Managing the installation, refurbishment and commissioning of medical gas systems

Summary To ensure that relevant public health organisations and NSW Health agencies have robust management systems in place for managing the installation, refurbishment and commissioning of medical gas systems.

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Applies to Affiliated Health Organisations, Local Health Districts, Ministry of Health, Specialty Network Governed Statutory Health Corporations
Distributed to Ministry of Health, Public Health System
Audience Asset management; Engineering; Purchasing

Secretary, NSW Health
This Policy Directive may be varied, withdrawn or replaced at any time. Compliance with this directive is mandatory for NSW Health and is a condition of subsidy for public health organisations.
MANAGING THE INSTALLATION, REFURBISHMENT AND COMMISSIONING OF MEDICAL GAS SYSTEMS

PURPOSE

The purpose of this Policy Directive is to ensure that relevant public health organisations and NSW Health agencies have robust management systems in place for managing the installation, refurbishment and commissioning of medical gas systems by:

- raising awareness of and improving conformity with the applicable Australian Standard
- establishing additional testing procedure for new or refurbished medical gas systems and
- publicising new processes and requirements for engaging contractors for installation, testing and verification activities.

MANDATORY REQUIREMENTS

- **Management plan**: the health care facility must prepare and document an operational and risk management plan prior to the commencement of any medical gas system works.
- **Appointment of an installer**: the public health organisation, the NSW Health agency or the building contractor must appoint an experienced installer with responsibility for installation and testing of medical gas systems.
- **Testing, verification and certification**: the installer must undertake testing, verification and certification of the medical gas system in accordance with the Standard and this Policy Directive.
- **Witness testing**: a representative of the health care facility must witness the test in accordance with the Standard and this Policy Directive.

IMPLEMENTATION

- **Ministry of Health**: is responsible for implementation and currency of this Policy Directive.
- **Chief executives of relevant public health organisations and NSW Health agencies**: are responsible for assigning responsibility for implementing and complying with this Policy Directive and reporting on the implementation of this Policy Document as required.
- **Health care facility managers and relevant NSW Health agency managers**: are responsible for providing local implementation of this Policy Directive.

REVISION HISTORY

<table>
<thead>
<tr>
<th>Version</th>
<th>Approved by</th>
<th>Amendment notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>March 2017</td>
<td>Secretary</td>
<td>New policy [replacing a guide note dated September 2016]</td>
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ATTACHMENTS

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1 BACKGROUND

1.1 About this document

Medical gas pipelines are life support systems and their installation and testing carry particular hazards or risks. Australian Standard AS2896-2011 “Medical gas systems – Installation and testing of non-flammable medical gas pipeline systems” (Standard) requires certain procedures to be followed to avoid gas pipeline hazards.

The purpose of this Policy Directive is to ensure that relevant public health organisations and NSW Health agencies have robust management systems in place for managing the installation, refurbishment and commissioning of medical gas systems by:

- raising awareness of and improving conformity with the Standard
- establishing testing procedure for new or refurbished medical gas systems which are additional to the Standard and
- publicising new processes and requirements for engaging contractors for installation, testing and verification activities.

1.2 Key definitions

In this Policy Directive, “public health organisation” has the same meaning as it has in the Health Services Act 1997 (NSW).

1.3 Legal framework

The Standard sets out specifications and procedures which are designed to ensure that the medical gas systems are installed and tested safely, reliably and consistently.

This Policy Directive imposes requirements which are additional to the Standards when installing, refurbishing or commissioning medical gas systems in a health care facility.

The Standard and the additional requirements in this Policy Directive need to be incorporated into the contractual documentation with suppliers and applied by the health care facility and NSW Health agency managers.

1.4 Related documents

- NSW Health Engineering Services Guidelines: GL2016_020 and
- Health Infrastructure Design Guidance Note No.21, for projects managed by Health Infrastructure.

2 APPLICATION OF THIS POLICY DIRECTIVE

This Policy Directive applies to:

- any public health organisation and
- any NSW Health agency (such as Health Infrastructure),
engaged in the commissioning (construction, refurbishment or upgrade) of medical gas systems in a health care facility of a public health organisation. This includes additions to an existing system and associated repairs such as the replacement of wall outlets or panels.

This Policy Directive does not apply to maintenance activities for the purpose of determining that an outlet is operational (which do not verify that the correct gas is being emitted).

3 MANAGEMENT PLANNING BY THE HEALTH CARE FACILITY

As part of any planning, the health care facility must prepare and document an operational and risk management plan for the refurbishment or upgrade of a health care facility which involves medical gas systems. The management plan must refer to the Standard, identify roles and responsibilities of key health care facility individuals and include a risk assessment.

The risk assessment provides a structured approach to identify potential areas where problems may arise. The risk assessment considers the degree of likelihood and impact of the potential risks and the actions that can be put in place to reduce the likelihood of those risks. The risk assessment must:

- include a disruption plan or other contingency arrangements required to minimise or mitigate disruption to existing services
- allow sufficient time to complete the works and address any issues which may arise during the process
- determine the appropriate level of clinical involvement (if applicable) by the health care facility in accordance the below risk assessment tool
- determine whether the installer is required to appoint a separate person, who is not part of the installation team, who must conduct the certification required under the Standard in accordance with the below risk assessment tool and
- provide for a pre-works briefing prior to the commencement of any works to ensure that the work team is “on board” with the plan, which includes the Head of Department of Anaesthetics or delegate.

Risk Assessment Tool: medical gas installations, refurbishments and commissioning

<table>
<thead>
<tr>
<th>Risk</th>
<th>Risk level</th>
<th>Level of clinical involvement (witness testing)</th>
<th>Separation of installation from certification</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>Non-respirable gases (nitrous oxide and/or carbon dioxide) present</td>
<td>Head of Department of Anaesthetics or delegated anaesthetist</td>
<td>Separation required</td>
</tr>
<tr>
<td>Moderate</td>
<td>• Respirable gas (oxygen and/or air) only and • Any pipe is cut or any wall is penetrated</td>
<td>Delegate of the Head of Department of Anaesthetics who is a medical practitioner with experience in the use of the relevant gases</td>
<td>Separation required</td>
</tr>
</tbody>
</table>
Managing the Installation, Refurbishment and Commissioning of Medical Gas Systems

4 ENGAGEMENT OF INSTALLER

An installer should be engaged under the appropriate NSW Health or public health organisation contracting arrangements: a subcontract with the construction company; a written contract with the installer; or under a purchase order.

The contractual provisions of any such engagement must ensure that the installer:

✔ will comply with the contents of the Standard (which needs to be specified in the contract or agreement)

✔ undertakes that the installer has the necessary skills and experience to work on or build the medical gas pipeline system, including necessary test equipment and current calibration certificates and

✔ where required by this Policy Directive, will appoint a separate person, who is not part of the installation team, who must conduct the certification required under the Standard.

A template work order is included in this Policy Directive which can be used for the purpose of acquiring minor refurbishment activities under a purchase order.

5 WORK PLAN, INSTALLATION AND VALIDATION TESTING

Work plan: the installer is required to submit a work plan for approval [by the construction company, the public health organisation or the NSW Health agency that engages the installer] detailing how the installer will conduct and complete the project. The plan must:

✔ meet all requirements of the Standard and

✔ where required by this Policy Directive, identify or indicate that a person, who is separate from the installation team, will conduct the certification under the Standard.

Installation: the installer is to carry out works in accordance with the Standard.

Validation testing for construction projects only: where a building contractor has been appointed and the installer is engaged by the building contractor, the building contractor and the installer must undertake validation testing of medical gas systems in accordance with the Standard [prior to proceeding to testing, verification and certification].
6 TESTING, VERIFICATION AND CERTIFICATION

The installer must carry out tests and certify that the results of the tests are in accordance with the Standard.

**Verification and certification:** for any cross-connection testing and operational testing, the installer is required to conduct testing to verify that there is no cross-connection, the concentration of the medical gas is correct and there is no contamination. Cross-connection testing is generally carried out in conjunction with operational testing.

**Installer to appoint a separate person to conduct certification:** where required by this Policy Directive, the installer is to appoint a person, separate from the installation team, to conduct the certification. The certifier may be from the same company or organisation as the installer, but must not have been part of the installation team.

**Witness testing:** NSW Health requires all testing by the health care facility to be witnessed by the appropriate health care facility representative determined in accordance with this Policy Directive.

7 RECORDS AND CERTIFICATE OF COMPLIANCE

The installer is to provide the representative of the health care facility with the records and certificate of compliance in accordance with the Standard.

The public health organisation or the NSW Health agency must ensure that the records and certificate of compliance are retained for safekeeping in accordance with its asset management procedures.

8 LIST OF ATTACHMENTS

1. Work order using the NSW Health Purchase Order Standard Terms and Conditions
Attachment: Work order using the NSW Health Purchase Order Standard Terms and Conditions

Introduction: this is an example only of a work order for the purpose of NSW Health agencies ordering services from an independent person or company for an upgrade to an existing health care facility to introduce piped medical gases and which will be undertaken under a purchase order arrangement. It is only applicable for low-value arrangements. Advice should be sought where there is doubt about using this work order.

[Company name]
[Address]

Dear [insert details]

Work order: the purpose of this work order is to set out the details of the services which the company (Supplier) agrees to supply to [insert name of NSW Health agency] at [insert name of health care facility] under a NSW Health purchase order.

Description of work and pricing:

<table>
<thead>
<tr>
<th>Description</th>
<th>Milestone completion date</th>
<th>Specifications</th>
<th>Price (excluding GST)</th>
</tr>
</thead>
<tbody>
<tr>
<td>[installation]</td>
<td>[insert dates]</td>
<td>[if applicable, insert or annex detailed statement of services]</td>
<td>[insert service fee eg fixed fee/daily rate/per hour]</td>
</tr>
<tr>
<td>[testing and certification]</td>
<td>[insert dates]</td>
<td>[if applicable, insert or annex detailed statement of services]</td>
<td>[insert service fee eg fixed fee/daily rate/per hour]</td>
</tr>
</tbody>
</table>

Standards of performance: the Supplier is provided with a copy of the NSW Health Policy Directive for testing and certification of medical gas systems [February 2017] (attached). As part of this, the Supplier is required to acknowledge and agree that it:

- will comply with Australian Standard AS2896-2011 “Medical gas systems – Installation and testing of non-flammable medical gas pipeline systems” [as amended or varied from time to time]

- has the necessary skills and experience to work on or build the medical gas pipeline system, including all necessary test equipment and current calibration certificates and

- will submit a work plan to us for approval prior to the commencement of any work which is consistent with the Policy Directive, including (where applicable under the
Policy Directive) the requirement for a separate person, who is not part of the installation team, to undertake the certification in accordance with the Standard.

**Acceptance:** acceptance of this work order is subject to us issuing a purchase order to the Supplier which incorporates the terms and conditions set out in the NSW Health Purchase Order Terms and Conditions (attached).

Please indicate acceptance by the Supplier to this work order by signing and returning a copy of this work order to us. Upon acceptance, we will issue the purchase order to the Supplier and be in contact to confirm the arrangements to provide the services.

Please contact [insert name and contact details] should you have any questions.

Yours sincerely

[insert name of authorised officer]
[insert date]

**Sign and date this work order, keep a copy for your records and return it to our contact person identified above.**

Supplier Name: ............................................................................
ABN/ACN ...........................................................................................
Supplier address ..............................................................................
Signed for and on behalf of Supplier (authorised representative) ..............................................................................
Print name: ........................................................................................
Date: .................................................................................................