

This is the list of the 2 natural gas and the 7 LPG notifiable accidents reported to Energy Safety for which the investigation was completed between April and June 2009



## The natural gas notifiable accidents

<b>Event ID:</b>	<b>081208-04</b>
<b>Event summary</b>	Third party strike on an intermediate pressure gas main in New Lynn, Waitakere City, resulting in major gas leak and causing disruption to rail services.
<b>Event date</b>	08/12/2008
<b>Site</b>	Public
<b>Environment</b>	Outside (Above Ground)
<b>Equipment</b>	Other
<b>Event</b>	Gas Leak, Escape
<b>Casualty</b>	No casualty
<b>Injury</b>	No injury
<b>Property damage level</b>	Extended to the site
<b>Outcome of investigation</b>	A pile was driven into an intermediate pressure gas main. Incorrect identification of the actual location of the gas main appears to be the immediate cause of the incident. The construction work was being done in a constrained site and consequently clearances were tight. Nonetheless, a number of additional steps could have been taken to more positively locate either the path of the pile or the location of the gas main.
<b>Event ID:</b>	<b>090129-03</b>
<b>Event summary</b>	A craftsman gasfitter advised that he had measured levels of carbon monoxide between 178 and 228 ppm in a space used by workers at a take away food outlet. He ascribed the carbon monoxide to faults with the burner on a semi-flued appliance that relied on an air extraction system and to faults with the extraction system. The craftsman had been called after four employees had suffered headaches and one had reported a gas smell. One employee had reportedly been diagnosed with carbon monoxide poisoning after being rendered unconscious two years previously. The matter was referred to the Department of Labour for further investigation.
<b>Event date</b>	23/01/2009
<b>Site</b>	Commercial
<b>Environment</b>	Building
<b>Equipment</b>	Commercial ovens
<b>Event</b>	CO Poisoning (Incomplete Combustion)
<b>Casualty</b>	Injury
<b>Injury</b>	Asphyxiation, Toxicity
<b>Property damage level</b>	No property damage
<b>Outcome of investigation</b>	Carbon monoxide had evidently entered the working environment due to an improperly operating system for extracting products of combustion. Also, the extraction system filters were evidently blocked. The notifying craftsman gasfitter considered the system had been unsafe since it was installed in 2002. He advised that he had carried out remedial work and taken action to ensure that there was no further hazard. The Department of Labour advised that a warning letter had been sent to the operators. Energy Safety could not locate record of gas certification certificate. The installation was certified after remedial work had been carried out.

## The LPG notifiable accidents

<b>Event ID:</b>	<b>080620-02</b>
<b>Event summary</b>	An elderly infirm person, living alone caught fire when operating an LPG cabinet heater in her home. A carpet cleaner who was nearby tried to assist but was unable to extinguish the flames in time.
<b>Event date</b>	18/06/2008
<b>Site</b>	Domestic
<b>Environment</b>	Building, Underground
<b>Equipment</b>	Space heater cabinet heater
<b>Event</b>	Fire, Explosion
<b>Casualty</b>	Fatality
<b>Injury</b>	Burn
<b>Property damage level</b>	No property damage
<b>Outcome of investigation</b>	A coroner found that the fatality resulted from ignition of clothing and leg bandaging by the cabinet heater about the time the heater was lit. Cabinet heater importers and manufacturers agreed to improve safety information on cabinet heaters.
<b>Event ID:</b>	<b>090227-03</b>
<b>Event summary</b>	A blaze at a restaurant and backpackers drew fire crews from around the district. The building was badly damaged but that there were no injuries. Fire was observed to have originated in area of gas cylinders, connected to heater.
<b>Event date</b>	26/02/2009
<b>Site</b>	Commercial
<b>Environment</b>	Building
<b>Equipment</b>	Copper
<b>Event</b>	Network Disruption
<b>Casualty</b>	No casualty
<b>Injury</b>	No injury
<b>Property damage level</b>	Extended to multiple rooms
<b>Outcome of investigation</b>	LPG leakage from area of cylinders suspected with ignition by unknown electrical source.
<b>Event ID:</b>	<b>090427-10</b>
<b>Event summary</b>	Fire Service was called out by tenant following persistent, unusual burning like smell. Tenant was subsequently taken to A&E following vomiting and other symptoms diagnosed by hospital as exposure to unspecified gas. Fire Service took measures to isolate gas and subsequently measured CO in premises. CO levels were highest in vicinity of LPG cook top. One of the burners on the cook top was found to be hot a considerable time after gas after efforts to isolate gas.
<b>Event date</b>	10/03/2009
<b>Site</b>	Domestic
<b>Environment</b>	Building
<b>Equipment</b>	Domestic freestanding cooker
<b>Event</b>	CO Poisoning (Incomplete Combustion)
<b>Casualty</b>	Injury
<b>Injury</b>	Asphyxiation, Toxicity
<b>Property damage level</b>	No property damage
<b>Outcome of investigation</b>	The following factors were considered indicative of CO emissions from a light back condition with right hand rear burner inadvertently left slightly on: <ul style="list-style-type: none"> <li>- Measured levels of CO in the atmosphere were highest about the cook top (26 ppm).</li> <li>- The control knob to the right hand rear burner was found slightly on.</li> <li>- Unusual, pronounced smells were reported by the Fire Service and the tenant.</li> <li>- No other potential source of CO was found in or about the premises.</li> <li>- The right hand rear burner was found to be hot, with no visible flame.</li> <li>- The tenant suffered symptoms consistent with CO poisoning.</li> <li>- Hospital clinical notes indicated a diagnosis of exposure to gas.</li> <li>- Burn patterns were observed on the right hand rear burner and spark electrode.</li> <li>- The burner produced significant amounts of CO when tested in a simulated light back</li> </ul>

condition.

A dead spider was found in right hand rear burner well. It was concluded that the most likely explanation for the light back was that the spider's body or a spider web (possibly destroyed by lighting back) may have obstructed the flow of gas.

The burner was found hot a significant time after efforts to isolate gas at the supply cylinder, indicating that the efforts did not stop the light back condition.

<b>Event ID:</b>	<b>090414-01</b>
<b>Event summary</b>	Police reported that a large explosion at a fish and chip shop that appeared to have resulted from the leakage from an LPG installation. A person who had been in the shop was taken to the local hospital with serious injuries. The person was subsequently transferred to the Hutt Hospital's specialist burns unit in a critical condition. The explosion was initially investigated by the Police and then the Department of Labour, with Energy Safety providing assistance.
<b>Event date</b>	09/04/2009
<b>Site</b>	Commercial
<b>Environment</b>	Building
<b>Equipment</b>	Hose assembles
<b>Event</b>	Fire, Explosion
<b>Casualty</b>	Injury
<b>Injury</b>	Burn
<b>Property damage level</b>	Extended to the site
<b>Outcome of investigation</b>	The Police who concluded that gas had leaked from a damaged bayonet fitted LPG hose. Further investigations were carried out by the Department of Labour. The DoL investigator advised that: <ul style="list-style-type: none"> <li>- Leaking gas may have been ignited by a spark from cycling of a freezer;</li> <li>- The hose appeared to have been stressed during shifting of the appliance it was connected to during cleaning; and</li> <li>- There was no restraint chain or mechanism in place to prevent stressing of the hose.</li> </ul>

<b>Event ID:</b>	<b>090520-01</b>
<b>Event summary</b>	Owner connected newly re-filled cylinder to older LPG cabinet heater. On ignition heater caught fire around regulator connection to cylinder. The Fire Service was then called to resultant fire which destroyed heater and cylinder.
<b>Event date</b>	15/05/2009
<b>Site</b>	Domestic
<b>Environment</b>	Building
<b>Equipment</b>	Space heater cabinet heater
<b>Event</b>	Fire, Explosion
<b>Casualty</b>	No casualty
<b>Injury</b>	No injury
<b>Property damage level</b>	Restricted to the direct vicinity of the equipment
<b>Outcome of investigation</b>	The heater regulator was connected to the cylinder by way of a POL- to- Clip on adapter. Based on the following factors, it was concluded that the fire resulted after gas leaked at high pressure from the cylinder after the O-ring seal on a POL fitting went missing: <ul style="list-style-type: none"> <li>- Heat damage was most notable about the cylinder connection point.</li> <li>- On examination the O-ring was missing on the POL fitting.</li> </ul> The adapters are supposed to be permanently sealed into the cylinder, but they can be removed from the cylinder by applying excessive force. It is believed that O-ring went missing after the adapter was forced. This is because the POL fitting was found to be loose and flats on the nut of the fitting showed signs of forcing. Damage was noted on one of the heater plaques, but this was not believed to have been a factor in the cause of the fire.

<b>Event ID:</b>	<b>090519-01</b>
<b>Event summary</b>	An LPG heater with a newly filled LPG cylinder (that was not new) caught fire on first use after being purchased new. The owner ignited the heater on the first setting, and was turning the heater to the second setting when a fire erupted under and around the heater. He took his granddaughter downstairs, instructed her to go to the neighbours, and returned with the aim of turning the heater off, but this was not possible as there were now several fingers of flame. He walked away and called the fire service. He then returned with a neighbour to find the paint of the heater blistering, so retreated. As the fire brigade arrived he could hear a definite hissing, followed by a whomp sound. The ensuing fire resulted in estimated \$140k damages to the house and contents.
<b>Event date</b>	17/05/2009
<b>Site</b>	Domestic
<b>Environment</b>	Building
<b>Equipment</b>	Space heater cabinet heater
<b>Event</b>	Fire, Explosion
<b>Casualty</b>	No casualty
<b>Injury</b>	No injury
<b>Property damage level</b>	Extended to multiple rooms
<b>Outcome of investigation</b>	Most likely gas leaking at high pressure was ignited by the heater. The leakage could have occurred at the point where the cylinder connected to regulator or from ullage screw (the cylinder filler evidently loosened the ullage screw during filling). The owner was evidently an experienced welder and aware of the need to ensure cylinders are correctly fitted to regulators.

<b>Event ID:</b>	<b>090525-03</b>
<b>Event summary</b>	A table top patio heater was purchased with the hose already connected. On the first time of use there was a smell of gas so the owner checked the connection point to cylinder and found it was sound. On second time of use, after running for an hour, there was a slight smell of gas. The owner turned the heater off (from the fully on position). Straight after doing so a small fire occurred at the heater. The owner then attempted to turn the heater off at the cylinder valve but inadvertently turned it the wrong way. The heater was became engulfed in flames so the owner called the fire service who attended and turned the cylinder off.
<b>Event date</b>	21/05/2009
<b>Site</b>	Domestic
<b>Environment</b>	Outside (Above Ground)
<b>Equipment</b>	Patio heater
<b>Event</b>	Fire, Explosion
<b>Casualty</b>	No casualty
<b>Injury</b>	No injury
<b>Property damage level</b>	Restricted to the direct vicinity of the equipment
<b>Outcome of investigation</b>	Leak at the base of the heater, evidently as a result of either a faulty crimped connection on the heater supply hose or a failure by supplier to adequately tighten nut on supply hose to heater. Gas had been smelt on the first time of use, but this was not ascribed to the leak. Supplier checked fittings on a number of other heaters, but found no leaks, and undertook to advise staff to take care when installing hoses on gas appliances to ensure they did not leak at the point of connection.

