Health and Safety Executive

Chris Flint
Director

Energy Division
2nd floor
151 Buckingham Palace Road
London
SW1W 9SZ

http://www.hse.gov.uk/

Sarah Albon
Chief Executive

FAO: The Chair of the IGEM/G/5/panel,
Institute of Gas Engineers and Managers,
IGEM House 26 & 28,
High Street,
Kegworth,
Leicestershire,
DE74 2DA

Dear Sirs,

HEALTH AND SAFETY AT WORK ETC ACT 1974

Please find enclosed a copy of the HSE report "*Gas supplies in high rise multi occupancy buildings – Inspection findings*" for your attention.

Following the communication of the topic inspection pack, "*Natural Gas network supplies in high rise dwellings*" to you in 2018, HSE has conducted a series of interventions with gas network operators to provide public assurance that you are conducting your undertaking in such a way as to ensure, so far as is reasonably practicable, that persons are not exposed to risks to their health and safety associated with gas pipelines supplying consumers within high rise, multi occupancy buildings (MOB).

The culmination of interventions carried out between May 2018 and March 2019 has been the production of the attached report which summarises the findings made by HSE Inspectors across the gas distribution network population and identifies areas that require further work. This intervention will continue into 2020 and the report recognises and comments upon where progress is being made to address issues identified in the first year.

Findings of the report

HSE inspection found that network operators were broadly compliant with legal requirements, however, where shortfalls that constituted a breach to law were identified, HSE has taken proportionate action to require companies to address them.

Network specific findings have been communicated to you by your network lead inspector during planned interventions and common areas for improvements are set out below.

The key findings of the report for improvement related to:

- the risk-based approach to the scheduling of inspection
- the management of pipeline isolation valves
- the installation and integrity management of through wall piercings
- the assessment and identification of gas network pipelines within unventilated voids
- access by consumers to emergency control valves
- the competency of operatives engaged in inspection activity

These areas are addressed in greater detail within the report.

Observations made by HSE are provided for both gas network operators and the Institute of Gas Engineers and Managers. An indication as to the next steps in the regulation of this area are also provided

Information for employees

Section 28(8) of the Health and Safety at Work etc. Act 1974 requires me to give information to your employees about matters affecting their health and safety. I have, therefore, sent a copy of this letter together with a copy of the report to Trade Union representatives for information.

Should you have any queries or require clarification on any of the points raised within the report, please contact HM Principal Inspector, Martin Wayland on [redacted] at the above address.

Yours faithfully,

Chris Flint

Director
Energy Division

HSE
Health & Safety Executive

Gas supplies in high rise multi occupancy buildings – Inspection findings

Martin Wayland
HM Principal Pipeline Specialist Inspector
Energy Division
Gas, Pipelines & Renewables

Contents

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1. Foreword

1.1 Intervention by HSE in this area aims to provide assurance that gas networks associated with MOB are operated in line with relevant health and safety legislation and recognised industry standards. The report also recognises Dame Judith Hackitt's "independent review of building regulations and fire safety" (Hackett, 2018) and the recommendations that have been made and accepted by government.

1.2 An overview is given to provide HSE senior management and industry with initial findings on the performance of network operators in this key area. Network specific information will also be provided elsewhere to enable HSE inspectors to compare the approaches taken, share best practice and to gauge the effectiveness of arrangements in comparable networks.

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2. Executive summary

2.1 This report has been produced to communicate the findings relating to interventions undertaken by HSE with operators of upstream gas networks within multi occupancy buildings (MOB) of 6 storeys and above between May 2018 and March 2019. The report comments upon the findings to the questions posed by the topic inspection pack; Natural Gas supplies in high rise dwellings (HSE, 2018), during both HQ and on-site interventions. It also considers general observations made by ED5 inspectors. The relevant standard published by the Institution of Gas Engineers and Managers (IGEM) IGEM/G/5 has also been used as a benchmark. The report does not address installation pipework downstream of the emergency control valve (ECV) as HSE's Field Operations Directorate (FOD) regulate this area.

2.2 Improvement in many areas has been observed, with gas network operators taking a proactive approach to make progress. However, there are several areas that require further work to minimise risk.

2.3 The successful management of risk associated with gas networks within MOB involves not only the gas network operator, but a range of stakeholders. This relationship can have a bearing on the ability of the operator to manage the network appropriately. Where operators experience difficulty in the timely resolution of issues, suitable systems need to be in place to manage this risk. Such systems may ultimately lead to the cessation of gas supply if safety critical issues cannot be resolved.

2.4 Safety management systems associated with MOB are in place across the industry, but there is variation in the delivery of systems for implementation, monitoring and audit.

2.5 A lack of quality records in relation to the design, installation, inspection and maintenance of gas networks supplying high rise dwellings is a common observation and restricts the operator's ability to provide a robust demonstration of network integrity. Given the practical difficulties involved in providing assurance of the condition of the network, further work needs to be undertaken by the industry on the basis by which risk-based decisions on inspection frequency and replacement are made.

2.6 Summary in relation to HQ inspection

1. Policies and procedures relating to the asset management of gas in high rise property are in place.
2. The identification of properties containing gas network systems has largely been completed.
3. There is a lack of quality data in relation to the design, installation, inspection and maintenance of legacy systems.
4. A lack of consistent condition based data can call into question the validity of risk-based systems.

2.7 Summary of on-site inspection

5. Pipeline Isolation Valve (PIV). Many operators have taken steps to ensure that (a), PIVs are installed, and (b), that they are suitably identified both on plans and on site. However, the assurance that PIV's remain accessible requires further work, as

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operators need to engage with stakeholders to ensure that access and operation in the event of an incident is assured.

6. Management of through wall piercings. The sealing of both the pipe / sleeve and sleeve / wall anulus is in many cases difficult to inspect, and the assurance that sleeving and an appropriate fire resistant material has been installed is lacking. Post installation, the responsibility for ensuring that integrity is maintained is an area that requires greater clarity.
7. Pipelines within unventilated voids. Observations made indicate that changes made to the fabric of the building, typically post gas network installation, impact upon the ventilation of voids. There is also a need to ensure that compliance with gas industry standards does not lead to breaches in associated legislation or standards.
8. Access to Emergency Control Valve (ECV). The need a for consistent approach to the resolution of issues identified with access to ECV's is apparent.

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3. Background

3.1 Piped gas is supplied to over 20 million homes in Great Britain and legislation, standards and working practices have been developed and implemented over time to mitigate the associated risk. Gas transporters have a duty to connect certain premises to the network, as defined within section 10 of the Gas Act 1986 and MOB usually meet these criteria. Gas supplies to MOB in common with supplies to individual dwellings have been installed over many years, with some installations pre-dating recognised industry and British standards.

3.2 Network gas supplies in MOB can be broken down to the following sub systems:

- Legacy system – one that has been in place for some time, usually installed during the construction of the property.
- Mixed system – one that has part legacy system and part new system.
- New system – one that has completely replaced a legacy system or has been newly installed to recognised standards.

3.3 Legacy systems are typically embedded within the fabric of the building and present several challenges. Gaining access to property to enable inspection is often difficult, the lack of exposed pipeline available for inspection to enable a representative condition assessment to be made, and a lack of clear network layout are the principal observations. This makes an overall assessment of condition difficult and this limited information can then be utilised to arrive at a risk-based inspection frequency.

3.4 Within mixed systems the existing legacy system has been partly replaced, normally as a consequence of leakage and the inability to conduct a suitable repair. The resulting system contains both legacy and new sections.

3.5 New systems are preferably installed externally, minimising the risk of gas escaping into property should a fault occur. A robust inspection and maintenance regime is still required to identify topics such as: post installation compliance with relevant standards, system degradation and third party damage or interference, including modifications made to the building by the owner.

3.6 The current industry standard first published in 2006 by the Institution of Gas Engineers and Managers (IGEM/G/5) built upon the more general standard for gas services IGE/TD/4 first published in 1973. Prescriptive requirements were contained within The Gas Safety Regulations 1972 and many of those requirements are still to be found within current standards.

3.7 GS(M)R Regulations 7(11) and 7(12) require gas network operators to report certain gas escapes to HSE. Analysis of the data recorded between 2011/12 and 2018/19 indicate that of 2121 reports, 19 involved MOB and of those 16 resulted in evacuation. The 19 occurrences represent 0.9%.

4. Findings

4.1 The following observations have been made in relation to the questions posed within the topic inspection pack (Appendix 1).

4.2 HQ Inspection

- *That policies and procedures are in place to demonstrate that the organisation, planning, monitoring, audit and review in relation to the planning, installation, inspection and maintenance of gas network supplies within high rise dwellings are suitable and sufficient.*

4.2.1 Interventions have identified that policies and procedures are in place and that safety management systems have been developed in line with the requirements of GS(M)R. The depth and effectiveness of these systems vary across the industry and are generally related to the size of the network.

- *Operators process for identifying high rise properties on their network*

4.2.2 Following issues that were identified with base data, several networks have needed to ensure that efforts were made to identify all their assets within MOB. Appropriate enforcement action has been taken to ensure that network operators are aware of where their assets are located where a full data set has not been apparent. In identifying properties, several approaches have been taken by networks, including the analysis of meter point reference numbers (MPRN) and mapping data, to ensure that records are accurate. Operators now appear to have systems in place to identify properties that have an associated gas network.

4.2.3 The condition assessment of the networks within recently identified properties has been prioritised by operators, that work has now been completed. The reported condition of newly discovered systems is similar to that found within the wider population that have been subject to historic inspection and maintenance regimes.

4.2.4 The periodic review of data and application of best available technology to identify gas network assets associated with MOB is an area for future HSE intervention.

- *Operators risk ranking process relating to their inspection and maintenance activity*

4.2.5 The scheduling of maintenance and inspection appears to be predominantly risk based, in some cases the approach can be likened to the iron mains risk reduction process. However, this can be dependent upon the size of network and the age of the population.

4.2.6 Careful consideration needs to be given to the parameters and weighting that produce inspection frequencies within these models, as the data influencing key decisions can be limited. Smaller network operators have been observed to operate conservative calendar based inspection frequency regimes irrespective of condition. These systems would benefit from regular oversight to ensure that they remain fit for purpose and that any decisions made are based upon network condition.

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- *Network inspection records*

4.2.7 Various approaches have been observed in relation to records management and it is largely dependent upon the size of the network. Little information exists in relation to the design of legacy systems, the same is true of detailed condition assessment dating back to commissioning. This lack of historic information or base data presents a challenge to the operator as subsequent decision making on a condition basis is not always supported by comprehensive evidence.

4.2.8 Allied to this is a lack of clear network isometric drawings of the gas network in relation to the building, which enables the identification, by those visiting sites, of the layout and location of the asset and assists in the accurate location of previous work that may have been undertaken. This can make the comparison and interpretation of inspection results difficult.

4.2.9 Many operators employ a "tick box" approach to the recording of inspections. Such systems lack both qualitative and quantitative rigour. Work is underway by many to improve upon this.

4.2.10 Comparisons with previous surveys are not carried out in some cases to gain an insight into changes in condition or to validate the inspection system. Some attention is paid to identifying areas susceptible to degradation to enable operatives to return to these higher risk areas to gain an insight into corrosion rates or general condition.

- *Documentation relating to the scope of remedial works*

4.2.11 As with records, the level of detail relating to the documentation of remedial work is varied. There is a lack of consistency in the approach taken, with little information available detailing the work that has been carried out, why it was carried out or the audit process to ensure that it was carried out effectively. How remedial work has impacted upon overall risk is not well documented. For example, does a leak repair due to a failed screwed joint on a predominantly screwed joint system reduce the inspection frequency or asset life?

- *Evidence that site visits to verify work have been completed (or to verify the inspection record if no remedial work has been identified)*

4.2.12 Once again, the audit processes employed vary, but in general little audit activity appears to take place in relation to ensuring that any remedial work that has been carried out is to the required standard, or that any further analysis of compliance takes place. The same is true of the audit of inspection work. Therefore, confidence in the system to ensure that condition monitoring is effective is lacking.

- *Review of overdue remedial work – and onsite verification of risk scoring (i.e. to check that a programmed remediation should not have been an urgent or immediate repair)*

4.2.13 The approach taken to the review of overdue remedial work is mixed, with some having no formal arrangements in place to identify the issue. Little evidence was found that audits to ensure that the level of remediation is suitable take place. Audit systems to ensure that repairs that are deemed to warrant immediate attention and take place are lacking.

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- *Competency management system*

4.2.14 Most operators have overarching competency management systems in place and some have specific gas in MOB related requirements. Those with systems in place can focus upon the assessment of pipe condition with little attention paid to related topics, such as ventilation or means of escape. Training for operatives and managers in this area appears to be limited, but improvements have been observed following intervention.

4.3 On-site inspection

4.3.1 Observations made during on site interventions are summarised below:

- *Riser or laterals show signs of severe damage or corrosion*

4.3.2 Although little severe corrosion or damage has been observed, general superficial corrosion is widespread. In most cases, when examined in more detail little reduction in wall thickness has been observed. Improvement in the assessment of corrosion damage has been observed with some operators employing non-destructive techniques in order to provide relevant data. However, the management of inspection in order to provide a robust corrosion assessment of the system is lacking, in that many rely upon minimal inspection to form a view of the condition of the wider system. This is particularly problematic where much of the system is inaccessible.

4.3.3 The assessment of pipe coating system condition is not well managed. Many rely upon general statements of condition with little or no evidence to support the view taken. Some operators do factor in environmental conditions, such as proximity to the sea when considering corrosion protection or inspection frequency. Wider issues such as the condition of pipe support systems are not covered in any depth by operators.

4.3.4 Third party damage prevention has been observed with some operators identifying and mitigating high risk areas. Many identify the risk of vehicle impact and have mitigation measures in place. The same is true of areas prone to vandalism or other pipeline interference.

- *Pipeline isolation valves (PIV) on plans, evident on site, identified on site*

4.3.5 In support of HQ intervention observations, the records concerning the position and accessibility of PIV's together with any operational or maintenance information appears to be variable. Poor records can lead to difficulties on site in locating where the valve should be and is particularly problematic if a valve cover is not obvious. Operators have instigated and completed a programme of PIV identification and remedial work in order that they can be located and operated if required. Improvements in the recording of valve location within operators mapping systems has been observed and continual improvement in this area is expected

4.3.6 Standards of signage and on-site identification vary. Some operators have instigated a "fire hydrant" type signage system which locates the valve on site, some rely upon the "box marked gas" approach and some have no clear system in place.

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- *Diagram of network indicating position of PIV and other isolation valves not available on site*

4.3.7 Little evidence has been observed to suggest that many network operators have a network diagram / schematic available on site. Some have instigated measures to ensure that this is available, with some introducing the permanent placement of such information on site. Some very good examples exist, but further effort is required by some operators who rely solely upon the PIV valve being observed and an indication of its position on their internal mapping system being present.

- *Does the operator have contingency plans in place to isolate the property should the PIV not be accessible*

4.3.8 Some operators are examining the practicability of contingency planning where higher levels of risk, or population density suggests that this approach may be suitable. The installation of further valves to isolate defined areas during mains replacement work or the identification of suitable isolation points are being considered.

- *How does the duty holder identify areas for inspection. Are areas where corrosion can be foreseen prioritised.*

4.3.9 Many operators do not specify areas for inspection. Some leave it to the inspector on site, relying upon the competency of the individual to make an informed decision. Some highlight areas where corrosion may be an issue, such as the top side of floor crossings and others simply ask for the inspection of the riser system. The recording of inspection and the details relating to the location of the network that has been inspected is inconsistent across the industry and is an area that could be improved upon.

- *Are previously inspected sections of the riser / laterals revisited and inspected*

4.3.10 This is an area linked to the quality of records. If little information is available regarding previous inspection, a view on current pipe condition in comparison is not possible. Little evidence has been found that operators have robust systems in place to ensure that degradation once identified is revisited or that similar pipe locations are prioritised.

- *Are wall / ceiling / floor piercings sealed with an appropriate material*

4.3.11 For legacy systems, little information is available regarding the installation and therefore information relating to what material has been used is absent. Systems to ensure that unknown material is checked for suitability do not appear to be in place. In many cases the existence of a sleeve is often difficult to detect. For new systems little control appears to exist in the selection of sealing material or the way in which it is installed, or the competency of those carrying out the work.

- *How much of the overall system is available for inspection. How has an adequate representative view of riser condition been formed.*

4.3.12 In order to be able to provide an adequate view of the condition of the network good quality condition data is required. If minimal pipe is available for inspection forming a view on condition is problematic and based upon little evidence.

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4.3.13 Many operators have instigated risk-based systems for scheduling inspection activity. How operators arrive at decisions based upon limited information is an area that requires further examination. In many cases, where the majority of pipe is inaccessible a conservative calendar based inspection frequency has been observed.

- *How is external riser condition assessed*

4.3.14 General visual inspection appears to be the norm, supplemented in some cases by close visual inspection where access allows. Inspection of associated equipment such as pipe supports requires more consideration as does the assessment of coating condition.

5. Discussion

5.1 Following the issue of the topic inspection pack to industry, inspection at both headquarters and on site has been conducted with all operators of gas networks within MOB. The issue of the pack has ensured that a consistent approach to intervention has taken place across HSE and provided industry with clear guidance on the regulatory decision making process.

5.2 Across the industry policy and procedural systems are in place to manage the design, installation, inspection, maintenance and operation of gas networks associated with MOB. Industry standards published by the Institution of Gas Engineers and Managers (IGEM) provide operators with technical guidance and a review of the relevant standard, G/5 is in progress.

5.3 Intervention by HSE has identified that although policy and procedure is in place there is a variation across the industry in how these systems are implemented, monitored, audited and reviewed. Further inspection during 2019/20 and 2020/21 will examine progress that the industry is continuing to make in this area.

Risk Based Systems

5.4 A key area for further inspection is the methodology that is employed by those operating risk-based systems to arrive at inspection frequencies. Such systems rely upon good quality data and in many cases, these are not available. Quantitative data such as the number of dwellings and number of floors within a property are relatively simple to collect. Other factors such as joint type, pipe length and material properties can be difficult to ascertain, as historical information dating back to design and installation is lacking and inspection of legacy systems that are located within the building fabric is not always practicable.

5.5 Qualitative data gathering is not aided by inconsistencies in the methodology employed or by variations in the approach taken by individual surveyors.

5.6 The basis by which gas network operators utilise risk-based inspection will be subject to further HSE intervention and demonstration that models are fit for purpose and have been audited will be sought.

5.7 How such systems perform within mixed systems, where evidence exists of a failure or failures on part of the network and a repair or partial replacement has been carried out will also be examined. Careful assessment and consideration needs to be given as to the

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condition of the remainder of the legacy system. How risk-based systems take this into account will also be examined.

5.8 The use of risk-based data to influence decision making regarding decommissioning of existing gas networks associated with MOB does not appear to be considered widely. As with individual dwelling gas service pipe replacement, the decision to replace the pipeline is associated with reported gas escapes and the discovery of leakage or is associated with the mains replacement programme. At this point reactive replacement is considered. The development of suitable risk-based systems should enable replacement decisions to be made prior to failure on a condition basis.

Pipeline Isolation Valves

5.9 Inspection suggests that the industry has largely addressed the issue of locating PIV's on site. Various approaches have been observed with some implementing what is viewed as good practice, involving:

- Locating the PIV on site and ascertaining what part of the network the valve relates to.
- Ensuring that the valve is operational.
- Ensuring that the valve cover is identifiable as a gas asset and remains accessible.
- Fitting marker plates with location and emergency contact details to adjacent walls or marker posts.
- Numbering risers on site and on drawings where more than one is present
- Provision on site, close to the PIV location, of an isometric drawing of the associated network indicating the PIV and other valves on the system.
- Ensuring that the PIV position is marked on the network operators mapping system
- Liaison with the property owner to communicate the location and purpose of the PIV to ensure long term access.

5.10 The PIV is the recognised primary isolation devise required within the IGEM/G/5 standard. Given the proximity to property of some PIV's, some operators recognising that the PIV may not be accessible in the event of a catastrophic event are examining the practicability of contingency planning, including the installation of further valves on the network to isolate a defined section or identifying suitable locations where a physical isolation would be suitable. This approach is encouraged, and suitable properties should be identified by risk assessment.

Wall and Ceiling Piercing

5.11 Wall and floor / ceiling piercings present a challenge to the industry. For walls the sleeving of the pipe through the wall and subsequent sealing with an appropriate fire resistant material of both the pipe / sleeve and sleeve / wall anulus poses several issues. For legacy systems sleeving may not be present, and sealing is not always carried out. For those systems with sleeves fitted the anulus seal material is generally unknown and testing of the material to confirm its suitability or replacing unknown material with an appropriate

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material is not routinely undertaken. The competency requirements associated with both the installation and testing of sealant is also not routinely addressed by operators.

5.12 For newer installations where the gas network may have been installed during the early stages of construction the installation of the sleeve may have been left to the developer to manage. However, the network operator should have ensured, prior to commissioning that the system, including the sleeving of wall piercings met the appropriate standard.

5.13 No systems have been observed which suitably manage this issue. Evidence to support enforcement action in this area is not available as the impact of unknown material acting as sleeve sealant on the network may not constitute a material risk. However, the industry needs to examine this issue in more detail to provide assurance that fire safety and building standards are not compromised.

Emergency Control Valve Access

5.14 The emergency control valve (ECV) which is the point of isolation between the downstream gas network and the upstream gas installation does present the network operator with several challenges. Access has been found to be inadequate in some cases for both the consumer and the network operator and knowledge on the part of the gas consumer regarding the location of the ECV can be minimal. The network operator can also face difficulties in gaining access to properties to examine the location without prior arrangements being made.

5.15 As the ECV is the only point on the system that a non-gas network operative can operate, it performs a key role in the control of gas escapes. Further intervention may be prudent to establish what advice is given to residents of MOB when reporting gas escapes as it may have a bearing on the safety of other residents. Issues such as questioning reporters on their ability to access the ECV and the type of property that the report relates to are topics for future intervention.

Ventilation and Meter Position

5.16 Inspection has identified that the assessment of what constitutes suitable ventilation is a challenge for those engaged in on-site inspection. Due to the number and complexity of many properties the assessment of conformity with the IGEM/G/5 standard is not always straightforward. For operatives engaged in inspection, training and assessment is key in developing competency in this area. This assessment of conformity with the standard may be an area that requires additional competency and management oversight to ensure remedial measures do not impact upon other regulated areas such as fire safety and building control.

5.17 Similar issues exist with the siting of meters with respect to escape routes. Again, the number and complexity of many properties presents a challenge to those undertaking inspection and interpreting the standard.

5.18 For both ventilation and meter siting the industry needs to examine the training and competency management of those engaged in carrying out this important role.

Stakeholder Engagement

5.19 For many aspects involving the gas network within MOB there is a need for engagement by operators with other stakeholders to successfully resolve non-conformance issues. The Hackitt report identifies the need for a holistic approach to be taken to the management of high-rise properties and provides a framework that encourages a joined up approach.

6. Conclusion

6.1 Based upon interventions conducted thus far, operators of gas networks appear to have responded in several areas to improve upon the way in which their assets associated with MOB are managed. However, several areas require further development to ensure that the condition of the network is maintained in an "efficient state, in efficient working order and in good repair" (PSR, 1996).

7.2 Across the industry policies and procedures associated with the topic are numerous. Inspection has identified that although this is the case, the audit and review process to ensure that systems are implemented, are fit for purpose and are reviewed are lacking in some areas.

6.3 Progress has been made by many in examining the way in which inspection and maintenance is scheduled. The use of risk-based models that consider a range of parameters do, on the surface provide a suitable approach. However, careful examination of the data that influence outcomes is required, as many systems utilise default settings should on site examination not provide suitable or sufficient information. It may be that a conservative result is obtained or is the default, but further examination is required to gain confidence in the process.

6.4 Pipeline isolation valves (PIV's) remain the primary source of isolation for systems and therefore the ability of the operator to be able to locate and operate the valve are a key risk control measure. The position of valves within system records and on site, in addition to the marking of their location on site, is an area that requires further work to ensure that the industry arrives at a common approach.

6.5 Consideration has been given by some to contingency planning in the event of the PIV being inaccessible. Once again, an industry wide approach would ensure greater consistency and is an area that should be considered by IGEM.

6.6 The need for better engagement by network operators with various stakeholders is apparent. Areas such as the resolution of ventilation issues, management of wall piercings and access to PIV's and ECV's all require liaison and co-operation with those who have control of the property. A greater appreciation of wider issues affecting property would also benefit gas network operators to ensure compliance with associated standards and legislation.

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7. Observations for industry

1. Engagement with stakeholders is encouraged in order to promote and develop a cooperative approach to ensure integrity of gas network pipelines associated with MOB. The Hackitt report and recommendations should be used as a benchmark.
2. Further examination is required regarding the validity of data that influence risk-based decision making tools.
3. The development and implementation of suitable audit processes is required to validate risk-based inspection, maintenance and replacement decisions.
4. The industry would benefit from examining the competency requirements for those engaged in the inspection and decision making process to ensure that wider issues such as ventilation, meter siting and ECV access etc that may impact upon the gas network are identified.

8. Observations for IGEM

1. Within the IGEM/G/5 standard, the requirement for onsite identification of the pipeline isolation valve (PIV), by signage or equally effective measures to enable its location for operation requires greater clarity. The use of common wall or post mounted identification plates should be examined.
2. The need to have plans available on site to enable the location of the pipe system and isolation arrangements by network operatives and to provide information to building owners and the emergency services should be examined.
3. The sealing of wall / ceiling / floor piercings with appropriate fire resistant material requires examination by the industry and within the IGEM standard. Clarification of responsibility and the requirements regarding Installation and inspection to ensure continued fitness for purpose should be examined.

9. HSE Next Steps

9.1 HSE will continue to conduct interventions with gas network operators during 2019/20 and 2020/21 to monitor progress and to provide further assurance that risks are being managed effectively.

9.2 Intervention will focus upon:

- Competency
- Audit and review
- Validation of risk-based models
- Gas escapes, advice to those reporting within MOB
- PIV identification

9.3 HSE will also examine the risk posed by gas networks within MOB below six storeys and buildings with large or vulnerable populations such as hospitals, care homes and commercial property. Interventions will be carried out during 2020/21 to examine whether the findings relating to high rise property are mirrored within the wider MOB population.

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10. Appendices

Appendix 1 – Topic inspection pack

TOPIC INSPECTION PACK

Natural Gas network supplies in high rise dwellings

Version 1.1

July 2019

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CONTENTS

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1. SUMMARY

This topic pack is intended for use by Energy Division (ED) Inspectors and other inspectors who are undertaking inspection of the arrangements for the integrity management of gas network pipelines relating to high rise dwellings (**6 storeys or more**). It provides background information on the statutory provisions and questions to ask key personnel involved with both the management and operation of pipelines associated with such property. These questions are designed to sample key components that provide effective pipeline integrity management providing a basis for assessing compliance with the relevant statutory provisions.

2. INTRODUCTION

This topic pack provides guidance for Inspectors on the inspection of Natural Gas network installations in high rise dwellings. (Typically this will be all pipework upstream of the emergency control valve (ECV) and extending to the mains connection.)

3. SCOPE

This guidance is aimed at the operation of natural gas networks supplying dwellings located within high rise properties. The definition of "high rise" as currently defined for gas network operators is 6 storeys or more (IGEM/G/5) and **does not cover** installation pipework or appliances downstream of the ECV. However, some topics may span the upstream / downstream boundary in which case inspectors should be prepared to deal with matters of evident concern. Where the high rise property has a small proportion of occupiers carrying out commercial activities (e.g. shops on the ground floor with flats above) these properties are still within scope.

In cases of doubt, particularly concerning the designation of the end of the network, or the responsibility to ensure ECV access, specialist advice should be sought. This is unlikely to be the gas network operator (see note within section 4.2.3)

4. LEGAL FRAMEWORK

This topic pack does not set out a detailed consideration of all legal duties imposed upon gas network operators but provides an indication of the more important areas that Inspectors should be aware of when inspecting gas network installations associated with high rise dwellings.

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4.1 Background

A large number of domestic dwellings are supplied with natural gas via gas networks which are owned and operated by organisations in possession of an accepted safety case, a requirement of the Gas Safety (Management) Regulations 1996 (GSMR). The vast majority of these properties are supplied by small diameter, typically 1" pipes that feed individual dwellings. Gas supplies to high rise properties differ in this respect as each individual dwelling can be supplied in a number of ways and isolation of individual gas supplies is not always possible or practicable.

The extent of the gas network and the point at which the gas network terminates and the downstream installation begins is subject to regulation. Guidance is available within L56, guidance to the Gas Safety (installation and use) Regulations 1998. L80, guidance to the Gas Safety (Management) Regulations 1996 and L82, guidance to the Pipelines Safety Regulations 1996. A brief summary of all three statutory instruments is included below.

Other relevant legislation in addition to the HSWA which needs to be considered include but are not limited to:

- Management of Health and Safety Regulations 1999
- Provision and Use of Work Equipment Regulations 1998
- Confined Spaces Regulations 1997
- Work at Height Regulations 2005
- Dangerous Substances and Explosive Atmosphere Regulations 2002

4.2 Legal Duties

4.2.1 Gas Safety (Management) Regulations 1996 (GSMR)(L80)

GSMR covers four main areas:

- The safe management of gas flow through a network and minimising the risk of a gas supply emergency
- Arrangements for dealing with gas supply emergencies
- Arrangements for dealing with gas escapes and incidents
- Gas composition

GSMR cover networks conveying gas (any substance in a gaseous state which consists wholly or mainly of methane). The Regulations define what pipes are "on the network"; gas services up to and including the ECV are defined as "on the network".

The Regulations require that "any person" wishing to convey gas in a network prepares a safety case which is accepted by HSE. Gas network operators have a duty to conform to their safety case and it is the document against which inspections are based.

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4.2.2 Pipelines Safety Regulations 1996 (PSR) (L82)

PSR define the limits of pipelines, this is the same as the GSMR definition, the upstream pipeline including the ECV. The gas service pipe and supplies to high rise properties fall within this definition. The Regulations cover the life cycle of the pipeline from design to decommissioning and define those pipelines for which additional duties are required, for gas this is restricted to those pipelines operating at pressures above 7 bar (gauge). For gas services supplying domestic property, low pressure up to 75mbar is the norm and therefore the additional duties do not apply.

4.2.3 Gas Safety (Installation and Use) Regulations 1998 (GSIUR)(L56)

GSIUR apply to installations downstream of the ECV and deal with the safe installation, maintenance and use of gas systems, including gas fittings, appliances and flues, mainly in domestic and commercial premises, e.g. offices, shops, public buildings and similar places. The Regulations generally apply to any 'gas' as defined by the Gas Act 1986 (amended by the Gas Act 1995), apart from any gas comprising wholly or mainly of hydrogen when used in non-domestic premises. The requirements therefore include both natural gas and liquefied petroleum gas (LPG).

GSIUR Network related requirements

Although GSIUR relates to downstream gas installations a number of provisions relate to ECV's and upstream requirements which may impact upon gas network operators.

NOTE – Caution needs to be exercised when considering the demarcation between upstream networks and downstream installations. The boundary between the two regimes is the outlet of the emergency control valve (ECV) and provisions within GSIUR place duties upon persons in relation to the installation of an ECV including, access to the ECV and meter by the consumer, operation and customer information and other requirements identified within the Regulations. A number of duties are placed upon persons providing a gas supply for the first time, meaning the first time that gas is installed at and supplied to premises. There are no on-going duties placed upon these persons within Regulations 9(1) or 9(4).

Appendix 2 provides guidance on the key points relating to gas network operators. Comprehensive guidance is contained within L56, Guidance to the Regulations.

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5. STANDARDS

A number of standards relating to gas networks supplying high rise properties are available including but not limited to:

- BS EN 12007-5: 2014 Gas Infrastructure – pipelines for maximum operating pressure up to and including 16 bar
- BS EN 1775: 2007 Gas Supply – Gas pipework for buildings – Maximum operating pressure less than or equal to 5 bar – Functional requirements
- IGEM/G/5 Gas in flats and other multi-dwelling buildings
- IGEM/TD/4 PE and steel gas services and service pipework
- IGEM/G/1 Defining the end of the network
- IGEM/TD/101 Edition 1 (2002) – Adoption of pipe systems by a GT – management of UIP activities.

6. INTERVENTION STRATEGY

The following section describes the overall approach to be taken with operators of gas networks and provides a framework in order to ensure that regulatory resource is directed on a risk prioritised basis.

Initial intervention is required with high rise gas network operators at their headquarters in order to ascertain the following:

- That policies and procedures are in place in order to demonstrate that the organisation, planning, monitoring, audit and review in relation to the planning, installation, inspection and maintenance of gas network supplies within high rise dwellings are suitable and sufficient
- Operators process for identifying high rise properties on their network
- Operators risk ranking process relating to their inspection and maintenance activity
- Network inspection records
- Documentation relating to the scope of remedial works
- Evidence that site visits to verify work have been completed (or to verify the inspection record if no remedial work has been identified)
- Review of overdue remedial work – and onsite verification of risk scoring (i.e. to check that a programmed remediation should not have been an urgent or immediate repair)
- Competency management system

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Following HQ intervention on site intervention is to be conducted based upon the information gained. Other factors influencing the selection and number of high rise dwellings to inspect should take into account the following:

- Size of network (high rise population)
- Verification of management systems
- Inspection history and findings
- Missing or incomplete data
- Previous remedial work having taken place
- Overdue inspection or maintenance
- Vulnerable population identified i.e. elderly / disabled
- Unresolved post inspection issues with property owner

7. ENFORCEMENT MANAGEMENT MODEL & ENFORCEMENT GUIDANCE

7.1 ACTUAL RISK

The **consequence** from a leak of natural gas from network pipes is of possible multiple serious personal injuries (or deaths) as an explosive / flammable concentration can escalate within a building or area and be ignited, either directly injuring persons from the blast or from secondary effects e.g. building collapse.

The **likelihood** of such an event occurring is dependent upon various factors including pipe design, construction type, pipe location, environment, inspection history, maintenance and defects etc. and is therefore likely to be **probable or possible**.

7.2 BENCHMARK

The benchmark standard for pipelines is defined within the Pipelines Safety Regulations 1996. Regulation 13, maintenance dictates that, "*The operator shall ensure that a pipeline is maintained in an efficient state, in efficient working order and in good repair*". So that in all cases there is a nil / negligible chance of a significant injury occurring.

The **consequence** remains identical as an escape of gas would result in the risk of **serious** personal injury or death should control measures be put in place.

The **likelihood** of such an event taking place is **nil / negligible** should the operator ensure that control measures in line with industry standards are met.

7.3 RISK GAP

Using the risk gap tables in the EMM for multiple casualties, the risk gap should normally be considered as extreme, but maybe lower depending upon the likelihood of actual risk.

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7.4 INITIAL ENFORCEMENT EXPECTATION

Given an extreme risk gap and an established standard (PSR Reg 13) the initial enforcement expectation is an Improvement Notice where there is evidence of metallic gas pipes in poor or unknown condition or where there are no records of the pipe by the operator or strategy for inspection, examination and maintenance.

If there is clear evidence that the pipes are leaking, significantly corroded or damaged and liable to leak, thus resulting in a risk of personal injury, then a Prohibition Notice will be appropriate.

See table 1 for a list of situations providing an indicative initial enforcement expectation.

7.5 DUTYHOLDER FACTORS

Where the dutyholder can provide evidence that pipes identified as being on the network have been identified as requiring replacement in line with risk ranking and suitable timescales an IN may not be appropriate, although Inspectors should still confirm that adequate remedial action has been taken and that risks are controlled up to the point of decommissioning. The enforcement decision will depend upon the information provided by the operator regarding how risk ranking has been undertaken or the site conditions, or additional factors identified by the Inspector.

7.6 STRATEGIC FACTORS

It is expected that the action taken will protect vulnerable groups, including members of the public, who may be exposed to risks from gas network installations that have not been correctly identified and / or adequately maintained. It is in the public interest that gas network installations incorporating both buried and above ground pipes of poor or unknown condition are subjected to inspection, maintenance and replacement as required.

There may be circumstances where an alternative course of action is considered appropriate depending upon the nature of the installation e.g.:

- The effect on vulnerable people such as the elderly or those with small children where the cutting off of heating / cooking facilities, without adequate alternative arrangements being made, may cause significant risk. Replacement action is still necessary but should be planned to ensure that additional risks are not created.

The action should support the inspection, maintenance and replacement strategy in order to promote compliance whilst focusing industry resource on sites in a (risk based) priority order.

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7.7 EMM EXAMPLE

A 1" internal steel riser supplies a single block of flats 7 storeys high containing 14 dwellings and has been identified as having 80% though wall corrosion at one location where the riser appears at floor level on the 5th floor stairwell. The riser is located within the fabric of the building and the majority of it is visible. The survey identifying the corrosion took place 15 months previously and no remedial work has been undertaken, the site has not been revisited.

The policies and procedures of the pipeline operator state that where defects greater than 70% of wall thickness exist the supply will be replaced within 12 months following a temporary repair (clean and paint).

7.8 ACTUAL RISK

The **consequence** is **serious** as an escape of gas could lead to serious injury or even death to the residents.
The **likelihood** is **possible** as no remedial work has been carried out and another survey has not taken place.

7.9 BENCHMARK

The **consequence** of a failure even if all control measures were in place remains as **serious.**
The **likelihood** is reduced to **nil / negligible** as the operator has policies, procedures and working practices sufficient to control the risk if applied correctly.

RISK GAP is **extreme**

STANDARD is **defined.**

INITIAL ENFORCEMENT EXPECTATION - **Improvement Notice**

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8. ENFORCEMENT

8.1 INITIAL ENFORCEMENT EXPECTATION

- Subject to the discretion of the individual Inspector applying the Enforcement Policy Statement (EPS) to decide whether other enforcement action in a particular case may be appropriate and
- Prior to consideration of any dutyholder and strategic factors that may modify the enforcement decision

The following table does not describe all of the areas that may be examined or issues that may be encountered. It provides Inspectors with examples of some situations and the **initial enforcement** expectation associated with it. A reference to a suitable legal provision is also provided.

8.2 Table 1 – HQ Intervention

Situation	Initial enforcement expectation	Comments	Ref
HQ Inspection			
Gas network supply is identified within high rise property. Gas network operator does not have an accepted GSMR Safety Case.	Prohibition Notice / Improvement Notice	Where a network is identified and the operator is unaware of their duties. Level of risk to residents needs to be ascertained in order to inform enforcement decision. **Specialist support required.**	1 4
Gas network operator found not to have suitable or sufficient systems in place to identify gas network supplies within high rise dwellings.	Improvement Notice	Can network operator provide a demonstration that all gas network supplies within high rise dwellings have been identified so far as is reasonably practicable.	1 2
Operator found not to have clear policy and procedure in place to ensure that the effective planning, organisation, control, monitoring and review of the preventative and protective measures are in place	Improvement Notice	Is operator able to demonstrate that arrangements are in place and implemented, having regard to the nature of his activities and the size of his undertaking, for the effective planning, organisation, control, monitoring and review of the preventive and protective measures.	1 3 5
Is a clear risk based prioritisation system in place in relation to inspection, maintenance and condition replacement	Improvement Notice / Letter	The operator should demonstrate that a risk based approach has been taken to the inspection of supplies within high rise property. e.g. How old is the system, population, construction methods, location, maintenance, leakage history etc.	1
The operator has not conducted inspections of all of its network within high rise property in line their programme	Improvement Notice	Have all network installations been inspected and recorded and suitable remedial work carried out if required.	1

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Situation	Initial enforcement expectation	Comments	Ref
HQ inspection			
Have competency requirements for inspectors / surveyors been formalised	Improvement Notice	What training and competency requirements are in place for those engaged in inspection work	6
Are inspections up to date or does a backlog exist	Improvement Notice	What plans are in place to deal with any backlog, are those arrangement suitable or sufficient	1
Are procedures in place for dealing with leaks / escapes	Improvement Notice	Does the network operator comply with the arrangement described within their safety case	1
Does the inspection regime provide sufficient evidence that the elements contained within the following site based section are identified and verified	Improvement Notice / letter	The operator should demonstrate that the site based inspection, maintenance and condition assessment regime is suitable and sufficient	1
What measures are taken to ensure that the property complies with other statutory provisions prior to and post gas network installation or adoption	Letter	What arrangements are in place to determine the suitability of a property to receive or continue to receive a gas supply including liaison with other bodies.	1
Do the outputs of inspection and resulting remedial actions form part of the organisations safety performance indicators	Verbal Warning	Does the system provide leading and lagging performance indicators to enable the operator to identify integrity management performance.	
Does the network operator have systems in place to enable access e.g. know who the property owner, landlord, housing association, building owner, freehold, leaseholder etc. is	Verbal Warning	Does the operator have systems in place to ensure that access can gained to high rise dwellings in order to inspect, maintain and carry out work.	
If wall / floor / ceiling piercings are discovered without adequate sealant present what mitigation regarding fire compartmentalisation is put into place prior to permanent resolution	Verbal Warning	If no or non-fire resistant material has been identified at piercings the operator should take steps to ensure that fire compartments are not breached and take steps to ensure that this is the case until a permanent solution is installed	

8.3 Table 2 – On site intervention

Situation	Initial enforcement expectation	Comments	Ref
On site Inspection			
Gas leak present	*Prohibition notice	*** Specialist support required.** Immediate report to the emergency call centre **0800 111999** depending upon circumstances and immediate risk.	1
A gas network supply is identified within a high rise property. Dutyholder is not in possession of an accepted GSMR Safety Case.	*Prohibition Notice / Improvement notice	*** Specialist support required.** Where a network is identified and the operator is unaware of their duties. Level of risk to residents needs to be ascertained in order to inform enforcement decision.	4
An unknown gas network supply is discovered within high rise property operated by a dutyholder with an accepted GSMR Safety Case.	*Prohibition Notice / Improvement Notice	*** Specialist support required.** Level of risk to residents needs to be ascertained in order to inform enforcement decision.	1
Riser or laterals show signs of severe damage or corrosion	* Prohibition Notice / Improvement Notice	*** Specialist support required**. Operator needs to demonstrate that risk has been assessed and appropriate steps taken in mitigation.	13
Do network plans indicate position of pipeline isolation valve (PIV)	Letter	It is reasonably practicable to expect the location of PIV's to be input on system records including maps	1
Pipeline isolation valve (PIV) not evident	Improvement notice	Main external service isolation valve. Normally buried and accessed via a valve cover marked "GAS". Should be present and identifiable on site	17
Pipeline isolation valve not identified on site	Letter	Valve is present but not identifiable. Location of valve should be marked with a visible marker plate or wall mounted plate and identify property that it relates to.	1
Diagram of network indicating position of PIV and other isolation valves not available on site	Letter	It is reasonably practicable to have produced and to display a general layout diagram for use by employees, residents and the emergency services	1
Does the operator have contingency plans in place to isolate the property should the PIV not be accessible	Verbal Warning	Does mains replacement when applicable consider the fitting of isolation valves in order to remotely isolate high rise properties. Are isolation points on the wider network identified for use in an emergency.	1
How does the duty holder identify areas for inspection. Are areas where corrosion can be foreseen prioritised.	Letter	Are suitable arrangements in place to ensure that pipe at risk of degradation are inspected and that previously inspected sections are available / accessible.	1
Are previously inspected sections of the riser / laterals revisited and inspected	Letter	Is the operator able to ascertain the condition of the pipe over a period of time in order to assess pipe degradation.	1
Are wall / ceiling / floor piercings sealed with an appropriate material	Improvement Notice	The gap between the pipe and sleeve and the gap between the sleeve and the surrounding structure must be sealed with fire resistant material	1

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Situation	Initial enforcement expectation	Comments	Ref
On site inspection			
How much of the overall system is available for inspection. How has an adequate representative view of riser condition been formed.	Improvement Notice / Letter	If access for inspection is limited how condition is assessed by the duty holder and what evidence can be provided that a risk based approach has been taken to inspection and decision making.	1
Is the survey methodology fit for purpose	Improvement Notice / Letter	Does the survey methodology provide a robust risk based assessment of condition on which to base decisions relating to inspection frequency, repair or condition replacement.	1
How is external riser condition assessed	Letter	Is the methodology suitable and sufficient to provide the operator information in relation to the condition of the system	1

Table 1 references

1. HSWA 3(1)
2. MHSWA 3(1)(b)
3. PSR 13
4. GSMR 3
5. MHSWA 5(1)
6. HSWA 2(2)(c)
7. PSR 6

8.4 Prohibition notices

It may be necessary to serve a deferred Prohibition Notice where action by the gas network operator is required in order to control the identified risk. **Specialist advice required**

8.5 Improvement notices

When setting timescales for remedial action or decommissioning of network gas supplies within high rise properties Inspectors should bear in mind the complexity of the network and engage the dutyholder. Remedial work may require the dutyholder to engage with various stakeholders, e.g. local planning authority.

8.6 Prosecution

Where widespread and significant deficiencies are identified and the attitude of the dutyholder is, or has been inadequate and the EPS tests are met then prosecution as well as the most suitable Notice(s) should be considered.

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9. Specialist Support

It is anticipated that the information in this topic pack and the guidance listed below should be sufficient for inspectors to deal with most situations they encounter. Where specialist resource is essential, e.g. to provide expert opinion for a notice appeal or advise on specific requirements HSE inspectors should contact their gas and pipeline specialist inspector.

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10. Appendices

Appendix 1 - Inspection aide memoire

INITIAL	COMMENTS
Site induction required	
Network plans available	
Service route & pipeline isolation valve (PIV) annotated	
Supply pressure LP / MP	
Date of installation	
Size of service, risers and laterals	
Property type	
Number of floors	
Number of dwellings on each floor	
Network diagram available to residents / emergency services	
PIV observed. Location, access,	
PIV marked on site	
EXTERNAL RISER	**COMMENTS**
Buried service material. PE / Steel	
If buried steel is CP installed	
Riser material. Steel / PE	
Riser joint type. Screwed / welded / combination	
How is riser secured to building, condition of support	
Pipe diameter. 1" / 2" etc	
Lateral connection	
Are wall piercings sleeved	
Is annulus between pipe and sleeve sealed with fire resistant material	
Is annulus between sleeve and surrounding wall sealed with fire resistant material	
Condition of pipe coating system	
INTERNAL RISER	**COMMENTS**
Service entry. Above or below ground	
Buried service material. PE / Steel	
If buried steel is CP installed	
Is a insulation joint fitted	
Is a inlet isolation valve (IIV) fitted and labelled appropriately	
If more than one riser are network riser isolation valves (NRIV) fitted	
Is riser supported at its base	
How is riser secured to walls	
Are expansion joints fitted, condition	
Riser joint type. Screwed / welded / combination	
Are thermal cut off or excess flow valves fitted	
Is the riser located within a shaft or duct	
Is the riser "boxed in"	
Is the shaft or duct ventilated directly to outside air	
Is the shaft or duct ventilated indirectly to outside air (fully welded systems only)	
Is the shaft or duct compartmentalised	
Is each compartment ventilated directly to outside air	
Is riser located within common areas	
Is third party damage / interference considered	
Are floor / ceiling piercings sleeved	
Is annulus between pipe and sleeve sealed with fire resistant material.	
Is annulus between sleeve and surrounding wall sealed with fire resistant material	
What is the condition of riser that is available for inspection	
How much pipe within the building is available for inspection (as a percentage)	
LATERALS	**COMMENTS**
Are laterals fitted with network lateral isolation valves (NLIV)	
How are laterals secured to walls	
Joint type. Screwed / welded / combination	
Are expansion joints fitted, condition	
Is the lateral located within a shaft or duct	
Is the shaft or duct ventilated directly to outside air	
Is the shaft or duct ventilated indirectly to outside air (fully welded systems only)	
Is the shaft or duct compartmentalised	
Is each compartment ventilated directly to outside air	
Are laterals present within common areas	
Is third party damage / interference considered	
Are network branch isolation valves (NBIV) fitted	
Are laterals "boxed in"	
Are lateral wall piercings sleeved	
Is annulus between pipe and sleeve sealed with fire resistant material	
Is annulus between sleeve and surrounding wall sealed with fire resistant material	
METER BANKS	**COMMENTS**
Do residents have access to their individual meter and ECV	
Are residents provided with any information relating to actions to take if gas detected	
Are meters & ECV's labelled appropriately	
Can residents operate their ECV. Identify, handles fitted, height, etc	
Are additional ECV's (AECV) fitted within properties	
Are AECV's located and labelled appropriately	
If bank located within a room or housing is it ventilated	
Where do the vents discharge to	
Are vents fitted at low and high level	
Is "material" stored within the meter room	
If lighting fitted is it of appropriate standard	
METER WITHIN INDIVIDUAL DWELLING	**COMMENTS**
Is ECV accessible to consumer	
Is EVV / meter labelled appropriately	
Is ECV /meter housing appropriate	
MEANS OF ESCAPE	**COMMENTS**
Is the meter fitted in a position whereby it is accessed via a means of escape? specialist support should be sought	

Appendix 2 – GSIUR extract from L56

Regulation 2(1)

"emergency control" means a valve for shutting off the supply of gas in an emergency, being a valve intended for use by a consumer of gas;

Guidance 2(1) Emergency control

The emergency control is a valve intended, and readily accessible, for use by the consumer (i.e. end-user) of gas. For example, a valve located in a meter-room which is locked (for security), and accessible only to a landlord, gas supplier, gas transporter and/or emergency services, cannot be regarded as an 'emergency control'. Where a meter is fitted, the meter control valve may be used as the emergency control, subject to certain conditions – see regulation 9(1).

Although there may be more than one emergency control serving a particular premises, it is the outlet of the first emergency control downstream of the distribution main which marks the interface between a 'service pipe' and 'installation pipework'.

Regulation 9(1)

*No person shall for the **first time** enable gas to be supplied for use in any premises unless there is provided an appropriately sited emergency control to which there is adequate access.*

Legal advice - "first time" means the first time that gas is installed at and supplied to premises, Regulation 9(1) does not give rise to an obligation on gas transporters to ensure that the duties in Regulation 9 continue to be met.

Guidance 9(1)

Whenever **a new gas supply** is made available for use in premises, an emergency control should also be provided. Where there is a gas meter, the meter control may serve as the emergency control as long as the following conditions are met:

(a) Each individual premise (e.g. each house, flat, maisonette, or caravan) using a supply of gas should be provided with an emergency control, whether or not that premises contains a gas meter.

(b) The emergency control should be situated as near as is reasonably practicable to the point where the gas supply pipe enters the premises.

(c) It should be readily accessible to all consumers, i.e. gas users, in the premises concerned (e.g. not located in a basement or cellar).

(d) A valve located in a meter-room which is normally locked, and accessible only to a landlord, gas supplier, gas transporter and/or emergency services for example, cannot act as an 'emergency control'.

(e) An emergency control should be protected against unauthorised operation (i.e. tamper-proof) but if situated in a locked compartment, the occupier(s) of the premises should be provided with keys (see also regulation 13(3)–(4)). In such cases, the emergency service

provider should also hold keys where access cannot be ensured for them at all times, e.g. through keys held by the responsible person for the premises.

The person allowing the flow of gas to the premises should ensure that every gas consumer in the premises is aware of the location of their emergency control, and of the action to be taken in case of a gas emergency. (Where there is more than one emergency control, e.g. in multi-occupancy premises, it is important for the particular control serving that consumer to be identified.) This includes following any alterations to buildings or ground works affecting the accessibility of the emergency control and pipework. In the case of rented property, the responsible person for the building, such as a landlord or managing agent, should ensure that all tenants are made aware of this information, including any new tenants.

Some premises contain separate buildings, e.g. a domestic property with stables or an office complex with a number of buildings on one site. As long as the premises are clearly under the control of one person or organisation, only one emergency control is required. However, arrangements should be made to ensure that the person in control is immediately notified of any gas emergency in the premises, so that suitable action can be taken, e.g. to isolate the gas supply (see regulation 37).

Regulation 9(2)

(2) Any person installing an emergency control shall ensure that –
(a) any key, lever or hand-wheel of the control is securely attached to the operating spindle of the control;
(b) any such key or lever is attached so that – (i) the key or lever is parallel to the axis of the pipe in which the control is installed when the control is in the open position; and
(ii) where the key or lever is not attached so as to move only horizontally, gas cannot pass beyond the control when the key or lever has been moved as far as possible downwards;

(c) either the means of operating the key or lever is clearly and permanently marked or a notice in permanent form is prominently displayed near such means so as to indicate when the control is open and when the control is shut; and
(d) any hand-wheel indicates the direction of opening or closing of the control.

Guidance 9(2)

The emergency control can operate by a key, lever or hand-wheel which should be securely attached to the operating spindle. Where a key or lever is used, the 'open' position should be when the key or lever is parallel to the axis of the pipe. The 'off' position should be approximately one quarter turn of the key or lever to the right or left and, where the key or lever moves in the vertical plane, the move to the 'off' position should be in a downwards direction. Either the key or lever itself, or a nearby permanent notice, should indicate how the control operates and when the gas is 'off' and 'on'.

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Regulation 9(3)

Where a person installs an emergency control which is not adjacent to a primary meter, he shall immediately thereafter prominently display on or near the means of operating the control a suitably worded notice in permanent form indicating the procedure to be followed in the event of an escape of gas.

Guidance 9(3)

Where an emergency control is installed which is **not** adjacent to a primary meter, or where no meter is installed, a prominently displayed notice on or near the control bearing the words 'Gas emergency control' should be provided. The notice needs to tell the consumer:
(a) to shut off the supply of gas if there is a gas escape in the premises;
(b) if gas continues to escape, immediately notify the Gas Emergency Freephone Number [redacted] (if natural gas).
(c) not to reinstate the supply until remedial action has been taken by a competent person to prevent gas escaping again;
(d) details of the emergency gas service contact, including the emergency telephone number. In the case of natural gas, the Gas Emergency Freephone Number should be specified (as above).
(e) the date the notice was first displayed.

Regulation 9(4)

*Where any person **first supplies** gas to premises where an emergency control is installed, he shall ensure that the notice required by paragraph (3) above remains suitably worded or shall, where necessary, forthwith amend or replace that notice so as to give effect to the provisions of that paragraph.*

Regulation 13(1)

Where a meter is housed in a meter box or meter compound attached to or built into the external face of the outside wall of any premises, the meter box or meter compound shall be so constructed and installed that any gas escaping within the box or compound cannot enter the premises or any cavity in the wall but must disperse to the external air.

Guidance 13(1)

To prevent gas leakage entering the building, any cable or installation pipe should be adequately sleeved and sealed where it passes from the meter box and enters building (see also regulations 14(1) and 19).

Regulation 13(2)

No person shall knowingly store readily combustible materials in any meter box or meter compound.

Guidance 13(2)

Regulation 13(2) applies to everyone, not just gas engineers. Meter boxes or compounds should not, for example, be used for storing combustible household waste such as paper and cardboard.

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Regulation 13(3)

No person shall install a meter in a meter box provided with a lock, unless the consumer has been provided with a suitably labelled key to that lock.

Regulation 13(4)

No person shall install a meter within a meter compound which is capable of being secured unless the consumer has been provided with a suitably labelled key for that compound.

Regulation 15 ACOP

Any supplier of gas through a primary meter should ensure that the required emergency notice is in place. Where there is a change in gas supplier which involves a change in the emergency service provider, the notice should be updated/replaced to reflect such a change.

Appendix 3 – Health & Safety of Inspectors

The following factors should be taken into consideration when planning and carrying out on site interventions:

Planning Stage

- Consult the Lone Worker Procedure (the majority should be accompanied visits) http://intranet.hse.int/yourhealthsafety/assets/docs/lone-worker-procedure.pdf
- Does HSE or operator intelligence indicate that the possibility of violence or aggression, or the presence of other factors, such as the discovery of drug paraphernalia at the location of the proposed intervention is high.
- Given any relevant intelligence is an inspection justified or is an alternative location viable.
- If the assessment indicates that the inspection is viable what health and safety considerations are required. For example, is PPE required or is the wearing of high visibility clothing likely to antagonise.
- Has access to the property been arranged with the owner.
- Typically, HSE inspection will be conducted by a Regulatory Inspector accompanied by a Pipeline Specialist Inspector. Representatives of the network operator and the building owner should also be in attendance.

On site

- Upon arrival consider the environment, speak to the operator and representatives of the building owner regarding any concerns for the safety of those conducting the inspection.
- Discuss any areas that may have increased risk. For example, how does the operator ensure the safety of employees engaged in accessing areas where hazardous materials may have been placed. For example, valve chambers, cupboards and individual vehicle parking.

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- Maintain an awareness of your surroundings and make decisions based upon current conditions.
- Is the network reliant upon residents to gain access to parts of the building. If so have they considered the associated hazards and risks.

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11. Glossary

Downstream – Installation pipe and meter equipment downstream of the ECV outlet
ECV – Emergency control valve. Valve used by consumer to isolate gas installation
EFV – Excess flow valve
GS(M)R – Gas Safety (Management) Regulations 1996
HSE – Health and Safety Executive
IGEM – The Institution of Gas Engineers and Managers
IGEM/G/5 – Industry standard "Gas in multi-occupancy buildings"
MOB – Multi occupancy building
MPRN – Meter point reference number – identification number given to a gas meter
PIV – Pipeline isolation valve – a valve positioned between the gas main and property
PSR – Pipeline Safety Regulations 1996
TCO – Thermal cut off valve
Unventilated void – An enclosed space containing a gas supply pipe with no free air movement
Upstream – Pipe upstream of the outlet of the ECV, operated by a gas network

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