Energy Division
Gas & Pipelines Unit

Major Hazard Safety Performance Indicators in Great Britain's Onshore Gas and Pipelines Industry

Annual Report 2014/15

Contents

Executive Summary

This report presents a broad range of safety performance indicators (SPIs) from across Great Britain's gas transmission, distribution and other hazardous pipelines sectors. HSE and the principal operators in the sectors have jointly agreed these SPIs. HSE publishes this report annually in order to monitor the sector's safety performance year-on-year.

In 2014/15 the following indicators of the safety performance of Great Britain's gas and pipelines industry were reported.

- Third party damage: four datasets now relate to third party damage: United Kingdom Onshore Pipeline Operators Association (UKOPA) infringement data (see section 3.1); Gas Safety Management Regulations (GSMR) reports (section 5.1); gas escapes caused by third party damage to Gas Distribution Network (GDN) assets (section 5.6); and 'any level' gas in buildings events caused by third party damage (section 6.2). These all show that the risk of third party damage to pipelines remains significant for the sector and its prevention remains a strategic priority for HSE.
- Gas in buildings: this has increased compared to 2013/14 but is at a low level compared to previous years, and the five-year rolling average shows a steady downward trend.
- Iron mains replacement: a new Enforcement Policy for the iron mains risk reduction programme came into force on 1 April 2013. Under the new arrangements all of the GDNs now have eight year approval periods with the exception of Northern Gas Networks, for whom it is four years. HSE monitors year-on-year progress within these approval periods against indicative annual targets (IATs). National Grid Gas fell short of their IAT for 2014/15; the other GDNs all exceeded theirs.
- National Transmission System (NTS) gas quality: after a sharp drop in 2013, the number of instances where transportation flow advice (TFA) was issued as a measure to manage the quality of gas entering the NTS returned to a similar level to that reported in previous years.
- Public reported gas escapes requiring repair: more of these were dealt with by the GDNs this year compared to last, and the percentage prevented within 12 hours showed a slight increase.
- GSMR reportable incidents: the overall annual total of GSMR reportable events decreased compared to 2013/14.
- Gas main or service failures: there were three events that met the relevant criteria, none of which resulted in fatal injury.

1.0 Introduction

1.1 Safety Performance Indicators (SPIs)

Major incidents in the gas and pipelines industry and other high hazard sectors happen rarely and are not a reliable indicator of major hazard safety performance. This is why HSE advocates the use of SPIs to operators in high-hazard industries. Setting SPIs involves:

- identifying the systems which must be effective to properly control the risk of a major incident; and
- carrying out monitoring to gauge the continuing 'health' of these systems.

Sources of information that can be used to set SPIs include data on excursions from operating envelopes or other potential major incident precursor events and audits showing the extent to which critical procedures for major hazards safety management have been complied with.

Operators should always try to identify SPIs that are as site- or process-specific as possible in order to get the best insight into their major hazard safety performance. However the use of common indicators across a sector can also be helpful as it allows the performance of different operators to be compared and encourages the sharing of good practice. Further guidance on setting and monitoring SPIs is available in HID Instruction: Assessment of Key Performance Indicators During Inspection/Investigation.

HSE's definition of a major incident and further information on HSE's response to such an event can be found at: HSE response to a major incident or civil contingency event

1.2 This Report

HSE Energy Division - Gas & Pipelines has worked together with the gas transmission, distribution and other hazardous pipelines sectors to identify a suite of SPIs and report performance against them. Some of the data included in this report is provided by operators above and beyond the information they must provide in order to meet their legal duties. The findings of this report feed into HSE's operational strategy where appropriate. More information regarding this strategy can be found at: Onshore Gas & Pipelines Sector Strategy 2014 - 2017

This annual report covers the period from 1 April 2014 to 31 March 2015 with the exception of data provided by National Grid Gas plc (NGG) for the National Transmission System (NTS) and pipeline data provided by the United Kingdom Onshore Pipeline Operators' Association (UKOPA), both of which cover the 2014 calendar year.

There are some minor discrepancies in the historical data presented here and in previous versions of this report. This has arisen because HSE has received corrections to data provided by the GDNs in previous years.

1.3 Great Britain's Gas and Pipelines Industry

Pipelines operated by the gas and pipelines industry in Great Britain transport natural gas and other hazardous substances around the country. The sector also operates natural gas importation and storage facilities. In Great Britain, approximately 22 000 km of pipelines are defined as Major Accident Hazard Pipelines (MAHPs) under the Pipelines Safety Regulations 1996 (PSR). Of these, around 21 000 km transport natural gas at pressures above 7 barg and the remainder transport dangerous fluids such as ethylene. In addition to MAHPs, the eight gas distribution networks (GDNs) also transport natural gas in pipelines operating at pressures below the MAHP threshold of 7 barg.

Prior to 1 June 2005, Transco plc operated nearly all of the natural gas MAHPs in Great Britain and owned all eight of the GDNs. After 1 June 2005, four of the GDNs were sold to: Southern Gas Networks plc; Scotland Gas Networks plc; Wales & West Utilities Ltd; and Northern Gas Networks Ltd respectively. NGG retained four GDNs in London, the West Midlands, the East of England and the North West. NGG also retained the NTS which delivers high pressure gas to each of the GDNs and other direct off-takes such as power stations.

1.4 HSE Energy Division - Gas & Pipelines

HSE Energy Division (ED) - Gas & Pipelines regulates health and safety in Great Britain's gas and pipelines industry to ensure that risks at onshore major hazards sites, including pipelines, are properly controlled. ED - Gas & Pipelines also works with ED - Offshore to regulate the safety of offshore installations and associated pipelines. Gas & Pipelines contributes to Offshore's programme of work by ensuring the integrity of: emergency shutdown valves; pig traps; risers; pressure protection systems; sub-sea isolation valves; and wellhead pipework.

More information about the work of ED - Gas & Pipelines is on HSE's website at: Gas supply health and safety and Pipelines health and safety

2.0 Gas and Pipelines Safety Performance Indicators

2.1 Background

HSE has worked with dutyholders and other stakeholders in the sector to ensure that the SPIs contained in this report are:

- indicative of the principal major accident risks generated and faced by the sector;
- reasonably practicable for the dutyholders to produce; and
- where possible, utilise data already provided to other regulators, e.g. Ofgem.

Many of these SPIs are specific to the gas distribution industry, although pipeline damage and fault data collected by UKOPA is also monitored.

2.2 Safety Performance Indicators

The following SPIs have been selected because they are indicative of the sector's principal major accident risks.

a. Pipeline SPIs - the following UKOPA datasets:

   i Number of pipeline infringements caused by third parties and recorded in UKOPA's Infringement Database

   ii Number of pipeline failures arising from corrosion and other causes reported in UKOPA's Product Loss Incidents report

b. NTS SPIs - numbers of incidents on the NTS where:

   i. Transportation Flow Advice (TFA) has been issued as part of the steps taken to maintain the quality of gas entering the NTS

   ii. Gas transmission pressure has exceeded the pipeline's maximum operating pressure (MOP)

   iii. GDN offtake pressure has fallen below 38 barg

c. Gas distribution SPIs - the following data from the GDNs:

   i. Numbers of incident reports submitted under GSMR

   ii. Annual reports on progress with iron mains replacement

   iii. Annual GDN updates on the following:
      - total length of iron mains remaining in each distribution network
      - number of gas in buildings (GIB) incidents
      - number of mains and service related major incidents

- total number of public reported escapes (PREs) requiring repair, and of these, the number prevented within 12 hours of the GDN being informed of the escape
- number of third party damage incidents to pipelines and mains

These reporting categories are explained further in Appendix 1.

2.3 Review of this report

Gas & Pipelines, in consultation with representatives from the GDNs and the NTS, has carried out a review of the SPIs included in this report. The review challenged whether the SPIs reported continued to be relevant to the management of major hazards in the sector, and sought to identify other metrics that could enhance the report. As a result the suite of SPIs presented in this report has been revised and additional SPIs identified. These are presented in section 6 of this report.

UKOPA have also contributed to the review and the inclusion of additional onshore pipeline data is being kept under consideration.

Furthermore, the NTS was challenged to identify additional SPIs to provide further assurance that the systems in place to prevent, manage and mitigate the effects of a gas supply emergency are effective. As a result, new metrics have been identified by the NTS and are being reported internally as part of their safety management arrangements.

3.0 UK Pipeline Operator SPIs

3.1 UKOPA Infringement Database

Third party infringements are one of the largest causes of transmission pipeline damage and failure in the UK and abroad. The UKOPA Infringement Working Group (IWG) collects data on infringements within the legal easement around a pipeline or in the pipeline operator's declared zone of interest. An infringement is any activity that either causes, or could have caused, damage to a pipeline or pipeline coating. Examples of such activities include excavation, ditch digging, post-hole boring, directional drilling and levelling.

The UKOPA infringement database has been set up to identify trends in pipeline infringement and key factors leading to third party damage. This intelligence allows targeted action to be taken to educate potential infringers and gauge the effectiveness of steps taken by pipeline operators to reduce the risk of infringements occurring.

UKOPA have compiled an annual infringement report since 2004. Initially only the chemical and oil sectors contributed to the infringement database, however its scope increased significantly in 2005 with the addition of data from high-pressure natural gas pipeline operators. Although not all of the data included in the database relates to MAHPs, all of the pipelines included have the potential to give rise to a major incident if ruptured. UKOPA infringement reports are published on the UKOPA website: www.ukopa.co.uk

UKOPA categorises third party infringement data in order to create a more detailed picture of the patterns of infringements around pipelines. Table 3.1.1 shows the categories used to describe actual damage or potential damage to pipelines associated with the activity carried out by the infringer. Table 3.1.2 shows the categories used to describe the location relative to the pipeline.

Risk	Infringement Type	Infringement Description
A	Pipeline Damage or Leak	Includes damage to wrap or protective sleeve
B	Serious Potential for Damage	Methods or equipment used could cause significant damage had excavation taken place
C	Limited Potential for Damage	Methods or equipment would not have resulted in serious damage

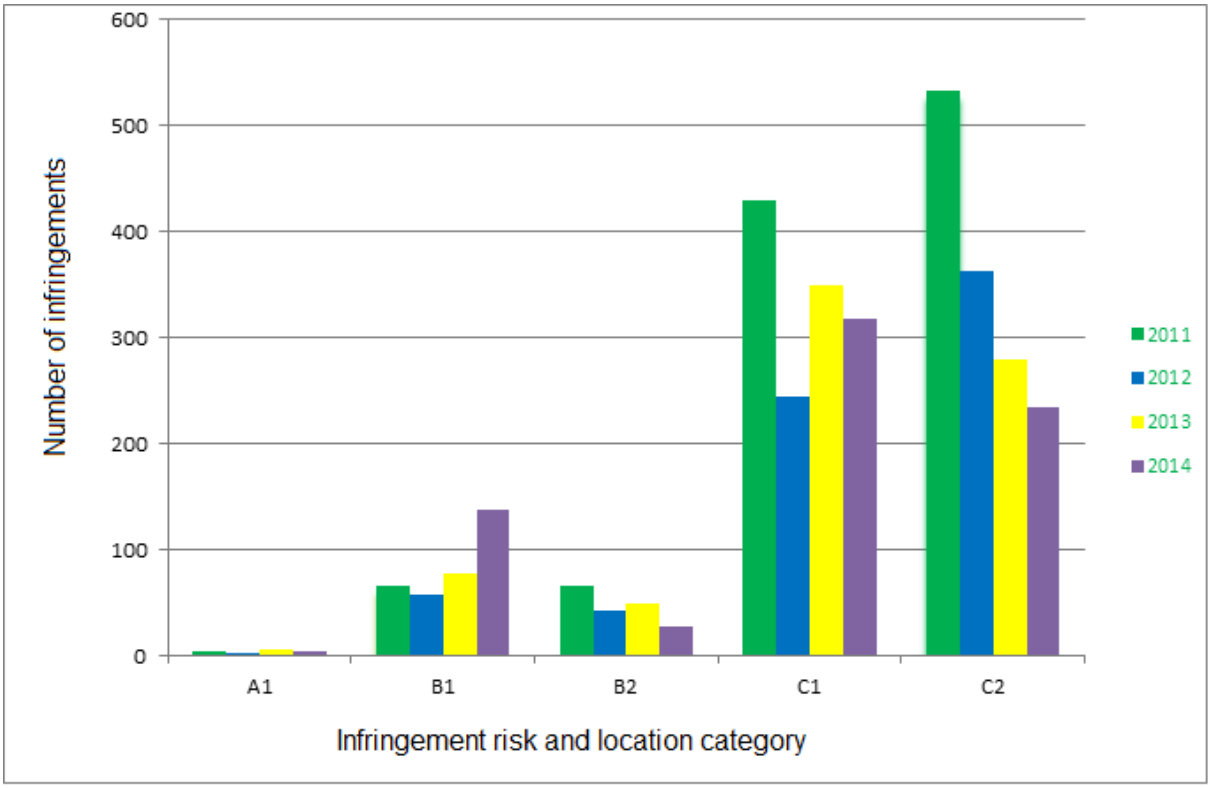
Table 3.1.1: UKOPA Infringement Risk Categories

Location	Description
1	Within the pipeline wayleave or easement. Typically this is the zone within which the pipeline operator has legal rights, including a requirement by the landowner to notify planned work.
2	Within the pipeline operators zone of interest, but outside the pipeline wayleave or easement. It is the area within which the operator would have reasonably expected a competent third party to have given notification in the prevailing circumstances.

Table 3.1.2: UKOPA Infringement Location Categories

Between 2009 and 2010 there was a significant fall in the number of infringements reported via the UKOPA database. UKOPA attribute this to changes to the reporting arrangements for pipeline infringements. For this reason no comparison should be drawn between infringement data from previous years and 2010, although data from 2010 onwards can be compared.

The graph below shows the annual number of third party infringements, subdivided by the infringement category, reported between 2010 and 2014.



Graph 3.1.1: Third Party Infringements by Location and Risk Category

Note: the reported number of infringements does not include activities that were notified to the pipeline operator in advance and where the operators' guidance was being followed.

The 2014 data includes four infringements in the highest 'A1' category out of a total of 745 recorded events. Details of these events are as follows:

- one case of damage to a fuel pipeline by a contractor working for a gas utility;
- two cases of damage to above ground gas pipeline crossings by contractors whilst earthmoving;
- one case of damage to a below ground gas pipeline by a contractor digging trial holes with mechanical excavator.

There were also 137 category 'B1' infringements in 2014, up sharply from 78 in 2013 and by far the highest number since the data recording changes were made in 2010.

Of the other infringement categories, C1 made the largest contribution to the number of recorded infringements.

This data emphasises the continuing threat presented by third party damage to pipelines and is strong justification for HSE's focus on third party damage prevention as a strategic priority.

3.2 UKOPA Pipeline Product Loss Incidents Report

One of UKOPA's objectives is to provide authoritative intelligence to inform risk assessments and aid decision making in the context of land use planning around high hazard pipelines. To help meet this objective UKOPA has compiled a pipeline fault database which aims to:

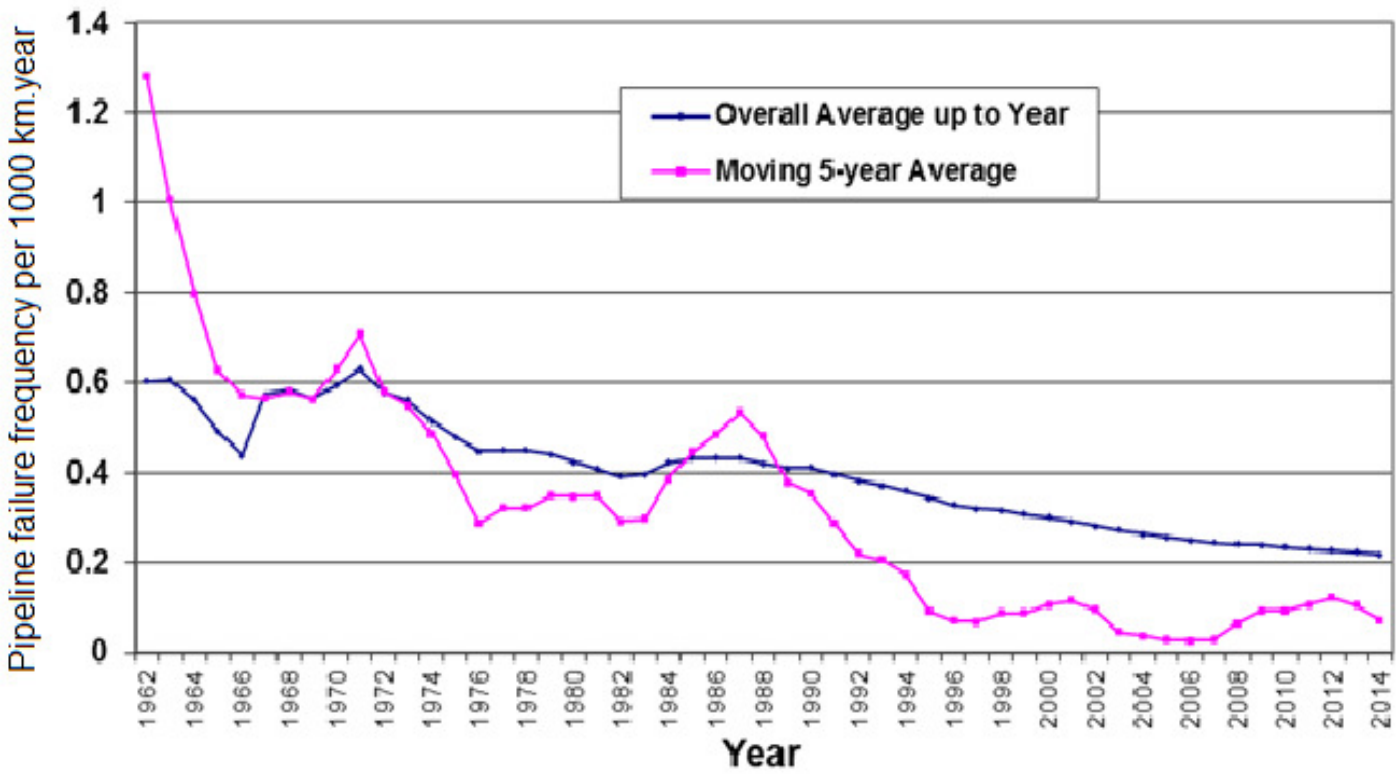
- estimate leak and pipeline rupture frequencies for UK pipelines based directly on historical failure rate data for UK pipelines;
- provide the means to estimate failure rates for UK pipelines for risk assessment purposes based on analysis of actual damage data for UK pipelines;
- provide a more realistic and rigorous approach to pipeline design and routing;
- provide the means to test design intentions and determine the effect of engineering changes (e.g. to wall thickness of pipe, depth of cover, diameter, protection measures, inspection methods and frequencies, design factor etc.).

UKOPA define a product loss incident as:

- an unintentional loss of product from the pipeline;
- within the public domain and outside the fences of installations;
- excluding associated equipment (e.g. valves, compressors) or parts other than the pipeline itself.

Graph 3.2.1 below shows UKOPA's data for UK pipeline product loss incidents between 1962 and 2014. The overall failure frequency over this period is 0.219 incidents per 1000 km.year, a drop from 0.223 incidents per 1000 km.year for the period from 1962 to 2013. The overall trend continues to show a reduction in failure frequency. For the last 5 years the failure frequency is 0.078 incidents per 1000 km.year, down from 0.105 incidents per 1000 km.year covering the 5 year period up to the end of 2013.

The full UKOPA pipeline product loss and fault data report is published on the UKOPA website: www.ukopa.co.uk



Graph 3.2.1: UK Pipeline Product Loss Incidents 1962 to 2014

4.0 Gas National Transmission System (NTS) SPIs

4.1 Gas Quality

Transportation flow advice (TFA) is issued by the Gas National Control Centre (GNCC) to a delivery facility such as a gas importation terminal or storage facility when the gas supplied has the potential to fall outside the normal specification required by GSMR. TFAs require the delivery facility to either reduce or cease supply into the NTS. Data for the number of gas quality related TFAs issued annually since 2005 and the gas quality characteristic of concern in each case is presented in Table 4.1 below.

Gas Characteristic	Number of TFAs Issued for Partial/100% Cessation of Flow									
	2005	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Hydrocarbon dewpoint	13	17	6	17	13	9	12	2	13	24
Hydrogen sulphide	7	4	3	8	5	6	2	7	1	4
Carbon dioxide*	3	4	0	0	0	0	0	0	0	0
Incomplete combustion factor	7	4	16	14	11	5	4	11	6	7
Wobbe number	5	2	3	0	15	39	27	35	8	6
Calorific value**	1	3	0	0	0	0	0	0	0	1
Water dewpoint	1	2	3	1	0	0	2	0	1	3
TOTAL	**37**	**36**	**31**	**40**	**44**	**59**	**47**	**55**	**29**	**45**

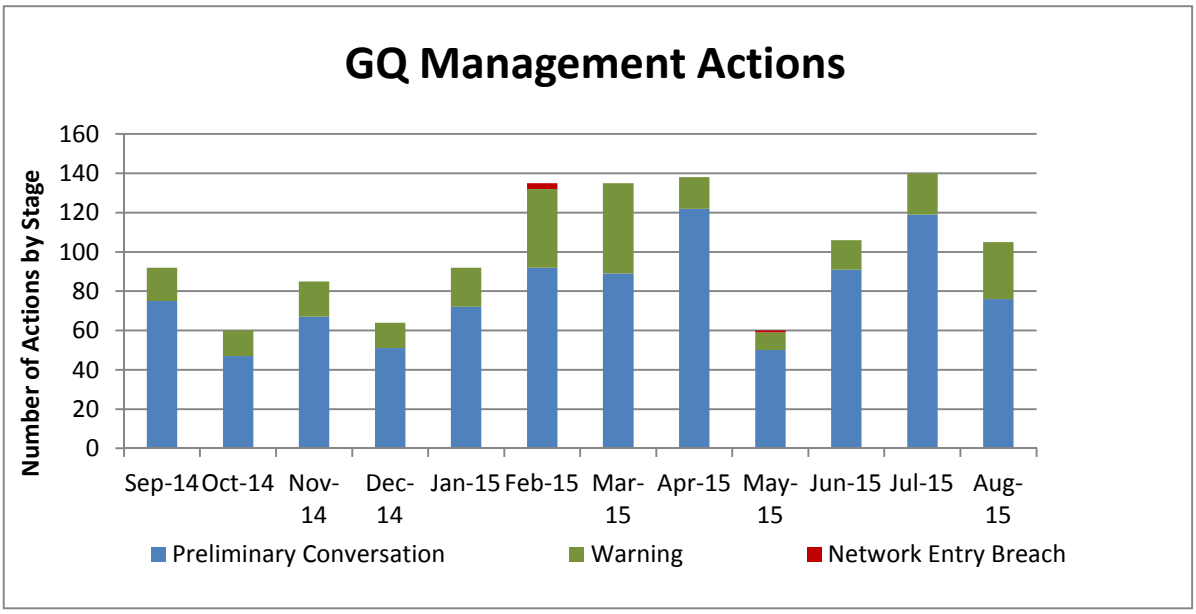
* not required under GSMR Schedule 3
** not required under GSMR Schedule 3 but used to calculate Wobbe number

Table 4.1: Summary of TFAs issued for gas quality reasons

The total number of gas quality related TFAs where a reduction in flow was requested in 2014 was 45, an increase on 2013 but more in line with the numbers seen in previous years.

The GSMR gas quality specification reflects the historical composition of North Sea gas. Gas received from depleting North Sea fields and LNG importation often requires additional processing to comply with GSMR. As a result, increases in actions taken by the GNCC to manage incoming gas quality issues are to be expected.

The GNCC uses a range of measures besides TFAs to avoid non-compliant gas entering the network. The review of SPIs found that monitoring further metrics in addition to TFAs would give a more complete picture of the effectiveness of arrangements for managing gas quality on the NTS. The following graph shows the number of preliminary interventions (usually this takes the form of an operator-to-operator conversation), the number of formal warnings (including TFAs) and the number of actual network entry breaches recorded by the GNCC between September 2014 and August 2015.



Graph 4.1: Gas Quality NTS Management Actions between September 2014 and August 2015.

Taken collectively, this data can be used to generate a 'Bird's Triangle'.

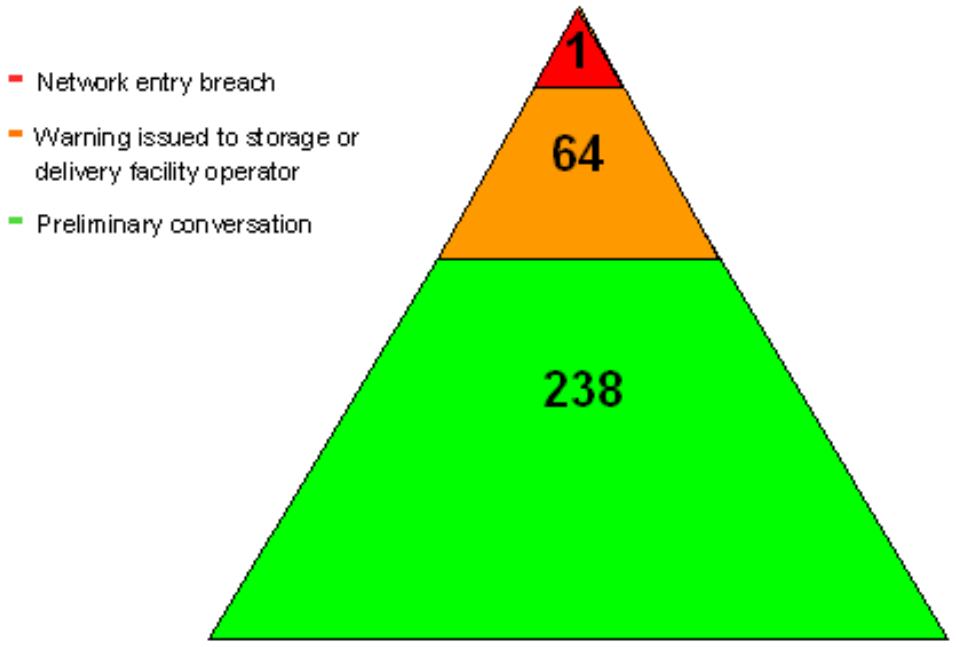


Figure 4.1: Bird's Triangle for Gas Quality Management Actions between September 2014 and August 2015

Figure 4.1 illustrates that for every network entry breach, 238 situations that might have led to a breach were resolved following preliminary interventions and 64 were resolved following a formal warning. NGG have confirmed that in every case where a network entry breach occurred, the GNCC took effective action to ensure that the gas supplied to consumers complied with GSMR.

4.2 Pipeline Operating Pressures

The Institution of Gas Engineers and Managers (IGEM) publication TD/1 'Recommendations on Transmission and Distribution Practice for Steel Pipelines for High Pressure Gas Transmission' states: 'the sustained operating pressure for a pipeline system should not exceed Maximum Operating Pressure (MOP)'. The sustained operating pressure is the maximum set pressure for the pressure regulating devices on the pipeline. When operating at or near the MOP, TD/1 states that this pressure may be exceeded by no more than 2.5% of its value to allow for variations in the performance of pressure regulating devices and instruments. The current edition of TD/1 also allows for an incidental pressure rise of 2.5% above the MOP, provided the Maximum Incidental Pressure (MIP) of the pipeline is not reached (TD/1 considers that the MIP is 10% above the MOP). When an incidental pressure rise occurs, the pressure should not exceed the MOP for more than 5 hours at any one time, or for more than a cumulative total of 20 hours per year.

Table 4.2 below shows the number of events where pipeline pressure has risen above the MOP by no more than 2.5% on the NTS and the number of pipelines affected. There were no events in 2014 where the operating pressure reached the MIP or where it exceeded the MOP by more than 2.5%.

Operating Pressure Level	**Number of Events (Number of Pipelines Affected)**							
	2007	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Operating pressure exceeded MOP but was less than MOP + 2.5%	7 (10)	4 (5)	3 (3)	3 (4)	2 (4)	2 (4)	3 (4)	2 (2)

Table 4.2: Summary of Pipeline MOP Events

Note: this data does not include events where instruments were found to be faulty or where the pipeline pressure was deliberately increased as part of a planned test.

In 2007 NGG implemented a process to monitor and review all MOP excursion events and ensure that appropriate action is taken where such events occur. Since 2007, the number of events where the operating

pressure on NTS pipelines rose above the MOP but by less than 2.5% has decreased substantially and remains at a low level year-on-year.

4.3 GDN Entry Pressure

In 2014 there was one event where the pressure at the inlet to GDN offtakes fell below 38 barg. This SPI was originally selected because 38 barg is the recognised normal design operating pressure at the GDN offtakes. However, under current arrangements, it is not necessary to maintain the GDN entry pressure above 38 barg in every case.

The SPIs review concluded that metrics that provide a better 'line of sight' to a network pressure emergency would be useful additions to the suite of SPIs presented in this report. However, although possible additional metrics have been given due consideration, nothing suitable has been identified to date.

5.0 Gas Distribution Networks SPIs

Full definitions for the terms and reporting categories used in this section of the report are given in Appendix 1.

5.1 GSMR Reports

Gas conveyors have a duty under Regulation 7(13) of GSMR to investigate and report gas escapes on their network that have, or are likely to have, resulted in a fire or explosion. The investigation should establish the source of the escape and, so far as is reasonably practicable, the reason for it.

Gas conveyors should submit a GSMR report for the following:

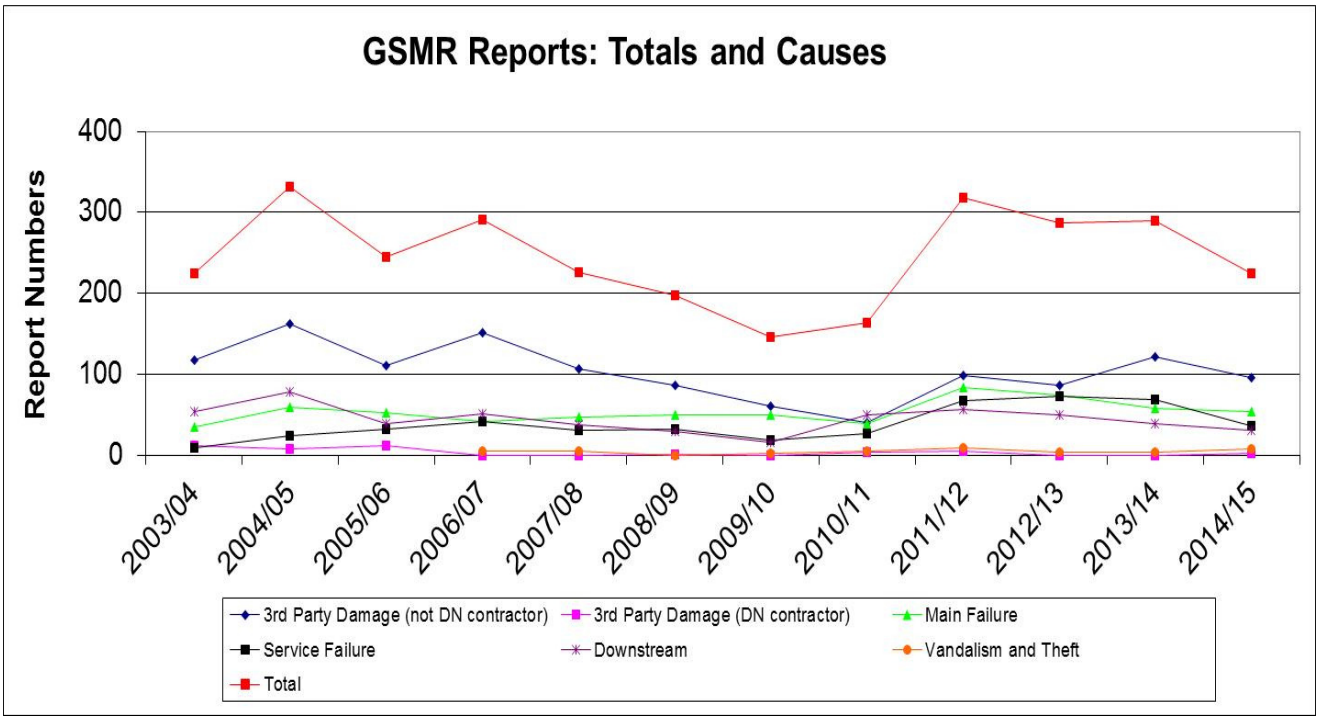
i. a gas in buildings event where the gas concentration has exceeded 20% of the lower explosive limit (LEL) or where more than 10kg of gas has been released; or

ii. an external release exceeding 500kg of gas; or

iii. an escape of gas, either within a building or on a network, which has resulted in a fire or explosion.

Problems existed in the data capture system for GSMR reports prior to 2011. This is thought to account for the sharp rise in the number of GSMR reports recorded in 2011/12.

The graph below shows the annual total of GSMR reports made from 2002/03 to 2014/15.



Graph 5.1: Annual number of GSMR Reports from 2002/03

A total of 224 GSMR reports were received in 2014/15, this is a significant reduction from the 290 reports made in 2013/14. Third party damage remained the cause of the most incidents during the year.

5.2 Iron Mains Risk Reduction Programme

In 2011 HSE reviewed its approach to the management of risk from iron mains within 30 meters of occupied buildings (known as 'at risk' iron pipes). This resulted in the publication of a new Enforcement Policy for the iron mains risk reduction programme 2013 – 2021 to take effect from 1st April 2013. The principal changes to the Enforcement Policy are:

- HSE will approve iron mains risk reduction programmes for periods of up to 8 years where they are assessed to be 'suitable and sufficient';
- Decommissioning targets submitted by the GDNs should include only iron pipes with an external diameter 8 inches and below (Tier 1);
- Tier 1 pipes decommissioned on the basis of their condition, or those selected for reasons of reliability or joint leakage, may be counted towards the approved programme target;
- The GDNs must manage the risk from iron pipes with an external diameter greater than 8 inches (Tiers 2 and 3) in accordance with the Enforcement Policy. The GDNs are not required to submit decommissioning targets for Tier 2 and 3 pipes.

Only the length of 'at risk' pipes decommissioned in within Tier 1 contribute to each GDN operators approved programme target. As in the 2006 to 2013 enforcement policy, each GDN operator has set a length of pipes to be decommissioned over the period of their approved programme. This should be sufficient to ensure that all Tier 1 pipes are removed by the end of 2032 or earlier.

Distribution Network Operator/ Geographical Network		Approval Period (years)	Tier 1 Approved Target (km)	Tier 1 Indicative Annual Target (km)	Tier 1 Decommissioned 1 April 2013 to 31 March 2015 (variance) (km)
National Grid Gas plc	North West England	8	12742	3185.5 (1592.75 per year)	2981.86 (-203.64)
	East of England				
	West Midlands				
	North London				
Northern Gas Networks Ltd / North of England		4	1760	880 (440 per year)	933.687 (+53.687)
Scotland Gas Networks plc / Scotland		8	1736.8	434.2 (217.1 per year)	506.4 (+72.2)
Southern Gas Networks plc / South of England		8	4944.8	1236.2 (618.1 per year)	1465.6 (+229.4)
Wales & West Utilities Ltd / Wales & west of England		8	2537.8	634.46 (317.23 per year))	700.562 (+66.112)

Table 5.2 GDN decommissioning progress for 2013-15

Table 5.2 shows the lengths of Tier 1 pipes decommissioned by the GDN operators during the first two years of their agreed programmes. These lengths are compared to an indicative target for HSE's monitoring purposes. However, for approved programmes lasting longer than one year the GDN operators are allowed to adopt a flexible approach to their annual delivery so long as arrangements are in place to ensure that their approved target is met. This will facilitate the delivery of large or complex decommissioning projects which require significant preparation and will also allow the GDN operators to take remedial action should their progress with decommissioning fall short in a particular year.

During the first two years of their agreed decommissioning programmes Northern Gas Networks, Scotland Gas Networks, Southern Gas Networks and

Wales & West Utilities have all exceeded their indicative Tier 1 decommissioning targets. However, National Grid Gas is 6.4% behind their indicative target. National Grid Gas has explained that this apparent shortfall has arisen from their decision to focus their resources early on in their programme on higher risk pipes and more complex decommissioning projects. National Grid Gas has confirmed that this shortfall does not affect its ability to meet its Tier 1 decommissioning target by 31 March 2021.

5.3 Iron Mains Remaining

The table below shows the length of all iron mains remaining within each GDN (regardless of proximity to an occupied building) on 31 March for the year reported. It includes iron mains removed due their condition or as part of other network maintenance or upgrading activities, as well as those decommissioned as part of the iron mains risk reduction programme. This SPI is widely reported and has significant strategic importance for the GDNs.

GDN	**2007 (km)**	**2008 (km)**	**2009 (km)**	**2010 (km)**	**2011 (km)**	**2012 (km)**	**2013 (km)**	**2014 (km)**	**2015 (km)**
National Grid Gas plc North West	12,681	12,208	11,567	11,047	10,468	9,811	9,305	8,830	8,407
National Grid Gas plc East of England	16,363	15,772	15,086	14,405	13,785	13,097	12,800	12,159	11,586
National Grid Gas plc West Midlands	9,890	9,534	9,141	8,785	8,383	8,007	7,585	7,237	7,032
National Grid Gas plc London	10,400	10,102	9,739	9,391	8,962	8,472	7,630	7,279	6,943
(National Grid Gas plc – Total)	*49,334*	*47,616*	*45,533*	*43,628*	*41,598*	*39,387*	*37,320*	*35,505*	*33,968*
Northern Gas Networks Ltd	14,085	13,603	12,907	12,355	11,818	11,361	10,705	10,225	9,668
Scotland Gas Networks plc	7,238	6,934	6,608	6,291	6,023	5,732	5,468	5,202	4,933
Southern Gas Networks plc	18,941	18,297	17,601	16,867	16,225	15,424	14,745	13,953	13,235
(SGN plc - Total)	*26,179*	*25,231*	*24,209*	*23,158*	*22,248*	*21,156*	*20,213*	*19,155*	*18,168*
Wales & West Utilities Ltd	10,174	9,805	9,381	8,977	8,620	8,247	7,909	7,542	7,119
Total of all Distribution	**99,772**	**96,255**	**92,030**	**88,118**	**84,284**	**80,151**	**76,147**	**72,427**	**68,923**
Mains removed since previous year	3,855	3,517	4,225	3,912	3,834	4,133	4,004	3,720	3,504

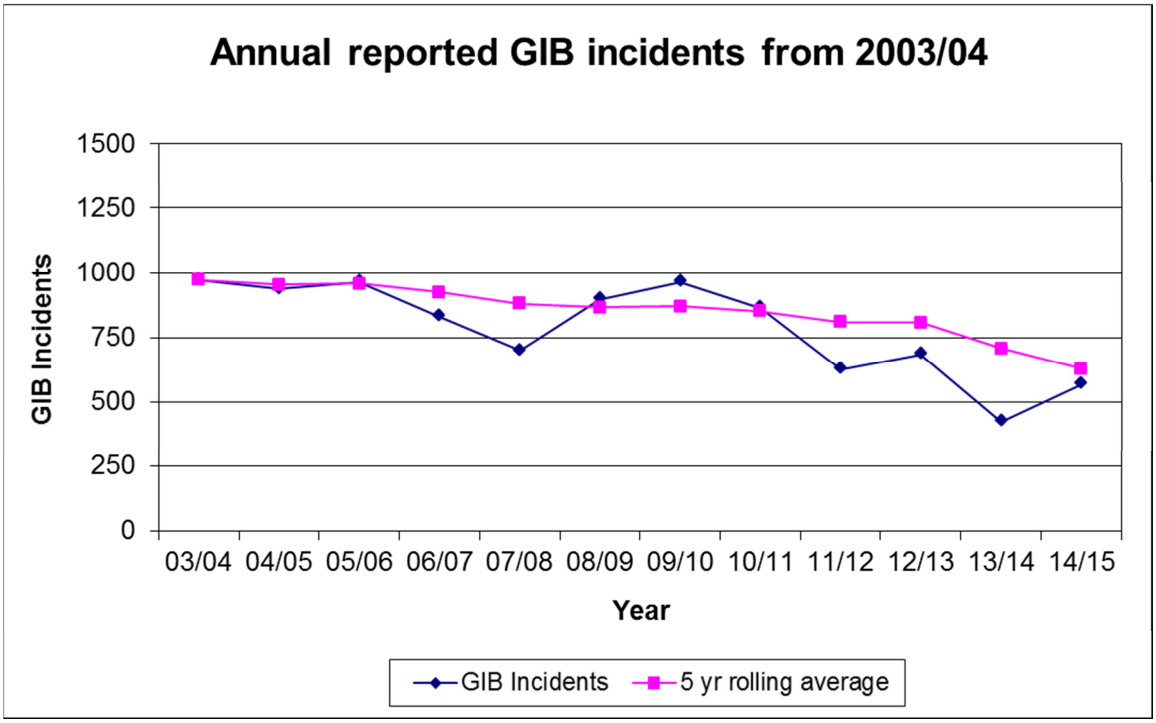
Table 5.3: Total Iron Mains Remaining in each GDN (to nearest km)

5.4 Gas in Buildings (GIB) Incidents

A GIB incident occurs when gas escaping from an outside gas main enters a building (see Appendix 1). GIB incidents represent a significantly higher fire and explosion risk to members of the public than external gas escapes and are a strong indicator of the safety of the gas network.

Because a GIB event can only occur where leaking gas is able to enter a building, the GDNs give priority to decommissioning iron gas mains within 30 metres of occupied buildings. They also prioritise their emergency response to deal with gas escapes with the potential to enter occupied buildings over those occurring a safe distance away.

The graph below shows the annual number of GIB incidents reported since 2003/04, when data capture improvements were made. The five-year 'rolling' average, which can show trends more clearly, is also shown.



Graph 5.4: Annual reported GIB incidents from 2003/04

In 2014/15 the number of GIB incidents was 571, an increase from 2013/14 but the five year rolling average since 2003/04 shows a clear downward trend. This suggests that the GDNs are securing performance improvements through risk-based prioritisation of both iron mains decommissioning and the repair of gas escapes near occupied buildings.

The table below shows the number of GIB incidents reported annually by each GDN since 2006/07. A year-on-year comparison can be made for the same GDN but it is unfair to compare the different networks because they are comprised of varying mixtures of urban and rural pipelines.

Gas Distribution Network	**06/07**	**07/08**	**08/09**	**09/10**	**10/11**	**11/12**	**12/13**	**13/14**	**14/15**
National Grid Gas plc North West	104	96	150	184	169	89	86	54	**89**
National Grid Gas plc East of England	149	133	215	183	139	106	105	74	**123**
National Grid Gas plc West Midlands	97	72	115	138	99	102	87	47	**77**
National Grid Gas plc North London	72	53	73	72	53	34	35	24	**31**
(National Grid Gas plc – Total)	*422*	*354*	*553*	*577*	*460*	*331*	*313*	*199*	***320***
Northern Gas Networks Ltd	173	97	90	120	135	74	151	56	**77**
Scotland Gas Networks plc	62	67	54	86	89	43	34	35	**31**
Southern Gas Networks plc	99	121	127	108	99	108	105	77	**95**
(SGN plc - Total)	*161*	*188*	*181*	*194*	*188*	*151*	*139*	*112*	***126***
Wales & West Utilities Ltd	74	61	73	72	80	70	83	39	**48**
Total of all GDNs	**830**	**700**	**897**	**963**	**863**	**626**	**686**	**406**	**571**

Table 5.4: Number of GIB incidents across the GDNs

Note: **Green** numbers indicate a decrease from the previous year, **amber** indicates an increase on the previous year and **red** would indicate a sequential increase over two years.

New GIB SPIs that relate to reported events where any level of gas has been detected in a building are reported for the first time in section 6 of this report.

5.5 Public Reported Escapes Requiring Repair Prevented Within 12 hours

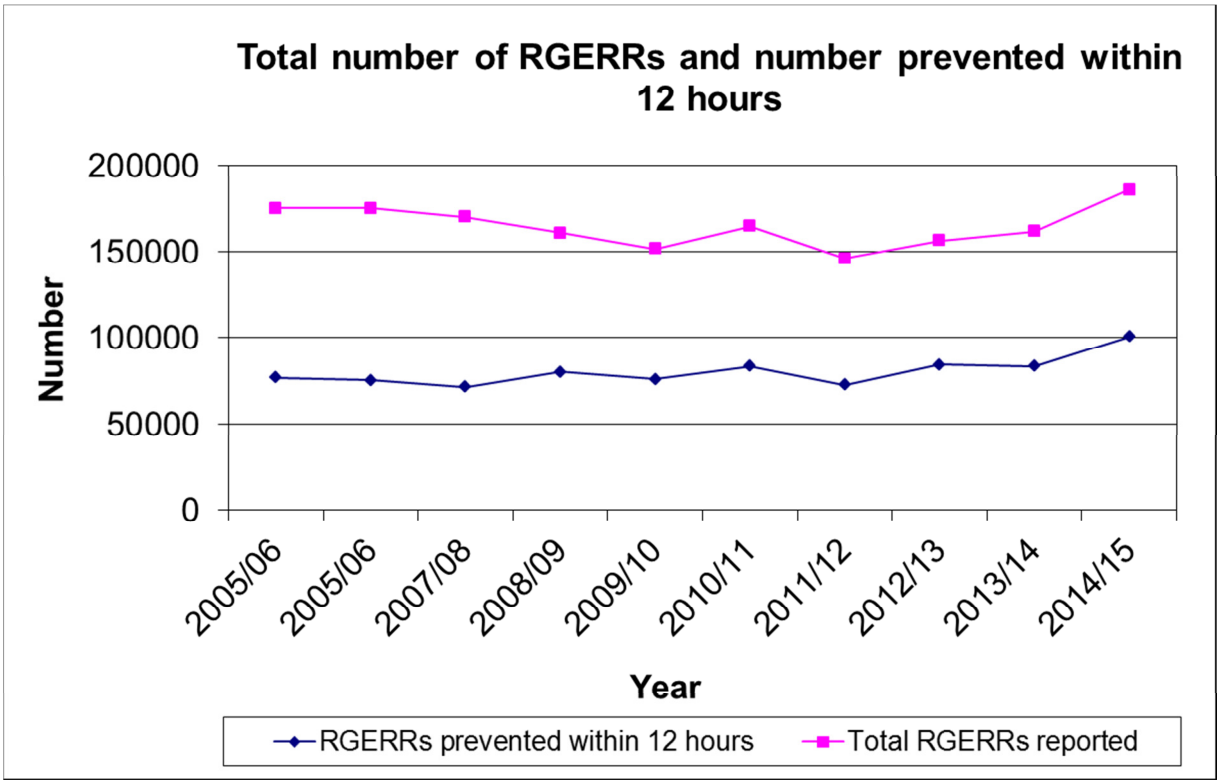
When a member of the public makes an emergency call to report a gas escape the relevant GDN records a public reported escape (PRE). The GDN

then dispatches a first call operative (FCO) to investigate. If the FCO finds a gas escape from a main, service or emergency control valve, a reported gas escape requiring repair (RGERR) will be logged by the GDN.

Each GDN has to comply with Regulation 7(4) of GSMR. This requires that after a PRE has been reported, the GDN should attend the leak as soon as is reasonably practicable and prevent it within 12 hours of being informed of the escape, unless it is not reasonably practicable to do so. Occasionally no trace of escaping gas is found or a number of PREs are found to relate to a single gas leak. The PRE repair performance of each GDN is therefore based only on RGERRs. In this context repair means:

i. a permanent repair;
ii. a temporary repair where the gas escape has been prevented; or
iii. isolation of the gas supply.

The number of RGERRs reported each year across all the GDNs and, of those, the number prevented within 12 hours is shown in the graph below.



Graph 5.5: Total number of reported gas escapes requiring repair and number prevented within 12 hours of receipt of a PRE from 1 April 2005

Note: HSE has been informed that there were errors in some of the PRE data originally provided for 2012/13, this has been corrected so the data presented here differs from that in the 2012/13 and 2013/14 versions of this report.

The GDNs all use risk-based prioritisation systems which focus the available resource on preventing those gas escapes which present the greatest risk to the public. As a result, the prevention of relatively low risk and straightforward gas escapes may be deferred beyond 12 hours to allow the repair of escapes that are higher risk and potentially more difficult to address. This means that a decrease in the proportion of escapes prevented within 12 hours may not indicate any deterioration in the effectiveness of risk management.

The table below shows the percentage of the RGERRs received and prevented within 12 hours of receipt of a PRE by each GDN since 2006/07.

GDN	**06/07 (%)**	**07/08 (%)**	**08/09 (%)**	**09/10 (%)**	**10/11 (%)**	**11/12 (%)**	**12/13 (%)**	**13/14 (%)**	**14/15 (%)**
National Grid Gas plc North West	40.3	44.9	48.7	44.8	42.2	41.7	54.0	45.0	48.0
National Grid Gas plc East of England	53.4	49.0	50.1	52.2	48.3	58.8	45.0	50.0	54.0
National Grid Gas plc West Midlands	39.8	41.9	42.7	36.4	34.4	37.0	49.0	43.0	50.0
National Grid Gas plc London	38.9	41.8	42.9	44.6	40.5	52.5	48.0	44.0	48.0
(National Grid Gas plc – Total)	*43.6*	*44.7*	*46.4*	*45.4*	*42.2*	*48.1*	*49.0*	*45.8*	*50.0*
Northern Gas Networks Ltd	50.3	50.4	55.6	57.9	59.1	61.9	56.9	62.3	62.9
Scotland Gas Networks plc	57.6	37.3	54.9	62.3	66.0	66.5	66.9	72.5	69.2
Southern Gas Networks plc	35.9	31.9	53.0	54.1	62.3	52.7	58.2	63.8	62.6
(SGN plc - Total)	*41.2*	*33.2*	*54.0*	*58.2*	*63.2*	*55.8*	*60.1*	*65.8*	*63.9*
Wales & West Utilities Ltd	34.5	40.7	47.2	45.4	43.8	41.7	59.0	46.7	49.5
Mean of all GDNs	**43.0**	**42.0**	**49.6**	**50.1**	**50.5**	**51.0**	**53.8**	**51.4**	**54.0**

Table 5.5: percentage of reported gas escapes requiring repair prevented within 12 hours of receipt of a PRE in the GDNs from 1 April 2006

In 2014/15, the percentage of all RGERRs received and prevented within 12 hours of receipt of the PRE increased compared to 2013/14, but was still

significantly below the 2012/13 percentage which was unusually high. As in previous years, the within 12-hour RGERR performance across the GDNs for 2014/15 shows considerable variation.

Additional metrics relating to the GDN response to gas escapes have been identified as part of the SPI review. These are presented in section 6.1 of this report.

5.6 Third Party Damage Incidents

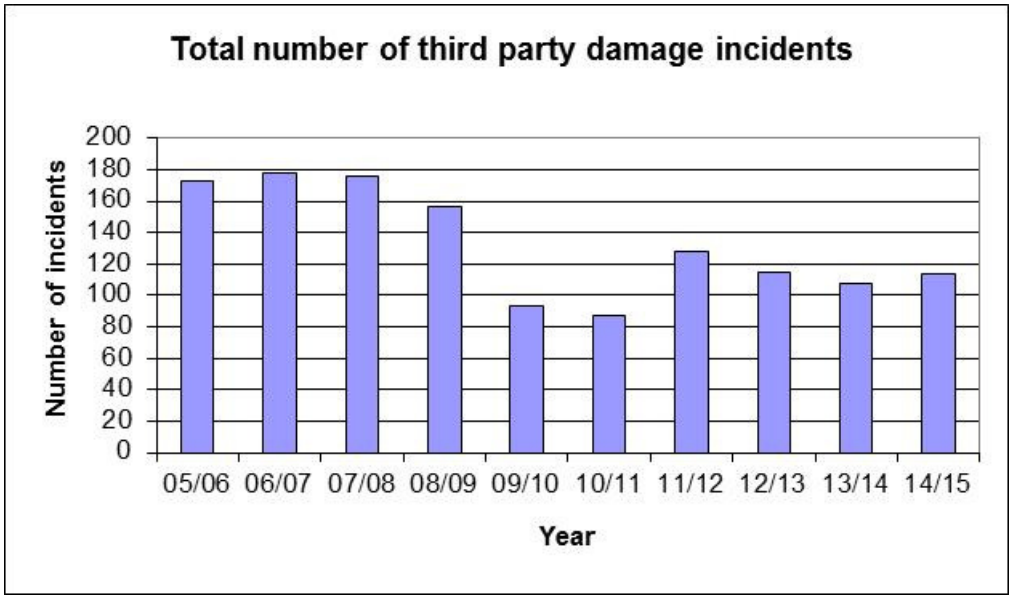
The table below shows the number incidents of third party damage to distribution mains in each GDN since 2006.

Gas Distribution Network	**06/07**	**07/08**	**08/09**	**09/10**	**10/11**	**11/12**	**12/13**	**13/14**	**14/15**
National Grid Gas plc North West	24	18	20	5	11	11	12	13	**6**
National Grid Gas plc East of England	33	31	29	15	17	17	14	14	**14**
National Grid Gas plc West Midlands	7	14	8	8	7	7	8	8	**6**
National Grid Gas plc London	26	20	20	12	5	44	20	6	**11**
(National Grid Gas plc – Total)	*90*	*83*	*77*	*40*	*40*	*79*	*54*	*41*	***37***
Northern Gas Networks Ltd	23	10	15	8	4	4	7	16	**8**
Scotland Gas Networks plc	20	30	10	12	13	14	13	9	**11**
Southern Gas Networks plc	24	34	35	16	21	17	26	29	**43**
(SGN - Total)	*44*	*64*	*45*	*28*	*34*	*31*	*39*	*38*	***54***
Wales & West Utilities Ltd	21	19	19	17	9	14	15	13	**15**
Total of all Distribution Networks	**178**	**176**	**156**	**93**	**97**	**128**	**115**	**108**	**114**

Table 5.6: Number of damage incidents caused by all third parties across the GDNs from 1 April 2006

Note: **Green** numbers indicate a decrease or no change from the previous year, **amber** indicates an increase on the previous year and **red** indicates a sequential increase over two years.

The graph below shows the total annual number of third party damage incidents across the GDNs since 2006. The total has increased slightly from 108 in 2013/14 to 114 in 2014/15.



Graph 5.6.1: Total number of third party damage incidents across all GDNs from 1 April 2005

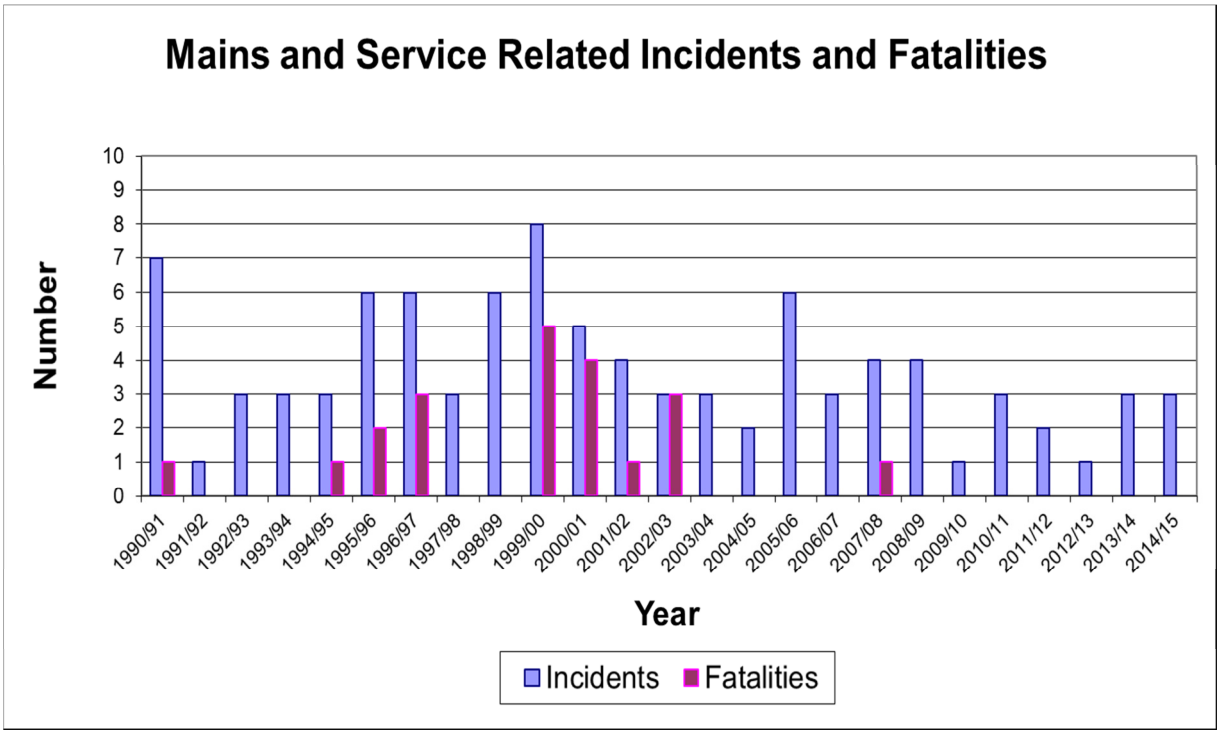
Stakeholders have suggested that the amount of construction activity taking place is by far the strongest influence on the prevalence of third party damage to pipelines. In order to explore this idea further, third party damage data gathered against this SPI was compared to construction industry output data collected in Great Britain by the Office for National Statistics (ONS) between 2006/07 and 2013/14. This data is available in Statistical bulletin: Output in the Construction Industry, March and Q1 2014. This comparison did not show any clear correlation between total construction output and levels of third party damage to pipelines. It seems likely that other factors must significantly influence the risk of third party damage.

5.7 Mains and Service Related Major Incidents

This metric is an outcome measure of the consequences of failure to control risk. The low numbers reported and statistical variation from year to year means that any increase in the number of incidents is unlikely to represent a meaningful trend. As a result, other 'upstream' performance measures, such

as the other SPIs presented in this report, provide a more reliable indication of safety performance.

The graph below shows the numbers of mains and service related incidents causing death, major injury or significant structural damage from 1 April 1990. This is the total number reported by all of the GDNs.



Graph 5.7: Number of mains and service related major incidents and resulting fatalities since April 1990

In the 12 years prior to the start of the iron mains replacement programme in 2002, there were on average 4.6 mains and service related incidents and 1.4 fatalities per year. Since 2002 there have been, on average, fewer than three mains and service related incidents and a fatality rate of under 0.4 per year.

In 2014/15 there were three mains and service related incidents, none of which resulted in any fatalities. Further details are as follows:

- explosion and fire at a domestic property resulting in one injury caused by ignition of gas escaping from a fractured 6 inch spun iron main;
- explosion at a domestic property resulting in one injury caused by ignition of escaping gas from a corroded service;
- explosion at a domestic property injuring two people caused by ignition of escaping gas from a fractured 8 inch cast iron main.

The low levels of reporting currently shown by the industry against this outcome measure reflect strong performance in two principal areas:

i. managing the physical condition of the network; and

ii. responding effectively to emergencies and potential emergencies (e.g. public reported gas escapes) when they arise.

6.0 Additional Gas Distribution Networks SPIs for 2014/15

6.1 Introduction to the new SPIs

As mentioned in section 2.3, the GDNs and HSE have carried out a review of the SPIs included in this report. As part of this process additional metrics were proposed that, it was hoped, could enhance the report by providing a better insight into the GDNs' performance in terms of managing the risks of major accidents.

The GDNs have worked hard to support this work and, in most cases, have been able to provide data going back three years for each proposed new SPI. This is very helpful as it enables limited analysis to be carried out even at this early stage; it should also allow a detailed review of the new SPIs to take place sooner.

The new SPIs presented here are being piloted with a view to their permanent inclusion in this annual report. The data should be treated as preliminary and caution should be exercised in trying to identify trends and draw conclusions from it. There will be a review in due course and decisions will be made on whether to incorporate any or all of the new SPIs into this report permanently.

Whether or not the new SPIs are adopted will depend upon whether they provide useful information on the robustness of systems and assets that have a clear 'line of sight' to credible major accidents. Data quality is also a significant factor as both HSE and the GDNs must have confidence in the consistency and accuracy of the numbers that underpin them.

6.2 Response to gas escapes

Gas escapes reported to the gas emergency call centre fall into two broad categories.

i. *Controlled gas escapes* – where the emergency call centre provides advice to the caller on actions to take and, after this is action is taken, there is no longer a smell of gas. For instance, where a householder is able to switch off the gas supply to their home as advised by the emergency call centre and, having taken this action, they can no longer smell gas.

ii. *Uncontrolled gas escapes* - where all of the actions advised by the emergency call centre have been taken but there is still a smell of gas.

These are considered to be a higher priority to attend in person than controlled gas escapes.

Following a call to the emergency control centre, a First Call Operative (FCO) is sent to the scene of the gas escape to take actions to minimise the risk to life/property and define the nature and scope of the emergency. Information provided by the FCO feeds into the risk prioritisation mechanism that the relevant GDN uses to ensure that the highest risk gas escapes are given the highest priority for repair.

Ofgem performance standards for attendance at gas escapes have existed for some years. These require the GDNs to respond to 97% of uncontrolled gas escapes within one hour and 97% of controlled escapes within two hours. The prompt arrival of the FCO at the scene is a critical step in the effective response to reports of gas escapes, therefore GDN performance against the Ofgem standards is now being reported as an SPI.

GDN	**2012/13**		**2013/14**		**2014/15**	
	UCE ≤ 1hr	**CE ≤ 2hr**	**UCE ≤ 1hr**	**CE ≤ 2hr**	**UCE ≤ 1hr**	**CE ≤ 2hr**
National Grid Gas plc East of England	98.6	99.4	97.9	99	97.6	98.5
National Grid Gas plc North West	98.3	99.3	98.5	99.2	98.2	98.9
National Grid Gas plc North London	97.8	99	97.7	98.5	97.4	98.9
National Grid Gas plc West Midlands	98.3	99.3	97.9	98.8	97.5	98.3
National Grid Gas plc – Total	*98.3*	*99.3*	*98.0*	*98.9*	*97.7*	*98.7*
Scotland Gas Networks plc	99.03	99.72	99.02	99.8	98.75	99.59
Southern Gas Networks plc	98.2	99.2	98.5	99.5	98.5	99.4
SGN – Total	*98.6*	*99.5*	*98.8*	*99.7*	*98.7*	*99.5*
Wales & West Utilities Ltd	98.3	99.6	98.3	99.5	98.5	99.6
Northern Gas Networks Ltd	99.51	99.85	99.85	99.97	99.85	99.99
Total of all GDNs	**98.5**	**99.4**	**98.5**	**99.3**	**98.3**	**99.1**

Table 6.2:1 annual percentage of uncontrolled gas escapes attended within one hour (UCE ≤ 1hr) and percentage of controlled gas escapes attended within two hours (CE ≤ 2hr) by the GDNs from 1 April 2012

Table 6.2.1 above shows that, since April 2012, all of the GDNs have met the Ofgem performance standard. Northern Gas Networks Ltd show the strongest performance for attendance at both uncontrolled and controlled gas escapes for all three of the years for which data has been collected.

All of the GDNs use risk prioritisation methodologies that assign risk 'scores' to gas escape; the higher the score, the greater the risk associated with the escape. The SPIs review identified that one way to assess the effectiveness of the GDNs' prioritisation of escapes according to risk is to take the risk score associated with a leak and multiply it by the leak's duration. According to this approach, high risk leaks that are allowed to persist will result in a higher 'risk score x duration' number than would be achieved if high risk leaks were repaired promptly.

The table below shows the total 'risk score x duration' scores for the GDNs each year since 2012/13. The GDNs do not use the same risk scoring system so the scores for different GDNs should not be compared to one another; however it is legitimate to make year-on-year comparisons for the same GDN.

GDN	**2012/13**	**2013/14**	**2014/15**
National Grid Gas plc East of England	5.2	3	5
National Grid Gas plc North West	4.9	5.3	7.8
National Grid Gas plc North London	4.6	4.9	8.9
National Grid Gas plc West Midlands	2.5	3	3.3
National Grid Gas plc – Total	*17.2*	*16.2*	*25*
Scotland Gas Networks plc	3	2	2
Southern Gas Networks plc	17.7	10.3	10
SGN plc – Total	*20.7*	*12.3*	*12*
Wales & West Utilities Ltd	24.2	24.7	18.6
Northern Gas Networks Ltd	34.5	34.4	24.8
Total of all Distribution Networks	**96.6**	**87.6**	**80.4**

Table 6.2.2 Risk score x duration for the GDNs (000,000s)

Table 6.2.2 shows that the total risk x duration score for all GDNs has decreased year-on-year since 2012, although there is some variability within the individual GDNs. The prioritisation systems that underpin the GDNs' approach to dealing with gas escapes have not been in place for long so this dataset may need to mature before it can be meaningfully interpreted.

6.3 'Any level' gas in buildings (GIB) events

GIB has a strong 'line of sight' to credible major accidents, however the gas levels which act as the trigger points for reporting against the current SPI (see section 5.4 of this report) exclude smaller GIB events. New SPIs are reported here for GIB events where gas was recorded at any level; the source of the leaking gas is also identified. This produces a larger population of reports which can be analysed to give more sensitive information about the following causes of GIB incidents:

- service failure;
- failure of polyethylene (PE) gas pipes;
- leaks from non-pipe specific components (e.g. joints, clamps, encapsulations); and
- third party interference.

The following tables present the data gathered so far.

GDN	**2012/13**	**2013/14**	**2014/15**
National Grid Gas plc East of England	295	1159	1229
National Grid Gas plc North West	408	1558	1369
National Grid Gas plc North London	782	1978	2186
National Grid Gas plc West Midlands	208	930	901
National Grid Gas plc – Total	*1693*	*5625*	*5686*
Scotland Gas Networks plc	470	449	74
Southern Gas Networks plc	2473	2348	795
SGN plc – Total	*2943*	*2797*	*869*
Wales & West Utilities Ltd	1487	1413	1264
Northern Gas Networks Ltd	2241	908	722
Total of all Distribution Networks	**8364**	**10743**	**8540**

6.3.1 'Any level' GIB events arising from **service failure** since 2012

GDN	2012/13	2013/14	2014/15
National Grid Gas plc East of England	32	44	68
National Grid Gas plc North West	48	80	69
National Grid Gas plc North London	114	144	157
National Grid Gas plc West Midlands	27	54	87
National Grid Gas plc – Total	*221*	*322*	*381*
Scotland Gas Networks plc	21	25	6
Southern Gas Networks plc	22	64	27
SGN plc – Total	*43*	*89*	*33*
Wales & West Utilities Ltd	117	47	40
Northern Gas Networks Ltd	26	20	22
Total of all Distribution Networks	**407**	**478**	**476**

Table 6.3.2 'Any level' GIB events arising from **failure of PE gas pipes** since April 2012

GDN	2012/13	2013/14	2014/15
National Grid Gas plc East of England	139	157	203
National Grid Gas plc North West	150	123	151
National Grid Gas plc North London	360	276	362
National Grid Gas plc West Midlands	131	109	183
National Grid Gas plc – Total	*780*	*665*	*899*
Scotland Gas Networks plc	89	62	76
Southern Gas Networks plc	1003	789	335
SGN plc – Total	*1092*	*851*	*411*
Wales & West Utilities Ltd	435	426	384
Northern Gas Networks Ltd	215	1559	1455
Total of all Distribution Networks	**2522**	**3501**	**3149**

Table 6.3.3 'Any level' GIB events arising from leaks from **non-pipe specific components** since April 2012

GDN	2012/13	2013/14	2014/15
National Grid Gas plc East of England	1	56	65
National Grid Gas plc North West	4	32	32
National Grid Gas plc North London	2	52	55
National Grid Gas plc West Midlands	0	23	19
National Grid Gas plc – Total	*7*	*163*	*172*
Scotland Gas Networks plc	16	24	8
Southern Gas Networks plc	47	57	35
SGN plc – Total	*63*	*81*	*43*
Wales & West Utilities Ltd	67	56	41
Northern Gas Networks Ltd	55	60	59
Total of all Distribution Networks	**192**	**360**	**314**

Table 6.3.4 'Any level' GIB events arising from **third party interference** since April 2012

6.4 Causes of iron mains failures

Additional SPIs are presented that give information regarding the condition of the iron mains that still exist in the GB gas distribution network. The principal failure mode for spun and cast iron is fracture; ductile iron, by contrast, is prone to failure through corrosion. The metrics presented give numerical data for the number of iron main failures within each GDN arising from these failure modes.

GDN	2012/13		2013/14		2014/15	
	CI/SI fracs	DI corr	CI/SI fracs	DI corr	CI/SI fracs	DI corr
National Grid Gas plc East of England	Data not available		908	91	1117	96
National Grid Gas plc North West			714	41	859	50
National Grid Gas plc North London			227	51	251	57
National Grid Gas plc West Midlands			536	25	662	41
National Grid Gas plc – Total			*2385*	*208*	*2889*	*244*
Scotland Gas Networks plc	547	288	422	33	439	34
Southern Gas Networks plc	997	579	963	114	997	148
SGN – Total	*1544*	*867*	*1385*	*147*	*1436*	*182*
Wales & West Utilities Ltd	540	159	437	144	494	122
Northern Gas Networks Ltd	635	931	702	113	808	75
Total of all GDNs	**-**	**-**	**4909**	**612**	**5627**	**623**

Table 6.4.1 number of failures caused by cast/spun iron fractures and ductile iron corrosion recorded by the GDNs since April 2012

Unfortunately National Grid Gas have been unable to provide data against this SPI for 2012/13. This means that the dataset is complete for only two years which is insufficient to allow any trends to be identified.

6.5 Metallic service replacements

Metallic service pipes, particularly those made of steel, can be prone to degradation and unexpected failure. The proximity of gas service pipes to buildings means that if they fail, there is a significant risk of a GIB event. For this reason the replacement of metallic services with PE is a priority for the gas supply industry.

The SPIs review considered that metallic service replacement has clear 'line of sight' to a potential major accident precursor event. The number of such

replacements undertaken annually by each GDN is therefore now being reported as an SPI for the first time, see Table 6.5.1 below.

GDN	**2012/13**	**2013/14**	**2014/15**
National Grid Gas plc East of England	64390	68587	71685
National Grid Gas plc North West	54398	57898	50048
National Grid Gas plc North London	35784	47376	50191
National Grid Gas plc West Midlands	36956	42663	34655
National Grid Gas plc – Total	191528	216524	206579
Scotland Gas Networks plc	12967	10525	9846
Southern Gas Networks plc	54963	53622	49291
SGN plc – Total	*67930*	*64147*	*59137*
Wales & West Utilities Ltd	21820	22222	23513
Northern Gas Networks Ltd	27876	22002	23500
Total of all Distribution Networks	**309154**	**324895**	**312729**

Table 6.5.1 number of metallic service pipe replacements by the GDNs since April 2012

The large number of services replaced annually demonstrates the significant resource that the GDNs are devoting to removing this source of risk from their networks. It also illustrates the substantial population of metallic services in the GB gas supply network. It may be possible to draw useful comparisons between this data and other SPIs, for example GIBs.

Appendix 1 - GDN Annual SPI Reporting Definitions

IRON MAINS REMAINING

GDNs report the total iron mains population (in km) for each network regardless of proximity to a building.

This information should be useful in allowing HSE to compare safety performance across each DN. However, since the ratio of the iron pipeline population that is within 30 metres of a building will vary across GDNs, this will not provide the basis for a precise measure of residual risk.

GAS IN BUILDINGS

GDNs report the number of 'Gas in Buildings' (GIB) events where any gas readings have been detected within a building as a result of an iron distribution mains pipe failure, specifically:

i. a fracture or corrosion of a cast/spun iron main
ii. corrosion of a ductile iron main

Reportable GIB events will exclude incidents arising from:

iii. non-iron materials (polyethylene, steel, etc)
iv. non-pipe specific components (e.g. joints, clamps, encapsulations, internal appliances, etc.)
v. service pipes
vi. other failure causes such as third party interference

Note: to be consistent with the data already reported to Ofgem, GIB events will be reported regardless of the concentration of gas relative to the LEL.

MAINS & SERVICE RELATED INCIDENTS

GDNs report the number of failures upstream of the emergency control valve (ECV) leading to gas entering a building, where subsequent ignition causes death, major injury (as defined by RIDDOR 1995) or significant structural damage. This category covers only those incidents arising from fractures and corrosion and does not include third party damage.

Note: National Grid Gas has previously defined significant structure damage as being where the estimated cost of repair is in excess of £10,000. Incidents not meeting this criterion but where the concentration of gas is ≥20% LEL inside buildings (when evacuation is required) or where 500kg of gas has been released externally will continue to be reportable under RIDDOR and GSMR.

PUBLIC REPORTED ESCAPES

a) GDNs report the number of 'reported gas escapes requiring repair' made on their networks as an SPI instead of the number of 'escapes on the network'. The reason for this is to remove any inflation of numbers caused by multiple 0800 111 999 calls for the same gas escape. This also removes any need for the GDNs to report on "No Trace" incidents.

A 'reported gas escape requiring repair' is a repair made to a distribution main or service pipe following a gas escape. This includes third party damage but excludes leaks and repairs downstream of the ECV. In this context repair means:

i. a permanent repair

ii. a temporary repair where the gas escape has been prevented

iii. isolation of the gas supply

b) GDNs report the number of escapes on their Networks and prevented within 12 hours from receipt of the first emergency call.

Note: since this data will be extracted from the emergency call centres it may include situations where multiple calls have been received for a single gas escape.

THIRD PARTY DAMAGE

GDNs report the number of third party damage incidents on their networks. In this case, "third party" excludes the GDN's own employees but includes the GDN's contractors and any other unrelated parties. Only the following categories will be reported:

a) incidents on mains operating below 7 bar g; and

b) incidents where a report of a dangerous occurrence has (or should) have been made under RIDDOR Schedule 2, paragraph 14, parts (a), (b) and (c), specifically where, using GSMR criteria:

i. damage resulting in a GIB event where > 20% LEL gas in air concentration or >10Kg gas escape has occurred; or

ii. damage resulting in an external release > 500Kg; or

iii. damage and release leading to the ignition of gas.

Note: the GDN should follow a gas measurement procedure which provides the best indication of the risk of ignition in GIB events where > 20% LEL concentration or a >10Kg gas escape has occurred.