

June 24, 2005

OXYGEN DISTRIBUTION SYSTEMS

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 the oxygen utility system at VHA facilities.

2. BACKGROUND

a. VA and the Joint Commission on the Accreditation of Healthcare Organizations (JCAHO) have adopted the National Fire Protection Associations (NFPA) 99 Standard for Healthcare Facilities as the basis for the requirements of the design, installation, operation, and maintenance of oxygen utility systems at all VA facilities.

b. JCAHO's Environment of Care standards require written Utility Systems Operational Plans. The Oxygen Utility Operational Plan must assure reliability, control risks, minimize failures, and require training of users and operators of oxygen distribution systems.

c. VHA has experienced untoward events in the recent past involving the loss of use of the bulk liquid oxygen utility systems. These incidents were investigated to determine the causes, contributing factors, and necessary corrective actions. A Patient Safety Alert, dated April 5, 2004, specified required corrective actions.

d. An oxygen distribution system includes the service point of delivery, such as bulk oxygen storage tanks and all built-in piping, cylinders (backup, stationary), manifolds, valves, reserve quantities of oxygen, and end of delivery points in patient care areas in accordance with the latest editions of NFPA Standards 50 and 99. It does not include portable oxygen cylinders.

e. VHA has a national contract for the delivery of bulk oxygen.

3. POLICY: It is VHA Policy that oxygen distribution systems must operate in a safe and economical manner consistent with their critical importance to patient safety.

4. ACTION

a. **Network Directors.** Network Directors are responsible for:

(1) A management system that ensures each facility meets or exceeds the requirements of this Directive.

(2) Ensuring that appropriate resources are provided to ensure compliance with this Directive.

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b. **Facility Directors.** Facility Directors are responsible for:

(1) Ensuring that the requirements of this Directive are fully implemented.

(2) Ensuring that installation, operation, and maintenance of the oxygen distribution system is performed in such a manner as to minimize risk to patients, staff, and facilities.

(3) Ensuring that appropriate resources are provided in order to comply with this Directive.

(4) Using qualified senior staff to ensure that all components of the Oxygen Utility System are designed, installed, and maintained in accordance with VHA, JCAHO, and NFPA requirements at the time of installation, and that all system components function properly. Major changes and upgrades to these systems must meet current code requirements.

(5) Developing and implementing, using qualified senior staff at each medical center, an Oxygen Operational Plan that meets or exceeds VHA, JCAHO, and NFPA 99 requirements.

(6) Ensuring the following minimum requirements for the oxygen distribution system are implemented:

(a) Oxygen distribution system alarms are required for the main and reserve bulk oxygen tanks and each must be set to annunciate when there is at least an average 1-day supply of oxygen remaining.

(b) There must be two independent, master alarm panels for the oxygen distribution system. The oxygen master alarm panels must be located in a supervised area and monitored 24 hours a day, 7 days a week. Each annunciation point must be tested to ensure the proper annunciation, and testing must be documented.

(c) If any part of the oxygen distribution system is found to be non-compliant with subparagraphs 4b(6)(a) and 4b(6)(b), the Medical Center must publish, over the Director's signature, a comprehensive Interim Life Safety Measure (ILSM) that fully addresses the non-compliant condition. The ILSM must remain in effect until the non-compliant condition is corrected. Appropriate staff must be trained on the ILSM, and training must be documented.

(d) All oxygen distribution systems must use a qualified external expert to conduct and document NFPA-99 Code compliant alarm-set point verification annually.

(e) The oxygen delivery schedule must ensure maintenance of adequate supplies so that alarm conditions are not triggered with unmanageable frequency.

(f) Qualified VHA technical staff must monitor the tank re-filling. Qualified individuals are staff trained to initiate a response to emergent conditions related to the oxygen distribution system.

(g) Each medical center must conduct a risk assessment to determine the number of portable oxygen cylinders and regulators that must be available for deployment at the point of health care delivery in the event of total Oxygen Utility System failure.

(h) Each medical center must have a utility shutdown policy that ensures appropriate safeguards are in place in the event of unplanned utility shutdowns.

5. REFERENCES

a. National Fire Protection Association Standard 99, Health Care Facilities Chapter 5 (2002 or later editions).

b. JCAHO Environment of Care Standards 7.10 through EC 7.50 Utility Systems Standards.

c. National Fire Protection Association Standard 50, Bulk Oxygen Systems at Consumer Sites (2001 or later edition).

6. FOLLOW-UP RESPONSIBILITIES: The Director, Safety and Technical Services Office (10NB) is responsible for the content of this Directive. Questions may be addressed to 202-273-5880.

7. RESCISSIONS: None. This VHA Directive expires June 30, 2010.

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