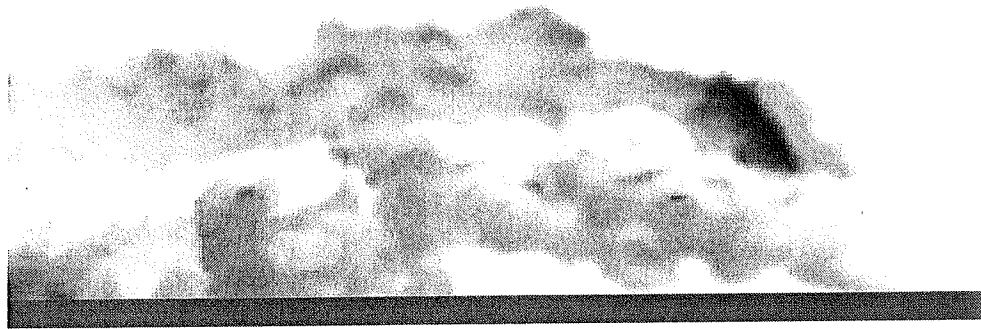


PSM/RMP Compliance



RETA Chapter Meeting Schedule

- ALABAMA**
BIRMINGHAM
2nd Thursday
- ARIZONA**
PHOENIX
4th Thursday, 6 pm
SOUTHWEST
7th Thursday, 6 pm
- ARKANSAS**
NORTHWEST ARKANSAS
7th Thursday, 6 pm
- CALIFORNIA**
BAY AREA
3rd Thursday, bi-monthly;
6:30 pm
CALIFORNIA CHAPTER #2
3rd Wednesday, 6 pm
No meeting in December
CENTRAL VALLEY
3rd Thursday, 6:30 pm
INLAND EMPIRE
3rd Tuesday, 6 pm
KERN
Last Wednesday, 7 pm
MONTEREY BAY
3rd Wednesday, 6 pm
SAN JOAQUIN
7th Tuesday, 6 pm
SANTA MARIA
Not scheduled
- DELAWARE**
DELMARVA
3rd Tuesday, 6:30 pm
- FLORIDA**
CENTRAL FLORIDA
3rd Thursday, 6:30 pm
NORTH FLORIDA
2nd Thursday, 6:30 pm
No meeting in July or October
SOUTH FLORIDA
2nd Thursday
- GEORGIA**
ATLANTA
2nd Tuesday, 6:30 pm
No meeting in June or July
- IDAHO**
TREASURE VALLEY
3rd Tuesday
- ILLINOIS**
CHICAGO
2nd Wednesday, 5:30 pm
- INDIANA**
FT. WAYNE
2nd Thursday, 5:30 pm
- KANSAS**
GOLDEN PLAINS
To be determined
- MINNESOTA**
NORTHERN PLAINS
3rd Thursday, 6 pm

OPERATING PROCEDURES STEPS REQUIRED TO CORRECT OR AVOID DEVIATION

— By Lee Pyle and Jeanna Emmons, SCS Tracer Environmental

Under the Process Safety Management standard (29 CFR 2910.119), facilities are required to prepare operating procedures (1910.119 (f)) for the safe operations of their ammonia refrigeration system. Specifically, 1910.119 (f) (1) states:

“The employer shall develop and implement written operating procedures that provide clear instructions for safely conducting activities involved in each covered process consistent with the process safety information...”

As most already know, this can become a very intimidating task and take many man-hours to write, review, double/triple check, update and maintain. Breaking it down, the following outline lists the requirements under 1910.119(f).

1910.119(f)(1): SOPs shall address at least the following elements:

- Steps for each operating phase:
 - Initial Startup,
 - Normal Operations,
 - Temporary Operations,
 - Emergency Shutdown,
 - Emergency Operations,
 - Normal Shutdown, and

- Startup following a turnaround or emergency.
- Operating Limits:
 - Consequences of deviation
 - Steps Required to Correct or Avoid Deviation
- Safety and Health Considerations:
 - Properties of, and hazards presented by ammonia.
 - Precautions necessary to prevent exposure -
 - i. engineering controls,
 - ii. administrative controls, and
 - iii. PPE.
 - Control measures to be taken if physical contact or airborne exposure occurs.
 - Quality control for raw materials and control of hazardous chemical inventory levels.
 - Any special or unique hazards.
 - Safety systems and their functions.

1910.119(f)(2): Operating procedures shall be readily accessible to employees who work in or maintain a process.

1910.1119(f)(3): The operating procedures shall be reviewed as often as necessary to assure that they reflect current operating practice, including

OPERATING PROCEDURES STEPS REQUIRED TO CORRECT OR AVOID DEVIATION

Continued from page 8

changes that result from changes in process chemicals, technology and equipment, and changes to facilities. The employer shall certify annually that these operating procedures are current and accurate.

The focus of this article is one little item: 1910.119(f)(1)(ii)(B):

Steps Required to Correct or Avoid Deviation

This one item could be further broken down:

- What are the steps required to correct a deviation from the operating limits?
- What are the steps required to avoid a deviation from the operating limits?

I propose that these are two very different issues and hence should be covered in different ways within your PSM program.

According to *Webster's Online Dictionary*, a deviation for our purpose is:

- A variation that deviates from the standard or norm;
- The difference between an observed value and the expected value of a variable or function.

The verb to correct is defined as:

- Free from error; especially conforming to fact or truth; the correct answer; the correct version.
- In accord with accepted standards of usage or procedure.

Example - Recirculator:

Operating Limits	Deviations / Consequences	Correction
Optimal Pressure: 3" Hg	No cooling if pressure increases too high. Room Temperature Alarms.	Operator intervention to troubleshoot problem. See PHA.
Maximum Pressure: 150 psig	High pressures will overload compressors. Overpressurization may result in operation of pressure relief valves, which vent to atmosphere at 150 psig.	Booster Compressors shut down at 75 psig. Operator intervention required to troubleshoot problem and restart compressor.
Maximum Level: 80 %	The high level float switch will shut down the Booster Compressors.	Operator intervention to troubleshoot problem and restart compressor. See PHA.
Operation Level: 35%	The level in the vessel will vary depending on system demand.	No issues.
Minimum Level: 20%	The low level float switch shuts down pumps.	Operator intervention to troubleshoot problem and restart pumps. See PHA.

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RETA Chapter Meeting Schedule

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N/S CAROLINA
CAROLINAS
1st Thursday, June, June
No meeting in June, July or August
GREATER RALEIGH (NC)
No meeting in June, July or August

NEBRASKA
OMAHA
To be determined

NEVADA
SOUTHERN NEVADA
2nd Monday, 5 pm

NEW YORK
WESTERN NEW YORK
3rd Tuesday, 6 pm

OREGON
WILL H. KNOX
2nd Tuesday

OKLAHOMA
TULSA
2nd Tuesday, 6:30 pm

PENNSYLVANIA
NORTHEASTERN (NEPA)
4th Thursday, 6 pm
SOUTHEASTERN (SEPA)
2nd Tuesday, 6:30 pm
No meeting in June, July or August
PHILADELPHIA
3rd Thursday, 6 pm
No meeting in June, July or August

TEXAS
HIGH PLAINS
3rd Tuesday, 7 pm
DALLAS/FT. WORTH
3rd Thursday, 7 pm
HOUSTON
4th Thursday, 6:30 pm
No meeting in July, November or December

VIRGINIA
OLD DOMINION
To be determined

WASHINGTON
CONNELL
2nd Thursday, 6 pm
TRI CITIES
2nd Thursday, 6 pm
PUGET SOUND
2nd Wednesday, 6 pm

WISCONSIN
MADISON
2nd Tuesday, 6 pm
No meeting in June, July or August
MILWAUKEE
2nd Thursday, 6 pm
No meeting in June, July or August

Safety First

Continued from page 12

use high global warming potential refrigerants – those typically used in supermarkets, cold storage warehouses, food processing plants and process cooling operations. Under this regulation, facilities with a refrigeration system that has a refrigerant capacity of more than 50 pounds must fix leaks within 14 days of detection. These businesses must also keep on site records of all leak repair work and other servicing of refrigeration systems, including receipts of refrigerant purchases. The regulation also affects any person who installs, services, or disposes of any appliance using a high-GWP refrigerant or sells, distributes and/or reclaims high-GWP refrigerants. With CARB AB 32, it requires facilities to monitor their freon to an all-time low level of 10 to 100 ppm, alarming at 100 ppm. Early observations are to ensure that the equipment you have installed works to that very difficult low level. There was a facility recently that had to replace all of its monitoring equipment for its failure to measure the below 100 ppm levels, costing all the parties involved in excess of \$30,000 in terms of rework.

Think Safety and Do The Right Thing!

OPERATING PROCEDURES STEPS REQUIRED TO CORRECT OR AVOID DEVIATION

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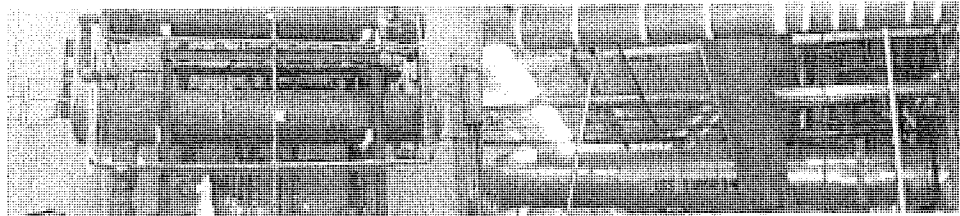
- Set right, or made straight; hence, conformable to truth, rectitude, or propriety, or to a just standard; not faulty or imperfect; free from error; as, correct behavior; correct views.
- Being right, proper, accurate, true or exact.
- Being precise, punctual or meticulous.

Using the definitions listed above, the SOPs are to include the steps required to set right operating parameters that deviates from the standard or norm.

In defining our operating limits, the SOPs should include a list of what happens when these operating limits are exceeded. The correction could be

first an alarm notifying someone of the deviation. You will need to define if it is a local alarm, an alarm to the operator's smart phone, an alarm to the off-site alarm company, etc. The correction may then be that a trained operator intervenes to troubleshoot the problem prior to a built-in safety feature of the equipment being actuated (e.g. high stage discharge pressure cutout on a compressor, pressure relief valve venting, etc.). This could get very detailed and turn into a Process Hazard Analysis What If or HAZOP study. This isn't the intention here – narrow the focus down to the major issues: too much/too little pressure, too much/too little level and go from there.

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OPERATING PROCEDURES STEPS REQUIRED TO CORRECT OR AVOID DEVIATION

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To ensure your operators are capable of troubleshooting a deviation from the operating limits, managers should check out the RETA Certified Industrial Refrigeration Operator (CIRO) certification. The CIRO exam tests the operator's capability to apply the knowledge they have and the ability (skill) at finding and using resources to resolve the question at hand.

The verb to avoid is defined as:

1. Stay clear from; keep away from;
2. Prevent the occurrence of; prevent from happening.

Using the definition above, the SOPs need to outline how you prevent the occurrence of deviations from normal operating parameters.

Now this is getting down to the fine details and can seem like an enormous mountain; however, ask yourself, what do your operators/technicians do every day and sometimes each shift? They document an engine room/facility walkdown. Some call this the Daily Walk or Daily Engine Room Log. On this log are parameters including, but not limited to:

- Compressor Status
- Compressor Suction Pressure and Temperature
- Compressor Discharge Pressure and Temperature
- Compressor Oil Temperature
- Compressor Oil Pressure
- Compressor Amps
- Compressor Oil Level
- Compressor Hours of Operation
- Evaporator Room Temperatures and Ice Accumulation
- Vessel Levels and Temperatures

In most plants, the operators also visually inspect the compressors, storage vessels, liquid pumps and associated piping to ensure that they are operating properly. These daily inspections are typically

documented on a daily diary to track trends. Sometimes this information is maintained in a computer system with the operator's log used to check the general operational health of the engine room. An experienced maintenance/operations person has the ability to detect variations in pitch or vibration which makes the engine room daily walk key to avoiding deviations. An important key for maintaining compressors/pumps/fans is the attentiveness of the operator during daily/weekly rounds.

Preparation of the who, what, why, how and when of the Engine Room Daily Log documented in an SOP can serve as your Steps to AVOID Deviations to the ammonia refrigeration system.

Also, check out the RETA Certified Assistant Refrigeration Operator (CARO) certification to assist with the training of your maintenance/operations personnel on how to properly document system parameters on a daily log. The CARO exam tests the operator's understanding of the refrigeration process, the hazards involved, and presents temperature and pressure information while asking the candidate to determine the state of the refrigerant. Further, the role of the operator, is to correctly and consistently record system conditions (gauge/temp readings) on the log sheet and to understand the relationship of the recorded numbers to each other. This is to recognize a shift or trend toward unsafe or un-profitable conditions.

The combination of SOPs that spell out operating limits, deviation, consequences of deviation with correction along with a simple procedure for completion of the Daily Engine Room Log (e.g., defining the who, when, parameters of concern) and Operator Training/Certification, your facility should be able to face OSHA's question of what are your steps required to avoid or correct deviations with open arms.

RETA Exam - The CIRO - Page 11

Certification Update

Continued from page 5

participants the skills to identify, document, implement and share energy efficient projects.

This partnership is a model of how groups and organizations can partner with RETA and develop curriculum that can then be supported by the RETA testing process. Some of the possible programs are:

Technical Level Refrigeration Specialists

- Refrigeration Control Specialist
- Refrigeration Electrical specialist
- Refrigeration Tech Support specialist
- Refrigeration low temperature insulation specialist
- Refrigeration facilities management specialist
- Other Refrigeration specialist
- Refrigeration design specialist
- Refrigeration manufacturing & sales specialist
- Refrigeration PSM, RMP & Regulatory specialist
- Refrigeration safety & Risk management specialist
- Other specialties may be proposed by certification candidates.