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An ODS Webinar – Everything You Did Not Want to Know

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STC_{EHS SOLUTIONS}



FOR BUSINESS RESULTS

Ozone Depleting Substances

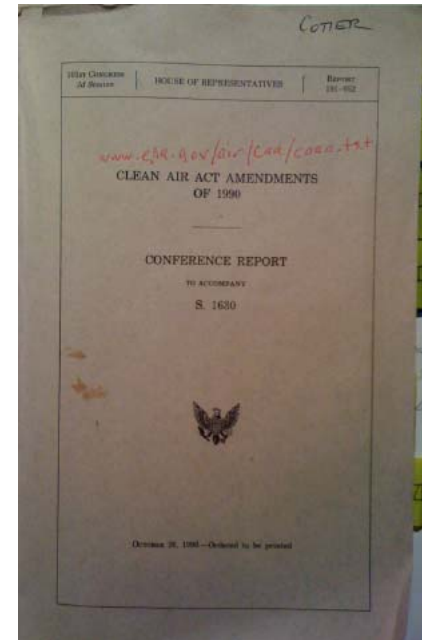


- What is it?
 - Refrigerants/ODS/CFCs
 - in air conditioners, chillers, motor vehicle A/C, refrigerators, freezers, ice machines, process equipment

CAAA of 1990



- ODS Rules from Title VI-Stratospheric Ozone Protection
- Promulgated as 40 CFR Part 82



Why Are ODS Regulated?



- The "good" ozone layer extends upward from about 6 to 30 miles above Earth
- Protects life on Earth from the sun's harmful ultraviolet rays
- Gradually depleted by man-made chemicals like chlorofluorocarbons (CFCs) and ODS
- Depleted ozone shield leads to more cases of skin cancer, cataracts, and other health problems



The Substances



- Class I and Class II Substances
 - Appx. A and Appx. B
- Common Regulated Substances
 - R-12, R-22
- Common Substitutes
 - R-134a, R-404



Regulatory Coverage



- Manufacturing and Distribution (Subpart A)
- Motor Vehicle Air Conditioners (Subpart B)
- Product Labeling (Subpart E)
- Recycling and Emissions Reduction (Subpart F)
- Halon Emissions Reduction (Subpart H)

Manufacture and Distribution



- Invoices to include:
 - Name of purchaser
 - Date of sale
 - Quantity of refrigerant purchased
- Your facility or your suppliers could be the purchaser
- Must keep records 3 yrs.

Motor Vehicles



- Proper use of approved equipment
- Trained technicians
- Refrigerants may be recovered and reused under certain circumstances by MV disposers
 - Use of proper equipment
- There is recycling (supposed to be, anyway!)

Product Labeling



- Labeling of manufactured equipment
 - All containers in which a class I or class II substance is stored or transported
 - All products containing a class I substance
 - All products directly manufactured with a process that uses a class I substance (unless exempted)
- E.g., new air conditioning units

Product Labeling



- “WARNING: Contains [or Manufactured with, if applicable] [insert name of substance], a substance which harms public health and environment by destroying ozone in the upper atmosphere”
- Some exemptions at 82.106(b)



Halon Emissions Reduction



- No manufacturing of new halon blends (except aviation fire protection...good news for fliers!)
- No venting or releasing
- Trained technicians
- Proper disposal

Recycling and Emissions Reduction



- Systems
- Certified Technicians
- Recycling and Recovery Equipment
- Repair Records
- Leaks
- Disposal

Subpart F

Comfort Cooling



- Comfort cooling systems (>50 lbs refrigerant)
 - Not commercial or industrial systems
 - Big A/C units
 - Look on your facility rooftop...



Subpart F

Commercial Systems



- Commercial refrigeration (>50 lbs refrigerant)
 - appliances utilized in the retail food and cold storage warehouse sectors
 - retail food includes the refrigeration equipment found in supermarkets, convenience stores, restaurants and other food service establishments
 - cold storage includes the equipment used to store meat, produce, dairy products, and other perishable goods
 - sample retain/storage units, etc



Subpart F

Industrial Systems



- Industrial process refrigeration (>50 lbs refrigerant)
 - complex customized appliances used in the chemical, pharmaceutical, petrochemical and manufacturing industries
 - appliances are directly linked to the industrial process



Subpart F

Certified Technicians



- “...could be reasonably expected to release refrigerants from appliances..., except for MVAC , into the atmosphere.”
- Certified by a training course approved by USEPA pursuant to 40 CFR 82.161(c)
 - Wallet card
 - Copy at place of business

Certified Technicians



- Type I: small appliances < 5 lbs refrigerant
- Type II: appliances with
 - medium pressure (45 psia and 170 psia at 104 °F)
 - high pressure (170 psia and 355 psia at 104 °F)
 - very high pressure (critical temperature below 104 °F or with a liquid phase saturation pressure above 355 psia at 104 °F)appliances
- Type III: appliance with low pressure
- Universal: 1+ category of low and high pressure appliance

Subpart F-Techs

Certified Technicians



- Internal Employees
 - Working on small appliances
- External Contractors
 - Maintain service contracts for warranty
 - Carrier, Trane, Joe's Mechanical, etc.
- All must have certifications

Keep contractor certifications in your files!

- No required retraining

Subpart F-Techs

Recycling and Recovery Equipment



- Certified R/R equipment
 - Name, address of purchaser
 - Location of each piece of equipment
 - Manufacturer name, the date of manufacture, and if applicable, the model and serial number
- Send to USEPA
 - Must include a statement of proper use in servicing or disposing of appliances and that the information given is true and correct

Subpart F-R&R Equip

Recycling and Recovery Equipment



- Signed by owner of the equipment or another responsible officer
- Recertify for change of ownership within 30 days
- Submitted by Aug. 12, 1993 (newer equipment is labeled)



Subpart F-R&R Equipment

Repair Records



- For appliances with > 50 lbs of refrigerant
Generate a refrigerant system inventory
- Must maintain service records, but not required to be on-site
 - Date, type of service, quantity of refrigerant added
- Purchases-owner/operator record of date, and refrigerant quantity

Repair Records



- Keep 3 years
- Use software

Make sure the service record is legible!

– You will want to be able to identify what work was done to what pieces of equipment (coils, valves, etc.)

Although not required, keep a copy of all service records on-site!

Don't add refrigerant to an unrepaired appliance!

Subpart F-Repair Records

Sample Repair Record



REFRIGERATION UNIT REPAIR RECORD

Use this record when refrigerant is added or removed from the appliance

Facility		
Date of Service*		
Service Firm		
Certified Technician Name(s) ¹		
Appliance/Unit Serviced and Serial #		
List Leaking Components*		
Initial Verification Test Date (Industrial)		
Follow Up Verification Test Date (Industrial)		
Refrigerant Type*		
Amount of Refrigerant Added		
Unit/Components Repaired Successfully (yes or no)		

¹ Obtain copy of technician's certification (wallet card) for facility files

* Required by regulation

Name: _____

Title: Facility ODS Manager

Date: _____

RETAIN THIS RECORD FOR A MINIMUM OF 3 YEARS

Subpart F-Repair Records

Leaks-Commercial



- Commercial:
 - Leak rate = 35% of charge over 12-month period
 - Must be repaired within 30 days of exceeding 35%
 - If leaks continue to occur at the same location within a 12 month period EPA considers these as violations of the leak repair provisions.

Remember the repair records list: date, work performed, qty. refrigerant added

Leaks-Commercial



- 1 year retrofit or retirement option
 - Plan is dated
 - Plan/copy kept at the site
- If a retrofit is implemented, must use refrigerant with lower/equivalent OD potential than the original refrigerant

Leaks-Industrial



- Industrial
 - Leak rate = 35% of charge over 12-month period
 - Must be repaired within 30 days of exceeding 35%
 - Remember the repair records list: date, work performed, qty. refrigerant added
- 1 year retrofit or retirement option
 - Plan is dated
 - Plan/copy kept at the site
 - Original available to USEPA upon request

Subpart F-Leaks

Leaks-Industrial



- Some outs for industrial appliances
 - Equipment is mothballed (out-of-service)...clock starts again
 - Industrial process shutdown is required
 - Repairs within 120 days
 - Necessary parts are unavailable within 30 days
- May request additional time if 35% rate cannot be attained
 - Document repair efforts
 - Notify USEPA within 30 days of decision

Subpart F-Leaks

Leaks-Industrial



- Initial and follow-up verification tests
 - If shutdown or mothballing:
 - Conclusion of repairs, and
 - Within 30 days of completing repairs (or within 30 days of coming back on-line)
 - Otherwise:
 - Conclusion of repairs, and
 - Cannot start equipment without successfully completing this test!
 - Within 30 days after initial

Subpart F-Leaks

Leaks-Industrial



- Failed Follow-up Verification Tests
 - Must notify USEPA within 30 days
 - Must retrofit or retire or request extension unless:
 - Successful 2nd repair within 30 days of failed test (or within 120 days for process shutdown)
 - Initial and verification tests (again)
 - USEPA notified within 30 days of successful test

Leaks-Industrial



- Additional 1 year may be requested (2 years total) if:
 - New equipment is custom-built
 - Supplier quotes >30 weeks delivery time
 - Notify USEPA within 6 months of the expiration of the 30 day period following the leak discovery (call it 7 months after the leak was discovered)

Leaks-Industrial



- Additional 1 year requires additional documentation
 - Facility identification
 - Leak rate and date discovered
 - Method used to determine leak rate and full charge
 - Leak location(s)
 - Repair work to date, and date
 - Retrofit or retirement plan
 - Reason for extension
 - Date of notification to USEPA
 - Estimated date of completion

Subpart F-Leaks

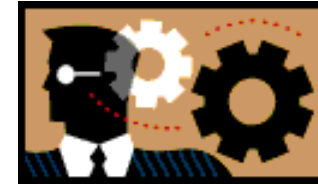
Leaks-Comfort



- Comfort cooling systems
 - Rooftop A/C units
 - Leak rate = 15% of charge over 12-month period
 - Must be repaired within 30 days of exceeding 15%
Remember repair records list: date, work performed, qty.
refrigerant added
- 1 year retrofit or retirement option
 - Plan is dated
 - Plan/copy kept at the site
 - Original available to USEPA upon request

Subpart F-Leaks

Leak Rate Calculation



12 Consecutive Months Leaks:

- 1) Sum up the quantity of refrigerant (e.g., pounds) added to the appliance over the previous 365-day period (or over the period that has passed since leaks in the appliance were first repaired, if that period is less than one year).
- 2) Divide the result of step one by the capacity (e.g., pounds of refrigerant the appliance normally contains at full charge), and
- 3) Multiply the result of step two by 100 to obtain a percentage

$$\text{Leak rate (\% per year)} = \frac{\text{pounds of refrigerant added over past 365 days (or since leaks were last repaired, if that period is less than one year)}}{\text{pounds of refrigerant in full charge}} \times 100\%$$

Subpart F-Leaks

Leak Calculation (Ex. 1)



- Total charge = 125 lbs R-22 in a commercial system
- Leaks for 2008:

1/14	coil	20 lbs
3/6	solenoid valve	12 lbs
7/7	main liquid line	32 lbs*
10/28	oil filter outlet	7 lbs

Subpart F-Leaks

Leak Calculation (Ex. 1)



- Add the leaked amount (in a 12-month period) and divide by the system capacity

Get the leaked amount and dates from your service invoice or work orders

- Annualized leak rate = $(20 + 12 + 32 + 7) / 125$
(over 12 months) = $71 / 125$
= 56.8%
- It's a leaker. But...

Leak Calculation (Ex. 1)



- ...repairs were begun within 30 days of reaching the 35% mark which was when we exceeded 43.75 lbs back on 7/7
- Not reportable
- Calculate after every repair



Subpart F-Leaks

Leak Calculation (Ex. 2)



- Total charge = 750 lbs R-22 in an industrial system

- Leaks for 2007:

1/16	3-way valve	250 lbs
3/15	3-way valve	125 lbs*
6/26	coil	200 lbs (need parts)
7/13	3-way valve	175 lbs

It's a leaker! And...

Subpart F-Leaks

Leak Calculation (Ex. 2)



- Leak rate of 35% reached on (or by) 3/15
 - Continued leaks from substantially similar equipment
 - Verification tests shows continued leaking (failed)
 - Need to notify USEPA and develop a retrofit or retirement plan
- Also note contractor added refrigerant without completing repairs
 - Big no-no...Could lose his license
 - No reporting obligation



Subpart F-Leaks

Disposal of Appliances



- Small appliances disposal
 - Whoever finishes the disposal process must:
 - Recover remaining refrigerant, or
 - Verifies that refrigerant has been previously evacuated (signed statement from shipper)
- Appliances
 - Must evacuate the refrigerant in the entire system to certified recovery and recycling equipment
 - Meet Table 1 (82.156)

Subpart F-Disposal

Auditor's Top 5 List



5. Uncertified technicians working on regulated equipment
4. Substantially similar repair not recognized
3. Refrigerant quantity added not recorded
2. Leak rate calculations incorrect
1. Illegible repair records

Other Useful Information



- USEPA Ozone Layer Depletion Home Page

<http://www.epa.gov/ozone/strathome.html>

- USEPA Industrial System Compliance Guide

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

- USEPA Leak Repair Home Page

<http://www.epa.gov/Ozone/title6/608/leak.html>

Q & A



Thanks for staying tuned!

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