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/

USA, MT, BILLINGS
JANUARY 29 2008.

EXXONMOBIL DETERMINES CAUSE OF OCT. 17 EXPLOSION, FIRE

An October explosion and fire at the ExxonMobil refinery in Lockwood was caused by metal failure in piping where hydrogen gases mixed, refinery spokeswoman Pam Malek said Monday.

A team of engineers from Texas and Virginia and operations experts in the Gulf Coast and at the refinery recently completed its investigation into the fire, she said.

A metallurgical evaluation confirmed that piping cracked where hot and cold hydrogen gases were mixed before entering a reactor in the high-pressure hydrocracker unit. The piping failure led to the explosion and fire, Malek said.

No one was hurt in the blast, which happened at about 6:15 a.m. on Oct. 17. The fire that followed was extinguished 25 hours later.

The hydrocracker makes low-sulfur diesel and is located in the center of the refinery. The Lockwood refinery shut down the unit and continued operating at reduced rates.

Malek said company engineers have replaced the piping with new equipment based on information from the investigation.

The new equipment will minimize the temperature stresses that occur in the configuration of the piping, she said. The new piping equipment will be monitored and inspected to make sure it’s operating properly and safely.

The hydrocracker went back into service about mid-December and was up to full pressure about Jan. 1, Malek said. All the refinery’s units are working at almost full capacity, but the plant is operating at reduced crude rates.

“We’re continuing to balance our rates to maximize our production,” she said.

While the hydrocracker was down, other feed stocks had to be placed into inventory. Once that inventory is used, the plant will be able to process normal amounts of crude oil, Malek said.

The plant refines about 60,000 barrels of oil a day.


USA, WV, GHENT
JANUARY 30 2008.

ONE YEAR AFTER DEADLY EXPLOSION AT WV CONVENIENCE STORE CSB COMPLETES TESTING OF KEY VALVE - AGENCY CONTINUES ITS EXAMINATION OF SAFETY PRACTICES AND EMERGENCY RESPONSE.

On the first anniversary of a fatal propane explosion at a West Virginia convenience store, the U.S. Chemical Safety Board (CSB) today announced that testing has been completed on a key propane valve and outlined other issues that will be examined in the final investigation report.

The accident on January 30, 2007, at the Little General Store in Ghent killed four people and injured six others when propane gas was suddenly released through a liquid withdrawal valve during a changeover between

375, 376, 377, 378, 379
Tank and Petroleum Use Mishaps

two propane tanks. A volunteer firefighter and an EMT who responded to reports of the leak were among those killed when the propane cloud ignited, destroying the store.

The CSB has examined and tested the valve and found that on the day of the accident the valve was stuck in an open position.

Investigators are continuing their examination of regulatory and code compliance as well as West Virginia's gas safety practices.

"This investigation is about more than figuring out what went wrong with the valve, it is about getting to the root cause of this accident and preventing a similar incident from occurring," said CSB Lead Investigator Jeffrey Wanko, P.E., C.S.P.

On the day of the accident, a technician working for Appalachian Heating (a company that had a business arrangement with Thompson Gas) was preparing to switch propane service to Thompson Gas from a previous propane vendor, Ferrellgas. As part of the process, the technician was to transfer propane from the Ferrellgas tank to the newly installed one.

The Ferrellgas tank was located against the store's outside rear wall. The Thompson Gas tank was located about ten feet away. While preparing for the transfer, propane began flowing out of the liquid withdrawal valve on the Ferrellgas tank located next to the store.

Lead Investigator Jeffrey Wanko said, "The placement of the tank facilitated gas entering the building and the ignition of the flammable gas and contributed to the high number of injuries and fatalities." The tank did not comply with National Fire Protection Association or Occupation Safety and Health Administration siting specifications which require that a propane tank be placed 10 feet from the building.

Investigators believe personnel involved in the installation of a new propane tank at the store removed a metal screw cap on the liquid withdrawal valve, in preparation for removing propane from the old tank. The malfunctioning withdrawal valve leaked, resulting in an uncontrollable release. The technician was unable to stop the flow and placed a 9-1-1 emergency call at 10:40 a.m.

CSB investigators found that in common with many states, West Virginia does not require technicians who install propane tanks to receive any formal training. The CSB is also examining the practices of 9-1-1 emergency call centers to provide basic emergency instructions for flammable gas incidents such as proper evacuation procedures. In this instance, Little General employees stayed in the building during the gas release.

The CSB’s final report and safety recommendations are expected to be complete in mid-2008.

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.

The Board does not issue citations or fines but does make safety recommendations to plants, industry organizations, labor groups, and regulatory agencies such as OSHA and EPA. Visit our website, www.csb.gov.

For more information, contact Director of Public Affairs Dr. Daniel Horowitz, (202) 261-7613, or Public Affairs Specialists Hillary Cohen at (202) 261-3601, or Jennifer Jones at (202) 261-3603.

www.csb.gov.

USA, CO, GILCREST
FEBRUARY 1 2008.
TANK EXPLOSION DAMAGE: $1 MILLION
Mike Peters

A tank explosion and fire last week east of Gilcrest caused $1 million in damages, investigators said Wednesday. At the same time, fire officials said the cause of the fire may not be determined for weeks.

The water-separating tank, located about five miles east of Gilcrest, exploded and burned last Thursday while three men were in the area. All three were injured and remain in the Burn Unit at North Colorado Medical Center. That damage includes $500,000 to the property of the Conquest Oil Co., which involved the tank that exploded. The other $500,000 is attributed to large oil trucks in the area near the tank.

A second tank unit belonging to Conquest Oil caught fire late Tuesday in the south edge of Weld County.

Brighton firefighters were able to extinguish that fire within 30 minutes.
Tank and Petroleum Use Mishaps

In the investigation of the first fire and explosion, La Salle Fire Chief Arlon Litfin met Tuesday night with his own investigators, plus agents from the Colorado Bureau of Investigation and the federal Alcohol, Tobacco and Firearms to determine the cause of the explosion.

"We haven't been able to close this investigation because we haven't been able to talk to all of the men who were injured," Litfin said. "One of the men is still being intubated and can't talk." Intubated means the victim is on a machine that aids in his breathing.

Omar Saenz, 22, was the most seriously injured of the three men, and he remains in critical condition at the hospital. Justin Raymer, 25, and Mark Speaker, 40, were in fair condition Wednesday.

The fire chief said they are still waiting for laboratory analysis of several items they sent to CBI, and there shouldn't be an assumption that the assistance of the CBI and ATF mean anything sinister is happening.

"The two agencies just offered to help us with this because it is such a large fire scene," Litfin said. Although the earlier explosion was closer to Gilcrest, it was in La Salle's fire district.

The Tuesday night fire at Weld County roads 4 and 19 did not cause extensive damage, said Conquest Oil Vice president Dale Butcher. He added that they don't believe the two tank fires are connected. "The only connection is that they were within a week of each other."

Butcher said oil company employees have started the clean-up in both areas and will soon begin repairing the damage to the Gilcrest site.

http://www.greeleytrib.com/article/20080131/NEWS/51690679

USA, MA, WESTFORD
FEBRUARY 1 2008.
YULE DEVELOPMENT CITED FOR OIL SPILL
Kathleen Kirwin

Yule Development Co. was issued a violation order by the Westford Fire Department after Friday's oil spill on Stony Brook.

Westford fire officials received an anonymous call about the oil slick at 9:50 a.m. Friday, according to Donald Parsons, Westford’s fire prevention officer.

Firefighters traced the spill to a detached heating building at Abbot Mill at 1 Pleasant St., which is currently being renovated into apartment units by the Yuel Development Company of Newton.

According to Chris Yuel, president of Yuel, workers were transferring oil from one tank to another, and one of the tanks overflowed. The overflow spilled on the ground and a truck drove through it and splashed the oil into the brook. The oil also got into a hole in the ground that workers had dug the day before.

The tank in question failed a tightness test performed by the Department of Environmental Protection (DEP) earlier this week. As a result the Fire Department issued an order of notice to have contents of the tanks and the tanks themselves removed from the property.

"ENPRO helped with the removal Tuesday," said Rochon.

A second order of notice was given to have the additional tanks at Abbot Mill tested.

"I believe the Board of Health will be making a similar order," said Rochon.

Firefighters and the DEP deployed floating booms to try to contain the spill on the brook.

"We don't know the size of the spill. We have to wait for the DEP to determine that," Westford Fire Chief Richard Rochon said.

ENPRO Services, Inc., an environmental services firm from Newburyport, was called in to help with cleanup efforts.

Lowell, Chelmsford, Littleton and Bedford donated spill-containment materials, including booms, to help control the spread of oil.

Jessica Cajigas, Environmental Compliance Manager of the Westford Water department said the spill would not affect the drinking water in Westford.

For preventative measures the water was to be left off all weekend but due to the fire on Sunday morning the treatment plant went back online early with the approval of the DEP.

According to Cajigas, the oil would not contaminate the water because it remained on the surface of the brook and Westford only uses ground water. Also, the two wells Westford uses are far away from the spill site.
Tank and Petroleum Use Mishaps

“I didn’t see that many pockets of oil in the water. Add that with the distance and the speedy preventative measures taken by the fire department and the DEP and I think our water should be fine,” said Cajigas.
http://www.wickedlocal.com/westford/news/x1151557668

UK, BARROW-IN-FURNESS
FEBRUARY 1 2008.
INQUIRY CALL INTO CONISTON OIL SPILL

South Lakes MP Tim Farron is calling for a full inquiry following an oil leak at Coniston Water.

The spill happened on January 17, after 1,000 litres of diesel escaped from a generator sited 150 yards from the western shore near Hoathwaite, near Torver.

Contractors had been working on the generator on behalf of United Utilities.

United Utilities says the Environment Agency was contacted as soon as the leak was discovered.

It has launched an internal probe into the incident and is co-operating fully with the Environment Agency.

But Mr Farron believes an independent inquiry is needed to prevent a similar incident happening again.

The Westmorland and Lonsdale MP said: “An independent investigation, led by bodies such as the Environment Agency and the Lake District National Park Authority, would be more credible in the eyes of the public.

“If there isn’t a full independent inquiry we may not get to the bottom of exactly how this was allowed to happen.

“For the sake of openness and to protect themselves, United Utilities needs to allow a thorough investigation.”

United Utilities has said it believes the generator was unmanned at the time of the accident.

UU spokeswoman Helen Wilson said: “Our generator contractor has been cooperating fully with the Environment Agency throughout the clean up operation. We are still investigating this incident to ensure it cannot happen again.”

Laboratory tests are under way to discover how much red diesel is still in the ground next to the lake.

A spokeswoman for the Environment Agency said: “We are currently assessing how much diesel has been recovered during the continuing clean-up operation and awaiting laboratory results on samples so we can find out what concentration of diesel is in the ground.

“Specialist contractors are focused on removing residual diesel within the ground and are taking every step possible to prevent any further pollution of the lake.

“Full containment measures, including barriers and booms, will remain around the affected shoreline whilst the clean-up continues.

“We are continuing our investigation into the cause of the leak and are working closely with all parties involved with this incident.

“Once our investigation has been completed we will take appropriate enforcement action in line with our policy.”


AUSTRALIA, NSW, HUNTER VALLEY
FEBRUARY 2 2008.
WELDING SPARK MAY HAVE CAUSED WINERY EXPLOSION: WORKCOVER

A preliminary investigation by Workcover has found that a spark from a welder in an area where flammable liquids were being stored, may have caused last month’s fatal explosion at the Drayton’s winery in the Hunter Valley.

Workcover’s preliminary investigation has indicated that welding work may have been carried out in an area where ethanol and other flamable liquids were being stored.

The explosion killed respected winemaker Trevor Drayton and boilermaker Eddie Orgo. Assistant winemaker William Rikard Bell suffered serious burns.

The incident has prompted a Workcover safety warning to the industry about the risk of fire and explosions in wine production.
Tank and Petroleum Use Mishaps

Spokeswoman Jenny Thomas says employers have an obligation to carry out a thorough risk assessment at their wineries to protect workers.

"They should look at all the potential hazards around, including the use and storage of flammable materials," she said.

"[They need to] be particularly mindful of the kind of work undertaken near those things, such as welding, grinding and any other hot work that might cause ignition."

http://www.abc.net.au/news/stories/2008/02/02/2152755.htm

USA, TX, SLOCUM
FEBRUARY 3 2008.
LIGHTNING PROBABLE CAUSE OF OIL TANKS EXPLOSION
Kenneth Dean

Hours after a lightning strike caused an explosion in a battery of oil tanks, firefighters were finally able to bring the inferno under control. The firefighters not only battled the flames, which at times reached more than 70 feet in the air, but muddy conditions, thick, toxic black smoke and faulty equipment.

Slocum Fire Chief Ben Missildine wiped his brow while leaning against a fire truck, saying, “We began fighting the fire, but we started losing it, and for the safety of all the firefighters we backed up and we’re just letting it burn itself down some,” he said.

He drank a cup of water and called a team of firefighters around him to discuss an attack plan.

“The Texas Railroad Commission just said as soon as we have containment then we can put the foam on it. So let’s get the equipment ready to go and let’s give this thing about another 30 minutes to burn itself down,” he said.

Missildine explained containment, saying the levees around the tanks had to hold not only the oil, but any foam they sprayed and they could not let the combination of liquids breach the levy because of environmental reasons.

Firefighters from multiple fire departments walk away from burning oil storage tanks outside of Slocum today. The storage tanks caught fire after being struck by lightning early this morning.

“So we’re waiting for most of the oil to burn, then put out the flames. We need to put this thing out though because the high winds could start a wildfire,” he said.

Jimmy Cox, a production manager for Don H. Wilson Inc., a small independent oil company based in Slocum, which owns the tanks, said he believes the fire started early this morning by a lightning strike as strong storms moved through the area.

He said that when he arrived about 7:45 a.m., a fire was burning under the hatch of one of the tanks. A pump activated, drew in air and caused an explosion. The fire then roared out of control. “I was right between the tanks when the thing went up,” he said. “I guess you could say I was just a little more than concerned.”

Cox said he and his crew called 911 and watched firefighters battle the fire.

“We just lost about $60,000 in oil today and to make all of the repairs and clean this place up will cost another $100,000 easily.”

He said two of the tanks held 300 gallons of oil each and two held saltwater. Cox and several other Wilson employees watched the firefighters spray the thick foam around the charred tanks and the thick column of black smoke disappear.

The Texas Forest Service cut a new road for the firefighting apparatus to escape from the fire when it changed on them and because the only road to the site was a soupy mess of red mud.

“We’ve dealt with everything this morning,” Missildine said. “But we train for this type of fire and keep a supply of foam on hand all the time, because we have 98 active oil wells in Slocum.”

Cox looked at the burned metal tanks with the twisted metal staircase reaching awkwardly into the sky and lit a cigarette.

“We’ll put an order in for some tanks and hopefully be back up in a week. We have a lot of work to do, but each day we are shut down is a day we’re losing money.”

http://www.tylerpaper.com/article/20080201/NEWS01/89571677
USA, ILL, HARRISTOWN  
FEBRUARY 3 2008.  
LIGHTNING BLAMED FOR EXPLOSION OF ETHANOL STORAGE TANK  
Authorities are blaming the explosion of a 30,000-gallon ethanol storage tank west of Harristown on a lightning strike. Chief Randy Hiser of the Niantic Fire Protection District says he believes the lightning ignited vapor trapped in the tank after a vent on the top had frozen shut, preventing its escape. The blast occurred early yesterday morning. Hiser says the force of the explosion blew the top of the tank more than 350 feet. There were no injuries and damage was limited to the tank itself.  

RUSSIA, REPUBLIC OF DAGHESTAN, ROSTOV-ON-DON  
FEBRUARY 5 2008.  
OIL LEAK IN SOUTH RUSSIA TO BE CLEANED UP BY FEBRUARY 12  
An oil leak which occurred after an oil pipeline ruptured in the Republic of Daghestan in southern Russia will be cleaned up within a week, the regional emergencies center said on Monday.  
The oil pipeline, which pumps oil within the North Caucasus republic, was ruptured on February 3 about 20 km (12 miles) from the Daghestani village of BeliDzh, causing a leak of about 100 metric tons (733 barrels) of crude, with 5 metric tons (37 barrels) seeping into a tributary of the Caspian Sea.  
"The efforts to clean up the leak are due to be completed on February 12. By today, 120 metric tons of contaminated soil and 70 cubic meters of water emulsion and light distillate have been collected," the center said, adding that the pipeline rupture has been repaired.  
The pipeline rupture caused an oil spill of around 1,000 square meters around the incident scene and along a 4 km (2.5 miles) stretch of the Rubas River which flows into the Caspian Sea.  
Floating booms have been placed on the river to prevent the oil slick from reaching the Caspian Sea, the center said.  

USA, NC, HIGHFALLS  
FEBRUARY 5 2008.  
KEROSENE SPILL CLOSES MOORE COUNTY ROAD  
Cleanup crews spent more than six hours Sunday at a northern Moore County convenience store cleaning up 200 gallons of spilled kerosene. The kerosene leaked from a tank at the Quick ’n Easy convenience store on N.C. 22 in Highfalls, north of Carthage, authorities said. The spill was spotted around 11:50 a.m. The fuel leaked into the parking lot and surrounding roadway, prompting N.C. 22 and North Moore Road to be shut down for about 1 hours, according to the Moore County Public Safety Center. The Highfalls Fire Department, the Moore County Special Operations Team, Moore County Sheriff’s deputies and an environmental cleanup crew from Fayetteville responded to the spill, authorities said. No one was evacuated and no one was injured. At 6 p.m., emergency personnel were still on the scene.  
http://www.fayobserver.com/article?id=284787

USA, KY, WURTLAND  
FEBRUARY 6 2008.  
ATTORNEY: CHEMICAL LEAK HAD HAPPENED BEFORE AT PLANT  
Chemical leaks at DuPont’s Eastern Kentucky facility happened before one in October 2004 that injured workers and emergency responders, said an attorney for more than 200 people suing the company.  
The attorney, Jean M. Geoppinger, said e-mails from DuPont released to the lawyers in the case contradict their public statements that a similar accident had not occurred before.  
Court records said that a DuPont senior engineer told officials the company did not install equipment that could have detected the leak because it had never experienced that type of leak before.  
DuPont attorney Dan Danford has said he cannot comment on the e-mails because some of the information is sealed. A cracked pipe at the company’s Wurtland facility released sulfur trioxide, a chemical that formed white clouds of sulfuric acid.  
Tank and Petroleum Use Mishaps

USA, TX, PASADENA
FEBRUARY 6 2008.
BRIDGE RIPS TANK OFF TRAILER, CRUSHING PASSING MOTORIST
Jason Whitely
The driver of the silver 2006 Nissan Armada likely never saw her killer coming: a massive industrial storage tank that dwarfed her large SUV.

“A guy was trying to get under the trestle and apparently it didn’t clear. He lost the vessel and [it] struck the vehicle,” said Vance Mitchell, Pasadena Police. “She just happened to be coming under there at the same time.”

The accident happened on Red Bluff Road in Pasadena just before 1 p.m.
A pickup truck pulling a trailer was carrying the tank around the corner to the Pasadena Refinery. But the delivery would never arrive.
The tank was too tall to slide under the railroad bridge.
The bridge caught the tank, ripped it off the moving trailer, and slammed it down on top of the driver’s side of the passing SUV.

“I’m not sure how it was being held whether it was with chains,” Mitchell added.
A woman was the only occupant in the Nissan Armada; killed in a split second by a massive tank she likely never saw.
The truck is registered to a man in Rusk, Texas, just northwest of Nacogdaches. Police have not yet said whether he’ll face any charges.
The woman’s name has not been released.
http://www.kvue.com/news/state/stories/020408kvueredbluffaccident-mm.8e16beaa.html

INDIA, CHENNAI, BHUJ
FEBRUARY 8 2008.
KANDLA PORT TANK FARM FIRE EXTINGUISHED AFTER 21 HOURS
D V Maheshwani
The huge fire at the Kandla Port tank farm has finally been extinguished after 21 hours of non-stop fire-fighting operations. Tank no. 14, which was filled with 500 tonne of highly inflammable methanol, and belonged to one Kesar Enterprise, caught fire around 11 am on Wednesday. The blaze was finally put out at 8 am today.

“It was a very risky job. The outer steel plate of the tank had turned red with temperatures inside the tank rising up of 1,000 degrees Centigrade. There was a danger of the tank bursting into fragments, and I had instructed my fire fighting team, who were here for hours together, what all to do to ensure their own safety first. Thank God! We managed to bring down the temperature with constant jets of seawater,” said A J Maheshwari, head of the fire brigade at Kandla Port Trust.

He said but for the sea, which was very near to the oil jetty, dousing the flame would have been a Herculean task. He said the cause of the fire was yet to be ascertained and the Baroda-based deputy controller of explosive had already arrived here for investigation. He said, permission for storage of inflammable cargo at the tank farm was given by this agency only.
Meanwhile, sources said that when the dousing efforts did not bring the desired result and the outer plate of the tank turned red hot, fire department officials, fearing an explosion, called for the immediate evacuation of the population from the area. Sources said the biggest threat was from tank number 18, which was only 15 meters away from the burning tank and filled with 1,600 tonne of methanol. But after 21 hours, with constant spraying from six consecutive platforms, the fire was put out.

There are 20 tank farms in the area close to the oil jetty of Kandla Port. Kesar Enterprise has two tank farms, with the accident taking place in tank farm number two.
http://www.expressindia.com/latest-news/Kandla-Port-tank-farm-fire-extinguished-after-21-hours/270623/
Tank and Petroleum Use Mishaps

NEW ZEALAND, BAY OF PLENTY
FEBRUARY 8 2008.

OIL TANK EXPLOSION SPARKS FIRE AT TE PUKE SAWMILL
Vicki Waterhouse and Cleo Fraser

A 2000-litre hydraulic oil tank exploded at a Te Puke sawmill yesterday afternoon _ sparking a fire that took firefighters more than an hour to put out.

Chief fire officer Glenn Williams said the oil tank exploded at 12.15pm yesterday at Pukepine Sawmills on Jellicoe St.

"The top exploded off it and had oil burning around the tank," he said. "When the lid first blew open it caused spectacular flames."

Nobody was hurt in the fire because staff had the day off due to the public holiday.

An employee of the sawmill saw the fire from his home and called emergency services, before trying to put the fire out with a hose.

He contained it but was unable to put it out.

Mr Williams said the fire was probably caused by workmen who were welding above it the day before.

He suspected some of the hot welding material had dropped down on some combustible timber which had caught alight and then spread to the oil tank.

Firefighters needed to bring in foam to extinguish the flames.

Pukepine Sawmills general manager Jeff Tanner said he suspected that the area wasn't `watered down' after work had finished, which is a procedure when welding at the sawmill.

"It was a rather spectacular explosion," he said. "A fire at the sawmill is our worst nightmare so we definitely don't want to let this happen again."

There was minor damage to the area due to there being minimal flammable material in the area.

Fires have occurred at the sawmill in the past, including one in October when a fire in a hydraulics cabinet activated the sprinkler system.

Mr. Tanner said they had never had a fire as big as yesterdays.

The sorting area is not operational today and affects 20 employees. He believed the fire caused between $10,000-$20,000 in damage to the building.

http://www.bayofplentytimes.co.nz/localnews/storydisplay.cfm?storyid=3762993&thesection=localnews&thesubsection=&thesecondsubsection=

USA, GA, PORT WENTWORTH
FEBRUARY 13 2008.

EXPERTS CALLED IN TO PUT OUT STUBBORN SUGAR FIRE IN GEORGIA

Specialists arrived Tuesday to help extinguish a five-day-old sugar-refinery fire burning too intensely and deeply for standard firefighting to douse, and officials feared the deadly blaze could once again trigger explosions.

Thick masses of molten sugar were smoldering at temperatures as high as 4,000 degrees and three more fires ignited Tuesday, even after a helicopter dumped thousands of gallons of water on the fire.

"We're dealing with a dormant volcano full of lava," said Capt. Matt Stanley from the fire department in nearby Savannah.

Six people are confirmed dead in Thursday's fire and two other workers remained missing Tuesday.

The fire was knocked back enough that emergency workers were able to expand their search area Tuesday, and they now say that 95 percent of the refinery has been combed.

One search dog fell into a pool of hot molasses Tuesday, but suffered only minor burns on its hind legs and was able to go back to work, Stanley said.

Officials said they were able to remove five railcars that were blocking a section of the plant they have yet to reach. Port Wentworth Fire Chief Greg Long said if the progress continues, the entire blaze could be snuffed out by Wednesday night.

"We have made marvelous progress," said Long. "We've got a good hold on this and I don't want to let it go."

The sugar fire offers a particularly difficult challenge. Firefighters hope to extinguish it by cooling and solidifying the top layer of the smoldering sugar, forming an oxygen barrier to smother the fire below.

A helicopter with a 250-gallon bucket dropped almost 100 loads of water from the Savannah River on gutted silos of burning sugar Monday, reducing the temperature of the sugar to about 2,800 degrees. It left only a
Tank and Petroleum Use Mishaps

bit of a crust on the sugar.
That means a dangerous fire is still burning under the top layer, said Long.
"It can still burn underneath, and can re-ignite into other areas," he said. "We've put out the top, we just can't get to the core."

Local officials have called upon a Texas company that specializes in putting out oil and silo fires, Williams Fire Suppression. On Tuesday the company was hauling in specialized equipment from North Carolina that can pump out 6,000 gallons of water and foam a minute.

Using water pumped from the nearby Savannah River, firefighters expect to be ready to attack the blaze by noon Wednesday. They plan to perch on a tower rising above the refinery, and train their hoses on the blaze below.

"It's unconventional," said Chauncey Naylor, the company's vice president. "But that's why we're in business. It's a specialty that requires a little bit of outside-the-box thinking."

He adds: "Sugar's definitely different. I've never put out a sugar fire, but I'm fixing to put this one out."

Mayor Glenn "Pig" Jones expressed renewed hope Tuesday that the outside help will dampen the blaze.

"Any time you bring in more resources, it's always a good thing," said Jones. "We still have two people missing and I know they won't give up until they find those people."

The Imperial Sugar Co. refinery is located on a 160-acre site on the river upstream from Savannah. The plant is 872,000 square feet and 111,000 square feet -- about 12 percent -- was destroyed, said company spokesman Steve Behm.

Imperial CEO John Sheptor said the company plans to repair the plant and an engineering team was preparing to begin the job of determining what needs to be done.

Workers will continue to be paid, he said. But there's no telling how quickly the plant can be rebuilt.

Port Wentworth residents are eagerly awaiting further word on the future of the refinery, the economic engine of this town of about 5,000.

"If you live in this city, if you don't have a relative who works there, I promise that you know people who work there," Jones said. "The refinery is a cornerstone of the city, and I've got friends with four and five generations of family working there. When a grandfather retires, a grandson is hired."

Seventeen workers remained hospitalized Monday -- 16 in critical condition with severe burns -- said Beth Frits of the Joseph M. Still Burn Center in Augusta.

Dr. Fred Mullins, medical director for the burn center, said it will likely be a week or more before there is any significant sign of recovery for the patients, many of whom will require skin grafts for their most severe burns. Infections are the biggest fear, he said.

"When you get burned like this, your immune system doesn't function properly," Mullins said.

One worker, Paul Seckinger, has burns over 80 percent of his body and can't talk because he's on a ventilator. But his mother, Karen, said Tuesday the 34-year-old is alert, and is able to respond by shaking his head or moving his feet.

"When we came, they told us there'd be good days and bad days. But today was a good day," she said at a press conference at the Augusta hospital.

Justin Purnell, 23, suffered burns on 60 percent of his body and will likely spend about two months in the hospital, his wife said.

"He's very strong, so we know he will pull through," Jenny Purnell said. "Nobody can imagine. It's amazing how your life can change."


INDIA, CALCUTTA, RAIGANJ

FEBRUARY 15 2008.

4 KILLED IN MOLASSES MORASS

Four men working in a cattle feed factory here died today and another fell ill when they entered an underground tank half-filled with molasses and kept shut for over a month. The workers are suspected to have inhaled methane gas, produced when molasses ferment.

Jitendranath Dutta, the owner of Naaf Dana, has been arrested. He said the management was not responsible for the deaths.

"It was an accident. We always ensure workers' safety. The deaths have saddened me though the management is not responsible for it," said Datta, who is the president of the Raiganj Merchants' Association.

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Tank and Petroleum Use Mishaps

The 20-year-old factory is located along NH34 in Goalpara. The molasses, which is mixed with corn meal and coarsely grounded wheat to produce cattle feed, was stored in the 22ft deep tank (See graphics).

If figures of the accumulated and sold stocks are to be believed, at least 10ft of the tank was filled with molasses.

One of the factory workers, Ratan Dey, who is also an eye-witness, said for the past one month, the manufacture of cattle feed had been suspended because of a shortage of molasses. “Yesterday, around 11.30am, we were asked by the management to check the quantity of molasses remaining in the underground tank,” Dey said.

Today, it took 10 workers to open one of the two hatches. Although there was a stench, Bhabesh Barman slid down a ladder into the tank.

“When Bhabesh did not surface even after 10 minutes, Uttam Sarkar went in. When he, too, did not emerge, Montu Baske and Ashis Bala went down to investigate,” Dey recalled.

When none of the four responded to frantic calls from those waiting on the edge of the hatch, Dey along with another worker, also called Uttam Sarkar, tried to peer into the tank with a torch, but it was too dark to see anything. “We could smell the foul stench. As Uttam went down a rung or two, he seemed about to topple. But this time we were alert and caught him by the shirt. We pulled him up and he slumped to the floor,” said Dey.

The fire brigade was called and men in gas masks entered the tank and dragged out the four men.

Sources at the district hospital said Bhabesh and Uttam had been pronounced dead on arrival while the other two expired 10 minutes after they were admitted.

Bidhan Sarkar, a high school chemistry teacher here, said molasses when they ferment produce methane gas, which is very toxic.

“The gas must have accumulating in the tank for the past one month,” Sarkar said.

North Dinajpur police chief Swapan Banerjee Purnapatra, who visited the spot, said the inside of the factory was poorly ventilated. “If there was proper ventilation, the fatalities could have been avoided,” he said.

The police said one of the dead was from Shilpinagar here in town while the others were from Sonapur in the Itahar police station area.

Civil defence minister Srikumar Mukherjee, who is the CPI MLA from Itahar, said he would see to it that the families of the dead workers got compensation.

http://www.telegraphindia.com/1080214/jsp/frontpage/story_8901272.jsp

USA, IA, DES MOINES
FEBRUARY 17 2008.
IOWA FALLS ETHANOL SPILL MIGHT THREATEN POND
Jacqueline Lee

About 10,000 gallons of ethanol that spilled in an accident may be headed toward a small pond known in Iowa Falls as Dago Lake, officials said.

About 29,000 gallons were spilled overall at the Hawkeye Renewables plant at about 3:15 a.m. Friday. Iowa Department of Natural Resources officials expect to have results from contamination tests by the end of this week.

"The potential magnitude would be pretty great, but I don't know what the aquatic life in Dago Lake is, and it's under ice, so we won't know until the ice thaws," said Eric Wiklund, an environmental specialist with the DNR, who said samples from the lake will be sent to the DNR lab Monday.

Ethanol cannot be moved in pipelines. Instead, it is transported in rail-car tankers that generally hold 29,000 gallons. The spill occurred when a fill pipe did not properly connect to the tanker.

"Their computer system was going to disperse 29,000 gallons into the tank and it did, and none of that made it into the tank," Wiklund said. "The system is programmed so that it won't allow the discharge unless the pipe is over the car. Well, it was over the car, but it wasn't over the opening of the car."

Wiklund said it typically takes about 45 minutes to discharge 29,000 gallons of ethanol into a tanker.

"They did not see the spill until they came out to fill the next tanker car," Wiklund said. He said the DNR does not regulate loading procedures. He also said that no laws regulate the distances between ethanol plants and natural areas such as Dago Lake.

The company said in a news release that it began cleanup procedures immediately.

Hawkeye Renewables spokesman Nick Ryan said "it is also important to note that no ethanol left the plant property."
Tank and Petroleum Use Mishaps

"We do not believe any ethanol went into the lake," Ryan said. "We've made every effort to perform the cleanup in a complete and efficient manner."

Wiklund said officials started moving the ethanol and contaminated soil to a landfill Saturday. Hawkeye Renewables will pay for the cleanup by Hydroclean of Des Moines.

Wiklund said Hawkeye Renewables followed rules for handling such accidents. The company discovered the spill at about 4 a.m. and contacted the DNR at about 6:45 a.m.

"There's always the possibility of an administrative penalty," Wiklund said. "Anytime that we do an enforcement action, it also goes to the attorney general for review. They can take the case from us if they feel it is significant enough."


USA, GA, SAVANNAH
FEBRUARY 18 2008.

STATEMENT OF CSB INVESTIGATIONS MANAGER STEPHEN SELK, P.E., UPDATING THE PUBLIC ON THE INVESTIGATION OF THE IMPERIAL SUGAR COMPANY EXPLOSION AND FIRE, SAVANNAH, GEORGIA

Good afternoon and welcome to this first U.S. Chemical Safety Board briefing on the Imperial Sugar Company explosion and fire.

I will begin this afternoon by explaining the Chemical Safety Board's role. Following that I will present a primer on dust explosions. And then I will show you a pair of large photographs and describe some of the devastation to the Imperial sugar refinery. Finally, I will try and answer any questions you may have.

The state fire marshal, firefighters, the police, and agents of the Bureau of Alcohol, Tobacco, Firearms, and Explosives departed the site on Friday evening after ruling out any intentional setting of a fire or explosion. They have left because this tragic event was an accident.

Two federal entities remain onsite at Imperial Sugar, the Occupational Safety & Health Administration (otherwise known as OSHA) and the Chemical Safety Board. We are working with each other both logistically and technically. However, we will conduct independent investigations. The reasoning for that is OSHA is a regulatory arm of the government and the Chemical Safety Board is not. The Safety Board is an independent scientific and technical agency. Our mission is prevention. We are here to identify how to keep this from happening again at Imperial Sugar and across the country at other industrial establishments. We will do that by making public our findings and issuing safety recommendations. The Board may make recommendations to trade associations, professional organizations, code making bodies, companies, and even to the government itself through recommendations to OSHA if appropriate.

We recognize Senators Isakson, Chambliss, Kennedy, Enzi, and Murray for their attention to this tragic event and their joint request that both the Chemical Safety Board and OSHA conduct thorough investigations. We also thank Representative Barrow and House Labor Chairman Miller for their concern and support during the investigations.

The Board will conduct a thorough investigation to understand why this tragedy occurred. The product of the investigation will be a detailed written report that we will release to the public. We may also conduct public briefings and hearings here in the community over the coming months, as appropriate.

The Chemical Safety Board has been concerned about dust explosions for at least four years. In 2003 the Board investigated three catastrophic dust explosions. One at West Pharmaceutical Services in Kinston, North Carolina, where plastic powder that had accumulated above a suspended ceiling exploded, killed six and gravely injured many others. At CTA Acoustics in Corbin, Kentucky, phenolic resin - another plastic powder - exploded killing 7 and again injuring many others. And at the Hayes-Lemmerz automobile wheel plant in Indiana, aluminum powder exploded killing another worker. That plant has since closed. Both the other plants had to be demolished and rebuilt.

After investigating these three explosions in just one year the Chemical Safety Board undertook a larger study of the extent of the industrial dust explosion problem. The Board identified 281 fires and explosions over a 25-year period that took 119 lives and caused 718 injuries. Some 24% of these incidents took place in the food industry. Pursuant to its findings the Board made several recommendations - including recommendations to OSHA - which OSHA has so far partly acted on. But the tragic event that occurred here in Savannah demonstrates that the problem of dust explosions in industry has yet to be solved. It is a problem that requires further attention.

Chemical Safety Board investigators arrived at the Imperial Sugar Company refinery approximately 18 hours after the explosion and we have been here since. Additional Safety Board investigators will arrive on
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Monday. The full resources of the Board are at the disposal of the investigation team and they will be brought to bear accordingly.

The team has been conducting interviews and examining damage. There is much more work to be done and we will keep you apprised of our progress in future briefings.

Let me now provide a primer on dust explosions:

It is necessary for five elements to be in place for a dust explosion to occur.

First is the presence of a combustible dust itself. That can be almost any organic material - grain flour, plastic, corn starch, pharmaceuticals, and even powdered metals such as aluminum. And as was the case here in Savannah sugar particles are a combustible dust.

An important parameter is the particle size. Finer particles are more likely to be both ignitable and dispersible. Additional parameters are particle shape and the molecular composition of the substance itself.

A second needed element is a source of oxygen. Because air contains appreciable amounts of oxygen, air is all that is necessary to support an explosion.

Thirdly, the dust needs to be dispersed into the air.

Finally, some energy source is required to ignite the mixture. That may be something with as little energy as static electricity or a stronger energy source such as an open flame or an electrical fault.

A final element is confinement. And because buildings have walls, ceilings, floors and roofs, they create confinement. However, another form of confinement may be process equipment and even ducting. It can be ironic that dusting used for dust collection and other equipment such as dust collectors can themselves be conducive for the initiation of dust explosions.

An important attribute of dust explosions is that they may propagate. In such instances some primary event occurs that kicks up larger amounts of dust that may have accumulated and disperses the dust into the air. When this happens the stage can be set for catastrophe. A very large flammable dust cloud ignites with devastating consequences. In other instances an initial explosion may simply propagate as the blast wave ahead of a rapidly advancing flame front - the fireball - which disperses more dust and ignites as the fireball expands.

When a dust explosion occurs in a building, walls may blow out, floors may heave, and ceilings may collapse. This can all occur in a few seconds. It is therefore not unusual for local fire protection and electrical systems to be almost instantly crippled. Occupants may at first find themselves burned, or blown about, or struck, or among rubble. At worst they may experience all of that. At first they may find themselves in darkness or the obscurity of smoke. But fires initiated by the thermal energy of the explosion may follow and grow. The scene is set for tragedy.

Let me now turn to the circumstances of the Imperial Sugar Company refinery explosion here in Savannah. There are two photographs that I will show you that depict the physical devastation to the facility.

In the first photograph three large storage silos are visible. The granular table sugar produced in the refinery passed through and was stored in these silos. The tops of two of the silos are missing or largely missing suggesting that at some time in the sequence of events, explosions occurred within them. In the foreground there is a building in which there has obviously been an explosion. The brick walls are largely blown out. Sugar was packaged in this building. Additionally, granular sugar was pulverized into powdered sugar. There were other operations in the building as well. This building will figure prominently in the ensuing investigation. To the left or southwest is an area where cartons of the packaged sugar were palletized and then transferred to the storage warehouse. This area displays fire damage as opposed to explosion damage. There has been a fire which has caused the steel structure of the building to soften from heat and to collapse.

Let me turn now to the second photograph. This photo was taken by CSB investigators from an elevated platform suspended by a large crane. To the left side of the picture there are the remains of a burned out building. It is my understanding that this interior building dates back to a very early time in the refinery's evolution. It was constructed many decades ago and while it had brick walls and a steel truss much of the construction was timber. A maintenance shop and the refinery laboratory were in this building. The building is almost completely consumed by fire. To the east adjacent to the silo, known as the number one silo, there was a bucket elevator that lifted the sugar from the refinery and carried it to the silos. Explosion and fire damage appear in this area and further eastward.

As you can see the damage to the facility is widespread and extensive. In the ensuing weeks, investigators will enter these areas as part of their effort to reconstruct the explosions and fires.

It is also apparent in the photographs that many structures within the refinery have been compromised. It will be necessary to perform a strategic disassembly of these areas while, simultaneously allowing for investigative

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access. The Imperial Sugar Company has engaged structural engineers to assist them and we will also do so if necessary. This afternoon I will meet with the company and their engineers to begin this planning process.

This is a most difficult time for the people of the Imperial Sugar Company and for the community here as a whole. Imperial Sugar employees have cooperated with the Chemical Safety Board. We appreciate their cooperation and look forward to working with them further to help prevent something like this from happening again here and elsewhere.

http://www.csb.gov