

8 Gas

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Preface

1. This Chapter of JSP 375 Volume 3 was prepared under the patronage of the Directorate of Health Safety and Environmental Protection (D HS&EP) and is to be read in conjunction with JSP 375 Volume 3, Chapter 2 - Common Requirements. These Safety Rules and Procedures are mandatory for adoption by the Commanding Officer, Chief Executive or Head of Establishment, into their site safety plans, to secure compliance with the Health & Safety at Work etc. Act, the Gas Safety (Management) Regulations, the Gas Safety (Installation and Use) Regulations and to aid the safe conduct of works activities.
2. The adoption of the document into the site safety plan will influence the conduct of many organisations and personnel, including those whose responsibilities are defined in the Common Requirements, as follows:
 - a. Site Safety Officer
 - b. Senior Estate Facility Manager (or DIO PFI Team Leader);
 - c. Estate Facility Manager (or DIO PFI Team Member);
 - d. Establishment Works Consultant (where this duty is still extant);
 - e. Maintenance Management Organisations and Works Service Management organisation, other Contractors and Sub-contractors;
 - f. Facilities / Delivery Managers, Project Sponsors, Project Managers and Contractors for Projects; and
 - g. Designers of facilities and installations.
3. Technical advice and assistance on the application of this document can be obtained from the Senior Authorising Authority (Gas)
4. Amendments to this publication will be advised by a Defence Information Notice or a Defence Infrastructure Organisation (DIO) ES&P Policy Instruction issued to MOD Top Level Budget Holders, DIO and organisations managing the MOD Safe Systems of Work. It is the responsibility of persons using this publication on any MOD Establishment to check with the Facilities Manager or Project Sponsor to ascertain if amendments have been issued.
5. JSP 375 Volume 3 has been devised for the use of MOD and its contractors in the execution of works in relation to the MOD estate. The Crown hereby excludes all liability (other than liability for death or personal injury) whatsoever and howsoever arising (including, and without limitation, negligence on the part of the Crown its servants or agents) for any loss or damage however caused where the Standard (JSP 375 Volume 3) is used for any other purpose.
6. Compliance with either this chapter or Chapter 2 (Common Requirements) does not of itself confer immunity from legal obligations. In the case of conflict between these Safety Rules and Procedures and a Statutory Requirement becoming evident, D HS&EP and the SAA Gas Safety are to be informed. Contact addresses are given below:

D HS&EP
MOD Main Building
Whitehall, LONDON
W1A 2HB

SAA Gas Safety
Engineering & Construction Team
Defence Infrastructure Organisation
Kingston Road
Sutton Coldfield, B75 7RL

Introduction

General

7. These Safety Rules and Procedures provide instruction on how to safely manage and control all gas infrastructure (both Natural Gas & LPG) on the MOD estate. They are to be read in conjunction with MOD Safety Rules & Procedures JSP 375 Volume 3, Chapter 2 - Common Requirements.
8. For these Safety Rules and Procedures, 'Gas Infrastructure' is defined in Scope and Limitations, below.
9. This document provides a system for:
 - a. controlling work on Gas Infrastructure in order to manage the safe flow of gas;
 - b. minimising the risks associated with working on Gas Infrastructure;
 - c. defining the roles and duties of key individuals to manage, oversee and perform any such work; and
 - d. the application of these Safety Rules and Procedures.
10. Any deviation from these Safety Rules and Procedures, or for the use of a local version requires the written agreement from the Senior Authorising Authority.

Concept of Operations

11. These Safety Rules and Procedures mandate the establishment of key individuals with specific responsibilities for the management and / or execution of work on gas infrastructure. Further guidance on the roles and duties of these appointments is given in IGEM / GL / 6 – Perimetry for the safe flow of gas.
12. The application of these rules is the responsibility of all those operating, working on, testing, commissioning, decommissioning, ordering, specifying and designing gas infrastructure or associated equipment.

Scope and Limitations

13. These Safety Rules and Procedures are designed for use on MOD Establishments, both in the UK and overseas.
14. These Safety Rules and Procedures apply to the following gas infrastructure:
 - a. any gas network which conveys Natural Gas from a primary incoming meter installation to the outlet connections of the various Emergency Control Valves (ECVs)
Note: any valve within the primary incoming meter installation marked 'ECV' does not denote the end of Network responsibilities;

- b. any gas system which conveys Liquefied Petroleum Gas (LPG) from an LPG storage facility, comprised of tanks or cylinders, from the outlet connection of the first stage pressure regulation facility to the outlet connections of the various ECVs; and
- c. any system of Installation pipes and ancillary equipment connecting the outlet of the various ECVs to appliances (natural gas or LPG).

15. These Safety Rules and Procedures exclude the following:

- a. EGDN network pipework upstream of the primary incoming meter installation;
- b. The primary incoming meter installation(s) and any pipework and ancillary equipment associated with it, for which the Meter Asset Manager (MAM) is responsible. The normal demarcation point for the downstream limit of MAM responsibility is the outlet connection to the Meter Outlet Valve. Where there is no Meter Outlet Valve the demarcation point is the outlet of the meter itself; and
- c. bulk LPG storage tanks and pipework up to and including the first stage pressure regulator, for which the LPG supplier is responsible. For liquid phase supply pipes, the same is true with the tank owners being responsible for the liquid phase pipework. Other arrangements may exist on some overseas sites.

16. For the following diagrams the following requirements apply:

- a. for the (yellow) EGDN network pipework, Gas Safety (Management) Regulations and EGDN Gas Safety Case apply. MOD or its contractors are not responsible for this pipework but need to be aware of its location;
- b. for the (red) MOD Network pipework and equipment, Gas Safety (Management) Regulations, MOD Exemplar Gas Safety Case and Gas Safety Management Plan (GSMP) Section B apply. All work on Network pipework must be carried out by skilled persons qualified in accordance with Energy and Utility Skills (EUS) gas network requirements and who are EUS Registered for the category of work being undertaken; and
- c. for the (green) Installation pipework and equipment, Gas Safety (Installation and Use) Regulations and MOD Gas Safety Management Plan (GSMP) Section A apply. All work on Installation (or Utilisation) pipework must be carried out by skilled persons qualified in accordance with Gas Safe requirements and who are Gas Safe Registered for the category of work being undertaken.

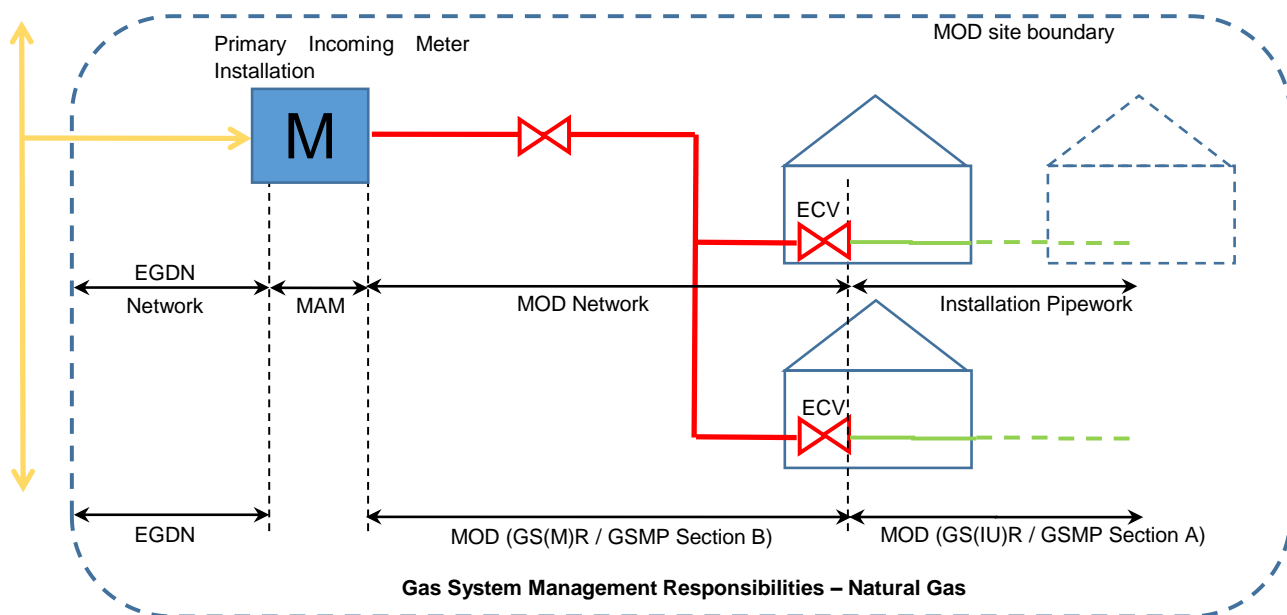


Fig 1 - MOD Network between outlet of Primary Incoming Meter Installation and ECVs at entrances to buildings. Normal point of transition from MAM to MOD responsibility is the outlet of the Meter Outlet Valve (MOV).

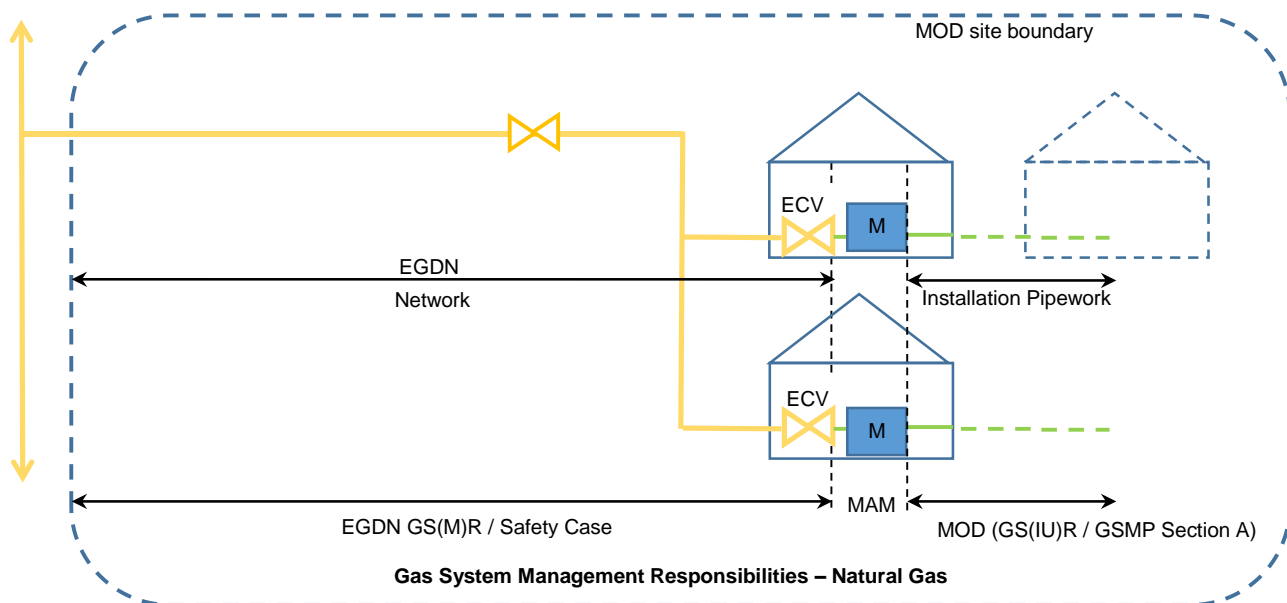


Fig 2 - No MOD Network. External Gas Network up to ECVs at buildings. Primary Meter Installations at buildings (inside or outside)

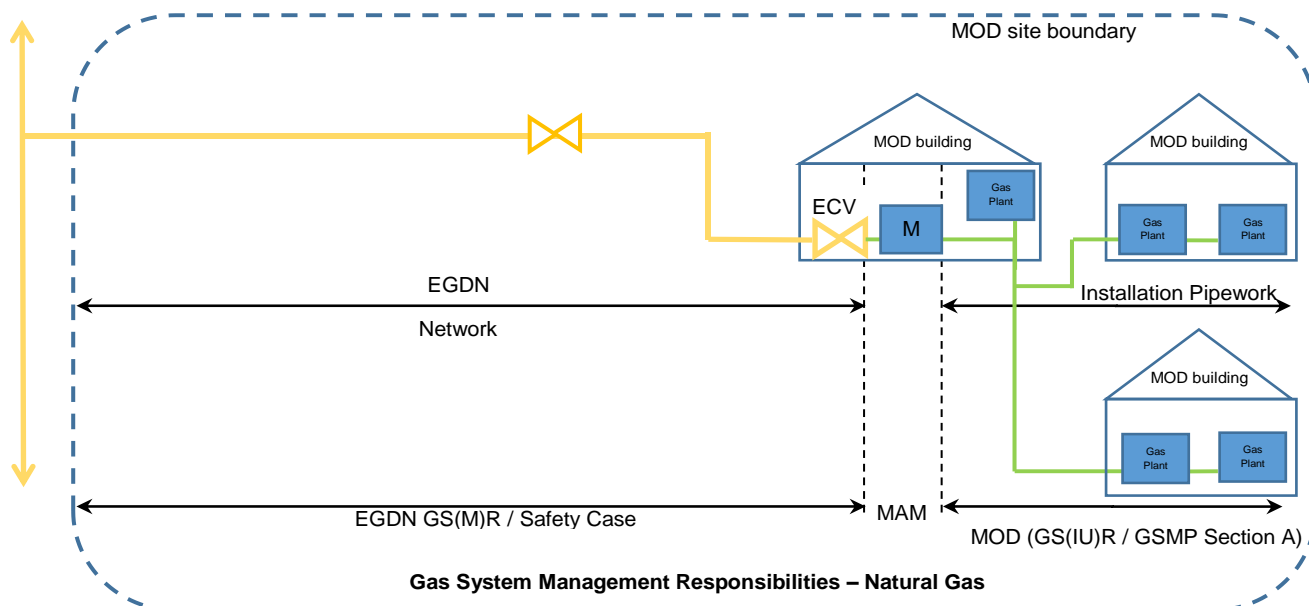


Fig. 3 - No MOD Network. External Gas Network up to ECV at an MOD building in which there is gas fired equipment. (i.e. not a building / kiosk / cabinet whose sole / primary purpose is the housing of a primary gas meter and its associated equipment) Primary Meter Installations at first building (inside or outside). Connections from Installation Pipework after ECV at first building will remain as Installation Pipework (further, secondary, meters may be installed at other locations)

Gas pipework such as this will not require a Gas Safety Management Plan (GSMP) Section B but buried pipework should be maintained to the same standard as Network Pipework, as defined in the Practitioner Guide PG 2015 / 01

New 'installation' pipework systems installed should be tested to IGE / TD3 and 4 standards to cover any potential changes in classification by future site developments/changes.

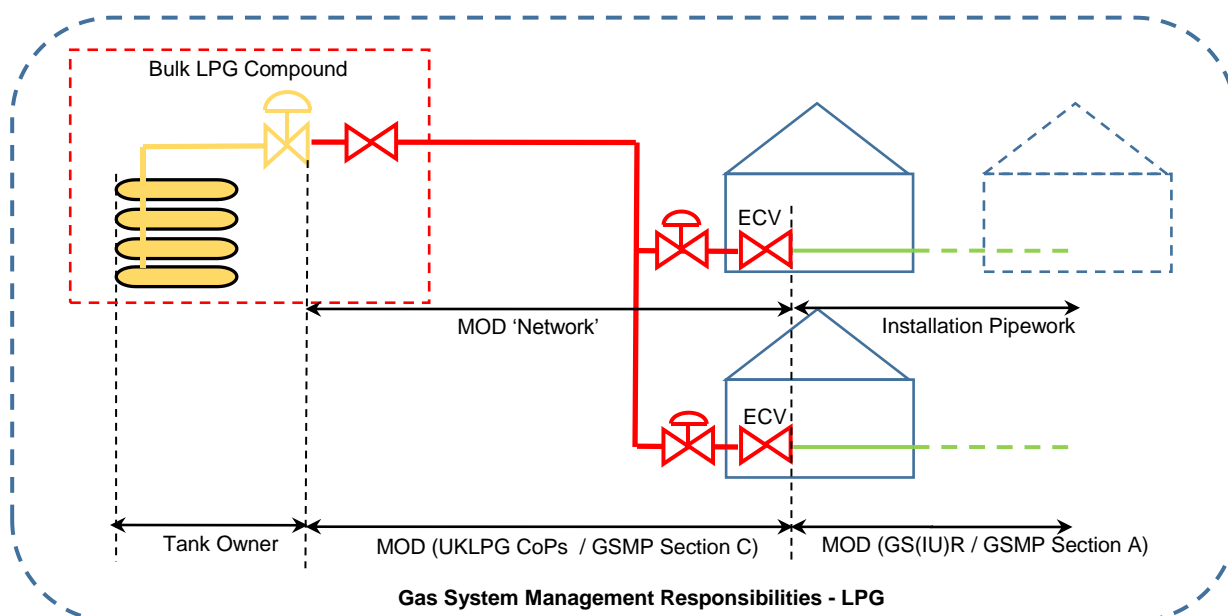


Fig 4 - MOD LPG 'Network' between outlet of 1st Stage Regulator and ECVs at entrances to buildings. LPG Tanks and pipework up to 1st regulator(s) are responsibility of tank owners. Compounds and associated infrastructure are the responsibility of MOD.

For the (red) MOD LPG Network pipework and equipment, UKLPG Codes of Practice, IGEM Distribution Standards and Gas Safety Management Plan (GSMP) Section C apply. All work on Network pipework must be carried out by skilled persons qualified in accordance with Energy and Utility Skills (EUS) gas network requirements and who are EUS Registered for the category of work being undertaken.

17. Note: For LPG systems supplying no more than two buildings and with pipework less than or equal to 63mm diameter, the entire system can be considered as Installation or Utilisation pipework regardless of operating pressure. In this case, no GSMP Section C will be required.

Definitions

18. Within this Chapter the role of Gas Safety Manager (GSM) is as used in the MOD Exemplar Safety Case and Gas Safety Management Plans (GSMPs).

19. Within this Chapter the role of Responsible Person (Gas) (RP(Gas)) is as used in the MOD Exemplar Safety Case and Gas Safety Management Plans (GSMPs).

20. Within this chapter the term Authorising Engineer (AE) is NOT synonymous with the term as used in JSP 375 Volume 3, Chapter 2. For the purposes of this chapter the role of AE is as defined in IGEM / G / 4 Definitions for the gas industry and IGEM / GL / 6 Permitry for the safe flow of gas – i.e. an Engineer appointed to approve permitry (Non-Routine Operations, Routine Operations, Forms of Authority, Permits to Work).

21. Other relevant definitions are provided in Annex D and JSP 375 Vol 3, Chapter 2.

22. References to documents such as industry standards will be for the current version of that document unless specifically stated.

Roles and Duties

General

23. This section discusses the principal roles and duties of those involved in the management of the Safe System of Work. These are identified as follows:

- a. the Co-ordinating Senior Authorising Authority (CSAA);
- b. the Senior Authorising Authority (SAA);
- c. the Authorising Engineer (AE);
- d. Network Controller (NC);
- e. Competent Person (CP); and
- f. works team.

24. Unless otherwise defined in this Chapter the general roles and duties of all individuals listed above are covered in JSP 375 Volume 3, Chapter 2. The purpose of this section is to identify any specific and / or additional roles and duties connected with the management of work on gas infrastructure.

Authorising Engineer

25. The term Authorising Engineer (AE) is as defined in IGEM / G / 4 – Definitions for the gas industry.

26. The role of the AE is as defined in IGEM / GL / 6 Permitry for the safe flow of gas – i.e. to approve permitry (non-routine operations (NROs) routine operations (ROs), Forms of Authority (FOAs) and Permits to Work) submitted by incoming contract works teams.

27. An AE may either be:

- a. an EUSR qualified RP(Gas) (after successful completion of SCO 1, 2, 4 and 5 courses and suitable and sufficient experience);
- b. an EUSR qualified GSM (after successful completion of SCO 1, 2, 4 and 5 courses and suitable and sufficient experience); or
- c. an EUSR qualified independent external service provider (for example, appointed by the organisation carrying out the work on the gas infrastructure).

Network Controller

28. The role of the Network Controller (NC) is as defined in IGEM / GL / 6 - Permitry for the safe flow of gas – i.e. to provide clearance to proceed with an NRO or RO which has been approved by the AE.

29. An NC may either be:

- a. the RP(Gas) with responsibility for the site. (Except where this RP(Gas) is operating as AE);
- b. where the site RP(Gas) is unavailable (or is acting as the AE) another RP(Gas) who is familiar with the site and its gas network(s) and systems and has been formally appointed as such by the GSM; or
- c. a GSM for the site provided they have sufficient knowledge of the gas operations on the site.

30. Prior to approval of permitry by the AE, the NC must validate the competence of both the AE and CP to authorise and supervise / undertake work by reference to the Skilled Persons Register.

31. Prior to giving clearance to proceed (and signing documentation accordingly) the NC must ensure that there is no other ongoing work on the network / site which may conflict with, or compromise, the work in hand.

32. Following completion of the works the NC must ensure the following;

- a. completed RO, NRO, is received, duly signed and dated by the Competent Person (CP);

- b. a copy of the completed documentation is filed within the Gas Infrastructure Document Register (GIDR);
- c. the Gas Infrastructure Operating Record (GIOR) is updated accordingly;
- d. any site records, including drawings, are updated as required; and
- e. the GSMP(s) are updated as required.

Competent Person

- 33. The term Competent Person (CP) is as defined in IGEM / G / 4 – Definitions for the gas industry.
- 34. The role of the CP is as defined in IGEM / GL / 6 Permitry for the safe flow of gas – i.e. to directly supervise (and / or carry out) work on Gas infrastructure for which they are in receipt of authorised permitry (NRO, RO, FOA, PTW).
- 35. The CP will normally be employed / engaged by the external company / agency undertaking the work.
- 36. A CP must only work on gas infrastructure after having been assessed by the RP(Gas) or GSM and being registered on the Skilled Persons Register for the category of work being undertaken.
- 37. A CP may only undertake activities for which they possess a current accreditation and registration. i.e. SCO, EUSR.

The Works Team

- 38. The works team will normally be employed by or engaged by the contracted service provider.
- 39. Members of the works team must hold a minimum level of certification of SHEA Gas (Safety Health and Environmental Awareness Gas Passport). Team members who do not hold this 'Gas Passport' card will not be permitted to enter the works area.
- 40. All members of the works team must be under the direct supervision of the CP.
- 41. Duties of the works team include:
 - a. complying with these Safety Rules and Procedures as set out in this chapter;
 - b. taking reasonable care of the health and safety of themselves and duty of care of any other person who may be affected by their actions or omissions;
 - c. only using equipment for which they have been trained and in the manner in which they have been trained;
 - d. reporting to the CP any defects found in the tools, plant and equipment to be used in the works;

- e. reporting to the CP any defects identified with the equipment being worked on;
- f. being conversant with gas hazards; and
- g. understanding the management hierarchy relating to the site installations.

General Arrangements

General

42. Compliance with these Safety Rules and Procedures is mandatory for work on gas infrastructure under the control of the Ministry of Defence (except where agreed with the SAA) from initial specification and design through to installation, operation and eventual de-commissioning. The design must incorporate adequate means for safe isolation, venting and purging of the equipment. Consideration must be given to the needs of the operator, RP(Gas) and maintainer of the plant to enable safe working. Changes made to the original design, because of site alterations, must not compromise safe working and preserve the ability for safe isolation. The Project Manager in charge of the works is to ensure that any alterations made on site do not affect the application of these Safety, Rules and Procedures.

43. The RP(Gas) (or GSM) for the establishment should be contacted, via the Maintenance Management Organisation MMO (or Industry Partner in the case of PFIs), to provide advice on the application of these rules to any new installations and to review tender drawings for compatibility with the requirements of these Safety Rules and Procedures.

44. The Commissioning Engineer for any new works with respect to gas infrastructure must be fully conversant with the requirements of these Safety Rules and Procedures and take them into consideration when commissioning the plant. The GSM and / or RPs (Gas) for the establishment are to be included in both snagging and handover meetings for new works to enable compliance with these rules. As part of the handover procedures, the installer must include an adequate period of training and familiarity for the GSM, RP (Gas) and Skilled Persons who will be responsible for the isolation and maintenance of the plant.

Site Surveys

45. Records shall include drawings and documentation relating to gas infrastructure on site including depth of pipework, diameters, lengths, operating pressure and materials. Records of isolation valves, pressure reducing installations and all other associated plant and equipment should be held within the Gas Infrastructure Document Register.

46. Prior to any significant works on site, incorporating new or increased gas loads, etc., a new Network Analysis may be required to ensure that adequate pressures will be available at all extremities on the network.

47. A new Network Analysis Validation survey should be undertaken following any significant modifications to the gas infrastructure.

Demarcation Agreements

48. There is a need to establish the lines of demarcation of the facilities, the operational and maintenance responsibilities, and the co-ordination and co-operation of all parties when works are required.

49. MOD Network responsibility will normally begin at the outlet side of the Meter Outlet Valve of the primary meter installation. Where there is no Meter Outlet Valve the point of demarcation will be the outlet of the meter itself.

50. The meter installation will be the responsibility of the Meter Asset Manager (MAM) who's responsibilities will end at the outlet side of the Meter Outlet Valve.

51. Pipework upstream of the primary incoming meter installation will be the responsibility of the External Gas Distribution Network (EGDN). The demarcation between the EGDN and the MAM will normally be the first common, above ground, inlet valve of the meter installation. Where no common (single) valve exists on the inlet side of the meter installation the demarcation may be the first above ground joint or joints.

52. For Natural gas systems, demarcation between Network and Installation pipework will be the downstream connection to the Emergency Control Valves (ECVs). This marks the transition between GSMR and GSIUR responsibilities.

53. In situations where a third-party end user is supplied directly from a MOD network a formal demarcation document is required. This must contain the following as a minimum:

- a. routine and emergency contact information (for both parties), including GSM and RP (Gas);
- b. a drawing(s) clearly identifying the point of transition between MOD and third-party responsibility (normally the downstream connection to the ECV); and
- c. signatures of both parties.

54. For LPG installations there must be a formal demarcation agreement in place between the MOD, MMO and the owner of the LPG tanks, signed by all parties, that clearly identifies the point(s) of responsibility demarcation.

55. The EGDN and / or MAM are required to notify the MOD when works are to take place on their systems, so that the implications of such works for the base / establishment can be assessed.

56. The RP (Gas) must contact EGDN and / or the MAM when works are planned on the MOD gas infrastructure that might have a direct impact on their plant – for example, in cases where new MOD pipelines cross existing EGDN pipeline(s).

Management Arrangements

Document Centre

57. The requirements for the Document Centre are detailed in JSP 375 Volume 3, Chapter 2.

Gas Infrastructure Document Register

58. The Gas Infrastructure Document Register (GIDR) should be located within the Document Centre. This is the principal source of management information for Gas Infrastructure within the site, location or geographical area and is to be maintained by the RPs (Gas).

59. The GIDR will contain the following information where it is relevant:

- a. a list of contents;
- b. copies of Gas Survey, Network Analysis, Validation Surveys;
- c. gas infrastructure operation record (GIOR);
- d. copies of the Exemplar Gas Safety Case and current versions of all applicable sections (A, B and C) of the site-specific Gas Safety Management Procedures;
- e. details of all redundant or abandoned gas pipes and associated plant and equipment on site;
- f. drawings showing all demarcation points;
- g. planned maintenance regime;
- h. maintenance records, including remedial requirements and actions;
- i. relevant, current publications (MoD, HSE, Industry standard);
- j. copies of any Professional Inspection reports;
- k. any previous reports which may assist in assessing whether the gas system is safe to operate;
- l. relevant information on repairs;
- m. copies of iron pipe scoring and replacement schedules;
- n. gas infrastructure schematics, DSEAR risk assessments, hazardous zone drawings and valve identification charts where determined necessary by the GSM;
- o. any relevant Policy Instruction, Defence Instruction Notice (DIN), Operational Restriction, Safety Alert, Safety Data Sheets, GSM Instruction, as directed by the GSM;

- p. gas leak response plan;
- q. skilled persons register and assessment information;
- r. GSM audit reports;
- s. notification of works procedure (procedure to notify users of establishment that works are ongoing);
- t. site risk assessments – (as included in the GSMP); and
- u. IGEM / GL / 6, Permitry for the safe flow of gas – either hard copy or reference to means of accessing electronically.

60. Where documents noted above are held elsewhere such as the Gas Safety Case and Gas Safety Management Plan, their location is to be identified in the relevant section of the GIDR and cross referenced - to the applicable document.

Gas Infrastructure Operating Record

61. For each site, location or geographical area, as determined by the GSM, a Gas Infrastructure Operating Record is to be prepared. This is to be in the form of a bound book, with pages sequentially numbered. The book is to be clearly and indelibly marked with the name of the site / location or geographical area to which the records relate.

62. Entries are to be made within the GIOR of any activity undertaken with respect to a Gas Infrastructure (as defined by these Safety Rules and Procedures). These entries are to include:

- a. the relinquishing and acceptance of responsibility between RPs (Gas);
- b. the isolation of any Gas System (or part of a system) – this may refer to the NRO, RO, PTW, FOA, Risk Assessment and not repeat all steps therein;
- c. references to all gas permitry relating to the site (to include completed, cancelled, withdrawn and lost documents);
- d. a record of the re-instatement of any part of the gas infrastructure following the completion of all works and the closure of the permitry document;
- e. details of any reportable disease, injury, dangerous occurrence, near miss and spill reports associated with work on gas infrastructure;
- f. GSM visits, audits or inspections;
- g. SME(Gas) or SAA visit, audit or inspection;
- h. receipt of relevant Policy Instruction, Defence Instruction Notice (DIN), Operational Restriction, Safety Alert, GSM Instruction and resulting action taken in response to the receipt; and

- i. any transfer of responsibility and / or changes to demarcations.

63. Entries within the GIOR are to be made in chronological order, each entry being ruled off with a horizontal line across the page.

64. A model form (GAS 01) is shown in Annex E – this is for information only as the GIOR must be in the form of a hard-bound book.

Keys and Key Security

65. The use of safety key boxes, safety and other types of locks in the management of these Safety Rules and Procedures are detailed in JSP 375 Volume 3, Chapter 2.

Management of Remote Sites

66. Refer to JSP 375 Volume 3, Chapter 2.

Co-ordination and Co-operation of Activities

67. Due to the specific nature of the control of gas works (using industry standard practice) it is not considered practicable to combine a live gas project with work involving any other discipline. Where live gas work is required as part of a larger, multi-discipline, project the live gas element must be separated and controlled in accordance with this Chapter.

68. Where work requires prior activity from another discipline (e.g., electrical, confined spaces, working at heights) the NC must ensure that the necessary clearance has been received prior to giving authority to commence the gas work.

69. On completion of the gas work the NC must ensure that the other disciplines are informed, as required, that the gas works are finished.

Operational Procedures

General

70. This Section describes the documents to be used and operational procedures to be adopted when controlling work on any gas assets defined in these Safety Rules and Procedures.

Risk Assessment

71. Risk Assessments are carried out to identify the specific hazards to health and safety to any person arising out of, or in connection with, work or the conduct of their undertaking. They should identify how the risks from those hazards arise and how they impact on those affected. This information is needed to make decisions on how to manage those risks so that decisions are made in an informed, rational and structured manner and that the action taken is proportionate.

72. For the purposes of these Safety Rules and Procedures there are two distinct types of risk assessment. A site Risk Assessment (as contained within the Gas Safety Management Plan for the site) and a Task Risk Assessment.

Site Risk Assessment

73. The Site Risk Assessment is contained within the Gas Safety Management Plan for the site which addresses the generic and site-specific hazards exhibited by the installation / system.

74. The Network Controller should review the Site Risk Assessments prior to providing to the Competent Person, and update if appropriate. Any updates must be incorporated within the Gas Safety Management Plan.

75. The Network Controller (RP (Gas)) must show the Site Risk Assessments and GSMP document to any Competent Person carrying out work on a MOD site, and the Authorising Engineer (who may be from an external organisation), if requested.

Task Risk Assessment

76. The Task Risk Assessment is required to cover the risks encountered in carrying out;

- a. pre-work;
- b. isolations;
- c. riders and bypasses;
- d. purging and venting;
- e. the task; and
- f. recommissioning (including purging to gas)

77. The Task Risk Assessment is to be completed by the contracting organisation (Competent Person) carrying out the task.

78. The Task Risk Assessment will be submitted to the Network Controller (RP (Gas)) and the Authorising Engineer in conjunction with any RO, NRO, Permit to Work or Form of Authority.

79. The Network Controller is to review the Task Risk Assessment and determine if it is consistent with the method of control and type of work being undertaken. Should the Network Controller consider the Task Risk Assessment inadequate, the permitry (NRO, RO, FOA,) must not be Authorised. If the Network Controller is in doubt as to the suitability of the Task Risk Assessment they should discuss with the Authorising Engineer and / or refer to the GSM for further guidance.

80. During the work the Site and Task Risk Assessments are to be retained with the associated Permitry documentation.

81. Contents of all Risk Assessments must be communicated to all parties involved in the task.

Method Statement

82. The Method Statement is a written procedure, to be produced by the CP / Service Provider undertaking the work.

83. For higher risk work Method Statements will be incorporated within the NRO or RO documentation.

84. Where a Form of Authority is required to be issued by the RP(Gas), the CP must provide a separate Method Statement. This will then be appended to the FOA prior to authorisation.

85. The Method Statement should include, as a minimum, the following information:

- a. a description of the task and location;
- b. the sequence and method of work;
- c. the hazards identified during the risk assessment;
- d. step by step details of isolation procedures (where required);
- e. details of purging and venting requirements (where required);
- f. details of recommissioning procedures (where required);
- g. detailed drawings to support all activities;
- h. the skills required to deal with any identified hazards;
- i. the precautions necessary to control the hazards;
- j. references to specific safety procedures covering known hazards;
- k. details of tools and equipment to be used;
- l. method of disposal of waste and debris (where required); and
- m. details of the state or condition in which the plant or equipment will be left at the end of the activity.

Confined Spaces

86. Entry into confined spaces present through the creation of trenching or by valve pits and chambers is to be controlled under JSP 375 Volume 3, Chapter 6. Where the gas infrastructure is to be worked on within a confined space the NC is to take the lead and coordinate with the AP Confined Space.

87. Note: IGEM / GL / 6 requires the use of a PTW when work involves confined spaces.

Determining Permitry Required

88. The term 'Permitry' is a generic term referring to the required safety documentation for the task being undertaken and does not necessarily imply Permit to Work. Permitry includes:

- a. Non-Routine Operation (NRO);
- b. Routine Operation (RO);
- c. Form of Authority (FOA); and
- d. Permit to Work (PTW).

89. For low-risk activities that fall out of scope of the above categories, work can proceed provided that the Skilled Person's competencies have been adequately verified and they are registered on the Skilled Persons Register.

90. The basic requirement for the various categories of permitry are shown in Table 1.

Non-Routine Operation (NRO)	<p>Intrusive work including flow stopping and connections to mains larger than 2" diameter (63mm PE) operating at Medium Pressure (>75mbar) or, mains larger than 12" diameter (355mm PE) at any pressure.</p> <p>Live welding on any pipe or installation</p> <p>More fully defined in IGEM / GL / 6</p>	<p>Competent Person (CP) – normally employed or contracted by the incoming service provider.</p> <p>Must be signed by the CP, Authorising Engineer (AE) and Network Controller (NC)</p>
Routine Operation (RO)	<p>Predominantly, but not exclusively for work including flow stopping and connections to mains larger than 2" diameter at low pressure (≤ 75mbar)</p> <p>More fully defined in IGEM / GL / 6</p>	<p>Competent Person (CP) – normally employed or contracted by the incoming service provider.</p> <p>Must be signed by the CP, Authorising Engineer (AE) and Network Controller (NC)</p>
Form of Authority (FOA)	<p>low risk, simple operations for which IGEM / GL / 6 does not mandate either an RO or NRO – e.g. work involving purging / venting from apparatus within a building</p>	<p>RP(Gas) / GSM</p> <p>The form must be signed by the RP(Gas) / GSM and the CP</p>

Permit to Work (PTW)	<p>In addition to either an RO or NRO, a PTW will be required for those types of work in which there is considerable risk either to personnel or plant.</p> <p>These categories are shown in IGEM / GL / 6 and listed below in para 108</p>	<p>RP(Gas) / GSM / AE</p> <p>The form must be signed by the AE and CP</p>
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Table 1 – Permitry Application

91. The RP (Gas) or GSM will determine the level and type of permitry that a work activity requires, based on the classification within IGEM / GL / 6.

92. If work is planned simultaneously on multiple gas systems or multiple points on a single gas network, separate permitry may be required for work at each installation. Should there be a requirement for simultaneous jobs on the same site / network, the NC must be same for all ROs / NROs in order to ensure a common overall control.

93. The permitry proposed by the RP (Gas) should be verified by the CP for the work. If there is disagreement in the level of permitry required, a resolution must be sought, initially by reference to the GSM.

Non-Routine Operational Procedure (NRO)

94. An NRO is the type of permitry required for the most complex or hazardous work on Network or Installation pipework and equipment.

95. The type of work activities that require an NRO are defined in IGEM / GL / 6.

96. The NRO will normally be written by the CP (incoming service provider).

97. Examples of tasks for which an NRO is appropriate are:

- a. squeeze-off operation on MP or large diameter (>400mm) LP PE pipeline;
- b. large diameter or MP bag-off operation;
- c. pressure testing above 3bar; and
- d. complex pressure tests or large diameter pipelines below 3bar.

98. The NRO may be a standard form provided by CP. Alternatively, the example form (Gas - 02) shown in Annex E may be used.

99. See Fig. 5 for Process Flow.

Routine Operational Procedure (RO)

100. A RO is the type of permitry required for less complex or hazardous work on Network or Installation pipework and equipment.

101. The type of work activities that require a RO are defined in IGEM / GL / 6.

102. The RO will normally be written by the CP (incoming service provider).

103. Examples of tasks for which a RO is appropriate are:

- a. bag-off operation on an LP pipeline between 2" and 12" (PE 63 and 355mm);
- b. squeeze-off on LP PE pipeline up to and including 355mm; and
- c. adjusting regulator installation set points.

104. The RO may be a standard form provided by the CP. Alternatively, the example form (GAS - 03) shown in Annex E may be used.

105. See Fig 5 for Process Flow.

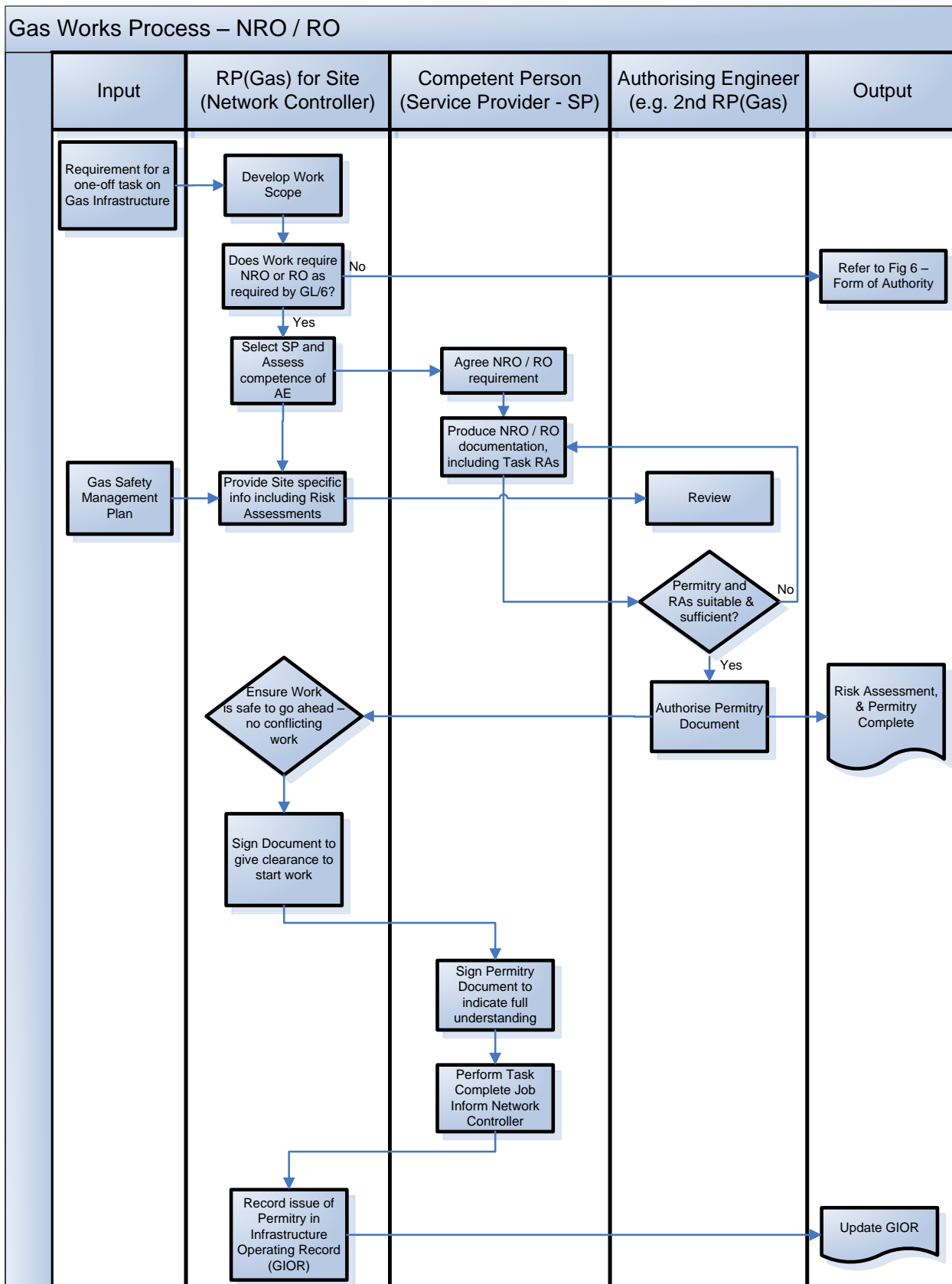


Fig. 5 NRO / RO Process

Permit to Work (PTW)

106. Where there are significant additional hazards associated with a job then a PTW will be required in addition to a RO or NRO.

107. The type of additional hazards requiring a PTW are specified within IGEM / GL / 6. A Permit to Work shall be issued for:

- a. work in known asphyxiating atmospheres;
- b. work in potentially hazardous atmospheres;
- c. entry into confined spaces in accordance with company standard and / or industry equivalent;
- d. work in excavations where access or egress requires assistance (e.g. a ladder) or as required by a risk assessment (e.g. use of mechanical excavators in deep excavations). A permit to excavate may also be required;
- e. hot work, e.g. burning, welding, grinding on live or decommissioned plant;
- f. demolition work;
- g. work on plant containing or that has contained toxic or flammable materials, e.g. chemicals, radioactive sources, etc.;
- h. pressure testing at pressures greater than 3bar (MOP >2 bar);
- i. lifting operations over live plant by mechanically assisted lifting apparatus;
- j. Working at Heights; and
- k. other than the above, any other works where a risk assessment identifies the need for a Permit to Work.

108. The PTW must be written by the RP(Gas), GSM or AE. The PTW form used must contain at least the minimum information required by IGEM / GL / 6.

109. A template form (Form GAS – 06) as shown in Annex E may be used.

Form of Authority

110. For low risk, simple operations for which IGEM / GL / 6 does not mandate either a RO or NRO, a Form of Authority (FOA) must be used.

111. An FOA will be written by the RP(Gas) or GSM.

112. Where an FOA is used the CP must provide separate Risk Assessments and Method Statement for the works. This RAMS documentation must be checked by the RP(Gas) and appended to the completed FOA prior to issuing to the CP.

113. Examples of tasks for which an FOA is appropriate are:

- a. works (not requiring an NRO or RO) involving venting or purging from apparatus within a building – in accordance with IGEM testing and purging procedures IGE / UP / 1 or IGA / UP / 1A;
- b. repacking valve glands;
- c. pressure testing – simple systems up to 3 bar (2 bar MOP);
- d. squeeze-off on an LP PE main / service below 63mm; and
- e. the laying or replacement of any gas services below 63mm.

114. A template form (Form GAS – 04) as shown in Annex E may be used.

115. An FOA is a task-specific document and may not be used to cover repetitive works on either the same installation or a range of installations.

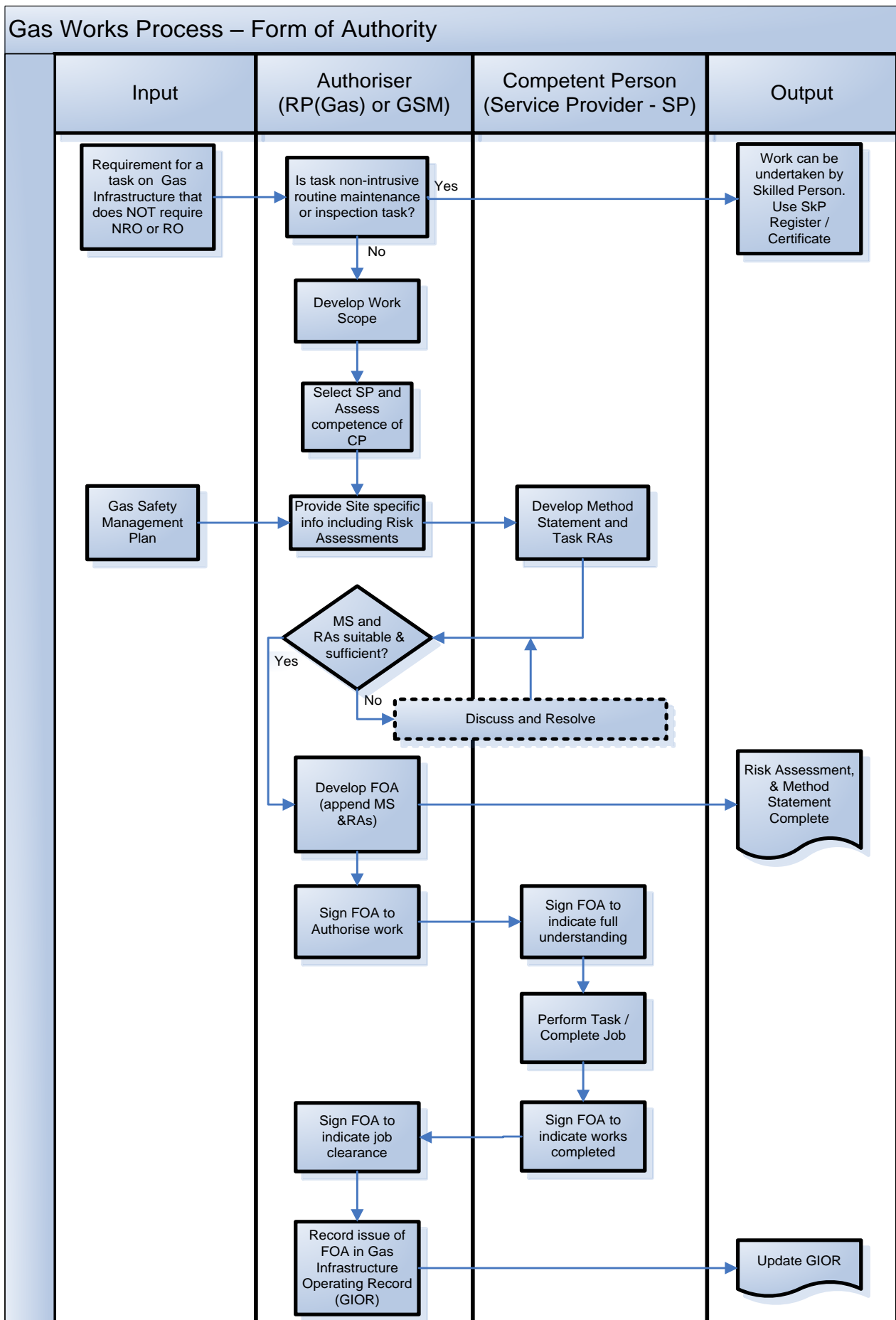


Fig. 6 Form of Authority Process

Low-risk work activities

116. Work activities on gas infrastructure where the risk assessment has determined that the task is low risk may be carried out by a Skilled Person whose competencies have been verified by the RP (Gas) or GSM, and who are registered in the Skilled Person's Register.

117. The skilled person must have been briefed by the RP (Gas) on the requirements of the Gas Safety Case, Gas Safety Management Plan Sections A, B and / or C as appropriate and JSP 375 Safety Rules and Procedures.

118. The RP (Gas) must be satisfied that the Skilled Person has an adequate understanding of those items as above.

119. The Skilled Person's register must, for each individual, identify the areas of work that their competencies and registrations permit them to undertake.

120. The details of the skilled person, their qualifications / registrations and the work activities that they are competent to undertake may be formally recorded on a Skilled Person (Gas) certificate.

121. A Skilled Person's certificate does not provide any assurance that the named person is competent to work on any site other than those listed, or for any other organisation.

122. A Skilled Person's certificate should be time bound – either to a maximum of three years or the date at which the earliest registration expires.

123. Examples of tasks which can be undertaken using the skilled Person's register / certificate include:

- a. painting of gas pipe and equipment;
- b. adjusting plant, equipment and metering;
- c. routine functional checks of PRIs;
- d. adjustment and tightening of valve glands (excluding repacking);
- e. maintenance tasks of valve gear equipment;
- f. minor adjustment or replacement of instruments and equipment;
- g. visual inspection of above-ground pipework;
- h. visual inspection of 'wind and water lines' (high-risk corrosion areas where pipework transitions from below-ground to above-ground);
- i. cathodic protection monitoring;
- j. gas leakage detection surveys; and
- k. entry into LPG compounds for purposes of tank filling, routine inspections, grass cutting, weed killing, painting etc.

124. Any task which exposes gas to atmosphere or introduction of an ignition source to gas vapours or involves confined space entry, working at heights, etc. cannot be undertaken without a higher level of work authorisation.

Training

Introduction

125. The requirements for general training for RPs (Gas) and GSMs are shown in the MOD Exemplar Gas Safety Case – Annex N and are not discussed further within this section.

Gas Safety Managers

126. GSMs must achieve the same technical training standards as given in this chapter for an RP (Gas).

127. The GSM for a site is to be involved in the selection and training requirements of RPs (Gas) intended for appointment on that site.

Responsible Persons (Gas)

128. The RP (Gas) is required to satisfactorily complete the necessary training prior to appointment. This training is made up of:

- a. the MOD Gas Safety Management Course;
- b. any additional specialist training identified by the GSM;
- c. SHEA Gas - Gas Safety 'Passport' (only required for RPs working on network equipment); and
- d. SCO 1,2,4,5 (only if required for AE duties).

MOD Gas Safety Management Course

129. The MOD Gas Safety Management Course is designed to provide an understanding of the basic requirements of gas safety and the management of associated risks. It shall adopt the philosophy embedded within the industry standard IGEM / TD / 102.

130. The course will cover:

- a. an introduction to gas products, their characteristics and classifications;
- b. an overview of associated statutory regulations;
- c. an overview of the Exemplar Gas Safety Case;
- d. an overview of gas systems and the types of gas installations on the MOD Estate;
- e. hazards and risks associated with gas products (fire, explosion, asphyxiation, environmental) and gas infrastructure (confined spaces, working at height, electricity);
- f. isolation methodology;

- g. pipe jointing techniques;
- h. network analysis;
- i. strength and tightness testing;
- j. risk scoring methodology for iron pipes;
- k. personal and respiratory protective equipment;
- l. test and safety equipment; and
- m. associated MOD and commercial documents.

Assessment

131. At the end of the course candidates will be formally assessed. The assessment will include:

- a. a pre-course open book examination on the Exemplar Safety Case; and
- b. a series of open book assignments and examinations, covering the topics identified in paragraph 131.

132. On completion of the assessment, candidates will be graded as either, “Satisfactory” or “Unsatisfactory” and a certificate issued to that effect.

Acknowledgements

133. These revised Safety Rules and Procedures have been produced by a joint Industry / Ministry of Defence working group comprising representation from the following contributing Companies, organisations and individuals:

- a. Royal Haskoning DHV;
- b. Amey Defence Services;
- c. Interserve;
- d. Landmarc;
- e. OAE Ltd; and
- f. DIO.

Duties Prior to Works

Collection of Site Information

1. It is essential that the entire scope of works is adequately detailed within Method Statements with supporting drawings as appropriate. This must be verified prior to commencement of works. Scope of works may include:
 - a. protection, signing, exclusion areas;
 - b. isolation methodology;
 - c. venting, purging, gas free checks;
 - d. connections, main laying works etc.;
 - e. testing; and
 - f. purging to gas / re-commissioning.
2. Prior to the commencement of works on site relating to Gas Infrastructure the RP (Gas) is required to collate all relevant information kept within the GIDR. Gas infrastructure information may be readily available in the site Gas Safety Management Plan; where this is the case the GIDR is to cross reference to the GSMP. This information shall be made available to the Work Team undertaking the works package and should be held within the Statement of Known Services:
 - a. location of gas pipework and other services including electricity, water and drainage local to works area. These may take the form of:
 - (1) maps;
 - (2) site survey drawings and documentation; and
 - (3) as built drawings.
 - b. details of gas within the Gas pipework including pressure, type and intended use of gas;
 - c. where the pipes or associated plant and equipment are owned or operated by either a public or private supplier and are likely to be included or affected by the works package the contact details of the owner should be made available. The phone number supplied should ideally be a manned 24 hours per day;
 - d. any areas considered to be a confined space that would require permitry to be produced in accordance with JSP 375 Vol 3 Chapter 6 prior to entry;
 - e. records of previous works carried out local to the works package area;
 - f. provision of on-site emergency service and medical assistance contact numbers, external emergency services and the nearest local hospital; and

g. contact details for the Competent Person - person in charge of supervising the works package.

3. All information provided to the Work Team undertaking works on Gas Infrastructure shall be the latest versions. Where the required information is not available or is not current, the RP(Gas) should make clear to the Work Team completing the works that the collation of the information listed above shall form part of the Scope of Works.

4. All information acquired as part of works on the Gas Infrastructure shall be entered into the GIDR and where necessary shall replace existing equivalent information.

Use and Limitation of Site Survey Plans

5. Where possible site survey plans identifying the location of Gas Infrastructure and other below and above ground services shall be reviewed prior to works commencing on site. Consideration should be given to the accuracy of the site plans and their age with the possibility that services may have been moved, removed, or modified since the preparation of the plans.

6. Plans should be used only as a guide to establish possible service location in the local vicinity to planned work activities and should be used in conjunction with service detection techniques prior to the commencing of works. The plans should not be relied upon to determine the depth of services, or diameters or distances of pipework due to possible inaccuracies within the drafting and surveying. Changes to surrounding ground, buildings or reference points (kerbs, tree lines, etc.) may give a false indication of the buried services in that area.

Detection of Below Ground Gas Services

7. Prior to any work being carried out on site to Gas Infrastructure, the Statement of Known Services, forming part of the MOD Form 5050, shall be completed such that those undertaking the works are familiar with all services and gas pipe routes before work begins. This process shall involve the collation of all known drawings and documents relating to the works area, these shall be listed within the MOD Form 5050.

8. In the event that a Statement of Known Services is not available or is incomplete a survey should be completed to determine the location of gas pipes, and other services, in the area to be excavated. The survey should where possible include the following:

- a. desktop survey;
- b. physical survey;
- c. production of survey drawings; and
- d. marking of services on the ground.

9. The survey can be completed by RP (Gas) or by the Work Team under supervision from CP. Specialist contractor's undertaking surveys should be supervised by either the CP or the RP (Gas). The level of survey will largely depend on the works being

undertaken. Where the works are planned within a 'built-up' area the need for a more accurate location of gas pipes should be seen as greater.

10. A desktop survey shall include the collation of information currently held within the GIDR. Additionally, information such as drawings and any previous surveys should be sought from the Gas Network owners (if not owned by the MoD).

11. Where physical surveys are required to be used to more accurately determine the location of gas pipes, they should include the use of trial pits the location of which is based upon the most current site plans, or the use of an approved detection devices.

12. Where specialist equipment or techniques are used the user shall be suitably knowledgeable in the use of such equipment and techniques and where requested by the RP (Gas) provide evidence of training or competence. The RP (Gas) shall be responsible for ensuring those undertaking the surveys meet suitable criteria.

13. The individuals selecting detection equipment or techniques shall fully understand the limitations of such equipment or techniques. The RP (Gas) shall request this information is communicated within the associated Method Statement.

14. Drawings prepared as part of a survey shall include the following:

- a. lines identifying gas pipes and other services where applicable. The use of colour is recommended with any abbreviations identified within a clearly understood legend;
- b. pipe materials, diameters and pressure regimes where possible;
- c. depth of pipes and cables;
- d. locations of below ground connections valves and any ancillary equipment forming part of the Gas Infrastructure or other services; and
- e. locations of above ground valves, manways, inspection boxes forming part of the Gas Infrastructure or other services.

15. Where any survey works include the entry to confined spaces, hazardous areas, explosive areas or the undertaking of works classed as hazardous the RP (Gas) shall coordinate with appropriate RP (Gas) for that establishment (for example in a confined space).

16. Where working is required in confined spaces the Authorised Person (Confined Space) (AP (CS)) shall be consulted).

Confirmation of Competent Person (CP) Competence / Registration

17. Prior to any work being carried out on site to Gas Infrastructure, the qualifications / registrations of competence of the person(s) undertaking the work should be undertaken by the RP(Gas).

18. The RP (Gas), or Network Controller in the case of ROs or NROs, must consult the Skilled Persons register in order to confirm suitability and currency of qualifications.

19. For work on Gas Network pipework and equipment the CP should possess the correct competence qualifications under the EUSR scheme e.g.:

a. Network Construction Operations (Gas) – NCO(G);

- (1) Assistant;
- (2) Service Layer;
- (3) Mains Layer ($\leq 180\text{mm}$);
- (4) Mains Layer ($\leq 355\text{mm}$); and
- (5) Mains Layer ($\geq 400\text{mm}$).

b. Utilities Network Construction Jointing Processes;

- (1) Electrofusion Welding; and
- (2) Butt Fusion Welding.

20. For work on Installation pipework and equipment (Downstream of supply point ECVs) the CP should possess the correct competence qualifications under the Gas Safe Registration scheme for the category of work being undertaken – i.e. domestic, commercial:

a. domestic categories;

- (1) cooker;
- (2) boiler;
- (3) water heater;
- (4) warm air;
- (5) range cookers;
- (6) fire / space heater;
- (7) tumble dryer;
- (8) pipework ($\leq 35\text{mm}$);
- (9) combustion analysis;
- (10) fumes investigation;
- (11) meters;
- (12) cabinet heaters; and
- (13) emergency service provider.

b. commercial categories;

- (1) wet central heating (>70kW);
- (2) air heating (>70kw);
- (3) radiant tube or plaque heaters;
- (4) direct fired air heater;
- (5) indirect gas fired heating appliances;
- (6) plant and equipment;
- (7) commercial pipework (>35mm diameter);
- (8) commercial pipework commissioning;
- (9) hp pipework;
- (10) vessels;
- (11) commercial laundry;
- (12) commercial catering (many elements required for full competency);
- (13) meters;
- (14) fire simulators;
- (15) pool boilers; and
- (16) incinerators.

21. In the case of ROs or NROs the Network Controller, must ensure that the Authorising Engineer (AE) has suitable and current qualifications for this role. This will include consulting the Skilled Persons register.

22. For work on Gas Network pipework and equipment the AE should possess the correct competence qualifications under the EUSR scheme. These are:

- a. SHEA Gas – Gas Safety Passport; and
- b. the following sections of the Gas Safe Control of Operations suite of qualifications:
 - (1) SCO / 1 - Industry standard training qualification demonstrating an understanding of the safe control of gas operations;
 - (2) SCO / 2 - Industry standard training qualification demonstrating competence for Team Leaders to issue and receive Permits to Work (PTW);
 - (3) SCO / 4 - Industry Standard qualification demonstrating competence for Authorising Engineers to issue non-routine operations (NRO) permitry in the gas industry; and

- (4) SCO / 5 - Industry Standard qualification demonstrating competence for Authorising Engineers to issue routine operations (RO) permitry in the gas industry.

Duties During Works

Exposing of Services

1. The RP (Gas) (or Network Controller) is responsible for requesting the preparation of a risk assessment and method statement from the Work Team before any form of excavation is undertaken.
2. The RP (Gas) shall review the risk assessment and method statement prior to excavation works with reference to safe digging practices within the Statement of Known Services and to determine that the following have been considered by the Work Team;
 - a. understanding of the risk to safety from damaged services;
 - b. use of detection tools and their limitations; and
 - c. understanding of safe excavation techniques including the risk associated with use of power tools and other non-manual digging equipment.
3. The Work Team should follow safe digging practice at all times. Excavation should only begin on the completion of the desktop survey and a physical survey, including service detection. Trial holes should be the first form of excavation using hand tools to confirm the location of the buried services.

Gas Leaks and Damage

4. If a gas leak is detected during any works on the Gas Infrastructure the Work Team shall report the findings as soon as practically possible to the RP (Gas). The RP (Gas) shall ensure that the area is adequately managed and where appropriate the pipe isolated using the methods provided within this chapter. Where required the RP (Gas) should alert the building custodian of all adjacent buildings as to the findings. The incident must be recorded in the GIOR.
5. All records relating to the detection of the gas leak and resulting actions shall be entered into the Gas Document Centre as well as the filing copies within the relevant Health and Safety files.

Working in Close Proximity to Gas Infrastructure

6. The RP (Gas) shall be informed if any of the following activities are to be undertaken on site in close proximity to gas infrastructure:
 - a. piling or vertical boring;
 - b. excavation work;
 - c. building manhole, inspection pit;
 - d. laying of water, electrical or gas services; and
 - e. construction works.

7. On notification of the above activities the RP (Gas) shall review available information held within the GIDR to ascertain whether Gas pipes or associated plant and equipment are in close proximity the proposed works. This shall include a review of current site plans, site survey reports, and the like.

8. If the RP (Gas) is confident that the works are to be local to any buried or above ground Gas Infrastructure the RP (Gas) shall request a risk assessment and method statement from those undertaking the works. The RP (Gas) shall ensure that mitigation measures against the damage to any part of the Gas Infrastructure are included within the risk assessments and method statements.

9. Prior to construction being undertaken on site the RP (Gas) shall assist the MMO, where required, in the supply of all available information to the Contractor and assist where possible in the collation of information not currently held within the GIDR.

Hot Works in Close Proximity to Gas Infrastructure

10. Hot Works, including naked flames, shall not be undertaken in close proximity to gas pipes or plant unless suitable protection has been agreed and installed.

11. Where hot work has to be undertaken in close proximity to any gas plant or pipework a Permit to Work (PTW) must be issued to the Competent Person outlining all safety requirements.

12. Hot Works shall not be undertaken within 500mm of PE pipework.

13. Gas detection shall be in operation throughout the duration of the Hot Works including a leak testing prior to and after the works.

Signs, Notices and Posters

Permanent Notices

1. The majority of permanent signs associated with the side wide Gas Infrastructure will be displayed at either extremity of the pipe, these being the building entry points and at the incoming gas pressure reducing station, or LPG storage facility. None of these locations are under the jurisdiction of this chapter of JSP 375 and are therefore not covered within this document.
2. Where it is anticipated that a threat exists to a below ground pipe, for example, if there is likely to be heavy plant movements or digging local to the pipe, A sign should be erected warning that a gas main pipe is buried below with the wording “DANGER – GAS MAIN BELOW”. The sign should be located such that it doesn’t interfere with normal operational activities in that area however should be clear and visible and of suitable size (see Figure 1 below).
3. Permanent signs are required to show the location and purpose of any isolation valves installed on the gas pipe with the wording “EMERGENCY MAIN GAS VALVE SHUT OFF”. The signs will be installed such that the sign is not obscured from view and will be of a sufficient size (see Figure 2 below).



Figure 1 Example Sign - Gas Main Below



Figure 2 Example Sign - Emergency Shut Off Valve

Temporary Notices

4. Temporary notices are to be displayed at the points of access at all locations where restricted area maintenance work is being conducted.

5. Temporary notices required for certain special operations such as purging, venting, pressure testing shall be defined in the permitry (NRO, RO, FOA, PtW).



Figure 3 Example Sign - Maintenance Work in Progress

Definitions

General – Common Requirements

1. Refer to the abbreviations and definitions within JSP 375 Volume 3, Chapter 2.

Specific Definitions for the Gas Chapter

Authorising Engineer, (AE)

2. As defined in IGEM / G / 4. An in-house (RP (Gas) or GSM) or contracted role for the approval of work permitry.

Authorised Person (AP)

3. As defined with JSP 375 Volume 3, Chapter 2. Various specialisms. There is no AP (Gas).

Combustible

4. Combustible refers to any substance solid, liquid or gas that is able to catch fire and burn easily.

Competent Person (CP)

5. As defined in IGEM/G/4 – Definitions for the gas industry. A person deemed competent, by means of qualifications, registrations and experience to carry out a specific task.

Confined Space

6. A confined space is a place which is substantially enclosed (though not always entirely), and where serious injury can occur from hazardous substances or conditions within the space or nearby (e.g. lack of oxygen).

Dangerous Occurrence

7. An incident that may give or has given rise to, injury to person or damage to plant and / or equipment, as defined by RIDDOR.

Demarcation

8. Reference should be made to: JSP 375 Volume 3, Chapter 2 - Allocation of Responsibilities and Demarcation Agreements and Chapter 5 paragraph 40, Demarcation Agreements;
 - a. a demarcation is defined as the transfer of control of the significant risk from one organisation to another, which then gives the term the 'demarcation point'. Demarcations should be agreed, defined by drawing or other means and recorded, with the document signed and dated by all affected parties.

Emergency Control Valve (ECV)

9. A valve, intended for use by the customer (the end user of gas), for isolating the supply of gas to an appliance or range of appliances. The downstream connection of this valve is the demarcation point between network pipework and installation pipework.

EUS(R) – Energy and Utility Skills (Register)

10. Registration body for persons operating on network / distribution pipework

External Gas Distribution Network (EGDN)

11. A reference to both the physical external gas network and the operators of the external gas network supplying gas to the MOD establishment – normally to the primary incoming meter installation(s).

Flammable (Synonymous with Inflammable)

12. Refers to any substance, be it a solid, liquid, gas or vapour, which in the presence of air, is easily ignited. The addition of the prefix 'non' shall indicate that the substances are not readily ignited, but does not necessarily indicate that they are non-combustible. See also 'Combustible'.

Form of Authority (FoA)

13. Permitry for lower risk work - for low risk, simple operations for which IGEM / GL / 6 does not mandate a RO or NRO, a Form of Authority (FOA) must be used.

Gas Concentration

14. A concentration of gas expressed either as a percentage of the Lower Explosive Limit (%LEL) or parts per million (ppm).

Gas detector

15. An indicator designed to measure the concentration of Hydrocarbons, Oxygen, and other gases, depending on the requirement and the type of sensors fitted. There are various types of detector available, including Multiple Gas Indicators (MGIs), combustible or flammable gas indicators (CGIs).

Gas-Free

16. An environment is said to be gas-free when the gas test shows that the concentration of gas is below 1% of the Lower Explosive Limit.

Gas Infrastructure

17. A system including but not restricted to above and below ground pipes, valves, metering equipment, pressure regulating devices for the distribution of gas around the site. This also includes installation / utilisation pipework and equipment downstream of ECVs.

Gas Infrastructure Operating Record - GIOR (held within the Gas Document Centre)

18. A site record listing significant events associated with Gas Infrastructure in a chronological order.

Gas Infrastructure Document Register (held within the Gas Document Centre)

19. A site-specific register containing details of the Gas Infrastructure and safety equipment held on site.

Gas Safe Registration

20. A requirement of the Gas Safety (Installation and Use) Regulations is that any person working on installation pipework and equipment (downstream of emergency control valve) must be trained and registered with Gas Safe for the type of work they are involved with.

Gas Safety Management Plan (GSMP)

21. A MOD Document detailing requirement for the safe and effective management of gas infrastructure with a specific site. The GSMP is divided into three sections:

- a. Section A – Gas Installation (or Utilisation) pipework and equipment (Natural Gas and LPG);
- b. Section B – Natural Gas Network infrastructure. This contains the site-specific elements required for compliance with the MOD Exemplar Safety Case and Gas Safety (Management) Regulations; and
- c. Section C – LPG ‘Network’ pipework between the bulk storage tank(s) and the ECVs at the boundary of the building(s).

Gas Safety Manager (GSM)

22. As defined in MOD Exemplar Safety Case - a person who has been deemed competent by the DIO SME(Gas) and appointed by the MMO to oversee the application and provide the necessary assurances of adequate implementation of the Gas Safety Case and Management Plan.

Hazardous Area

23. The term ‘hazardous area’, on the MOD Estate, can be used in a context to define two separate states with regard to a gas asset:

- a. the area surrounding a location or gas asset as defined and specified by the GSM / Hazardous Area Manager / or other representative of the establishment and which is indicated by fences, notices or other means. Within this boundary will be contained the DSEAR ‘Hazardous Area’ and possibly areas that would be deemed non-hazardous. This area will normally be subject to access control measures and key control; and

- b. Hazardous Areas are defined in DSEAR as "any place in which an explosive atmosphere may occur in quantities such as to require special precautions to protect the safety of workers". Work in this area will require control measures put in place to control the risk, such as a permit to work.

24. Note: in this context 'hazardous' refers to the potential for explosive atmospheres being present – other hazards such as electrical or chemical are not included

Hot Work

25. This includes welding, the use of any flame or electric arc, and the use of any equipment likely to cause heat, flame or incandescence sparks including non-certified electrical equipment. It also includes caulking, chipping, drilling, riveting and any other heat-producing operation, unless it is carried out in such a way as to keep the temperature of the tools and the work below 100 degrees C, whilst also preventing the creation of incandescence sparks. A Permit to Work must be issued to the Competent Person (CP) where any hot works required.

Incandescence Spark

26. A spark of sufficient temperature and energy to ignite a flammable gas.

Installation Pipework

27. Pipework downstream of emergency control valve (ECV). This is pipework (and fittings) for which Gas Safety (Installation and Use) Regulations applies and for which appropriate Gas Safe registration is required for any persons working on the equipment. This pipework may also be described as 'Utilisation Pipework'.

Lower Explosive Limit (Synonymous with Lower Flammable Limit), LEL, LFL

28. The percentage by volume of gas in a mixture of gas and air below which no explosion will take place, the minimum concentration needed for ignition, hence below this will not ignite with the application of an ignition source. Refer also to upper explosive limit.

Maintenance Management Organisation (MMO)

29. Organisation responsible for the day to day management of the gas (and other) infrastructure on a site. In the case of PFIs it is recognised that MMO is an incorrect term and 'PFI Industry Partner' is more appropriate.

Mentor

30. In cases where an inexperienced AE is signing control documents (NRO, RO) their signature may be counter-signed by a mentor who has overseen the Safe Control process(es).

Meter Asset Manager (MAM)

31. Body responsible for the management of a primary meter installation. The installation will include the meter and associated equipment, including pressure regulating and safety components. The MAM will not be the same as the EGDN who is responsible for gas network pipework coming into the MOD site.

Metering Installation

32. A system of components used for metering gas flow. The installations may incorporate pressure reducing equipment and pressure recording or logging equipment.

Multiple Gas Indicator, (MGI) - See Gas Detector

Network

33. System of pipes, pipework and associated equipment for the distribution of natural gas. The end of the network is defined as the outlet connection to the emergency control valve (ECV).

34. On any MOD site there will be an incoming EGDN network(s) and one or more MOD gas networks (running between the primary incoming meter installation(s) and the ECV(s)).

35. The Gas Safety (Management) Regulations (GSMR) require operators of gas networks to produce, maintain and operate in accordance with a gas transporters Safety Case.

36. Operatives working on MOD gas network pipework must be qualified and registered to the appropriate requirements of EUSR – Energy Utility Skills Register. (Gas Safe registration is not appropriate or sufficient for working on network pipework).

Network Controller (NC)

37. The person with overall control of a gas network. This will normally be the RP (Gas) for the site on which gas work is to be undertaken. The role of Network Controller is explained in this chapter.

Non-Routine Operation (NRO)

38. The type of permitry required for the most complex or hazardous work on Network or Installation pipework and equipment.

Non-hazardous area:

39. An area in which an explosive gas atmosphere is not expected to be present in quantities such as to require special precautions for the construction, installation and use of equipment.

40. Examples of sub-assets within the fenced area but outside the physical hazardous area may be the control / rest room within a bulk fuel installation (BFI).

Personal Protective Equipment, (PPE)

41. Overalls, headgear, eye protection, footwear, gloves, and other equipment intended for the protection of personnel against contamination by gas products. Type and grade subject to task being undertaken and risk assessment in accordance with Personal Protective Equipment at Work Regulation 1992 and Annex 'G'.

Pressure Reducing Installation, (PRI)

42. A system of components designed to regulate the pressure of gas in a system. A PRI will be used to reduce pressure from one pressure tier to another (e.g. medium pressure (MP) to low pressure (LP)) but may also operate within a single pressure tier.

43. A PRI will usually incorporate safety devices to prevent inadvertent over pressurisation of the downstream pipework.

44. A PRI will often be incorporated with a gas meter which will then be referred to as a 'metering installation'.

Primary Meter

45. Gas meter, the index reading of which constitutes the basis of charge for all gas supplied through that meter.

Restricted Area

46. A temporarily defined area, normally but not necessarily in a hazardous area, in which, owing to the nature of the work to be undertaken, a release of gas is possible thus giving rise to an increased risk of:

- a. fire;
- b. explosion; or
- c. asphyxiation.

Respiratory Protective Equipment, (RPE)

47. Respiratory Protective Equipment selection of type equipment subject to assessment in accordance with Personal Protective Equipment at Work Regulation 1992 and HSG 53, for further information refer to Annex 'D', all equipment must have Health and Safety Executive approval and CE marked.

Responsible Person (Gas) (RP(Gas))

48. As defined in the MOD Exemplar Safety case - a person who has been deemed competent by the GSM and appointed by the MMO to undertake the practical

implementation of the GSMP for the gas networks within a defined area of appointment.

Routine Operation (RO)

49. The type of permitry required for work on Network or Installation pipework and equipment less complex or hazardous than that requiring an NRO.

Safety Key Box (SKB)

50. SKBs are secure boxes with either two unique locks or one unique lock and the facility to fit a multi-hasps. Refer JSP 375 Volume 3, Chapter 2.

Safety Case

51. The Gas Safety (Management) Regulations require all operators of gas networks to produce, maintain and operate in accordance with a gas Safety Case. MOD have in place an Exemplar Safety Case which is a generic document covering requirements for all MOD Networks – this must be supplemented by Gas Safety Management Plan (GSMP) Section B for every site.

Safe Control of Operations (SCO)

52. Safe Control of Operations is the standard terminology for safe working practices in the gas industry. SCO is understood by all network operators and service providers.

SCO / 1

53. Gas Industry Standard Management Procedures for the Safe Control of Operations. Also, term for Industry standard training course (EUSR) designed to provide an understanding of the safe control of gas operations.

SCO / 2

54. Gas Industry Standard Management Procedures for the safe control of operations - Issue of permits to work and forms of authority on the network. Also, term for Industry standard training course (EUSR) designed to provide Team Leaders the training they require to issue and receive Permits to Work (PTW).

SCO / 4

55. Gas Industry Standard Management Procedures for the safe control of operations – The control of non-routine gas supply operations. Also, term for Industry standard (EUSR) training course designed to enable authorising engineers to issue non-routine operations (NRO) permitry in the gas industry.

SCO / 5

56. Gas Industry Standard Management Procedures for the safe control of operations – The control of routine gas supply operations. Also, term for Industry

standard (EUSR) training course designed to enable authorising engineers to issue routine operations (RO) permitry in the gas industry.

SHEA Gas

57. Gas Industry standard training course (EUSR) and qualification / registration for the understanding of health, safety and environmental awareness and regulations within the gas industry. On successful completion of the SHEA Gas course a 'Gas Passport' card is issued.

Senior Authorising Authority (SAA)

58. As defined within JSP 375 Volume 3, Chapter 2, but with specialism in gas.

Skilled Persons Register

59. A register of qualifications, experience and registrations held by operatives working on, or supervising work on MOD gas infrastructure. The register will be held by the MMO and will be accessible by the GSM and RP (Gas). It will define what work categories can be undertaken by each named individual and will indicate qualification / registration expiry dates etc. The Register should include Competent Persons (CP) and Authorising Engineers (AE).

Upper Explosive Limit (UEL or UFL)

60. Also known as upper flammability limit, where the concentration of gas reaches its highest concentration in air to burn when introduced to an ignition source. Once this concentration is exceeded the gas mixture will not burn, as the gas concentration in air is too rich. See also lower explosive limit.

Utilisation Pipework - See 'Installation Pipework'.

Model Forms

1. The following Model Forms have been developed for use with these Safety Rules and Procedures as an aid to compliance.
2. Each of the Model Forms may be freely copied or otherwise reproduced in electronic or printed format. However, where this is done, acknowledgement must be given to the Ministry of Defence as the source.
3. Use of the Model Forms is not mandatory, in the implementation and operation of these safety rules and procedures. Companies, organisations and individuals who adopt these safety rules and procedures are therefore free to develop their own systems and method of compliance. However, where a company, organisation or individual chooses to adopt their own system, the information content of any documentation produced must not be less than that provided for in these Model Forms.

MODEL FORM GAS 01 – GAS INFRASTRUCTURE OPERATING RECORD

GAS 01 - Gas Infrastructure Operating Record

Date & Time of Operation	Location & Identity of Equipment	Event or Operation and Reason	Signature

NON-ROUTINE OPERATION (NRO)

OUTLINE, APPROVALS, AUTHORITY, CIRCULATION

A) Network ID:	B) Organisation:	C) Project / 3rd Party Ref:	D) NRO Number:
E) Location:		Postcode:	
F) Outline of objectives:			
Pressure range:			
G) Map References		Start Date: Time:	End Date: Time:
Start: E: N:	End: E: N:		
Start: E: N:	End: E: N:		
H) Extension approved by: Print names & dates			
Revised End Date & Time:			
I) Details of effect on gas supplies: Has Network Analysis been consulted? YES/NO. If YES, please append details. If NO, please provide reason.			
J) Are there any long term plant / mains outages planned? YES / NO / N/A. If YES, please append details.		Start Date: Time:	End Date: Time:
K) Is Adjacent Network Controller clearance required?	YES / NO	O) Work Instruction	
L) Is G.T. approval required?	YES / NO	P) Approval GL / 5, G / 17 or G / 19 Number(s).	
M) Is DNCC approval required?	YES / NO	Q) Is odorant present?	
N) Is GNCC approval required?	YES / NO	R) Status of NRO	
S) Is Meter Operations Controller approval required?	YES / NO	T) Is a Permit to Work required?	
U) APPROVALS	NAME	POSITION	SIGNATURE
Prepared by:		SCO CP (Skilled Person)	
Reviewed by:		Network Controller (RP Gas)	
Approved by:		SCO AE (RP Gas)	
Comments on Procedure:			Action by Originator:
<p>NOTE: If the procedure is not approved, it should be modified and resubmitted. If the comments are noted but not actioned, the originator of this procedure must provide an explanation prior to re-submission for authorisation.</p>			

Date originated:	Version No:	Page No:	NRO:
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MODEL FORM GAS 02 – NON-ROUTINE OPERATIONS (SCO 4)

COMPETENT PERSON with OVERALL responsibility	NAME	POSITION	SIGNATURE	DATE
Authorising Engineer(s)				
Authorised by: Mentor Counter Signed (Where AE is inexperienced)				
Network Controller Clearance to proceed				

(V) CIRCULATION LIST (Including all those approving the document)

NAME	TITLE	DATE	No. OF COPIES

(W) PERSONS IN AUTHORITY

COMPETENT PERSON with OVERALL responsibility	NAME	POSITION	AREA OF RESPONSIBILITY
Other COMPETENT PERSONNEL and their Sub Areas of responsibility			

(X) EFFECT ON OTHER GAS TRANSPORTER SYSTEMS (EGDN)

GAS TRANSPORTER NAME	CONTACT NAME & TELEPHONE NUMBER	DETAILS OF OPERATIONAL ARRANGEMENTS

Date originated:	Version No:	Page No:	NRO:
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MODEL FORM GAS 02 – NON-ROUTINE OPERATIONS (SCO 4)

(Y) EFFECT ON MAJOR SUPPLY POINTS

SUPPLY POINT NAME	CONTACT NAME & TELEPHONE NUMBER	DATE CONTACTED	DETAILS OF OPERATIONAL ARRANGEMENTS

SUMMARY OF NON-ROUTINE OPERATIONAL PROCEDURE

Reason for Procedure:

Short description of method:

Duration of operations and number of phases

Phase 1	
Phase 2	
Phase 3	

ESSENTIAL GAS SUPPLY ASPECTS

Supply sources required for operation with minimum pressures:

Governor input / output sources affected / turned off
during operations:

System alarms / pressure recorders affected:

Diameter / Length / Material of bypass:

SECTION OF PIPELINE ISOLATED DURING OPERATIONS

Provide details

PERSONNEL & COMMUNICATIONS

	NAME	LOCATION	PHONE No.	CALL SIGN	DUTIES
2.1					
2.2					
2.3					

Date originated:	Version No:	Page No:	NRO:
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MODEL FORM GAS 02 – NON-ROUTINE OPERATIONS (SCO 4)

WORK PRELIMINARY TO OPERATION

(attach any relevant calculations, network analysis details, etc. to section 10 of this procedure)

	ITEM	ACTION BY	VERIFIED
3.1			
3.2			
3.3			

3a HAZARDS AND RISK

The Competent Person shall confirm that this Written Procedure has been fully communicated and understood by all personnel involved and there are no additional hazards to those already identified by company risk assessment information, e.g. in the Hazards and Precautions booklet / Safe Persons Handbook, and that precautions are in place.

Where there are additional hazards, which are not identified by the company, e.g. within the Hazards and Precautions / Safe Persons Handbook, these shall be listed below with the control measures that have been taken and that the Authorising Engineer has been informed, e.g. **Other hazards - Separation of fittings (non-end loading). Control measures shall provide adequate temporary or permanent anchorage arrangements; the procedure shall detail how this will be achieved (identify relevant part of Section 6) by showing calculations and dimensions of the thrust restraint to be used.**

OTHER HAZARDS	CONTROL MEASURES	VERIFIED BY

TOOLS, EQUIPMENT, MATERIAL, ETC., REQUIRED

(supplementary sheets can be added)

	ITEM / DESCRIPTION	ACTION BY	VERIFIED BY
4.1			
4.2			
4.3			

Date originated:	Version No:	Page No:	NRO:
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MODEL FORM GAS 02 – NON-ROUTINE OPERATIONS (SCO 4)

GAS SUPPLY POSITION, VALVE STATUS, ETC., AT START OF OPERATION

	LOCATION	VALVE Nos.	OPEN / CLOSED / NOT	VENTED	VERIFIED BY
5.1					
5.2					
5.3					

OPERATIONS TO BE CARRIED OUT

(reference may be made to relevant standards where they apply, and copies of these shall be available on site in electronic or hard copy)

	ITEM / DESCRIPTION	ACTION BY	VERIFIED BY
1	Confirmation that all works preliminary to operation are complete		
2	Confirm that all the hazards identified in Section 3a have the appropriate control measures in		
3	Confirm that this Written Procedure has been fully communicated and understood by all personnel involved.		

Phase 1

	ITEM / DESCRIPTION	ACTION BY	VERIFIED BY

Date originated:	Version No:	Page No:	NRO:
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MODEL FORM GAS 02 – NON-ROUTINE OPERATIONS (SCO 4)

Phase 2

	ITEM / DESCRIPTION	ACTION BY	VERIFIED BY

Phase 3

	ITEM / DESCRIPTION	ACTION BY	VERIFIED BY

Date originated:	Version No:	Page No:	NRO:
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MODEL FORM GAS 02 – NON-ROUTINE OPERATIONS (SCO 4)

CONTINGENCY PLAN IN THE EVENT OF AN EMERGENCY (SEE APPENDIX C FOR GUIDANCE) (MANDATORY)

Emergency declared	Date:	Time:
Authorising Engineer informed	Managers name:	
	Date:	Time:
Responsible Engineer informed	Engineers name:	
	Date:	Time:
GNCC, DNCC informed	Contact name:	
	Date:	Time:
Network Controller informed	Contact name:	
	Date:	Time:

ON SITE CONTINGENCY PLAN 1

Reasons for implementing this plan:
Consequence:

ON SITE CONTINGENCY PLAN 1 - ACTIONS

	ACTION	ACTION BY	VERIFIED BY
7.1.1			
7.1.2			
7.1.3			

Authorising Engineer Responsible: Contact Number(s):
Network Controller: Contact Number(s):

ON SITE CONTINGENCY PLAN 2

Reasons for implementing this plan:
Consequence:

Date originated:	Version No:	Page No:	NRO:
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MODEL FORM GAS 02 – NON-ROUTINE OPERATIONS (SCO 4)

ON SITE CONTINGENCY PLAN 2 – ACTIONS

	ACTION	ACTION BY	VERIFIED BY
7.2.1			
7.2.2			
7.2.3			

Authorising Engineer Responsible: Contact
Number(s):

Network Controller:
Contact Number(s):

OFF SITE CONTINGENCY PLAN 1

Reasons for implementing this

plan: Consequence:

OFF SITE CONTINGENCY PLAN 1 - ACTIONS

	ACTION	ACTION BY	VERIFIED BY
7.3.1			
7.3.2			
7.3.3			

Authorising Engineer Responsible: Contact
Number(s):

Network Controller:
Contact Number(s):

OFF SITE CONTINGENCY PLAN 2

Reasons for implementing this plan:

Consequence:

OFF SITE CONTINGENCY PLAN 2 - ACTIONS

	ACTION	ACTION BY	VERIFIED BY
7.2.1			
7.2.2			
7.2.3			

Authorising Engineer Responsible:
Contact Number(s):

Network Controller:
Contact Number(s):

Date originated:	Version No:	Page No:	NRO:
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MODEL FORM GAS 02 – NON-ROUTINE OPERATIONS (SCO 4)

EMERGENCY DECLARED OVER

DATE:	TIME:
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COMPLETION CHECK ON GAS SUPPLY POSITION, VALVE STATUS, PRESSURE RECORDERS

	LOCATION	VALVE Nos.	OPEN / CLOSED / NOT FITTED	VENTED	VERIFIED BY
8.1					
8.2					
8.3					

COMPLETION ADVICE

NOTE: Advice should be given to all authorising and approval signatories in addition to other appropriate companies/personnel aware of the procedure.

	ITEM	ACTION BY	VERIFIED BY
9.1			
9.2			
9.3			

ENCLOSURES, SKETCHES & DRAWINGS OF WORK

List and include all appropriate OS maps, schematic / spider drawings, Network Analysis profiles, purge / vent calculations, anchorage calculations etc

	ITEM	ACTION BY	VERIFIED BY
10.1			
10.2			
10.3			

SKETCHES AND DIAGRAMS OF WORK (identify pressure points, vent points, purge points, pipe diameter and materials, etc)

Note: Symbols used on drawings / sketches / diagrams must comply were defined from specification document T / SP / CDO / 1 or other relevant company or industry standard.

Date originated:	Version No:	Page No:	NRO:

Notes / sketches etc.

Date originated:	Version No:	Page No:	NRO:

MODEL FORM GAS 03 - ROUTINE OPERATIONS PROCEDURE (SCO 5)

ROUTINE OPERATION (NRO)

A. Network Identifier:		B. Organisation:		C. Project / 3rd Party Ref.:		D. RO Number:	
E. Originator: (Print Name)					F. Date raised:		
G. Location of work:						G1.	
Post Code:							
H. Map References:		Start: E: N:		End: E: N:			
I. Outline of objectives:							
J 1. Start date / time:							
J 2. End date / time:							
K. Details of effect on gas supplies / other Gas Transporter networks / meter installations:							
Network Validation Checks Required: NO (if YES attach results)							
L. Long term plant / mains outage		Start date / time:		End date / time			
M. Permit to Work required		Specify PTW number(s):					
N. Preparatory work (Provide details in method statement below)		Will any customers be affected?					
		Have they been notified?					
		Is a pressure decay test required?					
O. Prior to commencing work confirm that an onsite specific risk assessment has been completed and that the work site is set out in accordance with above objectives, company safety and engineering procedures.						CP Initials:	
P. Prior to commencing work confirm that all site operatives have been briefed on their roles and responsibilities associated with these works:							
Q. Purge details / calculations (add supplementary sheets if required): 4m / 0.6m / sec = 7 sec							
Decommissioning Detail: to a reading of less than 10% LEL				Direct Purge		Commissioning Details: Direct Purge 0.6m / s	
R. Pipeline details		PON:		PON:		PON:	
Existing main	Size:	Length:	size:	length:	size:	length:	
New main	Size:	Length:	size:	length:	size:	length:	
Bypass	Size:	Length:	T. Authorising Engineer comments:				
Rider	Size:	Length:					
Purge Vents	Size: 2"	Length: 2.5m above ground level					
S. Pressures		mbar					
Minimum allowable pressure required during operation to be inserted prior to authorisation		21 Mbar					
Actual pressure at start of operation			AE Tel. Contact No:				
Actual Pressure at end of operation							
U.		Name:		Signature:		Date:	
Authorising Engineer Authorised by:							

MODEL FORM GAS 03 - ROUTINE OPERATIONS PROCEDURE (SCO 5)

Mentor Counter-signed (Where AE is inexperienced)			
Network Controller Clearance to Proceed:			
Competent Person undertaking the work:			
Note: If Authorising Engineer or Competent Person changes, contact Network Controller for a revised clearance to proceed. If it's the Authorising Engineer forward front copy of RO to Network Controller.			
V. Method Statement shall be attached:			
W. Enclosures (include all appropriate OS maps, schematic/spider drawings, Network Analysis profiles, purge calculations, etc):		Routine Procedure No:	
		Project / 3rd Party Ref	
X1. Sketch of proposed Operations (If required insert an intermediate sketch)			
X2. Sketch of completed Operations			

MODEL FORM GAS 03 - ROUTINE OPERATIONS PROCEDURE (SCO 5)

X3. Comments on completion			
Y. Operation Complete	C.P. Name (print):	Signature:	Date:

MODEL FORM GAS 03 - ROUTINE OPERATIONS PROCEDURE (SCO 5)

Competent Person Name:		Authorising Engineer's Name:		RO Number:	
Site Address:				Team Leader's Name:	

Following checklist is to be completed by the **Competent Person or Independent person** checking site arrangements on site prior to the commencement of the Routine Operation.

Each question should be answered **YES** or **N/A** and the Authorising Engineer contacted before the operation starts.

If any questions are answered **NO** - **DO NOT START THE OPERATION** until contact has been made with the Authorising Engineer who will confirm whether the operation can start. Record discussion details below.

CHECKLIST				YES	NO
1	Is the Competent Person on site?			<input type="checkbox"/>	<input type="checkbox"/>
2	Has the Authorising Engineer and Competent Person signed the RO document that is on-site?			<input type="checkbox"/>	<input type="checkbox"/>
3	Has the RO been logged with the Network Controller and 'Clearance to proceed' been given?			<input type="checkbox"/>	<input type="checkbox"/>
4	Is the original authorised RO document on-site (not a photocopy)?			<input type="checkbox"/>	<input type="checkbox"/>
5	Is the allocated time zone correct – right time - right day?			<input type="checkbox"/>	<input type="checkbox"/>
6	Where a Permit To Work is necessary is it on-site and all conditions adhered to?		N/A <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	Does the RO documentation match the actual on-site conditions?			<input type="checkbox"/>	<input type="checkbox"/>
8	Is there sufficient space for all equipment and fittings within requirements, i.e. PE fittings, minimum distances between bags and/or squeeze offs?			<input type="checkbox"/>	<input type="checkbox"/>
9	Has the SDR of PE pipe been identified, have metallic mains been callipered to ensure correct fittings / flow stop equipment on site?		N/A <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	Has a site specific risk assessment been completed?			<input type="checkbox"/>	<input type="checkbox"/>
11	Is appropriate PPE being worn by all personnel on site including the Competent Person and any visitors?			<input type="checkbox"/>	<input type="checkbox"/>
12	Is BA equipment positioned out of the vehicle adjacent to the excavation / confined space / work area in a gas free and secure location, connected with the pre-use checks undertaken?			<input type="checkbox"/>	<input type="checkbox"/>
13	Are Fire Extinguishers available, fully charged, in date, deployed and ready for use?			<input type="checkbox"/>	<input type="checkbox"/>
14	Where appropriate - Has the Voltstick been used today, are continuity bonds correctly fitted and / or wet rags available?		N/A <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15	Checks made to ensure no smoking, naked lights or other sources of ignition are present within working zone?			<input type="checkbox"/>	<input type="checkbox"/>
16	Are 'No-Smoking' signs out and correctly displayed?		N/A <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17	Are pressure points fitted as per the RO?			<input type="checkbox"/>	<input type="checkbox"/>
18	Is pressure in the system above minimum pressure stated on RO?			<input type="checkbox"/>	<input type="checkbox"/>
19	Are vents/purge vent pipes / bypass / rider as per the RO at correct height / diameter / lengths?		N/A <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20	Are bag tube gauges correctly working and spare bags tested and ready for use?		N/A <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21	Are exposed gas pipes and adjacent plant adequately supported and protected?		N/A <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22	Are the necessary tools / equipment required on site and in date / calibrated?			<input type="checkbox"/>	<input type="checkbox"/>
23	Are materials, plant, excavation spoil and equipment safely stored and protected?			<input type="checkbox"/>	<input type="checkbox"/>
24	Have all personnel been briefed on the operation?			<input type="checkbox"/>	<input type="checkbox"/>

Record of discussion with the Authorising Engineer – include date and time and relevant checklist no(s).

Competent Person / Independent persons signature	Date & Time
---	------------------------------

MODEL FORM GAS 03 - ROUTINE OPERATIONS PROCEDURE (SCO 5)

V. Method Statement (add supplementary sheets if required):

	Operational Works	Initial
1	Inform Authorising Engineer and Network Controller of Start of Operation.	
2	Carry out Pre-start on-site briefing to all personnel involved with RO.	
3	Set Up pressure Points, Vent points, By-pass 1 and 2, Purge Rider and Flow Stopping equipment at locations () as per attached pre-start drawing	
4		
5		
6		
7		
8		
9		
10		
11		
12	Advise Authorising Engineer and Network Controller of completion of RO	

FORM OF AUTHORITY (FOA)

Form of Authority Number	
-----------------------------	--

Site Address	Location of Work / Work area

--

Authority Valid From	Time and Date	To	Time and Date
Competent Person In Charge of Works		Department / Company	
Name			

State which hazards exist

General Atmosphere Test before start	YES	NO	*Frequency thereafter <input type="text"/> every MINS / HOURS*
Report on Site Conditions every		Hours to

MODEL FORM GAS 04 - FORM OF AUTHORITY

CONDITIONS TO BE OBSERVED (ENTER "Y" OR "N" IN ALL BOXES)

The OPERATIONAL SITE GENERAL SAFETY INSTRUCTIONS shall be observed at all times

NO SOURCES OF IGNITION TO BE TAKEN ON SITE		WEAR SAFETY HELMETS	
ERECT SAFETY BARRIERS		WEAR SAFETY FOOTWEAR	
WARNING NOTICES TO BE POSTED(SPECIFY)		WEAR EYE PROTECTION	
NO PERSONAL ELECTRICAL EQUIPMENT		WEAR EAR PROTECTION	
USE ONLY APPROPRIATELY CERTIFIED LIGHTING		OTHER (SPECIFY).....	
USE ONLY PNEUMATIC POWER TOOLS		OTHER (SPECIFY).....	
USE ONLY APPROPRIATE CERTIFIED POWER TOOLS		OTHER (SPECIFY).....	

AUTHORISATION (To be signed by the RP(Gas) or GSM)

I am satisfied that the work specified in Section 1 can be carried out subject to compliance with the 'Conditions to be Observed' and satisfactory atmosphere test results.

Name	Tel. No	Mobile. No
Signature	Designation	Date

ACCEPTANCE (To be signed by the Competent Person in charge of work)

I have read this form, understand the work authorised and will comply with the 'Conditions to be Observed'. All persons involved will be instructed by me and will be competent to carry out the work.

Name	Tel. No	Dept./Company
Signature	Designation	Date

EXTENSIONS

Issued Date	Extend to	Authorised By	Signature

COMPLETION

This work authorised above has been completed and all persons under my control have been withdrawn.

Signed	(Competent Person)	Date
--------	--------------------	------

CLEARANCE

This form is no longer valid, works are complete and normal operation can resume

Signed	(RP(Gas) / GSM)	Date
--------	-----------------	------

*Delete as appropriate

MODEL FORM GAS 05 – PERMIT TO WORK

GAS ESCAPE: CALL 0800 111 999	DATABASE NO:	PERMIT NUMBER:	GRID REFERENCE E: N:
----------------------------------	--------------	----------------	------------------------------------

Issue _____			
Office _____			
Address _____			
COPY TO BE HANDED TO PERSON IN CHARGE OF WORK AND DISPLAYED ON SITE			
1. SITE DETAILS			
Valid from _____ hours on _____ to _____ hours on _____			
Site Location _____			
Work to be carried out _____			
Competent Person in charge of work: Name _____			
Designation/Company _____			
Emergency Contacts _____			
Other Authorities advised (Specify) _____			
2. HAZARD ISOLATION (Complete all 'Hazard exists' boxes and appropriate 'Hazard to be isolated' boxes)			
HAZARD	Hazard Exists	Hazard to be isolated	Actions to be taken (specify)
Electricity	YES/NO*	YES/NO*	
Mechanical Power	YES/NO*	YES/NO*	
Liquids	YES/NO*	YES/NO*	
Pressurised Gasses / Liquids	YES/NO*	YES/NO*	
Remotely Operable Equipment	YES/NO*	YES/NO*	
Natural Gas	YES/NO*	YES/NO*	
Excavation	YES/NO*	YES/NO*	
	YES/NO*	YES/NO*	
	YES/NO*	YES/NO*	
3. GENERAL CONDITIONS TO BE OBSERVED			
THE OPERATIONAL SITE GENERAL SAFETY INSTRUCTIONS MUST BE OBSERVED AT ALL TIMES.			
1. Written procedures required YES/NO Ref. No. _____			
*2. Personal protective equipment to be available _____			
*3. Render safe sources of ignition _____ meters (other than those specified below or in box 7)			
4. Breathing apparatus to be worn/available _____			
*5. Hand excavation only _____			
*6. Work to be carried out in the presence of _____			
*7. Firefighting equipment to be available _____			
*8. Other _____			
4. SPECIFIC CONDITIONS TO BE OBSERVED (e.g. PPE, Special Equipment)			

* Delete where not applicable

MODEL FORM GAS 05 – PERMIT TO WORK

GAS ESCAPE: CALL 0800 111 999	DATABASE NO:	PERMIT NUMBER:	GRID REFERENCE E: N:
----------------------------------	--------------	----------------	-------------------------

5. GAS SUPPLIES

Are gas supplies affected: YES / NO* If Yes, provide details of action to be taken

.....

.....

6. ATMOSPHERE TESTS REQUIRED (Refer to Record of Atmosphere Test [RAT] Form)

	General Atmosphere				Within Plant / Confined Space			
	Test Required	Initial Test		Retest Frequency hrs / mins*	Test Required	Initial Test		Retest Frequency hrs / mins*
		Time	Date			Time	Date	
Natural Gas	YES/NO*				YES/NO*			
Other (State)	YES/NO*				YES/NO*			

7. PERMITTED HOT WORK

Specify:

Additional precautions required:

8. COMPETENT PERSON IN CHARGE OF WORK

I have read this permit, understand the work to be carried out and will comply with the 'Conditions to be observed and attachments'

Competent person in charge of work: Date:

Daily Check	Date						
	Initials						

9. AUTHORISATION

This site has been examined and I am satisfied that the work specified may be carried out subject to compliance with the above conditions and satisfactory test results and where appropriate permission to proceed has been obtained from the Network Controller.

Authorising Engineer: Date:

Designation: Telephone: Mobile:

10. CONTINUATION OF WORK

I am satisfied that the work identified in section 1 may be continued subject to compliance with the above conditions and satisfactory test results.

The results are recorded separately (see Ref. No.)

Work May Continue Until		SIGNATURE OF AUTHORISING ENGINEER	NETWORK CONTROLLER ADVISED	COMPETENT PERSON DAILY CHECK						
Time	Date		Date	Date/Initials	Date/Initials	Date/Initials	Date/Initials	Date/Initials	Date/Initials	Date/Initials

11. WORK COMPLETED

I have inspected the work covered by this permit and certify that the work has been completed.

Competent Person in charge of work Date:

Network Controller informed Date:

On completion this Permit to Work shall be returned to the Authorising Engineer.

12. ACCEPTANCE OF COMPLETION

Authorising Engineer: Date: