



Brea, California



ATMO
sphere

Business Case for
Natural Refrigerants

June 12-14, 2018 – Long Beach

Contractors and Training

Who We Are:

- CoolSys is the parent company of market-leading operating companies that provide a full spectrum of best-in-class solutions to the retail, commercial and industrial refrigeration, energy efficiency and HVACR industries.

- ✓ New System Engineering & Design
- ✓ Installation of New Systems & Remodels
- ✓ Refrigerant Conversions
- ✓ Preventative Maintenance
- ✓ Service & Repairs
- ✓ Optimization of Energy Use & System Performance
- ✓ Energy Efficient Refrigeration Systems
- ✓ Turn key design build services

CoolSys COVERAGE MAP



CoolSys Corporate Office Service Office Service Office and Training Facility Service Office and Call Center

Note: Installation and Energy Optimization services available nationwide.



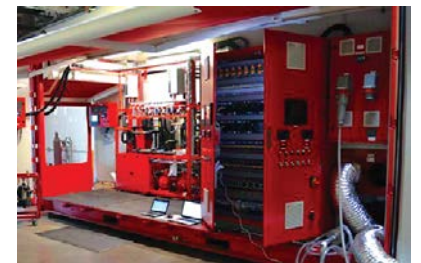
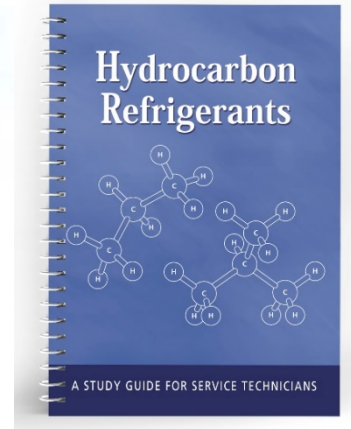
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Available Training Resources...



- **IIAR** and **RETA** have extensive training publications related to ammonia. IIAR is including a “Commercial Track” into the 2019 Annual Conference agenda, a significant learning opportunity.
- **RSES** has a hydrocarbon training guide. **NASRC** Member reduced rate of \$72 recently introduced by **RSES** for this course. 52 Source Tech’s have taken this training...
- **RETA** is developing a CO₂ certification book, due this fall. This will allow technician certification with respect to commercial or industrial CO₂ systems.
- Various manufacturers have developed their own training courses, such as the **Hill Phoenix Learning Center**. HPX has been very supportive of the training needs in the commercial sector.
- Mobile trainers such as what **Danfoss** has brought to the industry have been helpful in providing regional support..



Integrating Naturals into a Training Curriculum:

- Provide **timely** exposure to construction and service technicians for new technologies, while continuing to refine and improve their skills on existing.
- Not all new technology projects land in the same **geography**.
- There has been an evolution in CO₂ applications for grocery retail, where does one start to train...we must **focus on the basics** first.
- **Safety**, safety and more safety...can't stress this enough
- **Budgeting** for the costs to prepare service technicians to properly service a natural refrigerant system...a planned expense.
- Keep training curriculum **current and relevant**...when should a new technology enter one's training curriculum?

What we do today...

CoolSys Training Center, Anaheim CA

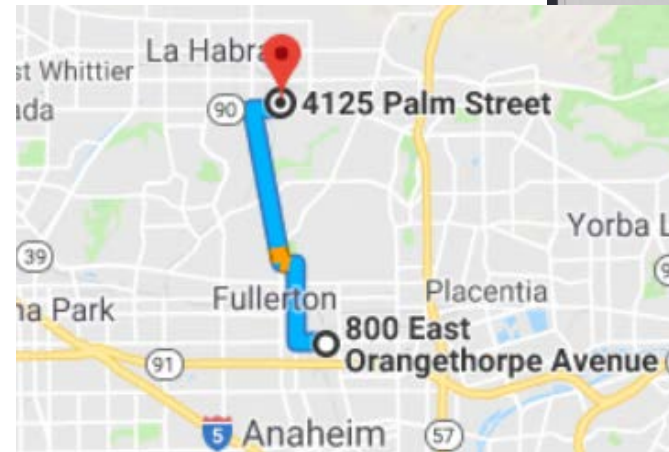


What we plan on doing tomorrow...



Propane Fixtures

Live CO₂ systems



We're moving our training center, stay tuned...

Training Challenges:

- Technicians must average between 2-3 calls per day to be productive and profitable.
- Training window is between October and May...
- Technician expense for training is unbilled time, travel to and from training centers is costly. **To Not Train is not an option!**
- Establishing localized training is important for cost containment, and providing a more frequent training experience, locally managed.
- We must service older technology at a high level, but we now must bring new technology into the equation.
- CoolSys companies have primarily utilized training resources from the equipment manufacturers to train our technicians on natural refrigerants. We estimate we have trained over 200 technicians over the years. Most training has been on the jobsite.
- Timing of training vs. real-world experience – often a delay between training and using the knowledge in real-world applications.

New Industrial Natural System...

How would you handle the revamp of 110,000 Square feet of refrigerated space in a pork production facility sized to harvest 3200 hogs daily?

Michael Lau and his team at Yosemite Meat Co. Inc. of Stockton evaluated various natural refrigerant and Freon based systems, his criteria included the following:

- Must be environmentally best-in-class.
- Safety is critical, and a non-corrosive substance
- If possible, eliminate some emergency requirements
- Ability to reclaim heat is critical
- Must be cost effective, both on first and operating costs



CO₂ was the solution...

A collaborative effort between Commercial Refrigeration Services of South Africa, Refrigeration Solutions LLC, Advanced Refrigeration Systems of Sacramento and our customer Yosemite Meat Co. Inc. of Stockton Ca. brought together one of the worlds largest CO₂ plants to date...

Some statistics:

- 87 evaporators
- 65 compressors
- 2450 HP
- Reclaimed Heat for clean up purposes
- Five rack systems
- 1398 Tons of CO₂ capacity
- 5 gas coolers



We are under construction...



Stay tuned, a training opportunity awaits!!

Summary

- Pick a training path that parallels customer adoption of naturals...
 - Establishing a regular dialogue with customers is critical in order to know what is coming
 - Attending Industry events such as ATMO gives a broader perspective
- Plan and budget training for naturals in advance, they are here to stay, each year will bring a new spin on the technology...
- Build relationships with those Manufacturers and Industry organizations that offer some sort of organized training...
- Encourage and participate with the Community College systems to incorporate naturals into their HVACR curriculums; promotes awareness at entry level.
- Technicians want to learn in any way they can, consider an in-house media approach to short topic training segments...

Thank You!

