Stationary Refrigeration System Requirements

Overview of 40 CFR Part 82, Subpart F

CAPCA 2007 Fall Meeting

Trinity Consultants Instructor

Michael Ballenger

mballeng@trinityconsultants.com

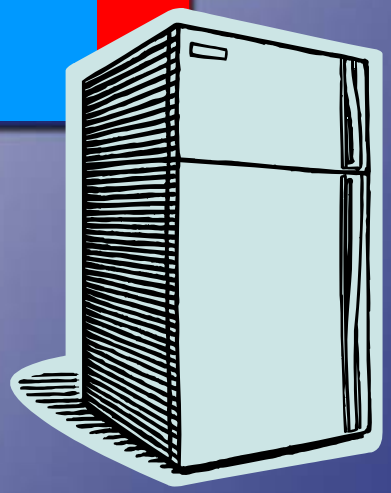
240-379-7490

Trinity Consultants

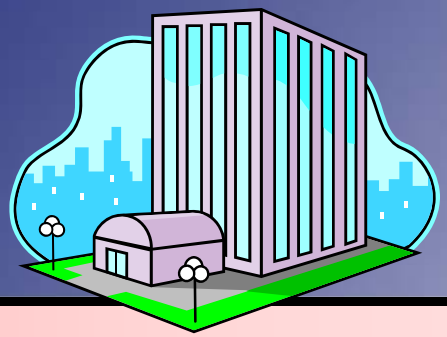
Table of Contents

- Key Stationary Refrigeration System Requirements
- Typical Noncompliance
  - Common Mistakes
  - Compliance Risks
- Tips on How to Comply
  - Best Practices
  - Success Story

Trinity Consultants



Key Stationary Refrigeration System Requirements



Trinity Consultants

Leak Repair Provisions

- Created by 08/08/1995 amendment (60 FR 40420) to 40 CFR 82, Subpart F
  - Establishes specific requirements for the repair of leaks of Class I and Class II refrigerants from industrial, commercial refrigerant, and comfort cooling systems
  - By far the most common non-compliance area

Trinity Consultants

40 CFR 82, Subpart F

- Recovery/recycling equipment certifications
- Technician training and certifications
- Leak rate calculation for equipment containing greater than 50 lbs of refrigerant (per circuit)
- Maintenance, recordkeeping, & reporting requirements

Most facilities have the necessary certifications or use contractors

Common problem areas!

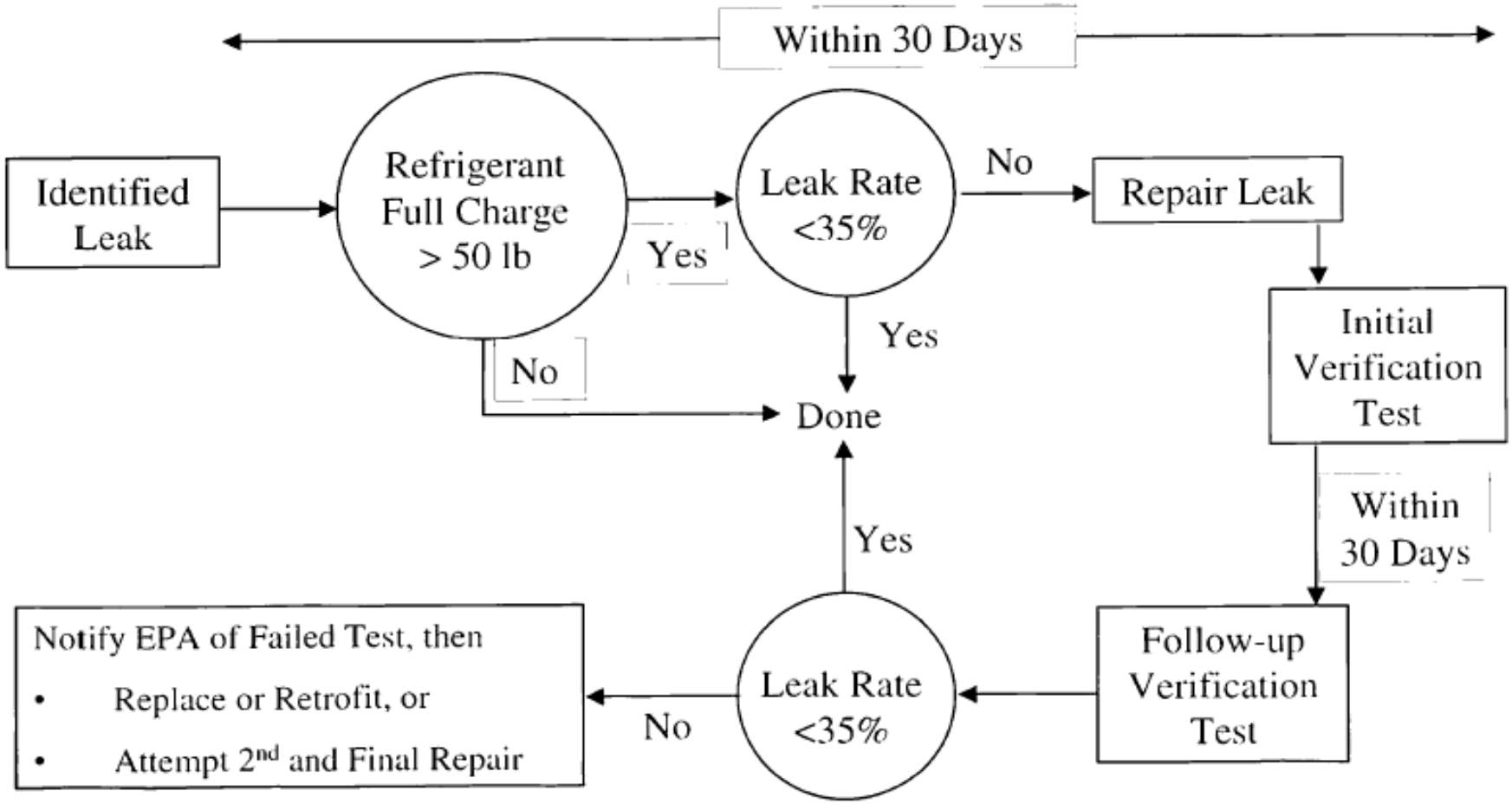
Trinity Consultants

Leak Repair – Recordkeeping

- Required records for all systems with a charge > 50 lbs (required even when work is done by contractors):
  - System type & full charge (e.g., IPE w/ 100 lbs of R-12)
  - Date & type of any maintenance and leak discoveries
  - Who performed the work (verify technician certification)
  - Amount of refrigerant added
  - Date & amount of refrigerant purchased (if add own)
  - Any leaks that were repaired and the dates of repairs
  - Calculated leak rate
  - Date & result of initial verification test
  - Date(s) & result(s) of follow-up verification test(s)

Trinity Consultants

Industrial Process Refrigeration Units



Trinity Consultants

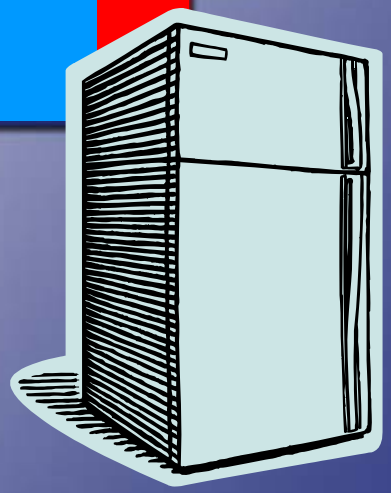
Leak Repair Provisions

- Guidance document available from the EPA (created along with the CMA)
  - *Compliance Guidance for Industrial Process Refrigeration Leak Repair Regulations Under Section 608 of the Clean Air Act*
  - Can download the guidance document at:

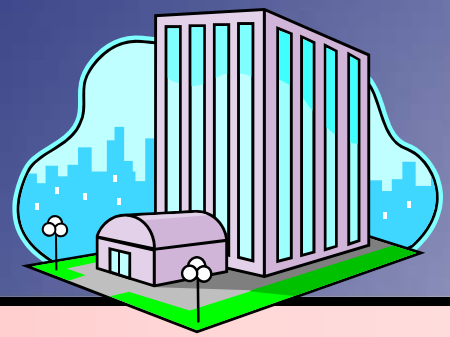
http://www.epa.gov/Ozone/title6/608/compguid/compguid.html

This guidance document is specifically geared towards industrial process refrigeration units!

Trinity Consultants



Typical Noncompliance



Trinity Consultants

Common Mistakes (1 of 3)

- Assuming your contractor is handling the leak repair provisions (calculations, etc.) for you
- Contractor (Certified Technician) Responsibilities:
  - Recovering refrigerant
  - Servicing unit
  - Tracking amount of refrigerant added
- Facility Responsibilities:
  - Certified techs are licensed to operate in the state
  - All certifications, recordkeeping, leak rates, reporting
  - You are responsible for violations!

Trinity Consultants

Common Mistakes (2 of 3)

- Full Inventory of Appliances Containing Refrigerant
  - Not knowing the full charge of all units
  - Unit classification (Industrial Process, Comfort Cooling)
  - Service tags not matching Unit IDs
- Repair Records
  - Not obtaining the records in a timely fashion from the certified technicians so that the calculations can be performed, if necessary, within the appropriate timeframes

Trinity Consultants

Common Mistakes (3 of 3)

- Prompt actions following identification of leaking appliance
  - Not performing leak rate calculations promptly, if at all (repairs and verification on a timeline)
  - Not performing follow-up verification tests
  - Not recording verification test dates & results
- Incomplete service records (invoice not enough)

Trinity Consultants

Compliance Risk

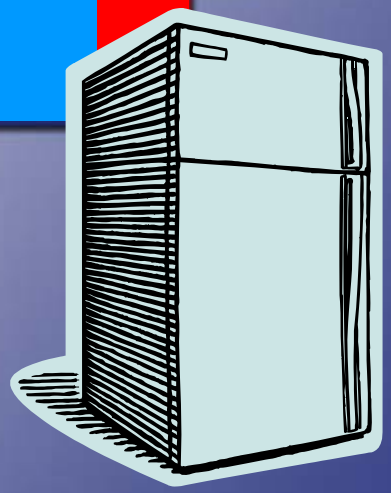
- Assume others are responsible
  - Maintenance assumes EHS is keeping records and vice versa
  - Turnover (Site Lead or Certified Techs)
  - Summer Vacations
  - Facilities assume that there is an overlap between Certified Techs and refrigerant-related activities
- No formalized system
  - Management Plan
    - EHS, Maintenance and Contractor – approved
  - Accountability

Trinity Consultants

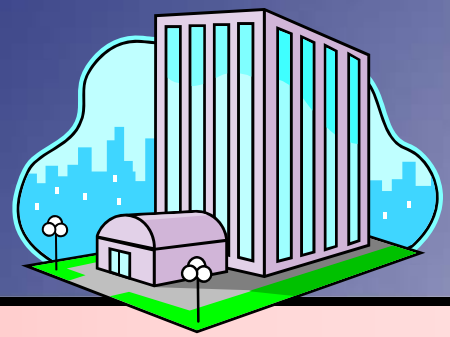
Sample Enforcement Actions

Company	Date	Violation	Settlement Agreement Penalties
DuPont	5/2/2005	Tennesee plant violated the leak repair provisions	$1.1 Million in injunctive relieve (retrofit or retirement), $250,000 civil penalty, and perform a $1.2 Million SEP.
University of California	2/22/2005	Berkely & Davis campuses - Did not properly remove CFC, repair leaks within 30 days or prepare a retrofit plan. Incomplete records.	$118,404 civil penalty (addresses all 15 identified violations at the two campuses through a single settlement).
Earthgrains Baking Companies	7/30/2003	57 facilities violated the leak repair provisions	$5.25 Million settlement agreement plus conversion of all refrigerant systems to equipment that does not contain ozone depleting compounds (estimated $5 Million)
Ganes Chemicals Inc.	2/19/2003	New Jersey plant violated the leak repair provisions	$303,600 civil penalty
Air Liquide America Corp.	6/21/2001	22 facilities violated the leak repair provisions	$4.5 Million civil penalty, providing $500,000 for supplemental environmental projects, and conversion of all refrigerant systems to equipment that does not contain ozone depleting compounds
Meyer's Bakery	9/11/2000	5 facilities violated the leak repair provisions	$3.5 Million in overall penalties plus conversion of all refrigerant systems to equipment that does not contain ozone depleting compounds

Trinity Consultants



Tips on How to Comply



Trinity Consultants

Best Practices (1 of 3)

- Create internal procedures and forms (with required info) to track maintenance on refrigeration units
  - Be sure to label items in service record forms using terms from the regulations
  - Define a consistent naming convention for identification of each refrigeration appliance in the facility's inventory
  - If possible, maintain as many required records on one form
  - Keep back-up records
  - Assemble information into a file or database to facilitate compliance review

Trinity Consultants

Best Practices (2 of 3)

- Involve Maintenance
  - Educate / train maintenance personnel and/or contractors on regulatory requirements
  - Unlike other regulated emission units, refrigeration units typically do not involve operations (only required records when not working)
- Assign Accountability
  - Primary responsibility – Site Refrigeration Program Coordinator
  - Who keeps what records
  - Who checks the records

Trinity Consultants

Best Practices (3 of 3)

- Create a system (e.g., spreadsheet) to store refrigerant system data and automatically calculate leak rates
  - This could be combined within the functionality of a recordkeeping database
  - If necessary, perform historical calculations
- Consider the value of auditing your records and systems

Trinity Consultants

Success Story

- Dedicated resources to verify inventory
- Drafted facility Plan for Refrigeration Management
  - EHS Manager, Maintenance Supervisor, Contractor Representative, Certified Technicians, and Plant Manager understanding and approval
- Purchased compliance tracking database (helpful for large facilities with multiple refrigeration appliances)
- Acknowledgement of accountability / responsibility (management communication)
- Developed management of change
- On-going compliance reviews by refrigerant program manager
- In-depth compliance reviews by EHS semi-annually (concurrent w/ Title 5)
- Annual compliance method assessment and update to Refrigeration Management Plan

Trinity Consultants

Questions and Discussions

Trinity Consultants