AMENDED
January 6, 2020

Department of Veterans Affairs
Veterans Health Administration
Washington, DC 20420

VHA DIRECTIVE 7515(1)
Transmittal Sheet
September 27, 2019

MEDICAL GAS AND VACUUM SYSTEMS

1. REASON FOR ISSUE: This Veterans Health Administration (VHA) directive establishes policy for the Department of Veterans Affairs (VA) regarding the safe installation, operation, and maintenance of Medical Gas and Vacuum Systems at VA medical facilities.

2. SUMMARY OF MAJOR CHANGES: This directive updates policy to include requirements for Medical Gas and Vacuum Systems, and responsibilities of VA medical facility staff in their operations, testing, and maintenance. This directive contains an amendment, dated January 6, 2020, to clarify National Fire Protection Association references and to clarify master alarm panel requirements in paragraph 5.g.(6).

3. RELATED ISSUES: None.

4. RESPONSIBLE OFFICE: The Director, Office of Capital Asset Management, Engineering and Support (10NA5), is responsible for the contents of this directive. Questions may be addressed to 202-632-8571.

5. RESCISSIONS: VHA Directive 2005-028, Oxygen Distribution Systems, dated June 24, 2005, is rescinded.

6. RECERTIFICATION: This VHA directive is scheduled for recertification on or before the last working day of September 2024. This VHA directive will continue to serve as national VHA policy until it is recertified or rescinded.

BY DIRECTION OF THE OFFICE OF THE UNDER SECRETARY FOR HEALTH:

/s/ Renee Oshinski
Acting Deputy Under Secretary for Health for Operations and Management

NOTE: *All references herein to VA and VHA documents incorporate by reference subsequent VA and VHA documents on the same or similar subject matter.*

DISTRIBUTION: Emailed to the VHA Publication Distribution List on October 1, 2019.

CONTENTS

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1. PURPOSE

This Veterans Health Administration (VHA) directive establishes policy for the Department of Veterans Affairs (VA) regarding the safe installation, operation, and maintenance of Medical Gas (as defined in National Fire Protection Association (NFPA) 99 – Healthcare Facilities Code), and vacuum utility systems at VA medical facilities. **AUTHORITY:** Title 38 United States Code (U.S.C.) 7301(b).

2. BACKGROUND

VHA has adopted NFPA 99 - Healthcare Facilities Code (hereafter "NFPA 99") for the design, installation, operation, and maintenance of Medical Gas systems at VA medical facilities. Incidents involving piped Medical Gas systems that supply oxygen, compressed air, carbon dioxide, nitrous oxide, nitrogen, and medical vacuum present an inherent risk of patient or staff injury or death. The criticality of these systems mandate that each VA medical facility develops plans and procedures for their installation, maintenance, and management.

3. DEFINITIONS

a. **Medical Gas and Vacuum Systems.** Medical Gas and Vacuum Systems store, generate, and supply oxygen, compressed air, carbon dioxide, nitrous oxide, vacuum and nitrogen to patient care areas.

b. **Qualified Staff.** Qualified staff members are individuals trained in the installation, maintenance, and testing of Medical Gas and Vacuum Systems as required by NFPA 99.

c. **Qualified Third Party.** A qualified third party is a vendor certified in American Society of Sanitary Engineering (ASSE) 6010 for system installations, ASSE 6020 for system inspections, ASSE 6030 for systems verifier, and ASSE 6040 systems maintenance whichever is applicable to the work the vendor is contracted to execute. ***NOTE:*** *Detailed information about these certifications can be found at ASSE International, Personnel Certification (http://www.asse-plumbing.org/personnel-certification/about-our-program/).*

4. POLICY

It is VHA policy that Medical Gas and Vacuum Systems are designed, installed, operated, and maintained safely as required by NFPA 99, Federal and other relevant standards and codes to minimize risk to patients, staff, and visitors.

5. RESPONSIBILITIES

a. **Under Secretary for Health.** The Under Secretary for Health is responsible for ensuring overall VHA compliance with this directive.

b. **Deputy Under Secretary for Health for Operations and Management.** The Deputy Under Secretary for Health for Operations and Management is responsible for:

(1) Communicating the contents of this directive to each of the Veterans Integrated Service Networks (VISNs).

(2) Ensuring that each VISN Director has the sufficient resources to implement this directive in all VA medical facilities within that VISN.

(3) Providing oversight of VISNs to assure compliance with this directive, relevant standards, and applicable regulations.

c. **Director, Office of Capital Asset Management, Engineering and Support.** The Director, Office of Capital Asset and Management, Engineering and Support is responsible for:

(1) Communicating the contents of this directive to each of the VISN Directors.

(2) Providing programmatic guidance to VISN Directors and VA medical facilities regarding the contents of this directive.

(3) Reviewing annual VISN reports concerning compliance with NFPA requirements by VA medical facilities within that VISN when exceptions are reported. Noncompliance audits are by exception in the event of:

(a) Negative findings from annual VISN inspection and testing reports;

(b) VISN Director concerns; or

(c) VA medical facility Director concerns.

d. **Veterans Integrated Service Network Director.** The VISN Director is responsible for:

(1) Overseeing a VISN Medical Gas program that ensures each VA medical facility meets the requirements of this directive.

(2) Ensuring that appropriate resources are provided to the VA medical facilities to ensure compliance with this directive.

(3) Ensuring notification of exceptions in compliance to the Director, Office of Capital Asset Management, Engineering and Support demonstrating that VA medical facilities perform the required inspections and testing upon installation as defined in NFPA 99.

e. **VA Medical Facility Director.** The VA medical facility Director is responsible for:

(1) Ensuring that appropriate resources are provided to ensure compliance with this directive.

(2) Ensuring that the VA medical facility manager or facility engineering manager has a current Medical Gas and Vacuum Systems Policy and Management Plan that addresses the requirements of NFPA 99 and Appendix A.

(3) Assigning qualified staff to manage receipt and verification of liquid oxygen.

(4) Assigning qualified personnel to attend the master control panel on a 24 hour a day, 7 days a week basis.

(5) An annual report demonstrating inspection and testing compliance within NFPA standards must be delivered to the VISN Director.

f. **VA Medical Facility Manager or Facility Engineering Manager.** The VA medical facility Manager or Engineering Manager reports up to the VA medical facility Director and is responsible for:

(1) Ensuring that the VA medical facility Medical Gas and Vacuum Systems Policy and Management Plan is current and implements and addresses the requirements of NFPA 99 –and this directive.

(2) Ensuring that all design, installation, operation, testing, and maintenance of Medical Gas and Vacuum Systems comply with the requirements of the most current edition of NFPA 99 and this directive.

(3) Ensuring an annual risk assessment is conducted for Medical Gas and Vacuum Systems to establish minimum system requirements and plans for backup such as supply, storage, and implementation. Annual risk assessments are kept at the Environmental Care Committee level and are not required to be reported to their respective VISN.

(4) Ensuring that all Medical Gas and vacuum distribution and alarm systems are inspected, tested, and documented by a qualified, third-party contractor annually for compliance with NFPA 99. The VA medical facility Manager or Engineering Manager is responsible for contracting a qualified, third party, certified in Medical Gas Systems, according to ASSE standards. ***NOTE:*** *See paragraph 8, References, for more information on ASSE standards.*

(5) Assigning qualified staff to manage all components of the Medical Gas and vacuum utility systems.

(6) Ensuring that there are two or more independent, master alarm panels for the Medical Gas systems. Two master alarm panels must be in a constantly attended area and monitored 24 hours a day, 7 days a week. One master alarm panel must be located

in the office or work space of the designated on-site individual responsible for the maintenance of the Medical Gas and Vacuum Systems (this must be a third panel if the office or work space of that individual is not constantly attended 24 hours a day, 7 days a week).

(7) Ensuring that piped Oxygen, Medical Air and Vacuum systems are equipped with an emergency backup connection and emergency power connection on the outside of the building arranged to accommodate temporary equipment to support the hospital in the event of a Medical Gas system failure.

(8) Ensuring that required maintenance and repair associated with testing is performed by qualified individuals, reviewed, and documented.

g. **Qualified Staff.** Qualified staff, as designated by the VA medical facility Director or the Facility or Engineering Manager, are responsible for:

(1) Liquid bulk Oxygen delivery and monitoring:

(a) Being present and monitoring the re-filling of the main and backup oxygen tanks.

(b) Prior to unloading commencing, verifying that the product being delivered meets the specification of medical oxygen, and documenting this verification in accordance with VA medical facility procedures determined by the VA medical facility Director or Facility/Engineering Manager.

(c) Verifying quantity delivered versus quantity indicated on the receiving slip and documenting this verification in accordance with VA medical facility procedures determined by the VA medical facility Director or Facility/Engineering Manager.

(d) Monitoring the unloading of liquid oxygen to confirm level of tank, that area is secure upon completion, and that no alarms are active.

(e) Verifying and documenting primary and backup oxygen tank levels at the tanks daily.

(2) Medical Gas and vacuum system design:

(a) Reviewing the design and installation of Medical Gas and Vacuum Systems for compliance with the requirements of NFPA 99.

(b) Verifying the testing and certification of installed systems and components performed by a qualified, third party as required by NFPA 99.

(3) Medical Gas and vacuum system maintenance and testing:

(a) Ensuring a qualified third party is retained to test, inspect, and repair Medical Gas and Vacuum Systems as required by NFPA 99.

(b) Retaining documentation on testing and corrective actions related to testing and inspection.

6. TRAINING

Staff members assigned responsibility for oversight of a Medical Gas and vacuum system must receive training from a qualified third party or approved program such as Employee Education System every 3 years or upon changes to NFPA 99 whichever comes first to ensure and understanding of the requirements of their assigned duties.

7. RECORDS MANAGEMENT

All records regardless of format (paper, electronic, electronic systems) created in the requirements of this directive shall be managed per the National Archives and Records Administration (NARA) approved records schedules found in VA Records Control Schedule 10-1. Questions regarding any aspect of records management should be referred to the appropriate Records Manager or Records Liaison.

8. REFERENCES

a. American Society of Sanitary Engineering (ASSE) available at: http://www.asse-plumbing.org/asse/standards/pq/current-standards.

b. National Fire Protection Association Standard 99, Health Care Facilities Code, available at:
http://vaww.ceosh.med.va.gov/01CS/Pages/ASSE_Membership_Warning.shtml.
NOTE: *This is an internal VA Web site that is not available to the public.*

c. National Fire Protection Association Standard 50, Bulk Oxygen Systems at Consumer Sites.

d. National Fire Protection Association Standard 55, Compressed Gases and Cryogenic Fluids Code.

MEDICAL GAS AND VACUUM POLICY AND PLAN

The following minimum requirements must be addressed in the VA medical facility's Medical Gas and vacuum Policy and Plan:

a. Address all items and specific staff responsibilities by assigning specific staff to actions and tasks defined above.

b. A description of all systems and a list of all equipment and instrumentation that support the Medical Gas and Vacuum Systems, complete with a unique equipment number and details on its capability and capacity.

c. A risk assessment must be conducted for Medical Gas and Vacuum Systems to establish minimum system requirements and plans for backup such as supply, storage and execution. For example, the number of portable oxygen cylinders and regulators that must be available for use in the event of total oxygen utility system failure.

d. A Medical Gas and vacuum utility failure process that includes notification, response to, and recovery plans for any part of the Medical Gas and vacuum system that is determined to have failed or be non-compliant with this policy.

e. A utility shutdown policy as part of the Utility Management Plan that addresses Medical Gas and Vacuum Systems to ensure appropriate safeguards are in place in the event of planned and unplanned shutdown.

f. Process/policy that defines frequency, performance, documentation, and quality control of Medical Gas and vacuum system operation, maintenance, and testing. Records must be retained for a minimum of 3 years and must have documented quality control review and comment.

(1) Cross connection verification of 10 percent of the existing outlets annually. Testing cannot be repeated on an outlet until all outlets in the hospital have been tested once. Additionally, testing of newly installed outlets must not supersede the testing of existing outlets.

(2) Purity verification at 10 percent of the existing outlets annually.