

NEW YORK CITY FIRE DEPARTMENT

Notice of Public Hearing and Opportunity to Comment on Proposed Rule

What are we proposing? The Fire Department is proposing a rule setting forth requirements and procedures for the removal of lubricating oil from ammonia refrigerating systems that contain more than 200 pounds (approximately 35 gallons) of refrigerant.

When and where is the hearing? The Fire Department will hold a public hearing on the proposed rule. The public hearing will take place at 11:00 a.m. on Monday, June 13, 2016. The hearing will be in the Fire Department Auditorium at 9 MetroTech Center, Brooklyn, NY 11201.

How do I comment on the proposed rule? Anyone can comment on the proposed rules by:

- **Website.** You can submit comments to the Fire Department through the NYC rules Web site at <http://rules.cityofnewyork.us>, or through the Fire Department's Web site at www.nyc.gov/fdny using the "FDNY Rule" link.
- **Mail.** You can mail written comments to Code Development Unit, Bureau of Fire Prevention, New York City Fire Department, 9 MetroTech Center, Room 3E2, Brooklyn, NY 11201.
- **Speaking at the hearing.** Anyone who wants to comment on the proposed rule at the public hearing must sign up to speak at the hearing. The time that you can speak may be limited.

Is there a deadline to submit written comments? Yes, you must submit written comments by Monday, June 13, 2016.

Do you need assistance to participate in the hearing? You must notify the Bureau of Fire Prevention if you need a sign language interpreter or other reasonable accommodation for a disability at the hearing. Write to us at the address above or telephone us at (718) 999-2042. You must notify us by Friday, May 27, 2016.

Can I review the comments made on the proposed rule? You can review the comments made online on the proposed rules by going to the website at <http://rules.cityofnewyork.us>. A few days after the hearing, a record of the hearing and copies of the written comments will be available to the public at the Bureau of Fire Prevention.

What authorizes the Fire Department to make this rule? Sections 489 and 1043 of the New York City Charter, and Sections FC102.6.3 and FC606 of the New York City Fire Code (Title 29 of Administrative Code of the City of New York) authorize the Fire Department to propose this rule.

Where can I find the Fire Department rules? The Fire Department rules are codified in Title 3 of the Rules of the City of New York.

What rules govern the rulemaking process? The Fire Department must meet the requirements of Section 1043 of the New York City Charter when creating or changing rules. This notice is made according to the requirements of Section 1043(b) of the New York City Charter. This rule was not included in FDNY's rulemaking agenda because the need for it was not anticipated.

Statement of Basis and Purpose of Proposed Rule

The Fire Code regulates the manufacturing, storage, handling, use and transportation of hazardous materials in New York City. This includes ammonia, a corrosive liquid.

Ammonia in its pure (anhydrous) form (100% concentration) is used as a refrigerant in a limited number of applications, typically large industrial refrigerating systems. In New York City, 120 to 420 gallons of ammonia circulate under pressure in each ammonia refrigerating system. By way of comparison, common household bleach has a concentration of only 5 to 10 percent ammonia.

The accidental release of such highly concentrated ammonia from such refrigerating systems can pose a public safety threat. Exposure to ammonia can result in severe skin burns and eye damage and, if inhaled, can cause severe lung injury and asphyxiation. Ammonia also has flammable properties. A spark can ignite concentrated ammonia vapors.

The risk of release from ammonia refrigerating systems and other closed systems is generally low. Modern equipment includes various safeguards to prevent accidental refrigerant release. However, recent events in Brooklyn's Prospect Park have revealed a vulnerability in ammonia refrigerating systems when lubricating oil must be manually removed.

Lubricating oil is used in ammonia refrigerating systems to ensure the proper operation of their mechanical components. Spent lubricating oil collects at various locations in the system and must be removed. Some ammonia refrigerating systems are equipped with automatic removal systems that separate the spent lubricating oil from the ammonia refrigerant and remove it from the system. Such automatic separation and removal prevents accidental refrigerant release.

In other refrigerating systems, the spent lubricating oil is not separated from the refrigerant and must be manually removed from the refrigerant system, in some systems through a simple valve. If the valve is not immediately shut after the spent lubricating oil is removed, ammonia refrigerant is released. If there is a problem shutting the valve, the ammonia refrigerant will continue to be released and in a short time endanger the maintenance or servicing personnel. Such a release occurred in connection with the maintenance of the ammonia refrigerating system serving Prospect Park's ice skating rink. Fortunately, it occurred when the ice rink was not open to the public and the park was lightly occupied so there were no injuries, but a strong odor of ammonia was detected at a considerable distance from the facility.

A simple remedy, which has been adopted by the latest industry standard, can prevent this scenario: installing two valves in sequence, one self-closing. Personnel performing manual removal of the lubricating oil must continuously hold open the self-closing valve by squeezing the valve. As soon as the self-closing valve is released, it shuts and prevents any further release of lubricating oil or ammonia refrigerant. The main valve can then be closed in a calm, controlled manner.

To address the risk of refrigerant release from ammonia refrigerating systems, the Fire Department proposes a new rule, 3 RCNY 606-01, which would establish requirements and procedures for the removal of lubricating oil from such systems.

Specifically, the proposed rule would require:

- regular servicing for ammonia refrigerating systems that automatically remove the lubricating oil;
- basic safety procedures for ammonia refrigerating systems that require manual removal of lubricating oil and are equipped with dual valves, one self-closing;
- additional safeguards for removal of lubricating oil from ammonia refrigerating systems equipped with a simple valve, including:
 - a second Fire Department-certificated person to monitor the removal (the Fire Department encourages the presence of a second person in all oil removal operations);
 - conducting the oil removal process outside of regular business hours; and
 - notifying the Fire Department; and
- recordkeeping, including documenting the periodic servicing of ammonia refrigerating systems and all removals of lubricating oil from such systems.

The proposed rule is underlined, indicating that it is an entirely new rule.

“Shall” and “must” denote mandatory requirements and may be used interchangeably in the rules of this department, unless otherwise specified or unless the context clearly indicates otherwise.

Guidance with respect to the interpretation of the Fire Code and Fire Department rules may be obtained using the Public Inquiry Form on the Fire Department’s website, <http://www1.nyc.gov/site/fdny/about/resources/code-and-rules/nyc-fire-code.page>.

Section 1. Chapter 6 of Title 3 of the Rules of the City of New York is proposed to be amended by adding a new §606-01, to read as follows:

§ 606-01 Removal of Lubricating Oil from Ammonia Refrigerating Systems

- (a) Scope. This section sets forth requirements and procedures for the removal of lubricating oil from refrigerating systems that use more than 200 pounds of ammonia as a refrigerant, referred to in this section as “ammonia refrigerating systems.”

(b) General Provisions

- (1) The design, installation, operation and maintenance of ammonia refrigerating systems shall comply with the requirements of FC606 and Chapter 11 of the Mechanical Code.
- (2) Alteration of ammonia refrigerating systems shall be performed in accordance with applicable provisions of the Construction Codes.
- (3) Operators of ammonia refrigerating systems containing 500 or more pounds of ammonia shall develop and maintain a risk management plan in compliance with Administrative Code §24-718 and Department of Environmental Protection rules, as set forth in 15 RCNY Chapter 41. In accordance with those provisions, the risk management plan shall address whether the written procedure required by R606-01(d)(2) for manual removal of lubricating oil mitigates the risk of accidental refrigerant release.

(c) Supervision Requirements

- (1) Operating engineer requirement. An ammonia refrigerating system shall be under the personal supervision of a person holding a certificate of qualification at all times while the system is in operation when required by FC606.1.1.
- (2) Lubricating oil removal operations
 - (A) Automatic removal system. An ammonia refrigerating system equipped to remove lubricating oil from system piping and equipment by means of a rigid-piped automatic oil return or transfer system does not require manual removal of lubricating oil. If for any reason lubricating oil is manually removed from such a system, the removal process shall be conducted in accordance with R606-01(c)(2)(B) and (d)(2).
 - (B) Manual removal from system. The manual removal of lubricating oil from an ammonia refrigerating system that allows such oil to collect in system piping and equipment outside of the compressor shall be conducted in accordance with the following procedures:
 - (1) If the ammonia refrigerating system is equipped with dual shut-off valves in series, the second valve in the direction of flow from the system is a self-closing valve that closes upon release of manual pressure or other approved automatic shut-off device, and the oil is removed from the system through such valves, the oil removal process shall be personally conducted by at least one certificate of qualification holder who has been trained in the written oil removal procedure required by R606-01(d)(2). Absent an imminent threat to life or safety, such certificate of qualification

holder shall not leave the removal process unattended while it is ongoing.

- (2) If the ammonia refrigerating system is not equipped with such dual shut-off valves, the oil removal process shall be personally conducted by a certificate of qualification holder who has been trained in the written oil removal procedure required by R606-01(d)(2). A second certificate of qualification holder trained in such procedure shall monitor the oil removal process from a location in direct line of sight of the removal process, with ready access to a means of egress to the outdoors. Absent an imminent threat to life or safety, neither certificate of qualification holder may leave the oil removal process unattended while it is ongoing.

(d) Operational Requirements

- (1) Automatic removal systems. An ammonia refrigerating system equipped to remove lubricating oil from system piping and equipment by means of a rigid-piped automatic oil return or transfer system shall be periodically serviced in accordance with the manufacturer's instructions and applicable industry standards, including International Institute of Ammonia Refrigeration (IIAR) Standard 2 (2014 edition) (entitled "Equipment, Design, and Installation of Closed-Circuit Ammonia Mechanical Refrigerating Systems"), to ensure that the automatic removal system is maintained in good working order.
- (2) Manual removal from system. A written procedure developed by a trained and knowledgeable person and detailing a step-by-step process for the manual removal of lubricating oil from an ammonia refrigerating system (including piping and equipment) requiring such removal shall be maintained on the premises. The procedure shall specifically address the design and operation of the particular type of ammonia refrigerating system and the type of drain at each drain point on such system. To the extent feasible, the procedure shall incorporate all safety precautions recommended by the manufacturer and applicable industry standards, including IIAR Standard 2 (2014 edition). At a minimum, such procedure shall include the following requirements:
- (A) Each certificate of qualification holder participating in the oil removal process shall, prior to conducting such process, be trained by a person trained and knowledgeable in removal of lubricating oil from ammonia refrigerating systems, and retrained whenever the certificate of qualification holder has not participated in a manual oil removal process in the prior three (3) months; and
- (B) Each certificate of qualification holder participating in the oil removal process shall be provided with and use all safety and personal protective equipment required to safely conduct such process, including equipment

required by United States Occupational Safety and Health Administration regulations; and

(C) If a single *certificate of qualification* holder is required by R606-01(c)(2), a telephone not requiring a coin to operate shall be immediately available to ensure immediate notification to the *Department* in the event of an emergency; or

(D) If two (2) *certificate of qualification* holders are required by R606-01(c)(2):

(1) each *certificate of qualification* holder shall be equipped with a portable two-way radio or other *approved* means of communication between the two, and a telephone not requiring a coin to operate shall be immediately available to the *certificate of qualification* holder monitoring the oil removal process to ensure immediate notification to the *Department* in the event of an emergency. In the event of an emergency, the *certificate of qualification* holder monitoring the oil removal process shall make the required notification to the *Department* prior to rendering assistance;

(2) the oil removal process shall not be conducted at any time when the *premises* associated with the ammonia *refrigerating system* are occupied (including occupancy by other employees) or open for business; and

(3) notification shall be made to the *Department* not less than one (1) hour but not more than two (2) hours prior to commencement of the oil removal process.

(e) Recordkeeping Requirements

(1) A *certificate of qualification* holder responsible for supervision of the operation of an ammonia *refrigerating system* shall document the periodic servicing of such *refrigerating system*, by making appropriate entries in the *refrigerating system* operator logbook required by FC606.1.3. Such entries shall include the names and company affiliations of the persons who serviced the system; the names and *certificate of qualification* numbers of the *certificate of qualification* holders who conducted and/or monitored the oil removal process; and any notifications to the *Department* pursuant to R606-01(d)(2)(D)(3).

(2) The *certificate of qualification* holder responsible for supervision of the operation of an ammonia *refrigerating system* shall document the training of all persons involved in the manual removal of lubricating oil from such system.

(3) Such records shall be maintained in accordance with FC107.7.

606-01 (5/3/16)

**NEW YORK CITY LAW DEPARTMENT
DIVISION OF LEGAL COUNSEL
100 CHURCH STREET
NEW YORK, NY 10007
212-356-4028**

**CERTIFICATION PURSUANT TO
CHARTER §1043(d)**

RULE TITLE: Removal of Lubricating Oil from Ammonia Refrigerating Systems

REFERENCE NUMBER: 2016 RG 031

RULEMAKING AGENCY: New York City Fire Department

I certify that this office has reviewed the above-referenced proposed rule as required by section 1043(d) of the New York City Charter, and that the above-referenced proposed rule:

- (i) is drafted so as to accomplish the purpose of the authorizing provisions of law;
- (ii) is not in conflict with other applicable rules;
- (iii) to the extent practicable and appropriate, is narrowly drawn to achieve its stated purpose; and
- (iv) to the extent practicable and appropriate, contains a statement of basis and purpose that provides a clear explanation of the rule and the requirements imposed by the rule.

/s/ STEVEN GOULDEN
Acting Corporation Counsel

Date: May 4, 2016

**NEW YORK CITY MAYOR'S OFFICE OF OPERATIONS
253 BROADWAY, 10th FLOOR
NEW YORK, NY 10007
212-788-1400**

**CERTIFICATION / ANALYSIS
PURSUANT TO CHARTER SECTION 1043(d)**

RULE TITLE: Removal of Lubricating Oil from Ammonia Refrigerating Systems

REFERENCE NUMBER: FDNY-9

RULEMAKING AGENCY: Fire Department

I certify that this office has analyzed the proposed rule referenced above as required by Section 1043(d) of the New York City Charter, and that the proposed rule referenced above:

- (i) Is understandable and written in plain language for the discrete regulated community or communities;
- (ii) Minimizes compliance costs for the discrete regulated community or communities consistent with achieving the stated purpose of the rule; and
- (iii) Does not provide a cure period because it does not establish a violation, modification of a violation, or modification of the penalties associated with a violation.

/s/ Francisco X. Navarro
Mayor's Office of Operations

May 4, 2016
Date