

Document Title:	MEDICAL GAS PIPELINE SYSTEMS AND MEDICAL GAS CYLINDERS POLICY		
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Related Trust Policies (to be read in conjunction with)	09040 Permit to Work Policy 09030 Health & Safety Policy 04083 Fire Safety Policy
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1.0 Purpose

- 1.1 The purpose of this Operational Policy document, in conjunction with the Trust Medical Gases Operational Procedures is to ensure the provision of safe and reliable Medical Gas Pipeline Systems (MGPS), cylinders, associated equipment and their safe and efficient operation and use. It provides the framework for the effective management of MGPS within The Trust.
- 1.2 The MGPS provides a safe, convenient and cost-effective supply of medical gases to points where these gases can be used by clinical and nursing staff for patient care.
- 1.3 The Trust's management recognises its commitment to maintaining the MGPS to required standards and the training of all personnel associated with its operation.. The objectives of the Policy are to:
- apply the principles of best engineering practice embodied in this Policy, HTM 02-01 and HTM 00 to all Medical Gas Pipeline Systems installed within the Trust
 - provide the highest possible degree of safety for patients dependent on the system and those working on/with the system
 - deliver gases to points of use of such quality as to be in accordance with the requirements of the European Pharmacopoeia and unchanged by the elements of the system or their operation
 - monitor and record all elements of system design, installation, operation, testing and management such that at any such time as it may be required, data will be immediately available for inspection by any relevant authority

2.0 Introduction

- 2.1 The MGS Policy sets out the Board of Directors intent to ensure minimum risk in the use of medical gas and sets out clear responsibilities for both the delivery to clinical areas and administration to patients.
- 2.2 Medical gases are medicinal products. Amongst the "medical gases" prescribed / used by Mid Essex Hospital Services NHS Trust (MEHT) are oxygen, medical air, entonox, nitrous oxide, Helium, Heliox, Liquid Nitrogen, Carbon Dioxide and oxygen.
- 2.3 For the appropriate medical gases that require prescribing which includes oxygen, these should only be prescribed and administered in accordance with the Trusts "08084 Prescribing Medicines for Inpatients" and "08103 Administration of Medicines to Inpatients" Policies located on the Trust Intranet.
- 2.4 Prescribed medical gases are supplied to the Trust in gas cylinders or, in the case of liquid oxygen, by tanker and stored in a VIE plant. The Trust also manufactures its own medical and surgical air on site by compressor and filter dryer systems. The cylinders are attached to a manifold which pressurise individual medical gas pipeline systems. Medical gas pipeline alarm panels in individual ward areas and in the central plant room alert when pressure in individual pipelines drop below pre-determined levels.
- 2.5 In the patient areas, the terminals for the various medical gas outlets on the MGPS can normally be found on the bed head trunking or theatre pendants. Equipment such as oxygen flow meters can then be plugged into the wall/pendant terminal to allow the delivery of a controlled dosage of the medical gas to the patient.

- 2.6 The MGPS represents the most cost-effective supply of medical gases to points where these gases can be used by clinical and nursing staff for patient care. However, in emergencies, or where patients require medical gas therapy whilst in transit within the hospital, smaller portable medical gas cylinders / gas bottle cassettes may be used.
- 2.7 The Trust operates two PFI Units, Broomfield PFI operated by Bouygues and Braintree Community Hospital operated by GFM. Section 3 Scope covers the differences in responsibilities between these areas and the retained Estate.

3.0 Scope

- 3.1 This policy must be read in conjunction with the Trust supporting document Medical Gases Operational Procedures.
- 3.2 This policy will be implemented throughout all premises, or parts of premises that the trust owns or occupies, or for which the trust is responsible.
- 3.3 Medical gases should not be used for non-medical purposes, other than as a test gas for medical equipment.
- 3.4 Medical gases are provided to clinical areas via piped systems or as bottled gas.
- 3.5 Medical gases are a medicinal product and therefore all equipment associated with medical gas must be maintained to appropriate standards.
- 3.6 Bottled gases are stored centrally and supplied to clinical areas by the portering team. They will deliver and collect on request by telephoning the helpdesk extension 6000.
- 3.7 The responsibility at Broomfield Hospital for Piped Medical Gas and Infrastructure to the outlet or pendant is the responsibility of the Estates & Facilities Department and Bouygues: Ext 6000. **NOTE:**
- The provision of piped gas and fixed infrastructure up to the outlet at the Broomfield Retained Estate is the responsibility of the Retained Estate.
 - The provision of piped gas and fixed infrastructure up to the outlet at the Broomfield PFI is the responsibility of Bouygues with the exception of Oxygen Gas:
 - The provision of piped Oxygen up to the outlet at the Broomfield PFI is the responsibility of the Retained Estate due to it originating from a Retained Estate system. Bouygues are responsible for the Oxygen infrastructure within the PFI Building up to the Outlet
- 3.8 The responsibility at Braintree Community Hospital for Piped Medical Gas infrastructure to the outlet or pendant is the responsibility of GFM: 01376 314100.
- 3.9 The responsibility at Braintree Community Hospital for Piped Medical Gasses to the outlet or pendant is the responsibility of the Trust via mobile telephone 07789941916 or via switchboard on a pager.

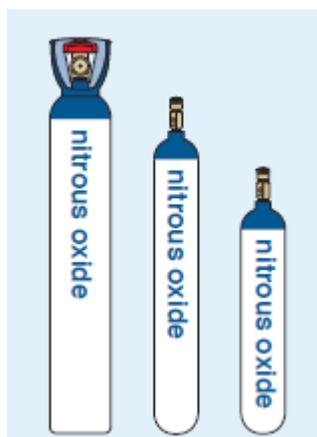
- 3.10 Any equipment connected is the responsibility of the Biomedical Engineering Department Ext 4639.
- 3.11 Medical air should be used as the power source for ventilators; the routine use of oxygen as a driving gas is to be avoided.
- 3.12 It is The Trust's policy that before work on the MGPS can commence a Permit to Work Form MUST be completed by an Authorised Person (MGPS) and signed by the relevant personnel as described in the Medical Gases Operational Procedures document.

4.0 Medical Gases used at Mid Essex Hospital Services NHS Trust (MEHT)

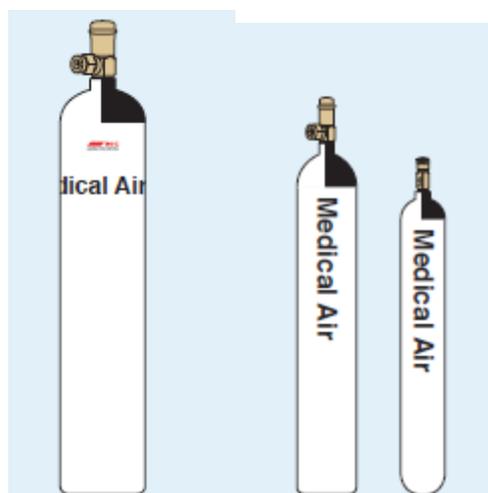
- 4.1 Medical gases can be supplied either by piped medical gas systems or as bottled gases. Only gases in regular use are piped to clinical areas. Gases used less often are only available in pressurised cylinders. The management of the delivery and collection of pressurised cylinders is undertaken by the Portering Team.
- 4.2 Below is a list of the gases available at Broomfield NHS Trust with information on where piped and bottled supplies are available.
 - 4.2.1 **Oxygen** is one of the most extensively used gases. It is principally used in oxygen therapy and life support, but also in anaesthetic procedures. The supply of oxygen to the site is via two Vacuum Insulated Evaporators (VIE) which store several weeks supply of liquid oxygen. The gas evaporated off the VIE's and is supplied at 4bar pressure. Oxygen should not be used to drive ventilators. An enriched oxygen atmosphere accelerates combustion, increasing the risk of fires starting and spreading. Appropriate precautions should therefore be taken where oxygen is used in significant quantities. Oxygen outlets are located at most bed heads throughout Trust wards, theatres, scanning and ICU areas.



4.2.2 **Nitrous oxide is used** in operating theatres and other places where patients need to be anaesthetised, pure nitrous oxide is provided. This is mixed with other gases by the anaesthetist in an anaesthetic machine for administration. It is supplied to the patient through a breathing circuit which is closed to the atmosphere of the room. The supply of the gas is from a cylinder manifold system and provided at 4bar pressure. Nitrous oxide is only piped to theatres and scanning departments.



4.2.3 **Medical air** is used for respiratory applications, such as patient ventilators and the delivery of nebulised drugs and chemotherapy agents. It is manufactured on site using two medical air plants which compress and treat air to remove impurities. Medical Air The gas is supplied at 4 bar pressure. Medical air is generally only piped to intensive care areas, but more recent guidance suggests it should be piped to bed heads for respiratory support in new or refurbished ward areas. It is important that the user differentiate between Oxygen and Medical Air when utilised, as they are different gasses for specific applications.



4.2.4 **Surgical air** is also manufactured on site. It is not supplied as a 'breathing' gas; it is air delivered at high pressure, and is used instead of electricity to power surgical tools. The gas is supplied at 7 bar pressure. Piped Surgical Air is generally only supplied to theatres.



4.2.5 **Nitrous oxide and oxygen mixture 50/50 [ENTONOX]** - an oxygen/nitrous oxide mixture is commonly called 'gas and air' or ENTONOX. It is used as an analgesic and is generally administered through a mouthpiece, bite block or face mask. Gas flow is controlled by a sensitive demand-valve activated by the patient's inspired breath. This puts the patient in control of the flow.

Nurses administering this gas must be specifically trained in its use, and be able to explain the use of the face mask to the patient.

The supply of the gas is from a cylinder manifold system and provided at 4 bar pressure. Entonox is generally only piped to maternity theatres, delivery units, Endoscopy, A&E Resuscitation and Fracture Clinic.



4.2.6 **Medical vacuum** is not a gas; it is a suction system to drain fluids into containers. However, because it is for a clinical use and delivered through a pipe, the general safety guidelines pertinent to medical gases need to be applied. It is created using a triplex vacuum plant located centrally on site with several back-up systems located remotely. The system is able to maintain a vacuum of at least 300 mm hg at each terminal outlet.

In areas where piped vacuum, systems do not exist, portable suction units can be obtained from the Clinical Engineering Department.



4.2.7 **Anaesthetic Gas Scavenging** is installed in areas where patients are regularly anaesthetised. This system extracts any excessive anaesthetic gases from the patient to the outside atmosphere. Suction is provided from localised pumps with a flow between 130 l/min and 80 l/min.

4.2.8 **Carbon dioxide** - in the past carbon dioxide was used as a respiratory stimulant post-operatively. Its main use today is for insufflation – the practice of inhaling a substance - during surgery. Carbon dioxide is only available as a bottled gas at MEHT).

4.2.9 **Helium and oxygen mixture** - a helium oxygen (Heliox) mixture is used in intensive care wards. It can be used to treat patients with respiratory or airway obstructions and to relieve symptoms and signs of respiratory distress. Helium and oxygen mixture is only available as a bottled gas at MEHT.

4.2.10 **Liquid Nitrogen** – is transported in flasks by Porters to some areas of the Trust for use as a cryogenic agent in Patient Treatment.

4.3 The Trust Medical Gases Operational Procedures document provides further guidance on the safe systems of use of MGPS and associated procedures and must be read in conjunction with this policy

5.0 Responsibilities

5.1 **Chief Executive Officer** has ultimate management responsibility for MGPS. The Chief Executive delegates day-to-day management responsibility for the MGPS and the written appointment of Authorised Persons (MGPS) to the Chief Director of Estates and Facilities.

5.2 **Chief Estates & Facilities Director** - As Executive Director, the Director of Estates and Facilities has **formal responsibility** for the MGPS. The Executive Director is responsible for monitoring and implementation of the Operational Policy for **the MGPS**.

5.3 **Authorising Engineer** The duties and responsibilities of the Authorising Engineer are:

- to recommend to the Chief Executive and Executive Manager those Persons who, through individual assessment, are suitable for appointment as Authorised Persons (MGPS) within the Trust
- to ensure that all Authorised Persons (MGPS) have satisfactorily completed an appropriate training course
- to ensure that all Authorised Persons (MGPS) are re-assessed every three years and have attended a refresher or other training course prior to such re-assessment
- to review the management systems of the MGPS, including the Permit to Work System and content of the Medical Gas File
- to monitor the implementation of the Operational Policy and Procedures

5.4 **Co-ordinating Authorised Person.** On this site there are several Authorised Persons (MGPS). To ensure effective MGPS Management, the Executive Manager will appoint one as the Coordinating Authorised Person (AP) with overall responsibility for the site.

The Coordinating AP will coordinate the actions of all other APs within the area of responsibility and will manage the permit to work system and other MGPS safety aspects in that area.

5.5 **Authorised Person (MGPS)** Authorised Persons (MGPS) are required for the hospital and will be based in the Estates & Facilities Department. The Authorised Persons (MGPS) assume effective responsibility for the day-to-day management and maintenance of the MGPS.

The duties and responsibilities of Authorised Persons (MGPS) are:

- the appointment of Competent Persons (MGPS)
- to ensure that the MGPS is operated safely and efficiently in accordance with the statutory requirements and guidelines
- to manage the Permit to Work System, including the issue of Permits to Competent Persons (MGPS) for all servicing, repair, alteration and extension work carried out on the existing MGPS
- to supervise the work carried out by Competent Persons (MGPS) and for the standard of that work (a Register of Competent Persons (MGPS) must be kept)

- to ensure that the hospital MGPS maintenance specification and schedule of equipment (including all plant, manifolds, pipe work, valves, terminal units and alarm systems) are kept up to date
- to liaise closely with Designated Nursing Officers, the Quality Controller (MGPS) and others, who need to be informed of any interruption or testing of the MGPS
- to provide technical advice to those responsible for the purchase of any medical equipment which will be connected to the MGPS, in order to avoid insufficient capacity and inadequate flow rates
- in association with the Designated Porter, ensure that correct storage is available and all signage is in line with current legislation
- It is the responsibility of the Chief Pharmacist and AP MGPS to appoint in writing, a Quality Control Pharmacist with MGPS responsibilities (The QC (MGPS) to address the respective responsibilities as outlined in Section 5.7
- Be responsible for liaising with the QC (MGPS) and organising attendance as required to fulfil their duties as outline in Section 5.7.
- In accordance with the hospital policy on provision of services, provide advice on the provision and / or replacement of MGPS central plant and associated systems. The Estates and Facilities Department will hold overall responsibility for the provision and maintenance of MGPS services within the hospital;
- To organise training of Estates & Facilities staff as is needed for the efficient and safe operation of the MGPS.

5.6 **Competent Person (MGPS)** Competent Persons (MGPS) are suitably trained Craft Persons employed by the hospital as direct labour. Employees of specialist Medical Gas Companies are also used to carry out work and will also be known as Competent Persons (MGPS).

All contracted in (third party) Competent Persons (MGPS) shall be registered to BS EN ISO 9001 / BS EN ISO 13458, with clearly defined registration criteria.

The duties and responsibilities of Competent Persons (MGPS) are:

- To carry out work on the MGPS in accordance with the hospital's maintenance specification
- To carry out repair, alteration or extension work, as directed by an Authorised Person (MGPS) in accordance with the Permit to Work System and HTM 02-01 (2006)
- To perform engineering tests appropriate to all work carried out and inform the Authorised Person (MGPS) of all test results
- To carry out all work in accordance with the hospital's Health & Safety Policy

5.7 **Quality Controller (MGPS)** It is the responsibility of the Chief Pharmacist and AP MGPS to appoint in writing, a Quality Control Pharmacist with MGPS responsibilities (The QC (MGPS)) to address the respective responsibilities as outlined below.

- He / she should have received training on the verification and validation of MGPS and be familiar with the requirements of this MGPS Operational Policy.
- The duties and responsibilities of the QC (MGPS) are:

- To assume responsibility for the quality control of the medical gases at the terminal units, i.e. the wall or pendant medical gas outlets;
- To periodically carry out tests on the Medical Air plant and log results;
- To liaise with the Authorised Person (MGPS) in carrying out specific quality and identity tests on the MGPS in accordance with the Permit to Work System and relevant Pharmacopoeia Standards;
- To organise MGPS training of Pharmacy staff who may deputise for the QC (MGPS);
- To maintain a record of cylinder rental charges and pass rental invoices for payment;
- To ensure that cylinder gases comply with Ph Eur requirements;
- To ensure that other gases and gas mixtures comply with manufacturers' product licences. This will include retaining Certificates of Conformity where appropriate.

5.8 Designated Nursing Officer (DNO)/ Designated Medical officer (DMO) It is the Designated Medical or Nursing Officer (MGPS) (hereafter Designated Officer (MGPS)) is the person in each department with whom the Authorised Person (MGPS) liaises on any matters affecting the MGPS and who would give permission for a planned interruption to the supply. All designated officers should have received training on Medical Gas System relevant to their departments and on the action to be taken in the event of an emergency.

5.8.1 The Designated Officer (DNO/DMO) is the person in each department (or covering a range of departments) with whom the Authorised Person liaises on any matters affecting Medical Gas. It is this person who would give permission for a planned interruption to the supply.

5.8.2 The DNO/DMO must give permission for any interruption to the MGPS and must sign the appropriate parts of the Permit to Work.

5.8.3 The DNO/DMO is responsible for ensuring all relevant staff are aware of any interruptions to the MGPS and which terminal units cannot be used.

5.8.4 All DNO's/DMO's (MGPS) must have received adequate training on the MGPS in accordance with the requirements of HTM 02 Part B Sections 7.43 & 7.44.

5.9 Nurse

- Ensure correct fitting of face mask to patient, set correct flow of gas and ensure gas is isolated when not in use.
- Check on a regular basis all cylinders are correctly stored, maintained and in serviceable condition.
- Cylinders in use should be regularly checked to ensure adequate contents remain for prescribed use.
- All nursing staff must be adequately trained in accordance with the requirements of HTM 02 Part B Sections 7.43.

5.10 **Designated Porter.** All Porters are Trained and are Designated Porters for medical gases. They will have undergone specialist training in the identification and safe handling and storage of medical gas cylinders, including Liquid Nitrogen and including relevant manual handling training.

Designated Porters in the hospital will undertake the following duties:

- Assist with the delivery of gas cylinders by the gas supplier;
- Deliver full gas cylinders from the Cylinder Stores to areas within the hospital and return empty cylinders to these stores;
- Deliver flasks of Liquid Nitrogen in accordance with the Risk Assessed Procedure;
- Assume responsibility for the safe keeping of gas delivery notes;
- Attach to and remove from cylinders, medical equipment regulators (or regulator / flow meter combinations) and manifold tailpipes;
- Identify and remove from service faulty (e.g. leaking) cylinders and subsequently notify the Helpdesk of the location of such cylinders;
- Perform a daily check on cylinder stocks and VIE contents and pressures and contact Pharmacy / the gas supplier for additional deliveries;
- Ensure that all cylinder contents are used within the 3-year fill / refill timescale specified by the gas supplier.
- The Designated Person must work safely at all times, using the appropriate Personal Protective and Manual Handling Equipment, damage to which must be reported immediately to their supervisor.
- In association with the AP MGPS, Ensure that correct storage is available and all signage is in line with current legislation;

5.11 **Maintenance Contractor (MGPS)** The Maintenance Contractor will be an approved specialist registered to BS EN ISO 9001/BS EN 13845, with registration defined as design, installation, commissioning, validation, verification and maintenance of MGPS. Evidence of current registration will be required along with all training records of company staff and calibration records of test equipment.

5.12 **Local Security Management Specialist.** The Local Security Management Specialist (LSMS) is responsible for ensuring the safety and security for the use and storage of medical gas cylinders.

5.12.1 The LSMS takes forward security management work locally in accordance with national standards, reporting directly to the Security Management Director. The LSMS will be able to identify specific security risks and offer advice on measures that can be implemented to reduce them.

5.12.2 The LSMS should be involved in providing input on secure storage and security-related aspects of the policies and SOPs around the management of cylinder stock. In the event of suspected theft of cylinders or other security-related incidents, the LSMS should be involved in the ensuing investigation.

6.0 Training

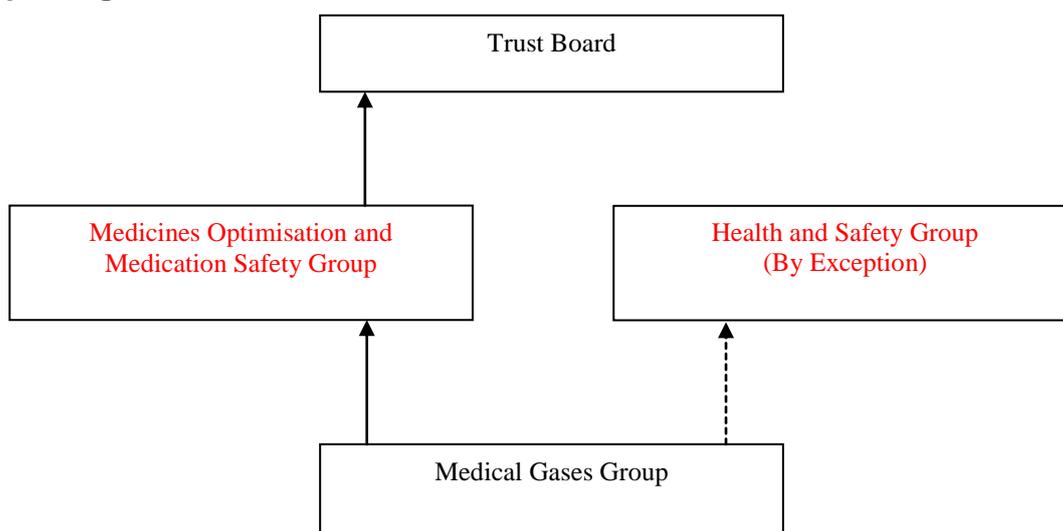
- 6.1 It is essential for the safety of patients that NO PERSON should operate, or work on, any part of an MGPS unless adequately trained or supervised.
- 6.2 A record of trained Authorised and Competent People is kept in the Estates & Facilities Department.
- 6.3 It is the duty of Departmental Managers to ensure that all staff working with the MGPS are appropriately trained and records held. The Authorised Person will ensure that training records of contractors are held in the contract file.
- 6.4 The Authorised Person (MGPS) may request training records of contractors' staff.
- 6.5 After the initial training is successfully completed there will be a need to retrain and reassess at regular intervals. The table below shows the recommended intervals

Personnel	Retraining	Re-assessment
Authorised Person	Every 3 years	Every 3 years
Competent Person	Every 3 years	Every 3 years
Designated Nursing Officer	Every 3 years	Every 3 years
Quality Controller	Every 5 years	Every 5 years
Designated Porter	Every year	Every year
General Nursing Staff	Every year	Currently not required

- 6.6 Course content and learning outcomes can be found in Health Technical Memorandum 02-01 (HTM 02-01): Medical Gas Pipeline Systems, Part B: Operational Management, Section 7 - Training and communications.
- 6.7 All training will be undertaken in accordance with the minimum requirements of the HTM 02-01: Part B: Section 7.
- 6.8 The names of suitably trained Designated People are given in **Appendix A** of this Operational Policy.

7.0 Governance

7.1 Reporting Structure



7.2 **Medical Gases Group**

7.2.1 The Medical Gases Group meets Quarterly or more often as required. Membership of the Group will comprise of departments that have a key role to play in delivery of gases to patients. Initially this will comprise of representatives of the following departments.

8.0 **Statutory Requirements**

8.1 It is the responsibility of the owners and occupiers of premises, general managers and chief executive, to ensure that their premises and the activities carried out within them comply with all statutes.

8.2 The following are the most important statutory requirements relevant to MGPS and current in May 2017. (Users must also check for more recent new publications or updates to those quoted here):

- Health and Safety at Work etc Act 1974
- Management of Health and Safety at Work Regulations 1999
- Workplace (Health, Safety and Welfare) Regulations 1992
- Provision and Use of Work Equipment Regulations 1998
- Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013
- Control of Substances Hazardous to Health (COSHH) Regulations 2002
- Pressure Systems Regulations 2000 and Transportable Gas Containers Regulations 1991
- Dangerous Substances and Explosive Atmospheres Regulations 2002 (DSEAR).
- Medicines Act 1968
- The Regulatory Reform (Fire Safety) Act 2005
- HTM 00

9.0 **Medical Gas Management.** Procedures detailing Medical Gas Management are provided in The Trust Medical Gases Operational Procedures document.

9.1 **Medical Gas Pipeline System Management.** It is the policy of MEHT that, with the knowledge and permission of the Authorised Person (MGPS) a Permit must be raised before any work can be undertaken in any part of the hospital's medical gas pipeline system. Exceptions are:

- Changing of manifold cylinders,
- Refilling of the VIE,
- New work,
- QC testing or
- Emergency isolation by a member of the Nursing staff

9.2 **Permit to work system**

9.2.1 The aim of the MGPS Permit to Work System is to safeguard the integrity of the medical gas system, and therefore the safety of the patients.

9.2.2 Granting of a Permit to Work and the way in which the work is carried out must follow the directions of HTM02-01, unless otherwise defined in this Policy.

- 9.2.3 Responsibilities for signing a Permit to Work for any planned work within wards, clinics or other departments lie with the Designated Nursing Officers in each Department.
- 9.2.4 Officers should ensure that colleagues are advised of the interruption to the gas supply and its estimated duration.

10.0 Cylinder Management

- 10.1 Details of Cylinder Management are included in Procedure P.10 of the Trust Medical Gas Pipeline Systems and Medical Gas Cylinders Operational Procedures document.
- 10.2 Ultimate responsibility for cylinder purchase, storage, distribution and general management lies with Pharmacy.
- 10.3 Responsibility for provision and maintenance of cylinder stores lies with Estates and Facilities.

NB: Location of flow meters / regulators

- Biomedical Engineering hold only a very small quantity of flow meters and regulators and so it is the responsibility of all wards and departments who use medical gas cylinders to ensure they have their own flow meters and regulators. It is also the responsibility of wards and departments to ensure their flow meters and regulators are tested as required by Biomedical Engineering. It is important to note that regulators usually have to be reconditioned after 4 years and on modern units this is labelled as such by the manufacturers.
- Information may be obtained from Biomedical Engineering regarding the purchasing of flow meters, regulators and Bodok seals.

11.0 Area Service Valve Unit (AVSUs) and Line Valve Assemblies (LVAs)

- 11.1 Details of Area Service Valve Unit (AVSUs) and Line Valve Assemblies (LVAs) are included in Procedure P.11 of the Trust Medical Gas Pipeline Systems and Medical Gas Cylinders Operational Procedures document.

12.0 Severe gas escape affecting ward area

- 12.1 Details of severe gas escape affecting clinical areas are included in Procedure P.12 of the Trust Medical Gas Pipeline Systems and Medical Gas Cylinders Operational Procedures document.

13.0 Severe gas escape on the internal MGPS network

- 13.1 Details of gas escape on the internal MGPS network are included in Procedure P.13 of the Trust Medical Gas Pipeline Systems and Medical Gas Cylinders Operational Procedures document.

14.0 Monitoring

- 14.1 The responsibility for monitoring specific aspects is delegated to the appropriate key personnel. It is the duty of the AP (MGPS) for the Trust to update the policy with respect to any of the changes outlined below, and notify all personnel involved with the MGPS.

- 14.2 The Medical Gases Group will report to the Medicine Optimisation and Medication Safety Group on a quarterly basis.
- 14.3 The Medical Gases Group will report to the Health and Safety Group by exception for medical gas safety issues.

Appendix A Designated People

Designated Role	Name	Job Title
Executive Manager	Clare Panniker	Trust Chief Executive Officer
Authorising Engineer (AE)	Richard Maycock	Medical Engineering Systems Limited
Authorised Person Retained Estate including St Peters (AP)	Alan Tooke	ATTS (UK) Ltd Contractor
Authorised Person Broomfield PFI (AP)	Colin White (CAP) Stefan Bush Stephen Brennan Kevin Lilley (Waiting Appoint)	Bouygues Managers & Supervisors
Authorised Person Braintree Community Hospital PFI (AP)	David Howard	GFM Contracts Manager
Competent Persons Retained Estate including St Peters (CP)	K&H Medical	Contractor
Competent Persons Broomfield PFI (CP)	Shift Engineers, D&L Medical	Bouygues Maintenance Technicians
Competent Persons Braintree Community Hospital (CP)	GFM	Contractor
Designated Medical Officer (DMO)	To be confirmed as part of Medical Gasses Group review	
Designated Nursing Officer (DNO)	To be confirmed as part of Medical Gasses Group review	
Designated Person (DP)	Andy Wright	Hotel Services Manager
Quality Controller (QC)	Richard Skidmore	Quality Control Pharmacist, Southend NHS
Quality Controller Bouygues PFI (QC)	Adam Jones & Paul Jones	Medical Gas Testing Services.