Clean Air Act 112(r) Risk Management Program (RMP) SPCC/FRP EPCRA

CHEMICAL EMERGENCY PREVENTION & PLANNING Newsletter

July - August 2011 US EPA Region 10

Inside This Issue

CHEMICAL EMERGENCY PREVENTION & PLANNING
Newsletter

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Best Practices from the Field

During RMP training and inspections we meet talented people with innovative ideas. This issue we have contributions from two facilities. Ashli Perdue, ORM Specialist, from Heinz Frozen Food, Ontario, Oregon contributed a Process Chemistry statement for ammonia refrigeration. Eric Trummel, Maintenance Manager for Alpenrose Dairy in Portland Oregon describes the system their team developed for incident response training. Using drills with real life scenarios he addresses the challenge "What happens when it's a weekend and only one crew member is around?"

Responding When Something Hits the Fan - Incident Response Training

Eric Trummel, Maintenance Manager for Alpenrose Dairy

We all know when an incident occurs, the more an individual or team has been trained the better they will perform. Doing drills with your local fire department is valuable but it can be overwhelming for some employees. It's an emergency (drill), and they are waiting for someone to tell them what to do. What happens in a real emergency when it's a weekend and there's only one crew member?

At Alpenrose Dairy we train for releases using surprise drills. Only the Safety Committee Chair and the Maintenance Manager know about the drill. We have prewritten the scenario on paper to be distributed to the employees when they arrive at the drill. We determine the hypothetical release point and let each employee go through the process individually first noting line by line on the scenario sheet what the process is to mitigate the leak. We review individual drill responses as a team.

Drill coordinators position themselves at the nearest upwind spot to the hypothetical outside release. If it's an inside release, coordinators pick an area and hand each team member a copy of the release scenario. Each team members writes down each step needed to secure the leak.

We simulate environmental hazards during the drill. The response team gets a datasheet with the levels of ammonia present, the type of release they're confronting and possible casualties.

Step One

The team evacuates the scene of all non-essential personnel, and secures it by limiting access points to a single entry point.

Step Two

The team identifies the location of the leak and determines if the levels are safe for entry with level "B" PPE. We review the use of portable ventilation

continued on page 2

Best Practices from the Field

Incident Response Training

continued from page 1

fans to move the ammonia and provide a safe path for isolating the leak.

Step Three

The team isolates the leak. They next use wet blankets or rags to cover the leak and knock it down, while closing valves to stop the release.

Step Four

The team ventilates the area being careful not to contaminate other spaces. They identify all exhaust fan points and uncontaminated fresh air intake ports so they don't move the ammonia back into the building.

We have developed a step by step procedure checklist for larger releases that would require the Fire Department and notification of the NRC, SERC, LEPC, and EPA. This checklist is the first page in our Emergency Response Plan notebooks. We have distributed 14 ERP Books to acting members of the response teams and posted them in strategic locations throughout the plant. All plant personnel get annual training on the ammonia release checklist and the emergency response plan.

For more information: RMP Guidance

UPDATE:

On June 16th it almost hit the fan and it could happen to you – Are you prepared?

Eric Trummel, Alpenrose Dairy

On June 16, 2011, Alpenrose Dairy had a 4,800 pound ammonia release. Emergency training proved its value when staff reacted as trained and contained the release without injuries.

The Release Incident:

- Technician was removing a gauge to calibrate a transducer that is threaded into a service valve located on the High Pressure Receiver.
- Using two wrenches to remove the gauge, he applied pressure and the tee snapped off below the service valve releasing 125 psi aerosol.
- Since the system was under a high pressure, the technician would not have had the time to close the next upstream valve without a higher level of PPE.
- The technician defaulted to our training: Evacuate, Isolate, Notify, and assess the situation. The technician evacuated the space immediately and secured the door.

The Response:

Their training got them to the point where we could develop a specific plan for this release.

Using the pre-written checklist in our Emergency Response (ER) plan we were able to access all the specific contact numbers in the order that they needed to be notified and also keep an ongoing log of all the events associated with the release.

When the release started the ER team was called and they dressed in level B equipment. They began the process of either trying to stop the leak or determining if it was too big to handle alone. As it turned out the concentrations were too high to make a level B entry. At that point we called 911 and pulled back. When the Portland Fire Department arrived we talked to the HAZMAT team by radio and determined that we would need them. We began to get ready for the next steps.

A few years ago we started taking pictures of the refrigeration system to be able to show an outsider exactly what was in the various mechanical rooms. We were able to show the HAZMAT team exactly which valve to close using the pictures and a map of the space.

Once the HAZMAT team had a plan, they suited up. It only took about 15 minutes for the team to secure the leak.

In this case we had the training (along with pictures and a map) to adapt to a fluid situation and assist the HAZMAT team. What could have been a very long, drawn out event, was secured in a little under 3 hours.

Best Practices from the Field

Refrigeration Process Chemistry

Process Safety Information (CFR 40 § 68.65)

The purpose of this Process Safety Information (PSI) is to ensure that you understand the safety-related aspects of the equipment and processes you have, know what limits they place on your operations, and adopt accepted standards and codes where they apply. Having up-to-date safety information about your process is the foundation of an effective prevention program. Many elements depend on the accuracy and thoroughness of the information this element requires you to provide. A brief summary of the safety information requirements for Programs 3 and 2 is given in the following tables.

One requirement, Process Chemistry, is often a challenge for ammonia refrigeration facilities as there are no chemical interactions in this process. The process safety team at Heinz Frozen Food, Ontario, Oregon shares their Process Chemistry statement which illustrates the risks of contaminants.

Ammonia Refrigeration Process Chemistry Statement (Example):

There are no chemical reactions involving ammonia that occur in a closed loop mechanical refrigeration system. The principle involved is the ability of a refrigerant, in this case ammonia, to absorb heat as it changes state from a liquid to a gas, and to give up that heat as it changes back to a liquid. The change in pressure levels required to accomplish this is supplied by the compressors. The heat is absorbed in the cooling evaporators of various designs, and removed from the system by the condensers.

Contamination of the ammonia refrigeration system by oil, air, water, dirt, and other foreign matter may cause operational problems in the system, but there are no chemical reactions which typically occur between ammonia and these contaminants. Air and other non-condensable gases may potentially lead to increased high side operating pressures. Dirt and foreign matter may lead to malfunctioning solenoids, regulating valves, and may prevent the full seating of manual valves. Dirt also may lead to excessive parts replacement. Water may mix with oil to form sludge and may cause parts to malfunction. Water may also decrease system efficiencies and may cause metal system components to corrode.

PROCESS SAFETY INFORMATION REQUIREMENTS (Program 3)

For chemicals, you must complete information on:	For process technology, you must provide:	For equipment in the process, you must include information on:
• Toxicity • Permissible exposure limits • Physical data • Reactivity • Corrosivity • Thermal & chemical stability • Hazardous effects of inadvertent mixing of materials that could foreseeably occur	• A block flow diagram or simplified process flow diagram • Information on process chemistry • Maximum intended inventory of the EPA-regulated chemical • Safe upper & lower limits for such items as temperature, pressure, flows, or composition • An evaluation of the consequences of deviation	• Materials of construction • Piping & instrument diagrams (P&IDs) • Electrical classification • Relief system design & design basis • Ventilation system design • Design codes & standards employed • Safety systems • Material and energy balances for processes built after June 21, 1999

SAFETY INFORMATION REQUIREMENTS (Program 2)

You must compile and maintain this safety information:	You must ensure:	You must update the safety information if:
• Material Safety Data Sheets • Maximum intended inventory • Safe upper and lower parameters • Equipment specifications • Codes & standards used to design, build, and operate the process	That the process is designed in compliance with recognized codes and standards	There is a major change at your business that makes the safety information inaccurate

For more information: RMP Guidance

New Rule to Reduce Accidents During Trans-loading of Hazardous Cargo

Motor carriers and facilities engaged in trans-loading hazardous cargo would be required to perform risk assessments to develop and implement safe operating procedures to minimize accidents under a rule proposed by the Department of Transportation (DOT) Pipeline and Hazardous Materials Safety Administration (PHMSA), on March 11, 2011. The proposed rule responds to concerns raised during investigations conducted by the National Transportation Safety Board and the U.S. Chemical Safety Hazard Investigation Board, and PHMSA's internal reviews of incidents during cargo transfers.

According to PHMSA, the proposed rule is aimed at reducing the overall number of hazardous material incidents caused by human error and equipment failure during the loading and unloading of cargo tank motor vehicles. The rule would build upon industry's loading and unloading practices that DOT implemented in January 2008. The rule would amend 49 C.F.R. Parts 172 and 177.

According to the proposed rule, safe operating procedures used by carrier and facility personnel must be based on the outcome of site specific risk assessments. The proposal would require training and annual certification of individuals involved in hazardous material cargo loading and unloading. It would also require facilities providing hoses, valves, and other equipment for transferring hazardous cargo to develop and implement a maintenance schedule, including periodic tests, for the equipment.

For more information: PHMSA Wants More Hazmat Tank Truck Risk Assessments

Refinery Safety

One Year After Catastrophic Accident at the Tesoro Refinery the CSB Continues its Investigation into the April 2010 Accident

Washington, DC, April 1, 2011 – Marking the one year anniversary of the tragic accident at the Tesoro Refinery in Anacortes, Washington, the U.S. Chemical Safety Board (CSB) released a video safety message in which Chairperson Rafael Moure-Eraso urges refinery companies to "make the investments necessary to ensure safe operations," concluding, "Companies that continue to invest in safety and recognize its importance will reap benefits far into the future."

The video highlights the CSB's ongoing investigation into the April 2, 2010, accident that killed seven workers. At the time of the incident a heat exchanger was being brought online when the nearly forty-year-old piece of equipment catastrophically failed, spewing highly flammable hydrogen and naphtha which ignited and exploded.

In the safety message CSB Chairman Moure-Eraso notes, "The Tesoro accident is only one of several fatal incidents that occurred in the oil and gas production and refining sector in 2010 alone. Serious incidents at refineries continue to occur with alarming frequency."

The CSB's safety message notes leading insurance industry statistics indicating that the US refining sector has more than three times the rate of property losses of refineries overseas.

Dr. Moure-Eraso urges companies to take action to prevent accidents, including:

- Implement a robust mechanical integrity programs with an emphasis on thorough inspections of critical equipment.
- Monitor process safety performance using appropriate leading and lagging indicators to measure process safety before major accidents occur.
- Maintain an open and trusting safety culture where near-misses and loss of containment incidents are reported and investigated.

API: Measuring Safety Improvement

In April 2010, the American Petroleum Institute (API) published Recommended Practice (RP) 754. The purpose of the RP is to provide a consistent, reliable and accurate industry metric for measuring and tracking safety trends and to promote its continuous improvement, including methods for the development and use of performance indicators. API held a series of webinars and some are available as downloads. You can find more information and download the webinars at:

http://api-ep.api.org/ehs/health/measuring/index.cfm

Plan to attend the FREE EPA Risk Management Training Day in your area

RISK MANAGEMENT PROGRAM (RMP) Training

Seattle, Washington
November 16, 2011

Additional information can be found on EPA Region 10's RMP Website: Training Information

Where Do I Go For More Information?

http://www.epa.gov/emergencies/rmp will be updated as new information becomes available.

EPA maintains numerous listservs to keep the public, state and local officials, and industry up to date, including several that pertain to emergency management. You can sign up for our list serve to receive periodic updates: https://lists.epa.gov/read/all_forums/subscribe?name=callcenter_oswer

EPA Region 10 RMP Coordinator:
Javier Morales 206-553-1255

EPA Region 10 RMP Website:
http://yosemite.epa.gov/R10/CLEANUP.NSF/sites/rmp

Superfund, TRI, EPCRA, RMP & Oil Information Center - The Information Center can also answer questions related to Clean Air Act section 112(r) and RMP reporting requirements.
(800) 424-9346 or TDD (800) 553-7672
(703) 412-9810 or TDD (703) 412-3323
in the Washington, D.C. area
Normal Hours of Operation:
Monday - Thursday 10:00 a.m. - 3:00 p.m. Eastern Time
Extended Hours of Operation (May, June, and July):
Monday - Friday 9:00 a.m. - 5:00 p.m. Eastern Time
Closed Federal Holidays
http://www.epa.gov/superfund/contacts/infocenter/

Risk Management Program (RMP) Reporting Center - The Reporting Center can answer questions about software or installation problems.
The RMP Reporting Center is available from 8:00 a.m. to 4:30 p.m., Monday through Friday, for questions on the Risk Management Plan program.
(703) 227-7650 (phone)
RMPRC@epa.cdx.net (e-mail)

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