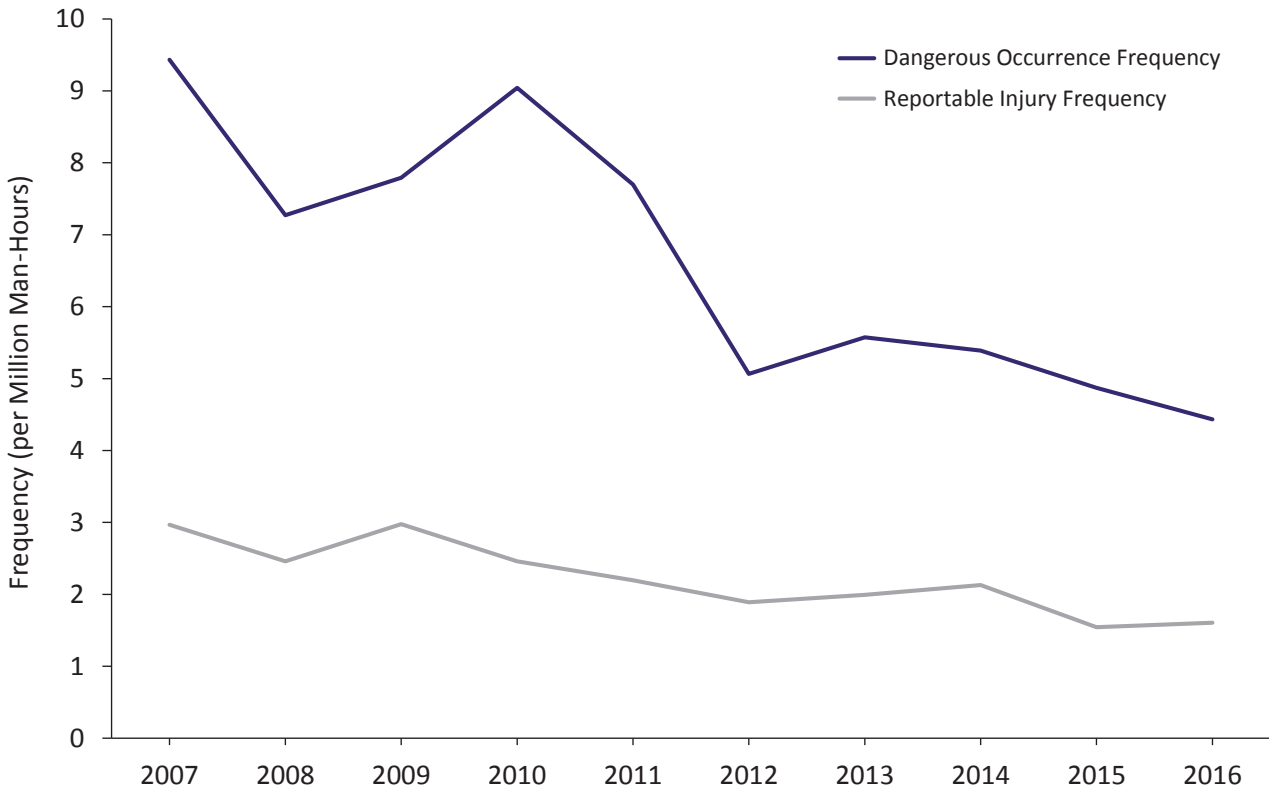
Incident frequency rates, rather than absolute numbers, are used for comparison in this exercise, but even with that standardisation, the wide variation in frequency rates between best and worst performers is affected by the relative size of the company's operations. In the more detailed benchmarking report issued to companies directly, organisations are therefore separated into three bands by size to minimise this effect.

Figure 12: Participating Companies

Participating Companies	
Apache North Sea Limited BG Group Bluewater Services UK Limited BP Exploration Operating Company Ltd BW Offshore UK Centrica Energy Centrica Storage Ltd Chevron North Sea Limited CNR International UK Limited ConocoPhillips (U.K.) Limited Dana Petroleum E&P UK ENGIE E&P UK Limited ENI Liverpool Bay Operating Company EnQuest Plc EOG Fairfield Energy Ltd	Ineos Breagh Maersk Oil North Sea UK Ltd Marathon International Oil (G.B.) Ltd Nexen Petroleum UK Ltd Oranje-Nassau Perenco UK Ltd Petrofac Facilities Management Ltd Premier Oil UK Limited Repsol Sinopec Resources UK Limited Shell UK Limited Statoil TAQA Bratani Ltd Teekay Offshore Total E&P UK Limited Wintershall Nordzee B.V. Wood Group
<p>N.B. It is important to note that companies are listed above in alphabetical order and this does <u>not</u> correspond to letters allocated to companies in the performance charts in Figure 14.</p>	

Figure 13 shows the average frequencies for dangerous occurrences and reportable injuries for duty holders over the last decade. The dangerous occurrence frequency has fallen by over 50 per cent over this period from a high of 9.43 to its current low of 4.43 per million man-hours. The average frequency of reportable injuries has also fallen by over 45 per cent from 2.97 in 2007 to 1.61 per million man-hours in 2016; although there was an increase between 2015 and 2016, the industry average last year maintains the overall downward trend across the decade.

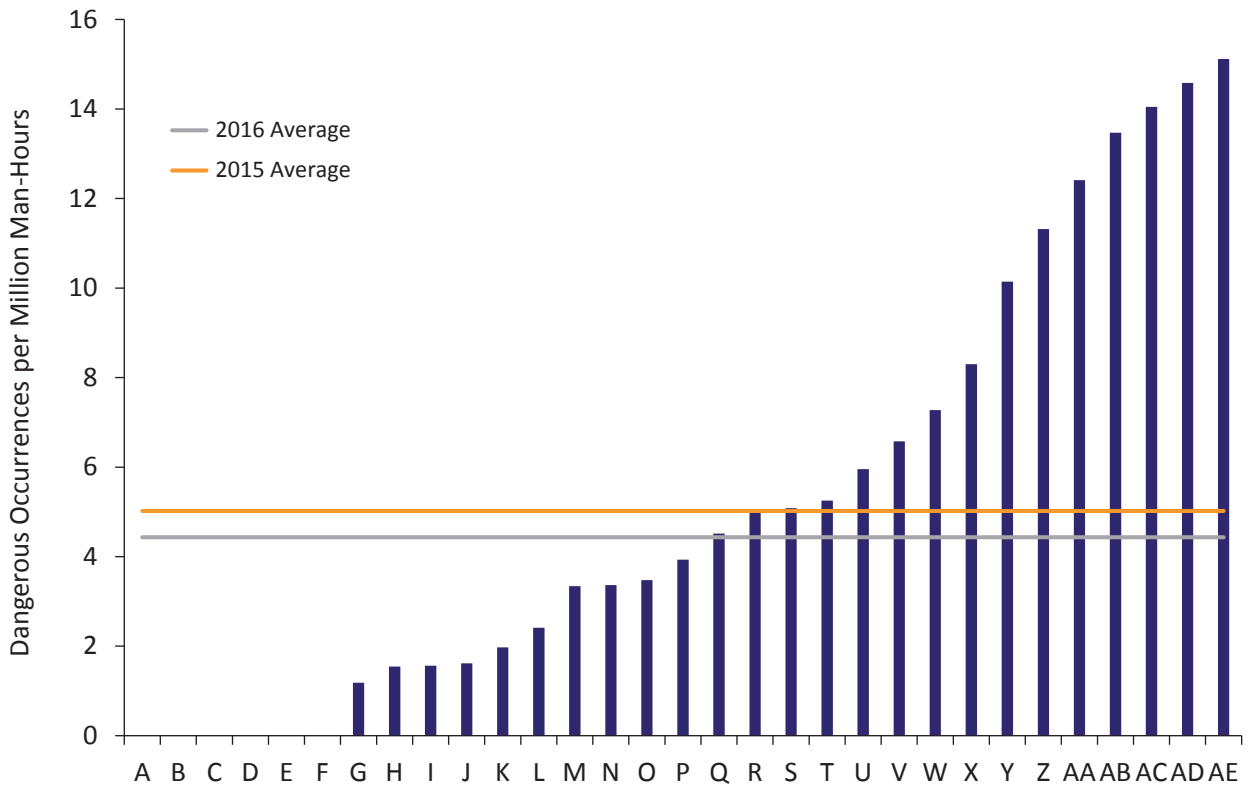
Figure 13: Dangerous Occurrence and Reportable Injury Frequencies



Source: Health and Safety Executive, Vantage POB and Oil & Gas UK

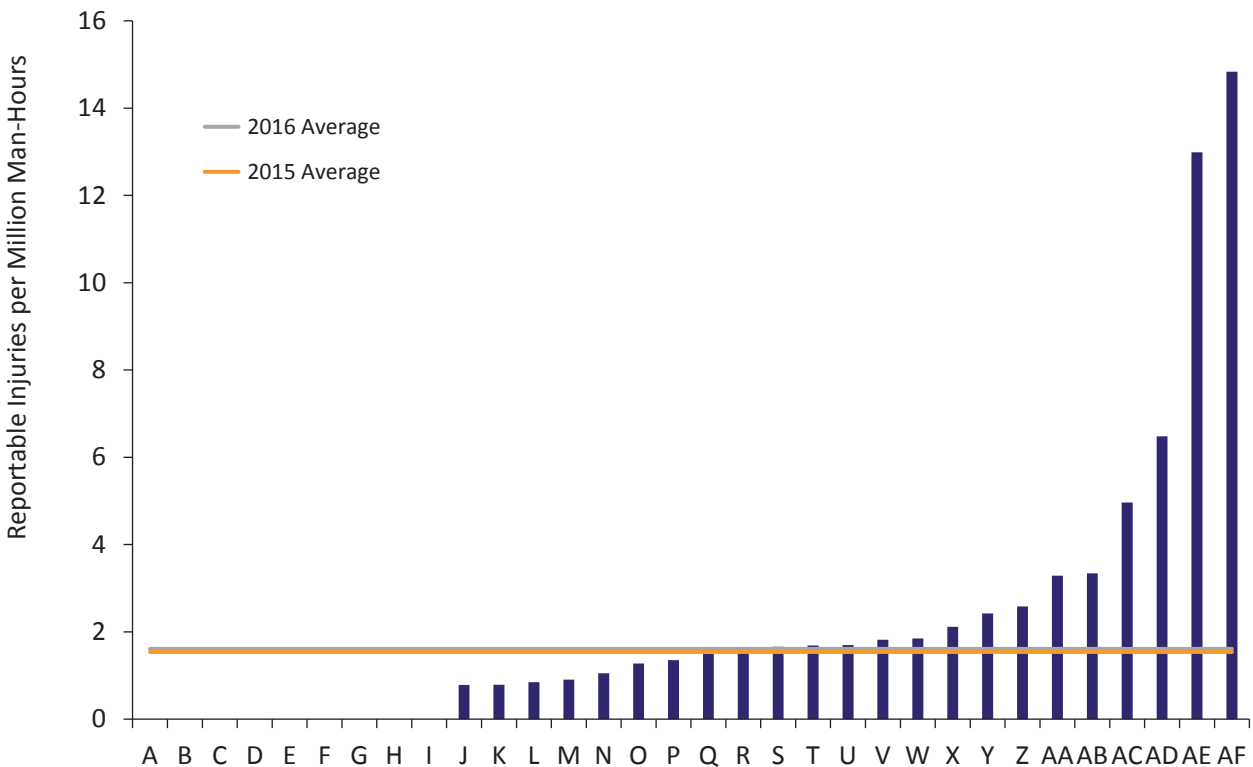
Figure 14 overleaf shows the dangerous occurrence and reportable injury frequency for each company against the average for the group over the past two years. Most operators (17) recorded frequencies below the 2016 and 2015 averages for reportable injuries, and almost as many (16) were below the 2016 average for dangerous occurrences. 2016 also saw the greatest number (six) of operators, since benchmarking began in 2006, who completed the year with no dangerous occurrences. Nine operators experienced no reportable injuries in 2016, against an average of six companies in the preceding decade.

Figure 14: Production Installation Operators' Safety Performance Benchmarking Results



Note: One outlier has been removed from results for clarity

Source: Health and Safety Executive, Vantage POB and Oil & Gas UK



Source: Health and Safety Executive, Vantage POB and Oil & Gas UK

The table below summarises production installation operator safety performance benchmarking in absolute numbers for 2016 and over the last ten years.

Figure 15: Benchmarking Performance Summary

Year	Fatalities	Major/Specified Injuries	Over-Seven-Day Injuries	Dangerous Occurrences	Man-Hours
2007	1	30	98	410	43,464,025
2008	0	26	90	343	47,167,713
2009	0	36	95	343	44,009,650
2010	0	23	85	397	43,897,119
2011	2	25	72	347	45,081,195
2012	0	27	70	260	51,339,945
2013	0	32	81	316	56,695,543
2014	2	16	103	306	56,793,896
2015	0	15	68	262	53,778,551
2016	1	18	65	232	52,332,393
10-year average	0.6	24.8	82.7	321.6	49,456,003

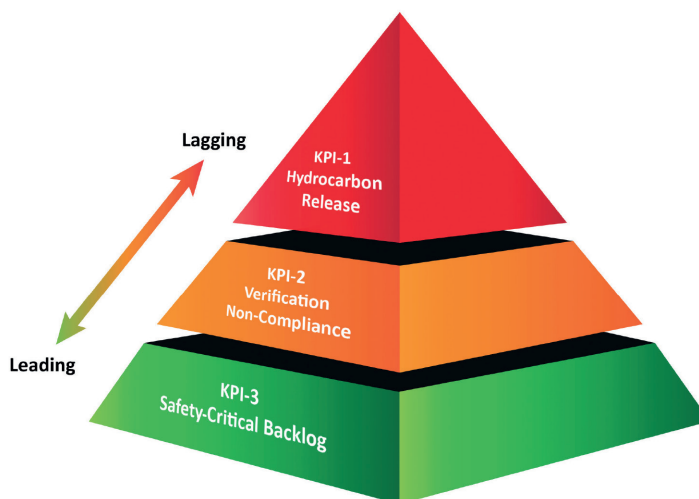
3.4 Asset Integrity Key Performance Indicators

The HSE's Key Programme 3 (KP3) inspection programme on asset integrity management ran from 2004 through to 2007. It defined asset integrity as "the ability of an asset to perform its required function effectively and efficiently while protecting health, safety and the environment". Asset integrity management was defined as "the means for ensuring that the people, systems, processes and resources that deliver integrity are in place, in use and will perform on demand over the whole life cycle of the asset".

One of the many responses from the UK offshore oil and gas industry to KP3 was to develop and implement asset integrity-related leading key performance indicators (KPIs) that would consistently demonstrate industry progress over time, complementing the HCR statistics described earlier.

In 2009, the industry set up an asset integrity KPI scheme with the data provided by Oil & Gas UK member companies on a voluntary basis at the end of every quarter. KPI-1 looks at HCRs as outlined above, while KPI-2 and -3 are discussed in the following sections.

Figure 16: UK Asset Integrity Key Performance Indicators



KPI-2 Verification Non-Compliance

The Offshore Safety Case¹⁰ regime requires duty holders to identify and maintain safety and environmental critical elements (SECE). SECE are systems that are critical to prevent, control or mitigate the safety and/or environmental impacts of potential major accident hazards (MAHs) and are specific to an installation. Each SECE must comply with a defined performance standard, which has been developed based on the parameters of the MAH present on the installation.

Each installation will have many SECE, including fire and gas detection systems, emergency shutdown systems and temporary refuge. To ensure that these are suitable for their intended purpose, remain in good condition and repair, and comply with the relevant performance standard, they are subject to a verification process. Verification is undertaken by an independent competent person (ICP), and the ICP must report any deficiencies in relation to the performance standards or the verification scheme itself. Findings raised by the ICP are ranked

¹⁰ Every offshore installation has a Safety Case – accepted by HSE – that demonstrates they have the ability and means to control major accident risks effectively.

as levels 1, 2 or 3 depending on their severity using common definitions as outlined below. Oil & Gas UK collects data on the performance of these systems from duty holders on a quarterly basis. KPI-2 monitors and measures non-compliances under levels 2 and 3, as they are the more significant findings.

Figure 17: Current Definitions – Verification Findings

Level	
1	Performance standard satisfied, but ICP may suggest an improvement to the system or may request additional information to demonstrate compliance with a performance standard.
2	Single performance standard failure with no significant threat to the installation.
3	Fundamental weakness of the SECE assurance system that involves multiple failures of a performance standard(s) or presents a significant threat to the integrity of the installation.

At the end of 2016, the average number of open (unresolved) level 2 findings per installation was six, an improvement on the nine open at the end of 2015. On a quarterly basis, the average number of level 2 findings that are raised and closed has remained consistent since 2011 sitting at around two to three per quarter.

Level 3 findings relate to more serious matters raised by the ICP. As such, findings are relatively rare and the number per installation is small. The total number across all participating installations is monitored and reported. At the end of 2016, there were a total of ten unresolved findings across approximately 150 installations.

The industry KPI reporting further categorises open findings into “open-overdue” and “related to process containment”, as it is the latter which are the most important type of SECE. Of the ten open level 3 findings, one was open-overdue and one was related to process containment. While the total number of open findings has consistently been around ten, the number of overdue findings is showing a steady decline and is at the lowest it has been since reporting began.

KPI-3 Safety-Critical Maintenance Backlog

KPI-3 produces a record of safety-critical (SC) maintenance backlog in three distinct categories:

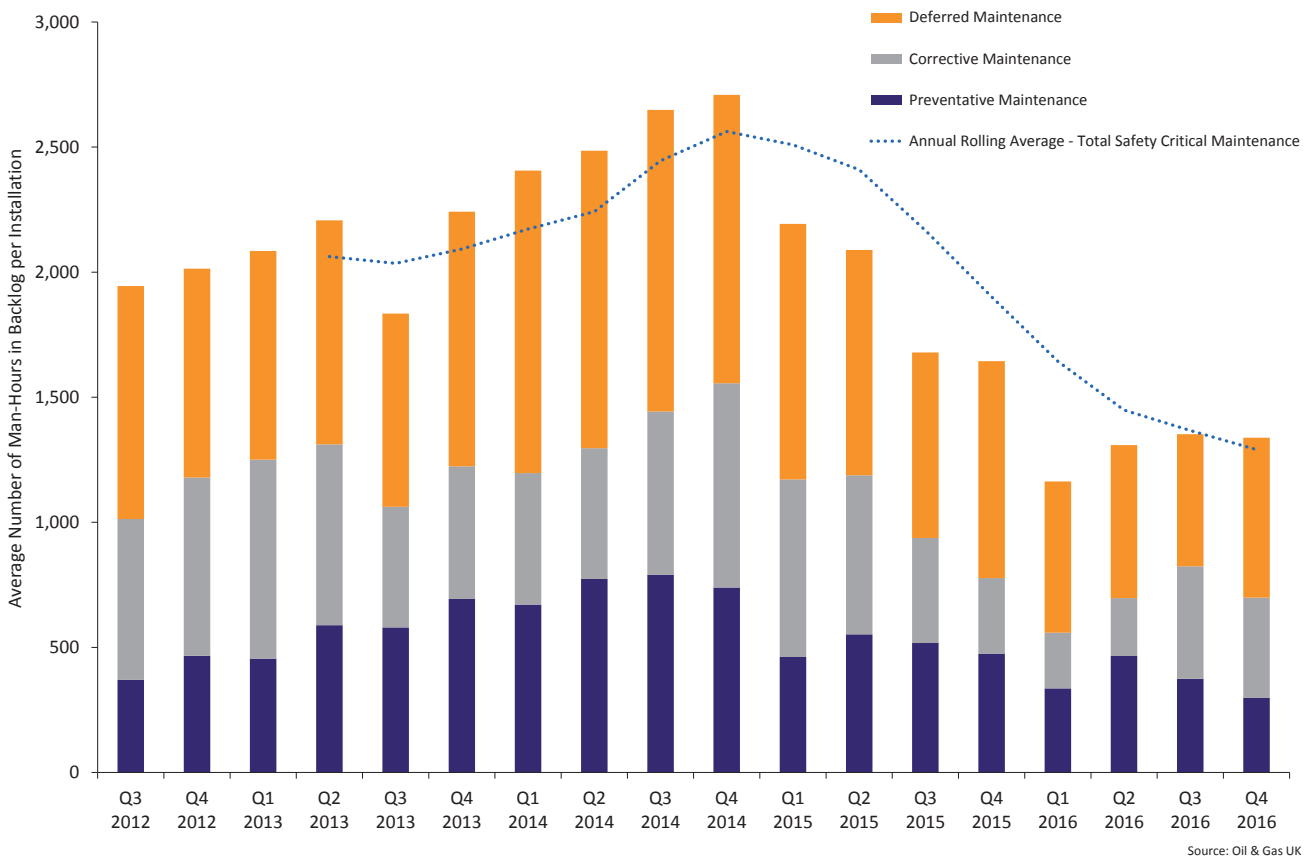
- Planned preventative SC maintenance that has passed its scheduled completion date and is now overdue
- Corrective SC maintenance where equipment undergoing SC maintenance has been found to need some form of repair or recertification
- Deferred SC maintenance that has not been carried out at its planned completion date but has been rescheduled following a robust deferral assessment of the risk associated with deferring maintenance

Figure 18 overleaf is a high-level snapshot of industry performance since the second half of 2012. As can be seen, backlog man-hours increased from mid-2013 to the end of 2014. This prompted increased focus within the industry to address this growing issue. Operators carried out structured reviews of maintenance practice to improve equipment reliability and contributed to a marked reduction in backlog.

Maintenance is a key activity and despite the downturn in the industry there has been a sustained downward trend in safety-critical maintenance backlog hours since the peak in 2014. This trend is reflected in the preventative and the corrective hours, however, the deferred maintenance backlog started to show an increase at the end of 2016. This will continue to be monitored and discussed with industry to understand why it is happening. It is likely that as installations move into late-life operations, more operators will optimise their maintenance programmes and, as an interim step, some maintenance may be deferred as part of this process.

Since 2015, the dataset includes figures from a greater number of operators and installations, making the results more representative of industry performance than they may previously have been. Participation in the scheme had been decreasing from 2012 to 2014, prompting Oil & Gas UK to encourage more companies to contribute. The average number of installations covered by the KPI-3 data increased from 131 in 2014 to 200 in 2016.

Figure 18: Average Number of Preventative, Corrective and Deferred Safety-Critical Maintenance Man-Hours in Backlog per Installation



Given the maturity of the industry asset integrity KPI scheme, Oil & Gas UK set up a task and finish work group to review the scheme with a view to identifying and implementing any potential improvements. The major finding from this work was that although there are differences among operators in how they classify the hours, the information that each operator has been regularly reporting to Oil & Gas UK has been consistent. Therefore, the trends in performance shown remain a valid indicator for the industry as a whole. The above graph includes an annualised rolling average to clearly illustrate the changes in performance.

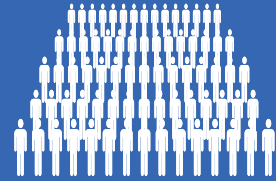
4. Offshore Helicopter Operations

In Summary

The UK Continental Shelf (UKCS) is a major industrial sector that cannot operate without helicopters. They are intrinsic to offshore operations and, although for some installations walk-to-work provision is practical, there are no realistic alternatives for the UK offshore oil and gas sector as a whole. These commercial air transport operations on the UKCS take place in a hostile environment. Over the past 41 years, the safety record overall is good for this type of operation, however, there have been incidents of which tragically 13 have been fatal.

The UK oil and gas industry continues to work in concert with helicopter operators, helicopter and safety equipment manufacturers, and the regulators to further reduce aviation risks. They do this by collectively and vigorously pursuing robust operating procedures and practices, by pursuing offshore helicopter safety initiatives and research projects, as well as ensuring, where practicable, swift implementation of actions and recommendations arising from accident investigations, inquiries and reviews (such as CAP 1145).

Over 715,000 passengers
were flown offshore
in 2016



totalling nearly 89,000
flight hours

There was one reportable
non-fatal helicopter
accident on the
UK Continental Shelf
in 2016



As a precautionary
measure, Super Puma
flights were suspended
following the fatal
accident in Norway

4.1 Overview

Since 1976, commercial air transport helicopter flight statistics and reportable accident data for UKCS offshore operations have been collected by the Civil Aviation Authority (CAA) under its mandatory occurrence reporting (MOR) scheme. During this period, up to year-end 2016, over 66.25 million passengers have been transported to and from UKCS offshore installations on nearly eight million flights (or sectors flown) with over 3.8 million hours flown. During the same period, 13 fatal accidents have claimed the lives of 119 offshore workers and flight crew and there have been 61 non-fatal accidents¹¹.

To provide a report that is representative of today's offshore flight operations using a fleet of modern helicopters, data for the last 20 years (from 1997 to 2016) have been used for comparative purposes. As an indicator of current UKCS activity, 108,775 sectors were flown in 2016 with over 88,983 flight hours and transporting 715,011 passengers offshore. This compares with 115,494 sectors flown in 2015, consuming 69,052 flight hours and transporting 825,256 passengers. The reduction in activity recorded in 2015 therefore continued during 2016. The 2016 upturn in the number of flight hours can be attributed to longer flight times for a greater number of journeys.

Since 1997, four fatal accidents have claimed the lives of 38 offshore workers and flight crew and there have been 16 non-fatal accidents.

Over the past 20 years and more, industry-led initiatives and CAA research projects¹² have led to the implementation of many safety improvements to UKCS helicopter operations. The most recent changes have resulted from the industry's response to the CAA's CAP 1145 recommendations following the Sumburgh helicopter incident in 2013. This led to the identification and management of passengers with extra broad (XBR) shoulders and the introduction of the Compressed Air Emergency Breathing System in place of the rebreather used previously (see section 5.1 for more information).

¹¹ A complete list of reportable accidents involving helicopters serving the UK offshore oil and gas sector from 1976 to 2016 is provided in an appendix on Oil & Gas UK's website at www.oilandgasuk.co.uk/healthandsafetyreport

¹² For a detailed list of industry-led safety initiatives and CAA research projects, see the appendix provided on Oil & Gas UK's website at www.oilandgasuk.co.uk/healthandsafetyreport

4.2 Current Helicopter Types

At the end of 2016, the UKCS helicopter fleet numbered 96 aircraft (31 suspended) and comprised a mix of airframe types. The increase by ten airframes since 2015 is due to a greater number of Sikorsky S92, AH175 and AW189 helicopter types being introduced following the suspension of Super Pumas (H225 and AS332L2) in May 2016 (by CAA Safety Directive) in the aftermath of a fatal accident in Norway in April 2016. Oil & Gas UK set up a helicopter resilience group to determine how helicopter logistics should continue being managed on the UKCS with a revised fleet structure and to help members safely transfer the workforce on and offshore.

Figure 19: Current Helicopter Types used for UK Continental Shelf Offshore Oil and Gas Support

Type	Weight Class	Introduced	In Fleet
Leonardo AW139	Medium	2005	19
Airbus AS365N3 (Dauphin)	Medium	1979	2
Airbus H155	Medium	2007	2
Airbus H175	Medium	2016	2
Leonardo AW189	Heavy	2014	3
Airbus AS332L2 (Super Puma)	Heavy	Pre-2005	6*
Airbus H225 (Super Puma 2)	Heavy	2005	25*
Sikorsky S92	Heavy	2005	37

* Flights suspended in 2016

Since 2001, only heavy and medium twin-engine helicopters have been used for commercial air transport on the UKCS. This is because two-pilot, light, helicopter operations generally don't have sufficient range or payload to meet contemporary offshore commercial requirements.

It is also important to make a distinction between heavy and medium twin-engine helicopter operations. As a rule, heavy twins (such as AW189, AS332L2, H225 and S92) operate mainly out of Aberdeen or Scatsta and generally fly sectors with longer flight times. Medium twins (such as AS365N3, H155, H175 and AW139) fly mainly out of regional heliports (that is Blackpool, Humberside and Norwich) and these aircraft record a higher number of sectors with relatively short flight times.

4.3 Offshore Helicopter Reportable Accidents on the UK Continental Shelf

All flight safety occurrences, as deemed reportable by CAA’s CAP 382, are reported to the CAA using the MOR scheme. There are reports submitted every month, providing constant oversight of safety-related occurrences.

From 1997 to 2016, four fatal accidents claimed the lives of 38 offshore workers and flight crew. Two accidents were caused by catastrophic component failure and two attributed to human factors. Sixteen reportable non-fatal accidents have also occurred since 1997. The causes include major component failures, pilot error, lightning strikes, major airframe damage, and main and tail rotor damage. In most cases, only the helicopter was damaged but, infrequently, these accidents have resulted in injury to personnel.

After almost three accident-free years, a non-fatal accident occurred in 2016. As a result, the UKCS’ five-year average all accident rate has increased from 0.72 to 0.95 per 100,000 flying hours. The accident rate data show that the five-year average for fatal accidents sits consistently below 0.2 per 100,000 flying hours.

The following graphs illustrate the distribution of UKCS fatal and all reportable accidents from 1997 to 2016, as well as fatal and all accident rates per 100,000 flying hours.

Figure 20: Fatal and All Accidents Distribution

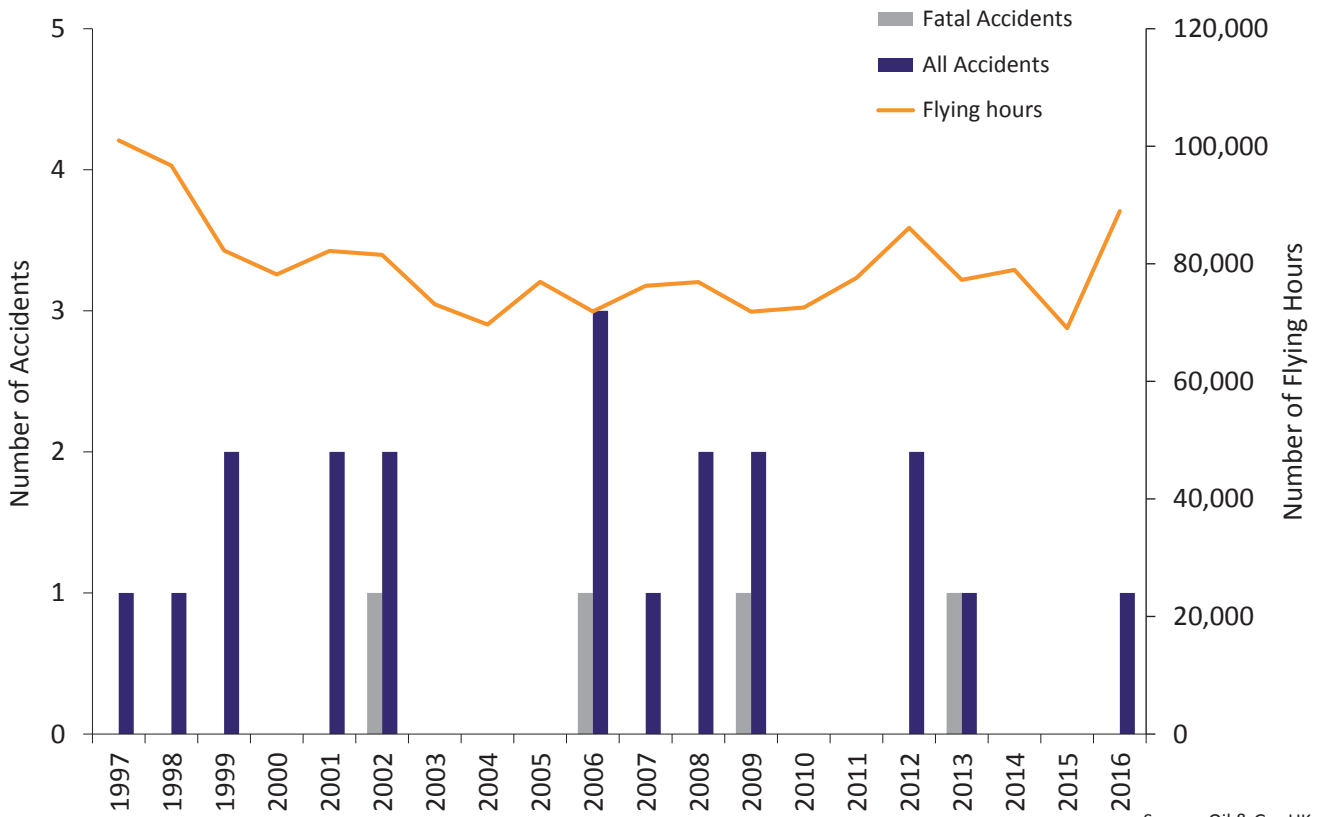
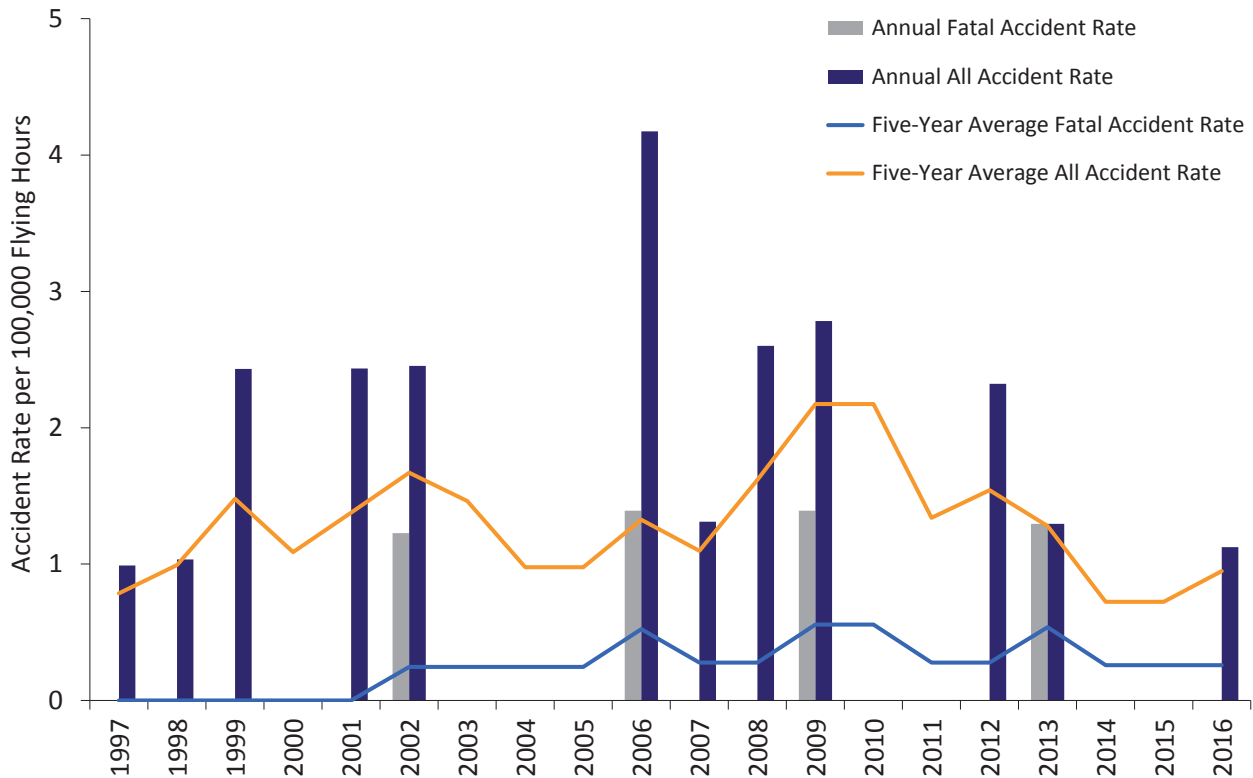


Figure 21: Fatal and All Accident Rates per 100,000 Flying Hours



Source: Oil & Gas UK

4.4 Accident Analysis

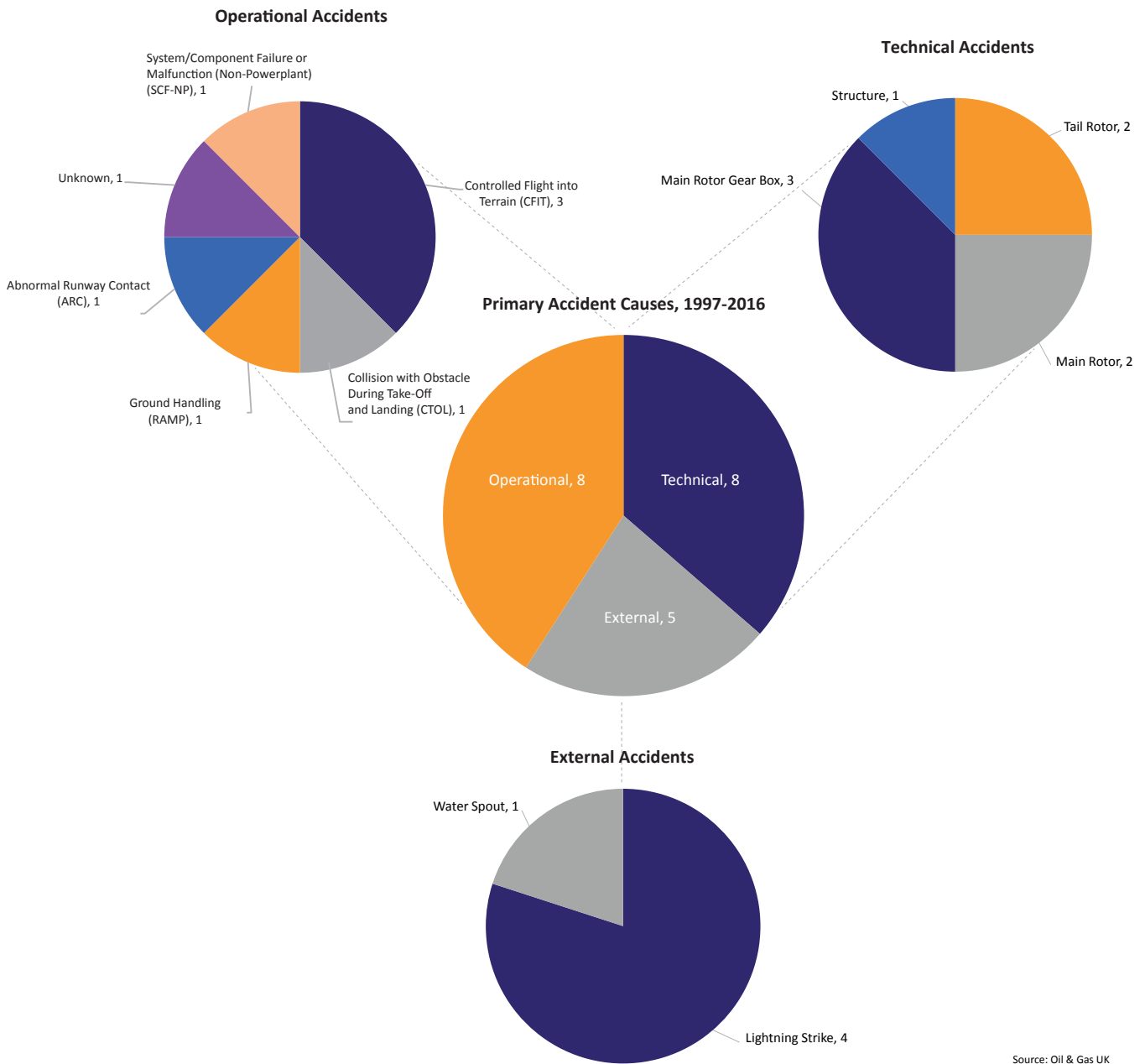
A breakdown of reportable accident causes from 1997 to 2016 is provided in the charts overleaf¹³. From 1997 to 2016, operational causes (flight and ground) accounted for 38 per cent of accidents, 38 per cent were due to technical failures and 24 per cent caused by external factors.

All the operational accidents that occurred during flight were attributed to pilot error. Eighty-eight per cent of the technical failures were attributed to dynamic component failures (main rotor gear box, main rotor blade and tail rotor). A structural issue accounts for the remaining 12 per cent.

For the 24 per cent of accidents due to external factors, all resulted from weather-related events, including four lightning strikes and an encounter with a water spout.

¹³ For accident events to be identified using a recognised international code, categorisation and causation follows the International Civil Aviation Organisation/Commercial Aviation Safety Team Common Taxonomy Team Taxonomy. Operational (F) = an event related to the helicopter while in flight or abnormal contact with terrain. Operational (G) = an event related to the helicopter while on the ground. Technical = an event involving system/component failure or malfunction, fire/smoke. External = an event involving icing, turbulence, wind shear, thunderstorm or bird strike.

Figure 22: Breakdown of Reportable Accident Causes, 1997 to 2016



Source: Oil & Gas UK

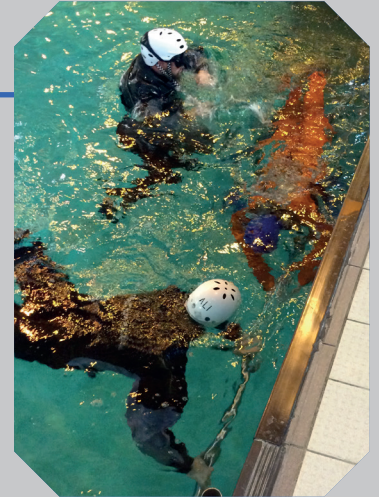
5. Significant Issues and Activities

In Summary

As the trade association for UK offshore oil and gas, Oil & Gas UK promotes open dialogue across all areas of industry, engages with government, regulators and other external stakeholders, and maintains industry networks and expertise. Collaboration and co-operation between its members and with stakeholders allows industry to strengthen its health and safety culture.

In 2016, Oil & Gas UK worked with its members to ensure that experience, knowledge and expertise is shared broadly. One way this is achieved is by developing industry guidelines to promote sector-specific good practice and regulatory compliance. Oil & Gas UK guidelines are produced by bringing together interested parties, including technical experts, industry figures and organisations, and often the relevant regulator. In 2016, documents were produced on cumulative risk, maintenance optimisation and unmanned aircraft systems. Oil & Gas UK work groups also reviewed current standards and guidance relating to occupational health, fire and explosion risk, and provided industry feedback to regulatory consultations on aviation.

The association supported industry in resolving a number of significant areas, including aviation issues affecting normally unmanned installations, asset integrity performance monitoring, and the ongoing implementation and reporting of CAP recommendations for offshore helicopter operations. In 2017, Oil & Gas UK will continue to support its members in all of these areas, as well as focusing on issues such as asset integrity and decommissioning and working towards an appropriate commemoration for the 30th anniversary of the Piper Alpha disaster in 2018.



Pool trial of Cat-A EBS



5.1 Category A Emergency Breathing System

In response to the recommendations from the CAA in CAP 1145, following the helicopter accident at Sumburgh in 2013, the UK offshore oil and gas industry introduced Compressed Air Emergency Breathing Systems (Cat-A EBS) as standard survival equipment for offshore helicopter operations. The workforce underwent classroom training on how to use the system in 2015.

In 2016, the mandatory Basic Offshore Safety Induction and Emergency Training and Further Offshore Emergency Training (BOSIET/FOET) was revised to replace the existing in-water rebreather training with dry classroom exercises using the new Cat-A EBS. Work continued, however, to move towards incorporating shallow in-water Cat-A EBS training as an integral part of the BOSIET/FOET standard. Co-operation and engagement among stakeholders, including industry, training providers, occupational health specialists and regulatory authorities, was required to assess and manage the associated risks of such in-water training, particularly for those individuals with respiratory illnesses, and to ensure compliance with the Diving at Work Regulations 1997.

A pool trial was carried out in the presence of HSE diving and medical experts with volunteers from industry. The aim was to demonstrate that it was possible to control depth and exhalation prior to ascent during the proposed EBS training exercises, and that the Cat-A EBS could be safely managed in shallow water with minimal additional health screening.

5.2 Regulator Engagement

During 2016, Oil & Gas UK and HSE established a schedule of regular meetings to improve engagement between industry and regulatory authorities. The aim is to enable regular constructive discussions around potentially contentious issues that have been raised by members of Oil & Gas UK or which the regulator wishes to address with industry. This arrangement has proved effective in enhancing communication and understanding between duty holders and the regulator.

5.3 Helidecks on Normally Unmanned Installations

The CAA CAP 1145 report included recommendations about fitting automatic fire-fighting equipment to normally unattended installations (NUIs). Prompted by discussions with Oil & Gas UK, CAA commissioned Cranfield University in 2014 to examine whether the recommendation was valid and proportional and to provide proposals on the way forward.

The Cranfield Report was shared with industry in 2015, together with a CAA paper proposing a constructive way forward. Discussion between industry and CAA means the proposal has since been developed to ensure it addresses all potential causes of accidents. The key tenets of the proposal now relate to visual cueing for night flying from circle and H lighting; the availability of fire-fighting equipment when the platform is both attended and unattended; and limiting exposure by restricting the number of landings. Industry will continue to work with CAA to agree the details of this proposal, start dates and the processes for implementation.

5.4 Offshore Major Accident Hazards Advisory Committee

The tripartite Offshore Major Accident Hazards Advisory Committee (OMAHAC) brings together representatives from the regulators, installation operators and owners, and workers to support the work of the Offshore Safety Directive Regulator (OSDR). In 2016, Oil & Gas UK took up the role of vice-chair. Major topic areas considered included major accident hazard awareness training, assurance and verification, active fire protection systems, and managing the risk of major hydrocarbon releases. Among the recommendations made was that the Oil & Gas UK Assurance and Verification Technical Group be reconstituted, and that regular attendance from verification bodies and the regulator should be sought.

5.5 Asset Integrity KPI Suitability Review

In 2016, an Oil & Gas UK work group reviewed the KPIs discussed in section 3.4 that are used in the voluntary monitoring scheme for asset integrity performance. The review responded to a request from Oil & Gas UK's Board. The work group of specialists and experts wanted to identify if any improvements were required, and, if possible, recommend a standard industry approach to classifying and reporting maintenance backlog hours. Individual companies shared their internal monitoring and reporting frameworks with the group to aid this process. However, differences in the internal systems, classifications and procedures applied meant that though the individual schemes were effective and informative in providing an overview of asset integrity performance, no common approach could be identified that would be suitable for all participants and that would maintain the integrity of the historical data. It was concluded that the current KPI reporting framework provides the best practicable option, and that any differences in reporting did not affect the monitoring process nor the general trend in performance derived from the information.

5.6 Consultations

Oil & Gas UK is a focal point for industry responses to regulatory consultations issued by the HSE and CAA. During 2016, no relevant consultations were held by HSE, but Oil & Gas UK responded to the following CAA consultations.

CAP 437 Standards for Offshore Helicopter Landing Areas

Industry representatives reviewed the draft chapters of the CAA's CAP 437, *Standards for Offshore Helicopter Landing Areas* and comments were collated by Oil & Gas UK to feedback to the CAA. Oil & Gas UK also has editorial responsibility for Chapter 7 on *Helicopter Fuelling Facilities – Systems Design and Construction* and Chapter 8, *Helicopter Fuelling Facilities – Maintenance and Fuelling Procedures*. An international industry group of specialists, chaired by Oil & Gas UK, was tasked with delivering the updates necessary. This group drew on the expertise of the International Civil Aviation Organisation (ICAO), IOGP, HeliOffshore, International Marine Contractors Association (IMCA), and supply chain representatives such as fuel providers, among others. The aim was to achieve harmonisation with requirements set by other bodies including The Joint Inspection Group, IOGP *Aircraft Management Guide 590* and other North Sea States. This international involvement resulted in these revised chapters being accepted globally for offshore helideck operations.

CAP 1145 and CAP 1386 Progress Reporting and Safety Review of Offshore Public Transport Helicopter Operations in Support of Oil and Gas Exploitation

Throughout the year, Oil & Gas UK maintained a constructive interface with the CAA to ensure effective implementation and close-out of the recommendations affecting offshore helicopter operations initially published in February 2014 in *CAP 1145 – Safety Review* and in the follow-up report published in September 2016, *CAP 1386 – Progress Report 2016* (see section 5.1 on the introduction of a new Cat-A EBS).

5.7 Publications

Unmanned Aircraft Systems

In recognition of the increasing use of unmanned aerial systems within the industry and the need to provide sector-specific guidance for this emerging technology, Oil & Gas UK worked with organisations in this field to develop new *Unmanned Aircraft Systems (UAS) Operations Management Standards and Guidelines*¹⁴. The guidelines have evolved from lessons learnt and share best practice, procedures and the certification needed to be compliant with UAS regulations. The aim is to maintain consistency with the high safety and operating standards already adopted on the UKCS. Demand has been high; there were over 100 downloads of the publication within just a few months of release, with the readership covering a broad spectrum of Oil & Gas UK membership and beyond.

Maintenance Optimisation

The *Maintenance Optimisation Reviews: Sharing Experience and Learning* document¹⁵ was created as part of industry's efforts to tackle the increase in safety-critical maintenance backlog that was noted in 2014 (see section 3.4 on maintenance backlog). An Oil & Gas UK work group made up of technical specialists in maintenance and asset integrity came together to share experiences and learnings on the topic of maintenance optimisation. To capture and cascade those learnings more widely, the group created guidelines that provide a flexible framework for conducting maintenance optimisation reviews for all organisations, irrespective of their company structure or types of asset operated. The framework is a scalable good-practice approach to reviewing safety and business critical equipment maintenance so that there is a risk-based and efficient maintenance regime in place that supports safe, reliable and sustainable operations.

Cumulative Risk

Technical specialists from across industry came together to develop Oil & Gas UK's *Cumulative Risk Guidelines*¹⁶. These aim to increase awareness of cumulative risk and provide guidance on how to manage it. This is important as minor deviations from major hazard management may have a small associated risk when examined on their own, but, when considered cumulatively, give rise to the potential for a significant change in overall risk. These guidelines will aid installation, operations and asset managers in developing a framework for assessing cumulative risk and suggest different approaches and methods.

¹⁴ The UAS guidelines are available to download at <http://bit.ly/UAS2017>

¹⁵ Guidelines on maintenance optimisation are available to download at <http://bit.ly/maintenanceoptimisation>

¹⁶ The *Cumulative Risk Guidelines* are available to download at <http://bit.ly/CRg16>

5.8 2017 Focus Areas

Asset Integrity and Decommissioning

Decommissioning activity on the UKCS is predicted to increase over the coming decade¹⁷. It is an area in which the industry is developing its expertise, but which poses challenges to operators in managing asset integrity and maintaining the current positive focus on safety both prior to and during the decommissioning period. Engagement with the regulator and industry to understand the implications for managing SECE and developing and sharing good practice, accordingly, will be critical to ensure the success of this phase of field life. There is likely to be a need for continual update and review as the industry builds on its experience and knowledge.

Unmanned Aircraft Systems

Following the publication of the UAS standards and guidelines, outlined previously, it became apparent that further information and guidance would be required for certain technical topics and that the existing guidelines will need to be regularly reviewed and updated as necessary to ensure they remain current and relevant for this relatively new and fast evolving technology for the sector. Oil & Gas UK is therefore creating a technical group to provide leadership and oversight for the safe and effective management of UAS operations in the UK offshore oil and gas operating environment. The terms of reference for the group include review of the guidelines, development of airworthiness and certification requirements, training standards and accreditation, and consideration of low-level non-line-of-sight flight management.

Basic Offshore Safety Induction and Emergency Training

Building on the progress made in 2016 by industry, regulators, training providers and workforce representatives, work will continue in 2017 to ensure that the Cat-A EBS is fully incorporated into the OPITO BOSIET standard for in-water offshore survival training in a safe and manageable manner. A priority will be defining a framework that provides an appropriate level of medical risk management and legal compliance.

Fire and Explosion

Revised *Fire and Explosion Guidance* is due to be published later this year to provide an up to date, realistic and simplified approach to designing and assessing offshore installations, including advice on good practice for engineered prevention and mitigation of hydrocarbon fires and explosions. The time invested over the past two years in reviewing and updating the guidance reflects the criticality of this area to offshore safety and the advances in knowledge and understanding since the guidance was last updated in 2007.

Emergency Response and Rescue

In collaboration with the Emergency Response and Rescue Vessel Association (ERRVA), the HSE and other stakeholders, Oil & Gas UK is supporting the review and update of two guidance documents – *the Emergency Response & Rescue Vessel Management Guidelines* and *Emergency Response & Rescue Vessel Survey Guidelines*. The new guidelines will clarify the survey requirements for each ERRV class, reflect any changes in the ERRV fleet and update good practice for verification and validation. It is anticipated that these documents will be published in 2018.

¹⁷ Oil & Gas UK's *Decommissioning Insight 2016* is available to download at www.oilandgasuk.co.uk/decommissioninginsight

Helicopter Operations Safety and Resilience

Oil & Gas UK's Aviation Safety Technical Group anticipates the need for close collaboration with the regulatory authority, service providers, and industry and workforce representatives in 2017. Oil & Gas UK will participate fully with affected stakeholders, along with our partners in the CAA and Step Change in Safety, in any discussions regarding the potential reintroduction of the H225 and AS332L2 models to the fleet.

Regulator Engagement

Oil & Gas UK representatives will continue to work closely with its members to identify areas where a closer working relationship between industry and the regulator can help promulgate good practice and ensure continuing improvement in safety management and legislative compliance. Regular engagement between Oil & Gas UK and HSE is essential for effective collaboration and challenge, which is the bedrock of the legislative framework for the industry. Informal feedback from all the association's groups can be channelled to the regulator, and from the regulator to members, allowing increased understanding and more effective action.

Occupational Health Guidelines

Continuing the work started in 2016, the Occupational Health Technical Group will develop revised *Environmental Health Offshore Guidelines*, last updated in 2007, so that current good practice and an appropriate level of activity on risk-based principles is captured. The involvement of a representative from the regulator is welcome, not least as the guidelines are used as the basis for offshore inspections.

Publication of the revised *Industry Guidelines for First-Aid and Medical Equipment on Offshore Installations* is also expected in 2017. This document provides comprehensive technical guidance on all aspects of offshore medical and first aid provision, including design and location of sick-bay facilities, recommended drug inventory, equipment lists for types of installation, and personnel required to deliver effective first aid and medical care.

Consideration will also be given to updating the final document in the occupational health guideline suite, *Medical Aspects of Fitness for Work Offshore: Guidance for Examining Physicians*. This document will be revised to include guidance on medical fitness to train, as well as medical fitness to work, on account of the Cat-A EBS training becoming part of BOSIET.

Piper 30

6 July 2018, will mark the 30th anniversary of the Piper Alpha disaster, in which 167 lives were lost. The event that affected the lives of so many and continues to even 30 years later, transformed safety management in the UK offshore oil and gas industry irrevocably. Oil & Gas UK will work with all stakeholders in the industry to commemorate the event in a fitting way.

6. Glossary

BOSIET	Basic Offshore Safety Induction and Emergency Training
CAA	Civil Aviation Authority
Cat-A EBS	Category A Compressed Air Emergency Breathing System A compressed air breathing system that can be deployed at very short notice and/or underwater for underwater escape
Dangerous occurrences	Certain specified events as defined in RIDDOR 2013, includes events such as dropped objects, hydrocarbon releases, fires or explosions
Duty holder	In relation to a production installation, this means the operator, and in relation to a non-production installation, the owner
EASA	European Aviation Safety Agency
ERRV	Emergency response and rescue vessel
FOET	Further Offshore Emergency Training
HAVS	Hand Arm Vibration Syndrome
HCR	Hydrocarbon release(s)
HSE	Health and Safety Executive
ICP	Independent Competent Person
IOGP	International Association of Oil & Gas Producers
KP	Key Programme
KPI	Key Performance Indicator
Lagging indicator	Output oriented measurement of past performance
Leading indicator	Input oriented prediction of future performance
LTIF	Lost time injury frequency
MAH	Major accident hazard
MCA	Maritime and Coastguard Agency
MOR	Mandatory Occurrence Report
NUI	Normally unattended installation
OMAHAC	Offshore Major Accident Hazards Advisory Committee
OPITO	The Offshore Petroleum Industry Training Organisation
Over-seven-day injuries	Accidents that cause an employee to be away from work or unable to perform their normal work activities for more than seven consecutive days
Personal safety	Protecting an individual from harm
Process safety	Managing major hazards that may cause incidents that harm many people e.g. fires, explosions or structural collapse
Reportable injury	A work-related injury that has either resulted in an employee being away from work, or unable to perform their normal work duties, for more than seven consecutive days due to their injury, or which is listed as a specified injury

RIDDOR	Reporting of Injuries, Diseases and Dangerous Occurrences Regulations
Safety critical maintenance backlog	An accumulation of uncompleted maintenance associated with safety and environmental critical elements (SECE) that is still to be cleared
SAR	Search and rescue
SC	Safety critical
SCR	Safety Case Regulations 2005/2015
SECE	Safety and environmental critical elements Parts of an installation and such of its plant (including computer programmes), or any part of those – (a) the failure of which could cause or contribute substantially to a major accident; or (b) the purpose of which is to prevent, or limit the effect of, a major accident
Specified injuries	Defined list of reportable injuries detailed in Regulation 4 of RIDDOR 2013
UAS	Unmanned aerial systems
UKCS	UK Continental Shelf
XBR	Extra broad





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