



**Australasian Institute of Dangerous Goods Consultants**

## **WHAT'S HAPPENING?**

**April 2013**

Welcome to our  
new Associate  
Members

Mohsin Latif  
N.S.W.

Micheal Lewis  
Queensland

Roger Klein  
HAZMAT  
Seminars  
April 30  
Sydney

For flyer, email:

[robhogan@tpg.com.au](mailto:robhogan@tpg.com.au)

### **Queensland News - 2013 Planning Review – HazChemicals and MHFs**

#### **AIDGC Member - Frank Mendham**

Queensland's planning laws are currently being reviewed focusing on the review and amalgamation of all state planning policies (SPP) into one single policy with the coordination and decision for all state referral agency decisions by a single state agency (SARA).

#### **Current situation**

Currently MHFs requiring a licence under the Work Health and Safety Act (WH&S), and any proposed development related to an MHF development (existing expansion or intensification, or greenfield proposal) triggers a referral agency decision by the Hazardous Industries Chemicals Branch (HICB) under the state planning regulation.

SPP 5/10 includes controls over land to be zoned for 'High Impact' and 'Noxious and Hazardous' land uses and Material Change of Use (MCUs) for sensitive land uses with the policy's "management areas". Management areas are mapped areas of special interest within SPP 05/10.

#### **Post DGSM legislation (Dec 2011)**

Prior to the 2012 state election the government was drafting a Temporary SPP to address land use safety planning decisions in respect to Manifest Quantity Workplaces (MQWs) in response to the removal of the Dangerous Goods Safety Management Act's Flammable and Combustible Liquids (FCL) licensing. This temporary SPP is now under review along with SPP 5/10 for inclusion into the proposed Single SPP.

The temporary SPP for Manifest Quantity Workplaces (MQWs) to be included into the proposed Single SPP has evolved into what HICB has called the "LG Planning Code for Hazardous Chemicals" (LGPCHC).

## Diarize these Dates!

April 30  
Roger Klein  
AIDGC Seminar  
Sydney

HAZMAT 2013  
May 1 and 2  
Technology Park  
Sydney

July 26  
AIDGC/AGM  
Sydney  
with keynote  
Speaker

AIDGC Annual  
Conference  
Sydney  
N.B. Note Date  
Change to  
September 27

If included in the Single SPP, the LGPCHC will require each of the Local Governments (LGs) to adopt the code in their next review of their planning scheme. That is, Local Government would be expected to oversee this using HICB developed guidance.

**The Draft LGPCHC- What HICB has proposed to DSDIP (Dept. of State Development, Infrastructure and Planning) for the Single SPP.**

HICB has proposed a draft document initially titled LGPCHC which was divided up into 2 parts – Part A & B.

Part A identifies developments with 'low to medium' off-site HazChem risks and provides these with a black-and-white code designed to be easily adopted by LGs as a self-assessable code.

Part B identifies developments with 'medium to high' off-site HazChem risks (up to 10% MHF) and provides these with a performance based code requiring a certificate from a compliance assessor (a member of RPEQ or AIDGC potentially.)

**The Draft LGPCHC.....What has actually been released on Mon 15<sup>th</sup> April for comment**

Unfortunately, the SPP released today only reflects Part A and has not included Part B which was a latter addition from HICB. It appears that possibly due to time restraints, DSDIP has only included an earlier version covering Part A only.

Rather than being called the LG Planning Code for Hazardous Chemicals, the document is called the State Planning Policy mandatory requirements: dangerous goods and combustible liquids.

This document is now available at

<http://www.dsdip.qld.gov.au/resources/policy/state-planning/draft-spp-mandatory-requirements-dangerous-goods-and-combustible-liquids.pdf>

This document (50 pages) is essentially Australian Standard requirements for site layout, separation distances and specific design requirements. Currently this document only covers those specific situations identified in Table 1.1 such as gas cylinder stores (i.e. Part A proposed by HICB originally), and excludes those higher risk situations e.g., toxic gases, LPG in tanks >5000 L, any flammable store relying on mechanical ventilation and so on (i.e. Part B proposed by HICB). Part B has not been provided at this point in time.

Unfortunately, by leaving out the Part B, there is no current reference to the need for AIDGC. HICB is yet to confirm whether this is an oversight at this early stage or may be accommodated in the SARA process which is not covered by the SPP. This may be an area where AIDGC can comment and identify a "gap" between the Part A self-assessable type situations and the >10% MHFs.

## Chemical tank explodes at Mt Isa plant

Police have given Mount Isa residents the all-clear to go outside after an explosion at an acid plant sparked concerns about a smoke plume.

The explosion happened at the Incitec Pivot plant .

Company spokeswoman Sandi Harwood says a chemical reaction caused the explosion and sent a plume of smoke into the air.

"Basically there was a chemical reaction in a water treatment cooling area," she said. "It's a routine procedure but there was a chemical reaction which created a plume.

"There were no injuries and no loss of production."

Police placed a 100-metre exclusion zone around the site. The acid plant is alongside the Mt Isa mine, which was evacuated.

The Queensland Fire and Rescue Service conducted air quality tests. AAP

This is the area of focus for AIDGC and why HICB would like to engage with AIDGC to establish a preferred approach, and how the preferred model to cover Part B is adopted by DSDIP and ensure no "gaps" in land use safety planning are created. This will need to be done before 12 June.

### **SPP 5/10 and MHFs**

The complications of SPP 5/10 around zoning new land for high impact or noxious and hazardous uses (i.e., MHFs) is proposed to be removed and replaced by a list of LGs with licensed MHF in their area . **NOTE: It is not proposed to make risk contours public information. Rather, councils with a MHF in their area, will deal directly with HICB in regards to suitably zoning surrounding areas and help ensure sensitive land uses are not located inappropriately in relation to an existing MHF.**

These LGs will then be required to consult with HICB when reviewing their planning scheme so that land uses around existing MHFs are consistent with the risk of the MHF.

LGs without MHF risk contours (i.e. not on the list) are not restricted by SPP 5/10. Referral agency assessment of MHFs will be required as new proposals eventuate.

### **Dealing with MHFs**

Currently MHFs that require a licence under the WH&S Act are identified as assessable development under the SP Regulation for which HICB is the referral agency/assessment manager. MHFs that require a licence are those with >100% MHF quantities or those >10% of an MHF quantity and are determined to require a licence under the WH&S Act.

As 10% MHFs may or may not require a licence, this definition creates confusion for the development industry as they can't identify up-front if they are or are not a type of assessable development under the SP Regulation. HICB's proposal to remove this confusion is to change the definition of assessable development to >10% of an MHF quantity. This will have the effect that future development applications involving >10% MHF quantities, are referred to HICB for assessment via the SARA process.

In addition to the review of the assessment development trigger for MHFs, the Code they are assessed against is also under review in an attempt to provide more up-front advice to industry about what compliance 'looks like'.

Currently the Code for MHFs is the WH&S Act which is purely performance based against the "so far as reasonably practical" approach.

**The proposed Code is risk based identifying a maximum permissible risk contour (likelihood of an off-site hazard scenario) in line with NSW's and HSE's (UK) approach. This risk contour allows for the assessment of an MHF's engineering/isolation/substitution controls to assess whether they have enough to reduce the likelihood to an acceptable level of off-site hazard scenarios from occurring.**

#### **AIDGC Involvement sought**

**The AIDGC has been requested by HICB to provide input into the now released (Monday 15<sup>th</sup> April 2013) Draft SPP. HICB is seeking to engage AIDGC to further clarify the current proposals in light of today's release of the draft SPP and discuss the options for adopting a full range of improvements to planning policy for developments related to dangerous goods and combustible liquids. The decision maker in this area is DSDIP. HICB has identified the issues with respect to development of facilities involving dangerous goods and provides technical advice in an effort to help achieve the outcome that HICB has identified within the DSDIP planning framework.**

**Public comment period ends on Wednesday 12 June 2013.**

## **UK - Generic Risk Assessment**

### **Fighting Fires in Petrochemical Plants & Pipelines**

**This generic risk assessment applies to all Fire and Rescue Authority operations which involve petrochemicals and their derivatives.**

**The purpose of this assessment is not to address every conceivable hazard that may be presented, but to identify, evaluate and control the 'significant risks' which are specifically inherent with these particular incidents. The assessment is particular to fire-fighting, rescue or other operations, at locations where petrochemicals are processed or stored and include:**

- **oil refineries and other processing installations**
- **storage tanks of various types**
- **tank farms**
- **road tankers and rail cars**
- **pipelines.**

**(This list is not exhaustive)**

**This, as for all generic risk assessments, provides a starting point for Fire and Rescue Authorities to conduct their own assessments within the context of local conditions and existing organisational arrangements. To download the file, goto:**

**[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/181331/GRA\\_3-10.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/181331/GRA_3-10.pdf)**

## **Exxon Oil Pipeline Leak Causes Extensive Pollution in Arkansas Town**

**Exxon's Pegasus pipeline, which has a 90,000 barrels per day (bpd) capacity of crude oil, was shut after the leak was discovered on March 29 near the town of Mayflower. The leak forced the evacuation of 22 homes. The pipeline was built in the 1940s and carries Canadian Wabasca heavy crude between Patoka, Illinois and Nederland, Texas.**

**The 848-mile (1,381 km) 50-centimetre diameter pipeline used to transport crude oil from Texas to Illinois. In 2006 Exxon reversed it to move crude from Illinois to Texas in response to growing Canadian oil production and the ability of US Gulf Coast refineries to process heavy crude.**

**Exxon said it had no specific estimate of how much crude oil had spilled, but the company said 12,000 barrels of oil and water had been recovered by April 1.**

**Officials from the US Environmental Protection Agency (EPA) and the Department of Transportation's Pipeline and Hazardous Materials Safety Administration (PHMSA) were on site to investigate the spill.**

**The Wall Street Journal said the EPA had declared the Arkansas leak a "major spill," a label put on any spill of 250 barrels or more. Fifteen vacuum trucks remained on the scene for cleanup, and 33 storage tanks were deployed to temporarily store the oil. Crews were steam-cleaning oil from property, Exxon said, while some fought in rainy weather to keep the oil from reaching nearby Lake Conway through storm drains.**

**The Arkansas spill drew fast reaction from opponents of the 800,000 bpd Keystone XL pipeline, which also would carry heavy crude from Canada's tar sands to the Gulf Coast refining hub.**

**On March 27, a train carrying Canadian crude derailed in Minnesota, spilling 15,000 gallons of oil.**

**Earlier, PHMSA proposed that Exxon pay a \$1.7 million fine over pipeline safety violations stemming from a July 2011 oil spill from its Silvertip pipeline in the Yellowstone River. The line, which carries 40,000 barrels per day in Montana, leaked about 1,500 barrels of crude after heavy flooding in the area.**

**According to PHMSA, the US has 2.3 million miles of pipelines.**

**Source: Reuters**

**TimeLine :** <http://rt.com/usa/arkansas-spill-oil-exxon-325/>

**Video:** <http://www.youtube.com/watch?v=ntwCikVZc4U>

**News Report:** [http://www.youtube.com/watch?v=hNkU8p6qq\\_k](http://www.youtube.com/watch?v=hNkU8p6qq_k)

**Aerial Footage:** <http://www.youtube.com/watch?v=3ildWGGIBP8>

## **Significant Pipeline Failures in U.S.A. Involving the Transport of Hazardous Liquids: 1993-2012**

Between the ongoing saga of the Keystone XL, the Exxon Pegasus spill in Arkansas, and the Royal Dutch Shell spill near Houston, pipelines have been in the news a lot lately. Yet, despite the coverage, the obvious damage, claims and counter-claims, it's difficult to understand these events in the overall context of pipeline safety without looking at longer time frames. Fortunately, the Pipeline and Hazardous Materials Safety Administration (PHMSA) maintains a comprehensive database of all pipeline incidents reported in the U.S. Using data from 1993-2012, we focused on onshore and offshore pipelines carrying hazardous liquids (primarily crude oil and refined petroleum products) that suffered what PHMSA classifies as "significant incidents." To qualify, a "significant incident" must satisfy one or more of the following criteria:

- a fatality or injury requiring in-patient hospitalization;
- \$50,000 or more in total costs, measured in 1984 dollars;
- highly volatile liquid releases of 5 barrels or more, or other liquid releases of 50 barrels or more; liquid releases resulting in an unintentional fire or explosion.

Of 5,727 reported incidents during 1993-2012, 2,079 met the PHMSA definition of "significant incidents," accounting for 99.4% of the total volume spilled. Read the full article and for a more detailed breakdown of causes, visit **Significant Pipeline Incidents By Cause** on the PHMSA website. By Bob Petz, PHMSA

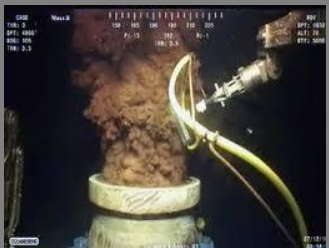
<http://www.ecology.com/2013/04/08/significant-pipeline-spills-liquids-1993-2012/>

## **The US Chemical Safety Board Issues a Statement re the Delayed Investigation of the Deepwater Horizon Accident**

The U.S. Chemical Safety Board (CSB) learned that a Federal Court in the Southern District of Texas has upheld the CSB's legal authority to investigate the tragic April 2010 blowout and explosion in the Gulf of Mexico. U.S. Federal District Court Judge Lee Rosenthal issued an Order that denied a motion by Transocean Deepwater Drilling, Inc. to block the CSB's access to information pertinent to the CSB's investigation.



Photos: [blogs.ft.com](http://blogs.ft.com)



Please email me [robhogan@tpg.com.au](mailto:robhogan@tpg.com.au) if you have any interesting articles, noticed any opinions or newspaper pars, or any material or photographs that could contribute to entertaining and informing our Members

**A number of other companies have cooperated with the CSB's ongoing investigation; Transocean, however, had raised a number of legal arguments and has not provided the CSB with key information even as the accident approaches its third anniversary. The Court found that "In sum, the CSB has shown that it has jurisdiction to investigate the Macondo incident. The subpoenas the CSB issued are within its authority. Because Transocean raised no challenge to the subpoenas other than the argument that the CSB exceeded its statutory authority, the motion to dismiss or to quash the subpoenas must be denied."**

**The Court's ruling follows an extensive litigation effort by the CSB and our colleagues in the United States Attorney's Office in Houston. This ruling greatly supports the CSB's ongoing investigation and will enable CSB investigators to access critical information that might have otherwise been unavailable.**

**The CSB's investigation has been taking a broad look at the causes of the Gulf tragedy. The issues include how the industry and the regulating agencies learned or did not learn from previous incidents. The report also examines the lack of human factors guidance for offshore production, the reliance on manual safety controls instead of automated systems, and organizational issues that can impair effective engineering decisions. We are also examining the implementation of effective corporate governance and sustainability standards to address safety and environmental risk.**

**Investigation Details See: Macondo Blowout and Explosion [www.csb.gov](http://www.csb.gov)**

## **NICNAS Chemical Gazette: April, 2013**

**Is now available for download from:**

**[http://www.nicnas.gov.au/Publications/Chemical\\_Gazette/Chemical\\_Gazette\\_April\\_2013.asp](http://www.nicnas.gov.au/Publications/Chemical_Gazette/Chemical_Gazette_April_2013.asp)**

## **EPA Probe on Fiskville Training Base**

**The Country Fire Authority's notorious Fiskville training base will be subject to a four-year clean-up following an Environment Protection Authority probe. The watchdog has raised concerns about hazardous materials kept on site, and the potential for water downstream from Lake Fiskville to be contaminated with toxic chemicals. It is the EPA's first crackdown on Fiskville, and the CFA could be fined \$600,000 if it does not comply with the clean-up notices. The burning and storage of toxic chemicals at Fiskville has been linked to the cancer-related deaths of more than 20 people. Source: [www.heraldsun.com.au](http://www.heraldsun.com.au)**

Who is Mark Paradies?

Mark Paradies is President of System Improvements, Inc. He has over 29 years of experience operating, managing, and improving high reliability systems.

Mark started his career as an officer in Admiral Rickover's Nuclear Navy. He also worked for DuPont and Westinghouse before starting System Improvements in 1988.

Currently, Mark researches performance improvement strategies and helps senior management understand, plan, and implement performance improvement programs while he manages System Improvements and teaches TapRooT® Courses worldwide.

## **Mark Paradies Speaks at 2013 IOSH Conference**

**Mark gave two well received talks at the 2013 IOSH Conference in London. Because of the many requests for copies of his talks (Deepwater Horizon & Texas City ... Three Lessons You May NOT Have Learnt and The Safety Pyramid & Stopping Major Accidents), PDFs of the talks are posted below.**

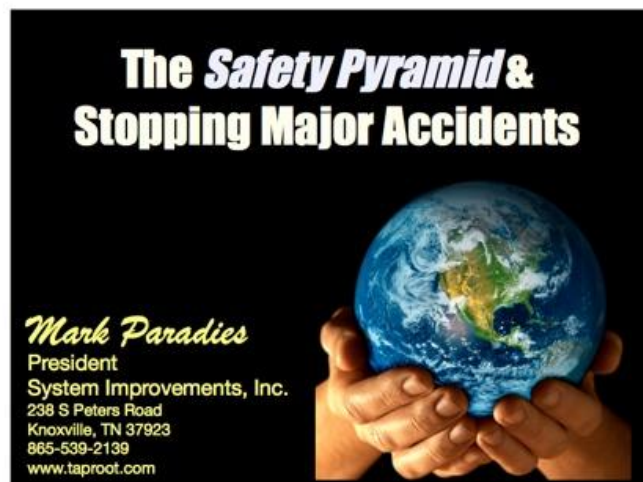
Source: [taproots.com](http://taproots.com)



**Deepwater Horizon & Texas City  
Three Lessons You May NOT Have Learnt**

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[www.taproot.com](http://www.taproot.com)

<http://www.taproot.com/content/wp-content/uploads/2013/02/TexasCityDeepwaterHorizon.pdf>



**The *Safety Pyramid* &  
Stopping Major Accidents**

*Mark Paradies*  
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<http://www.taproot.com/content/wp-content/uploads/2013/02/FatalityPyramidIOSH.pdf>





Photo: The Guardian  
Express

## **7 Workers Die while Cleaning Tank at Grupo Modelo Brewery in Mexico City**

**A spokeswoman for Mexico City prosecutors says the accident occurred early Sunday and that investigators are looking into whether the workers died from inhaling toxic fumes. The official spoke on condition of anonymity because she is not authorized to discuss the case.**

**Building manager Francisco Lopez Bravo told local media the workers were trapped inside the cistern while doing maintenance work.**

**Lopez Bravo said there are no other risks at the brewery and that it continued to operate on Sunday.**

**Anheuser-Busch InBev has been trying since June to take over the half it doesn't already own of Grupo Modelo, which makes Corona and other globally popular beers.**

**Source: Olga R. Rodriguez, The Associated Press**

## **Green Chemistry Tries to Find Safer, More Sustainable Industrial Solutions**

**Chemical manufacturing is treated with suspicion by some, due to examples such as the Bhopal Union Carbide disaster in 1984, but the Green Chemistry movement hopes to change this perception. "Everything about our lifestyle is totally conditional on our access to chemicals, from laptops and mobile phones to medicines and safe foods," director of the Victorian Centre for Sustainable Chemical Manufacturing at Monash University, Professor Milton Hearn, told the ABC.**

**"[With more uptake of green chemistry] we won't be in the situation where the public says the industry has damaged the globe."**

**Green Chemistry's philosophy is outlined in *Green Chemistry: Theory and Practice*, by John Warner. Its 12 principles cover areas such as "atom economy", energy efficiency and engineering chemicals that can break down harmlessly after they have been used and disposed of."Every time you hear a story about a red dye that causes cancer, or a plasticiser that causes birth defects, it's no wonder that happens," said Warner. "There's nothing built in the education of a chemist that prepares them to be aware of that." Hearn used the example of a chemist who designed paints and coatings from vegetable oils rather than petrochemicals. "The technology was picked up by a large paint manufacturer," Hearn told the ABC.**



Image: mooncounty.tumblr.  
com

## Corporate Members

Our Corporate Members provide a range of products and services to the Dangerous Goods Industry. Their contact details are:

### AECOM

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Shannon Ballard  
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### Store-Safe Pty Ltd

Grant Breeze  
02) 9569 2122

### VOPAK Terminals

Sydney Pty. Ltd.  
Nathan Barnes  
02 9666 4455

Hearn and others are working to replace hazardous catalysts – used in chemical manufacturing – with benign ones that give off harmless by-products.

"Currently, about 60 per cent of all industrial chemical processes involve the use of corrosive strong acids or organic solvents to catalyse reactions," Hearn told *Monash Magazine* last year.

"Historically, the production of nylon, for instance, required the use of oleum – an extraordinarily strong, corrosive and hazardous form of sulfuric acid." Read: Green Chemistry: Theory and Practice

<http://www.greenchemistrynetwork.org/pdf/Principles.pdf>

Source: Manufacturers' Monthly, Brent Balinski

## Waste to Power Plant Approved for W.A.

Australia's first waste to energy plant could be built in Western Australia, using garbage to generate enough electricity to power more than 20,000 homes every year.

WA's Environmental Protection Authority (EPA) has approved the \$180 million plant, planned for Boodarie near Port Hedland.

It uses a process called "gasification" which converts gas from decomposing material into heat and power.

The facility would process as much as 100,000 tonnes of rubbish a year, comprised of commercial and industrial waste and household waste from Port Hedland.

It would not process hazardous materials such as medical waste, asbestos, radioactive waste, highly corrosive or toxic liquids, gases or explosives.

The ultimate decision on the plant's future rests with Environment Minister Albert Jacob, and could signal the creation of more waste to energy plants across the state. Source: NineMSN

## Company Fined over Gas Explosion Fatality

Damday Pty Ltd, trading as Australian Air-Conditioning and Mechanical Services, was found guilty and fined \$120,000 over a gas explosion that killed one of its employees in December 2011. 24 year old refrigeration mechanic Patrick Bird was heading to work when he activated the keyless entry to a work van, causing an explosion.

The van, which had been parked at Mr. Bird's residence overnight, contained a number of pressurized gas cylinders. Some of the cylinders contained Acetylene and MAPP Gas, both gasses are highly flammable. The cylinders had leaked during the night, filling the vehicle with the flammable gas.

Read the Media Release:

[http://www.worksafe.nt.gov.au/NewsRoom/Documents/media\\_release\\_5\\_Apr\\_2013.pdf](http://www.worksafe.nt.gov.au/NewsRoom/Documents/media_release_5_Apr_2013.pdf)



A one-week blitz in Warrnambool found almost 130 breaches.

WorkSafe inspectors visited 105 workplaces and issued 127 improvement notices requiring businesses to improve their safety practices.

The improvement notices related to a number of matters including equipment maintenance, unsafe work platforms, storing of dangerous goods and guarding.

## **WorkSafe Victoria: Proposed Code of Practice for the Storage and Handling of Dangerous Goods**

**Dangerous goods are substances that may be corrosive, flammable, explosive, spontaneously combustible, toxic, oxidising or water-reactive. These goods can be deadly and can seriously damage property and the environment.**

### **The Dangerous Goods Act**

**The Dangerous Goods Act 1985 sets out the general duties for the manufacture, storage, transport, transfer, sale and use of dangerous goods and the import of explosives into Victoria. The Act also enables regulations to be made about dangerous goods. Proposed Code of Practice for the Storage and Handling of Dangerous Goods**

**Public comment is invited on the proposed Code of Practice for the Storage and Handling of Dangerous Goods. Copies can be obtained by contacting WorkSafe on 1800 136 089 or by downloading the proposed code here: <http://www.worksafe.vic.gov.au/safety-and-prevention/health-and-safety-topics/?a=56480>**

**You are invited to make comments and submissions in response to the proposed Code of Practice. Comments should be received by WorkSafe no later than close of business on Thursday 2 May 2013.**

**Written submissions should be addressed to:**

**DG Code Public Comment**

**Manager, Information and Guidance Branch**

**WorkSafe Victoria**

**GPO Box 4306**

**MELBOURNE VIC 3000**

**Submissions by e-mail should be forwarded by the same date to the following address: [storageandhandling2012@worksafe.vic.gov.au](mailto:storageandhandling2012@worksafe.vic.gov.au)**

**All submissions will be treated as public documents unless clearly identified as being confidential.**

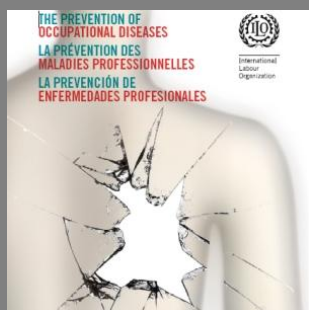
**A public comment template has been developed to assist interested organisations and members of the public to make their submissions. Download the template here:**

**<http://www.worksafe.vic.gov.au/safety-and-prevention/health-and-safety-topics/?a=56483>**

**Enquiries about the proposed Code of Practice should be directed to WorkSafe on 1800 136 089 during office hours (8.30am to 5.00pm).**

**Dangerous Goods (Storage and Handling) Regulations**

**On 1 December 2012 new regulations for the storage and handling of dangerous goods commenced.**



World Day for Health and  
Safety at Work

Sunday 28 April 2013 is  
the date for World Day  
for Safety and Health at  
Work, with the theme  
being the Prevention of  
Occupational Diseases.

Occupational diseases  
continue to be the leading  
cause of work-related  
deaths world wide.  
International Labour  
Organisation (ILO)  
estimates that out of  
2.34 million occupational  
fatalities every year, only  
321 000 are due to  
accidents.

That means two million  
occupational deaths are  
due to work-related  
diseases. Globally, an  
average of 5500 workers  
daily succumb to  
occupational diseases.

Source: Isaac Leung,  
SafetoWork

You can View and/or download these Regulations here:

<http://www.legislation.vic.gov.au/>

Information about the key changes to dangerous goods storage  
and handling requirements:

[http://www.worksafe.vic.gov.au/ data/assets/pdf file/0003/44841/MIA-key-DG-changes-Final-.pdf](http://www.worksafe.vic.gov.au/data/assets/pdf_file/0003/44841/MIA-key-DG-changes-Final-.pdf) is also available as is the information

about incident reporting:

[http://www.worksafe.vic.gov.au/ data/assets/pdf file/0009/44847/MIA-DG-incident-reporting-Final.pdf](http://www.worksafe.vic.gov.au/data/assets/pdf_file/0009/44847/MIA-DG-incident-reporting-Final.pdf) under the new Regulations.

WorkSafe released the proposed Dangerous Goods (Storage and  
Handling) Regulations and the related Regulatory Impact  
Statement for public comment on 13 September 2012.

View the Summary of Public Comment received:

<http://www.worksafe.vic.gov.au/safety-and-prevention/health-and-safety-topics/?a=46705>

## **Fire and Blast Information Group (FABIG) Technical Note covering "Vapour Cloud Development in Over-filling Incidents" is available for download**

**This FABIG Technical Note describes an assessment method for  
calculating the rate at which the volume of a vapour cloud  
increases during an overfilling incident.**

**The assessment method also gives the concentration of  
hydrocarbons within the cloud and provides some guidance on the  
extent of cloud spread in relatively flat sites with the kind of  
obstructions that would be normal in and around a fuel depot tank  
farm.**

**The scope of the HSE VCA method (see HSE Research Report  
RR908) on which this Technical Note is based has been extended  
to allow vapour cloud assessment for a range of fuels and solvents  
that are commonly stored in large volumes.**

**It also gives preliminary guidance on extending the assessment to  
low (non-zero) wind speeds and to calculate the rate at which a  
cloud may accumulate in the case of spray releases (e.g. flange  
failure or pipe rupture).**

**To download –**

**FABIG Members free:**

<http://www.fabig.com/video-publications/TechnicalGuidance>

**Non-Members, contact: <http://www.fabig.com/ContactUs>**



## USE OF FLAMMABLE REFRIGERANTS INCLUDING HYDROCARBON MIXES

The increased costs associated with fluorocarbon refrigerants has seen industry examine the use of hydrocarbons as a possible lower cost alternative refrigerant. Although a hydrocarbon refrigerant may reduce some hazards such as toxicity and environmental damage, these refrigerants are highly flammable and carry significant risk of fire and explosion.

When considering flammable refrigerants, the following requirements apply:

- flammable refrigerants must only be used in accordance with the relevant equipment manufacturer specifications

- a retro-fit can only be undertaken if the equipment components are designed or modified to be safely used with flammable refrigerants

## Draft Code of Practice for Flammable Refrigerants: AIRAH

AIRAH has released the draft Code of Practice for Flammable Refrigerants, with feedback and comments to close on 15 April 2013. The Australian Institute of Refrigeration, Airconditioning and Heating (AIRAH) says the code of practice was developed alongside industry and government, provides information on managing the health and safety risks associated with the safe design, manufacture, installation, commissioning, operation, maintenance, decommission and disposal of refrigeration and air conditioning equipment and systems that use a flammable refrigerant.

While many of the refrigerants traditionally used in refrigeration and air conditioning systems in Australia are non-flammable, non-toxic, synthetic greenhouse gases (SGGs), these tend to have a high global warming potential. Concerns regarding the atmospheric effects of these refrigerants have led to increasing use of alternative refrigerants with low global warming potential. However, some of these are flammable and this represents a significant change for the industry.

The use of flammable refrigerants has increased over the last decade. They are now widely used in domestic refrigerators, small integral commercial cabinets, fluid chillers and industrial refrigeration.

Flammable refrigerants pose significant risks if applied inappropriately in refrigeration and airconditioning equipment that is not designed for their use, or at located in places where they are at risk of catching fire.

The draft code is being developed and will be proposed as an approved code of practice under section 274 of the Work Health and Safety Act (the WHS Act). The Code specifically applies to all stationary refrigerating systems of all sizes including airconditioners and heat pumps that are to be charged with flammable refrigerants with a refrigerant classification of A2, A2L or A3 or any other refrigerant that meets the criteria to be classified as A2, A2L or A3 refrigerant.

It also applies to the conversion of larger systems such as chillers and plant room equipment where all the applicable regulations and standards can be complied with. Goto:

[http://www.airah.org.au/iMIS15\\_Prod/AIRAH/Resources/Useful\\_Documents/AIRAH/Navigation/Resources/Useful\\_Documents/Useful\\_Documents.aspx?key=c83fc4e4-4cf7-40ae-a85e-07bc0deebef5#DRAFT%20CoP](http://www.airah.org.au/iMIS15_Prod/AIRAH/Resources/Useful_Documents/AIRAH/Navigation/Resources/Useful_Documents/Useful_Documents.aspx?key=c83fc4e4-4cf7-40ae-a85e-07bc0deebef5#DRAFT%20CoP)

- written advice from the designer, manufacturer or supplier must be sought

•  
only competent people should work on air-conditioners and other refrigeration systems, particularly those containing hydrocarbon refrigerants

•  
hydrocarbon refrigerants should only be used in properly ventilated areas

•  
hydrocarbon refrigerants should be odorized to aid in their detection - do not use any supply that is found to be non-odorized. Contact the supplier

•  
be aware that the odorising agent used in the hydrocarbon refrigerants can be removed by the filtration/driers within a refrigeration system

•  
equipment that could provide an ignition source must not be used - this includes halide torches for leak detection and electrical equipment not certified for use in hazardous areas

•  
appropriate and permanent labelling should be applied on all vessels, cylinders and refrigeration systems to indicate the quantity and type of refrigerant used - the flammable gas

## **\$US816 Million Jury Verdict for New Hampshire over MTBE contamination of State's Drinking Water**

- **State awarded \$816 million - ExxonMobil will pay 28.94% (its market share) - \$236,372,664.**
  - **ExxonMobil supplied over 2.7 billion gallons of MTBE gasoline into New Hampshire, which accounts for nearly 1/3 of the state's gasoline market.**
  - **Evidence showed that ExxonMobil's own environmental experts advised in the 1980's against adding MTBE to ExxonMobil's gasoline.**
  - **Experts for the State estimate that over 40,000 New Hampshire drinking water wells are contaminated with MTBE. The jurors reached verdicts in less than 90 minutes, Lawyers on both sides were stunned by the speed with which they reached the liability verdict and even more stunned when the jurors took barely 20 minutes more to fill out the damages verdict.**
- After a three month trial - the longest in state court history - a New Hampshire jury took less than two hours to find unanimously that ExxonMobil was negligent in supplying over 2 billion gallons of MTBE gasoline that resulted in widespread contamination of the state's drinking water. The jury awarded the state total damages of \$816 million - ExxonMobil will pay 28.94% (its market share), which is \$236,372,664. "The trial was about whether ExxonMobil designed a defective product, failed to warn about the increased dangers of MTBE and disregarded the advice its own environmental experts," said Jessica Grant of Sher Leff, lead trial attorney for the State of New Hampshire in this matter. "The finding of ExxonMobil's negligence is particularly important because it shows the jury understood that this problem could have been avoided." In the trial which began on January 14, 2013, the State of New Hampshire was seeking clean up costs relating to the contamination of New Hampshire's drinking water with MTBE - a gasoline additive classified by the EPA as a "possible human carcinogen" that was banned in New Hampshire in 2007. The State sued to hold ExxonMobil liable for its share of the clean-up costs, based on the fact that the company supplied over 2.7 billion gallons of MTBE gasoline into New Hampshire, which accounts for nearly 1/3 of the state's gasoline market. The state originally sued 26 oil companies in 2003 over the contamination of the State's drinking water by the gasoline additive MTBE (methyl tertiary butyl ether).**

(Division 2.1) class label should be included  
The following alerts contain further useful information:

SafeWork South Australia's 'Use of flammable refrigerants included hydrocarbon mixes'. Go to [safework.sa.gov.au](http://safework.sa.gov.au) and search for '84A'

WorkCover New South Wales and Motor Vehicle Repair Industry Authority's 'Use of flammable hydrocarbon gases in MVACS'. Go to [workcover.nsw.gov.au](http://workcover.nsw.gov.au) and search for '4793'

the New Zealand Department of Labour's 'Coolstore hydrocarbon refrigerant injures technician' and 'Safe use of hydrocarbon refrigerants'. Go to [www.osh.dol.govt.nz](http://www.osh.dol.govt.nz) and search for 'hazard alert coolstore' and 'refrigerants'  
From Workplace Standards  
Tasmania - Connections



**The State previously settled with all other parties but ExxonMobil - collecting more than \$130 million for MTBE cleanup from the other defendants.**

**Evidence showed that ExxonMobil's own environmental experts advised in the 1980's against adding MTBE to ExxonMobil's gasoline because it travels farther in groundwater than gasoline without MTBE and is resistant to biodegradation, which significantly increases the potential for contaminating much larger volumes of water. Although ExxonMobil contends that the use of MTBE was mandated by the EPA to curb air pollution, the Clean Air Act Amendments are oxygenate neutral, leaving it up to the oil companies as to which oxygenate to use. Experts for the State estimate that over 40,000 New Hampshire drinking water wells are contaminated with MTBE and that 5,590 wells have levels of MTBE that are above the State's safe drinking water standard. The State was also seeking costs to clean up 228 high risk sites where MTBE has contaminated the soil and groundwater. New Hampshire is the only state to have reached the trial stage in a suit over MTBE gasoline and is trying the case on a statewide basis. Other lawsuits brought by water districts, cities and individual well owners have ended in settlements. Lawyers from Sher Leff won a \$250 million federal jury verdict in 2009 on behalf of New York City for MTBE contamination of city wells, which is currently on appeal - Exxon Mobil's share of damages in that case was \$105 million. The case is State of New Hampshire v. Hess Corp., 03- C-0550, New Hampshire Superior Court, Merrimack County (Concord) .**

Source: Market Watch

## **Explosion at Utah Titanium Plant**

**The Salt Lake Tribune said on April 2 that two workers caught in an explosion at a Tooele County titanium products factory were flown to the University of Utah to be treated for second-degree burns and exposure to toxic chemicals.**

**It was not immediately clear what sparked the explosion at the ATI plant in Grantsville. The workers suffered burns to their chests, hands and faces and may have been exposed to a cocktail of chemicals that includes tetrachloride-4, magnesium chloride and chlorine, said Tooele County spokesman Wade Mathews.**

**The Occupational Safety and Health Administration was contacted following the incident and will likely conduct their own investigation.**



## **Mining Firms must Convince CSG 'not poisonous'**

Mining companies need to do better in convincing the public that coal seam gas (CSG) won't poison the state's waterways, the NSW government says.

Resources and Energy minister Chris Hartcher says the CSG industry hasn't been "as successful as it could have been in bringing the community along with it".

"The government continues to make clear that industry must establish a social licence in which to operate," Hartcher told an industry conference in Sydney.

He said calls from community groups for a moratorium on CSG drilling weren't surprising given many people equated the process with "destructive drilling and toxic chemicals ... poisoning our water resources". He said at the moment many communities were failing to make the link between the public's need for household gas and coal seam gas.

There was also little public awareness that a moratorium on CSG drilling would mean shutting off gas to one in three homes in the state. "The industry is now dealing with the consequences," Hartcher said. He said NSW did not need a CSG moratorium, but "firm limitations on where gas can be explored and tight protective controls on the drilling and production process". "The government believes those measures are now in place," he said. "The government supports the development of the CSG industry and intends to rigorously regulate it."

The conference has previously been told that energy industry heavyweights may be forced out of the state due to a "perfect storm" of rising prices and a short supply approaching the state.

Source and photo: EcoNews

## **All Coal Mines in North-East China Province to Close after Fatal Blasts**

China Daily said on April 2 that all coal mines in Jilin province were ordered to halt production after two gas blasts in four days killed 36 people.

An explosion at Babao Coal Mine in Baishan's Jiangyuan district killed 29 miners and rescue workers and left 13 injured on March 29, while a second blast at the same mine on April 2 killed seven more rescuers and injured a further eight.

A further ten miners and rescuers remained missing on April 2. Jilin authorities decided to suspend operations at all coal mines for safety checks, according to a joint statement by the State administrations for work safety and coal mine safety.





## **Chinese Fertiliser Leaving 'Mountains of Harmful Waste' - Greenpeace**

**Mountains of hazardous waste left from China's huge phosphate fertiliser industry are polluting nearby communities and waters, Greenpeace says.**



**Analysis of phosphogypsum samples revealed levels of fluoride, a potentially hazardous substance, above Chinese national limits for hazardous wastes at several of the sites investigated. At one site, where a 20-metre high waste pile is located next to a village, levels of fluoride found in leachate (a fluid that comes from the phosphogypsum waste) were seven times above the limits.**

**China, the world's top maker of the material, has seen production more than double over the past decade to 20 million tons last year, leaving 300 million tons of a byproduct called phosphogypsum that can contain harmful substances. "It's critical the government addresses this issue and assists the victims of corporate selfishness," Greenpeace activist Lang Xiyu said in a statement on Tuesday. "We can no longer continue ignoring 300 million tons of phosphogypsum polluting our soil, water and air."**

**The campaign group's report comes as China grapples with the environmental fallout of decades of breakneck growth, with popular frustration mounting over hazardous air and industrial pollution that has tainted rivers and soil. Huge heaps of leftover phosphogypsum — mostly found in south-western provinces such as Sichuan, where Greenpeace conducted its investigation — can harm groundwater and worsen air pollution and landslides. Four of nine samples tested from six sites qualified as hazardous material due to excessive fluoride and all of them contained heavy metals such as arsenic and cadmium, the report said. Four of the six sites were located less than 800 metres from the nearest village, as required by government rules.**

**Source: AAP**

## **Toxic Vapours Detected in Three Homes in S.A.**

**Toxic vapours have been detected in three homes at Clovelly Park in Adelaide's south after more tests were carried out. Residents in the Chestnut Court area were told in 2008 not to use bore water after an industrial solvent was detected in groundwater near the Monroe and former Mitsubishi sites. Vapours of trichloroethylene (TCE) were also detected in soil on council land last year. The chemical is used as a metal cleaner and degreaser. The EPA (Environment Protection Authority) says air samples show solvent vapour in three of five homes tested remains slightly above guidelines. The testing was carried out by an environmental consultant hired by manufacturer Monroe. The EPA says the results of the testing will be added to previous data and presented to the Site Contamination Auditor before a decision is made on further steps. According to SA Health, prolonged exposure to TCE is believed to cause cancer and kidney and liver disease.**

**Source: ABCNews**



Photo:  
globalresetsociety.com



It's not just bees:  
Popular pesticides are  
killing birds, too

There's already strong evidence that the best-selling pesticides in the world are wreaking havoc on pollinator populations and may play a role in Colony Collapse Disorder among honeybees, but a new study commissioned by the American Bird Conservancy dives deeper into the impact of neonicotinoid pesticides on the food chain, and its findings are grim.

The nearly 100-page study — called *The Impact of the Nation's Most Widely Used Insecticides on Birds* and co-authored by environmental toxicologist Dr. Pierre Mineau and American Bird Conservancy Pesticides Program Manager Cynthia

## **Honey Bee Brains 'scrambled' by Pesticides**

**Pesticides used by farmers to protect crops or bee hives can scramble the brain circuits of honey bees, affecting memory and navigation skills needed to find food, scientists say.**

**This in turn threatened entire colonies of bees whose pollinating functions are vital for human food production, co-author Christopher Connolly of the University of Dundee's Medical Research Institute told AFP. The team observed honey bee brains in the lab after exposing them to neonicotinoid pesticides used on crops, and organophosphates, the most widely used group of insecticides in the world — in this case coumaphos — sometimes used to control mite infestations in beehives.**

**Exposed to similar concentrations of the two pesticides as they would encounter in the environment, the learning circuits of the bee brains soon stopped working, said the researchers.**

**The finding comes amid a fierce debate on the continuing use of neonicotinoids.**

**Two weeks ago, European nations rejected a proposed two-year ban on the brain-targeting group of insecticides following opposition by the agrochemical industry. The researchers said their findings should prompt a rethink of pesticide use.**

Source: AAP

## **Mt Todd Mine – Edith River, N.T.**

**On the same day as the derailment of a freight train on the river – (see *What's Happening*, September 2012) Vista Gold Australia Pty Ltd (Vista Gold) reported a suspected uncontrolled discharge (later confirmed) from the Mount Todd Mine Site to DLPE.**

**The Mount Todd Mine Site is located in the Edith River catchment, approximately 55 kilometres north of Katherine, 250 kilometres south of Darwin, and 10 kilometres upstream of the Edith River Bridge Crossing.**

**Uncontrolled discharges from Retention Pond 1 (RP1) occurred via a spillway within the Vista Gold mining lease boundaries. RP1 collects water runoff from a large portion of the mine site. The water flowed over the spillway designed to maintain the structural integrity of the retention pond walls. Water was released into West Creek and discharged into the Edith River approximately 2 kilometres downstream of the Edith Falls Road crossing. Discharge from the site is regulated by a waste discharge licence.**

**Uncontrolled discharges from the mine continued from 27 December 2011 until 5 January 2012 (inclusive).**

**See the N.T. Environment Protection Authority Reports:**

**<http://www.ntepa.nt.gov.au/news/2013/edith-river-investigation-report>**

Palmer — reviews 200 studies on the effects of neonicotinoids and finds that the pesticides' persistence, solubility, toxicity and mobility pose a unique threat, particularly to aquatic ecosystems, where agricultural runoff may cause permanent damage to aquatic invertebrate populations and all the organisms that depend on them for food.

And while publicity has focused on the effect of these systemic pesticides — products like imidacloprid and clothianidid that are absorbed by a plant's roots and then circulate throughout it — on pollinating insects like bees and butterflies, the conservancy's report alleges that the Environmental Protection Agency (EPA) has simply ignored evidence of toxicity to birds and small mammals, creatures known to eat freshly planted seeds, even those coated in pesticide.  
Source: mnn.com



**Too close for comfort:**  
Botany residents fear contamination. Photo: Sahlan Hayes

## **Phosphoric Acid and Sodium Hyposulphite Chemical Spill in Tasmania**

**The derailment of a train carrying dangerous goods near Colebrook will be investigated by the Australian Transport Safety Bureau. Four wagons of a south-bound Tasrail train derailed. The TFS said no one was injured in the incident but a quantity of chemicals was spilled trackside. No residential properties near the accident site had been affected by the chemical hazard, the TFS said. TasRail said two of the four derailed wagons were empty, while the other two were carrying phosphoric acid and sodium hyposulphite. "As soon as the derailment occurred, TasRail promptly notified the TFS and the Environment Protection Authority," TasRail CEO Damien White said in a statement this afternoon. "All TasRail locomotives carry spill kits and the prompt action taken by staff to place bunding around the tanktainer resulted in the initial spillage being confined." The TFS attended the scene last night and sealed the tanktainer leak. "As a precaution, TasRail requested the TFS return to the derailment site today to oversee the recovery of the two dangerous goods wagons." TasRail crews are working to repair about 2.5km of track damage, with the north-south line expected to reopen late tomorrow. The ATSB will investigate the incident with the full co-operation of TasRail.**

Source: themercury.com.au

## **EPA too Close to Orica says Greens MP**

**The state's environmental watchdog has been accused of being too cosy with the chemical giant Orica and coming "dangerously close to colluding" over public statements announcing an independent review of mercury contamination in the soil around its Botany plant.**

**Documents obtained under government information access laws by the Greens MP and environment spokeswoman Cate Faehrmann show staff from the Environment Protection Authority were liaising with the "government relations manager" of Orica, and sent him a copy of a government media release before it was made public. The documents reveal there were text messages, telephone conversations and a meeting between officials of both organisations in the days before the release of the statement. And they show there was a co-ordinated release, with an Orica statement following the EPA's media release within minutes. The released documents show Orica sent letters lobbying NSW Environment Minister Robyn Parker and the EPA.**

Read full story: <http://www.smh.com.au/environment/epa-too-close-to-origa-over-media-release-on-mercury-says-greens-mp-20130413-2hs5d.html>

## **International Chemical Firm Prosecuted over Multiple Incidents: U.K.**

**An international chemical firm has been fined more than £100,000 after workers were put in danger in three separate incidents at its Cheshire factory.**

**Tata Chemicals was prosecuted by the Health and Safety Executive (HSE) following an investigation into the incidents at the Winnington Lane site, all of which occurred during 2010.**

**Chester Crown Court was told today (10 April 2013) that the first incident happened on 29 January 2010 when a worker was trying to reach a pump to restart it when his right foot went through a missing part of the grating. He was exposed to a toxic liquid at a temperature of approximately 95 degrees Celsius when his foot entered the sump below, which is used to collect overflowing chemicals.**

**The second incident occurred six months later, on 25 July 2010, when a dangerous gas was released, resulting in high levels of carbon monoxide being present in the area of the plant where employees were working.**

**An investigation into the incident found employees had not been given sufficient practical training for the work activity that caused the gas leak, and the emergency procedures at the plant were inadequate.**

**The final incident took place on 21 November 2010 when part of the gantry a worker was walking along gave way as the metal grating under his feet had become badly corroded. He escaped with minor injuries after landing on a scaffolding board on the walkway below. When a HSE inspector visited the factory, she discovered the company had failed to report another part of the grating on the same walkway collapsing two days before the incident on 21 November.**

**Tata Chemicals Europe Ltd, which is part of the global Tata group, pleaded guilty to four breaches of the Health and Safety at Work etc Act 1974 by failing to ensure the safety of workers.**

**Tata Chemicals was fined a total of £100,750 for all six offences and ordered to pay £71,082 in prosecution costs.**

**Speaking after the hearing, HSE Inspector Gill Chambers said:**

**"The chemical industry has the potential to be extremely dangerous so it's vital that firms like Tata Chemicals make health and safety their top priority. Unfortunately, the company fell way below acceptable standards on multiple occasions."**

**Information on health and safety in the chemical industry is available at [www.hse.gov.uk/hid](http://www.hse.gov.uk/hid).**



## **Chemicals Used in Syrian Conflict**

**British military scientists have found forensic evidence that chemical weapons have been used in the conflict in Syria, the *Times* newspaper says.**

**A soil sample thought to have been taken from an area close to Damascus and smuggled back to Britain has provided proof that "some kind of chemical weapon" had been fired, it quoted defence sources as saying.**

**The tests were carried out at the Ministry of Defence's chemical and biological research establishment at Porton Down, it added in the front-page story.**

**Diplomats at the United Nations said on Thursday some countries have "hard evidence" chemical weapons have been used at least once in the Syrian conflict, without giving details.**

**The British team were unable to discern whether the weapons had been fired by President Bashar al-Assad's regime or by the rebels fighting him, nor could they say if there had been widespread use. An unnamed source said: "There have been some reports that it was just a strong riot-control agent but this is not the case - it's something else, although it can't definitively be said to be sarin nerve agent."**

**Source: AFP, New York Times**

## **Staffordshire Firm Fined for Explosive Reaction after Worker Suffers Burns**

**Aluminium powder reacted with water in an industrial vacuum cleaner to create hydrogen gas that exploded and burned a worker, a court has heard.**

**Staffordshire research and development company Renishaw PLC was prosecuted by the Health and Safety Executive (HSE) following the incident at its site on 6 February 2012.**

**A 27 year-old employee suffered burns to the top of his body and was in hospital for two weeks. He was off work for three months before returning to work for the company.**

**Stafford Magistrates' Court heard the specialist vac had been used to clean up aluminium powder before being left to stand over a weekend. The powder reacted with water used in the machine to create hydrogen gas that exploded when the unassuming worker switched it on.**

**HSE inspector Wayne Owen said: "This type of vacuum was not suitable for use with aluminium powder. Had the company paid attention to the instructions for working with this metal powder, or indeed the machine itself, then the incident could have been prevented. Source: hse.gov.uk**

## USFA Coffee Break Training

There are numerous references in the model fire codes and standards that refer to the use of "nonsparking" tools in hazardous environments. These areas may include explosives and pyrotechnic manufacture and storage, flammable liquid or gas production or storage, power stations, pipelines, pharmaceutical production and plastic manufacturing. This list is not exhaustive. Commonly used hand tools are often manufactured of steel alloys. They can cause ignition by friction, with impact on each other or on other materials such as steel or concrete, in which an ordinary mechanical or frictional spark is generated. They also can cause ignition by a chemically generated spark, caused by impact between certain metals and some oxygen-containing substances (such as rust, which is iron oxide).

[http://www.usfa.fema.gov/downloads/pdf/coffee-break/cb\\_fp\\_2013\\_15.pdf](http://www.usfa.fema.gov/downloads/pdf/coffee-break/cb_fp_2013_15.pdf)

## Combustible Dust Hazards

There have been several combustible dust accidents in industrial plants across the world, including the US. The last major one was at the Hoeganaes Iron Powder Facility in Gallatin, Tennessee in 2011, when three accidents occurred at the same facility within one year. Another major accident was the one in the year 2008 at the Imperial Sugar refinery in Port Wentworth, Georgia.

**Why do combustible dust explosions keep on happening at various facilities? The reasons are many but a major one seems to be a lack of awareness that seemingly harmless ordinary materials such as flour, iron powder or sugar can cause horrific explosions. One always treats materials such as gasoline or hydrogen gas with abundant caution but sugar? Come on, what harm can sugar cause? Can it explode? Hard to believe for most people, but in fact yes! Dusts that are harmless in small quantities can be extremely hazardous when being handled in massive quantities.**

**A dust explosion can be catastrophic and cause employee deaths, injuries, and devastation of entire buildings. In many combustible dust explosions and fires, employers and employees were unaware that a hazard even existed.**

**Similar to the Fire Triangle concept that we have with flammable liquids, vapors and gases, we have the concept of an explosion pentagon in the case of combustible dusts. In addition to the oxygen, ignition source, and fuel (the dust), we have dispersion of dust particles and confinement (these five conditions form the five sides of a pentagon). If one element of the pentagon is missing, an explosion cannot occur.**

**Many times, An initial (primary) explosion in processing equipment or in an area where fugitive dust has accumulated, may dislodge more accumulated dust into the air, or damage a containment system (such as a duct, vessel, or collector). As a result, if ignited, the additional dust dispersed into the air may cause one or more secondary explosions. These can be far more destructive than a primary explosion due to the increased quantity and concentration of dispersed combustible dust. Many deaths in past accidents, as well as other damage, have been caused by secondary explosions.**

**To identify factors that may contribute to a explosion, OSHA recommends a thorough hazard assessment of:**

- All materials handled;
- All operations conducted, including byproducts;
- All spaces (including hidden ones); and
- All potential ignition sources

**One of the most important (but often overlooked factors) is housekeeping.**

**The accumulation of a layer of even an inch of dust on a large surface, such as a conveyor, may be hazardous. This because this dust can easily blow into a dust cloud and get ignited, causing a dust explosion. The prevention of such dust collection on surfaces is very important.**

**There are now modern dust collection systems, that also prevent explosions and fires from occurring. You can think of using these systems, however the key is prevention. Mere prevention of dust layers and taking care of potential ignition sources, can go a long way in preventing dust explosions. Source: industrialplantsafety.com**

## **Combustible Dust Hazards OSHA Releases New Guide**

**The US Occupational Safety and Health Association (OSHA) has released a guide that outlines firefighting precautions while dealing with combustible dust hazards. OSHA has released a statement that says:**

***“This booklet will keep both emergency response and facility workers safe by giving them a framework to prepare for potential emergencies involving combustible dust,” said Assistant Secretary of Labor for Occupational Safety and Health Dr. David Michaels.***

***“Stakeholders that have reviewed the booklet, including fire chiefs and union health and safety representatives, describe it as ‘an excellent resource for explaining the hazards associated with combustible dust and outlining the best practices for pre-incident operational preparation by emergency responders.’”***

***Since 1980, more than 130 workers have been killed and more than 780 injured in combustible dust explosions. The publication describes how combustible dust explosions occur and uses previous incidents to illustrate how firefighting operations can prevent combustible dust explosions. The booklet explains the preparations emergency responders can make before a response and how these preparations will affect the operational plan during a response.***

***Combustible dusts include fine particles, fibers, chips, chunks or flakes that, under certain conditions, can cause a fire or explosion when suspended in air. Types of dusts include metal (for example, aluminum and magnesium), wood, plastic, rubber, coal, flour, sugar and paper, among others. OSHA’s Combustible Dust Web page provides employers and workers with additional information and resources for preventing and minimizing the effects of combustible dust fires and explosions.***

**The guide can be downloaded from the link here:**

**[http://www.osha.gov/Publications/OSHA\\_3644.pdf](http://www.osha.gov/Publications/OSHA_3644.pdf)**

## Understanding Welding Fumes

With the correct PPE, arc welding mild steel in an outside area, or in a well ventilated workshop, is not a problem, but when welding more exotic materials that's when fabricators and co-workers should take special care.



Arc welding fumes contain very small particles from the consumables base metal and base metal coating. The substances in the fumes change depending on what is in the electrode and the base metal including any coatings. The most common compounds in the fumes when welding mild steel, for example, are complex oxides of iron, manganese and silicon. The short term effects of these compounds, if inhaled, are temporary and include burning eyes and skin, dizziness, nausea and fever. However long term exposure to these fumes can lead to silicosis (iron deposits of the lungs), bronchitis, and even lung fibrosis has been reported.

And if the compounds found in the welding fumes includes Barium, symptoms may include severe stomach pains, slow pulse rate, convulsions, muscular spasms and even death.

Welding equipment manufacturers and industry organisations highlight the need for fabricators, and their co-workers, to be especially careful when working with new metals and materials, particularly when welding heavy metals such as magnesium and chromium.

Welding professionals should understand that it all depends on the base material and the consumable the welder is using and if the metal is coated. It is not uncommon for welders to be overcome with paint fumes when welding painted metal. Thankfully, most welders are aware of the dangers of welding fumes, and the short term and long term respiratory problems they can cause.

Welders should be especially aware of working with exotic materials such as cadmium, chromium, cobalt, copper, fluorides, manganese, nickel, silica and zinc, even stainless steel.

Fumes from the following metals can cause:

**CADMIUM** requires extra precautions, especially as it is often found on steel and steel fasteners as a plating or in silver solder. Cadmium fumes can be fatal, even after brief over-exposure.

**CHROMIUM** poses a cancer risk. Stainless steel and other hard coatings contains chromium and can cause lung cancer and asthma.

**COBALT** may cause respiratory diseases and pulmonary sensitising, and in metallic form it has been know to cause lung damage.

**COPPER** may cause metal fume fever, skin irritation and discolouration of the skin and hair.

**MAGNESIUM** may affect the central nervous system, difficulty in speaking, and arm and leg tremors, often non-reversible.

**NICKEL** may cause cancer.

**SILICA** may cause silicosis.

**ZINC**, found in galvanising, may cause fume fever.

However, most welders know that wherever they are they should wear PPEs such as breather masks and use some form of ventilation.



The first option is to ventilate the whole environment. This could take the form of open windows and doors in the workshop so they get cross ventilation. Then there are fans and suction devices that manufacturers can use, through to fume extraction arms and hoods, and downdraft tables through to fully engineered systems.

The key is to get the point of extraction as close as possible to where the welder is operating. The goal is for the welder not to breathe any welding fumes at all, so manufacturers should remove as many of the fumes from the workplace as possible.

There are a wide range of options available, depending on the location and the metals being welded

Source: Alan Johnson, Manufacturers' Monthly

## **10 Deadliest U.S. Industrial Accidents**

The 10 most deadly are:

- 1. Texas City Ammonium Nitrate Explosion in 1947 – About 600 killed.**
- 2. Port Chicago Ammunition Depot Explosion in 1944 – 320 dead.**
- 3. Piper Alpha in 1988 – 167 dead (not a US accident but was included in his list because it was a US company)**
- 4. Triangle Shirt Factory in 1911 – 146 killed.**
- 5. Pemberton Mill in 1860 – 145 dead.**
- 6. Grover Shoe in 1905 – 58 killed.**
- 7. Little Rock Air Force Base Titan Missile Silo Fire in 1965 – 53 dead.**
- 8. Imperial Foods Fire in 1991 – 25 dead.**
- 9. Phillips Chemical Plant Explosion in 1989 – 23 dead.**
- 10. Boston Molasses Disaster in 1919 – 21 killed.**

Each of these accidents have lessons to teach us. From things as simple as not locking fire doors to the complexity of process safety, these accidents point to problems (potential improvements) that every site should have already learned but – as we see in more recent accidents – many sites have not learned.

For Full Article - Goto:

[http://open.salon.com/blog/jrobertg/2009/07/14/weekly\\_10\\_the\\_10\\_deadliest\\_us\\_industrial\\_accidents](http://open.salon.com/blog/jrobertg/2009/07/14/weekly_10_the_10_deadliest_us_industrial_accidents)



The Hayes Lemmerz plant manufactures cast aluminium automotive wheels, and the explosions were fuelled by accumulated aluminium dust, a flammable by-product of the wheel production process.

U.S. Chemical Safety Board



## **Explosion at a Bartlett Grain Co. Flour Mill Repeat Experience for Company**

**The April 7 explosion at Bartlett Milling Co.'s Statesville, North Carolina, U.S.A., facility illustrates the need for a combustible dust standard from OSHA, says the National Council for Occupational Safety and Health.**

**"Repeat" and possibly even "wilful" violations potentially are in store for Bartlett Milling Co., following an explosion at its Statesville, N.C. facility. While no one was killed in the explosion, one worker seriously was injured and, unfortunately, the company was cited in the past by OSHA for health and safety violations related to the build up of combustible grain dust.**

**An October 2011 grain elevator explosion at Bartlett Grain Company in Atchison, Kan., killed six workers and left two hospitalized. Following that incident, OSHA cited Bartlett Grain with five wilful violations and eight serious violations of workplace safety rules and proposed \$406,000 in fines.**

**At that time, OSHA cited the company for wilful violations related to allowing grain dust – which is nine times as explosive as coal dust – to accumulate, using compressed air to remove dust without first shutting down ignition sources, jogging (repeatedly starting and stopping) inside bucket elevators to free legs choked by grain, using electrical equipment inappropriate for the working environment and failing to require employees to use fall protection when working from heights.**

**"The deaths of these six workers could have been prevented had the grain elevator's operators addressed hazards that are well known in this industry," said Secretary of Labor Hilda L. Solis at the time. "Bartlett Grain's disregard for the law led to a catastrophic accident and heartbreaking tragedy for the workers who were injured or killed, their families and the agricultural community."**

**The serious violations involve a lack of proper preventive maintenance, certification and lubrication of grain handling equipment; inadequate emergency action plan training for employees and contractors; a lack of employee and contractor training on job hazards; and a housekeeping program that was deficient because it did not prevent grain dust accumulations. Just 6 months ago, an OSHA inspection at a Bartlett Milling facility in Kansas found violations of OSHA's safety standards requiring that potentially explosive grain not be allowed to accumulate. Accumulation of combustible flour dust is the prime suspect as the**

My thanks for contributions this month go to Don Johnson.

If you have any pars that might be useful or of interest to Members they would be much appreciated!

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**cause of Sunday's explosion.**

**While OSHA does have rules to prevent explosions in grain handling facilities like Bartlett's, workers in other industries are not protected from combustible dust explosions.**

**"Combustible dust is known to be a huge explosion hazard, yet safety regulators have done little to protect workers from exposure to it," said Tom O'Connor, executive director of the National Council of Occupational Safety and Health, a federation of local and statewide organizations; a private, non-profit coalition of labor unions, health and technical professionals, and others interested in promoting and advocating for worker health and safety.. "OSHA has been sitting on a combustible dust standard since 2009. Given the prevalence of explosions caused by combustible dust, the agency should promulgate a rule that protects workers from it immediately."**

**According to O'Connor, Congress has done little to prevent combustible dust explosions. Legislation pending in the U.S. House of Representatives would give federal OSHA one year to issue stronger standards to protect American workers from combustible dust explosions and fires. Similar legislation passed in the House in 2008 by a large bipartisan majority, following an explosion at Imperial Sugar in Wentworth, Ga., that killed 14 workers and seriously injured 38.**

**"If it is found that accumulated flour dust was responsible for Sunday's explosion, OSHA should issue repeat and wilful violations against Bartlett Milling Co.," O'Connor said. "Having been previously cited for this at another facility, the company should be well aware of these hazards. It was only luck that prevented any deaths in this incident."**

**The American Industrial Hygiene Association recently sent a letter to Rep. George Miller (D-Calif.), in support of his legislation, H.R. 691, which directs OSHA to issue an interim and final standard regarding worker exposure to combustible dust. The letter also calls for an additional inspection and maintenance requirement and suggests extending the 18-month time frame the bill calls for to propose a final standard.**

**"AIHA remains concerned that the OSHA Hazard Communication Standard (HCS) inadequately addresses dust explosion hazards and fails to ensure that safe work practices and guidance documents are included in MSDSs," says the association in its letter to OSHA. "AIHA believes there is an urgent need for further action from the agency to address this issue." Source: EHStoday.com**

## **LPG Hazmat Scene Explosion Video**

An excellent, example of how things can go from bad to worse in seconds when dealing with HAZMATs with high vapor pressures and low MIE(s)! This was a LPG tanker that hit a tunnel entry embankment; FD was on the scene when the tanker leak got considerably worse (as can be seen in the video). The vapor cloud found an ignition source and a massive explosion resulted. In the first video angle you can actually see the blast wave moving through the air; in the second video you can how fast the vapor cloud engulfs everything in the immediate vicinity, including several fire trucks (which ended up being casualties of this incident). The incident occurred in China so the facts surrounding what actually happened is sketchy, but most news accounts state that there were five (5) fatalities; 3 firefighters and 2 civilians.

Source: Safteng's Video of the Week

**Goto:**

[http://www.safteng.net/index.php?option=com\\_content&view=article&id=2618:2013-video-of-the-week-13-Ing-hazmat-scene-explosion&catid=77:video-of-the-week&Itemid=300&goback=%2Egde\\_167203\\_member\\_227893511](http://www.safteng.net/index.php?option=com_content&view=article&id=2618:2013-video-of-the-week-13-Ing-hazmat-scene-explosion&catid=77:video-of-the-week&Itemid=300&goback=%2Egde_167203_member_227893511)

## **Anhydrous Ammonia Tank Release: Worst Case Scenario**

An anhydrous ammonia tank hose broke and sprayed all over a field in a Faribault, Minnesota, U.S.A. Approximately 1000 Gallon Nurse Tank.

When someone tells you that ammonia vapor is lighter than air and will rise...this is true; however, when the release involves LIQUID AMMONIA or even in an aerosol state this is what Anhydrous Ammonia will act like when released.

Source: GCAP CoolCast

**Video at:**

[http://www.gcapcoolcast.com/2013/04/anhydrous-ammonia-tank-release-worst-case-scenario/?goback=.gde\\_167203\\_member\\_229797729](http://www.gcapcoolcast.com/2013/04/anhydrous-ammonia-tank-release-worst-case-scenario/?goback=.gde_167203_member_229797729)