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Refrigerant Rule Update

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Nancy Liang, P.E.
nliang@trinityconsultants.com



Refrigerants

■ Ozone Depleting Substances (ODS)

- ❖ Class I: CFCs – chlorofluorocarbons
 - ◆ Product phased out since 1996
 - ◆ Inhalers, space shuttle
 - ◆ Over 50 Class I Controlled Substances, e.g. R-11
 - Appendix A to 40 CFR Part 82 Subpart A
- ❖ Class II: HCFCs – hydrochlorofluorocarbons
 - ◆ Production will stop in 2020
 - ◆ Home A/C units, refrigerators
 - ◆ 38 Class II Controlled Substances, e.g. R-22, R-123
 - Appendix B to 40 CFR Part 82 Subpart A



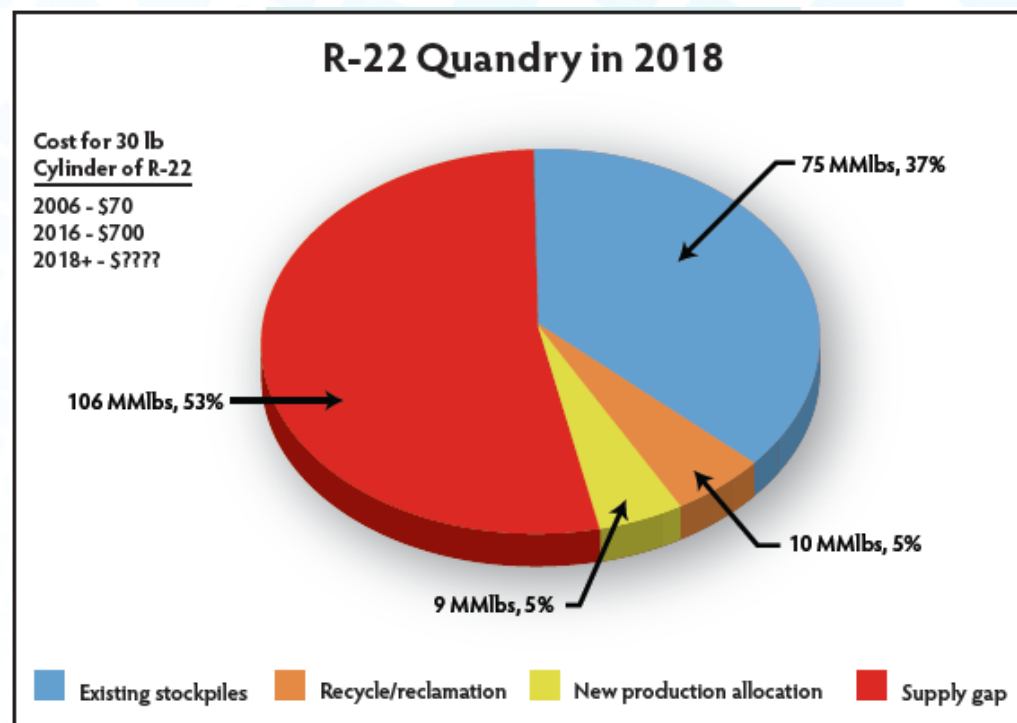
■ Substitutes

- ❖ Non-exempt
 - ◆ HFCs – hydrofluorocarbons e.g. R-134a
 - ◆ Production targeted for future phase down
- ❖ Exempt
 - ◆ CO₂, N₂, H₂O

Refrigerant Phase Out

HCFC Phase Out is Here

- **HCFC (hydrochlorofluorocarbons) production phase out schedule**
 - ❖ 2015 = 90%
 - ❖ 2020 = 99.5% overall and 100% for R-22 & R-142b
 - ❖ 2030 = 100%
- **R-22 quandary**
 - ❖ EPA production allocations = 13 million lbs (2017), 9 million lbs (2018), & 4 million lbs (2019)
 - ❖ EPA estimates recycle/reclamation < 10 million lbs/year in 2016
 - ❖ Represent only a fraction of the ~200 million lb/year service need in the U.S.
- **Costs for R-22 have already risen 10x since 2006**



HFCs are the New Target

- HFCs (e.g., R-134a, R410A), which are the most common replacement for HCFCs, are the new target since they are potent GHGs
- HFC targeting mechanisms
 - ❖ EPA's SNAP Program
 - ❖ Kigali Amendment to Montreal Protocol
 - ❖ Expansion of 40 CFR 82, Subpart F (i.e., CAA Section 608) provisions to non-ODS substitutes
- EPA removed SNAP approval of several HFCs in specific end-uses
 - ❖ SNAP Rules 20 (2015) and 21 (2016)
 - ❖ **Court vacated Rule 20 on 8/8/2017 (appeal has been filed)**

How Should Facilities Prepare for Impending Refrigerant Phase Outs?

- Facility managers must develop inventory of appliances (age, size, refrigerant type) to quantify exposure to expected rise in refrigerant costs
- Watch for availability of next generation refrigerants (e.g., HCs, HFOs, HFO/HFC blends)
 - ❖ Obtain input from appliance manufacturers and HVAC/R contractors
- Analyze new AC/R unit installations and retrofits based on available cost data and unit lifetimes
 - ❖ If R-410A is facing an impending phase down, does it make sense to switch your R-22 unit to R-410A?

Refrigerant Servicing Rule Revisions

Refrigerant Servicing Rule Revisions

- > Rule represents overhaul of 40 CFR 82, Subpart F
- > Finalized on 11/18/2016 (81 FR 82272)
- > Includes 3 primary categories of changes
 - ❖ Extension to non-ODS containing substitutes
 - ❖ Revised appliance disposal requirements
 - ❖ Revised leak repair provisions for appliances with full charge \geq 50 lbs
- > Staggered compliance dates of 1/1/2017, 1/1/2018, & 1/1/2019

Ozone Depleting Substance (Refrigerants)

■ ODS

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Extension to Non-ODS Substitutes, 1/1/2017

- **Substitutes are defined as refrigerants, 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

Exempt Substitutes

Exempt Refrigerants	End-Use and Application									
	Household Refrigerators	Retail refrigerator stand-alone	Vending	Very Low Temp Ref	Heat Transfer	Self-contained Commercial Ice Machines	Water Coolers	IPR/processing	Room AC-Self-contained	All uses
CO ₂ , N ₂ , H ₂ O	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ammonia		✓						✓		
Hydrocarbons, Chlorine								✓		
Propane	✓	✓	✓	✓		✓	✓	✓	✓	
Isobutane	✓	✓	✓							
R-441A	✓	✓	✓						✓	
Ethane				✓	✓					

Extension to Non-ODS Substitutes - Highlights

- Newly manufactured recovery/recycling equipment must be certified, **1/1/2017** (82.158)
- Restriction on sale of refrigerant, **1/1/2017 & 1/1/2018** [82.154(c)-(d)]
- Technicians must be certified, **1/1/2018** [82.161(a)]
- Evacuation requirements for disposal or opening of appliances, **1/1/2018** [82.155 & 82.156(a)-(d)]
- Leak repair provisions as they apply to appliances with full charge \geq 50 lbs refrigerant, **1/1/2019** (82.157)

Revised Small Appliance Disposal Requirements

- **Two options for final processors (e.g., scrap recyclers, landfills) when disposing of small (≤ 5 lb) appliances***
 - ❖ Option 1 – evacuate and recover refrigerant
 - ❖ Option 2 – verify that refrigerant has been evacuated previously via A) signed statements or B) contract
- **2016 rule**
 - ❖ Relocates these provisions from 82.156(f) & 82.166(i) to 82.155
 - ❖ Under Option 2, adds requirement to obtain signed statement when all refrigerant in an appliance has “leaked out” prior to delivery due to unavoidable occurrences
 - ❖ **Effective date = 1/1/2017 for ODS-containing refrigerants and 1/1/2018 for non-exempt substitutes**

*Also applies to disposal of motor vehicle air conditioners (MVACs) and MVAC-like appliances

New Medium Appliance Disposal Requirements, 1/1/2018

- **2016 rule adds explicit technician recordkeeping requirements for disposal of appliances with full charge > 5 lbs and < 50 lbs [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
- **Owners/operators only required to maintain these records if directly employ technicians**

Revisions to Leak Repair Provisions for ≥ 50 lb Units - **Highlights, 1/1/2019**

- > Extends applicability to appliances that contain non-exempt substitutes (e.g., HFCs)
- > Lowers allowable leak (or repair “trigger”) rates [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 for ≥ 50 lb Units - **Highlights, 1/1/2019**

- > Initial and follow-up verification testing
 - ❖ Now required for **all appliance types**, including comfort cooling and commercial refrigeration (was only req'd for industrial units previously)
 - ❖ **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
- > Standard list of extensions to 30-day repair window for **all appliance types**
 - ❖ Mothballing, industrial process shutdown (IPS) required, necessary parts unavailable, radiological contamination issues, & other rules make repair within window impossible

Revisions to Leak Repair Provisions for ≥ 50 lb Units - **Highlights, 1/1/2019**

- > Establishes leak inspection requirements if exceed allowable leak rates [82.157(g)]
 - ❖ Commercial/industrial process refrigeration ≥ 500 lbs – quarterly, until 4 consecutive quarters w/ no leaks above allowable leak rate
 - ❖ All other units ≥ 50 lbs – once per calendar year, until 1 year w/ 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 for ≥ 50 lb Units - **Highlights, 1/1/2019**

- > Reporting required for appliances ≥ 50 lbs that leak more than 125% of their full charge in calendar year [82.157(j)]
 - ❖ “Chronic leaker” provision
 - ❖ 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 for ≥ 50 lb Units - Recordkeeping [82.157(l)], 1/1/2019

- > 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)
- > 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

Red = New

Revisions to Leak Repair Provisions for ≥ 50 lb Units - Clarifies Who is Responsible for Records [82.157(l)(2)], 1/1/2019

(2) Owners or operators must maintain a record including the following information for each time an appliance with a full charge of 50 or more pounds is maintained, serviced, repaired, or disposed of, when applicable. If the maintenance, service, repair, or disposal is done by someone other than the owner or operator, that person must provide a record containing the following information, with the exception of (l)(2)(vii) and (viii) of this section, to the owner or operator:

- > Similar language in leak inspection (l)(3) and verification testing (l)(5) recordkeeping provisions

Revisions to Leak Repair Provisions - Notifications & Reporting

- > Eliminates one-time notification of acquisition of certified recovery/recycling equipment (effective date = 1/1/2017)
- > Requires notifications/reports to be submitted electronically to 608reports@epa.gov [82.157(m)] (effective date = 1/1/2019)
 - ❖ E.g., repair window extension requests, chronic leaker reports
 - ❖ Can use now per EPA

Subpart F Matrix by Appliance & Refrigerant Type (after rule revision)

Category	Venting Prohibition	Sales Restrictions	Evacuation Req's	Technician Certs	Disposal Req's	Leak Repair Provisions
Appliances w/ Exempt Substitutes	No	No	No	No	No	No
Small Appliances (≤ 5 lbs ODS or Non-Exempt Substitute)	Yes	Yes <u>Applies to Non-Exempt Subs on:</u> 1/1/17 – Used Ref 1/1/17 – Appliances 1/1/18 – New Ref	Yes (specific) <u>Applies to Non-Exempt Subs on:</u> 1/1/18	Yes <u>Applies to Non-Exempt Subs on:</u> 1/1/18	Yes (specific) <u>“Leaked out” Records Req'd on:</u> 1/1/17 – ODS 1/1/18 – Non-Exempt Subs	No
Medium Appliances (> 5 lbs & < 50 lbs ODS or Non-Exempt Substitute)	Yes	Yes <u>Applies to Non-Exempt Subs on:</u> 1/1/17 – Used Ref 1/1/17 – Appliances 1/1/18 – New Ref	Yes <u>Applies to Non-Exempt Subs on:</u> 1/1/18	Yes <u>Applies to Non-Exempt Subs on:</u> 1/1/18	Yes <u>Explicit Records Req'd on:</u> 1/1/18 – ODS 1/1/18 – Non-Exempt Subs	No
Large Appliances (≥ 50 lbs ODS or Non-Exempt Substitute)	Yes	Yes <u>Applies to Non-Exempt Subs on:</u> 1/1/17 – Used Ref 1/1/17 – Appliances 1/1/18 – New Ref	Yes <u>Applies to Non-Exempt Subs on:</u> 1/1/18	Yes <u>Applies to Non-Exempt Subs on:</u> 1/1/18	Yes <u>Applies to Non-Exempt Subs on:</u> 1/1/18	Yes <u>82.156(i) Applies thru:</u> 12/31/18 – ODS <u>82.157 Applies starting:</u> 1/1/19 – ODS 1/1/19 – Non-Exempt Subs

How Should Facilities Prepare for Subpart F Revisions?

- > Use EPA required work practices previously reserved for ODS-containing refrigerants (e.g., R-12, R-22) on non-ODS substitutes (e.g., R-134a, R-410A)
 - ❖ Certified technicians
 - ❖ Certified recovery/recycling equipment
 - ❖ Required refrigerant evacuation levels
- > Implement changes to appliance disposal recordkeeping system
- > Prepare for new leak repair provisions on ≥ 50 lb units
 - ❖ Conduct initial and follow-up verification testing for all leaks
 - ❖ Implement system to maintain new records
 - ❖ Test drive in 2018

Recent Update- EPA May Revisit Portions of Subpart F Revision

- **8/10/2017:** Letter from EPA to industry groups indicates it may:
 - ❖ Revisit aspects of extension to non-ODS substitutes and
 - ❖ Consider feasibility of meeting 1/1/2018 compliance date

This letter relates to concerns that you have raised regarding the U.S. Environmental Protection Agency's final rule titled "Protection of Stratospheric Ozone: Update to the Refrigerant Management Requirements under the Clean Air Act," 81 Fed. Reg. 82272 (November 18, 2016). The EPA is planning to issue a proposed rule to revisit aspects of the 2016 rule's extension of the 40 CFR part 82 subpart F refrigerant management requirements to non-exempt substitutes. We are also aware of your concerns regarding the feasibility of meeting the January 1, 2018, compliance dates and will consider options for relief if we receive adequate information from you to substantiate the basis for such relief.

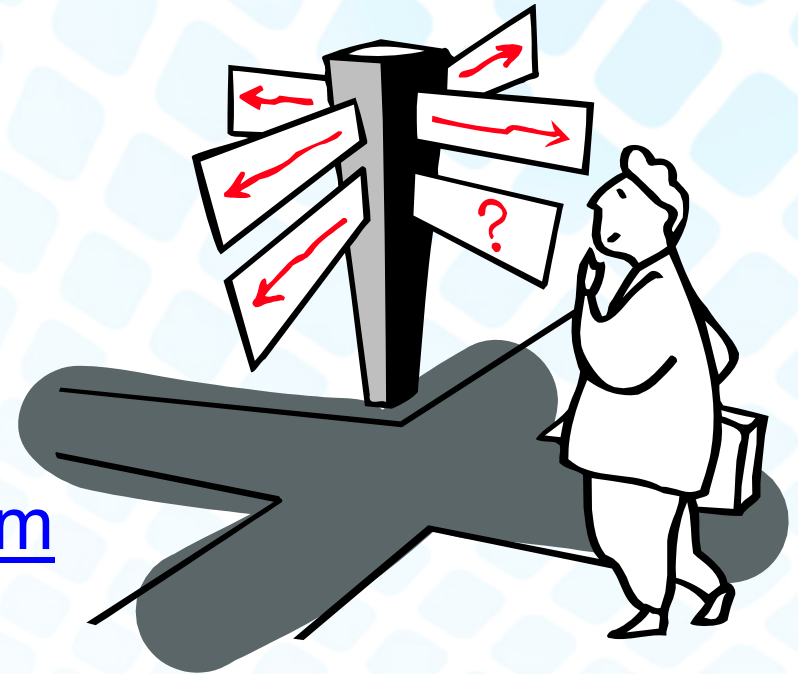
Questions?

Contact Information:

Nancy Liang, P.E.

(913) 894-4500

nliang@trinityconsultants.com



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<https://www.trinityconsultants.com/signup/refrigerant-management-webinar-recording>