



## **WHAT'S HAPPENING?**

**May 2010**

**Welcome to our  
New Member  
Ross Murphy  
Tasmania**



**Section of gas extraction plant  
infrastructure at present operating at  
AGLs Rosalind Park site**

### **Gas Plant**

**THE controversial gas plant proposed for the Scenic Hills near Campbelltown, NSW, would be a smaller version of AGL's existing plant near Menangle Park in outer Sydney. The smell of gas lingered, but the smell did not appear to stretch as far as the nearby Anglican school. AGL also insisted that the access point to the Varroville site would be through Camden Valley Way and not through Campbelltown.**

**Project manager Adam Lollback said more gas wells would need to be built closer to the proposed Varroville site. "We can't expand the existing Rosalind Park site because the new gas wells won't have enough pressure to make it to that site," Mr. Lollback said. "We are having confidential discussions with property owners about the gas wells."**

**An Environmental Assessment report is expected to give the 12 locations of a further 80 gas wells that would be built on Campbelltown's western hills.**

**The gas wells would look like medium-sized green electricity stations surrounded by fencing. Pipes run about 400 metres underground from the gas wells and connect to the main plant.**

**Local MPs spoke about the gas plant in parliament last week.**

**The state government has the power to approve the application without consulting a hostile Campbelltown Council.**

**Residents fear that the gas plant could make way for other developments as well as risk health and the environment.**

**Source: SORAIYA GHARAHKHANI - Advertiser**

**WorkCover TestSafe  
Facilities**

**Londonderry NSW**

**June 3 at 1.30PM**

**Contact:**

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

**for Registration**

**DIARY DATES  
FOR 2010**

**AIDGC Annual  
Conference  
Sydney  
September 17**

**Advance Notice**

**A Flyer will be sent to  
you shortly!**

**Hazardous Area  
Workshop**

**Bring Your Calculator!**

**June 24**

**Ryde Eastwood  
Leagues Club  
Sydney**

**TestSafe – Site Visit**

**Register Now for June 3!**

TestSafe Australia comprises two facilities in North-Western Sydney. Both are internationally recognized for testing, research and certification and are dedicated to the improvement of workplace safety, particularly in hazardous locations. TestSafe has established mutual arrangements with a network of similar testing facilities in the United States, Great Britain, Japan, Germany, France, South Africa, China, Finland and Italy.

TestSafe's laboratories are accredited by NATA (National Association of Testing Authorities, Australia) for their testing activities. Its quality management system is certified by NCSI (National Certification Services International) and it is also accredited by JAS-ANZ (Joint Accreditation System, Australia and New Zealand) for its product certification program in respect of the national Ex certification system for explosion-protected electrical equipment.

It is also one of the benchmark facilities within the IECEx (International Electrotechnical Commission's Explosion (Ex) Scheme as an Ex Certification and Testing Laboratory.)

It has an international reputation for consistently providing high quality testing and certification of equipment to both Australian and international standards. During its 40 years of existence it has contributed significantly to achieving safer, secure workplaces.

**Safety Research**

TestSafe Australia has a reputation for excellence in occupational health and safety research, particularly in the area of fire safety and causes of explosion, using its highly skilled and experienced staff and state-of-the-art test facilities.

We have published numerous research reports and successfully completed research projects in collaboration with government, universities and industry, offering the benefit of our specialist expertise, full-scale fire test capabilities, and other facilities.

**Buncefield Evidence**

Photos and videos are emerging from this enquiry:

<http://www.hse.gov.uk/news/buncefield/evidence/evidence-g26b.htm>

<http://www.hse.gov.uk/news/buncefield/evidence/evidence-g15.htm>

## **Parramatta River Spill Costs Boral**

The Land and Environment Court has fined a Camellia based company \$58,500 for allowing more than 6000L of chemical to pollute the Parramatta River.

According to the Department of Environment and Climate Change (DECC), Boral Australian Gypsum pleaded guilty to allowing 6,400L of the industrial chemical Gardisperse 820L to leak from a tank at its plant via an unnamed watercourse into the Parramatta River in August 2007. The company was also ordered to pay the DECC \$23,000 in costs.

Justice Nicola Pain says the spill happened when an electronic sensor failed and Gardisperse overtopped the containment measures into the river.

"The harm caused in this matter is reasonably serious although of short rather than longer duration," Pain said.

"There were practical measures that could have been taken to mitigate the harm caused by preventing the incident giving rise to the harm as identified by the Prosecutor."

The DECC says businesses need to have adequate backup systems and effective measures to prevent spills getting off site. It claims plant improvements, put in place by Boral Australian Gypsum since the offence at a cost of only \$10,000, shows upgrading systems need not be expensive.

Source: Reed Business Information

## **AIDGC Queensland Chapter – Frank Mendham**

Three AIDGC presentations are planned for Queensland in 2010, however dates have not been set at this stage.

These include a site visit to SIMTARS and a 'Hands On' workshop on carrying out hazardous area classification calculations to AS/NZS 60079.10.1. This will most likely occur in August.

Discussions between AIDGC Queensland Chapter and DEIR are underway in relation to Queensland legislation changes that are likely to occur later in 2010, so an Information Session is planned to allow DEIR to inform dangerous goods Consultants of these changes.

Frank asks any AIDGC members or associates who would be interested in participating in the new Queensland AIDGC Chapter to please contact him on either 07 3553 3537 or [frank.mendham@aecom.com](mailto:frank.mendham@aecom.com).

## **Bleach Explosion Kills – Not Really!**

AIDGC Member Bill Ross says that the article on the hairdresser explosion and hydrogen peroxide was quite misleading and offers us his professional knowledge: “I find it difficult to believe that lighting a cigarette in a car in which hydrogen peroxide had leaked caused an explosion – there must have been some flammable material present.

For information I offer the following:

Hydrogen peroxide is a clear colourless liquid (not pale blue), it will not catch fire (is not flammable) but provides oxygen to support the ignition of combustible or flammable materials and can cause materials already on fire to burn more fiercely. Hydrogen peroxide is typically unstable and therefore stabilizers are added to reduce the rate of decomposition to <1% strength per year. Hydrogen peroxide is particularly susceptible to catalytic decomposition by incompatible materials and can form explosive mixtures with organic materials. If hydrogen peroxide is spilled, it will typically decompose due to the presence of contaminants that will destabilize it. When hydrogen peroxide decomposes it breaks down into oxygen gas and water (steam) and generates heat in the process. The oxygen may cause oxygen enrichment in a confined space (e.g. a car), but there needs to be a combustible or flammable material present to cause an explosion. If confined, hydrogen peroxide may cause a pressure burst or rupture of the container if there is insufficient venting.”

Thank you Bill, expert opinions are always valuable and most welcome.

## **Trafigura Faces £105M Legal Bill Over Dumping of Toxic Waste**

One of the world's biggest oil-trading companies is facing a record legal bill of more than £100m over the dumping of toxic waste along the Ivory Coast. The figure was disclosed in court yesterday after British lawyers won a multimillion-pound settlement for the Ivory Coast claimants, who fell ill after toxic waste was deposited near the country's commercial capital in 2006.

Mr. Justice MacDuff, the judge who formally approved the



If you would like to make a contribution, have an interesting story, case study or report, please send to:

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This month my thanks go to Don Johnston, Bill Ross and Peter Hunt for their contributions.

**confidential settlement last year, was told that the £105m legal bill was more than twice the previous record and three times the amount to be paid to the claimants in compensation. Martyn Day, a senior partner of Leigh Day & Co, the London law firm incurring the costs, said it had fought a "long and tough" battle with Trafigura which had required investigations in a war torn country. Mr. Day told The Independent: "This was the largest injury case in British legal history, fought against tough opponent's right to the doors of the High Court." He said 16,000 of the claimants had already received their share of the £30m compensation and the remaining 13,000 would be paid by 23 May. He added that £10m of the legal bill was after-the-event insurance, £10m went on travel expenses and expert reports, £45m on paying solicitors and barristers and another £45m on the "success fee" – which allows lawyers to increase their fees on the basis of the risk of the litigation. Trafigura's QC, Sean Wilken, told the High Court that Trafigura's own costs stood at £14m while describing Leigh Day's bill as "staggeringly high". The claims were launched against Trafigura after an incident in August 2006 in which "slops" were deposited near Abidjan, the African country's commercial capital, from the Probo Koala, a ship hired by Trafigura. Thousands of people claimed they had fallen ill as a result. The oil trading firm said it regretted the incident but did not accept legal liability as the dumping was carried out by a ship contractor which acted independently of, and without any authority from, Trafigura. When the case was settled, a joint statement was issued which said that more than 20 independent experts in shipping, chemistry, modeling, toxicology, tropical medicine, veterinary science and psychiatry had been "unable to identify a link between exposure to the chemicals released from the slops and deaths, miscarriages, still births, birth defects, loss of visual acuity or other serious and chronic injuries. "Leigh Day & Co, in the light of the expert evidence, now acknowledge that the slops could at worst have caused a range of short-term low-level flu-like symptoms and anxiety." It concluded: "It remains Trafigura's position that it did not foresee, and could not have foreseen, the reprehensible acts of Compagnie Tommy in dumping the slops in and around Abidjan in August and September 2006, and that Compagnie Tommy acted entirely independently of, and**

without any authority from, Trafigura."Nevertheless, Trafigura regrets that this incident occurred and is pleased that the matter has now been resolved."

<http://www.independent.co.uk/news/uk/home-news/trafigura-faces-163105m-legal-bill-over-dumping-of-toxic-waste-1970544.html>

Reporter: Robert Verkaik

## **WorkSafe Victoria to Close OHS Consultant Directory**

Peter Hunt, Chair of the AIDGC Board, is in talks with WORKSAFE Victoria to include AIDGC Members in the new online Directory.

## **Deepwater Horizon – He Was There**

*On Friday, April 30th 2010, an anonymous caller contacted the Mark Levin Show to clarify the events that preceded the Deepwater Horizon tragedy. Rigzone has transcribed this broadcast for your convenience. To hear the actual radio broadcast please visit [www.MarkLevinShow.com](http://www.MarkLevinShow.com).*

*Mark: Dallas Texas WBAP. Go right ahead, sir.*

*James: Just want to clear up a few things with the Petroleum Engineer, everything he said was correct. I was actually on the rig when it exploded and was at work.*

*Mark: Alright, let's slow down. Wait, hold on, slow down, so you were working on this rig when it exploded?*

*James: Yes sir.*

*Mark: OK, go ahead.*

*James: We had set the bottom cement plug for the inner casing string, which was the production liner for the well, and had set what's called a seal assembly on the top of the well. At that point, the BOP stack that he was talking about, the blow out preventer was tested. I don't know the results of that test; however, it must have passed because at that point they elected to displace the risers – the marine riser from the vessel to the sea floor. They displaced the mud out of the riser preparing to unlatch from the well two days later and they displaced it with sea water. When they concluded the BOP stack test and the inner liner, they concluded everything was good.*

*Mark: Let me slow you down, let me slow you down. So they do all these tests to make sure the infrastructure can handle what's about to happen, right?*

*James: Correct, we're testing the negative pressure and positive pressure of the well, the casing and the actual marine riser.*

*Mark: OK, I'm with you. Go ahead.*

## **Chronology of a Disaster**

<http://photo.newsweek.com/2010/5/oil-spill-timeline.html>

Source: Newsweek



## Corporate Members

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

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**James: Alright, after the conclusion of the test, they simply opened the BOP stack back up.**

**Mark: And the test, as best as you know, was sufficient?**

**James: It should have been, yes sir. They would have never opened it back up.**

**Mark: OK next step, go ahead.**

**James: Next step, they opened the annular, the upper part of the BOP stack**

**Mark: Which has what purpose? Why do you do that?**

**James: So that you can gain access back to the wellbore.**

**Mark: OK**

**James: When you close the stack, it's basically a humongous hydraulic valve that closes off everything from below and above. It's like a gate valve on the sea floor.**

**Mark: OK**

**James: That's a very simplistic way of explaining a BOP. It's a very complicated piece of equipment.**

**Mark: Basically, it's like a plug. But go ahead.**

**James: Correct. Once they open that plug to go ahead and start cementing the top of the well (the well bore), we cement the top, and then basically we would pull off. Another rig would slide over and do the rest of the completions work. When they opened the well is when the gas well kicked, and we took a humongous gas bubble kick up through the well bore. It literally pushed the sea water all the way to the crown of the rig, which is about 240 feet in the air.**

**Mark: OK, so gas got into it and blew the top off of it.**

**James: Right.**

**Mark: Now don't hang up. I want to continue with you because I want to ask you some questions related to this, OK? Including, has this sort of thing ever happened before, and why you think it may have happened, OK?**

**Mark: Alright, back to James, that's not his real name, Dallas WBAP. I'm not going to give the working title of what you did there either, James, but I wanted to finish. So, the gentleman was right about the point that obviously some gas got into the, I'll call it the funnel, OK?**

**James: Correct, and that's not uncommon, Mark. Anytime you're drilling an oil well, there is a constant battle between the mud weight, the drilling fluid that we use to maintain pressure, and the wellbore itself. There's a balance. The well is pushing gas one way and you are pushing mud the other way. So there is a delicate balance that has to be maintained at all times to keep the gas from coming back in, what we call the kicks. You know, we always get gas back in the mud, but the goal of the whole situation is to try to control the kick. Not allow the pressure to differentiate between the vessel and the wellbore.**

**Mark: Well, in this case, obviously, too much gas got in.**

**James: Correct, and this well had a bad history of producing lots**

*of gas. It was touch and go a few times and was not terribly uncommon. You're almost always going to get gas back from a well. We have systems to deal with the gas, however.*

*Mark: So, what may have happened here?*

*James: Well, the sheer volume and pressure of gas that hit all at once which was more than the safeties and controls we had in place could handle.*

*Mark: And that's like a mistake on somebody's part or maybe it's just Mother Nature every now and then kicks up, or what?*

*James: Mother Nature every now and then kicks up. The pressures that we're dealing with out there, drilling deeper, deeper water, deeper overall volume of the whole vessel itself, you're dealing with 30 to 40 thousand pounds per square inch range -- serious pressures.*

*Mark: Not to offend you, but we just verified that you are who you are, which I'm sure you already knew that. I would like to hold you over to the next hour because I would like to ask a few more questions about this, as well as what happened exactly after the explosion, during the explosion and after. Can you wait with us?*

*James: Sure, I don't know how much of that I can share, but I'll do my best.*

*Mark: Alright, well I don't want to get you in trouble. So if you can stay, fine, but if you can't, we understand.*

*Part 2 of Mark's Interview:*

*Mark: We are talking to a caller under an assumed name who was on the rig when it blew up, and we've been talking about how it happened. And now James, I want to take you to the point of when it happened. What exactly happened? Where were you standing?*

*James: Well obviously, the gas blew the sea water out of the riser, once it displaced all of the sea water, the gas began to spill out on the deck and up through the center of the rig floor. The rig, you have to imagine a rectangle, about 400 feet by 300 feet, with the derrick and the rig floor sitting directly in the center. As this gas is now heavier than air, it starts to settle in different places. From that point, something ignited the gas, which would have caused the first major explosion.*

*Mark: Now, what might ignite the gas, do you know?*

*James: Any number of things, Mark. All rig floor equipment is what they consider intrinsically safe, meaning it cannot generate a spark, so that these types of accidents cannot occur. However, as much gas that came out as fast as it did, it would have spilled over the entire rig fairly rapidly, you know, within a minute. I would think that the entire rig would be enveloped in gas. Now a lot of this stuff, you can't smell, you can't taste it, it's just there, and it's heavier than oxygen. As it settled in, it could have made it to a space that wasn't intrinsically safe. Something as simple as static electricity could have ignited the*



*first explosion, which set off a series of explosions.*

*Mark: Alright, so what happened? You're standing where? You're sitting somewhere? What happened?*

*James: Well, I was in a location that was a pretty good ways from the initial blast. I wasn't affected by the blast. I was able to make it out and get up forward where the life boats were. The PA system was still working. There was an announcement overhead that this was NOT a drill. Obviously, we have fire drills every single week to prepare for emergencies like this (fire and abandonment drills). Over the intercom came the order to report to life boats one and two, that this was not a drill, that there is a fire, and we proceeded that way.*

*Mark: So, the eleven men who died, were they friends of yours?*

*James: Yes sir, they were.*

*Mark: Did they die instantly?*

*James: I would have to assume so. Yes, sir. I would think that they were directly inside the bomb when it went off, the gas being the bomb.*

*Mark: So, the bomb being the gas explosion?*

*James: Correct. They would have been in the belly of the beast.*

*Mark: Now, let me ask you, and we have to be careful what we say because there are people that will run wild with ideas, so I just want to make sure*

*James: Sure.*

*Mark: So, let me ask you this, why would the government send in a SWAT team to a rig? What's that all about?*

*James: Well, believe it or not, its funny you would mention that. Transocean, the drilling company, maintains a SWAT team and that's their sole purpose. They're experts in their field. The BOP, the blowout preventer, they call that subsea equipment. They have their own SWAT teams that they send out to the rigs to service and maintain that equipment.*

*Mark: Yeah but I'm talking about what are interior SWAT teams? What is that?*

*James: The interior, from the government now, I don't have an idea about that, that's beyond me. The other gentleman also mentioned the USGS that comes out and does the surveys. I've been on that particular rig for three years, offshore for five years, and I've seen a USGS one time. What we do have on a very regular basis is the MMS, which is the Minerals Management Service.*

*Mark: They're all under the interior department.*

*James: OK. Yes. As a matter of fact, we were commended for our inspection record from the MMS. We are actually receiving an award from them for the highest level of safety and environmental awareness.*

*Mark: Well, I thought you were going to receive that award. Didn't they put it on hold?*

*James: No, we have actually received that award. We received it*

**last year. We may have been ready to receive it again this year.**

**Mark: Let me ask you this, so the life boats, how did you get into these life boats? Where are these life boats?**

**James: There are actually four life boats - two forward and two on the left, depending on where the emergency or the tragedy has taken place.**

**Mark: Did you wind up jumping in the water to get in to the life boat? Sometimes you have to do that.**

**James: I'll just say that there were five to seven individuals that jumped and the rest went down in the life boats.**

**Mark: Alright, I won't ask because you don't want to identify yourself that clearly. Good point. How fast were the rescue efforts? How fast did they reach you?**

**James: It is common to have a very large work boat standing by, to bring tools out, groceries, and supplies; it's a constant turn around. So we actually have a very large vessel real close by. It was actually along the side with the hose attached, taking mud off of our vessel on its own. It had to emergency disconnect and then pull out about a mile to stand by for rescue efforts. So, it was fairly quick.**

**Mark: How quick till the Coast Guard got there?**

**James: Mark, it's hard to say, between 45 minutes to an hour is when I recall seeing the first helicopter.**

**Mark: Which is actually pretty fast because you are 130 miles offshore right?**

**James: Correct. If you look at the nearest spill of land which would be Grand Isle, Louisiana, somewhere in that area, we were only about maybe 50 miles where the crew flies up. From civilization, such as New Orleans, it would be 200 miles. The helicopter was more than likely 80 to 100 miles away.**

**Mark: You are going to be beset by lawyers, with the government, and others looking for an opportunity to make money. It's going to get very, very ugly and the officials going there have really no backgrounds or experience... I mean, to what extent is that going to help anything? It's silly.**

**James: To me it seems knee jerk. The number one focus right now is containment. I like the idea about the boom. They are going to try to lower it down into the water to capture the leak.**

**Mark: How long might that take? I've been reading about this boom and it says that it could take 30 days to do that.**

**James: It very well could. You have to remember that this is a challenging environment. You know its 5,000 feet deep, there's a tangled wreck of a rig with the marine riser still connected and twisted into a big wad down there. So it's going to take some time to get all that stuff in place. The engineering has to be there; obviously they don't want to rush into it. You want to move it expediently but you are risking the lives of those men that are going to go out there and try to attempt it - that's just not right.**

## Visit Your Website

<http://www.aidgc.com>  
and check out the  
Members' Only pages.

## Watch the Video

[http://blog.ai.com/space-news/2010/05/redstone\\_arsenal\\_explosion\\_workers\\_were\\_handling.html](http://blog.ai.com/space-news/2010/05/redstone_arsenal_explosion_workers_were_handling.html)

**Mark:** *I was just going say that. That's very dangerous, I mean extremely dangerous.*

**James:** *Absolutely, absolutely. There will be oil. There will be natural gases. All the same things that caused us to explode are still present, and they're there. The pressure had been cut off dramatically, from the simple fact of the folding of the riser. Basically take this big garden hose and kink it several times.*

**Mark:** *How old is this rig? How long has it been there?*

**James:** *It was put in service in 2001. It's a fairly new rig.*

**Mark:** *And, what is the sense in shutting down every rig in the Gulf of Mexico in response to this?*

**James:** *Absolutely senseless, whatsoever. This literally could very well be a once in a lifetime freak accident, or it could be negligence. That's for other people to figure out. From my position, it just seems like every now and then, you can't win against Mother Nature. She throws a curve ball that you are not prepared for.*

**Mark:** *But to shut down every rig in response to this? I mean... I'm not sure why.*

**James:** *The BOP tests are literally mandated from the Mineral Management Service and they are conducted like clockwork. I mean, if any of those tests ever failed, they would have immediately stopped operations, sealed the well up, pulled the BOP stack back up on the deck, which is 48 hours minimum, and made the necessary repairs or replacement parts, and then would get it back down, re-connect, re-test, and keep testing it, until it passed or kept on repairing it until it passed.*

**Mark:** *So this was a... I mean this must have been harrowing to you. I mean to experience something like this.*

**James:** *That's putting it mildly.*

**Mark:** *Anything else you want to tell me?*

**James:** *No, I just got into the truck to make a short trip and I heard a gentleman say something about possible terrorism and I want to put that to bed now. I understand you have a large audience. I appreciate your point of view. I try to listen to you as much as I can, the terrorism call just needs to leave everyone's minds and let's focus on the 11 men that are dead and the survivors. That's where the focus of this country needs to be right now.*

**Mark:** *Alright my friend, we wish you all the best and I tell you that it's really God's blessing that you survived, it really is.*

**James:** *Yes sir, I completely agree.*

**Mark:** *Alright James, thank you very much for calling and we appreciate it.*

**James:** *Thank you, Mark.*

**Mark:** *Alright, God bless.*

[http://www.rigzone.com/news/article.asp?a\\_id=92765](http://www.rigzone.com/news/article.asp?a_id=92765)

## **Redstone Arsenal Workers Were Handling Well Known & Dangerous Fuel**

Two workers fatally injured on Redstone Arsenal were working with one of the oldest, most understood and most dangerous of rocket fuel components. Ammonium perchlorate, called AP by rocket engineers, is the main oxidizer used in solid-rocket fuel, NASA rocket engineer Dr. Jeffrey Sheehy said. Oxidizers provide the oxygen needed for the burn that provides thrust. In solid rocket motors, oxidizers and solid metal fuels are held safely in a rubbery binder material until ignited. NASA and the military have used AP as an oxidizer for decades. It is in the space shuttle's reusable solid rocket motors, Sheehy said. Engineers like AP because it has high density in very fine particle form, Sheehy said. High density means high energy in the resulting burn. "It is hazardous," Sheehy said. "There are well-known and well understood safety procedures (but) every now and then there's an accident." Sheehy had heard about the accident while working at the White Sands Missile Range in New Mexico, where NASA were testing a new crew-escape rocket. "I don't really know what they were doing," Sheehy said, but he said the military and its contractors understand solid rocket fuels as well as anyone in the world.

One risk of high-density particles is a grain-silo effect, Sheehy said. In the explosions that plagued early grain silos, millions of very fine particles of grain suspended in the air would be ignited by a spark. The resulting flash fires spread so fast through the particles that they virtually became explosions. The veteran technicians killed were separating ammonium perchlorate from the other elements in solid rocket fuel, officials said. They were working on "demilitarization" techniques to render the components safe and unusable. If the separation process resulted in a concentration of AP particles in the air, any kind of electrostatic discharge in the area could have caused the explosion. It's happened before.

On May 4, 1988, a Nevada plant that produced AP exploded when workers using a welding torch to repair a roof ignited AP residue. The fire spread to nearby containers of stored AP, and a series of powerful explosions followed. The explosions, caught on film and now on YouTube, destroyed the PEPCON plant. The largest

**blast was equivalent to a small nuclear weapon. Dust explosions involving rockets have happened elsewhere. In 1993, two workers at International Specialty Products on the arsenal were hospitalized after an explosion at their plant, Army officials said. Both suffered second- and third-degree burns. "They were involved in putting carbonile iron in some kind of big industrial-size thing to move the stuff around, and they had a dust fire," the late Redstone spokesman Dave Harris said at the time. The dust apparently filled the air and spontaneously burst into flame, Harris said then. There was no damage to the plant.**

**Carbonile iron is spherical particles of iron developed in World War II as a coating to make radar display screens glow. In rockets, it increases the burning temperature of solid fuel motors.**

**Other accidental explosions have happened through Huntsville's years as the "Rocket City," including: A rocket motor exploded in 1996 at Wyle Labs in west Huntsville. The blast shattered windows in nearby apartments and echoed as far as southeast Huntsville about 10 miles away.**

**In 1992, a Thiokol-designed rocket built for the Army exploded on a Redstone Arsenal test stand. The stand was heavily damaged but no one was hurt.**

### **Ammonium Perchlorate - Fact Sheet**

**AP is the salt compound of ammonium and perchlorate  
Uses include solid rocket fuel, known as Ammonium Perchlorate.**

**Composite Propellant; exploding ejector seats in airplanes; and spacecraft maneuvering rockets  
Used by NASA, military, commercial rocket manufacturers and hobbyists, who sometimes process APCP themselves  
Exhaust from APCP motors can form hydrochloric acid, a component of acid rain. This is one reason major users separate unused fuel for safe disposal in the kinds of operations that led to this accident.**

## **REMEMBER?**

### **Major Explosion Rocks Sydney**

**At about 9:56 pm on the evening of April Fools Day 1990, a 100 Tonne LPG storage tank ruptured and released about 47 Tonnes of LPG. Technically this was a BLEVE (Boiling Liquid Expanding Vapour Explosion) the biggest to ever**



**Aerial view of the BORAL Gas site after the fire.**

**Note: LPG terminal (centre), fire damage to warehouses (centre left), Tank No:1 in Shea's Creek (right), and the destroyed Bottle Filling Shed (bottom right).**



**View of the LPG terminal before the explosion. Note: Red drencher pipes above and below each tank, and the LPG Road tanker in a similar position to that of the night of the explosion**

**occur in the Southern Hemisphere. The fireball ascended several hundred meters into the air, and the explosion was heard throughout Sydney. As a result of the explosion, many thousands of people were evacuated from the surrounding suburbs of St Peters, Erskineville and Marrickville, and Sydney Airport was temporarily shut down. The emergency responders who attended the scene were exposed to a terrifying and life-threatening situation. Their bravery, training and good judgement undoubtedly saved lives.**

#### **Sequence of events**

**On the 1st of April, there was 346 Tonnes of LPG at the depot. Some time that Sunday evening, after all staff had left the BORAL Gas St Peters site, a small leak of propane started somewhere on a manifold below Tank No: 1. The escaping vapour formed a cloud at ground level, which eventually came into contact with an ignition source some time around 7:00pm.**

#### **The Site**

**The LPG Terminal was built in 1969 and contained a number of 100 Tonne elevated LPG tanks. In the weeks prior to the explosion, BORAL Gas was in the process of installing new safety systems that would enable isolation of the tanks from the distribution manifolds and associated pipes. This was only two weeks from completion when the explosion happened. Had these tanks been isolated then the explosion would have been avoided.**

**Between 7:00pm and 8:50 pm, the LPG manifold fire grew to over half a Gigawatt in size. The fire spread enhanced via failures of the hydrostatic relief valves located on the Liquid Manifold, and consequent melting of metal pipes. Because the isolation valves were open back to the LPG tank, these pipes were able to feed the growing fire without interruption.**

**By about 8:50 the radiant heat and direct flame contact from the manifold fire had heated the 100 Tonne tanks sufficiently to raise their internal pressures to dangerous levels. The Pressure Relief Valve (PRV) on Tank 1 had started to cycle on and off so as to relieve this pressure. The propane vapour that was released ignited and formed jet flames 40 m high.**

**At 8:55 pm the Fire Brigade received an emergency call. The Fire Brigade arrived at 9:12 pm and observed Tank No:**





**View of the LPG terminal after the explosion. Note: damaged manifold and pipes (centre left), Tank No 1 missing (centre right), remains of the destroyed LPG Road Tanker (far right) and discharge pipes from the PRVs on the top of each tank**

**1 had an intense fire involving its pressure relief valve and the large fire at the manifold.**

**At approximately 9:19 pm the PRV on Tank No: 2 operated. One minute later members of the Fire Brigade heard a high-pitched sound and withdrew some distance from the fire.**

**At 9:39 pm Tank 3 ruptured at the top of its hemispherical end forming a 300mm x 75mm slit. The ignited vapour produced a fan shaped flame 80m high. The Tank emptied over a period of about 6 mins.**

**Between 9:39 and 9:56, the PRV on Tank No: 1 remained continuously open. Tank No: 2 also ruptured in a similar way to Tank 3. The thermal radiation was so intense that tyres caught fire on many LPG Road Tankers parked nearby, and the PRVs on their tanks started to operate.**

**At 9:56 pm Tank No: 1 ruptured. A Boiling Liquid Expanding Vapour Explosion (BLEVE) occurred, as the heated end of the tank tore away. The resulting fireball was some 200 m in diameter, ascended 1 kilometre into the air and lasted for 14 seconds.**

**The main part of the Tank rocketed 150m into nearby Shea's Creek. The Tank impacted and destroyed a LPG Road Tanker parked beside the Tank and a 500kVA electrical substation. The fireball, and discharged propane, ignited fires in warehouses adjacent to the depot. At about 10:05 pm, a major fire also developed in an LPG Bottle Filling Shed with numerous domestic sized cylinders of LPG bursting and shooting spectacularly into the sky.**

**The fire continued until 1 am the following morning when the Fire Brigades considered the fire under control.**

#### **Contributing Factors**

**The following factors contributed to this fire and explosion: -**

- 1. The site was vacant on the Sunday afternoon, so there was no staff on site who could have intervened or raised alarm at an early stage of the fire.**
- 2. The pipes and manifolds were open to the LPG Tanks so that any leak could potentially drain hundreds of tonnes of LPG.**
- 3. The fire and leak alarms that were installed were not connected to the Fire Brigades.**
- 4. The signs for the controls of the drencher system were not able to be read, so that the Fire Brigades could not switch on water sprays which could have cooled the**



tanks.

**5. The orientation of the hydrostatic relief valves on the liquid propane manifold projected vapour in the direction of pipes also containing propane, and so caused progressive failures to pipes and escalation of the fire.**

#### **Industrial Relations Commission Judgement**

**Chief Inspector Richard Clarke on behalf of a large investigation team brought two matters before the Court under sections 15 and 16 of the Occupational Health and safety Act 1983. Justice Bauer found BORAL Gas guilty of the two offences. It was fined a total of \$35,000 and ordered to pay costs (which were considerable).**

#### **Conclusion**

**The investigation of this event was a major effort by many WorkCover and TestSafe (then LOSC) staff. The capacity to undertake such highly demanding, lengthy and arduous investigations is a great strength of the organization and needs to be maintained. TestSafe stands ready to assist WorkCover to investigate these kinds of adverse events at Major Hazard Facilities and other depots where dangerous goods are stored and continues to provide a range of other specialist accident investigation services for WorkCover. The BORAL Gas BLEVE had many outcomes including the establishment of the 1991 Chemical Inquiry and the completion of an audit of all major LPG Depots in NSW. This was undertaken by the current State Co-ordinator, Dangerous Goods, Doug Gibbins. The explosion was also the catalyst for the establishment of the Stored Chemical Information Database (SCID).**

**It is most fortunate that no one was injured or killed as a result of this fire and explosion. However, history shows that these kinds of events will occur from time to time when safety systems either fail or are non-existent.**

**Source: TestSafe Monthly Bulletin**



**Tank No 1 resting in Shea's Creek, about 150m from the depot**

## **REMINDERS!!**

### **Dangerous Goods & the Transport Industry**

**In response to a request from several Associate Members, the AIDGC Board agreed that a separate member interest listing be established for 'transport of dangerous goods', as a supplementary category to the specialty areas that are already listed on the consultant members interest profile.**

**The Board has also agreed that a candidate seeking to**

**upgrade from Associate Member to Full Member status within the AIDGC and who only seeks listing under the member listing for dangerous goods 'transport', may do so by undertaking the assessment test. This will provide an avenue for those consultant Associate Members who provide advice in transport, packing and labeling, or any other ADG code-related matters, to be recognized as full Members of the AIDGC and have their contact details listed on the Member's register.**

**A competency assessment module for transport matters has been developed and when undertaken with the other legislative and Code knowledge components, will enable the transition from Associate to Full member status to those candidates who successfully complete the assessment tasks and meet the Board's membership criteria.**

**Many Full Members who are currently offering advice in transport matters, are subject to commitments made by them to adhere to the AIDGC Code of Conduct, fully entitled to continue to do so – there is no need to update their member listing to continue offering advice.**

**The opportunity does, however, exist for any current Full Members who offer services in dangerous goods transport related matters, to have that box ticked in the members listing on the website. This may be done by undertaking a competency assessment confined to dangerous goods transport matters only, the other membership requirements having already been met.**

**The assessment task can be undertaken by a mutually agreeable flexible arrangement. Anyone interested in the assessment for transport listing process, should contact Ross Underwood, sets@ozemail.com.au or by telephone, 0418223982, or any other Board Member (contact details on AIDGC website).**

### **AIDGC Study Grant**

**Applications are open for the 2010 AIDGC Study Grant Scheme, providing cash payments of \$ 1,000 each per successful applicant. For details go to the AIDGC**

**Website: <http://www.aidgc.com>**

Wed 5 + Thur 6 May 2010

# HAZMAT



Darebin Arts and Entertainment Centre  
Preston - Victoria - Australia

## **HAZMAT in 11<sup>th</sup> Year**

**This years' HAZMAT was well attended and lived up to expectations. Keynote speaker Rosa Garcia Couto (Secretary of the Sub-Committee of Experts on the GHS United Nations Economic Commission for Europe (UNECE) Transport Division, Dangerous Goods and Special Cargoes Section) gave an explanation of the UN DG structures and an update on GHS implementation.**

**Of interest to members is that US OSHA now has a GHS-based proposed rule for hazard communication published on 30 September 2009. Currently public hearings to accept comments on the proposed rule are being held. It's happening in Europe, NZ, Japan and soon in USA!**

**Caroline Reid (Director, MHF Regulation, of Safe Work Australia) explained some of the issues between GHS and the UN basis for ADG Code. She also advised that Australian model regulations for workplace chemicals are being prepared with the following timetable:**

- \_ Public comment in October 2010**
- \_ Supported by Criteria, SDS and Labelling Codes**
- \_ Training to commence in 2011**
- \_ Implementation starting in 2012, over 5 years**

**John Frangos (Toxikos P/L) spoke about ADG 7 classification criteria and tests for environmentally hazardous substances – an issue requiring attention by some minerals and chemical handlers and transporters. Ken Price presented a case study where this issue has resulted in existing methods of transport of some minerals not complying with ADG 7 and is currently the subject of an application to the Competent Authority.**

**Adrian Simonetta (DG Manager, Worksafe Victoria) spoke about proposed audits of Transport Emergency Response Plans, for which consignors are responsible under each State's regulations for the transport of dangerous goods. One of the low points was a very generic presentation by Standards Australia and the presenter was unable to answer any questions relating to DG matters**