



trinityconsultants.com

Refrigerant Management Requirements Update

Georgia A&WMA Regulatory Update
Conference • May 11, 2017

Katie Brubaker



Agenda

- > Regulatory background pursuant to changes to rule
- > Extension of refrigerant rules to non-ozone depleting substances (ODS) substitutes previously excluded
- > Increased disposal requirements
- > Revisions to leak repair provisions for certain appliances
- > Miscellaneous changes

Title V Permit Applicability

- > Part 7.0 - Other Specific Requirements includes Stratospheric Ozone Protection Requirements (Title VI of the CAAA of 1990)
 - ❖ If the Permittee performs any of the activities described below or as otherwise defined in 40 CFR Part 82, the Permittee shall comply with the standards for recycling and emissions reduction pursuant to 40 CFR Part 82, Subpart F, except as provided for motor vehicle air conditioners (MVACs) in Subpart B
- > Certifying compliance with this condition in Annual Compliance Certification and Compliance Monitoring Reports

Introduction

- > EPA has codified rules relating to recycling and emissions reductions from class I and class II refrigerants and their non-exempt substitutes under 40 CFR 82 Subpart F
- > Proposed rule published on 11/9/2015
- > Final rule published on 11/18/2016
- > Staggered compliance dates of 01/01/2017, 01/01/2018, and 01/01/2019

Extension to Non-ODS Substitutes

- > Substitutes are defined as refrigerants replacing a class I or II ODS, with the following subcategories:
 - ❖ Non-exempt substitutes - subject to all provisions of rule, including sales restrictions, evacuation, recovery/recycling equipment, technician certification, leak repair, and reclamation provisions
 - ❖ Exempt substitutes - exempt from all provisions of rule when used in approved applications
- > Compliance dates of 01/01/2017, 01/01/2018, and 01/01/2019

Exempt Substitutes

- > Exempt substitutes include:
 - ❖ Carbon dioxide in any application
 - ❖ Nitrogen in any application
 - ❖ Water in any application
 - ❖ Ammonia in commercial or industrial process refrigeration or in absorption units
 - ❖ Chlorine in industrial process refrigeration
 - ❖ Hydrocarbons in industrial process refrigeration
 - ❖ Ethane (R-170) in very low temperature refrigeration equipment and equipment for non-mechanical heat transfer
 - ❖ Propane (R-290) in certain units
 - ❖ Isobutane (R-600a) in certain units
 - ❖ R-441A in certain units
- > All other substitutes are non-exempt

Extension to Non-ODS Substitutes - 01/01/2017 Effective Date

- > Venting prohibition (has applied to non-exempt substitutes since 2004) [40 CFR 82.154(a)]
- > Restriction on sale of used refrigerant [40 CFR 82.154(d)]
- > Restriction on manufacture and sale of appliances [40 CFR 82.154(e)]
- > Newly manufactured or imported recovery/recycling equipment must be certified [40 CFR 82.158]
- > Reclaimer certification requirements [40 CFR 82.164]

Extension to Non-ODS Substitutes - 01/01/2018 Effective Date (1 of 2)

- > Restriction on sale of new refrigerant [40 CFR 82.154(c)(1)]
- > Self-sealing valves required on small (≤ 2 lb) cans of refrigerant for motor vehicle air conditioners (MVACs) [40 CFR 82.154(c)(2)]
- > Technicians must be certified [40 CFR 82.161(a)]

Extension to Non-ODS Substitutes - 01/01/2018 Effective Date (2 of 2)

- > Evacuation requirements for disposal and/or opening of small (≤ 5 lb) appliances, MVACs, and MVAC-like appliances [40 CFR 82.155 & 82.156(b)-(d)]
- > Evacuation requirements for disposal and/or opening of appliances (except small appliances, MVACs, and MVAC-like appliances) [40 CFR 82.156(a)]

Extension to Non-ODS Substitutes - 01/01/2019 Effective Date

- > Leak repair provisions as they apply to appliances with full charge ≥ 50 lb refrigerant [40 CFR 82.157]

Revised Disposal Requirements (1 of 2)

- > Two options for those that take final step in disposing of small (≤ 5 lb) appliances, MVACs, and MVAC-like appliances
 - ❖ Option 1 - evacuate and recover refrigerant
 - ❖ Option 2 - verify that refrigerant has been evacuated previously via signed statements or contract
- > Adds requirement to obtain signed statement in the event that all refrigerant in an appliance has “leaked out” prior to delivery due to unavoidable occurrences
 - ❖ Effective date of 01/01/2017 for ODS-containing refrigerants and 01/01/2018 for non-exempt substitutes

Revised Disposal Requirements (2 of 2)

- > Added explicit recordkeeping requirements for disposal of appliances with full charge >5 lb and ≤50 lb [40 CFR 82.156(a)(3)]
 - ❖ Company name
 - ❖ Location of the appliance
 - ❖ Date of recovery
 - ❖ Type of refrigerant recovered for each appliance
 - ❖ The quantity of refrigerant, by type, recovered from all disposed appliances in each calendar month
 - ❖ The quantity of refrigerant, by type, transferred for reclamation and/or destruction
 - ❖ The person to whom it was transferred
 - ❖ The date of transfer
- > Effective date of 01/01/2018

Revisions to Leak Repair Provisions - Applicability & Leak Rates

- > Clarifies that rule applies to appliances with full charge ≥ 50 lb
- > Codifies long-standing interpretation that each independent circuit is considered a separate appliance
- > Lowers allowable leak (or repair “trigger”) rates [40 CFR 82.157(c)(2)]
 - ❖ Comfort cooling & other units - 15% to 10%
 - ❖ Commercial refrigeration - 35% to 20%
 - ❖ Industrial process refrigeration - 35% to 30%

Revisions to Leak Repair Provisions - Verification Testing

- > Expands verification testing from industrial process refrigeration (and federally-owned) appliances to all types of appliances
- > Shortens window for performing follow-up verification test from 30 days to 10 days of initial verification test or of the appliance achieving normal operating characteristics and conditions [40 CFR 82.157(e)]

Revisions to Leak Repair Provisions - Leak Inspections

- > Establishes proactive leak inspection requirements if allowable leak rates exceed [40 CFR 82.157(g)]
 - ❖ Commercial & industrial process refrigeration ≥ 500 lb - quarterly, until 4 consecutive quarters with no leaks above allowable leak rate
 - ❖ All other units ≥ 50 lb - annually, until 1 year with no leaks above allowable leak rate
 - ❖ Must be performed by certified technicians
 - ❖ Not required if equipped with automatic leak detection system

Revisions to Leak Repair Provisions - Automatic Leak Detection Systems

- > Can directly detect refrigerant in air, monitor its surrounding in another manner, or monitor appliance conditions [40 CFR 82.157(g)(4)]
- > Must be audited or calibrated annually
- > If the system directly detects refrigerant in air:
 - ❖ Appliance must be located indoors
 - ❖ Have 10 ppm accuracy
 - ❖ Have 100 ppm alert level
- > If the system monitors its surrounding in a manner other than direct detection of refrigerant, it must alert when a loss of 50 lb or 10% of full charge is indicated, whichever is less

Revisions to Leak Repair Provisions - Significant Leak Reporting

- > Reporting required for appliances ≥ 50 lb that leak more than 125% of their full charge in calendar year [40 CFR 82.157(j)]
 - ❖ Calculation = amount added / full charge
 - ◆ Do not use standard leak rate calculation methods for this purpose
 - ❖ Due 3/1 of following year

Revisions to Leak Repair Provisions - Repair Window Extensions (1 of 2)

- > Creates more standard list of available extensions from 30 day repair window across all appliance types [40 CFR 82.157(f)]
 - ❖ 120 day repair window if industrial process shutdown required (still only applicable to industrial process refrigeration appliances)
 - ❖ Mothballed appliances
 - ❖ Located in area subject to radiological contamination or shutdown will cause radiological contamination (extended beyond federally-owned appliances)
 - ❖ Requirements of other Federal, state, or local rules make repair within allowable window impossible
 - ❖ Necessary parts are unavailable (expanded to commercial refrigeration, comfort cooling, and other appliances) - up to 30 days from when parts received and no more than 180 days after leak rate exceeded

Revisions to Leak Repair Provisions - Repair Window Extensions (2 of 2)

- > Must request approval from EPA within 30 days of exceeding leak rate
 - ❖ Not required for industrial process shutdowns or mothballed appliances
- > Requests considered approved unless EPA notifies otherwise

Revisions to Leak Repair Provisions - Retrofit or Retirement Plans

- > Added definitions of retrofit and retire
 - ❖ Retrofit - convert an appliance from one refrigerant to another refrigerant
 - ❖ Retire - removal of refrigerant and the disassembly or impairment of the refrigerant circuit such that the appliance as a whole is rendered unusable by any person in the future
- > Must develop plan within 30 days of exceeding leak rate (or failed follow-up verification test)
- > Adds minimum content requirements for retrofit/retirement plans [40 CFR 82.157(h)]
 - ❖ ID/location, existing type and full charge, type and full charge of new refrigerant, itemized procedure for retrofit, disposition plan for recovered refrigerant, disposition plan for retired appliance, schedule (not to exceed 1 year), and signature of authorized company official
 - ❖ All identified leaks must be repaired as part of retrofit

Revisions to Leak Repair Provisions - Retrofit or Retirement Plan Off-Ramps

- > Consolidates existing retrofit/retirement plan off-ramp provisions into one option for all appliance types [40 CFR 82.157(h)(5)(ii)]
- > Can request off-ramp if:
 - ❖ Establish that appliance no longer exceeds applicable leak rate within 180 days of plan's date, and
 - ❖ Agree to repair all identified leaks within 1 year of plan's date
- > Requests considered approved unless EPA notifies otherwise within 60 days of receipt of requests

Revisions to Leak Repair Provisions - Retrofit or Retirement Plan Extensions

- > Available extensions to one-year retrofit or retirement schedule by appliance type [40 CFR 82.157(i)]
 - ❖ All appliances automatically allowed 18 months to retire if replacement appliance uses exempt substitute
 - ❖ Industrial process refrigeration can extend if 1) delay caused by other regulations, or 2) component for custom built appliance or custom built appliance has delivery time >30 weeks from order (adds provision to require installation within 120 days of delivery)
 - ❖ Federally owned equipment can extend for additional year if 1) federal procurement process complications result in delivery time of >30 weeks, or 2) appliance is located in area subject to radiological contamination and creating safe working environment will require >30 weeks
- > Requests considered approved unless EPA notifies otherwise within 60 days of receipt of requests

Revisions to Leak Repair Provisions - Seasonal Variance Provisions

- > Allows refrigerant addition to be excluded from leak rate calculations if addition is due to seasonal variance [40 CFR 82.157(b)]
 - ❖ Seasonal variance - the removal of refrigerant from an appliance due to a change in ambient conditions caused by a change in season, followed by the subsequent addition of an amount that is less than or equal to the amount of refrigerant removed in the prior change in season, where both the removal and addition of refrigerant occurs within one consecutive 12-month period

Revisions to Leak Repair Provisions - Recordkeeping [40 CFR 82.157(l)] (1 of 2)

- > Expanded servicing records (ID/location of appliance, date of service, parts of appliance serviced and type of service made to each part, name of person performing the service, amount and type of refrigerant added to or removed, full charge, leak rate, leak rate method used)
- > Expanded full charge records (full charge, method used, revisions, and date of revisions) for all full charge methods
- > Expanded verification test records (location of repairs tested, date, type, and results)
- > Adds explicit records for mothballing (date and return to service)
- > Adds explicit records for seasonal variance (dates of removal and corresponding addition)

Revisions to Leak Repair Provisions - Recordkeeping [40 CFR 82.157(l)] (2 of 2)

- > Adds records of leak inspections (date, method used, leak locations, and certification that all visible parts inspected)
- > Adds records for automatic leak detection systems (installation, annual audit and calibration, and date/location of leaks detected)
- > Purged refrigerant records (when exempting from leak rate calculations)
- > Copies of reports and requests submitted to EPA
- > Copies of retrofit/retirement plans

Revisions to Leak Repair Provisions - Notifications & Reporting

- > Eliminates one-time notification of acquisition of certified recovery/recycling equipment
 - ❖ Effective date of 01/01/2017
- > Requires notifications/reports to be submitted electronically to 608reports@epa.gov [40 CFR 82.157(m)]
 - ❖ Effective date of 01/01/2019

Miscellaneous Changes

- > Adds definition of comfort cooling - appliances used to control heat and/or humidity in occupied facilities
 - ❖ Effective date of 01/01/2017
- > Modifies definition of disposal to explicitly cover vandalism or intentional cutting of refrigerant lines
 - ❖ Effective date of 01/01/2017
- > Approved equipment testing organizations must publish online list of certified recovery/recycling equipment
 - ❖ Effective date of 01/01/2017
- > Technician certification programs, excluding Federally-run programs, must publish online list of technicians they have certified on or after 01/01/2017
 - ❖ Effective date of 01/01/2018
 - ❖ Must update lists annually
 - ❖ Technicians can opt out being included in such lists

Summary of Changes by Effective Date (1 of 3)

Effective Date	Rule Provision/Citation
01/01/2017	Sales restriction on used non-exempt substitutes, 40 CFR 82.154(d)
01/01/2017	Sales restriction on appliances with non-exempt substitutes (servicing aperture/process stub), 40 CFR 82.154(e)
01/01/2017	Certification of new manufactured/imported recovery/recycling equipment for use with non-exempt substitutes, 40 CFR 82.158
01/01/2017	Non-exempt substitute reclaimer certification, 40 CFR 82.164
01/01/2017	Elimination of one-time notification of acquisition of certified recovery/recycling equipment, 40 CFR 82.162 of old rule
01/01/2017	New definition of <i>comfort cooling</i> , 40 CFR 82.152
01/01/2017	Modified definition of <i>disposal</i> to cover vandalism and intentional cutting of refrigerant lines, 40 CFR 82.152

Summary of Changes by Effective Date (2 of 3)

Effective Date	Rule Provision/Citation
01/01/2017	Approved equipment testing organizations must publish online list of certified recovery/recycling equipment, 40 CFR 82.160(e)(1)
01/01/2017	Signed statement requirement in event all ODS-containing refrigerant leaked out prior to delivery of small appliances, MVACs, and MVAC-like appliances for disposal, 40 CFR 82.155
01/01/2018	Signed statement requirement in event all non-exempt substitutes leaked out prior to delivery of small appliances, MVACs, and MVAC-like appliances for disposal, 40 CFR 82.155
01/01/2018	Sales restriction on new non-exempt substitutes, 40 CFR 82.154(c)(1)
01/01/2018	Small (≤ 2 lb) cans of non-exempt substitutes for MVACs must be equipped with self-sealing valves, 40 CFR 82.154(c)(2)

Summary of Changes by Effective Date (3 of 3)

Effective Date	Rule Provision/Citation
01/01/2018	Technicians must be certified to maintain, service, repair, or dispose* of appliances containing non-exempt substitutes, 840 CFR 2.161(a)
01/01/2018	Approved technician certification programs must publish online list of technicians they have certified on or after 01/01/2017, 40 CFR 82.161(b)(6)
01/01/2018	Evacuation requirements for disposal and/or opening of appliances containing non-exempt substitutes, 40 CFR 82.155 & 82.156(a)-(d)
01/01/2018	Recordkeeping requirements for disposal of appliances with full charge > 5 lbs and ≤ 50 lbs, 40 CFR 82.156(a)(3)
01/01/2019	Revised leak rate provisions for appliances with full charge ≥ 50 lbs refrigerant, 40 CFR 82.157

30 *Consistent with previous rule, technicians do not have to be certified to dispose of small appliances, MVACs, and MVAC-like appliances.

Questions and Discussion

Contact information:

Katie Brubaker, EIT
Consultant (Atlanta, GA)
kbrubaker@trinityconsultants.com
(O) (678) 441-9977 x225