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**Authorising Engineer  
(Medical Gas Pipe Line Systems) Annual Report  
For  
Cardiff & Vale University Health Board**

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(Medical Gas Pipe Line Systems) Annual Report  
For  
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**NWSSP-SES Job No: WG/AE/002**

**Report Date: June 2022**

**Authorising Engineer: Christopher East BEng (Hons)**

**Designation: Senior Performance Standards Engineer**

**Signed:**  .....

**Authorised by: S. Russell BEng (Hons), CEng, MIET**

**Designation: Head of Engineering**

**Signed:**  .....

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## 1.0 EXECUTIVE SUMMARY

1.1 Generally, the overarching management of the Medical Gas Pipe Line Systems (MGPS) is poor with little improvement during 2021, with non-conformities include the lack of a MGPS group, policy, governance and limited Authorised Persons (APs') appointed. High level non-conformities are listed in section 6 and further non-conformities can be found in the individual site annual reports issued under separate cover.

1.2 This report and associated rating in table 1 below relates to the 2021 calendar year.

During the period since the last report there have been two assessments and one re-assessment, the health board is aware of the issues surrounding the management of the MGPS/AP provision and has invested in training additional staff.

To date three staff members are currently undergoing AE assessment, with one having been assessed and recommended for appointment. Additional staff members are undertaking site familiarisation in readiness for formal AE assessment. The health board are currently looking at providing additional training, support and mentoring from senior estate staff. The AE is working with the estates department and advising on a way forward.

1.3 The AE will provide further guidance to the health board following the assessment of the current AP nominees, and work with the estates department to help ensure suitable AP support, management and governance arrangements are put in place.

1.4 No MGPS yearly site audits have been completed for University Hospital of Wales or Llandough hospital since the last report.

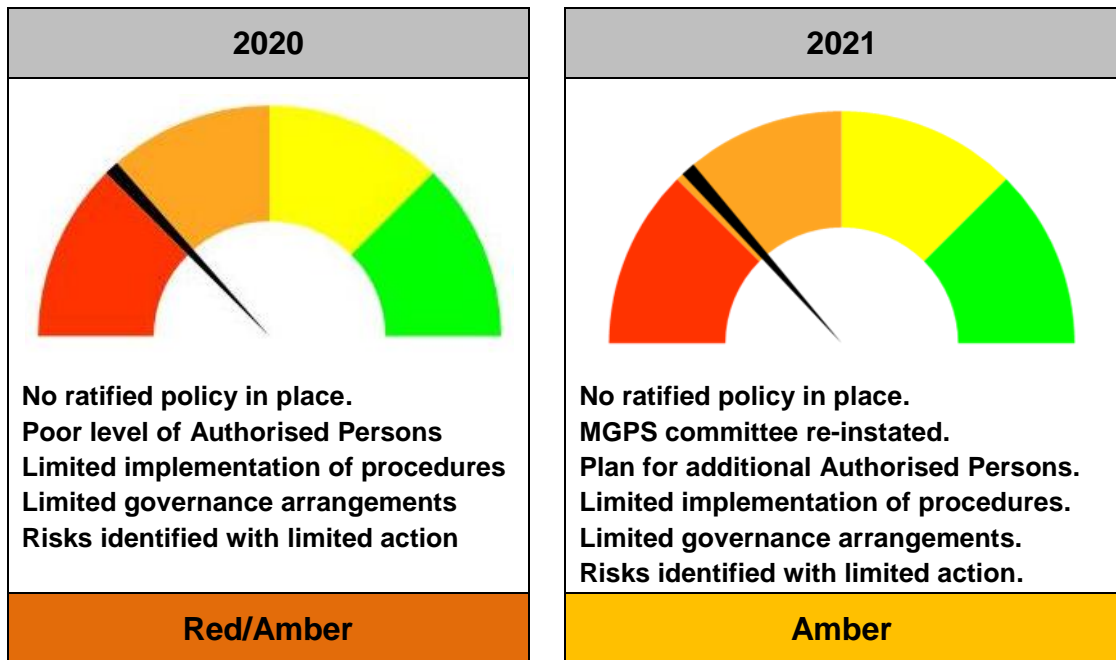
1.5 Rookwood hospital no longer has piped medical gasses.

1.6 Barry hospital has been added to the site assessment for the APs' based at Llandough hospital.

1.7 Compliance audits are carried out in a five-year cycle unless a shorter interval is requested by the health board.

1.8 In addition to the additional APs' being trained the health board has re-initiated its medical gas group, which will be crucial in providing policy development, governance and assurance.

1.9 Overall the Authorising Engineer (AE (MGPS)) has deemed the compliance rating to be Amber (Limited assurance), which compares with Red/Amber (No/Limited assurance) in the 2020 calendar year, as shown below in figure 1.



**Figure 1 Overall Compliance Rating**

## 2.0 BACKGROUND

- 2.1 The following report is a compliance review undertaken by the Authorising Engineer for Medical Gas Pipe Line Systems (AE (MGPS)) appointed by the Cardiff & Vale University Health Board (CVUHB).
- 2.2 This report is in accordance with the guidance set out in Welsh Health Technical Memorandum 00 - which stipulates the requirement for the Authorising Engineer to produce an annual audit (WHTM 00 Best practice guidance for healthcare engineering paragraph 3.15).
- 2.3 Healthcare organisations have a duty of care to patients, their workforce and the general public. This is to ensure that a safe and appropriate environment for healthcare is provided, which is a requirement identified in a wide range of legislation.
- 2.4 The role of the AE (MGPS) is detailed within HTM 02-01, which details the principle duties undertaken by the AE (MGPS) in relation to the Healthcare organisation's statutory duties, and with regard for their Medical Gas Pipe Line Systems.
- 2.5 The AE (MGPS) appointed by Cardiff & Vale University Health Board (CVUHB) is Mr Christopher East of NWSSP-SES, and his role as AE (MGPS) includes the following:
  - Acting as an independent professional adviser to the healthcare organisation on medical gas issues.
  - Act as an assessor and make recommendations for the appointment of Authorised Persons (AP).

- Monitor the performance of the management arrangements, during yearly site audits, and provide an overall annual report of the medical gas system to the Health Board Designated Person.
- At intervals of five years, the AE (MGPS) is to undertake comprehensive compliance surveys of the MGPS on all sites as recommended by HTM 02-01. A written report of the survey should be compiled, listing satisfactory items seen and any deficiencies found and recommendations made.

### 3.0 AUDITS OF SYSTEMS AND INSTALLATIONS

#### Operational management arrangements

- 3.1 The health board's Authorised Person's (Medical Gas Pipe Line Systems) AP (MGPS)) have the key operational responsibilities for this specialist service. Table 1 details the current APs' (MGPS) assessed by the AE (MGPS), and whether they have been appointed by the health board.

Authorised Person (MGPS)	Date of assessment	Re-assessment due	Appointed by the Health Board Y/N
University Hospital of Wales (UHW)			
Jeff Davies	May 2021	May 2024	Retiring March 2022
Llandough & Barry			
Norman Mitchell	May 2021	May 2024	Left HB March 2022
Jeff Davies	May 2021	May 2024	Retiring March 2022
Ian Fitsall	May 2022	May 2025	TBC
St David's Liquid Oxygen room			
Paul Sayer	June 2021	June 2024	TBC

**Table 1 – Details of Authorised Persons (MGPS)**

- 3.2 It can be seen in Table 1 above that there were two appointed APs' (MGPS) for the acute sites. Both APs' have now left the health board during March 2022, which is of great concern and leaves the health board vulnerable. There are however three assessments currently in progress, one for the UHW site and two for Llandough & Barry, with another AP passing assessment and awaiting appointment.
- 3.3 It is also recommended that senior/coordinating APs' be nominated and appointed to oversee the AP duties, with additional APs' trained and assessed for all sites.
- 3.4 The AE has also assessed Paul Sayer of M&M medical (MGPS specialist contractor) for AP duties (liquid Oxygen room only) at the St David's PFI site on behalf of C&V.
- 3.5 It is unclear if Paul Sayer has been formally appointed by the health board, to cover the Liquid oxygen room at St David's hospital.
- 3.6 The management and operational policy has been developed but currently not ratified by the health board. The policy is generally in accordance with HTM 02-01. The health board should also ensure the policy/procedure documents

are implemented in line with published documentation (e.g. SESN 20/19, WG SES EFA 2020 001 etc.).

- 3.7 There are currently no procedural documents for the MGPS systems.
- 3.8 The MGPS committee needs to be rationalised and developed to provide a suitable level of governance. There is a need to have the correct personnel at the committee meetings also.
- 3.9 There are no trained or appointed Designated Nursing/Medical (DNO/DMO) officers, or Designated Porters.

**Management arrangement & compliance audits**

- 3.10 Table 2 below provides details of hospitals within the health board in which management arrangement audits have been carried out since the last AE report.

Hospital	Date of management arrangement audits	Name of auditee
UHW	June 2019	Jeff Davies
Llandough	June 2019	Gareth Thomas

**Table 2 – Details of annual audits**

- 3.11 Generally, the site APs’ management of the Medical Gas Pipe Line Systems (MGPS) appears poor. The overarching management arrangements are also poor.
- 3.12 The maintenance schedules and associated paperwork for the works being carried out by the maintenance contractor during the period, need to be formalised and recorded.
- 3.13 Asset tagging of all items of MGPS plant and equipment is recommended, with full inventories constructed. This methodology will help ensure all consumable items of plant are changed in line with manufacturer’s guidance, and all items of plant changed in line with pressure regulations and insurance inspector’s recommendations.
- 3.14 Once an asset register is completed it is recommended that a full PPM review is carried out for all the MGPS assets, and a full list of maintenance requirements developed for all sites.
- 3.15 There are a number of non-conformities regarding the operational management of the MGPS which are detailed in the site reports and section six. In summary, the following non-conformities were common to all sites;
  - The health board does not currently have a ratified MGPS Operational Policy.
  - The health board MGPS committee needs to be developed with the correct personnel in attendance.
  - There are insufficient assessed and appointed MGPS APs’ for hospital sites as large as those within C&VUHB.

- 3.16 There does not appear to be any information on the St David's PFI site available, including copies of their audits or what policy they are working to.

### **Audit of Systems**

- 3.17 Table 3 provides details of hospitals within the health board that have had compliance audits carried out. It is the intention of the AE (MGPS) that compliance surveys will be undertaken every five years unless a shorter interval is requested by the health board.

HTM 02-01 states that guidance does not have to be applied retrospectively unless patient or staff safety would be compromised, and the existing installations should be assessed for compliance against the HTM and a plan for upgrading the existing systems should be prepared.

- 3.18 The AE has been informed that Rookwood hospital MGPS has been de-commissioned, and therefore removed from this report.

<b>Hospital</b>	<b>Date of next compliance audit</b>
UHW	2023
Llandough	2023
Barry	2023

**Table 3 – HTM 02-01 Compliance audits**

### **Medical Gas Committee**

- 3.15 Health Technical Memorandum (HTM) 02-01 Medical Gas Pipeline Systems (MGPS) highlights the importance of a functional MGPS committee/group in healthcare organisations (similar to the Water Safety Group in Health Technical Memorandum 04-01 on water safety). This is a multidisciplinary group responsible for ensuring that the management of all medical gas systems and safety issues are monitored, recorded and acted on in line with the relevant legislation and guidance. The group should report to the chief executive/designated person.
- 3.16 The old MGPS committee/groups composition was not correct, and has not met for a considerable time. The MGPS committee/group needs to be developed, with the correct personnel attending on a regular basis. The AE (MGPS) will attend the meetings regularly once re-established.

## **4.0 INDEPENDENT PROFESSIONAL ADVICE**

- 4.1 Independent advice has been provided by the AE (MGPS) to the health board during the period covered by this report. The advice was provided verbally or via e-mail and covered guidance on interpretation of the HTM or involving new medical gas installations on a number of subject matters, including:
- Oxygen provision, security and maintenance during Covid 19 pandemic.

## **5.0 INVESTIGATIONS OF ADVERSE INCIDENTS**

- 5.1 No adverse incidents on the MGPS systems were reported to the AE (MGPS) by the health board during this period.



5.2 SESN 21/23, 23<sup>rd</sup> December 2021, Interim protocol for decommissioning of Nitrous Oxide Manifolds.

## 6.0 RECOMMENDATIONS

6.1 Whilst the Designated Person should note the full content of this report and the site reports, it is recommended particular attention is given to addressing the following:

- Nominate for assessment and appoint coordinating/senior MGPS APs' and additional MGPS APs' to provide suitable cover, once suitable training and site familiarity is achieved.
- Ensure suitable AP support, management and governance arrangements are put in place.
- Produce an action plan to address the non-compliance issues highlighted in compliance reports produced by NWSSP-SES.
- Develop the MGPS committee and ensure relevant personnel are in attendance
- Ratify and implement an up-to-date MGPS Operational Policy and procedural documents.
- Emergency preparedness documents should also be developed to sit under the policy, with particular reference to oxygen alerts and pandemic responses.
- Determine St David's PFI operating procedures.
- Asset tagging of all items of MGPS plant and equipment is recommended, with full inventories/database constructed. This methodology will help ensure all consumable items of plant are changed in line with manufacturer's guidance, and all items of plant changed in line with pressure regulations and insurance inspector's recommendations.
- Once an asset register is completed it is recommended that a full PPM review is carried out for all the MGPS assets, and a full list of maintenance requirements developed for all sites to ensure correct checks, tests are programmed as per guidance tabled in HTM 02-01.
- Ensure that written schemes of examination are in place for those relevant to the MGPS under the terms of the Pressure Systems Safety Regulations 2000 an asset data base system for each site would help in this regard.
- Train and appoint sufficient Designated Nursing/Medical (DNO/DMO) officers, and Designated Porters.
- Ensure there is a training programme for all staff using medical gasses.
- Health board cylinder management requires improvement.

6.2 If the Designated Person or their representatives would like to discuss this report further, please contact the AE (MGPS) using the details below:

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