

# Natural Refrigerant Training Summit

Building a Sustainable Workforce

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## Refrigerant Regulations and Compliance: Watchouts and Pitfalls

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Refrigerant Management Solutions



NORTH AMERICAN  
Sustainable  
Refrigeration  
Council

# Natural Refrigerant Training Summit

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# Who We Are

A 501c3 nonprofit working to create a sustainable future for supermarket refrigeration by removing barriers to natural refrigerant adoption.




**160+**  
member  
companies



**55K+**  
food retail  
locations



# Goals

-  Build a sustainable technician workforce
-  Increase funding for natural refrigerant equipment
-  Improve technology options, education, and awareness

## What are Natural Refrigerants?

**CO<sub>2</sub>**

**R744**  
Carbon Dioxide

**C<sub>3</sub>H<sub>8</sub>**

**R290**  
Propane

**NH<sub>3</sub>**

**R717**  
Ammonia

# Day 3 Hands-On Breakout Sessions

Start	End	Training Provider	Session Title
6:30 AM	7:30 AM		REGISTRATION & BREAKFAST
7:30 AM	8:00 AM	Various	30-minute hands-on breakout sessions* (sign-up required)
8:15 AM	8:45 AM	Various	30-minute hands-on breakout sessions* (sign-up required)
9:00 AM	9:30 AM		BREAK
9:30 AM	10:00 AM	Various	30-minute hands-on breakout sessions* (sign-up required)
10:15 AM	10:45 AM	Various	30-minute hands-on breakout sessions* (sign-up required)



- 30-minute, small group sessions with equipment
- Space is limited
- **Must sign-up at Info Desk**
- Scan the QR code or view program insert for session information



# Networking Sessions

## Student Networking

*April 30<sup>th</sup> | 3:30pm-5:30pm*

Connect with students and faculty from local HVACR schools. Share insights from your career and connect with potential future employees.

**Featuring an In-N-Out food truck!**

## Industry Networking

*May 1<sup>st</sup> | 3:30pm-5:30pm*

Close-out a full day of training with an opportunity to connect with industry peers.

Network with over 300 industry stakeholders and enjoy refreshments on us!





# Need help? Look for NASRC staff!



**Danielle Wright**  
Executive Director



**Morgan Smith**  
Program &  
Communications Director



**Jeanne Ackerman**  
Outreach Manager



**Rusty Walker**  
Training Director



**Ed Estberg**  
Technical Lead



**Lisa Baldwin**  
FRIP Manager



**Dave Flohr**  
Field Outreach Manager



**Juan Chavolla**  
Communications &  
Marketing Manager



**Darrow Soares**  
Education Design &  
Outreach Coordinator

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# Agenda

- Compliance/Enforcement Basics
- Compliance and enforcement – federal and state expansion
- The AIM Act - Overview
- What should you be doing
- Watch outs



# Compliance/Enforcement Basics

EVERY ASPECT OF REFRIGERATION MANAGEMENT, AT EVERY LEVEL,  
EXACTLY WHEN YOU NEED IT





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# Compliance: Refrigerant Regulations

- Compliance has two parts:
  - Required practices
  - Mandatory records
- Techs and record keepers are the front line in compliance
- Abysmal record-keeping
  - Garbage in, garbage out
  - Lack of training
  - Time pressure
  - Very little supervision

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## Legal Liability

- Most legal liability lies with end user
- Enforcement actions can last 3-5 years
- Consent decrees usually last 3 years
  - Mandatory actions
  - Leak rate reductions
  - Required technologies



# Federal/EPA and State Regulatory Expansion

EVERY ASPECT OF REFRIGERATION MANAGEMENT, AT EVERY LEVEL,  
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# EPA Announces Federal Enforcement Priorities to Protect Communities from Pollution

The 2024-2027 National Enforcement and Compliance Initiatives are:

**Mitigating Climate Change** - Tackling the climate crisis is an urgent priority. EPA will use its enforcement and compliance tools to reduce greenhouse gas emissions, helping to limit the worst effects of climate change. The initiative will focus on three separate and significant contributors to climate change: (1) methane emissions from oil and gas facilities; (2) methane emissions from landfills; and (3) the use, importation, and production of hydrofluorocarbons (HFCs). EPA has documented widespread noncompliance in all three of these areas, resulting in potentially tens of thousands of tons of unlawful emissions of greenhouse gases and other pollutants. This initiative will help achieve EPA's goals to combat climate change while also addressing significant noncompliance in specific industry sectors.

<https://www.epa.gov/newsreleases/epa-announces-federal-enforcement-priorities-protect-communities-pollution>

# EPA Compliance and Enforcement



The 2024-2027 National Enforcement and Compliance Initiatives

**Mitigating Climate Change** - Tackling the climate crisis is an urgent enforcement and compliance tools to reduce greenhouse gas emissions, helping to limit the worst effects of climate change. The initiative will focus on three separate and significant contributors to climate change: (1) methane emissions from oil and gas facilities; (2) methane emissions from landfills; and **(3) the use, importation, and production of hydrofluorocarbons (HFCs)**. EPA has documented widespread noncompliance in all three of these areas, resulting in potentially tens of thousands of tons of unlawful emissions of greenhouse gases and other pollutants. This initiative will help achieve EPA's goals to combat climate change **while also addressing significant noncompliance in specific industry sectors.**

<https://www.epa.gov/newsreleases/epa-announces-federal-enforcement-priorities-protect-communities-pollution>

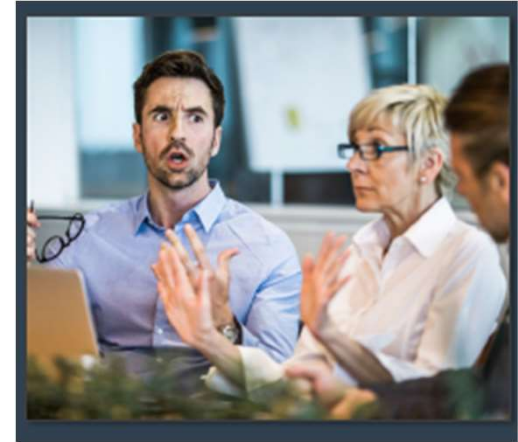
EVERY ASPECT OF REFRIGERATION MANAGEMENT, AT EVERY LEVEL,  
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## What is the EPA looking for in enforcement?

- Bad actors!
- EPA enforcement target lists
  - Used to rely on tips and random inspections
  - Now they have the chronically leaking appliance rule
- It's not illegal to leak
- If you ...
  - Are 100% certain that you keep records for all regulated appliances
  - Are 100% certain you have all mandatory records for each appliance
  - Are 100% certain that you can prove that you resolved every leak that was detected
  - Are 100% certain that you performed every leak inspection for every required appliance on time (every 90 days for 4 “clear” inspections)
  - Are 100% certain that someone at each facility can produce a compliance report while an inspector is standing there looking at a timer
  - And are 100% certain that the compliance report is completely unambiguous, accurate, and it shows perfect records ...
- **THEN CONGRATULATIONS YOU HAVE NOTHING TO WORRY ABOUT!!**

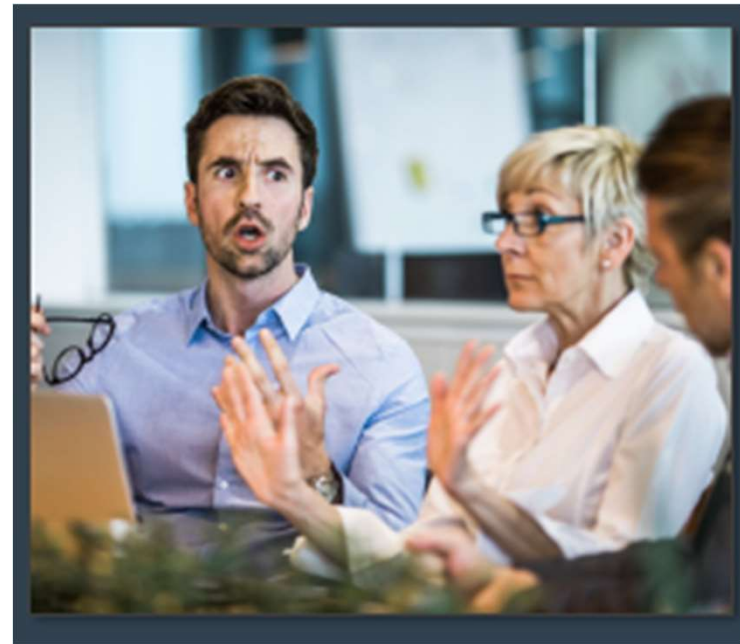




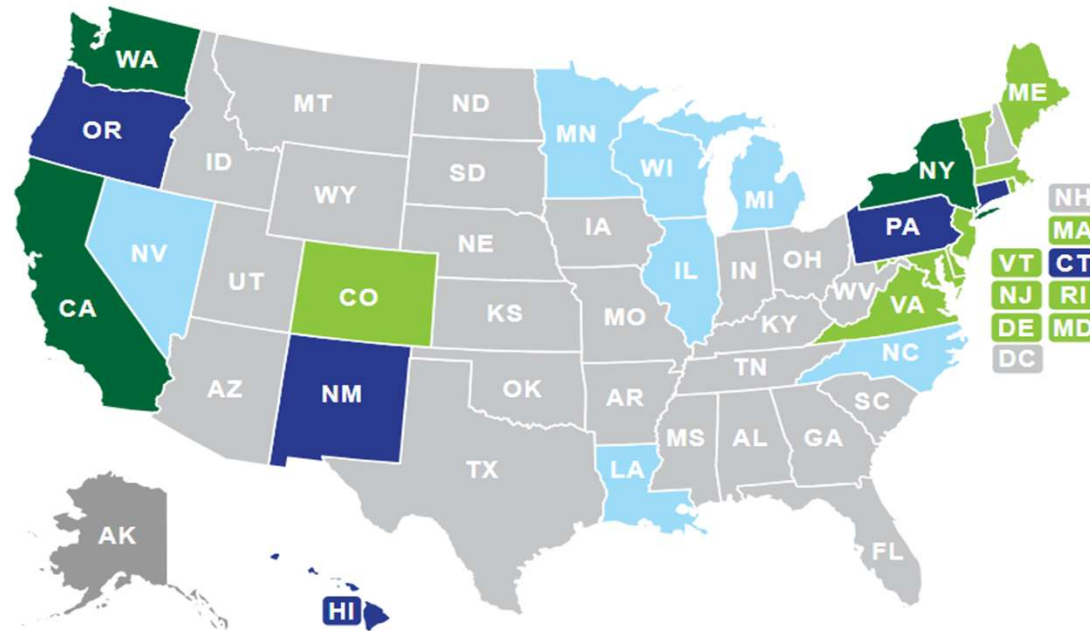
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## What is the EPA looking for in enforcement?

- Repeat leaks – when the same appliance leaks over and over again
  - Huge watch out!
  - How many different leak locations on a rack?
  - Misleading leak locations
- Chronically leaking
- Unresolved leaks
- No leak found
- Topped off refrigerant
- Seasonal adjustments
- Missing leak inspections
- Late leak inspections



# State Refrigerant Regulations



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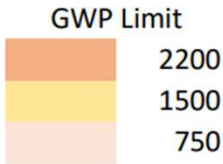
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## The States

- Race to the top – or bottom, depending on your perspective
- California
  - New computer system coming – watch out!
  - New regulations coming
  - Important regulatory changes as of 1/1/2025 – 8 MONTHS FROM NOW!
- Washington (state)
  - Are you already in violation?
- New York
  - Proposed; expect to see final regulations in 2024
  - Required transition of all existing equipment

# State Refrigerant Regulations - California

California's Bans of Sale/Purchase of Virgin Refrigerant			
Refrigerant Category	Refrigerant	100-Year GWP (AR4)	Virgin Sale/Purchase Prohibition Date
HFC	R-507A	3,985.00	1/1/2025
HFC	R-404A	3,921.60	1/1/2025
HCFC	R-408A	3,151.90	1/1/2025
HFC	R-422B	2,525.69	1/1/2025
HFC	R-427A	2,138.25	1/1/2030
HFC	R-407A	2,107.00	1/1/2030



California Turns Up the Heat on HFC Refrigerants  
<https://dcerms.com/blog/california-turns-up-the-heat-on-hfc-refrigerants>

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# California

## Refrigeration systems with a charge size > 50 lbs. in retail food facilities

Compliance Requirement	Compliance Date
Weighted-average GWP* must be < 2,500; or 2019 baseline GHGp must be reduced by 25% or more	December 31, 2026 <sup>1</sup>
Weighted-average GWP must be < 1,400; or 2019 baseline GHGp must be reduced by 55% or more	January 1, 2030

<sup>1</sup> Only applies to companies owning or operating 20 or more retail food facilities in CA, and national supermarket chains operating in CA.

!! CO2 refrigeration systems with a charge size > 50 lbs. must be registered in the CARB R3 system !!

Weighted average GWP =  $\sum (\text{charge} \times \text{GWP}) / \sum \text{charge}$

GHGp = the greenhouse gas potential of a company's food retail facilities =  $\sum (\text{Charge} \times \text{GWP})$





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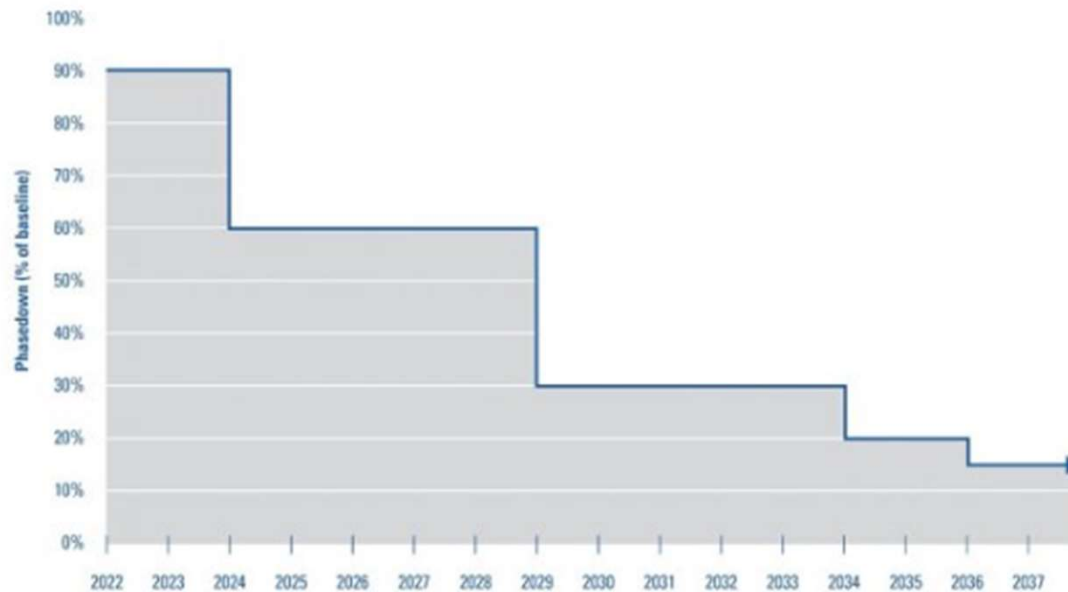


# AIM Act: HFC Phasedown/Allocation Rules (Final)



## Phasedown Schedule

The following illustrates the HFC production and consumption phasedown schedule as outlined in the AIM Act.



- Maximum annual production volumes allocated to chemical manufacturers

## AIM Act: HFC Phasedown/Allocation Methodology



- Allocations in metric tons of exchange value equivalent (MTEVe) = metric tons of CO2 equivalent
- Chemical manufacturer profits will lead to shortages
- Example: 1,000,000 MTEVe

Refrigerant	GWP	Metric Tons Multiplier	Pounds Manufactured
R-404A	3922	2204.62	~560,000
R-449A	1396	2204.62	~1,600,000

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## AIM Act: HFC Use Restrictions/Technology Transitions Rule (Final)

- Applies to all HVACR equipment, regardless of charge size
- Existing high-GWP systems can continue to operate
- New terms/new definitions
  - *Product* is functional upon leaving a factory (e.g. packaged rooftop units)
  - *System* is assembled and charged in the field (e.g. refrigeration rack systems)
  - *Install* means to complete a field-assembled system's circuit, including charging with a full charge, such that the system can function and is ready for use for its intended purpose
- Replacing 75% or more of evaporators (by number) and 100% of the compressor racks, condensers, and connected evaporator loads, or increasing the cooling capacity (BTU/hour) will trigger refrigerant bans for systems.

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## AIM Act: HFC Use Restrictions/Technology Transitions Rule

- Refrigeration *products*
- Is micro-distributed a *product*?

### GWP Limits for New Self-Contained Refrigeration Products in New/Existing Facilities (functional upon leaving a factory)

Products <sup>1</sup>	Prohibited Refrigerants	Manufacture & Import Compliance Date <sup>2</sup>
Retail food – refrigeration stand-alone units & vending machines	GWP ≥ 150	1/1/25

<sup>1</sup> Additional requirement for refrigerated food processing and dispensing equipment, automatic commercial ice machines, and refrigerated transport.

<sup>2</sup> Sale, distribution, and export of these products is prohibited 3 years after the manufacture & import compliance date.

## AIM Act: HFC Use Restrictions/Technology Transitions Rule

- Refrigeration *systems*
- Or is micro-distributed a *system*?

**GWP Limits for New Refrigeration Systems in New/Existing Facilities (assembled and charged in the field)**

Sector <sup>1</sup>	Systems	Prohibited Refrigerants	Installation Compliance Date
Cold storage warehouses <sup>2</sup>	≥ 200 lb. charge, excluding high temperature side of cascade system	GWP ≥ 150	1/1/26
	< 200 lb. charge	GWP ≥ 300	1/1/26
	High temperature side of cascade systems	GWP ≥ 300	1/1/26
Retail food – remote condensing units	≥ 200 lb. charge, excluding high temperature side of cascade system	GWP ≥ 150	1/1/26
	< 200 lb. charge	GWP ≥ 300	1/1/26
	High temperature side of cascade systems	GWP ≥ 300	1/1/26
Retail food – supermarkets <sup>2</sup>	≥ 200 lb. charge, excluding high temperature side of cascade system	GWP ≥ 150	1/1/27
	< 200 lb. charge	GWP ≥ 300	1/1/27
	High temperature side of cascade systems	GWP ≥ 300	1/1/27

<sup>1</sup> Additional requirement for automatic commercial ice machines and refrigerated transport.

<sup>2</sup> Compliance date for installation is extended 1 year when an approved building permit issued prior to 10/5/23 specifies the use of a regulated substance in a system.

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## AIM Act: HFC Use Restrictions/Technology Transitions Rule

- Air-conditioning *products*

### GWP Limits for Self-Contained Air Conditioning/Heat Pump PRODUCTS in New/Existing Facilities (functional upon leaving factory)

Products	Prohibited Refrigerants	Manufacture & Import Compliance Date <sup>5</sup>
Light commercial air conditioning & heat pumps	GWP ≥ 700	1/1/25
Chillers – Comfort cooling (as a stand-alone product)	GWP ≥ 700	1/1/25
Data centers, computer room air conditioning, & information technology equipment cooling	GWP ≥ 700	1/1/27

<sup>5</sup> Sale, distribution, and export of these products is prohibited 3 years after the manufacture & import compliance date.



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## AIM Act: HFC Use Restrictions/Technology Transitions Rule

- Air-conditioning *systems*

### GWP Limits for Air Conditioning/Heat Pump Systems in New/Existing Facilities (field-assembled and field-charged)

Systems	Prohibited Refrigerants	Installation Compliance Date
Light commercial air conditioning & heat pump systems	GWP $\geq$ 700	1/1/26 <sup>6</sup>
Chillers – Comfort cooling	GWP $\geq$ 700	1/1/25
Variable refrigerant flow systems	GWP $\geq$ 700	1/1/26
Data centers, computer room air conditioning, IT equipment cooling	GWP $\geq$ 700	1/1/27

<sup>6</sup> EPA amendment issued 12/26/23 gives 1 additional year to install new light commercial AC or heat pump systems when using components manufactured or imported before 1/1/25 (vs. original 1/1/25 date).

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## AIM Act: Emissions Reduction and Reclamation Act (Proposed)

- Appliances with full charge of 15+ lbs. of a HFC refrigerant or a substitute with a GWP > 53
- Might not apply to appliances used in residential/light commercial AC and heat pumps sector
- Most requirements are consistent with Section 608
  - Leak repair thresholds, deadlines, requirements
  - Mandatory leak inspections
  - Chronically leaking appliance annual reporting
  - Mandatory record-keeping
- Mandatory automatic leak detection systems (ALDS) for new and existing systems with full charge of 1500+ lbs. of a HFC refrigerant or a substitute with a GWP > 53
- Mandatory use of reclaimed refrigerant for servicing HFC systems starting 01/01/28
- Disposable Cylinders must be sent to reclaimer for removal of refrigerant heel starting 01/01/2025

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## What you need to do to get ready for the Aim Act

- Start surveying your stores and adding appliances with 15-49 lbs. to your recordkeeping
  - Accurate charge sizes
- Start a program to monitor leak rates to avoid chronically leaking appliance rule
  - If you are waiting to hit the trigger rate to repair, stop! Milk calculator
- Pay attention to the chemical manufacturers
- Pay attention to the reclaimers
- Prepare for shortages of R-404A and R-507A
- Start banking HFCs
  - Requirement to use reclaimed refrigerant for servicing
  - Establishes a relationship with a reclaimer
  - Hedging against shortages
  - NOT because it makes financial sense in the traditional way of thinking
- Figure out the logistics of accessing your banked refrigerant

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## What you need to do to get ready for the Aim Act

- Metrics to ensure you are in compliance
- Get earlier leak records from service providers
  - Don't pay invoices until records are complete and accurate
  - Set a deadline (for complete and accurate records)
- Check invoices for refrigerant adds with no compliance record
  - Mandate that service providers list the record number on the invoices
- Get ready to file leak repair extension requests
  - Policies for automatic extensions
  - Additional records
  - Ensure contractor makes repair as soon as part gets in
- Learn what a retrofit/retirement plan is

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## What you need to do to get ready for the Aim Act

- Set your leak inspection dates in stone
  - Time your leak inspection due dates to avoid the 2 weeks at the beginning of a quarter and the 2 weeks at the end of a quarter
  - Ensure every leak detected is tied to a resolution
- Audit stores for enforcement readiness
- Pull your compliance report (for every store!)
- Start training construction teams – they normally don't think this all has anything to do with them
- Track changes to original system design to determine when you trigger the switchover to “new” equipment
- Investigate newer, leaky equipment
  - Installation leak tightness testing
  - Monitor all newly installed appliances that have leaked and assign an “investigative unit” to them
- Ensure access to CO2

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## Compliance Watch-Outs

- Missing verification testing
- “Impossible” verification testing
- Looking for a leak until you find one and repairing only that leak
- Finding and repairing the “wrong” leak
- Installation contractors that are under warranty + unreported leaks
- Service/maintenance contractors doing retirements
- Mismatched leak inspections vs. appliance lists
  - Appliances inspected that don’t exist
  - Existing appliances with no inspections
- Inappropriate notes



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Thank you!!

Contact info:

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# Questions??

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1. Scan or visit [nasrc.org/session-surveys](http://nasrc.org/session-surveys)
2. Provide your name and email at the end of the survey

**Please Note:** *You will not receive a certificate unless you share your name on the survey form.*

## Refrigerant Regulations and Compliance: Watchouts and Pitfalls

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