



WHAT'S HAPPENING?

September 2012

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our new
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Department of Mines and Petroleum in W.A. Releases Tips for Dealing with Flammable Refrigerants



In a recent safety bulletin, the Department of Mines and Petroleum called on employers in Western Australia to recognize that they may change the hazard profile of their operation if they replace the original equipment manufacturer (OEM) supplied refrigerant with a hydrocarbon refrigerant in their mobile equipment air-conditioners or other refrigeration systems. While a hydrocarbon refrigerant may reduce some hazards, such as toxicity, environmental damage, other hazards, such as fire, may be increased, the department said.

The higher cost of fluorocarbon refrigerants compared with hydrocarbon refrigerants may provide an economic incentive to convert from one to the other, the DMP noted. Also, the use of hydrocarbon refrigerants may be seen as a lower cost alternative when the certification requirements of the trades people involved in handling fluorocarbon refrigerants is considered.

Source: Angela Welsh, SafetoWork

The DMP's recommendations on dealing with flammable refrigerants can be found at: http://www.dmp.wa.gov.au/documents/Bulletins/MSH_SB_100.pdf

AIDGC Sydney
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26 Dead in Mexican Gas Pipeline Fire

A big fire erupted at a natural gas pipeline distribution centre near Mexico's border with the United States, killing 26 maintenance workers and forcing evacuations of people in nearby ranches and homes. Mexico's state-owned oil company, Petroleos Mexicanos, initially reported 10 deaths at the facility near the city of Reynosa, across from McAllen, Texas. Later, the death toll was raised to 26, including a man who was run over when he rushed onto a highway running away from the facility.

Pemex said at a news conference Tuesday night that the fire was extinguished in 90 minutes and the pipeline was shut off. The pipeline carries natural gas from wells in the Burgos basin.

The company's director-general, Juan Jose Suarez, said that 46 other workers were injured, including two hospitalized in serious condition. Suarez said they haven't found any evidence showing it was an attack. Company executives said there was a gas leak, followed by an explosion, but the precise cause had not been determined.

Civil protection officials evacuated ranches and homes within three miles of the gas facility, which is about 12 miles southwest of Reynosa. Authorities didn't say how many people were evacuated, but the area is sparsely populated.

Pipelines carrying gasoline and diesel in Mexico are frequently tapped by thieves looking to steal fuel. Several oil spills and explosions have been blamed on illegal taps. But thieves seldom target gas pipelines. In December 2010, authorities blamed oil thieves for an oil pipeline explosion in a central Mexico City near the capital that killed 28 people, including 13 children. The blast burned people and scorched homes, affecting 5,000 residents in an area six miles wide in San Martin Texmelucan.

Source: CBS News

Watch the Video: <http://edition.cnn.com/2012/09/18/world/americas/mexico-refinery-explosion/index.html>

EXXON Refinery, Texas, Releases Massive Amount of Chemicals

Something went wrong at the ExxonMobil refinery in Baytown, east of Houston. In an emissions event report to the Texas Commission on Environmental Quality (TCEQ), ExxonMobil reports that there was shutdown of a unit at the refinery after a heat exchanger tube leaked, and the event is still ongoing. The amount of chemicals estimated to be released during the event are startling, and could exceed the permitted emissions for the facility: 61,958 pounds of Carbon Monoxide; 51,437 pounds of Sulfur Dioxide 1,057 pounds of Hydrogen Sulfide

The ExxonMobil refinery is already the subject of a lawsuit by Environment Texas and the Sierra Club. The suit claims the facility has violated the Clean Air Act “on more than 1,000 separate occasions during the past five years — compounding Texas’ pollution problems and endangering the health of nearby residents.” Source: <http://stateimpact.npr.org/texas/2012/09/12/exxon-refinery-in-baytown-releases-massive-amount-of-chemicals/>



Image: Australian Mining

Proposed Ammonium Nitrate Plant

The release of Incitec Pivot's proposed ammonium nitrate plant's environmental impact statement has drawn opposition from the local community. Incitec Pivot is planning to build the plant in Newcastle, on Kooragang Island, near Orica's existing, troubled ammonium nitrate plant. According to the company it is seeking approval for a facility with a production capacity of up to 350 000 tonnes of ammonium nitrate per month. Its proposal includes a manufacturing plant, chemical storage tanks, product storage facilities, and associated infrastructure. Local residents at Mayfield and Stockton have already come out in arms over the proposed \$600 million plant, according to the Newcastle Herald. Despite environmental studies stating that it will fall within existing standards, the Stockton Community Action Group believes it poses a high risk. "Incitec have blatantly ignored our requests to locate the plant elsewhere," Group spokesperson Keith Craig said. "Nowhere in the world will you find two explosives plants, operating side-by-side, less than 800 metres from residents and three kilometres from a central business district. Governments and the Environment Protection Authority should not allow it." Last year the nearby Orica plant suffered a series of serious incidents.

Source: Cole Latimer, Australian Mining

Another Prosecution for Orica

The chemicals firm Orica Australia has been prosecuted for the fifth time this year after breaching a pollution licence at its Botany plant. The Environmental Protection Agency confirmed this on September 21. The latest charge related to the emission of mercury vapour near a residential area in September last year.

The agency's chief environmental regulator, Mark Gifford, said after Orica self-reported the breach and an investigation was launched. "Following an assessment of this information, the EPA believes Orica's failure to operate in a proper and efficient manner is serious enough to warrant prosecution, especially given the proximity of the premises to local residents."

Source: Eamonn Duff, Sydney Morning Herald

Fee for Intervention (FFI): U.K. H.S.E.

The U.K. Health and Safety Executive proposes to introduce a fee for intervention cost recovery scheme with effect from 1 October 2012, subject to Parliamentary approval of the proposed Health and Safety (Fees) Regulations 2012. These Regulations will put a duty on HSE to recover its costs for carrying out its regulatory functions from those found to be in material breach of health and safety law. HSE and the government believe it is right that businesses and organizations that break health and safety laws should pay for HSE's time in putting matters right, investigating and taking enforcement action. Without FFI, this is paid for from the public purse. Source: <http://www.hse.gov.uk/fee-for-intervention/index.htm>



Those LPG Tanks Again!

A busy inner-city Newtown, Sydney, street was in lockdown and homes and businesses were evacuated after a fire erupted at a service station. Gas-fuelled flames were shooting from the site and a 150m radius exclusion zone was in place. NSW Fire and Rescue Superintendent Tom Cooper said crews were trying to contain the blaze, and were concerned about four 300kg cylinders of LPG gas. "One cylinder has caught fire and the heat has caused the one next to it to vent," he told AAP on Friday. Gas escaping from the cylinders was in flames but safety features on the cylinders meant the fire was unlikely to travel back into the cylinders, he said. Firefighters would probably spend the next three or four hours fighting the blaze, he said, meaning the busy thoroughfare could reopen just before peak hour. Source: The Daily Telegraph



Fire fighters battle a blaze on King Street, Newtown. Picture: Danny Aarons, The Daily Telegraph

The fire was caused by a gas bottle explosion. Picture: Danny Aarons The Daily Telegraph



Train services were suspended near Newcastle amid fears that a fire at a smash repair business could ignite LPG canisters and cause a large explosion. Fire and Rescue NSW said about 55 firefighters battled the blaze in Cardiff but couldn't enter the building as cylinders of LPG and acetylene on site could explode.

No one was injured and evacuations were not necessary as the smash repair shop is in an industrial estate, a Fire and Rescue spokesman told AAP. He said firefighters were using cherry pickers to combat the fire but conditions were extremely dangerous. "That's why we've stopped the trains and we're not going to try and go into the building and put it out," he told AAP. "An LPG cylinder, depending on the contents, when it ruptures fragments can fly up to 100 metres." Source: News.com.au

At least seven persons including three children were injured when one of three liquified petroleum gasoline (LPG) tanks used for a taxi blew up near a junkshop in Paglaum, barangay Calamba in Cebu.

Among those hurt in the explosion, Carlito Tampon sustained the most severe injuries as he tried to break the regulator of the LPG tank that allowed the gas to escape, resulting in the blast.

Most of the victims stood at the barbecue stands about three meters away from the explosion. The LPG tank was still intact but the gas caused the fire that spread to the barbecue stands.

Berhildis Ong, the junkshop cashier, said Tampon tried to sell them three LPG tanks. She refused to buy them since they were cautioned by junkshop owner Joel Ramos not to buy any LPG tanks unless they were broken into pieces. Ong said Tampon then placed the tanks beside a narrow road and tried to break open the regulator to release the gas.

However a spark caused the gas to explode and set the barbecue stands on fire. The fire even damaged part of a house and a sari-sari store in the area. Source: Cebu Daily News

and a Hazard Warning from SafeWork South Australia after an explosion occurred when transporting a cylinder in the boot of a car.....

http://www.safework.sa.gov.au/uploaded_files/ha_portable_gas_cylinders.pdf

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Chevron Refinery Fire Investigation U.S. Chemical Safety Board

An August 6, 2012, release of flammable vapour led to a fire at the Chevron Refinery in Richmond, California.

Chevron Failed to Check Bad Pipe

There is no evidence that Chevron conducted a crucial inspection last year of the segment of the pipe that later ruptured at its Richmond refinery, leading to a fire that destroyed part of the plant, federal investigators said. Given the deteriorated condition of the pipe - which had retained only 20 percent of its original wall thickness - Chevron would have been obligated to replace it to comply with the company's own standards, said Don Holmstrom, Western regional office director of the Chemical Safety Board. Federal officials are focusing on the 52-inch-long segment of the line that failed Aug. 6 and have sent it to a private materials lab for testing.

But they say there is no indication that the 8-inch-diameter segment was inspected during a November 2011 maintenance shutdown of the Richmond refinery's No. 4 crude unit. That violated Chevron standards that all at-risk crude unit pipes be checked for corrosion or other damage during such shutdowns, the safety board officials said.

A post-accident examination showed that the failed part of the line had suffered about 80 percent wall loss, and was down to 1/16 of an inch thick from its original 5/16 of an inch. Company standards call for replacing at-risk pipes with 50 percent wall loss.

Chevron did inspect other pipe segments in the crude unit during the November inspection, and parts were close to the 50 percent wall-loss level that dictate replacement under Chevron's standards, Holmstrom said.

Chevron changes its mind

The company removed a corroded 12-inch pipe after the inspection, and originally intended also to replace the line that later failed, Chemical Safety Board officials said. Company officials changed their mind, however, and concluded the line had life remaining - a decision that federal investigators say is central to their probe.

Chevron knew that straight runs of pipe without angles, such as the 8-inch line in Richmond, could be more susceptible to corrosion, and this effect had led to three previous fires at other Chevron refineries, the safety board said in a statement.

"We have no evidence the section of pipe was ever inspected for thickness," Holmstrom said Tuesday night at the Richmond City Council meeting. Nigel Hearne, Chevron's refinery manager, said the company is committed to learning from the fire. "Clearly we fell short of the high standard we set for ourselves," he said.

Federal investigators also released a five-minute surveillance video taken of the refinery as a cloud of vapor leaking from the failing pipe grew bigger and ignited, enveloping the crude unit in flames and thick black smoke. About 20 workers who were near the pipe escaped with only seconds

to spare.

"This shows a rapidly growing vapor cloud," said Holmstrom. "This clearly was a lot of hydrocarbon vapor being released at this point, so much that you can't see the workers."

The fire ignited more than two hours after Chevron employees detected a slow leak in the 8-inch line. The company cut refinery production slightly as it assessed the leak.

Huge vapour cloud

A small flash fire erupted and was extinguished shortly before the pipe gave way, leading to a vapor cloud that rose more than 1,000 feet into the air. Chevron has said the cloud - visible from across the bay - was mostly steam caused by water being poured on the refinery pipes.

A short time after that cloud appeared, the leak from the line worsened and the fire ignited, Chevron said. A smoke plume rose hundreds of feet in the air, and more than 15,000 residents sought treatment at local hospitals, complaining of respiratory problems and other ailments.

Source: Jaxon Van Derbeken, San Francisco Chronicle staff writer

Surveillance Video from the August 6 Accident at the Chevron Refinery in Richmond, California.....

<http://www.csb.gov/videoroom/detail.aspx?VID=69>

To view photos showing a very large vapor cloud rising above the Chevron Richmond Refinery. In the first five photos the vapor cloud is whitish in color but after the cloud is ignited dark black smoke is visible.

The photos should be credited to Fototaker.net and were taken from Pier 39 in San Francisco located about nine miles across the bay from the Chevron Richmond Refinery...

http://www.csb.gov/gallery/default.aspx?SID=105&F_All=y

CSB Investigators examine accident site at Chevron Refinery.....

<http://www.csb.gov/videoroom/detail.aspx?VID=68>

Recommended Practices for the Installation and Testing of Vapour Recovery Systems at Service Stations

This document has been prepared, as an industry guideline, by the Petroleum Industry Contractors Association (PICA) and the NSW Government Department of Environment, Climate Change and Water (DECCW) with the support of the NSW Environmental Trust. It has been prepared with the assistance of PICA members, environmental regulators and information provided by similar organizations from the United Kingdom and the USA. The technical support provided by PICA members is gratefully acknowledged.

Goto: http://pica.net.au/images/downloads/pica_rp4_2010_v1s.pdf



Carbon Monoxide: Easily Preventable Silent Killer

You can't see, smell or taste it, but it can kill you. Carbon monoxide (CO) is one of several silent and deadly toxic gases that threaten Australian workers. It may not be fatal in small amounts, but it is nearly impossible to perceive the levels of CO in the air until your body runs out of oxygen. Carbon monoxide poisoning is the focus of a recent WorkSafe Victoria campaign targeting domestic generator use. The safety agency issued a statement on 5 September, following the state's second carbon monoxide-related death in the last month.

It is not only a domestic problem; CO toxicity is also an issue for employees in manufacturing, automotive repair, and other industries requiring workers to spend time around vehicles, furnaces or CO-emitting machines in enclosed spaces.

"If an appliance uses petrol or is attached to a portable gas bottle then the golden rule is that it should never be used indoors," according to WorkSafe Victoria's director of energy safety, Paul Fearon.

"Petrol engines and outdoor gas appliances, such as barbecues and patio heaters, produce carbon monoxide. These are safe if they are used in the open air but can become lethal when used in enclosed spaces," he added. The answer to preventing dangerous levels of CO from accumulating is incredibly simple: proper ventilation. Many types of smaller combustion engines, gas-powered machines and large industrial plants emit significant amounts of carbon monoxide, but normally the gas diffuses into the air, minimizing the health risk to the operator.

In smaller spaces, the level of CO can increase so rapidly that it becomes life-threatening in a matter of minutes. The most alarming part is that workers in dangerous areas have no way of knowing the seriousness of the health risk they face unless they have an active CO detector with them. Minor exposure to CO causes blurred vision and poor concentration, according to a Department of Sustainability, Environment, Water, Population and Communities fact sheet. Headaches and exhaustion are common symptoms of two to three hours of exposure to moderate CO levels of around 200 parts per million (ppm).

A concentration of 400ppm is considered to be a "very high level" of CO causes more profound symptoms similar to those at lower levels.

Concentrations of 1200ppm or more are immediately life-threatening.

"The best way to prevent carbon monoxide related deaths and illness in the workplace is to not allow the use of petrol, diesel or LPG powered appliances in confined spaces and enclosed or poorly ventilated areas," WorkSafe general manager for health and safety operations Lisa Sturzenegger said in the agency's recent statement.

"Workers need to be supervised and trained to use safe systems of work and they should be instructed on recognizing the symptoms of carbon monoxide poisoning," she said.

Source: Quentin Coleman, SafeToWork



Carbon Monoxide Fumes,
Image: SafeToWork

Cargo Hold Fire in W.A. Final Report

On 26 January 2012, a fire broke out in the number one cargo hold of the general cargo ship *BBC Baltic* while it was discharging cargo in Port Hedland. At the time, workers from Cervan Marine, a local engineering company, were gas cutting in the cargo hold using an oxy-acetylene torch. The ship's crew assisted by the local emergency services fought the fire and, by 1625, had extinguished it. There were no injuries as a result of the incident and damage to the ship and its cargo was not serious.

In carrying out the hot work on board *BBC Baltic*, neither the ship's crew nor the Cervan Marine workers properly considered and mitigated the risk of fire. All the precautions listed on the ship's hot work permit were not taken nor was the permit completed properly. Similarly, all the measures listed on Cervan Marine's job safety analysis were not taken. Furthermore, a tool box meeting was not held to discuss the work and risk, define roles and responsibilities, and the action to take in case of a fire.

As a result of inadequate risk assessments, there was no fire watch, none of the ship's crew was at the hot work site and Cervan Marine's workers did not have a clear understanding of the action to take in case of a fire. Consequently, action to fight the cargo hold fire with a fire extinguisher and other fire-fighting equipment was not taken immediately, resulting in a larger fire that took longer to contain. Source: Australian Transport Safety Bureau

Man Badly Injured in English Blast

An explosion at an industrial unit left a man seriously injured and caused the East Coast Main Line to shut. The 63-year-old casualty suffered burns to his arms and face. Durham and Darlington Fire and Rescue Service said the premises in Forge Way are used to convert cars to use liquid petroleum gas, and a tank may have exploded. Source: www.independent.co.uk

Federal Officials Turn up Pressure on BP

In the sharply worded memo filed early September in a New Orleans federal court, the government attacked BP's contention that it was not grossly negligent – a distinction that could make a big difference in the amount of civil penalties BP eventually pays. Part of the story that might be interesting to AIDGC Members were these two paragraphs: "The Justice Department's memo last week outlined how it would try to prove gross negligence by BP if the case comes to trial, criticizing management behaviour, the culture that preceded the accident and BP's subsequent internal investigation. "The Justice Department says the internal report lacks 'any semblance of investigation of the systemic management causes deeply implicating the corporate managers and leadership who caused and allowed the rig-based mechanical causes to fester and ultimately explode in a fireball of death, personal injury, economic catastrophe and environmental devastation.'

Read the article: http://www.chron.com/business/article/Federal-officials-turn-up-pressure-on-BP-3843168.php?utm_source=WhatCountsEmail&utm_medium=newsmail&utm_campaign=NewsMailDaily%20NewsLetter



The fire started at the single-storey building, which was used as a gas conversion centre for cars
Photo: bbc.news

Toxic Spill from Zinc Mine in Peru

PERUVIAN authorities say wastewater laced with heavy metals from a major zinc mine has spilled into a tributary of the Amazon, contaminating at least 10km of the waterway. Pasco regional mining environmental engineer Juan Escalante has told The Associated Press that an unknown quantity of toxic wastewater from the Atacocha mine escaped from sedimentation well last Wednesday into the Huallaga River. The mine is owned by the Brazilian company Votorantim.

Peru's national water authority granted Atacocha a permit in 2011 to remove metals including mercury, cadmium, lead, iron and manganese from the mine's wastewater and release the treated water into the Huallaga. Escalante said the area where the spill occurred is in the Andes mountains at about 4,000 metres. Peru is the world's number two producer of zinc. Source: The Australian



Image: Australian Mining

W.A. Mine Safety Boss Calls for Feedback on New Safety Regulations

The Department of Mines and Petroleum's resources safety boss has urged mining industry operators to review proposed new health and safety regulations for Western Australia. As is well known in safety circles, the Commonwealth, State and Territory Governments, unions and employer organizations have developed new national model Work Health and Safety Regulations and model codes of practice.

Simon Ridge, the Department of Mines and Petroleum's (DMP's) Resources Safety executive director said the WA Government was currently undertaking consultation on the model legislation.

The process is aimed at determining the costs and benefits of the proposed regulations and codes that would apply to general industry in WA. According to the DMP, financial consultants Marsden Jacob Associates will be collecting feedback until October 12.

Source: Angela Welsh, Australian Mining

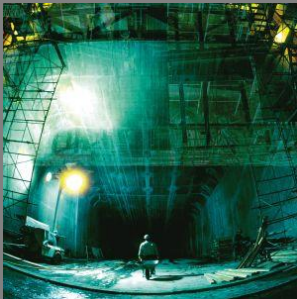


Photo: Australian Mining

Lightning Causes Venezuela Refinery Fire

Two naphtha storage tanks at Venezuela's El Palito refinery caught fire on September 19 after the facility was struck by lightning during a storm, according to Oil Minister Rafael Ramirez. There are no reports of casualties. "We've been able to extinguish the fire in one of the tanks, and we're working to put out the fire in the other tank," Ramirez told state television. The incident comes less than a month after an explosion killed more than 40 people at the country's Amuay refinery. The incident raised questions over whether the government is investing enough to properly maintain its refineries. In its annual report released in March, Petroleos de Venezuela SA (PdVSA) listed El Palito, which is located in Carabobo state in north central Venezuela, as one of its production facilities most prone to accidents. The company plans to double refining capacity at the facility over the next four years. Source: HazardEx



2012 AIDGC Conference

Once again we had over 100 participants in this annual event. Many AIDGC members attended as well as industry visitors and regulatory authorities.

Thanks to Philip Turner, Chair of the Conference Sub-Committee, who organized those very interesting speakers.

The Conference proceedings will be loaded onto the AIDGC website in the Members' Only section in the near future.

N.T. Toxic Rail Spill: Train Firm 'Failed to do Full Safety Checks'

The 20-carriage freight train 7AD1 derailed as it tried to cross the Edith River, 42km northwest of Katherine during the early hours of December 27, 2011. About 1200 tonnes of toxic copper concentrate spilled into the water from the carriages.

An Australian Transport Safety Bureau (ATSB) investigation found very intense rainfall in the 12 hours before the crash caused the Edith River to flood and wash away part of an earth bridge supporting the rail lines. Katherine and other NT towns were beset by flooding in the days after Christmas last year generated by tropical Cyclone Grant.

When the Katherine to Darwin train approached — initially at 74km/h — the earth embankment collapsed, causing all of the carriages to crash into the river.

The ATSB, which published its findings on September 20, said 7AD1's operator — South Australian-headquartered Genesee and Wyoming Australia (GWA) — had no systems in place to monitor water levels on the Edith River.

The company did monitor weather bulletins in the days leading up to the crash and contractors had checked track safety. But the ATSB said further checks should have been carried out on the day of the crash. "GWA did not recheck track or infrastructure integrity, including flood risk, prior to the dispatch of train 7AD1 from Katherine to Darwin on 27 December 2011," the bureau report said.

"GWA policies, procedures and training had little if any guidance for employees or contractors with respect to quantifying the duration, consequential dangers and responses to severe weather events." GWA had fully and satisfactorily overhauled its safety procedures since the accident, the ATSB said.

Source: AAP

Factory Blasts at Azerbaijan Kills 6

Two powerful explosions at a detergent factory in Azerbaijan's second-largest city of Sumgayit on Monday killed six people and left seven more injured, police told local media.

Firefighters and emergencies ministry helicopters were dispatched to the scene in an attempt to extinguish flames in the industrial Caspian Sea coast city. It was not immediately clear what caused the explosions. "So far it is impossible to say anything concrete.

Efforts to extinguish the fire are continuing," Sumgayit's local chief executive Eldar Azizov told journalists.

However, it is thought the explosions occurred as a result of welding work in one of the tanks.

Source:<http://www.nation.com.pk/pakistan-news-newspaper-daily-english-online/international/18-Sep-2012/blasts-at-azerbaijan-factory-kill-six>

ONR Publishes Transport of Radioactive Materials UK Incidents Report

Produced by the Health Protection Agency (HPA) and commissioned by the Office for Nuclear Regulation (ONR), the 2011 review into 'Radiological Consequences Resulting from Accidents and Incidents Involving the Transport of Radioactive Materials in the UK' is designed to help ONR to assess the radiological impact from incidents over the course of a year. The incidents contained in this report will feed into a radioactive materials transport event database, which helps ONR inspectors assess the impact over time.

This report includes descriptions of 38 accidents and incidents involving the transport of radioactive materials from, to, or within the United Kingdom, which occurred in 2011. This compared with 30 events in 2010, 33 in 2009, 39 in 2008, 26 in 2007 and 29 in 2006. Of the 38 events included in this review 11 involved irradiated nuclear fuel flasks (there were also 8 such events in 2010). Only one of the events reported, involving the transport of a radiopharmaceutical source, resulted in any potentially significant radiation dose.

The details of these events have been entered into the Radioactive Material Transport Event Database (RAMTED), which now contains information on 1018 events that are known to have occurred since 1958.

To download the report goto:

<http://www.hpa.org.uk/Publications/Radiation/CRCEScientificAndTechnicalReportSeries/HPACRCE037/>

Braithwaite Terminal U.S.A May Have Released More Than 191,000 Gallons of Chemicals During Hurricane Isaac

More than 191,000 gallons of toxic chemicals may have been released from the Stolthaven New Orleans petroleum and chemical storage and transfer terminal in Braithwaite during Hurricane Isaac, according to a company report filed Tuesday with the U.S. Coast Guard National Response Center. That's just one day after the Louisiana Department of Environmental Quality assured the public that monitoring at the facility detected no offsite contamination. Today, a DEQ spokesman said Stolthaven's report "lists the worst-case scenario for potential releases which includes tank contents that could not be accurately measured." "The actual amount released, the type of chemical and if it was released (air, water, etc.) has yet to be determined for the materials in this NRC update," said DEQ spokesman Rodney Mallett. "This investigation is still ongoing by DEQ and numerous state, federal and local officials." "DEQ and others continue to monitor the air and have taken surface water samples and are reviewing plans to conduct soil samples," he said. "The current goal of all the responding parties is to clean up the facility and ensure public safety. Pre and post-storm reconciliation of the materials that were on site will better determine the actual amount released."



Photos from The Times-Picayune: nola.com



Video as Stolthaven puts chemical tank cars back on rails

http://videos.nola.com/times-picayune/2012/09/stolthaven_rerails_chemical_tank_cars.html

and photos of rerailing chemical tank cars

http://photos.nola.com/4500/gallery/stolthaven_rerails_chemical_tank_cars_in_braithwaite/index.html

A flyover of the area by a Times-Picayune photographer this morning showed a significant quantity of liquid material adjacent to one of the tanks, with nearby workers dressed in clothing designed to protect them from hazardous chemicals. "We know there were releases early in the event," Mallet said. "That's one of the reason for the extensive air monitoring which currently shows no off site impacts. The earlier releases are also one reason why we are in the process of beginning sediment sampling."

The area around the terminal along Louisiana 39 in Plaquemines Parish remains blocked to residential traffic as a precautionary measure as workers move volatile chemical containers back into place. On Monday, DEQ emergency response manager Peter Ricca said any hazard remained on the facility's site. Company officials said then that the facility sustained severe flooding during Isaac, with parts of the plant under 7 feet of water. However, in the report, company officials said floodwaters were between 10 and 14 feet deep "which caused damages and leaks to some of the storage tanks." "The release occurred on 29 August 2012 with the discovery date of 11 September 2012," the form said. "The quantities for all of the materials involved are not expected to exceed the specified amount."

Officials with the Louisiana Bucket Brigade said the report raises questions about DEQ's public reassurances. "As of a few days ago, DEQ was offering assurances of safety to people, and this form exposes how lackadaisical they are about protecting us, and they should be fired," said Anne Rolfes, the group's executive director. "They were saying publicly that it was safe and nothing was released into the greater community, but it was clear from just driving through the neighbourhood that something was wrong. They need to be honest and not just give kneejerk reassurances." Rolfes said the report also shows that Stolthaven did not do enough to prepare for an expected flooding of its facility during the storm. "They'll say that Isaac was an act of God, but they're supposed to be prepared to withstand floodwaters," she said. DEQ and Stolthaven officials did not respond Thursday afternoon for comments on the report. Stolthaven officials reported the release of nine toxic chemicals into floodwaters:

- **Diethylethanolamine** 177,568 gallons. The chemical is used as a corrosion inhibitor and in the manufacture of agrichemicals and pharmaceuticals. It can cause eye and skin burns and can be harmful or fatal if swallowed, and is harmful if inhaled or absorbed through the skin, according to a material safety data sheet.
- **Lubricating oil** 9,474 gallons.
- **Styrene monomer** 1,036 gallons. The chemical is a key ingredient in plastics manufacturing; an eye and skin irritant, hazardous if ingested, according to a material safety data sheet.
- **Toluene** 973.1 gallons; an industrial feedstock and solvent, it is an eye and skin irritant and hazardous when ingested.

**Northern Territory
Court Fines
Montara
Owner for Wellhead
Blowout**



Three years ago, a 74-day hydrocarbon leak in the Timor Sea sparked a year-long investigation that resulted in litigation against the Petroleum Authority of Thailand Exploration and Production Company (PTTEP). The case came to an end last week, when the company was fined \$510,000 by the Northern Territory Magistrate's Court for three OHS violations and one other infraction.

For full story go to source:
Quentin Coleman,
SafeToWork

- **Xylene** 973.1 gallons; a solvent and feedstock used in manufacturing other chemicals, harmful when inhaled or comes in contact with skin, and hazardous if ingested.
- **Ethylene glycol** 822 gallons; best known as an ingredient in antifreeze, hazardous when ingested and slightly hazardous in case of skin or eye contact.
- **Ethylbenzene** 291.8 gallons; used in the manufacture of styrene and other chemicals; hazardous to eyes, when ingested or inhaled.
- **Napthalene** 97.3 gallons; best known as the ingredient of mothballs, is very hazardous if ingested, an eye irritant and hazardous if inhaled.
- **Tetraethyl lead** 5.1 gallons; a banned gasoline additive in this country, harmful in contact with skin or eyes, can cause lung damage, and long-term exposure to lead can cause health problems in children.

Thanks to Don Johnston, Dangerous Goods-Hazmat Group for this material.

Imperial Sugar CEO Latest to Call for OSHA Combustible Dust Standard

Imperial Sugar CEO John C. Sheptor is the latest in a long line of prominent figures to call for the US Occupational Safety and Health Administration (OSHA) to speed up its plans to introduce a definitive combustible dust standard for US industry.

In a keynote speech at the AIHce 2012 conference in Indianapolis, Sheptor explained how the company recovered from the devastating February 2008 explosion at its Port Wentworth, Georgia, sugar refinery. Fourteen people died after more than 30 explosions ripped through the refinery, and dozens of employees were injured. Sheptor was in the plant at the time and survived only because he was protected by a fire wall, he said. Sheptor said experts believe a failed bearing overheated and touched off the explosions in the plant. Today, any accumulation of a 1/32 inch layer or more of sugar dust triggers a shutdown of the production line and will be investigated by a committee, he said. It had taken time to transform the culture so employees would take action themselves when such conditions were found, he added, but that has now been accomplished.

Earlier this year the Chemical Safety Board (CSB), following its review of the fatal metal dust explosions at the Hoeganaes plant in Tennessee, called for OSHA to develop and publish a proposed combustible dust standard within one year.

Since 1980, more than 450 accidents involving dust have killed nearly 130 workers and injured another 800-plus, according to Center for Public Integrity analysis of data compiled by OSHA and the CSB, and this is likely to be significantly understated given inconsistent reporting requirements.

To read all of the speech, goto:

<http://www.hazardexonthenet.net/article/53107/Imperial-Sugar-CEO-latest-to-call-for-OSHA-combustible-dust-standard.aspx?AreaID=2>

The Author of this article, Mike Weaver is a Consultant Engineer and business development executive at Chilworth Global specialising in the field of process safety testing and CAD, ATEX and DSEAR compliance. After joining Chilworth Technology in 1991, he managed Chilworth's Industrial Explosion Hazards (IEH) laboratory for seven years and was a major force in its expansion. He was also responsible for establishing the Physico-chemical laboratory and is a qualified Study Director under the Chilworth GLP scheme. Mike's specialities include dust, gas and vapour explosions and electrostatic hazards, especially in the field of data interpretation, and is also the main contact for regulatory compliance in the field of NONS, GHS, PPORD, REACH and transportation issues.

Dust Explosions in the Food Industry

Nearly all foodstuffs and ingredients including grain, sugar, artificial sweeteners, starch, and flavours will burn with difficulty as a powder layer, but they can explode violently when ignited in the form of a dust cloud. Here Mike Weaver, Principal Specialist at Chilworth Global, looks at the extent and nature of the problem within the industry, the basis of safety, and protection and prevention measures.

Dust explosions: the nature of the problem

There are many factors that affect the explosion violence or the sensitivity to ignition of a dust cloud such as particle size, cloud density or moisture content.

The dust cloud density is quite important and it would need to resemble a dense fog before ignition could occur. Although such concentrations are not normally expected to be present within processing buildings, explosible dust clouds are regularly formed inside the material handling/processing equipment, i.e. silos, bin filling/emptying, pneumatic conveying or dust collectors.

The particle size of the dust is another important property which influences the explosibility of the dust cloud. Even pellets can include powder as well as granules and dust particles. The finer the particles, the greater the surface area per unit mass and thus the more explosible a given dust is likely to be. When the cloud is composed of a series of particle sizes, ranging from fine to coarse, the fines play a prominent part in the ignition and the explosion propagation. As dust settles, larger particles drop out of suspension, leaving the finest particles to form the dust cloud. The presence of dusts should be acknowledged in a process stream, regardless of the starting particle size of the material. For example, friable materials (granular sugar) will create very fine dust in transfer operations by means of attrition.

Moisture content will also affect the explosion risk. A dry dust contains less than 10% moisture and the dryer it becomes the effect on ignition sensitivity and explosion violence will increase. Dry dusts, of small particle size will be more easily ignited and produce more violent explosions. However, it must be noted that moisture contents in the range of 12 – 18%, as found naturally in many agricultural products, are not enough to render the dust non-flammable. Care must be taken concerning material that has been present in process equipment for a long period of time, due to poor cleaning programs, and which has now dried out.

Please also be aware that with the introduction of chemicals such as artificial sweeteners, and vitamins into the food industry in recent years, the explosion properties of products may now be totally different, with potential for increased sensitivity to ignition and greater explosion violence. One of the most catastrophic dust explosions in recent years occurred at a sugar refinery in the USA, in 2008, resulting in 14 fatalities, multiple injuries and major facility destruction. Dust explosions in the food industry are nothing new, and the oldest recorded dust explosion occurred in Mr. Giacomelli's Bakery in Turin on December 14, 1785.

As facilities increased in size, equipment became more mechanized and sophisticated, the consequence of incidents also increased, such as the grain elevator explosion in April 1981 that killed 9, injured 30 and caused US\$30 million damage. And as the aforementioned sugar refinery explosion shows, devastating dust explosions continue to occur.

Conditions Required for Dust Explosions to Occur

A number of conditions must exist simultaneously for a dust explosion to occur:

- * The dust must be combustible (combustible, flammable, and explosible all have the same meaning);
 - * The dust must be dispersed (forming a dust cloud in air);
 - * The dust concentration must be within the explosible range (above the Minimum Explosive Concentration, MEC);
 - * The dust must have a particle size distribution capable of propagating flame;
 - * The atmosphere in which the dust cloud is present must be capable of supporting combustion;
 - * Any ignition source must have sufficient energy to initiate combustion.
- Most commonly identified ignition sources in dust handling/processing plants include welding, mechanical sparks, hot bearings, hot surfaces, open flames, burning embers, self-heating, electrostatic discharges, and electrical sparks.

In order to determine the sensitivity of a dust cloud to ignition, appropriate laboratory tests should be performed.

Assessment of dust explosion hazards in your facility

A systematic approach to dust cloud explosion hazards involves:

- * Identifying areas where combustible dust clouds could occur under normal and abnormal conditions;
- * Preventing the formation of explosible dust clouds
- * Determination of ignition sensitivity and explosion severity characteristics through appropriate laboratory tests on representative dust samples;
- * Identifying potential ignition sources that could exist under normal and abnormal conditions; * Taking measures to eliminate/control ignition sources; and
- * Taking measures to protect against the consequences of dust cloud explosions.

Laboratory Testing to Assess Explosion Characteristics of Dust Clouds

In order to assess the potential for an explosion and to select the most appropriate Basis of Safety for any operation, the explosion characteristics of the dust(s), handled in the processes, should be determined.

The explosion characteristics normally fall within one of two groups, “likelihood of an explosion (Ignition Sensitivity)” and “consequences of an explosion (Explosion Violence)”. Taken together these two groups define the dust explosion risk of a material.

Laboratory Testing to Determine “Ignition Sensitivity”





Group A/B Classification Test

This test determines whether a dust cloud will explode when exposed to a sufficiently energetic ignition source. The test results in classification of either Group B (non-flammable), whereby no more has to be done from the respect of explosions or Group A (flammable) whereby further work has to be performed. These powders would make the processes fall under the ATEX1 or DSEAR2 regulations. This test answers the question “Can this dust explode?”

Minimum Ignition Energy - MIE (EN 13821:2002)

The MIE test determines the lowest electric energy that is capable of igniting a dust cloud at its optimum ignitable concentration. The test is used primarily to assess the susceptibility of dust clouds to ignition by electrostatic discharges (sparks).

Table 1: Explosion Characteristics of Some Dusts in the Food Industry (Ref. various sources)

Product	Explosible?	P_{max} (bar)	K_{st} (bar.m/s)	MIE (mJ)	MIT- Cloud (°C)	MEC (g/m ³)
Corn	Yes	6.5	112	45 – 100	390 – 400	73
Wheat	Yes	7.4	87	50 – 100	370 – 380	67
Oats	Yes	7.2	43	>500	420 – 430	30
Barley	Yes	6.3	100	50 – 100	360 – 370	73
Soybeans	Yes	9.2	110	50 – 100	600 – 620	80
Starch (rice)	Yes	10.0	220	>30	460 – 470	60
Starch (wheat)	Yes	9.1	156	10 – 30	470 – 480	30
Sugar	Yes	9.0	138	<10	470 – 480	30

Minimum Ignition Temperature of a Dust Cloud – MIT (EN 50281-2-1, 1999)

This test determines the lowest temperature capable of igniting a dust dispersed in the form of a cloud. The MIT is an important factor in evaluating the ignition sensitivity of dusts to such ignition sources as heated environments, hot surfaces (electric motors), and friction sparks.

Layer Ignition Temperature – LIT (EN 50281-2-2)

This test determines the lowest temperature capable of igniting a dust layer of standard thickness (5 mm). The LIT is used in evaluating the ignition sensitivity of powders to ignition by hot surfaces (electric motors).

Self-Heating (JA Abbott (ed.) “Prevention of Fires and Explosions in Dryers”, Institute of Chemical Engineers, 1990)

Ignition of bulk powders can occur by a process of self-heating when the temperature of the powder is raised to a level at which the heat liberated by the exothermic oxidation or decomposition reaction is sufficient to exceed the heat losses and to produce a “runaway” increase in temperature.

The minimum onset temperature for self-ignition of a powder depends mainly on the nature of the powder, its volume and vessel dimensions. If these variables are predictable, a reliable assessment of the onset temperature for self-ignition and also the induction time to self-ignition can be made by appropriate small-scale laboratory tests:

- * **Bulk Powder Test:** Simulates bulk powder in IBCs, bags, bottom of dryers, hoppers
- * **Aerated Powder Test:** Simulates fluid bed drying
- * **Powder Layer Test:** Simulates powder deposits on dryer walls/surfaces and tray drying
- * **Basket Test:** Simulates large-scale storage or transport conditions

Minimum Explosive Concentration - MEC (EN 14034-3)

MEC test determines the lowest concentration of a dust cloud in air that can give rise to flame propagation upon ignition. This test answers the question “What is the minimum concentration of a dust cloud to sustain combustion”.

Limiting Oxygen Concentration - LOC (EN 14034-4)

LOC test determines the minimum concentration of oxygen (displaced by an inert gas such as nitrogen or carbon dioxide) capable of supporting combustion. An atmosphere having an oxygen concentration below the LOC is not capable of supporting a dust cloud explosion.

Laboratory Tests to Determine the “Explosion Violence”

Maximum Explosion Pressure (Pmax), Maximum Rate of Pressure Rise, Dust Constant (Kst Value) (EN 14034 (part 1 : 2004 and part 2 : 2006))

Table 2: Dust Explosion Test Data Requirements for some Specific Unit Operations

Unit Operation	Explosion Screening ¹	ME (mJ)	MIT (°C)	LIT (°C)	Explosion Severity – Kst (bar.m/s)	LOC ² (%)	MEC (g/m ³)	Self-Heating (°C)
Manual Handling / Pouring	X	X						
Sieving / Screening	X	X						
Tumble / Double Cone Blending	X	X	X	X		X		
Ribbon Blending	X	X	X	X				
Milling	X	X	X	X	X	X		X
Jet Milling	X	X			X	X		
Spray, Fluid Bed Drying, Tumble Drying	X	X	X	X	X			X
Tray Drying	X	X						X
Pneumatic Conveying	X	X	X	X			X	
Screw Conveying	X	X	X	X				
Transfer to Hopper / Bin / Tote / Container	X	X	X	X	X			
Dust Collector and Exhaust Ventilation	X	X	X	X	X		X	

The Maximum Explosion Pressure and Maximum Rate of Pressure Rise values are determined by using a 1m³ or more commonly a 20-Litre Sphere test apparatus.

The maximum explosion pressure and maximum rate of pressure rise are measured and the latter is used to calculate the Dust Constant (Kst) value of the dust cloud. These data can be used for the purpose of designing dust explosion protection measures such as explosion relief venting, suppression, and containment.

Table 2 Notes:

1. Explosibility Screening test is only conducted if the combustibility of the powder/dust is not yet established. If the powder is found to be non-combustible, other tests in the table may not be required.

2. LOC is determined if the Basis of Safety is inert gas blanketing.

The basis of safety for dust cloud explosion hazards

Safety from dust cloud explosions includes taking measures to avoid an explosion (explosion prevention) or designing facilities and equipment so that in the event of an explosion people and processes are protected (explosion protection). The selection of explosion prevention and/or protection measures is based on:

- * Define where flammable atmospheres occur**
- * The available flammability data**
- * The nature of the processes and operations**
- * The level of personnel knowledge regarding the consequences of a dust explosion and adherence to the preventive measures (employee training)**
- * Environmental effects of a dust explosion**
- * Business interruption resulting from a dust explosion**

Explosion Prevention and Protection Measures

The risk of an explosion is minimized when one of the following measures is ensured:

- * An explosible dust cloud is never allowed to form**
- * The atmosphere is sufficiently depleted of oxidant that it cannot support combustion**
- * All ignition sources capable of igniting the dust cloud are removed, or**
- * People and facilities are protected against the consequences of an explosion by suitable "protection measures".**

Secondary Explosions and Good Housekeeping

A well-designed plant is no guarantee of safety, if those who operate it do not understand the hazards involved, and the precautions designed to control them.

A majority of the most serious dust explosions over the years have not been caused by the primary explosion inside the plant, but from a secondary explosion within the building. A small initial event causes pressure and shock waves to propagate into the workplace, and dust deposits around the workroom are shaken into a cloud, which subsequently ignites. When this happens in a series of connected rooms, the result can be fatalities and horrific building collapse.

Secondary dust explosions are especially common in industries where traditionally little concern exists for the presence of dust outside the process equipment due to the material not being toxic and to not being particularly expensive. Unfortunately, the food industry falls squarely into this category.

Housekeeping activities must strive to minimize the presence of dust outside equipment. Of key importance is evaluation of dust release points and exhaust ventilation needs. It is much easier to replace a gasket, refit a manway, or install local dust extract systems, etc., than to spend time cleaning up the dust that has escaped. Other common practices are

and now for a bit of light relief.....

Science class is bound to be more fun if it involves 1500 ping pong balls and a can of liquid nitrogen.

Dr Lowry gathered his class inside a hall to show them the power of liquid nitrogen when returning to its gaseous state.

Firstly, a bucket of warm water was poured into a garbage bin. Then, liquid nitrogen was transferred from its special thermos into a plastic water bottle, which is safe until the lid of the bottle is screwed on.

If the nitrogen becomes trapped inside the bottle, the pressure will build and cause the bottle to explode, which is exactly what Dr Lowry wanted to show his class.

He screwed the lid of the bottle on tight and quickly placed it into the bin containing the warm water to ensure the liquid nitrogen would quickly convert into a gas.

Around 1500 ping pong balls were poured on top and the class eagerly awaited the coming explosion, and it didn't disappoint.

To see what happened goto:

<http://news.ninemsn.com.au/technology/8536981/explosion-experiment-impreses-science-class>

Source: Plymouth University
Author: Ali Best.

venting, inside a building. The flame and pressure waves from such a release can cause unimaginable damage to people and plant let alone the increased risk of a secondary explosion occurring.

Safeguard Reliability

In the EU, legislation is now in place to reduce the likelihood of dust explosions occurring. The ATEX1 directives and DSEAR2, in the UK, are designed to show awareness of dust explosion hazards and to minimize the potential risk to employees. All safeguards intended to prevent dust explosions must be recognized, understood and maintained by operating forces. Operators should be aware that signs of overheating, excessive vibration, or noise indicating mechanical malfunction or misalignment need prompt attention before a small smouldering clump of dust leads to a serious explosion. Likewise protective safeguards such as explosion relief vents must be appropriately designed and maintained with clear, safe passages of discharge. Maintenance programmes for equipment should be in place and a routine inspection and testing programme should be created for safety critical explosion protections.

References:

1 - ATEX, EU Directive 1999/92/EC

2 - DSEAR, Dangerous Substances and Explosive Atmospheres Regulations

Source: SAFETENG

GARBAGE IN, ENERGY OUT A plasma arc gasification system at the Hurlburt Field Air Force base in Florida processes 10 tons of garbage a day, making enough energy to sustain the system.



Plasma Gasification: Waste Technology

David Robau tours the country promoting a system that sounds too good to be true; it devours municipal garbage, recycles metals, blasts toxic contaminants and produces electricity and usable byproducts — all with drastic reductions in emissions.

Mr. Robau, an environmental scientist for the Air Force, has been promoting a method that was developed with the Air Force to dispose of garbage with neither the harmful byproducts of conventional incineration nor the environmental impact of transporting and burying waste. It is one of several innovative techniques that the United States military has been researching to provide alternatives to the open-pit burns that some veterans of the Iraq and Afghanistan wars say have made them ill.

Proponents say the process can break chemical bonds and destroy medical waste, PCBs (polychlorinated biphenyls), asbestos and hydrocarbons, some of which can be hazardous if disposed of in landfills or traditional mass-burn incinerators. Still, some environmentalists are leery. They say the ability to fully dispose of waste will discourage recycling and the

I am grateful for any contributions – this month my thanks to Don Johnston.

Please email me 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

development of renewable products, and the gasification will still result in toxic substances like dioxins.

The system has been hard at work in a 6,400-square-foot building at Hurlburt Field Air Force base in Florida's panhandle. A mechanical shredder cuts household garbage into pieces no bigger than two inches. An airtight auger feeds the waste into an oxygen-poor gasification chamber, where temperatures reach more than 9,000 degrees.

In an instant, wood disintegrates, plastics turn to gas. Bits of metal and glass fall into a molten pool.

From two graphite electrodes, an arc of electricity leaps about a foot to the molten slag, producing a cloud of ionized particles known as plasma, which heats the chamber. Most heavier metals settle to the bottom of the pool, below a layer of liquid silica and other oxides. The metals are removed, cooled and used for steel or other products. "Effectively, 100 percent of all the metals on the base are being recycled," Mr. Robau said. The liquid oxides are removed and form a glassy solid when cooled. The slag traps contaminants like errant lead molecules and other heavy metals in a vitreous matrix that takes up 1 percent of the volume of the original waste, Mr. Robau said, a tenth of the volume left over after traditional incineration.

In the chamber, organic gases break down into hydrogen and carbon monoxide — the components of a fuel called synthesis gas, or syngas — which exits the furnace. The gas passes through a plasma torch polisher, which breaks down remaining complex molecules and soot.

Injected water cools the syngas to less than 200 degrees. The extreme temperature of the plasma followed by quick cooling inhibits the formation of dioxins and furans (another organic compound), according to Mr. Robau and other industry experts.

The lack of dioxin creation would be a benefit over traditional incinerators and other types of gasifiers, in which lower temperatures and incomplete burning result in toxic compounds.

Emissions rules forced a 99 percent cut in dioxin and furan emissions and a 96 percent reduction in mercury from traditional incinerators between 1990 and 2005, according to the Environmental Protection Agency.

However, companies have to dispose of the toxic ash filtered from mass-burn facilities.

After water quenches the gas in the Hurlburt system, stripping processes produce sodium bisulfate and hydrochloric acid, which can be sold, Mr. Robau said. The gas passes through three types of filters to catch remaining impurities. The resulting syngas is as clean or cleaner than natural gas, and the system produces less than half the nitrogen oxides and 5 percent of the sulfur oxides and mercury of a traditional incinerator, Mr. Robau said. The Air Force uses the syngas to produce enough electricity to power the system.

Source: New York Times, Science Section, Randy Leonard