

National Grid Gas Engineering Standards Printing Specification

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MANAGEMENT PROCEDURE FOR

**INSPECTION, MAINTENANCE AND MONITORING OF
INTERNAL METALLIC SUPPLIES TO HIGH RISE
BUILDINGS**

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APRIL 2007

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FOREWORD

This Management Procedure was approved by EPAC, on 9th January 2007 for use by managers, engineers and supervisors throughout National Grid Gas.

National Grid Gas documents are revised, when necessary, by the issue of new editions. Users should ensure that they are in possession of the latest edition by referring to the Gas Documents Library available on infonetUK (company intranet.)

Compliance with this Document does not confer immunity from prosecution for breach of statutory or other legal obligations.

BRIEF HISTORY

First Published as T/PR/LC/21 Editorial update to reflect Safety Case version 3 taking into account issues as detailed in the comments below. Additionally, compliance with mandatory terms along with the removal of non- specific normative phrases. Editorial update to comply with GRM and re issued as T/PM/LC/21 Editorial update for National Grid re-branding Update to reflect new surveying requirements	May 2002	EPSG/L01/410
	July 2004	
	October 2004 October 2005	
	April 2007	EPSG/T06/1793

KEY CHANGES (Identify the changes from the previous version of this document)

Section	Amendments
	Change of survey requirements throughout

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MANDATORY AND NON-MANDATORY REQUIREMENTS

In this document:

shall: indicates a mandatory requirement.

should: indicates best practice and is the preferred option. If an alternative method is used then a suitable and sufficient risk assessment shall be completed to show that the alternative method delivers the same, or better, level of protection.

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MANAGEMENT PROCEDURE FOR

INSPECTION, MAINTENANCE AND MONITORING OF

INTERNAL METALLIC SUPPLIES TO HIGH RISE BUILDINGS

INTRODUCTION

To comply with current legislation, National Grid Gas, as a gas transporter, shall satisfy the requirements of Regulation 13 of the Pipeline Safety Regulations 1996, and ensure pipelines are *'maintained in an efficient state, in efficient working order and in good repair'*

The application of this procedure shall satisfy the requirements of the Policy for Inspection, Maintenance and Monitoring of Internal Metallic Supplies to High Rise Buildings – T/PL/LC/20.

This Procedure reinforces the requirement of the first version (May 2002) to identify and survey each high-rise building containing a gas supply every 5 x years (typically 20% per annum), with subsequent inspections carried out at a frequency not exceeding ten years. The principal change from the previous version is the adoption of a revised survey format that has been successfully trialled in the London area.

It is the responsibility of Distribution Support to identify the location of high-rise buildings, and for the Operations directorate to undertake the surveys. It is the responsibility of Network Strategy to analyse the information for use in scheduling future survey requirements and replacement prioritisation.

1. SCOPE

This procedure details the measures required for compliance with T/PL/LC20 - Policy for Inspection, Maintenance and Monitoring of Internal Metallic Supplies to High Rise Buildings, and applies to all high-rise buildings

This procedure is a data gathering exercise, a visual condition assessment and a leakage survey to establish the volumes, types and general condition of high-rise buildings containing a gas supply.

2. DEFINITIONS

2.1 General

For the purposes of this procedure the definitions given in 2.2 and 2.3 apply.

2.2 Personnel

This procedure allocates responsibility for the completion of the various elements to the appropriate Directorate. It is the responsibility of management within Network Strategy, Operations and Distribution Support to ensure that sufficient resource is allocated to ensure compliance.

2.3 Technical

Accessible – That can reasonably be expected to view without the use of specialist viewing equipment or damage to buildings

Basement/cellar – A room below ground level in a house or property that is being used for accommodation or as a storage area, or could easily be altered and used for accommodation or storage. (Basements/cellars shall NOT be regarded as a storey within the context of this policy)

Emergency Control Valve – A valve for shutting off the supply of gas in an emergency, being a valve intended for use by the consumer

Fire Valve – A valve (other than an emergency control valve) for controlling a supply of gas:

- i.) incorporated in a supply pipe between the main and the riser; and
- ii.) intended for use by a supplier or transporter of gas; and not situated inside a building.

High-Rise Building – A building of 6 storeys and above that contains an upstream pipe-work system, including internal risers to multiple meter points.

Laterals - The length of pipe from the teed connection on the riser to the consumer's emergency control valve(s).

Main – Defined as a pipe with the potential to supply more than 2 supply meter installations

Risers – Defined as an above ground arrangement of pipes (horizontal or vertical), which supply more than 2 supply meter installations in an individual premise or building containing many premises. A pipe is considered a riser from the base of the bend, which rises to each of the building floors.

Storey – Floor construction level. The ground floor is counted as a storey within the context of this policy.

Tamper-proof – Protected against unauthorised operation.

3. REFERENCES

This National Grid Gas Procedure makes reference to documents listed below. Unless otherwise specified, the latest editions of these documents, including all addenda and revisions, shall apply.

- a) Health and Safety Executive - Pipeline Safety Regulations 1996 – Design, construction and installation of gas pipes.
- b) National Grid Gas Policy for Inspection, Maintenance and Monitoring of Internal Metallic Supplies to High Rise Buildings – T/PL/LC/20, October 2005
- c) Management Procedure for Walking Leakage detection Surveys using Portable Instruments of High Sensitivity (ppm Detectors), T/PM/LC/13, October 2005.

4. GENERAL REQUIREMENTS

Distribution Support shall provide the Operations directorate with a list of all high-rise buildings of six storeys and above that are known to contain an upstream gas distribution system, which are to be surveyed in the following year.

The Operations Directorate shall ensure that data is compiled on all high-rise buildings containing a gas supply. Information held shall include records of the location, the owner, the number of floors, the number of flats per floor, construction details of the riser system riser and building, the location of fire valves and risers, the method of riser entry and access to riser etc. A pro-forma for collecting this information can be found in Appendix A, which shall be forwarded to Distribution Support for input into the high-rise electronic database.

5. INSPECTION

The supplies to all high rise buildings shall be inspected within 5 years (typically 20% per annum), with subsequent inspections carried out at a frequency not exceeding 10 years. Priority should be given to any building not previously inspected

5.1 Leakage survey

5.1.1 A walking perimeter leakage survey shall be conducted which shall include surface boxes, visible gas pipe-work and accessible pipe entries, from the distribution main to the building line, in accordance with National Grid Gas Procedure T/PM/LC/13 (Management Procedure for Walking Leakage detection Surveys using Portable Instruments of High Sensitivity (ppm Detectors), October 2005.

5.1.2 An internal leakage survey of all accessible risers and laterals shall be conducted with an intrinsically safe gas detection instrument. In the event of a continuous riser shaft being present for the full height of the riser, a leakage survey should be undertaken at the top of the shaft.

5.1.3 If there is no such shaft, e.g. the shaft is sealed at each floor, the riser should be leakage surveyed in the same way as the laterals, by gaining access to every unit and carrying out a gas detection test. Where access cannot be gained at the time of survey, an intrinsically safe gas detection instrument shall be used to check the atmosphere through an opening such as a letterbox or ventilation grill.

5.1.4 In the event of leakage being detected it shall be actioned in accordance with National Grid Gas Escape Procedures T/PM/EM/71 (Transco Management Procedures For Dealing With Gas Escapes And Other Emergencies, June 2004), and T/PM/EM/71 (Transco Operational Procedures For Dealing With Gas Escapes And Other Emergencies, March 2006)

5.2 Visual Condition Assessment

The minimum visual inspection regime to be followed after each leakage survey is:

5.2.1 In the event of enclosed risers or laterals, where practicable, arrangements shall be made with the owner of the building to gain access to enable the pipe condition to be determined. A minimum of 2 laterals per riser shall be inspected.

5.2.2 Risers - A visual inspection of all accessible risers

5.2.3 Further intermediate sampling shall be undertaken if any of the initial samples indicate poor condition from severe corrosion.

6. MAINTENANCE

When exposed risers or laterals are considered to be in poor condition, consideration shall be given by Operations to the following to minimise further deterioration:

Severe corrosion (where flakes of oxidised material or pipe wrapping can be easily removed) – replace or repair the affected section

Minor corrosion (in poor condition but does not meet the criteria for severe corrosion) - painting of exposed and accessible pipe-work or re-wrapping damaged wrapping.

7. MONITORING

Distribution Support should liaise with Local Authorities and other property owners to obtain and record demolition programmes, enabling consideration to be given to the timing of the replacement of risk mains in the vicinity of buildings included on the database.

8. RECORDS

Distribution Support shall ensure that the presence of high rise buildings are recorded on the database using Ordnance Survey mapping co-ordinates and TeAR pipe object number (PON of the closest/supplying pipe).

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APPENDIX A**HIGH RISE BUILDING ASSESSMENT FORM**

Section 1 – Building Details					
Property Name/Number					
Street/Road					
Town/City					
Postcode		Patch		Property ID	
Approximate Construction Date					
Listed building	Yes <input type="checkbox"/> No <input type="checkbox"/>				
Number of storeys					
Supplies per storey					
Construction					
System built Modular <input type="checkbox"/> *		Masonry/Brick <input type="checkbox"/> *		Concrete Frame/Steel Frame <input type="checkbox"/>	
Cellar/Underground Garage		Yes <input type="checkbox"/> No <input type="checkbox"/>			

Reason Survey Not Undertaken					
Invalid address <input type="checkbox"/>	No access <input type="checkbox"/>	Less than 6 storeys <input type="checkbox"/>	No gas <input type="checkbox"/>	Central boiler room <input type="checkbox"/>	
I&C <input type="checkbox"/>	Outlet/Sub deduct system <input type="checkbox"/>	Other <input type="checkbox"/>	Details		

Section 2 – Ownership					
Local Authority <input type="checkbox"/>	Housing Association <input type="checkbox"/>	Private landlord <input type="checkbox"/>	Individually owned Private <input type="checkbox"/>		
Gas used for cooking		Yes <input type="checkbox"/> No <input type="checkbox"/>			
Gas used for heating		Yes <input type="checkbox"/> No <input type="checkbox"/>			
Gas used for hot water		Yes <input type="checkbox"/> No <input type="checkbox"/>			

Section 3 – Risers	
Total Number of Risers (Inspect All)	
Total Number of Laterals (Inspect 2 per Riser)	

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Section 4 – Assessment of 2 Laterals					
Total Number of Laterals					
Flat No					
Lateral Material					
Yellow Wrapped St. (PE Clad) <input type="checkbox"/>	Tape Wrapped St. <input type="checkbox"/>	Painted St. <input type="checkbox"/>	Bituminous St. <input type="checkbox"/>	Bare steel <input type="checkbox"/>	Copper <input type="checkbox"/>
<i>Lateral Pipe Corrosion</i>					
Significant metal wastage <input type="checkbox"/>		Surface only <input type="checkbox"/>		None <input type="checkbox"/>	
Flat No					
Lateral Material					
Yellow Wrapped St. (PE Clad) <input type="checkbox"/>	Tape Wrapped St. <input type="checkbox"/>	Painted St. <input type="checkbox"/>	Bituminous St. <input type="checkbox"/>	Bare steel <input type="checkbox"/>	Copper <input type="checkbox"/>
<i>Lateral Pipe Corrosion</i>					
Significant metal wastage <input type="checkbox"/>		Surface only <input type="checkbox"/>		None <input type="checkbox"/>	

Section 5 – Leakage Survey Details		
Perimeter survey	Carried out successfully	Yes <input type="checkbox"/> No <input type="checkbox"/>
	Indication found	Yes <input type="checkbox"/> No <input type="checkbox"/>
	If yes action taken:	
Internal survey	Carried out successfully	Yes <input type="checkbox"/> No <input type="checkbox"/>
	Indication found	Yes <input type="checkbox"/> No <input type="checkbox"/>
	If yes action taken:	

Completed by _____

Date _____

Signed _____

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Please complete this section (section 3) for each riser pipe, vertical and lateral.
If there is more than 1 vertical riser, please indicate which vertical riser each lateral is attached to.

Address			
Section 3a – Pipe Type			
Vertical or Horizontal Riser	Vertical <input type="checkbox"/>	Horizontal <input type="checkbox"/>	
Vertical Riser Location (If horizontal please record Easting & Northing of vertical riser that it is attached to)	Easting:	Northing:	
Horizontal Riser location	Floor:		

Section 3b – Pipe construction						
Pipe Length						
Pipe Diameter						
Material						
Yellow Wrapped St. (PE Clad) <input type="checkbox"/>	Tape Wrapped St. <input type="checkbox"/>	Painted St. <input type="checkbox"/>	Bituminous St. <input type="checkbox"/>	Bare Steel <input type="checkbox"/>	Copper <input type="checkbox"/>	PE <input type="checkbox"/>
Type of joints (Only Steel Pipes)						
Welded <input type="checkbox"/>		Flanged <input type="checkbox"/>		Threaded <input type="checkbox"/>		

Section 3c – Pipe access		
Approximate % of pipe accessible/seen		
External or Internal Position	External <input type="checkbox"/> (if external Skip to section 3d)	Internal <input type="checkbox"/>

Internal Pipe -			
Internal void is ventilated to outside	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Passing Through Solid Floors	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Seen <input type="checkbox"/>
Inter floor sealing material			
Mastic <input type="checkbox"/>	Concrete <input type="checkbox"/>	Other <input type="checkbox"/>	None <input type="checkbox"/>
Pipe Environment			
Damp/Wet <input type="checkbox"/>		Always Dry <input type="checkbox"/>	

Section 3d – Pipe Condition			
Number of Temporary repairs visible			
Pipe Corrosion (Steel ONLY)			
Significant metal wastage <input type="checkbox"/>	Surface rust only <input type="checkbox"/>	None <input type="checkbox"/>	
Corrosion protection repairs required (Steel ONLY)	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
GRP Intact & Fitted Correctly (PE ONLY)	Yes <input type="checkbox"/>	No <input type="checkbox"/>	

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Section 3e – Valves and emergency isolation			
Has pipe got a ground (fire) valve (vertical pipe only)	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Has pipe got an above ground emergency shut off valve	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
	If Yes – Location		
Is the above ground emergency shut off valve accessible (i.e. not in a locked room)	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
Is the above ground emergency shut off valve secure (i.e. behind a glass panel)	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
Is the above ground emergency shut off valve resistant to unauthorised operation after being shut?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>

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ENDNOTE**Comments**

Comments and queries regarding the technical content of this document should be directed to:

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