Case Study

Environment Management - Best Practices

Refrigerant Gas Management Benchmarks

A Special Report for Large North American Grocery Retailers

VERISAE

Executive Summary

Refrigerant and Fugitive Emissions Manager was designed from the ground up to make managing refrigerants simple and easy. Additionally there are environmental risks and governmental tracking requirements any time refrigerants are used.

How can organizations with hundreds or thousands of systems manage legal compliance or reduce costs when they have sites and systems in so many locations?

ERM Delivers:

- Refrigerant Leak Tracking
- Refrigerant Gas Inventory Management
- EPA Leak Rate Calculations
- U.S. Clean Air Act Compliance
- Refrigerant Leak Tracking by System

Cost Benefits of Effective Refrigerant Management

Refrigerant leaks are one the highest maintenance expenses for organizations using or maintaining gas. In addition to compliance, management of refrigerant is important from a cost perspective.

A typical 100-store supermarket chain operates with 400,000 lbs. of refrigerant within their refrigeration and air conditioning systems. Assuming an average cost of $6 per pound, this equates to a $2.4 million asset. An average annual leak rate of 25% (many chains are higher) results in $720,000 of refrigerant being replaced each year. Reducing the leak rate by only 5% saves $240,000 per year.

Average Company Using Refrigerants

Implementation of Refrigerant & Fugitive Emissions Manager Product

Company Profile

A large grocery and dry goods retailer currently maintains over 1,000 locations in over 40 states and is challenged to track 20,000+ refrigerant containing systems. Each year they add at least 10 new locations and re-fit 50 or more existing sites with updated systems for a new look. This retailer is also an industry leader in addressing environmental sustainability challenges through a variety of programs, such as its new comprehensive recycling and carbon offset conservation initiatives. Their commitment to environmental sustainability is especially clear throughout its operations in the

United States, where it must comply with tough regulations that govern everything from large refrigeration systems to small drinking fountains.

Business Challenges

Organizations operating refrigeration and air-conditioning systems often are serviced by outside maintenance companies and/or internal service technicians. It was difficult to know with confidence if EPA requirement were being met.

- Comply with evolving EPA section 608 refrigerant record keeping laws
- Track and maintain a database of multiple thousands of sites and systems
- Enable home office to track compliance at 1,000 U.S. locations
- Manage over 200 individual technicians
- Find operational time/cost savings

Solution Approach

Verisae's Refrigerant & Fugitive Emissions Manager product is a web-based solution to track and document refrigerant gas usage. Verisae makes it easy to manage and control refrigerant related events across your enterprise. With Verisae ERM, one person can oversee hundreds of locations and thousands of systems.

Verisae ERM makes refrigerant regulatory compliance simpler and more effective. It can be configured to match the tracking and reporting requirements for any location. ERM facilitates the reduction of refrigerant usage because managers can watch their refrigerant related activities in real time and head off issues before they become expensive problems.

Technical Situation

Verisae provides a software solution that delivers an effective refrigerant management process for your facilities. Refrigerant & Fugitive Emissions Manager eliminates manual systems and allows for a fast accurate implementation. Verisae's product is comprehensive, yet simple to use. An important part of managing the operation of your facilities understands the use of refrigerants. Many refrigerants in use today are regulated by the EPA and are hazardous to the environment. Recent activity by the EPA and the Department of Justice has shown that many retailers are not in compliance. Many organizations and other owners of refrigerants have been fined tens of millions of dollars over the past few years.

Products & Services
- Refrigerant & Fugitive Emissions Manager
- ASP model, 100% hosted solution comprised of:
  - Equipment/Asset Database
  - Tracking of misuse/abuse
  - Refrigerant & Fugitive Emissions Manager
  - Contractor report cards
  - Monthly management reports

> "Verisae ERM makes refrigerant regulatory compliance simpler and more effective. It can be configured to match the tracking and reporting requirements for any location."

• Weekly exceptions reporting

Benefits & Results
Assuring compliance with EPA 608 regulations

- Lower year over year refrigerant usage 2–5%
- Better insight to refrigerant usage and costs
- Generate Scope 1 refrigerant emissions reports
- Met and exceed EPA's voluntary GreenChill program annual goal
- Tracking and verification of environmental compliance at 1,000 sites nationwide
- Robust site and system registry
- Saving staff time by eliminating need for onsite audits
- Productivity gains enable environmental team to take on expanded roles in EH&S sustainability with less staff

Company A had been working with a packaged personal computer based environmental tracking software system. They created a database of their sites and systems and setup a web portal to upload event information into the centralized database.

Unfortunately the process of acquiring event information from contractors was cumbersome and many times took longer than the allotted 30 day period allowed by the EPA for bringing leaking systems under the mandatory trigger rates. There were also issues with maintaining the store and asset registries—missing sites, missing systems, incorrect refrigerant types etc. To customize their current software database was not cost effective so they looked for alternative solutions. The management team conducted a comprehensive search for a new refrigerant tracking software and ultimately chose the Refrigerant & Fugitive Emissions Manager software platform from Verisae.

EPA Rules Explained
In the early 1990's the EPA implemented rules requiring owners and operators of equipment containing 50 pounds or more of ozone depleting refrigerant keep stay under an annual leak rate of 35% for commercial refrigeration and 15% for comfort cooling (air conditioning). Furthermore refrigerant can only be

	1 Store	1,000 Stores
Pounds of Refrigerant	3,000	3,000,000
Annual amount used for leaks	705	705,000
Cost @ $8/ pound	$5640	$5,640,000
5% savings	$282	$282,000

handled by EPA certified technicians. To ensure the trigger rates aren't exceeded companies must make a calculation of leakage EVERY time

refrigerant is added. In order to make this calculation the person must know how much refrigerant is in the system and track the days between additions. Failure to comply with the law can result in fines as large a $32,500 per day, per system.

A typical facility with refrigerated food cases and air conditioning could have 3,000 pounds of ozone depleting materials. The current price of refrigerant is ~$8.00 per pound. EPA models have shown refrigeration leak rates to be 23.5%.

The retailer expects that the Verisae ERM software will pay for itself in less than a year and that the entire project, including staff time, should pay for itself within two years.

Assuring Compliance Nationwide

The Verisae Refrigerant & Fugitive Emissions Manager is by far the most robust data management program found in the marketplace. It's scalable and easy to maintain. The simplicity of the user interface creates a system that works for everybody—the users, the I.T. department, and managers.

The retailer headquarters team needed to assure environmental compliance at 1,000 stores and distribution centers across the United States they operate. The technicians in each region are responsible for entering usage data for their sites into Verisae ERM each time refrigerant is added via simple online drop down web forms. Since Verisae is web-based the entry can be performed on a common store PC, a technician's laptop or even a web enable cell phone like a Blackberry.

After successfully testing Verisae ERM on a series of the pilot instances, the retailer was able to improve and update the site and system registry, train over 200 technicians and internal managers and rollout the full system to all of its U.S. locations within 3 months!

Contractors and technicians welcomed Verisae ERM because the equipment registry was up to date, entering events was simple and they no longer had to perform the EPA calculations.

Each event captures:

Date of Service Event	Technician	Technician EPA Certification credentials (pre loaded)
Amount of Refrigerant Used	Amount Recovered	Leak Location
Fault Code (what caused the leak)	Action Code (what was done tom fix the leak)	Leak Verification Method
Work Order number	Refrigerant Cylinder Information	Technician Comments

After successfully testing Verisae ERM on a series of the pilot instances, the retailer was able to improve and update the site and system registry, train over 200 technicians and internal managers and rollout the full system to all of its U.S. locations within 3 months!

Contractors and technicians welcomed Verisae ERM because the

equipment registry was up to date, entering events was simple and they no longer had to perform the EPA calculations.

Reporting—Eliminating Guesswork
Verisae implemented a number of alarms and scheduled reports that are pushed to appropriate managers within the retailer. Being setup to manage the exceptions, systems approaching the EPA limits or instance, has offered peace of mind and has saved the company's resources. Accurate reporting and oversight resulted in a 5% reduction in refrigerant usage the first year.

Improved Quality and Productivity
Verisae ERM software helps retailers to weed out underperforming technicians and discover the best in class ones. It assists clients to maintain their environmental commitments while reducing the time spent on paper processes and employee management.

On-Line tier 1 data storage is permanent and readily accessed; no longer left in fragile paper files or faulty PCs. As a result, the immediate exchange of information has allows the environmental managers to be much less vulnerable to employee turnover and data loss.

How You Can Save Up to 35% of the Money You Now Spend on Energy and Maintenance

With Verisae's help, many large, complex organizations can save up to 35% of the money they now spend on energy and maintenance. How you can do it with us.

● **Energy** - Through improved energy management you can save up to about 15% of your current energy cost.

● **Maintenance** - Through improved maintenance management you can save about 15% of your current maintenance cost.

● **Energy & Maintenance** - By better managing the interrelationships between both energy and maintenance, you can save about 5% of both energy and maintenance cost.

Verisae delivers a range of software and services to over 60 clients globally with more than 100,000 daily users including a network of more than 14,000 third party suppliers. Our SaaS platform actively tracks over three million assets across more than 29,000 sites worldwide.

Verisae Global Headquarters
100 North Sixth Street
Suite 710A
Minneapolis, MN 55403
United States of America
Phone: 612.455.2300
Fax: 612.455.2324

Verisae European Office
Golden Cross House
8 Duncannon Street
Strand, London, WC2N 4JF UK
Phone: +44 (0) 208.334.8083
Fax: +44 (0) 207.484.5100

Email: contact@verisae.com
Website: www.verisae.com/energy

VERISAE