federal register

Thursday
January 19, 1995

Part V

Environmental Protection Agency

40 CFR Part 82

Protection of Stratospheric Ozone: Supplemental Rule To Amend Leak Repair Provisions Under Section 608 of the Clean Air Act; Proposed Rule

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 82

[FRL–5140–2]

RIN 2060–AE92

Protection of Stratospheric Ozone: Supplemental Rule To Amend Leak Repair Provisions Under Section 608 of the Clean Air Act

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: Through this action EPA is proposing to amend the Refrigerant Recycling Regulations promulgated under section 608 of the Clean Air Act Amendments of 1990. This proposal is being undertaken to address specific concerns regarding the leak repair requirements for industrial process refrigeration systems, pursuant to a settlement agreement with the Chemical Manufacturers Association (CMA). This proposal will affect the owners and operators of industrial process refrigeration with regard to leak repair provisions. Minor aspects of this proposal will also affect federal owners and operators of commercial and comfort-cooling refrigeration with charges of 50 pounds refrigerant or greater. This action proposes to provide greater flexibility to owners and operators of industrial process sources and to some federally-owned commercial and comfort-cooling refrigerant sources with regard to leak repair provisions. Such proposed flexibility can be provided without compromising the goals of protecting public health and the environment.

DATES: Comments on this proposal must be received by February 21, 1995, at the address below. A public hearing, *if requested,* will be held in Washington, DC. If such a hearing is requested, it will be held on February 3, 1995, and the comment period would then be extended to March 6, 1995. Anyone who wishes to request a hearing should call Sue Stendebach at 202/233–9117 by January 26, 1995. Interested persons may contact the Stratospheric Protection Hotline at 1–800–296–1996 to see if a hearing will be held and to obtain the date and location of any hearing. Any hearing will be strictly limited to the subject matter of this proposal, the scope of which is discussed below.

ADDRESSES: Comments on this proposal must be submitted to the Air Docket Office, Public Docket No. A–92–01 VIIID, Waterside Mall (Ground Floor) Environmental Protection Agency, 401 M Street, SW., Washington, DC 20460 in room M–1500. Additional comments and materials supporting this rulemaking are contained in Public Docket No. A–92–01. Dockets may be inspected from 8 a.m. until 5:30 p.m., Monday through Friday. A reasonable fee may be charged for copying docket materials.

FOR FURTHER INFORMATION CONTACT: Cindy Newberg, Regulatory Development Section, Program Implementation Branch, Stratospheric Protection Division, Office of Atmospheric Programs, Office of Air and Radiation (6205–J), 401 M Street, SW., Washington, DC 20460, (202)233–9729. The Stratospheric Ozone Information Hotline at 1–800–296–1996 can also be contacted for further information.

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I. Refrigerant Recycling Regulations

Final regulations promulgated by the U.S. Environmental Protection Agency (EPA) under section 608 of the Clean Air Act Amendments of 1990 (the Act) published on May 14, 1993 (58 FR 28660), establish a recycling program for ozone-depleting refrigerants recovered during the servicing and disposal of air-conditioning and refrigeration equipment. Together with the prohibition on venting during the maintenance, service, repair, and disposal of class I and class II substances (see the listing notice January 22, 1991; 56 FR 2420) that took effect on July 1, 1992, these regulations are intended to substantially reduce the emissions of ozone-depleting refrigerants. These regulations were subsequently revised in the final regulations published August 19, 1994 (59 FR 42950) and November 9, 1994 (59 FR 55912).

The current regulations require that persons servicing air-conditioning and refrigeration equipment observe certain service practices to reduce emissions, establish equipment and reclamation certification requirements, and comply with a technician certification requirement. The regulations also require that ozone-depleting compounds contained in appliances be removed prior to disposal of the appliances, and that all air-conditioning and refrigeration equipment, except for small appliances, be provided with a servicing aperture that will facilitate recovery of refrigerant.

In addition, the regulations restrict the sale of refrigerant and establish a leak repair requirement for equipment that normally holds a refrigerant charge of fifty pounds or more. An annual leak rate of 35% was established for industrial process sources and commercial chillers, while an annual leak rate of 15% was established for comfort-cooling. If a leak rate is exceeded, the equipment must be repaired to bring the system to below the annual leak rate, within 30 days. An alternative is to submit a retrofit or replacement plan within 30 days, outlining action to retrofit or replace equipment within one year from the exceedance.

II. Proposed Revisions to the Refrigerant Recycling Regulations

EPA proposes revisions to the leak repair provisions in response to a settlement agreement reached by the Agency and the Chemical Manufacturers Association (CMA) relative to industrial process sources. In that agreement, EPA agreed to propose changes to the leak repair requirements that provide additional time to repair and/or retrofit industrial process refrigeration equipment based on the uniqueness of the industrial process sector and on new information provided by CMA. EPA also proposes to revise portions of the leak repair requirements

that address evacuation requirements relative to oil changes and destruction of purged emissions.

Under section 608 of the Clean Air Act Amendments of 1990, regulations were required to establish standards and requirements regarding the use and disposal of class I and class II substances during the service, repair, or disposal of appliances and industrial process refrigeration. The regulations were required to reduce the use and emission of class I and class II substances to the lowest achievable levels and to maximize the recapture and recycling of such substances. Regulations published on May 14, 1993 set out comprehensive requirements for recovery and reclamation of refrigerants from stationary sources. These regulations also establish leak repair requirements to further minimize emissions of class I and class II substances. The new information received from CMA indicates that under certain circumstances the timelines within which to repair industrial process refrigeration system leaks or retrofit such systems are not achievable. Today's proposed rulemaking seeks to respond to those circumstances by proposing the shortest timeframes possible, yet still achievable. EPA believes that today's proposal meets the standards set forth by Congress in the Clean Air Act Amendments. EPA requests comment on the legal basis under which EPA is proposing these revisions.

In today's action, EPA also proposes to allow additional time for repairs and retrofits and replacements of federally-owned or operated commercial or comfort-cooling systems where procurement requirements prevent timely acquisition of parts or services. This issue was not part of the settlement agreement, but was brought to EPA's attention by the U.S. Department of Energy. EPA also proposes to clarify that leaks exceeding the annual leak rate need only be brought to a level below that applicable annual leak rate, not to zero. Although this issue was not part of the settlement agreement, such clarification is necessary to be consistent with the terms of settlement, relative to the 35% annual leak rate and repair requirements. This clarification affects owners and operators of commercial refrigeration systems and comfort-cooling systems containing more than 50 pounds of refrigerant. The recycling rule, 40 CFR part 82, subpart F, is only being re-opened for purposes of reconsidering these specific provisions outlined in this paragraph and the paragraph above, and discussed in today's proposed rule. EPA is not inviting comment on any other provisions of the recycling rule.

A. Need for Separate Leak Repair Requirements

Three main refrigeration sectors are affected by the leak repair provisions promulgated under section 608 of the Act: commercial refrigeration, comfort-cooling, and industrial process refrigeration. While many different commercial refrigeration and comfort-cooling systems are similar in design and function, EPA has received new information from CMA illustrating the uniqueness of industrial process refrigeration systems. Industrial process refrigeration units are custom-designed and assembled in-place at a process location. Thus, each of these industrial units has unique operating characteristics. Industrial process refrigeration is defined in § 82.152 as:

* * * complex customized appliances used in the chemical, pharmaceutical, petrochemical and manufacturing industries. This sector also includes industrial ice machines and ice rinks.

There are several apparent differences between industrial process refrigeration equipment and other types of equipment affected by the leak repair provisions. Industrial process refrigeration systems are larger and more complex than hermetically-sealed consumer units. Most comfort-cooling systems have hermetically-sealed or semi-hermetically-sealed refrigerant loops. By contrast, industrial process refrigeration systems often have compressor shaft seals, gasketed flange seals, and valves with packing gland seals. All of these are potential leak points. For example, an industrial process system can include 17 different evaporators, located at distances up to half a mile from the compressor. Another example is that of a system that has a 5,000-horsepower compressor moving nearly 200,000 pounds of refrigerant. A system that size cannot be a ''sealed'' unit. This complexity makes leak detection and leak rate calculations more difficult than for other sectors affected by the leak repair provisions.

Industrial process refrigeration systems are also frequently designed to provide refrigeration to more than one industrial process and at more than one location within the same facility. These distributed refrigeration systems have multiple refrigerant reservoirs and evaporators and may be connected by pipe runs of half a mile or more, as mentioned above. Piping, valves and even evaporators in industrial process refrigeration systems are likely to be less accessible than the potential leak sources normally found in the other systems.

Industrial process equipment, particularly that used in the chemical manufacturing industry, is frequently located in plant areas near high pressure/temperature piping and equipment and where leaks/spills of flammable or otherwise hazardous chemicals may occur. A heat exchanger in which a class I or class II refrigerant is cooling a hazardous process fluid at high pressure poses different safety risks than those normally encountered in the commercial refrigeration sector or the comfort-cooling sector. Many industrial process sources are manufacturing or handling acutely toxic, corrosive, or carcinogenic chemicals that need to be handled in an extremely cautious manner. It is imperative that they be cooled properly to avoid fire, explosion, or emissions.

In order to perform certain types of repair work on industrial process systems, a shutdown of the facility may be necessary to avoid such hazards. Shutting down industrial process refrigeration equipment means curtailing production or shutting a plant down completely, which can incur enormous costs in terms of time and money. In some cases, the size and complexity of a plant may require hours or days to completely shut down all the process equipment to avoid any unwanted chemical reactions that could lead to fires, explosions, or other immediate hazards. Such a costly and complex shutdown is not required to repair commercial or comfort-cooling systems that can sustain a short shutdown without significant added cost or consequence.

Because of the new information that illustrates the substantial differences between the industrial process refrigeration sector and the other sectors affected by the leak repair provisions, EPA is proposing to revise the leak repair provisions promulgated under § 82.156(i) to establish separate provisions for the industrial process refrigeration sector. EPA requests comment on the appropriateness of establishing separate repair provisions for industrial process refrigeration.

B. Additional Time To Complete Repairs

Section 82.156(i)(1) of the current rule requires that owners of commercial and industrial process refrigeration equipment must have all leaks repaired if the equipment is leaking at a rate such that over 35% of the refrigerant is released within a 12-month period. Under § 82.156(i)(3), owners are not required to repair such leaks if, within

30 days, they develop a one-year retrofit or retirement plan for the leaking equipment. Due to differences between the industrial process refrigeration sector and other sectors affected by the leak repair provisions, EPA recognizes that the potential for reasonable delays in repairing leaks is great in the industrial process sector. Thus, EPA proposes to allow the owners and operators of industrial process refrigeration equipment more than 30 days to repair leaks when the necessary parts are unavailable, or if requirements of other federal, state or local regulations make a repair within 30 days impossible. Additional time to receive delivery of any necessary parts or comply with any applicable regulations would be allowed.

Although EPA proposes to allow this additional time when necessary, EPA proposes that the owner or operator of the industrial process refrigeration equipment must exert best efforts to repair leaks within the 30-day time period. If the equipment cannot be repaired within the 30-day requirement, the owner or operator must document repair efforts, notify EPA of the inability to comply with this 30-day repair requirement, provide appropriate information concerning the reason for the inability to complete repair efforts and submit to EPA a one-year retrofit, replacement or retirement plan for the leaking equipment.

Generally, EPA believes that most leaks can be repaired within 30 days. For example, a leak caused by a ruptured tube would normally be repaired within several days to a few weeks, depending on the size and complexity of the system. Another example of a leak that could normally be repaired within the 30-day timeframe would be a leaking gasket. If refrigerant is leaking from the gasket between the flanges where two pieces of pipe come together, a repair can often be accomplished by merely tightening the bolts that hold the flanges together. Assuming that the piping is accessible, this might take only a few minutes.

However, EPA recognizes that under certain circumstances it may not be possible for the owners and operators of industrial process refrigeration equipment to complete all necessary repairs within the thirty-day timeframe, or complete retrofit activities within one year, as established by the final regulations. Such necessary repairs may not be able to be completed within 30 days due to the need for the owners and operators of industrial process refrigeration equipment to comply with all other applicable federal, state, and local regulations. For example, if the piping for the industrial process equipment is covered with asbestos-containing insulation, the insulation for the affected portions of the system will have to be removed to detect and repair the leaks. Depending on the amount of piping affected, EPA regulations may require a ten working day notice before any asbestos-handling activities may begin. Only once the process of removing the insulation is complete can work begin on the refrigeration system.[1]

Other types of regulatory requirements that may impact the ability of a facility to either complete the necessary repairs within 30 days or retrofit the facility within one year include the need to obtain appropriate state or local permits. For example, one company planning to replace its ozone-depleting component with an ammonia refrigeration component in California encountered many unavoidable delays because ammonia is treated as a hazardous substance under the California Risk Management Prevention Plan (RMPP) program. As a result, the company had to prepare a risk management plan that met the approval of the local fire department before ammonia could be brought to the site. It took a total of six months to write and receive approval of the plan from the State. A similar situation could be encountered by any facility in California that decided to replace its ozone-depleting system with an ammonia system. Since most companies are unlikely to commit significant investment to a project until it is clear that the project can be approved, this requirement could, in effect, delay other necessary retrofit activities by up to six months. This may limit the ability of the company to complete retrofitting the system within one year.

In some cases, industrial process refrigeration systems, particularly refrigerated condensers, serve as emission control devices for chemicals that could otherwise be released. For example, a refrigeration system may be used to cool and condense vapors, allowing recovery rather than venting to the atmosphere. Federal or state emission control requirements will typically specify that the condenser must be in operation whenever the manufacturing process is running. Limited periods of down time for maintenance on the condenser may be allowed. However, companies may not have unlimited freedom to shut down the system that controls emissions.

Repairing leaks and retrofitting systems may be delayed because of the unavailability of needed parts. Many parts in an industrial process refrigeration system are custom-built. This is different from the commercial and comfort-cooling sectors, where parts tend to be more uniform, more widely available, and may often be purchased ''off the shelf.'' In order to repair or replace a leak source in an industrial process facility, the needed part may have to be custom-built. The process of building the part and shipping it to the facility may cause a delay that makes it impossible for the owner or operator of the industrial process facility to repair the leaks within 30 days.

Although EPA recognizes these potential difficulties and delays, EPA proposes that the owner or operator of the industrial process refrigeration equipment must exert best efforts to repair leaks within the 30-day time period. EPA believes that best efforts on the part of the owner or operator of the industrial process refrigeration system implies that a methodology for repair that is reasonably expected to be effective based on past experience has been used. A best efforts approach used to repair leaks should first consider the experience of the individual or individuals charged with performing the repairs. However, for repairs that are less common or have not been performed in the past, best efforts on the part of the owner or operator of the industrial process system may imply appropriate consultation by the technician with manuals or colleagues, both within and outside of the company. If the owners or operators of the industrial process system followed the methodology discussed above, and are unable to repair all necessary leaks within thirty days, EPA proposes to grant extra time. EPA requests comments on this repair methodology. While EPA believes that a best efforts approach that incorporates the information above is important, EPA is concerned about the lack of formal protocols referred to in this definition.

The owners or operators of the industrial process facility would be required to maintain records of their actions and submit information to EPA that details the need for additional time to complete all repair work. EPA believes the following information should be maintained by the owners or operators of the affected system and reported to EPA:

(1) Identification of the industrial process facility;

(2) Leak rate;

(3) Method used to determine the leak rate and full charge;

(4) Date a leak rate of 35 percent or greater was discovered;

[1] See 40 CFR 61.145(a)(5) and 40 CFR § section 61.145(b).

(5) Location of leaks(s) to the extent determined to date;

(6) Any repair work that has been completed thus far and the date that work was completed;

(7) Plan to fix other outstanding leaks to achieve a rate below the applicable allowable annual leak rate;

(8) Reasons why more than 30 days are needed;

(9) Estimate of when repair work will be completed;

(10) If time changes for original estimates, documented reason for changes;

(11) Dates and types of static and dynamic tests performed; and

(12) Test results for both the static and dynamic tests.

All the above information would be maintained by the industrial process refrigeration facility on-site. Information discussed in (1) through (9) would be submitted as part of the original notification to the Agency. This information would be submitted within thirty days from the time the leak was detected. The information requested in item (10) would only be submitted as necessary. The information in items (11) and (12) would be submitted within thirty days of completing repairs on all appropriate leaks. EPA does not believe that these reporting or recordkeeping procedures place undue burden on the affected community. EPA believes that documenting the services performed by repair personnel is normally kept by the owners and operators of industrial process refrigeration equipment. However, EPA requests comment on these recordkeeping and reporting requirements.

C. Repairs Requiring a Process Shutdown

In order to complete many types of repairs, an industrial process refrigeration system may be required to shut down. EPA proposes to define a process shutdown as when, for purposes such as maintenance or repair, a process temporarily ceases to operate or manufacture whatever is being produced at the particular facility. A typical manufacturing process may consist of the coordination and integration of a chemical reaction, separation, and heating or cooling activities. Since many facilities do not have back-up refrigeration systems, a shutdown of the refrigeration unit in order to facilitate the repair of leaks could require the curtailing or cessation of production. For the purposes of this proposal, EPA does not believe a process shutdown occurs when a system is temporarily taken off-line for reasons such as a power outage. Nor does it constitute a system mothballing of a facility discussed in II. K.

The costs of a shutdown can be enormous. During the time when the process is shut down, no product will be produced. This results in lost sales. For example, one company estimates that the cost of a three-day shutdown of a particular process facility was $137,000. This estimate included lost profits due to products that either would not be made at all, or would be off-grade during the start-up and shutdown, plus maintenance charges incurred by the facility. Another facility estimated that to complete all necessary leak repair work should take two days, but could reasonably be expected to take as many as six days depending on the number or type of additional leaks discovered during the repair operations. The lost profits could be as much as $171,000 per day for that facility.

In most cases shutting down a process cannot be done in an instant. It may require hours or days to completely shut down all the process equipment while avoiding any runaway chemical reactions that could lead to fires, explosions, or other immediate hazards to human health and the environment. It may take several days to release or control hazardous energy and clean out pipes, storage tanks, and other appropriate equipment to allow for a safe working environment. Therefore, EPA believes it is necessary to propose additional time to complete all necessary leak repair work for an industrial process refrigeration facility where a process shutdown is necessary.

EPA is proposing a 120-day repair period, rather than a 30-day repair period, in instances where an industrial process shutdown is needed to repair a leak or leaks from industrial process refrigeration equipment. EPA believes that the need to plan a process shutdown, ensure appropriate personnel are available, lessen environmental impacts and risks to human health, and to the extent possible, lessen the economic impact, warrant the proposal of such additional time. Although the system itself may not need to be shut down for the entire 120 days in order to make the repairs, the actual timing of beginning the shutdown may be longer in order to avoid safety hazards and severe economic disruptions. EPA believes that facilities have every incentive to make repairs expeditiously, both because leaking refrigerant is very costly and because production, once off-line, is severely curtailed or halted until the system comes back up. Therefore, EPA is proposing to allow 120 days for the owners or operators of industrial process refrigeration facilities in instances where an industrial process shutdown is needed to repair a leak or leaks from industrial process refrigeration equipment. EPA requests comments on the appropriateness of this proposed provision.

D. Determining the Full Charge of an Industrial Process Refrigerant System

Section 82.156(i) requires that leaks be repaired if the equipment is leaking at a specified rate in relation to the total charge of the equipment. In order to ensure that additional time to repair leaks is warranted and to ensure that the leaks are fully repaired, EPA believes it is necessary to establish the correct full charge of refrigerant for industrial process refrigeration systems prior to determining the leak rate for the equipment. Refrigerant is contained as a liquid, gas, or two-phase mixture in reservoirs, equipment, and various amounts of piping. The equipment vendors may calculate the refrigerant capacity for the devices they sell; however, such calculations may not include all of the piping the system contains, as well as any piping that may be added by the owner or operator that may differ from the original engineering designed, and therefore increase the full charge of the equipment.

One company recently completed construction and installation of an industrial process refrigeration unit that was supposed to hold 70,000 pounds of refrigerant. In this case, the owner suspected a problem and performed its own calculations, estimating a full charge of 96,000 pounds of refrigerant. When the company filled the system for the first time, the system took 150,000 pounds of refrigerant. Had the owner filled the system to the manufacturer's specifications, the system would not have functioned well and the owner may have added refrigerant, presumably attributing the need for additional refrigerant to leaks.

For older refrigeration systems, the full charge may not have been generally known. When those systems were built there were no regulatory requirements that stipulated that owners or operators should know exactly how much refrigerant constituted a full charge. Many refrigerants were inexpensive to add or replace. Therefore, the owner or operator may not have required that the full charge be recorded routinely. Since the full charge was performance-based, it may have varied with season, ambient temperature, or production rate.

EPA proposes the following methods for owners and operators of industrial process refrigeration systems to determine the full charge and requests comments on a methods. EPA has

received information indicating that there are at least five possible methods for determining the full charge of a system. Each of these methods has limitations. However, EPA believes that the alternative to these methods would be to require the operators of industrial process refrigeration equipment to evacuate the systems and add refrigerant a little at a time while checking the effect on cooling. EPA believes that an attempt to proceed in that manner would cause an unreasonable burden on the affected community.

The first method for determining the full charge of the system is to rely on the manufacturers' determinations. The benefit of this system is that typically the manufacturer provides a single number rather than a range. The limitations include the infrequency with which the manufacturer may actually provide this information and the occasion to question the number's accuracy. Questions concerning the accuracy of the number will reflect the fact that industrial process refrigeration equipment is often custom-built; therefore, a particular system may be a one-of-kind appliance for which the manufacturer's determinations may only be an estimate. Furthermore, the owner or operator of a particular system may have made subsequent modifications, which would adjust the full charge of the system. Moreover, even where the manufacturer's estimates may initially appear reasonable, experience with actual use of the equipment may indicate the need to revise the estimate.

The second method for determining the full charge of a system is to require the owner or operator to do calculations. In some cases the owners or operators of a system should be able to estimate a full charge by calculations based on component sizes, flow rates, pressures, and other considerations. Of course, these calculations may become very complex due to the number of individual pipes, tubes, and other parts the system contains. Additionally, each measurement or assumption that goes into the total calculation will have a margin of error. Consequently, although this method has the benefit of being based on objective criteria and methods, the resulting number may be subject to change as methods are refined or experience with the system increases.

The third method is to rely on actual measurements of the amount of refrigerant added or evacuated from an industrial process refrigeration system. Although this may be a more accurate method and would provide a single number rather than a range of the full charge, evacuating a system is not always practical. For example, evacuating the entire charge may require a process shutdown and a place to store that refrigerant. In addition, the exact measurement may only represent the amount of refrigerant evacuated. Since the system could have been below or above full charge when the evacuation was performed or some refrigerant may have been lost during evacuation, the amount of refrigerant evacuated may not be an accurate measure of the full charge of the system.

A fourth method for determining the full charge of a system is to choose a number from within an established range based on the best data currently available. In situations where the refrigerant system functions properly within a range of quantities, the owner or operator may choose a number from within the range based on the data and consider that number to be the full charge. Once a number is selected that number would be considered the full charge. Over time the owner or operator of the system may adjust this number based on new or revised information concerning the performance of the system, thereby potentially increasing the accuracy of the full charge estimate. However, the drawback to this method is that there is no clarity regarding the circumstances under which a change in the number could be justified. An ever-changing estimate of the full charge defeats the purpose of creating such a baseline. Therefore, the Agency proposes that this method not be included in the list of method options from which owners and operators can determine full charge.

The last method for determining the full charge of a system is to establish a definition of full charge that is based on maximum cooling performance. One possible approach is to define the full charge as the minimum amount of refrigerant necessary for a system to achieve its maximum refrigerant performance during times of maximum process heat load. This would include consideration of the production process and the most adverse ambient conditions normally encountered. This definition has a major drawback. Because it is based on cooling performance, it does not give a number in the context of pounds of refrigerant in the system. Several other factors could affect cooling performance, severely skewing the calculation of full charge.

EPA believes that it is appropriate to use any of the first three methods to establish the full charge for an industrial process refrigeration system; however, EPA believes that the last two methods would not be appropriate. EPA is concerned with the last two methods because of the lack of objectivity and the possibility for frequent adjustments. Furthermore, EPA believes it is critical that the owners or operators of a particular system use both a consistent and accurate approach for determining the full refrigerant charge. Such an approach may include one of the first three methods, or a combination of them to establish the full charge of a system. For example, the owners or operators may wish to consider the manufacturer's estimates in conjunction with its own calculations. Once the full charge is established, a leak rate can be based upon this number. However, constantly changing the methodology for establishing the full charge could alter the determination of the leak rate for the system. Within reason, EPA could allow for a particular facility to adjust its method for determining the full charge where a change would lead to a more accurate estimate of the full charge; however, EPA would also take consistency into account.

In today's action, EPA proposes that the first three methods, or a combination of them, may be used to determine the full charge. EPA requests comments on the five methods for determining the full charge of a system discussed above, and the appropriateness of the methods proposed. In addition, EPA requests comments on other potential methods for establishing the full charge of an industrial process refrigeration appliance.

E. Static and Dynamic Tests

EPA is proposing that the repair efforts required for industrial process refrigeration equipment be those that sound engineering judgment indicates will be sufficient to bring the leak rates below a 35 percent annual rate, that a static test be conducted at the conclusion of the repairs to determine whether the repairs undertaken were successfully completed, and that a dynamic test be conducted within 30 days of bringing the system back on-line (if taken off-line) or of completing the actual repairs, but no sooner than when the system has achieved steady-state operating characteristics. EPA is also proposing that the system not be brought back on-line, in the case where it was taken off-line, until a static test indicates that the repairs undertaken have been successfully completed. If the dynamic test indicates that the repairs have not been successfully completed, EPA proposes that the owner would be subject to a requirement to retrofit or replace the equipment within one year of the failure to verify that the repairs had been successfully completed or

such longer time period as may be granted under this proposal. A retrofit plan would need to be submitted to EPA as discussed in F.1 of this preamble and outlined in the proposed reporting requirements of this proposed rulemaking. Moreover, EPA is proposing that the owner or operator notify EPA of the failure within 30 days of the failed dynamic verification test.

To ensure that the leak repair work conducted on industrial process refrigeration equipment, where additional repair time has been granted, has been successful and that leaks have been brought to below 35 percent per year, parties to the settlement agreed that it is desirable and beneficial to perform leak checking tests after the owners or operators of the facility have completed the necessary work. The owners or operators of the industrial process refrigeration system will be relying on sound engineering judgment to determine the leak rate and to determine the type of leak tests to perform. With regard to this rulemaking, EPA proposes to interpret sound engineering or professional judgement to represent a combination of the use of logic and operational experience, with methods of calculation that are practical, based on training, experience and education. As mentioned above, EPA believes two types of tests should be conducted to ensure that the leak rates have been brought successfully below 35 percent per year—a static test and dynamic test.

EPA is proposing to define static tests as those tests that take place before the refrigeration system has been started again, in cases where the system has been shut down. A static test, with regard to the leak repairs that require the evacuation of the equipment or parts of the equipment, is a test conducted prior to the replacement of the full refrigerant charge and before the appliance or portion of the appliance has reached operation at normal working conditions of temperature and pressure. However, not all repairs require the evacuation of the system. Often, systems are not evacuated to perform repairs. For example, it is not necessary to evacuate the system to repair leaks for piping or tubing connections such as flanges, unions, flare fittings, and compression joints, leaks from gauges or control lines, leaks from valve packing, or leaks from tubes in the heat exchanger if the leak is at the tube sheet or the tube can be re-rolled or plugged. With respect to repairs conducted without the evacuation of the refrigerant charge or without a shutdown, a static test would mean a test conducted as soon as practical after the conclusion of the repair work. In situations where a system has been evacuated, the system may not be brought back on-line until a static test indicates that the repairs undertaken have been successfully completed.

EPA is proposing to define a dynamic test as a leak test, performed using sound engineering judgment, that involves checking the repairs within 30 days of returning to steady-state operating characteristics, or where steady-state has been maintained, within 30 days after the repairs have been completed. Steady-state operating characteristics refer to the conditions present when operating at temperatures, pressures, fluid flows, speeds and other characteristics that would normally be expected for a given process load and ambient condition. Steady-state operating characteristics are marked by the absence of atypical conditions affecting the operation of the refrigeration system. Dynamic tests for equipment from which the refrigerant charge has been evacuated would mean a test conducted after the appliance or portion of the appliance has resumed operation at steady-state or normal operating conditions of temperature and pressure.

With respect to repairs conducted without evacuation of the refrigerant charge, dynamic tests would mean a reverification test conducted after the static test. Since the system was not evacuated, it would only be necessary to conclude any required changes in pressure, temperature or other conditions to return the system to a steady-state for operations. This test would be performed within 30 days of return to steady-state operation.

EPA is further considering an alternative of allowing the dynamic test to be conducted prior to achieving steady-state operations where the system was evacuated if reassembly and operation will make the testing more difficult and less reliable. In these circumstances the dynamic test could be conducted without resuming steady-state operations, but with a standard operation pressure or temperature for the appliance. EPA is also concerned about how to judge whether such a test actually is more reliable than a test conducted after the system has been completely returned to steady-state operations. Therefore, EPA is not proposing to allow for this type of dynamic test alternative, but requests comments on the need for such an alternative and under what conditions it would be reasonable to accept such an approach.

If the dynamic test indicates that the repairs have not been successfully completed, the owner or operator of the system would be required to retrofit or replace the equipment within one year of the failure to verify that the repairs had been successfully completed or within such longer time period as may be granted under this proposal. A retrofit plan would need to be submitted to EPA as discussed in F.1 of this preamble and outlined in the proposed reporting requirements of this rule. In addition, EPA is proposing that the owner or operator notify the Agency of failure within 30 days of the failed dynamic verification test. The Agency believes that in most cases the industrial process facility will already be subject to the reporting requirements discussed in today's action, since most of these repairs will take longer than 30 days to complete. Therefore, this information will be reported as part of the requirements contained in the discussion for allowing more than 30 days to complete repairs. However, if there is a case where a failed dynamic test could in fact occur as part of a method of completing all repairs within 30 days, the industrial process facility would need to submit information as part of its submittal of a retrofit or replacement plan.

The above definitions of static and dynamic tests would allow the same test methodologies in certain circumstances to be categorized as both a static test or a dynamic test, depending upon when and under what conditions the tests are performed. Furthermore, this definition does not specify which type of static or dynamic test should be used under which circumstances. Due to the unique situations faced by each industrial process facility, EPA believes it is important for that decision to be based upon sound engineering or professional judgment. EPA requests comment on the proposed definitions of static and dynamic tests, including the need to perform a static test as soon as is practical after completing repairs, and the need to conduct a dynamic test within 30 days of returning to normal operating conditions. In addition, EPA requests comments on the associated recordkeeping and reporting requirements.

Below are examples of various test methods that EPA believes represent acceptable forms of static and dynamic tests. EPA wishes to clarify that other types of tests may exist. Today's proposal, however, does not identify any particular type of test that must be used. EPA requests comments on the appropriateness of these tests as well as others not specified in this proposal.

1. Soap Bubble Test

A simple leak test method can be performed by applying a soap bubble solution to potential leak sources and seeing if bubbles form. This is an inexpensive method that should not pose any explosion hazard and can provide a qualitative estimate of a leak rate. This method cannot work as a dynamic test for systems under vacuum, leak points cold enough to freeze the solution, or points that are inaccessible because of insulation, tightness of space, or some other constraining factor. However, a soap bubble test could be used as a dynamic test in other circumstances. It can also serve as a static test if the insulation is removed, and the system is at an acceptable temperature and under pressure.

2. Electronic Leak Detectors

Electronic leak detectors identify the presence of specific refrigerants and give a reading on the degree of a leak within a range allowed by the detector, usually by an audible alarm that may be accompanied by lights. These detectors have movable probes that can be put into some places where a soap bubble test would be difficult. For example, an electronic detector can be used for the underside of a fitting. However, the effectiveness of electronic leak detectors can be reduced by the presence of insulation, particularly if the insulation was blown with an ozone-depleting substance. Other limitations include the potential for false readings due to previously leaked refrigerants soaking the insulation. Also, the usefulness of these detectors is limited because the point at which a leak is shown may not be the actual spot at which the leak occurred. In some instances, a space between the insulation and the pipe is caused by irregularities in the outer configuration of a pipe, such as flanges or valves. Some electronic detectors heat the sampled gases before analyzing them. Therefore, there could be a risk of explosion under certain conditions. Despite these limitations, in many circumstances, electronic leak detection represents a useful static or dynamic test option.

3. Ultrasonic Detectors

Ultrasonic detectors respond to the high frequency noise generated by a leak. In some instances, these detectors may be appropriate for static or dynamic tests. One major advantage of these detectors is the ability to detect leaks from several feet away. This is particularly useful for leaks that may occur in otherwise inaccessible locations. However, facilities may often generate background noise that could interfere with the effectiveness of the ultrasonic detectors. Where appropriate, these detectors can be used to perform either static or dynamic tests.

F. Failed Verification Tests

Through this action, EPA is proposing that an industrial process refrigeration system, if taken off-line, not be brought back on-line until a static test indicates that the repairs undertaken have been successfully completed. EPA is further proposing that a dynamic test be performed within 30 days to verify that the leaks have been successfully completed. Since a static test typically does not occur during steady-state operations, test results may not be consistent with the results of the more reliable dynamic test. EPA has considered the possibility of a system failing the dynamic test after the system has been brought back on-line or after the repairs have been made. EPA believes that if a system fails a dynamic test, appropriate action must be taken. EPA is proposing to allow the owners or operators of the system to attempt repairs a second time or take other corrective action that will result in an overall leak rate that does not exceed 35 percent per year. If none of these approaches is successful, then owners or operators of the system would be required to retrofit or retire the facility.

1. Requirement to Retrofit or Retire the Leaking Equipment

EPA is proposing that if the dynamic test indicates that the repairs have not been successfully completed, the owner would be required to retrofit or replace the equipment within one year of the failure to verify that the repairs had been successfully completed or within such longer time period as may be granted under this proposal. EPA believes that where the leak rates for industrial process refrigeration equipment continue to exceed 35 percent per year, it is necessary to retrofit or retire the facility, which could include replacing the existing equipment. Furthermore, within 30 days of a failed dynamic test, the owners or operators of the industrial process refrigeration facility would be required to submit to EPA a plan for retrofitting or retiring the leaking equipment. This requirement would be similar in scope to that described in § 82.156(i)(3) of the final rule published May 14, 1993. However, in this case, a copy of a retrofit/replace/ retire plan would be submitted to EPA, rather than just be available to EPA upon request. In addition, the plan would include information concerning the repairs attempted to date, and the parameters used for the unsuccessful dynamic test.

2. Option for Second Repair Attempt

EPA recognizes that in some cases the industrial process facility may discover, through its failed repair efforts and verification tests, another means for repairing the refrigerant leaks; or perhaps the repairs undertaken by the facility were merely not completed successfully. For example, if the leak was in the valve packing, it is possible that the gland nut was not tightened sufficiently. Therefore, repeating the process of tightening the gland nut may lead to a successful dynamic test. EPA also recognizes the large costs involved with retrofitting or retiring certain industrial process refrigeration systems. Therefore, due to the complexity of adequately finding and repairing leaks, EPA believes that in certain circumstances it may be reasonable to allow the owners and operators of the industrial process refrigeration equipment to have a second opportunity to complete repairs.

EPA is proposing that the owner or operator of an industrial process refrigeration unit be relieved of the obligation to retrofit or replace the equipment if a second attempt to repair the same leaks that were the subject of the first repair attempt is undertaken within 30 days of the failed dynamic verification test or within 120 days in the case of repairs for which an industrial process shutdown is necessary, and is successful subject to the same verification requirements as the first attempt at repair. The owner or operator would be required to notify EPA within 30 days of the successful dynamic verification test and the owner or operator would no longer be subject to the obligation to retrofit or replace the equipment that arose as a consequence of the initial failure to repair the leaks successfully. EPA believes that it is necessary to allow for a second repair attempt and believes that the speed with which this proposed second repair attempt must be accomplished will reasonably limit the amount of refrigerant potentially released to the atmosphere.

3. Option To Reduce Other Equipment Leaks

EPA believes it possible, that while the particular leak originally identified by the owners or operators of the industrial process facility cannot be successfully repaired, other leak sources could be eliminated or practices changed to reduce the annual leak rate to below 35 percent. EPA believes it is not possible to establish a zero leak rate

for most industrial process refrigeration equipment. Leaks will occur to some extent in locations such as threaded connections, valve packing, compressor shaft seals and flange seals. Industrial process refrigeration equipment contains many of these potential leak sources, many of which may not be directly accessible because they are packed in ice or insulation. These seals typically depend upon a polymer or other flexible material that is compressed between smooth metal surfaces to form a seal. A perfect seal is virtually impossible. Therefore, all such seals will have a small leak rate. Scratches on the metal surface, dirt at the sealing surface, embrittlement, abrasion/deformation from shaft rotation and valve manipulation, or gradual extrusion, deformation of the polymer under temperature cycling and pressure could all increase the leak rates. Leaks may also occur anywhere in the system where corrosion or metal fatigue can cause mechanical failure. If the refrigeration system operates under pressure, the refrigerant may be lost by direct leakage. If the system operates at less than atmospheric pressure, that is under partial vacuum, then noncondensable gases will be drawn into the system and small amounts of refrigerant may be lost when these noncondensables are vented through the purge valve.

Industrial process refrigeration systems have many potential sources of leaks. If a sufficient number of other leaks can be repaired creating a situation where the originally identified leak or leaks remain, but the overall leak rate has been successfully reduced to below 35 percent per year, EPA believes that the owner or operator of the facility has still in effect met its obligation under the rule.

EPA is more concerned with the percent of refrigerant being released than the actual source of the refrigerant leaked. Therefore, EPA is proposing that the owner or operator of an industrial process refrigeration unit be relieved of the obligation to retrofit or replace the equipment if, within 180 days of the failed dynamic verification test, the owner or operator establishes that the system's annual leak rate does not exceed 35 percent. If the equipment owner or operator establishes that the system's annual leak rate does not exceed 35 percent, the owner or operator would be required to notify EPA within 30 days of that determination and the owner or operator would no longer be subject to the obligation to retrofit or replace the equipment that arose as a consequence of the initial failure to repair the leaks successfully. The determination of whether the system's annual leak rate exceeds 35 percent would be determined in accordance with parameters identified by the owner or operator in its notice to EPA regarding the failure of the initial dynamic verification test discussed above.

EPA believes that this scheme for treating a failed dynamic test provides an appropriate level of flexibility for the affected community. Industrial process refrigerant equipment owners or operators would be required to retrofit or retire the system, unless a second attempt to repair the leaks is successful, or another method for achieving a leak rate of less than 35 percent per year can be achieved within the limited timeframes discussed above. Furthermore, the owners or operators would be required to maintain records and report information to EPA so that the Agency can establish that a viable approach is being followed by the owners or operators of the affected facilities.

EPA requests comments on this proposed scheme for allowing a flexible approach to be used by the owners or operators of industrial process refrigerant equipment that have failed a dynamic test. EPA also requests comments on ways in which to simplify or make more clear the differences between when a static or dynamic test is appropriate, or if other terminology would provide greater clarity.

G. Clarification of Levels to Which Leaks Must be Repaired Leak Rate

Through this action, EPA is also proposing a clarification to § 82.156(i)(1) and (2). As a part of the settlement agreement, EPA agreed that for industrial process and commercial sources, leaks needed to be repaired such that the leak rate was brought back to a level below the 35% annual rate. EPA believes that parallel clarification for comfort-cooling and commercial sources will provide equitability, rather than requiring a repair of ''all'' leaks for comfort-cooling systems.

As discussed above, EPA is proposing to revise the requirements for industrial process refrigeration equipment currently under § 82.156(i)(1) to require the owners and operators of this equipment to reduce leaks to a rate of less than 35 percent per year. However, EPA would allow these affected systems to operate as long as the leak rate does not exceed that amount. Therefore, EPA believes it is appropriate to also revise the regulations regarding commercial and comfort-cooling equipment to provide that the obligation to repair leaks triggered by an exceedance of the leak rate is an obligation to repair all leaks sufficient to bring the leak rate below 35% and 15%, respectively, per year, rather than to bring the leak rate down to zero.

Therefore, EPA proposes to clarify that in repairing leaks on equipment subject to the 15% leak rate, one must bring leaks down below the 15% threshold in order to comply and in repairing commercial refrigeration equipment, one must bring leaks down below the 35% threshold in order to comply. While it may be less difficult to locate and repair leaks found in comfort-cooling and commercial refrigeration appliances, to some extent, many of these systems may also contain leak sources that can be difficult to locate and repair. This may be particularly true for certain types of commercial refrigeration appliances.

EPA requests comment on the proposed modification to the current language in § 82.156(i)(1) and (2).

H. Extension for Retrofitting a Facility

EPA believes that it may be reasonable to permit additional time beyond the one year established by the current regulations for the retrofitting of certain industrial process refrigeration equipment. EPA believes there are specific concerns relating to the need for special design, engineering, ordering and installation difficulties for some industrial process refrigeration equipment. It may take weeks or in some cases months to determine available options and develop specifications before it is possible to design a retrofitted facility and subsequently install the equipment. Even when special design plans are not necessary and the repairs may appear simple, the uniqueness of these large systems may dictate that new or replacement parts cannot be obtained in time to meet either 30-day repair requirement or the one-year retrofit deadline.

Parts for other types of systems, such as comfort-cooling, are more likely to be mass-produced, widely distributed, readily transportable and capable of quick installation. Parts for industrial process refrigeration equipment are often more difficult to obtain and install. If a part has to be specially manufactured, special-ordered, or fabricated on-site, the company may not be able to complete the repair within one year. For example, one company has indicated that its supplier is quoting 44–46 weeks for the delivery of a 1000-ton water chiller, with a charge of approximately 10,000 pounds of refrigerant. The company estimates that it needs 5–7 weeks to negotiate an

acceptable proposal prior to ordering the equipment. Installation may take 10–14 weeks. Therefore, this company believes it will take 59–67 weeks to replace this pre-packaged industrial unit. Another company has a facility with four process refrigeration systems for chlorine production, each with a compressor driven by a 4,000 horsepower motor and refrigerant charge of approximately 175,000 pounds. These are massive systems that were individually engineered for the needs of the plant and any changes will also have to be engineered on an individual basis. The owner believes that even under ideal circumstances retrofitting the facility may take three years.[2]

EPA is proposing to revise § 82.156(i)(3) to allow more than one year to complete the retrofit of industrial process refrigeration equipment in certain circumstances. While the scenarios described above may justify more than one year to retrofit a facility, EPA does not believe additional time is always necessary. Therefore, EPA intends to only allow for additional time when the owners or operators of the industrial process refrigeration equipment can provide information detailing the need for additional time in accordance with the proposed requirements described below.

1. Additional Time Based on Regulatory Delays and/or the Need for a Suitable Replacement

EPA is proposing that additional time, to the extent reasonably necessary, would be allowed due to delays occasioned by the requirements of other applicable federal, state, or local regulations, or due to the unavailability of a suitable replacement refrigerant with a lower ozone depletion potential. To be a suitable replacement, a refrigerant would have to be acceptable under section 612(c) of the Act and implementing regulations, compatible with other materials with which it may come into contact, and be able to achieve the temperatures required for the process in a technically feasible manner.

If these circumstances apply, the owner or operator of the facility would have to notify EPA within six months after the 30-day period following the discovery of an exceedance of the 35% leak rate. Records that would provide evidence that other regulations or the unavailability of a suitable alternative refrigerant prevent retrofit or replacement within one year must be submitted to EPA to allow EPA to determine that these provisions apply and assess the length of time necessary to complete the work. EPA proposes that it notify the owner or operator of its determination within 60 days of submittal. Specific recordkeeping requirements are discussed later in this subsection. EPA proposes that such records be maintained by the owner or operator and kept on-site.

EPA has already discussed examples of the types of other federal, state, or local regulations that may limit the ability of a facility to retrofit within one year. One example involved delays that would impact the ability of any facility in California that intended to retrofit using ammonia. Because ammonia is treated as a hazardous substance under the California RMPP program, companies need to prepare risk management plans that meet the approval of the local fire department before ammonia can be brought to the site. For one company, the process of receiving such approval took six months. Since other activities may be delayed or revised based on the acceptability or unacceptability of the risk management plans, more than one year may be necessary to complete retrofit activities.

Regulations promulgated under section 612 of the Act, known as the Significant New Alternatives Policy (SNAP) program, establish acceptable and unacceptable alternatives for particular end-uses, including refrigeration. The SNAP program regulations were published on March 18, 1994 (59 FR 13045). Subsequently, additional alternatives were approved on August 26, 1994 (59 FR 44240). To date, several replacement substances with lower ozone-depleting potentials have been listed as acceptable by the Agency. However, there has been difficulty in locating acceptable alternatives for R–22 systems that have flooded evaporators.

A flooded-evaporator system uses a pool of refrigerant, which absorbs heat as it vaporizes. All potential replacements to date are non-azeotropic in these systems, meaning they consist of components that do not vaporize uniformly. This has the effect of making the refrigeration system function like a distillation column, and greatly reduces the system's cooling capacity to the point where it probably will not be able to perform its intended function. In addition, a replacement refrigerant must be compatible with the manufacturing process to be cooled. There is always the potential for leaks to occur that could result in the intermingling of the refrigerant and the process chemicals. If an inappropriate chemical is selected as a refrigerant, this potential intermingling could cause a chemical reaction that would damage or destroy refrigeration equipment or process equipment and potentially create a risk to human health or the environment.

Any refrigerant may theoretically be capable of achieving virtually any operating temperature; however, the amount of energy required to compress and circulate each refrigerant at given temperatures varies widely. It is not uncommon to determine that one refrigerant may require four times as much horsepower per ton of refrigeration capacity as another. The lower the temperature, the wider the difference. At any given temperature, particularly extremely low temperatures, some refrigerants may be able to utilize lower-powered, more efficient compressors while other refrigerants would need extremely large, powerful multiple-stage compressors. Physical constraints, such as the size of the room into which the refrigeration system must fit, may need to be considered. Therefore, the horsepower requirements could make a particular refrigerant impractical as a replacement.

EPA believes that it is appropriate to require the owners and operators of industrial process refrigeration equipment needing more than one year to complete retrofitting the system to maintain certain records and submit information to the Agency. Through this action, EPA is proposing that if additional time is necessary due to regulatory delays or the need for a suitable replacement, the owner or operator of the facility would have to notify EPA within six months after the 30-day period following the discovery of an exceedance of the 35 percent leak rate. Records necessary to allow a determination that these provisions apply and that document the length of time necessary to complete the work would need to be maintained. EPA believes that these records and the information submitted to EPA should include the following:

(1) Identification of the industrial process facility;

(2) Leak rate;

(3) Method used to determine the leak rate and full charge;

(4) Date a leak rate of 35 percent or greater was discovered;

(5) Location of leaks(s) to the extent determined to date;

(6) Any repair work that has been completed thus far and the date that work was completed;

(7) Plan to complete the retrofit or replacement of the system;

[2] Information EPA has received to date indicates that this system will most likely take the longest of those reviewed to retrofit.

(8) Reasons why more than one year is necessary to retrofit or replace the system;

(9) Date of notification to EPA;

(10) Estimate of when retrofit or replacement work will be completed;

(11) If time changes for original estimates, document reason for changes; and

(12) Date of notification to EPA of timing change. The last two items would only be required to be submitted as needed for a timing change.

EPA believes that most of the information included in these proposed recordkeeping and reporting requirements may be routinely maintained by the owners and operators of industrial process facilities. Where the records may not be routinely kept, the information EPA is proposing to require should not pose an undue burden to the affected community. Moreover, since EPA must base a determination of whether the circumstances faced by the owners or operators of the industrial process refrigeration equipment are such that additional time beyond the one year is reasonable, EPA requires this information in order to make an informed determination.

EPA requests comments on the need to provide additional time for the completion of retrofit activities for industrial process refrigeration equipment based on other applicable regulations and/or unavailability of acceptable refrigerants. In addition, EPA requests comments on the proposed recordkeeping and reporting requirements discussed in this section.

2. Additional Time Based on the Unavailability of Necessary Parts

Through this action, EPA is proposing that an additional one-year period beyond the initial one-year retrofit period be allowed for industrial process refrigeration equipment if four criteria are met: (1) The new or retrofitted refrigeration system is custom-built (meaning if it or any of its critical components cannot be purchased and/or installed without being specifically designed), fabricated and/or assembled to satisfy a specific set of industrial process conditions; (2) the supplier of the system or one or more of its crucial components has quoted a delivery time of more than 30 weeks from when the order is placed; (3) the owner or operator notifies EPA within six months of the expiration of the 30-day period following the discovery of an exceedance of the 35 percent leak rate to identify the owner or operator, describe the system involved, explain why more than one year is needed, and demonstrate that the first two criteria are met; and (4) the owner or operator maintains records adequate to allow a determination that the criteria are met.

EPA believes that a new or retrofitted refrigeration system should be considered custom-built if it or any of its critical components cannot be purchased and/or installed without being specifically designed, fabricated and/or assembled to satisfy a specific set of industrial process conditions. A critical component could be defined as a component without which an industrial process refrigeration system will not function, will be unsafe in its intended environment, or will be subject to failures that would cause the industrial process served by the refrigeration system to be unsafe. This proposed definition includes the need to consider the intended environment because of the potential uniqueness of conditions under which the system is required to operate. For example, some refrigeration systems must be operated in the presence of potentially corrosive substances, or flammable or combustible atmospheres. It may be necessary to ensure containment of toxic chemicals, or to ensure that potentially reactive chemicals are separated from each other. There may be high pressures or temperatures that could pose physical hazards if not restrained.

EPA intends for the term unsafe to include risks to human health and the environment. The term potentially could also refer to risks associated with property loss. For example, if cooling is needed to prevent runaway polymerization of process chemicals, then the sudden failure of the system could lead to an uncontrolled exothermic reaction, which could include a fire or potentially an explosion. While this clearly poses risks to human health and the environment, other operating conditions may be more likely to lead to property damage. EPA requests comments on this proposed definition of critical components and whether property damage should be included as part of this definition.

The industrial process refrigeration sector uses refrigeration in an extremely broad range of cooling capacities and temperature levels as well as a variety of applications. These conditions dictate the design, fabrication, and/or assembly of the refrigeration system and are responsible for the sheer diversity of mechanical specifications and equipment designs that comprise the industrial process refrigeration sector. These process conditions vary greatly from manufacturing process to manufacturing process. Below are examples of various process conditions that may need to be considered.

In the industrial sector, refrigeration systems are frequently used to cool highly corrosive product streams. As a result heat exchange evaporator tubes must be constructed of special materials and heavy wall thickness.

In the industrial sector, high pressures and high temperatures, particularly on the process side, are frequently encountered. As a result, process-side construction may have to withstand pressures seldomly encountered in commercial service. In addition, an extreme difference in temperature between the process inlet and outlet is common and requires consideration to be given to thermal stresses.

Industrial manufacturing operations with extremely low temperature requirements can result in high viscosities on the process side of the equipment. Although in the commercial sector, evaporators are designed with tubes of small inside diameter to achieve optimum heat transfer performance, tubes with extra-large inside diameters may be required to handle viscous streams. These high viscosities may require that an evaporator be equipped with rotating internal scrapers within tubes to provide for continual scraping of the heat transfer wall and facilitate the flow of the high viscosity fluid through the evaporator.

Manufacturing operations may be batch or continuous. A batch operation implies that operating conditions are expected to change over time usually in a repetitive pattern and therefore, the system must be designed for all extremes. In a continuous operation, temperatures, pressure, flow levels, composition, and other process parameters do not change with time.

Some manufacturing processes may yield products that are highly corrosive, highly viscous, or under high pressure and therefore not well suited for use in a refrigerant evaporator. Conditions such as these may require that the process fluid be cooled by an intermediate liquid, such as water that is itself cooled by evaporating the refrigerant. The selection of the liquid will be driven by the process condition. Some areas of the country have tight restrictions on water usage. In situations where water is utilized to cool equipment, river, lake, or well-water may provide the most economical cooling medium. In these instances, water treatment and special construction materials may be necessary.

EPA believes that the above scenarios represent specific sets of industrial

process conditions encountered by owners and operators of industrial process refrigeration equipment. However, EPA believes there are many other similar types of conditions that other industrial process refrigeration equipment owners or operators face. Therefore, this list of potential conditions is not intended to be all-inclusive.

EPA believes it is appropriate to provide additional time when a supplier of the system or one or more of its critical components has quoted a delivery time of more than 30 weeks from when the order is placed, assuming the order was placed in a timely fashion. EPA realizes that it may not be possible to specify a date by which the parts must be ordered. This is true because of the need to identify the specific leak point, determine the cause, decide appropriate action, create specifications and obtain any necessary modification approvals from facility managers and/or other regulatory entities. EPA believes that the 30-week time frame acknowledges that other activities, such as designing, installing, testing, etc. will more than fill up the remainder of the year. Thus, no matter when these facilities order the parts, if the suppliers quote 30 weeks or longer, they are already in the two-year time track for retrofitting or replacing the system. EPA believes that facilities have an incentive to expedite repairs, retrofits or replacements in order to avoid losing valuable refrigerant and to continue production under an efficiently running system. However, EPA does believe that, while it proposes additional time if delivery time is quoted as 30 weeks or more, a log of when the parts were ordered should be maintained by the company. This is especially critical for facilities that may later request an extension beyond the two years.

The owner or operator would be required to notify EPA within six months of the expiration of the 30-day period following the discovery of an exceedance of the 35 percent leak rate, to identify the owner or operator, describe the system involved, explain why more than one year is needed, and demonstrate that the first two criteria discussed above are met; and the owner or operator would be required to maintain records adequate to allow a determination that the criteria are met. This information would be maintained and reported using the recordkeeping scheme described in the section II.H.1. All of the information described here would fit within that scheme. EPA believes using the same recordkeeping and reporting requirements will streamline the requirements for the affected community and will lessen the regulatory burden.

EPA requests comment on the need to provide one year beyond the initial one year to complete all retrofitting or replacement activities when the facility is custom-built and when a supplier is quoting more than 30 weeks for delivery of a crucial component. EPA also requests comments on the associated recordkeeping and reporting requirements discussed in this section.

3. Additional Time Beyond the One Additional Year

EPA believes that in an extremely limited number of cases additional time beyond the one additional year may be necessary to retrofit or replace a system. Through this action, EPA is proposing that if more than one additional year is needed, the owner may request EPA to extend the deadline for completing all retrofit or replacement action. EPA proposes that such a request be submitted to EPA before the end of the ninth month of the additional year that was granted to retrofit, replace or retire the system. The request would be required to include revisions to that information submitted for the first additional year as proposed under § 82.166(o). Unless EPA objects to the request within 30 days of receipt, it would be deemed approved.

As EPA has earlier noted, one facility estimates that it will take three years to retrofit or replace its refrigeration units. These particular units have refrigerant charges of approximately 175,000 pounds each and are used in the processing of chlorine. The owner of that system has many other facilities that will be able to complete all retrofit or replacement work without need for this additional time extension. While EPA believes that in certain cases additional time may be necessary, EPA is concerned with scope of such an extension. As noted in the discussion concerning ordering parts, EPA would not favor an extension caused by a company delaying to place orders for components or other similar scenarios. EPA intends this extension to be granted only in cases where the actual nature of the retrofit or replacement activities is such that the additional time beyond the one year is crucial. The submittal of revised information requesting additional time under this provision could be consistent with submittal of information requesting additional time beyond the one-year timeframe. As stated in the discussion regarding the need for an additional year to complete retrofit or replacement activities, EPA believes that using the same recordkeeping and reporting scheme for all retrofit extensions lessens the burden for the affected community.

EPA requests comment on the need to provide additional time beyond the one additional year for industrial process refrigeration equipment, where necessary. In addition, EPA requests comments on the potential number of facilities and the potential reasons that may be cited for requesting such an extension. Furthermore, EPA requests comments on the associated recordkeeping and reporting requirements.

I. Allowing Appliances To Be Pressurized to Slightly Above 0 Psig

Members of the regulated community have requested that EPA revise requirements relating to oil changes. However, members of industry have expressed concern with respect to the status of small quantities of refrigerant that may escape from the appliance itself while oil is being removed.

Sections 82.156 and 82.158 call for evacuation of the refrigerant from the appliance, to a specified level of vacuum (or to atmospheric pressure, for non-major repairs that are not followed by an evacuation of the appliance to the environment). However, new information indicates that these levels of vacuum may often be impractical during oil changes. A small positive pressure is needed during oil changes, to force the oil from its reservoir. Oil will not flow from a reservoir that is under vacuum. Therefore, EPA is proposing to allow owners or operators to evacuate the appliance to slightly above atmospheric pressure specifically, to a pressure not exceeding 5 psig to perform oil changes. EPA believes that this approach will reduce emissions of ozone-depleting refrigerants to the atmosphere, and thus will have an overall positive impact on the environment. There are three principal reasons why this approach should produce an environmental benefit.

First, oil changes are a necessary part of preventive maintenance. If owners or operators are required to draw a deep vacuum before oil changes, that will add significant delay and expense, serving as a disincentive to regular oil changes. If appliances are not regularly maintained, they are more likely to break down and increase their emissions of refrigerant. They will also be more subject to catastrophic failures that could result in release of the entire refrigerant charge. Second, if a deep vacuum is required, air and moisture will be drawn into the system and will need to be purged later, which will result in emissions of refrigerant. This can be minimized by filling the

appliance with an inert gas such as nitrogen. However, the nitrogen would then need to be purged (releasing entrained refrigerant) before the appliance can be restored to operation.

Any environmental costs, i.e., additional emissions that accompany this procedure are likely to be small. When an appliance is brought nearly to atmospheric pressure, the great majority of the ozone-depleting refrigerants will be drawn from the compressor oil and recovered. This means there will not be significant emissions from the compressor oil after the oil has been removed from the appliance.

During oil changes, some quantity of refrigerant will be emitted from two different sources: from the oil that was removed, and from the appliance itself. Section 608(c) of the Act makes it unlawful to knowingly vent class I or class II refrigerants from appliances during servicing and maintenance, other than de minimis releases associated with good-faith efforts to recover the refrigerant. The regulation specifies that when the recovery procedures identified in §§ 82.156 and 82.158 are followed, any remaining emissions of refrigerant will be de minimis. EPA has thus determined that emissions of refrigerant from the oil are not subject to this prohibition.

EPA is thus proposing to revise requirements of § 82.156(a)(2)(i) to allow appliances to be pressurized up to 5 psig in order to change oil in industrial process refrigeration equipment.

J. Treatment of Purged Refrigerant

EPA would like to clarify that the Agency interprets the 35 percent leak rate in the regulations as not including emissions of purged refrigerant that are destroyed, if their destruction is accounted for and can be verified by records maintained by the owners or operators of the industrial process refrigeration equipment. If purged refrigerant is destroyed using one of the five destruction technologies approved by the Parties to the Montreal Protocol, EPA can consider that refrigerant to have been destroyed and therefore, not part of the leak rate for the system. These destruction technologies are liquid injection incineration, reactor cracking incineration, gaseous fume oxidation, rotary kiln incineration and cement kiln.

Industrial process refrigerant systems may vary greatly with regard to their use of purges. In considering purges, it is important to note the flow rate and the composition of the vent stream. For example, systems with a flow that is constant allow for the flow to be measured automatically. Systems that have intermittent mechanical purge units, or those with a batch production process may have greater variability and need a greater frequency of recording the amount of refrigerant purged.

EPA believes it is appropriate that in determining the rate of refrigerant loss, the owner or operator may exclude quantities of refrigerant sent for destruction by using an approved destruction technology under the Montreal Protocol. In deciding whether credit shall be given for the entire quantity sent for destruction or only for a percent of the actual refrigerant destroyed, the applicable provisions of the phaseout regulations (58 FR 65018) shall apply. The phaseout rule states that if the technology not only is approved under the Montreal Protocol, but also meets or exceeds a 98% destruction efficiency (DE), then 100% of the material may be considered destroyed. Below a 98% DE, credit is given only for the actual percentage destroyed.

Facilities that wish to utilize this exclusion would need to maintain records that are sufficient to support the amount of refrigerant claimed as sent for destruction. All records should be based on a monitoring strategy that will provide reliable data to demonstrate that the amount of refrigerant sent for destruction corresponds with the amount of refrigerant purged. Records should include the flow rate, quantity or concentration of the refrigerant in the vent stream, and periods of purge flow. An owner or operator using this exclusion should submit information to EPA that includes the identification of the facility and a contact person, including the address and telephone number. A general description of the refrigerant system should also be submitted, focusing on aspects of the system relevant to the purging of refrigerant and subsequent destruction, in addition to a description of the methods used to determine the quantity of refrigerant sent for destruction and type of records that are being kept by the facility. The frequency of monitoring and data-recording shall also be included. A description of the control device, and its destruction efficiency would be required. This information should be submitted within 60 days after the first time the exclusion is utilized by a facility. It should also be included in any reporting requirements required for compliance with the leak repair and retrofit requirements for industrial process refrigeration equipment in order to verify accurate leak rates.

EPA requests comments on the appropriateness of exempting purged refrigerant that has been destroyed using one of the approved destruction technologies under the Montreal Protocol. In addition, EPA requests comments on the recordkeeping and reporting procedures with which EPA would expect the owners or operators of industrial process refrigerant equipment to comply, if they choose to utilize an exemption for purged refrigerant that has been destroyed.

K. Temporarily Mothballing Equipment Prior to Repairing Leaks

EPA understands that for some of the equipment subject to the leak repair requirements promulgated under § 82.156(i), it may be possible for the owner or operator of the appliance to discontinue use of the equipment on a temporary basis, perhaps on a seasonal basis. This may also be true for equipment other than industrial process refrigeration appliances that are integrally linked to a manufacturing process. For example, it may be reasonable to shut down or mothball a comfort-cooling system for a period of time.

This type of system mothballing would not be the same as a process shutdown undertaken to repair particular leaks found in industrial process refrigeration or perform other maintenance activities. Also, this type of shutdown or mothballing is not the same as being taken off-line due to a power outage or event. A system mothballing is an intentional shutting down of the refrigerant appliance undertaken for an extended period of time by the owners or operators of that facility—not for the purposes of servicing or repairing the appliance—where the refrigerant has been evacuated.

If a facility is temporarily mothballed, EPA believes it is appropriate to suspend the time-relevant repair and/or retrofit requirements while the facility is effectively inoperative. For example, if a comfort-cooling system with over 50 pounds of refrigerant has a leak rate of more than 15 percent per year, the leak or leaks must be repaired or the system must be retrofitted within one year. However, if after discovery of the exceedance of the leak rate, the owner of the system voluntarily mothballs the system for a period of several months or years, EPA believes it is appropriate to suspend the need to repair leaks or retrofit the system during the same time period. Therefore, if the system operated for five days after discovery of the exceedance of the leak rate, then shut down for 2 months, when the system returned to operating, the owner or operator will still have 25 days to repair

the leaks. The necessary applicable static and dynamic tests would need to be employed.

EPA believes that while the system is mothballed, only a limited amount of refrigerant, if any, is likely to be released to the atmosphere from the leak or leaks, since the appliance or isolated section of the appliance has been evacuated per requirements of § 82.156 of subpart F. Therefore, there is no environmental benefit for maintaining required timelines for completion of repairs when the system is not in operation in a mothballed situation. EPA requests comments on providing a de facto extension to the owners or operators of systems subject to the leak repair requirements promulgated under § 82.156(i) that voluntarily mothball their systems.

L. Proposed Extension for Federally-Owned Commercial and Comfort-cooling Refrigeration Equipment

EPA has received new information indicating that certain federal entities periodically have difficulty complying with the 30-day leak repair requirement and the one-year retrofit/retirement requirement for leaky refrigeration equipment subject to the requirements of § 82.156(i). This equipment does not appear to be unique in design; however, many of these systems are older. The difficulties appear to stem from the need to procure parts for these systems. The concerns are based on the need to follow specific government procurement practices that may be more cumbersome than those faced by private sector entities. These procurement practices are set forth by statute, the Federal Acquisition Regulations, and often specific Agency procedures.

EPA has received information from one federally-owned entity in this regard, claiming the need to provide an exemption for federally-owned equipment subject to the leak repair requirements promulgated under § 82.156(i) when mandated procurement practices prevent timely delivery of parts. EPA understands that in addition to the fact that older parts may be more difficult to obtain and may be more costly, the federal procurement process may further delay acquisition of parts in timely fashion. EPA requests comments that would indicate whether this situation is unique to the federal government or if other situations unique to the federal government could justifiably merit an extension.

If a government facility believes it will take longer than the 30 days to complete repairs or more than one year to complete retrofit or retirement activity, EPA is proposing that the facility be able to submit a request for extensions parallel to those outlined in today's action for industrial process refrigeration systems, but based on the hindrance of federal procurement requirements. If additional time is granted, EPA also proposes that testing and documentation should occur, parallel to those for industrial process refrigeration systems.

In light of the above discussion, EPA is proposing today to provide extensions to the leak repair provisions for federally-owned commercial and comfort-cooling systems. However, EPA is requesting comments that may shed light on additional information in this regard. EPA is particularly interested in how the FAR could negatively affect compliance with the requirements promulgated under § 82.156(i).

III. Summary of Supporting Analysis

A. Executive Order 12866

Under Executive Order 12866 (58 FR 51735, October 4, 1993), the Agency must determine whether this regulatory action is ''significant'' and therefore subject to OMB review and the requirements of the Executive Order. The Order defines ''significant'' regulatory action as one that is likely to lead to a rule that may:

(1) Have an annual effect on the economy of $100 million or more, or adversely and materially affect a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities;

(2) Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;

(3) Materially alter the budgetary impact of entitlement, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or

(4) Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order.

It has been determined by OMB and EPA that this proposed amendment to the final rule is not a ''significant regulatory action'' under the terms of Executive Order 12866 and is therefore not subject to OMB review under the Executive Order.

B. Regulatory Flexibility Act

The Regulatory Flexibility Act, 5 U.S.C. 601–602, requires that Federal agencies examine the impacts of their regulations on small entities. Under 5 U.S.C. 604(a), whenever an agency is required to publish a general notice of proposed rulemaking, it must prepare and make available for public comment an initial regulatory flexibility analysis (RFA). Such an analysis is not required if the head of an agency certifies that a rule will not have a significant economic impact on a substantial number of small entities, pursuant to 5 U.S.C. 605(b).

EPA believes that any impact that this proposed amendment will have on the regulated community will serve only to provide relief from otherwise applicable regulations, and will therefore limit the negative economic impact associated with the regulations previously promulgated under Section 608. An examination of the impacts on small entities was discussed in the final rule (58 *FR* 28660). That final rule assessed the impact the rule may have on small entities. A separate regulatory impact analysis was developed. That impact analysis accompanied the final rule and is contained in Docket A–92–01. I certify that this proposed amendment to the refrigerant recycling rule will not have any additional negative economic impacts on any small entities.

C. Paperwork Reduction Act

The information collection requirements in this proposed rule have been submitted for approval to the Office of Management and Budget (OMB) under the *Paperwork Reduction Act,* 44 U.S.C. 3501 *et seq.* An Information Collection Request document has been prepared by EPA (ICR No. 1626.03) and a copy may be obtained from Sandy Farmer, Information Policy Branch; EPA; 401 M St., SW. (2136); Washington, DC 20460 or by calling (202) 260–2740.

This collection of information has an estimated reporting burden averaging 10 hours per response and an estimated recordkeeping burden averaging 15 minutes per response. These estimates include time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing the collection of information.

Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Chief, Information Policy Branch; EPA; 401 M St., SW. (2136); Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503, marked ''Attention: Desk Officer for EPA.'' The final Rule will respond to any OMB or public comments on the information collection requirements contained in this proposal.

List of Subjects in 40 CFR Part 82

Environmental protection, Air pollution control, Dynamic test, Industrial process refrigeration, Leak repair, Recordkeeping requirements, Static test.

Dated: January 9, 1995.

Carol M. Browner,

Administrator.

Part 82, chapter I, title 40, of the code of Federal Regulations, is amended to read as follows:

PART 82—PROTECTION OF STRATOSPHERIC OZONE

1. The authority citation for part 82 continues to read as follows:

Authority: 42 U.S.C. 7414, 7601, 7671–7671q.

2. Section 82.152 is amended by removing the paragraph designations from the definitions and placing them in alphabetical order and by adding the following definitions in alphabetical order:

§ 82.152 Definitions.

* * * * *

Critical component means for the purposes of § 82.156(i) a component without which an industrial process refrigeration system will not function, will be unsafe in its intended environment, and/or will be subject to failures that would cause the industrial process served by the refrigeration system to be unsafe.

Custom-built means for the purposes of § 82.156(i) if the equipment or any of its critical components cannot be purchased and/or installed without being specifically designed, fabricated and/or assembled to satisfy a specific set of industrial process conditions.

* * * * *

Dynamic test means for the purposes of § 82.156(i) those tests that involve checking the repairs within 30 days of returning to steady-state operating characteristics. Dynamic tests for equipment from which the refrigerant charge has been evacuated means a test conducted after the appliance or portion of the appliance has resumed operation at steady-state or normal operating conditions of temperature and pressure. A dynamic test with respect to repairs conducted without evacuation of the refrigerant charge means a reverification test conducted after the static test. Where a system is not evacuated, it is only necessary to conclude any required changes in pressure, temperature or other conditions to return the system to a steady-steady for operations.

Full charge means for the purposes of § 82.156(i) the amount of refrigerant required for steady-state operations of the industrial process refrigeration equipment as determined using one of the following three methods or a combination of one of the following three methods:

(1) The use of the equipment manufacturers' determination of the correct full charge for the equipment;

(2) Determining the full charge based on the use of appropriate calculations where the owners or operators of a system are able to calculate the full charge based on component sizes, density of refrigerant, volume of piping, and other relevant considerations; and/or

(3) The use of actual measurements by the owners or operators of the amount of refrigerant added or evacuated from an industrial process refrigeration system.

* * * * *

Process shutdown means for the purposes of § 82.156(i) when, for purposes such as maintenance or repair, an industrial process or facility temporarily ceases to operate or manufacture whatever is being produced at the particular facility.

* * * * *

Static test means for the purposes of § 82.156(i) those leak tests that are conducted as soon as practicable after the repair is completed. A static test with regard to the leak repairs that require the evacuation of the equipment or portion of the equipment means a test conducted prior to the replacement of the full refrigerant charge and before the appliance or portion of the appliance has reached operation at normal working conditions of temperature and pressure. A static test with regard to repairs conducted without the evacuation of the refrigerant charge means a test conducted as soon as practicable after the conclusion of the repair work.

Steady-state operating characteristics or conditions means for the purposes of § 82.156(i) operating at temperatures, pressures, fluid flows, speeds and other characteristics that would normally be expected for a given process load and ambient condition. Steady-state operating characteristics are marked by the absence of atypical conditions affecting the operation of the refrigeration system.

Suitable replacement refrigerant means for the purposes of § 82.156(i)(2)(i) that a refrigerant is acceptable under section 612(c) of the Clean Air Act Amendments of 1990 and all regulations promulgated under that section, compatible with other materials with which it may come into contact, and be able to achieve the temperatures required for the affected industrial process in a technically feasible manner.

* * * * *

System mothballing means the intentional shutting down of a refrigerant system undertaken for an extended period of time by the owners or operators of that facility, not for the purposes of servicing or repairing the appliance, where the refrigerant has been evacuated from the appliance or the isolated section of the appliance, at least to atmospheric pressure.

* * * * *

3. Section 82.156 is amended by revising paragraphs (a)(2)(i)(A) and (a)(2)(i)(B), adding a new paragraph (a)(2)(i)(C), and revising paragraph (i) to read as follows:

§ 82.156 Required practices.

* * * * *

(a) * * *

(2)(i) * * *

(A) Be evacuated to a pressure no higher than 0 psig before it is opened if it is a high- or very high-pressure appliance;

(B) Be pressurized to 0 psig before it is opened if it is a low-pressure appliance. Persons pressurizing low-pressure appliances that use refrigerants with boiling points at or below 85 degrees Fahrenheit at 29.9 inches of mercury (standard atmospheric pressure), (e.g., CFC–11 and HCFC–123), must not use methods, such as nitrogen, that require subsequent purging. Persons pressurizing low-pressure appliances that use refrigerants with boiling points above 85 degrees Fahrenheit at 29.9 inches of mercury, e.g., CFC–113, must use heat to raise the internal pressure of the appliance as much as possible, but may use nitrogen to raise the internal pressure of the appliance from the level attainable through use of heat to atmospheric pressure; or

(C) In the case of oil changes, be evacuated or pressurized to a pressure no higher than 5 psig, before it is opened.

* * * * *

(i)(1) Owners of commercial refrigeration equipment must have leaks repaired if the equipment is leaking at a rate such that the loss of refrigerant will exceed 35 percent of the total charge during a 12-month period in accordance with paragraph (i)(9) of this section, except as described in paragraphs (i)(6) and (i)(8) of this section and paragraphs (i)(1)(i), (i)(1)(ii), and (i)(1)(iii) of this section. Repairs must bring the annual leak rate to below 35%.

(i) If the owners or operators of the federally-owned commercial refrigerant equipment determine that the leaks cannot be repaired in accordance with paragraph (i)(9) of this section and that an extension in accordance with the requirements discussed in this paragraph (i)(1)(i) of this section apply, they must document all repair efforts, and notify EPA of their inability to comply within the 30-day repair requirement, and the reason for the inability must be submitted to EPA in accordance with § 82.166(n).

(ii) Owners or operators of federally-owned commercial refrigeration equipment may have more than 30 days to repair leaks if federal procurement procedures make a repair within 30 days impossible. Only the additional time needed to receive delivery of the necessary parts will be permitted.

(iii) Owners or operators of federally-owned commercial refrigeration equipment requesting or who are granted time extensions under this paragraph must comply with paragraphs (i)(3) and (i)(4) of this section.

(2) The owners or operators of industrial process refrigeration equipment must exert best efforts to repair the leaks if the equipment is leaking at a rate such that the loss of refrigerant will exceed 35 percent of the total charge during a 12-month period in accordance with paragraph (i)(9) of this section, except as described in paragraphs (i)(6) and (i)(7), and paragraphs (i)(2)(i) and (i)(2)(ii) of this section. Repairs must bring annual leak rates to below 35%. If the owners or operators of the industrial process refrigerant equipment determine that the leaks cannot be repaired in accordance with paragraph (i)(9) of this section and that an extension in accordance with the requirements discussed in this paragraph apply, they must document all repair efforts, and notify EPA of their inability to comply within the 30-day repair requirement, and the reason for the inability must be submitted to EPA in accordance with § 82.166(n).

(i) The owners or operators of industrial process refrigeration equipment may have more than 30 days to repair leaks if the necessary parts are unavailable or if requirements of other applicable federal, state, or local regulations make a repair within 30 days impossible. Only the additional time needed to receive delivery of the necessary parts or comply with the pertinent regulations will be permitted.

(ii) Owners of industrial process refrigeration equipment will have a 120-day repair period, rather than a 30-day repair period, to repair leaks in instances where an industrial process shutdown is needed to repair a leak or leaks from industrial process refrigeration equipment.

(3) The owners or operators of refrigeration equipment who are granted additional time under paragraphs (i)(1), (i)(2), (i)(5), (i)(7), and (i)(8) of this section must ensure that the repair efforts performed be those that sound engineering judgment indicates will be sufficient to bring the leak rates below the applicable allowable annual rate, that when a process shutdown has occurred or when repairs have been made while a system is mothballed, a static test be conducted at the conclusion of the repairs and that a dynamic test be conducted within 30 days of completing the repairs or within 30 days of bringing the system back on-line, if taken off-line, but no sooner than when the system has achieved steady-state operating characteristics.

(i) Refrigeration equipment may not be brought back on-line, if taken off-line, until a static test indicates that the repairs undertaken in accordance with paragraphs (i)(1) (i), (ii), and (iii), or (i)(2) (i) and (ii), or (5)(i), (ii) and (iii) of this section, have been successfully completed to bring the leak rate below the applicable allowable annual rate.

(ii) If the dynamic test indicates that the repairs to refrigeration equipment have not been successfully completed, the owner must retrofit or replace the equipment in accordance with paragraph (i)(6) of this section within one year of the failure to verify that the repairs had been successfully completed or such longer time period as may apply in accordance with paragraphs (i)(7)(i), (ii) and (iii) or (i)(8) (i) and (ii) of this section. The owners and operators of refrigeration equipment are relieved of this requirement if the conditions of paragraphs (i)(3)(iv) or (i)(3)(v) of this section are met.

(iii) The owner or operator of refrigeration equipment that fails a dynamic test must notify EPA of the failure within 30 days of conducting the failed dynamic test in accordance with § 82.166(n).

(iv) The owner or operator is relieved of the obligation to retrofit or replace the refrigeration equipment as discussed in paragraph (i)(6) of this section if a second attempt to repair the same leaks that were the subject of the first repair attempt is successfully completed and subject to the same verification requirements of paragraphs (i)(3) (i) and (ii) of this section. The owner or operator is required to notify EPA within 30 days of the successful dynamic verification test in accordance with § 82.166(n) and the owner or operator would no longer be subject to the obligation to retrofit or replace the equipment that arose as a consequence of the initial failure to repair the leaks successfully.

(v) The owner or operator of refrigeration equipment is relieved of the obligation to retrofit or replace the equipment in accordance with paragraph (i)(6) of this section if within 180 days of the failed dynamic verification test, the owner or operator establishes that the system's annual leak rate does not exceed the applicable allowable annual leak rate, in accordance with paragraph (i)(4) of this section. If the equipment owner or operator establishes that the system's annual leak rate does not exceed the applicable allowable annual leak rate, the owner or operator is required to notify EPA within 30 days of that determination in accordance with § 82.166(n) and the owner or operator would no longer be subject to the obligation to retrofit or replace the equipment that arose as a consequence of the initial failure to repair the leaks successfully.

(4) In the case of a failed dynamic verification test, the determination of whether refrigeration equipment has an annual leak rate that exceeds the applicable allowable annual leak rate will be determined in accordance with parameters identified by the owner or operator in its notice to EPA regarding the failure of the initial dynamic verification test and where those parameters are acceptable to EPA. The determination must be based on the amount of refrigerant contained in the full charge for the affected industrial process refrigeration equipment. The leak rate determination parameters will be considered acceptable unless EPA notifies the owners or operators within 30 days.

(5) Owners of appliances normally containing more than 50 pounds of refrigerant and not covered by paragraph (i)(1) or (i)(2) of this section must have leaks repaired if the system is leaking at a rate such that the loss of refrigerant will exceed 15 percent of the total charge during a 12-month period in accordance with paragraph (i)(9) of this section, except as described in paragraphs (i)(6) and (i)(8) of this section and paragraphs (i)(5)(i), (i)(5)(ii) and (i)(5)(iii) of this section. Repairs must bring the annual leak rate to below 15%.

(i) If the owners or operators of federally-owned comfort-cooling refrigerant equipment determine that the leaks cannot be repaired in accordance with paragraph (i)(9) of this section and that an extension in

accordance with the requirements discussed in paragraph (i)(5) of this section apply, they must document all repair efforts, and notify EPA of their inability to comply within the 30-day repair requirement, and the reason for the inability must be submitted to EPA in accordance with § 82.166(n).

(ii) Owners or operators of federally-owned comfort-cooling refrigeration equipment may have more than 30 days to repair leaks if federal procurement procedures make a repair within 30 days impossible. Only the additional time needed to receive delivery of the necessary parts will be permitted.

(iii) Owners or operators of federally-owned comfort-cooling refrigeration equipment requesting or who are granted time extensions under this paragraph must comply with paragraphs (i)(3) and (i)(4) of this section.

(6) Owners or operators are not required to repair the leaks defined in paragraphs (i)(1), (2) and (5) of this section if, within 30 days, they develop a one-year retrofit or retirement plan for the leaking equipment. This plan (or a legible copy) must be kept at the site of the equipment. The original must be made available for EPA inspection on request. The plan must be dated and all work under the plan must be completed within one year of the plan's date except as described in paragraphs (i)(7) and (i)(8) of this section. Owners are temporarily relieved of this obligation if the appliance has undergone system mothballing as defined in § 82.152.

(7) The owners or operators of industrial process refrigeration equipment will be allowed an additional year to complete the retrofit or retirement of industrial process refrigeration equipment if the conditions described in paragraph (i)(7)(i) or (i)(7)(ii) of this section are met, and will be allowed one year beyond the additional year if paragraph (i)(7)(iii) of this section is met.

(i) Additional time, to the extent reasonably necessary, will be allowed for retrofitting or retiring industrial process refrigeration equipment due to delays occasioned by the requirements of other applicable federal, state, or local regulations, or due to the unavailability of a suitable replacement refrigerant with a lower ozone-depletion potential. If these circumstances apply, the owner or operator of the facility must notify EPA within six months after the 30-day period following the discovery of an exceedance of the 35% leak rate. Records necessary to allow EPA to determine that these provisions apply and the length of time necessary to complete the work, in accordance with § 82.166(o), must be submitted to EPA, as well as maintained on-site. EPA will notify the owner or operator of its determination within 60 days of the submittal.

(ii) An additional one-year period beyond the initial one-year retrofit period is allowed for industrial process refrigeration equipment where the following criteria are met:

(A) The new or the retrofitted industrial process refrigerant system is custom-built;

(B) The supplier of the system or one or more of its crucial components has quoted a delivery time of more than 30 weeks from when the order is placed;

(C) The owner or operator notifies EPA within six months of the expiration of the 30-day period following the discovery of an exceedance of the 35% leak rate to identify the owner or operator, describe the system involved, explain why more than one year is needed, and demonstrate that the first two criteria are met in accordance with § 82.166(o); and

(D) The owner or operator maintains records adequate to allow a determination that the criteria are met.

(iii) The owners or operators of industrial process refrigerant equipment may request additional time to complete retrofitting or retiring industrial process refrigeration equipment beyond the additional one-year period if needed and where the initial additional one year was granted in accordance with paragraph (i)(7) (i) or (ii) of this section. The request shall be submitted to EPA before the end of the ninth month of the first additional year and shall include revisions of information required under § 82.166(o). Unless EPA objects to this request submitted in accordance with § 82.166(o) within 30 days of receipt, it shall be deemed approved.

(8) Owners or operators of federally-owned commercial or comfort-cooling refrigeration equipment will be allowed an additional year to complete the retrofit or retirement of industrial process refrigeration equipment if the conditions described in paragraph (i)(8)(i) of this section is met, and will be allowed one year beyond the additional year if paragraph (i)(8)(ii) of this section is met.

(i) An additional one-year period beyond the initial one-year retrofit period is allowed for such equipment where the following criteria are met:

(A) Due to complications presented by the federal procurement process, a delivery time of more than 30 weeks from the beginning of the official procurement process is quoted;

(B) The operator notifies EPA within six months of the expiration of the 30-day period following the discovery of an exceedance of the applicable allowable annual leak rate to identify the operator, describe the system involved, explain why more than one year is needed, and demonstrate that the first criterion is met in accordance with § 82.166(o); and

(C) The operator maintains records adequate to allow a determination that the criteria are met.

(ii) The owners or operators of federally-owned commercial or comfort-cooling refrigerant equipment may request additional time to complete retrofitting, replacement or retiring such refrigeration equipment beyond the additional one-year period if needed and where the initial additional one year was granted in accordance with paragraph (i)(8)(i) of this section. The request shall be submitted to EPA before the end of the ninth month of the first additional year and shall include revisions of information earlier submitted as required under § 82.166(o). Unless EPA objects to this request submitted in accordance with § 82.166(o) within 30 days of receipt, it shall be deemed approved.

(9) Owners or operators must repair leaks pursuant to paragraphs (i) (1), (2) and (5) of this section within 30 days of discovery, or within 30 days of when the leaks should have been discovered if the owners intentionally shielded themselves from information which would have revealed a leak, unless granted additional time pursuant to paragraph (i) of this section.

(10) The amount of time for owners and operators to complete repairs, retrofit plans or retrofits/replacements/retirements under paragraphs (i)(1), (i)(2), (i)(5), (i)(6), (i)(7), (i)(8), and (i)(9) of this section is temporarily suspended at the time a system is mothballed as defined in § 82.152. The time for owners and operators to complete repairs, retrofit plans, or retrofits/replacements under paragraph (i)(10) of this section will resume on the day the appliance is brought back on-line and is no longer considered mothballed.

(11) In calculating annual leak rates, purged refrigerant that is destroyed will not be counted toward the leak rate, in accordance with the definition of ''destruction'' set forth in 40 CFR 82.3(g). Owners or operators destroying purged refrigerants must maintain information as set forth in § 82.166(p)(1) and submit to EPA, within 60 days after the first time such exclusion is used by that facility, information set forth in § 82.166(p)(2).

4. § 82.166 is amended by adding paragraphs (n), (o), and (p) to read as follows:

§ 82.166 Reporting and recordkeeping requirements.

* * * * *

(n) The owners or operators of refrigeration equipment must maintain and report to EPA the following information where such reporting and recordkeeping is required and within the timelines specified under § 82.156 (i)(1), (i)(2), (i)(3) and (i)(5). This information must be relevant to the affected industrial process refrigeration equipment and must include:

(1) Identification of the facility;

(2) The leak rate;

(3) The method used to determine the leak rate and full charge;

(4) The date a leak rate of greater than the allowable annual leak rate was discovered;

(5) The location of leaks(s) to the extent determined to date;

(6) Any repair work that has been completed thus far and the date that work was completed;

(7) A plan to fix all other outstanding leaks to achieve a rate below the applicable allowable leak rate;

(8) The reasons why more than 30 days are needed to complete the work; and

(9) An estimate of when repair work will be completed. Where changes from original estimate of work when work will be completed occur, the reasons for these changes must be documented and submitted to EPA within 30 days of discovery of the need for such a change. The dates and types of static and dynamic tests performed and test results for all static and dynamic tests must be maintained and submitted to EPA within 30 days of conducting each test. All the information specified in paragraph (n) of this section must be maintained by the refrigeration facility on-site.

(o) The owners or operators of refrigeration equipment must maintain and report to EPA the following information where such reporting and recordkeeping is required and in the timelines specified in § 82.156(i)(7) and (i)(8), in accordance with § 82.156(i)(7) and (i)(8). This information must be relevant to the affected industrial process refrigeration equipment and must include:

(1) The identification of the industrial process facility;

(2) The leak rate;

(3) The method used to determine the leak rate and full charge;

(4) The date a leak rate of 35 percent or greater was discovered;

(5) The location of leaks(s) to the extent determined to date;

(6) Any repair work that has been completed thus far and the date that work was completed;

(7) A plan to complete the retrofit or replacement of the system;

(8) The reasons why more than one year is necessary to retrofit to replace the system;

(9) The date of notification to EPA;

(10) An estimate of when retrofit or replacement work will be completed;

(11) If time changes for original estimates occur, document reason for these changes; and

(12) The date of notification to EPA regarding a change in the estimate of when the work will be completed.

(13) The items in paragraphs (o) (11) and (12) of this section only are required to be submitted when such changes occur, and will be submitted within 30 days of occurring. All the information specified in paragraph (o) of this section must be maintained by the refrigeration facility on-site.

(p)(1) Owners or operators who wish to exclude purged refrigerants that are destroyed from annual leak rate calculations must maintain records on-site to support the amount of refrigerant claimed as sent for destruction. Records shall be based on a monitoring strategy that provides reliable data to demonstrate that the amount of refrigerant sent for destruction corresponds with the amount of refrigerant purged. Records shall include flow rate, quantity or concentration of the refrigerant in the vent stream, and periods of purge flow.

(2) Owners or operators who wish to exclude purged refrigerants that are destroyed from annual leak rate calculations must submit information to EPA, within 60 days after the first time the exclusion is utilized by a facility, that includes:

(i) The identification of the facility and a contact person, including the address and telephone number;

(ii) A general description of the refrigerant system, focusing on aspects of the system relevant to the purging of refrigerant and subsequent destruction;

(iii) A description of the methods used to determine the quantity of refrigerant sent for destruction and type of records that are being kept by the facility;

(iv) The frequency of monitoring and data-recording; and

(v) A description of the control device, and its destruction efficiency.

(vi) This information must also be included in any reporting requirements required for compliance with the leak repair and retrofit requirements for industrial process refrigeration equipment, as set forth in paragraphs (n) and (o) of this section.

[FR Doc. 95–1250 Filed 1–18–95; 8:45 am]

BILLING CODE 6560–50–P