Tank and Petroleum Use Mishaps

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By learning about the misfortunes of others, it is STI's hope to educate the public by creating a greater awareness of the hazards with storage and use of petroleum and chemicals. Please refer to the many industry standards and to the fire and building codes for further guidance on the safe operating practices with hazardous liquids. Thanks and credit for content are given to Dangerous Goods-Hazmat Group Network.

http://groups.yahoo.com/group/DangerousGoods/

CHINA, UYGUR AUTONOMOUS REGION, URUMQI
JUNE 26 2008.
DEATH TOLL FROM NW CHINA TANK BLAST RISES TO FIVE

The death toll from Wednesday's coal tar tank explosion in northwest China's Xinjiang Uygur Autonomous Region rose to five, with two people still missing, regional work safety watchdog said on Thursday.
Rescuers found two more bodies on Thursday morning at the site of the Fukang Iron Coke Co. Ltd., a private company, in Fukang City, said Mao Chuntang, a Xinjiang work safety administration official.
A 2,000-cubic meter tank holding coal tar, a viscous black liquid used in roofing, waterproofing and insulating materials, exploded and caused a fire at 4:02 p.m. on Wednesday.
The exact amount of coal tar in the tank at the time of the accident was unclear. Emergency workers were still draining the wreckage as they searched for the missing.
Mao said there were "improper actions by relevant staff" involved in the explosion but the exact cause was still being investigated.
Fukang's safety production license had been revoked and its production halted, according to the official. Its bank accounts were also frozen.
Dozens of fire fighters extinguished the blaze about three hours after the incident.
Eight other tanks nearby were not affected and had been cooled down.
Local environmental authorities said earlier that they had not detected pollution in subterranean water sources or nearby rivers. However, the concentration of some chemicals in the air, such as benzene, toluene and dimethylbenzene, had exceeded standards.
Established in 2004, the company had an annual production capacity of 50,000 tonnes of tar.
http://news.xinhuanet.com/english/2008-06/26/content_8443036.htm

USA, IA, DES MOINES
JUNE 27 2008.
EPA, OTHERS RETRIEVE DRUMS AND TANKS CARRIED AWAY BY IOWA FLOODS

EPA Region 7, the Iowa DNR and National Guard 71st Civil Support Team have teamed up to identify and retrieve orphan drums and tanks and household hazardous wastes that were swept away by flood waters, said Kathy Lee of the Iowa DNR.
The 71st Civil Support Team (CST) is a specialized group of Iowa Army and Air National Guard members that have considerable training in hazardous materials procedures and have been temporarily assigned to assist the DNR and EPA. The 71st CST's primary mission is to evaluate and respond to potential or actual events involving weapons of mass destruction.
Orphan drums and tanks are potentially hazardous and include empty or full propane tanks, underground tanks containing fuel or solvents, drums holding chemicals and anhydrous ammonia nurse tanks.
During the retrieval, the drums and tanks will be collected and transferred to a temporary storage location for further evaluation before being sent to a landfill, scrap yard or hazardous waste facility for final disposal.
"Joining up with the DNR and the National Guard has been very productive," said Joe Davis, EPA On-Scene 409, 410, 411, 412, 413, 414, 415, 416
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USA, KS, WICHITA
JUNE 27, 2008

CSB ISSUES FINAL REPORT ON BARTON SOLVENTS EXPLOSION, CALLS ON OSHA AND TRADE ASSOCIATIONS TO IMPROVE MATERIAL SAFETY DATA SHEETS FOR NONCONDUCTIVE FLAMMABLE LIQUIDS; SAFETY VIDEO WITH ANIMATION RELEASED

The U.S. Chemical Safety Board (CSB) today released a case study and safety video on the July 2007 explosion and fire at the Barton Solvents distribution facility in Valley Center, Kansas. The CSB found the most likely cause of the explosion -- involving what is known as a nonconductive flammable liquid -- was a static spark resulting from a loosely-linked level-measuring float within the tank. The spark ignited the air-vapor mixture inside the tank as it was being filled.

Nonconductive flammable liquids can accumulate and maintain static electrical energy which discharges more slowly than from more conductive liquids. In addition, some of these liquids can form ignitable vapor-air mixtures inside storage tanks which can explode if a spark occurs.

The CSB released a ten-minute safety video which features a computer animation depicting the sequence of events that led to the explosion and fire. The video, entitled "Static Sparks Explosion in Kansas" is available for downloading free of charge through the agency’s video website, www.safetyvideos.gov.

CSB Board Member William Wark said, "Our goal is to help companies understand the hazards associated with the kinds of flammable liquids that were stored and transferred at Barton Solvents. We believe our case study and the safety video will help accomplish that goal and prevent accidents."

The July 17, 2007 explosion and fire led to the evacuation of 6,000 residents. Eleven residents and one firefighter sought medical attention. Fire destroyed the facility. CSB investigators found that on the day of the accident a tanker-trailer arrived to transfer Varnish Maker’s and Painter’s Naphtha (VM&P Naphtha) into a storage tank. The CSB determined that the transfer equipment from the truck tanker to the storage tank likely was properly bonded and grounded to prevent the generation of static electricity. However, the CSB found, the float device inside the 15,000 gallon storage tank presented a hidden danger.

CSB Lead Investigator Randy McClure said, "When transferring liquids, it is standard industry practice to bond and ground storage vessels, tankers, and other equipment to prevent static discharges. But our investigation illustrates how normal bonding and grounding may not be enough to prevent ignition from static electric sparks."

Inside the tank was a device used for measuring the liquid level, a metal float linked to a metal tape measure. The CSB determined that a static electrical charge in the liquid was generated by the flow of the solvent pumped from the trailer into the storage tank, and by stop-and-start filling which introduced air into the liquid, resulting in bubbles and turbulence.

At the same time, the space above the liquid was being filled with an explosive mixture of vapor and air. The CSB determined that the liquid flow and turbulence created by the filling of the tank likely resulted in the metal float accumulating a static electrical charge. As the float moved, a gap is believed to have formed within the linkage of the tape and the float. CSB investigators said a spark likely jumped between the metal parts and ignited the explosive mixture of vapor and air that had accumulated above the liquid.

The explosion blew the tank 130 feet into the air, and within moments two more tanks ruptured and released their contents. As the fire burned, the contents of nearby tanks were released and ignited, launching debris into the air where some of it struck a mobile home and a neighboring business.

Board Member Wark said, "Several common flammable liquids are particularly susceptible to ignition by static sparks. Some of these flammable liquids can produce the optimal amount of vapor to fuel an explosion at normal temperatures inside a storage tank."

Mr. Wark continued, "While we found the most likely cause of the Barton explosion was sparking across the float linkage, we emphasize that explosions can occur in tanks without faulty floats when there is a discharge from the build-up of static in the nonconductive flammable liquid itself."

Material Safety Data Sheets, or MSDSs, communicate hazard information on chemical products. The CSB determined the MSDS for the VM&P Naphtha did not adequately describe the explosive hazard or the precautions necessary to prevent ignition from static electricity. Most of the MSDSs for the flammable solvents supplied to Barton

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Tank and Petroleum Use Mishaps

indicated that the solvent could accumulate a static charge, which could spark and ignite vapor. But the MSDSs did not warn that the solvent could form a highly explosive vapor-air mixture inside a storage tank.

The CSB reviewed 62 MSDSs for some of the most widely used nonconductive flammable liquids in industry, such as VM&P Naphtha, hexane and toluene. Most failed to recommend specific precautions beyond bonding and grounding.

"The accident at Barton Solvents emphasizes the need for accurate and detailed MSDSs," said Mr. Wark. "We found that while most MSDSs for this category of flammable liquids do warn about the dangers of accumulating static electricity because the liquids are poor conductors, the MSDSs do not warn specifically that they can be ignited in storage tanks. Companies should be aware that some of these flammable liquids can form an ignitable vapor-air mixture inside storage tanks."

The CSB issued recommendations to OSHA and others to improve required information contained in MSDSs to include addressing nonconductive flammable liquids which are routinely shipped to distributors such as Barton. The CSB also recommended that six major oil and chemical industry associations ask their member companies to improve the warnings on the MSDSs of flammable liquids because these materials can accumulate static electricity.

The Board recommended companies handling the liquids should take additional safety measures, such as:
- Obtain more detailed additional technical information on the liquids from manufacturers that may not be found on MSDSs.
- Purge storage tanks with an inert gas to remove oxygen.
- Add anti-static agents to the liquids.
- Pump liquids more slowly.
- Verify that storage tank level floats are effectively bonded.

The CSB is an independent federal agency charged with investigating industrial chemical accidents. The agency's board members are appointed by the president and confirmed by the Senate. CSB investigations look into all aspects of chemical accidents, including physical causes such as equipment failure as well as inadequacies in regulations, industry standards, and safety management practices.


CANADA, NOVA SCOTIA, BRIDGEWATER
JUNE 27 2008. MAN:
MY NEIGHBOUR MAY HAVE CAUSED NEW GERMANY OIL SPILL
Beverley Ware

Bob Douglas said an oil spill did not come from the derelict New Germany property he bought in a tax sale three years ago. And he insinuated at his trial Wednesday that his neighbour may be responsible for the mess — the very neighbour who complained to the provincial Environment Department. "He may be to blame for the whole thing," said Mr. Douglas, although he conceded he has no proof of anything. "I'm not making an accusation. It's just based on the facts."

The Mahone Bay resident defended himself in Bridgewater provincial court Wednesday against a total of 12 charges laid against him and his company, Douglas Projects International Inc. They each face six counts under the Environment Act after oil leaked into the ditch and watershed area below his Fire Hall Road property, which was once the manufacturing base for Suttles & Seawinds.

Terrance Sanford lived across the street when oil showed up in the ditch running beside his property. He is a severe asthmatic and complained to the province and the media at the time that the oil smell was making him sick.

Mr. Douglas said if it hadn't been for Mr. Sanford's complaints, the situation would have been dealt with differently. "There has been a considerable amount of drama around this occurrence," Mr. Douglas told Judge Jim Burrill. "It would have been dealt with quietly by the department if not for Mr. Sanford."

He said a neighbour took "an overactive interest in this and, I think, put a false face on the incident and he's the reason why we're here today." Mr. Douglas and his company each face the charges in connection with an oil spill in New Germany on March 27, 2007.

They are accused of releasing a substance that could adversely affect the environment, failing to take measures to prevent or remedy the effects of the release, failing to take reasonable measures to get rid of the substance, twice failing to do what the inspector ordered and failing to rehabilitate the environment to provincial standards.

Asked by prosecutor Paul Scovil whether he took the action required by inspector Kristen Murray, Mr.
Tank and Petroleum Use Mishaps

Douglas replied: "No comment."
"You don’t have the option of making no comment," Judge Burrill told him. "She was very difficult to get along with."

Mr. Douglas said of the inspector. "No. I could never sat isfy her. I could never satisfy her with anything." Asked if he had cleaned things up to the province’s standards, he said: "Probably not or we wouldn’t be here."

Mr. Douglas said he is sure the oil did not come from his property and couldn’t afford the $100,000 it would take to fix the problem, but he did what he could as a good corporate citizen. That involved digging two pits a few weeks later and putting down 200 absorbent pads.

"Isn’t that a bit like closing the door after the horse left the barn?" Mr. Scovil asked. "No, because the horse didn’t come out of that barn," Mr. Douglas replied.

"Unfortunately, in my life, I have made millions and lost millions," said Mr. Douglas, who indicated that he developed Regatta Point in Halifax. He said he was in rough financial shape at the time of the spill, and still is. But despite that, he said he did what he could at the time.

Mr. Douglas said there is no proof the oil came from his property but a geoscientist said peat moss around the oil tank in the basement of the old building was so wet with oil it needed to be replaced and a dye test showed there was no other possible source for the oil.

Mr. Douglas bought the building from the District of Lunenburg in a tax sale two years earlier. Judge Burrill will release his decision Aug. 6.
http://thechronicleherald.ca/NovaScotia/1064244.html

USA, TX, VANDERBILT
JUNE 28 2008.
GAS PIPE EXPLOSION IN TEXAS INJURES THREE WORKERS
Windsor Genova

Three demolition workers were badly burned Thursday in an explosion at an old oil refinery that they were dismantling in southeastern Texas. The workers from RCS Demolition in Midland were injured when a pipe they were cutting with a blow torch released flammable gas that ignited at 9 a.m., Jackson County sheriff’s deputies said. Three helicopters of the Memorial Hermann Hospital’s Life Flight airlifted the victims, two of whom are aged 50 and 54, for treatment in Houston and at the University of Texas Medical Branch hospital in Galveston. Vanderbilt is 75 miles southwest of Houston.
http://www.allheadlinenews.com/articles/7011399471

USA, TX, SAN MARCOS
JUNE 29 2008.
FUEL TANK EXPLODES AT SAN MARCOS AIRPORT

One man was injured when a fuel tank exploded at the San Marcos Municipal Airport Friday. Officials said a plane was being worked on when its fuel tank exploded in one of the hangars about 11 a.m. Friday. One man was injured in the accident. Fire officials did not release the name or condition of the man, but they said he was not a firefighter. Also, a small plane was damaged by flames. When firefighters arrived at the scene, they encountered heavy, dark smoke coming from the hangar. Yet crews were able to knock out the fire within 10 minutes before it spread to the other four in the hangar. There was no word on what caused the explosion. The San Marcos Fire Marshal’s Office is investigating. The airport is off State Highway 21, just north of Highway 81.
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USA, OH, STEUBENVILLE
JUNE 30 2008.
LIGHTNING STRIKES NATURAL GAS TANK
Lightning struck a natural gas tank in Harrison County Saturday evening. "Lightening hit directly on the tank detonating the gas inside the tank and caused the bottom to fly off," said engineer Greg Kimble. The explosion from the fire sent the tank hundreds of feet into an open field on County Road 10 in Freeport. Kimble said that the firewall around the tank area worked properly and contained the gas from spreading. The explosion caused no threat to residents in the area. Damage, according to Kimble, will cost some tens of thousands of dollars.

MO, SPRINGFIELD
JUNE 30 2008.
FLOATING PROPANE TANKS TEMPORARILY SHUT DOWN REEDS SPRING
Joanna Small
Head south of Springfield on Highway 65 and you'll run into a barrage of water.
Reeds Spring in Stone County was one of the wettest cities in the Ozarks, drowning in about 6 inches of precipitation this morning.
Typically you don't see water rushing down the road, but that's what residents in the town of less than 500 witnessed Saturday.
And with the waves came something else unexpected and often times, dangerous.
"There's a tank here, washed in here."
Jesse Butler's garden played host to three uninvited guests today: 5 feet of water, and 2 propane tanks.
"I just stayed here and watched and rode it out 'til it was over," Jesse says.
And when it was, his garden was too.
Potatoes were shredded, corn was flattened, and two giant metal cylinders sat on top of what used to be ripening vegetables.
"I think we've picked up 8 or 10 tanks."
That's Ron Tingwald of Town and Country Propane.
He says all those tanks were empty.
The water carried tanks all over the city, landing them in fields, and Jesse Butler's garden - which apparently isn't that unusual.
"I remember the flood of '93...when it hit the Bull Creek Park over there towards Forsyth, we had one tank over there that made it 8 miles," Ron recalls.
The scare this time came when a tank attached to a gas line at a mobile home park broke free, and left natural gas seeping into the open air.
Emergency crews cut off the gas quickly without any problems.
The water, however, has caused a number of problems.
"We can them and eat them through the winter time."
But not this year.
Thanks to the flood, Jesse's vegetables will come out of the produce aisle instead his backyard.
Jesse says he still may try to plant a late garden, but that's a long-shot.
He also says he lost a kid goat in the flood because he wasn't able to get to the barn in time.
Town and Country Propane has a tip to prevent problems with gas lines in future floods; if you know the water's coming, just close the valve to the tank.

USA, NY, ROMULUS
JULY 2 2008.
ROMULUS MAN SEVERELY BURNED WHEN FUEL OIL TANK EXPLODES
A 25-year-old Romulus man suffered burns on approximately 75 percent of his body yesterday when a 300-gallon fuel oil tank exploded after he lit a match nearby, Seneca County Sheriff Jack Stenberg said.
Stenberg said that deputies responded to 2081 Yerkes Road in Romulus after a loud explosion occurred at address. The injured man, Samuel D. Byler, 25, lives at the address.
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Tank and Petroleum Use Mishaps

The explosion was heard through the area, and a plume of black smoke was visible. When deputies arrived on the scene, they discovered that Byler had lit a match, igniting vapors inside the tank which resulted in the explosion. Byler was treated at the scene by South Seneca Ambulance and then airlifted by Mercy Flight to Strong Memorial Hospital where he is being treated for internal and external burns. He suffered third-degree burns on his hands and chest.

The explosion also caught a nearby shed on fire, which caused minor damage. A passerby helped contain the fire until it was extinguished by the Romulus and Ovid Fire Departments.


USA, MO, JEFFERSON CITY
JULY 4 2008.
MISSOURI DELUGE KNOCKS FUEL TANK OVER, RELEASING GAS

Heavy rains on Saturday led to the release of an undetermined amount of fuel from a former gas station site in Reeds Spring, the Department of Natural Resources reported today.

A state on-scene coordinator with the department's Environmental Emergency Response section was on site Saturday in Reeds Spring to oversee the cleanup at the former Amoco Smoke House gas station.

At least one of several above-ground fuel storage tanks at the site overturned when heavy rains in the area filled the containment area, lifting the tank off the ground.

Because the station has been closed for several years, it was not known how much fuel was in the upended tank or in any of the other tanks in the containment area.

Department staff noticed a strong petroleum odor and a characteristic sheen both inside and outside the containment area.

Working with environmental cleanup contractor Sunbelt Environmental out of Springfield, the department has recovered more than 2,500 gallons of petroleum-contaminated water from the containment area and secured the tanks.

The Missouri Department of Agriculture, which oversees above-ground storage tanks in Missouri, has also been called to the site.

Cleanup is underway.

The department's Environmental Emergency Response section is called to the scene of more than 300 emergencies each year, including fires, traffic accidents, leaking storage tanks and other incidents that could have a negative environmental impact.

Department data shows that from July 1, 2006 through June 30, 2007, petroleum products accounted for 43 percent of materials released during environmental emergencies.

The department's 24-hour spill line receives more than 1,600 incident reports annually. To report an environmental emergency, including fuel spills, contact the spill line at 573-634-2436.

http://www.stormwaterauthority.org/library/view_article.aspx?id=1171

AUSTRALIA, VICTORIA, MELBOURNE
JULY 11 2008.
VICTIMS BURNED ON WOOLWORTHS GAS COMPENSATION

Grant McArthur

Woolworths is accused of turning its back on customers who suffered horrific burns while using faulty LPG pumps at two of its Melbourne service stations.

An 84-year-old grandfather and a young chef both suffered severe cold burns on their hands and arms when they were sprayed with gas as they tried to fill their cars at service stations in Frankston and Northcote.

For 10 months the two have been fighting a legal battle to at least have their medical bills paid by Woolworths, which owns both of the Calux service stations.

But the supermarket giant has not even replaced the wedding ring Leslie Hurlstone, 84, had to have cut from his burned hand — instead offering him just a $100 Woolworths voucher as a "gesture of goodwill".

Mr Hurlstone was rushed to Frankston Hospital after suffering burns to both hands on October 5 last year and, despite months of treatment, still does not have full use of his fingers.

He has been told he is not eligible for compensation because he is not permanently disabled.

"I am just absolutely flabbergasted and disgusted with the way Woolworths have treated the whole affair,"
Mr Hurlstone said.

"I started filling my car and all this gas started coming from somewhere.

"It was scary, I was panicking and I was trying to let the nozzle go, but it wouldn't stop and the gas just kept on coming.

"I tried to unscrew it from my car and I couldn't, and that's what caused all the gas to get on my hands.

"If anybody had come with a cigarette they would have blown the place to pieces, and me as well," he said.

A month later a young chef's hand was burned when a gas ball ignited while he was using a pump at the Northcote petrol station.

The injuries prevented him from working as a chef at an Indian restaurant, but again his requests for compensation have been rejected.

A Woolworth's spokesman said yesterday that Caltex Safeway took customer safely seriously, regularly inspected its pumps, and looked "forward to resolving this matter".

In a letter sent to the men's lawyer, Woolworths said an investigation found the pumps were maintained but were damaged after being cross-threaded by customers, saying it could not be held responsible for damage customers did to its pumps.

The men's lawyer, Clara O'Sullivan, of Maurice and Blackburn, said Woolworths had a moral responsibility to help those hurt by their pumps, and believed others might also have been injured by faulty gas nozzles.


USA, WASHINGTON DC

CSB RELEASES NEW SAFETY VIDEO ON FATAL 2006 OILFIELD EXPLOSION IN MISSISSIPPI - EMPHASIZES SAFE PRACTICES FOR HOT WORK

The U.S. Chemical Safety Board (CSB) today released a new safety video detailing an explosion that led to the deaths of three contractors at the Partridge-Raleigh oilfield in rural Raleigh, Mississippi, in June 2006.

All the victims were employees of Stringer's Oilfield Services, an independent contract firm hired by Partridge-Raleigh to perform maintenance on oil storage tanks at the facility.

Entitled 'Death in the Oilfield,' the nine-minute video is based on the CSB's final investigation report, which was voted on and approved by the Board in June 2007. The video is available for viewing and downloading in the Video Room of the CSB's website, Safetyvideos.gov as well as on the CSB channel on YouTube (www.youtube.com/USCSB).

DVDs of the video will be provided at no charge through the online request form at CSB.gov.

The new video includes a 3-D computer animation depicting the sequence of events that led to the explosion, which occurred when sparks from a welding operation ignited flammable vapors venting from a storage tank. The animation describes the preparation of the site by Stringer's employees and the unsafe hot work that led to the accident.

The video, which includes interviews with CSB investigators and Board Member William E. Wright, highlights the key safety lessons and board recommendations from the CSB's year-long investigation of the accident. The investigation determined that neither Partridge-Raleigh nor Stringer's Oilfield Services followed safe practices for hot work, which includes operations such as cutting, welding, and grinding that can generate sparks and ignite flammable materials. The CSB's final report called for increased inspection and enforcement of OSHA safety standards at oil production facilities.

'This is the fourth fatal oilfield accident the CSB has investigated since 1998, which underscores the need for improved safety practices in this industry,' Mr. Wright said. 'It is our hope this video will be widely viewed in the U.S. oil production sector so that readily preventable accidents like the one in Mississippi are less likely in the future.'

CSB safety videos have been viewed over one million times over the Internet since the launch of the program in December 2005. More than 75,000 DVDs have been distributed to industry and labor groups, government agencies, safety trainers, educators, emergency responders, and individual requesters throughout the world.

The CSB is an independent federal agency charged with investigating industrial chemical accidents. The agency's board members are appointed by the president and confirmed by the Senate. CSB investigations look into all aspects of chemical accidents, including physical causes such as equipment failure as well as inadequacies in regulations, industry standards, and safety management systems.


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