



CHEMICAL EMERGENCY PREVENTION & PLANNING

Newsletter



May - June 2011

US EPA Region 10

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CHEMICAL EMERGENCY PREVENTION & PLANNING Newsletter

US EPA Region 10,
ERU ECL-116
1200 6th Avenue, Suite 900
Seattle, Washington 98101

206.553.1255
Fax: 206.553.0124

[R10 RMP Webpage](#)

Newsletter Contacts:
For **RMP**: Javier Morales at
morales.javier@epa.gov

For **SPCC/FRP**: AK: Matt Carr at
carr.matthew@epa.gov

WA OR ID: Michael Sibley at
sibley.michael@epa.gov

For **EPCRA**: Suzanne Powers at
powers.suzanne@epa.gov

For free **Subscription**:
allen.stephanie@epa.gov

Population data from the 2010 Census is now available for use in MARPLOT

At this time, only the most detailed census level (Census Blocks) has been released. As other levels (Block Groups, Counties, and Tracts) are released, we will make them available in MARPLOT. Note that if you download the new population files at this time, MARPLOT will only use the 2010 data for “get population” functions where the radius is less than 25 miles (otherwise it uses different population levels, such as Tracts, which still have 2000 data).

Existing MARPLOT Users: How to Get the New Population Data

If you’ve used the “Get Population” feature, then you already have one or more 2000 Census, state-level populations files on your computer. (You may have also downloaded population files using the Download Manager.) These files can be updated to the new 2010 census data by following these instructions:

1. Start MARPLOT.
2. Under the Help menu, select the “Check for Updates” option.
3. MARPLOT will display a list of basemap layers (primarily census block data) that are out of date and should be updated. Note that this list is specific to your version of MARPLOT; the program looks at the files you’ve already downloaded and only looks for updates for those files. Click Start Download.
4. Once the download is complete, exit MARPLOT.
5. Browse to the location of your MARPLOT program folder (e.g., C:\Program Files\MARPLOT).
6. Double-click on the “reindex.bat” file, which will allow MARPLOT to recognize the newly-downloaded population files.
7. You can then restart MARPLOT, and the new population data should be available.

New MARPLOT Users: How to Get the New Population Data

If you are a brand new MARPLOT user, you do not have to update/reindex your population files at this time.

When you download census block population files (either with the Get Population feature or using the Download Manager), they will automatically be the 2010 census files. However, if you download other census levels (e.g., Block Groups, Counties, and Tracts) be aware that those files will still be 2000 data, and you may need to update those to 2010 data at a later date, when they become available.

If you have questions or problems, please contact CAMEO User Support at (703) 227-7650 or RMPPRC@epacdx.net.



Best Practices from the Field

During RMP training and inspections we meet talented people with innovative ideas. Bill Beadie, CIH, describes the challenges of one element of risk management – Mechanical Integrity. Then he takes us through the steps required to develop and budget a Mechanical Integrity Program. In the process he addresses “upper management” concerns, compliance with regulations and following manufacturer guidelines.

Developing and Implementing Good Mechanical Integrity Programs

Author: Bill Beadie, CIH, 2011 Chair of the American Industrial Hygiene Association Risk Assessment Committee (email: bbeadie@maulfooster.com)

Introduction – Risk Management Includes Mechanical Integrity as well as the Political Environment

One of the most important and difficult elements of a risk management plan is the mechanical integrity (MI) program. Many of the articles and presentations about MI programs focus on the technical aspects of the regulations, but it's important to recognize that lack of technical expertise is not always the primary barrier to a good program. Potentially good plans can be thwarted by any combination of technical, economic, and political factors. Identifying these challenges as soon as possible provides the greatest hope for developing an effective program. Although this article is written with the ammonia refrigeration industry in mind, these concepts and principles should apply to all hazardous-chemical processes.

Part 1—Overview of Technical MI Requirements

There are many places to learn about all the technical aspects of the MI requirements, starting with the regulations (yes, you can learn a lot by reading the regulations!) and continuing with EPA/OSHA guidance documents, compliance directives, official letters of interpretations, etc. Given the amount of high-quality information that is freely available on this subject, I will spare you all the details and give a simple overview. This is not a complete description of the requirements...for which I assume you are thankful.

MI regulations require facilities to have a good maintenance program for all the equipment involved in a hazardous-chemical process. Facilities must:

1. Identify all of the equipment involved in the chemical process.
2. Develop and implement written procedures for maintaining the equipment.
3. Train each employee who is involved in maintaining the equipment.
4. Inspect and test all of the equipment in accordance with manufacturers' recommendations, industry standards, and company experience.
5. Fix broken or deficient equipment in a safe and timely manner.
6. Implement a quality assurance process to ensure that work is done properly and materials are appropriate.

At first glance this may seem relatively easy. It isn't. In reality, despite dramatic improvements in the last ten years, very few ammonia refrigeration facilities have maintained compliant MI programs.

Part 2—Three Common Barriers to a Good MI Program

There are several reasons why facilities may lack a good MI program, and some problems stem from less obvious underlying factors. Common challenges include:

1) Lack of knowledge / expertise

This is a broad category that includes lack of knowledge about regulatory requirements, lack of technical information about the equipment, or lack of general maintenance expertise. Most workshops and sessions on MI tend to assume that this is the sole or primary barrier to a good MI program, and therefore try to fill your brain with increasingly detailed information about rules, regulations, and checklists. In some cases this works. More often, however, lack of knowledge / expertise is a symptom of a larger problem, such as barrier number 2.

2) Lack of management support

While this may simply be lack of management knowledge / expertise, it deserves its own category. People in upper management don't routinely attend workshops or read articles about MI, so most technical sessions don't help the industry overcome this problem. The lack of management support may be based on a lack of compelling reasons to provide more support. If no one in the company can clearly describe the requirements and justify the necessary resources, why would upper management feel compelled to dedicate a lot of time and energy to MI? There are several excuses for inadequate management support, such as barrier number 3.

3) Lack of resources

Obviously, resources include money and time. Even if a company

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knows all the requirements, they may have a terrible MI program because there are never dollars earmarked to conduct necessary inspections or make the repairs. Of course, some may argue that lack of resources is a direct result of barrier number 2. MI isn't supported by management because there are insufficient resources, and there are insufficient resources because management doesn't support MI. Whatever the cause, there is still risk!

Part 3—Expect to Overcome Challenges

The good news is that facilities can overcome challenges and develop a good MI program. The specific strategy depends on the situation, but one or more of the following steps can help a company get on the right path:

1) Get educated.

I put this first on the list because it is probably the most defined and simple step. If your facility lacks knowledge and expertise about MI, there are a whole host of resources available. Many of them are free! However, this may require a significant investment in time.

People in charge of managing the MI program should become familiar with the regulations and spend a significant amount of time compiling equipment information, manufacturer's recommendations and industry standards.

2) Make a specific plan and put it in writing.

It's easy to write general, meaningless statements that sound important, e.g., "Company X will comply with all applicable regulations and industry standards to ensure the safe maintenance and operation of process equipment." This rarely leads to a good program.

On the other hand, consider the following process, which is illustrated for an ammonia condenser in Example 1:

- a) Make a detailed list of all process equipment included in the MI program.
- b) For each piece of equipment, document the

Equipment Number	Description	Maintenance Task	Manufacturer	IIAR	Company	Notes
QFEC100	Evaporative Condenser	Clean water filter	Monthly		Weekly	
		Check external condition	Annually	Weekly	Weekly	Weekly inspection, but annual cleaning
		Check water conditions		Weekly	Weekly	
		Check bleed-off	Monthly	Weekly	Weekly	
		Check for proper purging		Weekly	Weekly	
		Clean and drain pan	Quarterly	Monthly	Quarterly	Manual says quarterly or "as needed."
		Check water distribution system and spray pattern	Monthly		Monthly	
		Check water level and adjust	Monthly	Monthly	Monthly	
		Check and adjust belts and inspect fans	Monthly	Monthly	Monthly	
		Check drift eliminators	Quarterly		Quarterly	
		Check fan blades for cracks	Quarterly		6-month	Manufacturer wrote e-mail stating it would be acceptable to perform this inspection as part of the 6-month inspection.
		Lubricate fan motor	Quarterly		Quarterly	
		Inspect and grease sliding motor base	Annually		Annually	
		Inspect fan motors and guards		6-month	6-month	
		Inspect coils		Annually	Annually	
		Inspect shaft and shaft bearings	2-3 years	Annually	Annually	
		Bulletin 109 - Evap. Condenser Checklist		Annually	Annually	
		Independent inspection			5-year	

Example 2 Condenser PM

Required Frequency: Annually

Person Performing Work:	Equipment #	Task	Y/N	Notes	Follow-up
	EC100	Did you clean water filter 1?			
Employer of Person Performing Work:		Did you clean water filter 2?			
		Did you clean and drain pan?			
Date:		Did you check water level and adjust, if necessary (<i>water level should be up to the float</i>)?			
		Did you inspect the heat transfer section?			
		Nozzels spraying freely?			
		Belt tension appropriate?			
		Is the bleed rate set at 100-200 ppm?			
		Fan free of unusual noise or vibration?			
		Fan blades intact?			
		Fan rotates freely?			
		Belts free of excessive cracking and wear?			
		Belt tension appropriate?			
		Motor securely mounted?			
		Motor free of unusual noise or vibration?			
		Exterior of motor in good condition?			
		Motor plate data legible?			
		Electrical connections sound and intact?			
		Shaft does not have excessive play?			
		Guards OK?			
		Did you grease the fan shaft bearings?			
		Did you complete the Bulletin 109 checklist?			

manufacturer's recommendations for inspection and maintenance.

- c) Similarly document the generally accepted good engineering practices for each piece of equipment (e.g., ammonia refrigeration facilities can include recommendations from IIAR Bulletin 110).
- d) List recommendations from facility maintenance personnel.

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- e) Finally, if the company thinks it's important to deviate from a manufacturer's recommendation listed in an equipment manual, get documentation from the manufacturer that an alternative is acceptable.

Once the list of recommended inspections is complete, the facility can develop checklists to track compliance with the MI program. Ideally, these tasks are tracked electronically with a database and work orders, but there are still many companies that use paper checklists. Example 2 illustrates an annual maintenance checklist for an ammonia condenser. Note that this example consolidates all of the more frequent tasks on the annual checklist to minimize paperwork. In other words, the weekly, monthly, and quarterly tasks are added to the annual checklist so the technician doesn't have to remember to grab four checklists. This concept works for an electronic database as well as a paper-based system.

The process of identifying appropriate maintenance schedules and developing tools to track planned maintenance may take several weeks. It is essential for a compliant MI program.

3) Communicate clearly with upper management.

I strongly recommend having a clear message if you expect to get management support for MI. Lay out the requirements in simple terms and identify the resources necessary to achieve your goals. This will be impossible if you haven't educated yourself and identified the specific tasks necessary to implement your MI program.

If you made a specific plan with all scheduled maintenance tasks, you can put time and budget estimates next to each job. Example 3 illustrates this process for the annual maintenance of an ammonia condenser. Note that several of the tasks on the annual maintenance checklists are also included in the weekly, monthly, and semiannual inspections, so this process actually takes less time than you might expect. Although your estimates may not be perfect on the first try, they can be very powerful tools to justify the resources needed to implement a program. Consider the following message:

"The law requires us to follow recommended

Example 3. Estimated Time and Budget for Annual Condenser Preventative Maintenance Equipment ID # EC100

Task	Estimated Personnel Time (hours)	Estimated Budget (Materials)	Notes
Did you clean water filter 1?	0.25		
Did you clean water filter 2?	0.25		
Did you clean and drain pan?	1		
Did you check water level and adjust, if necessary (<i>water level should be up to the float</i>)	0.5		
Did you inspect the heat transfer section?	0.15		Estimated service life and annual costs provided separately.
Ensure nozzles spraying freely?	1.5		Estimated service life and annual costs provided separately.
Belt tension appropriate?	0.1		
Is the bleed rate set at 100-200 ppm?	0.05		
Fan free of unusual noise or vibration?	0.05		
Fan blades intact?	0.05		Estimated service life and annual costs provided separately.
Fan rotates freely?	0.05		
Belts free of excessive cracking and wear?	0.1		Estimated service life and annual costs provided separately.
Belt tension appropriate?	0.05		
Motor securely mounted?	0.05		
Motor free of unusual noise or vibration?	0.05		
Exterior of motor in good condition?	0.05		Estimated service life and annual costs provided separately.
Motor plate data legible?	0.05		
Electrical connections sound and intact?	0.1		Estimated service life and annual costs provided separately.
Shaft does not have excessive play?	0.1		
Guards OK?	0.05		
Did you grease the fan shaft bearings?	0.25	\$1.00	
Did you complete the Bulletin 109 checklist?	0.5		
Logistics, mobilization, etc (Includes LOTO and confined space reclassification procedure)	1		
Total	6.3	\$1.00	Estimated service life and annual costs provided separately.

maintenance schedules. The following report shows that all of the recommended maintenance requires X hours per year and a budget of X dollars. Our current staff can perform Y hours per year on the current budget of Y dollars. I'm requesting an adjustment to ensure that we can comply with the requirements."

Similarly, if there is an expansion or staff cutbacks, you can clearly demonstrate its impact on the MI program.

If your facility lacks a fully compliant MI program, I strongly recommend that you look at what is holding you back and develop a plan for compliance. And don't be discouraged if it takes time! Good MI programs are not developed overnight.

Spokane Cold Storage Company Fined for Ammonia Release

(Seattle – March 28, 2011) Empire Cold Storage, a Spokane cold storage warehouse and packaged ice producer, will pay the U.S. Environmental Protection Agency \$67,142 for its failure to report an estimated 400 pounds of anhydrous ammonia release at their Spokane facility.

On July 14, 2007, the Empire facility released approximately 400 pounds of ammonia into the environment at its facility located at 1327 N. Oak Street Spokane, Washington according to the EPA settlement. Empire uses large quantities of anhydrous ammonia at the facility as a refrigerant.

“When toxic gases like ammonia get released, prompt reporting can save lives,” said Edward Kowalski, Director of EPA’s Office of Compliance and Enforcement in Seattle. “These cases are about protecting workers, emergency responders and the community.”

The leak occurred when a failed pressure gauge caused a release of anhydrous ammonia that lasted up to three hours.

EPA alleges that Empire then failed to immediately notify local and state agencies about the release. While no injuries were reported at the time of the accident, ammonia is a pungent, toxic gas that attacks skin, eyes, throat, and lungs and can cause serious injury and death.

The ammonia release and the failure to notify appropriate agencies are violations of the federal Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the Emergency Planning and Community Right-to-Know Act (EPCRA).

For information on EPA’s Emergency Planning and Community Right to Know Act, visit <http://www.epa.gov/compliance/civil/epcra/epcraenfstatreq.html>

Contact:

Suzanne Powers, EPA Emergency Response Program, (360) 753-9475, powers.suzanne@epa.gov

Tony Brown, EPA Public Affairs, (206) 553-1203, brown.anthony@epa.gov

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)

This newsletter provides information on the EPA Risk Management Program, EPCRA, SPCC/FRP and other issues relating to Accidental Release Prevention Requirements. The articles contained herein are provided for general purposes only. EPA does not accept responsibility for any errors or omissions or results of any actions based upon this information. Please consult the applicable regulations when determining compliance. Mention of trade names, products, or services does not convey, and should not be interpreted as conveying official EPA approval, endorsement, or recommendation. The information should be used as a reference tool, not as a definitive source of compliance information. Compliance regulations are published in 40 CFR Part 68 for CAA section 112(r) Risk Management Program, 40 CFR Part 355/370 for EPCRA, and 40 CFR Part 112.2 for SPCC/FRP.

RMP*eSubmit Internet Webinars

For those not familiar with RMP*eSubmit, EPA periodically holds internet Webinars on the [RMP*eSubmit system](#). Please check back here occasionally for announcements on future Webinars and registration information. The eSubmit webinars fill quickly.

RMP*eSubmit allows facilities to submit, correct, and access their RMPs online, 24 hours a day, 7 days a week. EPA requests that all facilities use this new method to submit RMPs because it is easy to use and will improve data quality.



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

RISK MANAGEMENT PROGRAM (RMP) Training

Boise, Idaho - May 16, 2011
Seattle, Washington - November 16, 2011

Additional information can be found on EPA Region 10’s RMP Website: [Training Information](#)