WORK INSTRUCTION: Refrigerant Management Plan for Ozone-Depleting Substances and Non-Exempt Substitutes Used in Refrigeration, Air Conditioning, and Heat Pump (RACHP) Equipment	Work Instruction No: WI-POR-AIR-004
	Original Date: January 24, 2014
	Revision Date: November 20, 2023
	Page: 1 of 3
	Owner: Air Quality Specialist

1. PURPOSE

This work instruction outlines key requirements for managing refrigerants containing ozone depleting substances (ODS) or other non-exempt substitutes for use in refrigeration, air conditioning, and heat pump (RACHP) equipment, in compliance with Clean Air Act Section 608:

- Ensure the Port maximizes the recovery and recycling of ozone-depleting substances and non-exempt substitute refrigerants during servicing and disposal of refrigeration, air conditioning, heat pump, and/or fire suppression equipment.
- Ensure appropriate certification for technicians, refrigerant recycling and recovery equipment, and refrigerant reclaimers.
- Ensure refrigerant-containing equipment is properly maintained, leaks are adequately repaired, and related records are maintained.
- Ensure appropriate handling, recordkeeping and recycling or disposal of ozone depleting substances and non-exempt substitute refrigerants.

2. SCOPE

2.1 This work instruction is applicable to work conducted by Port employees and by contractors working on behalf of the Port on Port owned, operated, or controlled RACHP equipment, and RACHP equipment maintained by contractors working on behalf of the Port under maintenance contracts.

3. DEFINITIONS

3.1 None

4. RESPONSIBILITY

4.1 Maintenance Manager / Electrician General Foreman – Contract only with outside vendors with appropriate EPA Section 608 Certification for refrigerant recovery, recycling, and system testing. Provide "Refrigerant Equipment Service Form C" to contractors along with Purchase Order. Ensure completed form is received with invoice. Forward completed form to the Port Air Quality Specialist.

4.2 Maintenance Manager – Allow only Port employees with the appropriate EPA certification to maintain, service, repair, or dispose of appliances containing any Class I or Class II ODS refrigerant, any non-exempt substitute refrigerant, or any halon.

4.2 Environmental Air Quality Specialist – Maintain accounting and recordkeeping requirements in the *Refrigerant Equipment Service Log* associated with servicing equipment using refrigerants. Notify Maintenance Manager of need for follow up service if results exceed allowable leak rate.

5. PROCEDURE

Applicable to all equipment with a capacity > 5 lbs of refrigerant.

5.1 Servicing / Work Completed by Contractors on behalf of the Port

5.1.1 The Electrician General Foreman, Electrician HVAC Lead, or Maintenance Manager is responsible for coordinating with the contractors and providing a copy of the "Refrigerant Equipment Service Form C" with the Purchase Order.

5.1.2 The Electrician General Foreman, Electrician HVAC Lead, or Maintenance Manager is responsible for ensuring the completed "Refrigerant Equipment Service Form C" is received with the invoice and then forwarding a copy of the completed form to the Port Air Quality Specialist.

5.1.3 The Port Air Quality Specialist is responsible for calculating the leak rate and contacting the Electrician General Foreman, Electrician HVAC Lead, or Maintenance Manager if repairs are necessary.

5.1.4 The Electrician General Foreman, Electrician HVAC Lead, or Maintenance Manager is responsible for ensuring follow-up repairs and leak testing is completed within 30 days.

5.1.5 If a unit has a history of leaks, the Electrician General Foreman, Electrician HVAC Lead, or Maintenance Manager will coordinate periodic testing of the unit to monitor for leaks at a minimum annually.

6. VERIFICATION AND CORRECTIVE ACTION

6.1 This work instruction is to be reviewed on a periodic basis by the Port Air Quality Specialist to verify the purpose and scope is applicable to Port needs and the steps within adequately support the purpose and scope. If deficiencies are discovered, corrective action will be taken.

6.2 Conformance with this Work Instruction will be reviewed periodically by the Air Quality Specialist. If nonconformance is discovered, corrective action will be taken.

7. REFERENCES

7.1 Commission Environmental Policy 6.1.11

7.2 Air Quality Policy 7.4.18

7.3 Waste Minimization Policy 7.4.12

7.4 Clean Air Act, Section 608

8. ATTACHMENTS

8.1 *Refrigerant Management Plan Guidance* (Attachment A)

8.2 *Refrigerant Equipment Service Log* (Microsoft Excel Spreadsheet – Attachment B)

8.3 *"Refrigerant Equipment Service Form C"* (Attachment C)

8.4 *"Refrigerant Equipment Disposal Form D"* (Attachment D)

9. RELATED POLICIES, PROCEDURES, AND GUIDELINES

9.1 7.4.18 Administrative Air Quality Policy

Document Tracking:

Work Instruction No. WI-POR-AIR-004: Refrigerant Management Plan for Ozone-Depleting Substances and Non-Exempt Substitutes Used in Refrigeration, Air Conditioning, and Heat Pump (RACHP) Equipment	
Date	**Description of Modification**
01/24/2014	Original document
10/07/2014	Reformat to new WI format. Made applicable Port-wide.
03/20/2019	Updated text to reflect changes to Section 608. Form edited to incorporate changes to recordkeeping and leak rate calculations.
3/06/2023	Contact information updated. Minor editorial and formatting corrections.
4/25/2023	Updated record keeping requirements.
11/25/2023	Revised for clarity.

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Attachment A Refrigerant Management Plan Guidance	WI-POR-AIR-004A
	Date: 11/20/2023
	Rev. #4
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	Owner: Air Quality Specialist

1.0 General Overview of Requirements

- Under Clean Air Act Section 608, there are specific accounting, certification, and recordkeeping requirements for technicians, equipment repairs, refrigerant recharge, recharge equipment, sale/transfer of equipment, and recycling and disposal of equipment using ozone depleting substances and non-exempt substitute refrigerants.
- Equipment and appliances containing refrigerants must be maintained and serviced by a technician certified through an EPA-approved technician certification program.
- The knowing release or intentional venting of any refrigerant, whether an ozone depleting substance or substitute, is strictly prohibited.

2.0 Equipment Service, Refrigerant Recharge, Leak Repair and Recordkeeping

- Owners or operators of refrigeration and air-conditioning equipment with refrigerant charges greater that 50 lbs are required to keep the following service records [40 CFR 82.157(i)]:
  - i. The identity and location of the appliance
  - ii. The date(s) of the maintenance, service, repair, or disposal performed
  - iii. The part(s) of the appliance being maintained, serviced, repaired, or disposed
  - iv. The type of maintenance, service, repair, or disposal performed for each part
  - v. The name of the person performing the maintenance, service, repair, or disposal
  - vi. The amount and type of refrigerant added to, or in the case of disposal removed from, the appliance
  - vii. The full charge of the appliance
  - viii. The leak rate and the method used to determine the leak rate (not applicable when disposing of the appliance, following a retrofit, installing a new appliance, or if the refrigerant addition qualifies as a seasonal variance)
- Technicians servicing appliances that contain 50 lbs or more of refrigerant must provide the Port with an invoice that indicates the amount of refrigerant added to the appliance.
- Leaks must be repaired within 30 days of discovery when the equipment leaks at a projected rate that would release 10% or more of the charge over a consecutive 12-month period. A verification test should be conducted within 30 days to confirm the leak has been fixed. A follow up verification test should be conducted within 10 days of the successful initial verification test or within 10 days of the appliance reaching normal operating conditions. An extension request must be submitted to EPA if the repair cannot be made within 30 days. This requirement is waived if a one year retrofit or retirement plan is created for the leaking unit.
- For any appliances exceeding the leak rate, a leak inspection must be performed once per calendar year until the leak rate calculation demonstrates that the appliance has not leaked in excess of the leak rate for one year. If an appliance continues to leak above the leak rate after repair and verification testing, a one year retrofit or retirement plan must be created.

- Extensions for retrofit and retirement plans can be requested under certain circumstances.
- Any appliance containing 50 lbs or more of ODS refrigerant that leaks 125% or more of the full charge in a calendar year must be reported to EPA by March 1 of the subsequent year.
- Any leak volume, repair and follow up test must be documented.
- Any disposal or transfer of an ODS refrigerant (such as R-22) must be documented and accounted for in records maintained by the Port.
- Accounting and recordkeeping related to the required tracking of ODS management will be periodically reviewed via internal inspections by environmental staff responsible for compliance with air regulations and/or the internal environmental audit process.

3.0 Refrigerant Recycling and Disposal Best Management Practices and Recordkeeping

- Recovered refrigerant can be recycled into the same system or other systems owned by the same entity without restriction.
- If refrigerant changes ownership, it must be processed (i.e., cleaned to the ARI 700-1993 Standard of purity) by an EPA certified reclaimer. Refrigerant reclaimers are companies that reprocess used refrigerant back to virgin specifications.
- Refrigerant and air-conditioning equipment that is typically dismantled onsite before disposal has to have the refrigerant recovered in accordance with EPA's requirements for servicing prior to their disposal. Technicians evacuating refrigerant from appliances with a full charge of more than 5 pounds of refrigerant for purposes of disposal of that appliance must keep records for 3 years including: company name, location of the appliance, date of recovery, type of refrigerant, total quantity of refrigerant recovered, and total quantity of refrigerant transferred for reclamation or destruction, the person to whom it was transferred, and the date of transfer.
- Equipment that typically enters the waste stream with the charge intact is subject to special safe disposal requirements. The final person in the disposal chain (e.g. scrap metal recycler or landfill owner) is responsible for ensuring that the refrigerant is recovered from the equipment prior to disposal. If the enterprise that recovers the refrigerant is not also the final disposer of the appliance, EPA requires a signed statement containing the name and address of the person who recovered the refrigerant, and the date that the refrigerant was recovered. Maintain copies of the signed statements or contracts if Port technicians have not evacuated appliances prior to disposal.

4.0 Technician Training Requirements and Recordkeeping

- Technicians working on equipment containing ozone depleting substances are required to have the appropriate training and certification as defined by EPA, including passing an EPA approved test delivered by an EPA-approved certifying organization.
- A copy of training and certification records must be maintained in the maintenance office where the technician is based or associated with [40 CFR 82.166(j)].

5.0 Equipment Certification Requirements and Recordkeeping

- Refrigerant recovery and recycling equipment manufactured on or after November 15, 1993 must be certified by an EPA-approved equipment testing organization. Certified equipment can be identified by a label reading "This equipment has been certified by ARI/UL to meet EPA's minimum requirements for recycling or recovery equipment intended for use with…"
- Refrigerant recovery equipment is required to have a valid EPA Refrigerant Recovery or Recycling Device Acquisition Certification Form (EPA Form 7610-31). The form must be completed and signed by the "Owner/Responsible Officer" and submitted to EPA per instructions on the form. At the Port, the responsible officer is the Chief Operating Officer.
- Certifications and a record of the date of submission of the EPA Form 7610-31 to EPA as well as a copy of the completed and signed form should be maintained on file by the relevant Port maintenance department(s).

6.0 Potential Penalties for Violations

- EPA is authorized to assess fined up to $37,500 per day for any violation of these regulations.

Link to associated Work Instruction: Refrigerant Management Plan for Ozone-Depleting Substances and Non-Exempt Substitutes Used in Refrigeration, Air Conditioning, and Heat Pump (RACHP) Equipment #WI-POR-AIR-004

For assistance: contact Environmental Air Quality Specialist at odstracking@portofportland.com

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REFRIGERANT EQUIPMENT SERVICE FORM C

Information Requirements for Contractors or Port Employees Servicing Equipment with ≥ 5 lbs of Refrigerant

Check one:

☐ Contractors servicing HVAC or other equipment with ≥ 5 lbs of refrigerant must complete this form and return it to the Port with a copy of the Invoice.

☐ Port maintenance personnel conducting HVAC service or inspection

Step 1: Refrigerant Equipment & Service Technician Information			
1) Name of Technician		EPA Certification #:	
2) Company		Phone:	
3) Equipment ID#			
4) Equipment Location			
5) Refrigerant Type			
6) Max Charge (lbs)			
7) Service Type	☐ Service	☐ Leak Inspection	Date:
8) Refrigerant Evacuated?	☐ YES ☐ NO	Evacuation Level (in Hg):	
9) A. Refrigerant removed during service (lbs):		B. Refrigerant returned or added after service (lbs):	
10) A. Amount of new refrigerant added (9B – 9A):		B. Is the amount of refrigerant added (10A) more than 0 lbs?	☐ YES ☐ NO
11) Leaks Identified	☐ YES ☐ NO	Test Method Used	
12) Description of service and specific location of leaks:			
13) Certification	I certify that all visible and accessible parts of the appliance were inspected.	_____ *Please sign name above*	
If the unit is greater than 50 lbs at full charge and the answer to 9A. is > 0, or the answer 10B. is "yes", additional time-critical requirements may apply. Please notify the Port Air Quality Specialist via email (odstracking@portofportland.com) immediately and they will advise on next steps to take.			

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REFRIGERANT EQUIPMENT SERVICE FORM C

Information Requirements for Contractors or Port Employees Servicing Equipment with ≥ 5 lbs of Refrigerant

Step 2: Calculate Leak Rate using values from Step 1.		
14) Calculate Leak Rate (either method):	$Leak\ Rate = \frac{lbs.\ of\ refrigerant\ added}{lbs.\ of\ refrigerant\ in\ full\ charge} \times \frac{365\ days\ per\ year}{shorter\ of\ number\ of\ days\ since\ refrigerant\ last\ added\ or\ 365\ days} \times 100\%$ $\_\_\_\_\_ \times \frac{365\ days\ per\ year}{\_\_\_\_\_} \times 100\% = \_\_\_\_\_\%$	
	$Leak\ Rate = \frac{lbs.\ of\ refrigerant\ added\ over\ past\ 365\ days}{lbs.\ of\ refrigerant\ in\ full\ charge} \times 100\%$ $\_\_\_\_\_ \times 100\% = \_\_\_\_\_\%$	
15) Is the leak rate greater than 10%?	☐ YES	☐ NO
If "no", the equipment does not exceed the applicable leak rate and no further action is required. If "yes" proceed to item 15.		
16) Is the leak rate greater than 125%?	☐ YES	☐ NO
If "yes" report to the Port Air Quality Specialist so that it is included in annual report.		
17) Can the unit be repaired?	☐ YES	☐ NO
If "yes" proceed to Step 3 and begin repairs. If "no" proceed to plan for decommissioning the unit.		

Step 3: Repair & Initial Verification (must be completed within 30 days of date listed in Line 7).		
18) Description of all leaks repaired		
19) Date of Initial Verification		
20) Verification Method		
21) Locations of all repaired leaks that were tested:		
22) Initial Verification Successful?	☐ YES ☐ NO	
If "yes" add refrigerant back into unit, resume operation, and proceed to Step 4. If "no" try to repair unit and conduct a second initial verification within 30 days of the date in Line 7. If a successful repair is not possible in that time frame, please contact the Port Air Quality Specialist for next steps.		

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REFRIGERANT EQUIPMENT SERVICE FORM C

Information Requirements for Contractors or Port Employees Servicing Equipment with ≥ 5 lbs of Refrigerant

Step 4: Follow-up Verification (must be completed within 10 days of the unit reaching normal operating conditions)			
23) Name of Technician		EPA Certification #:	
24) Company		Phone:	
25) Date of Follow-Up			
26) Verification Method			
27) Locations of all repaired leaks that were tested			
28) Follow-up Verification Successful?	☐ YES ☐ NO		
If "yes" continue operations as normal and conduct annual leak inspection within one year. If "no" the leak may need to be repaired again or the unit decommissioned. Please contact the Port Air Quality Specialist for next steps.			

Return this completed form with service invoice.

Port internal routing: send to Port Air Quality Specialist via email at odstracking@portofportland.com

Table 1. Required Level of Evacuation for Appliances

This table lists levels of evacuation for various types of refrigeration and air conditioning equipment manufactured either before or after November 15, 1993.

Type of Appliance	**Inches of Hg vacuum (relative to standard atmospheric pressure of 29.9 inches Hg)**	
	Using pre-1993 equipment	Using post-1993 equipment
Very high-pressure appliance	0	0
High-pressure appliance, or isolated component of such appliance, with a full charge of less than 200 pounds of refrigerant	0	0
High-pressure appliance, or isolated component of such appliance, with a full charge of 200 pounds or more of refrigerant	4	10
Medium-pressure appliance, or isolated component of such appliance, with a full charge of less than 200 pounds of refrigerant	4	10
Medium-pressure appliance, or isolated component of such appliance, with a full charge of 200 pounds or more of refrigerant	4	15
Low-pressure appliance	25 mm Hg absolute	25 mm Hg absolute

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REFRIGERANT EQUIPMENT DISPOSAL FORM D

Information Requirements for Contractors or Port Employees Disposing of Equipment with ≥ 5 lbs of Refrigerant

Step 1: Refrigerant Equipment & Service Technician Information		
1) Name of Technician		EPA Certification #:
2) Company		Phone:
3) Equipment ID#		
4) Equipment Location		
5) Refrigerant Type		
6) Max Charge (lbs)		

Step 2: Refrigerant Recycling & Disposal		
Section 1: Equipment Dismantled On-Site and Refrigerant Recovered for Recycling or Disposal		
a. Refrigerant Evacuation Level (inHg)		
b. Refrigerant Recovered (lbs)		Recovery Date:
c. Refrigerant Transferred (lbs)		
d. Transferee (if applicable)		Transfer Date:
Section 2: Equipment Disposal after Refrigerant Recovery (or with Charge Intact)		
a. Disposal Description		
b. Disposal Facility		
c. Disposal Date		
e. Signed Refrigerant Recovery Statement Provided for Equipment Disposal	☐ YES ☐ NOT NEEDED (if charge intact)	
Other Comments:		

Return this completed form with service invoice.

Port internal routing: send to Port Air Quality Specialist via email at **odstracking@PortofPortland.com**