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Failure Type	Date Occured	Description	File #
Cylinder failure design/manufacturing issue	1976	In Italy Faber Type 1 rupture due to lamination in sidewall	1976-1 PT
NONE	7/4/84	CNG Billings (MT) Yellow Cab (1980 Chevrolet Impala) broadsided gasoline Chevrolet pickup. Driver's side gasoline tank on pickup split, pouring gasoline over front of taxi resulting in fire. No leaks or damage to CNG system. Minor driver injuries.	1984-1
Fire - fuel line leak	1985	Bi-fuel 1983 AMC Eagle owned by Philadelphia Electric Co. Gasoline fuel line failed leading to engine fire. Apparently CNG fuel line ruptured in fire, causing explosion and feeding fire. Two minor injuries.	1985-1
Cylinder failure design/manufacturing issue	1985	In Italy Faber Type 1 rupture due to lamination in sidewall	1985-2 PT
NONE	Winter 1987	Bi-fuel 1976 Ford hit another vehicle and a utility pole in Vancouver BC. Small gasoline fire ensued. No damage to NG system. Serious injuries to both drivers.	1987-1
Cylinder failure design/manufacturing issue	1989	New Zeland - IMZ Type 1 Rupture due to poor heat treatment	1989-1 PT
Cylinder failure PRD altered	1989	Argentina -Inflex Type 1 failed in vehicle fire the PRD had been altered	1989-2 PT
Cylinder failure design/manufacturing issue	1989	Argentina - Bogap Type 1 failed due to poor heat treatment	1989-3 PT
None PRD release	7/6/90	Fire in Central Netherlands Transport bus garage destroyed 35 buses (including two fully fueled CNG buses). "The safety systems worked perfectly" and all cylinders were intact after the fire. Apparently CNG buses did not cause or contribute to fire.	1990-1
Cylinder failures design/manufacturing issue	1991	Italy - Several Bogap Type 1 failed due to poor heat treatment	1991-1 PT
Cylinder failure fire no PRD	1992	Italy -Faber Type 1 failed in fire (vandalism) there was no PRD installed on the cylinder	1992-1 PT
Cylinder failure - damage to wrap and over pressure	8/26/93	CNG Cylinder Co. type 2 aluminum cylinder with fiberglass wrap ruptured in Southeastern Michigan Gas Co. Chevrolet Corsica, puncturing the gasoline tank and causing a fire. Escaping NG fed fire. Substantial pre-existing damage to wrap and overpressurization to 4000 psi found. 1983 DOT exemption cylinder with no record of required three year hydro test and visual inspection. One serious injury.	1993-1
PRD release (burst disk with no thermal backing) -over pressure	Dec-93	Cherry Creek, CO School District bus leaked gas during storage in indoor garage. Overhead heaters caused fire and small explosion. All seven tanks vented and fed fire. Speculation that DOT 3A 2400 psi cylinders may have been overfilled at local 3000 psi station (not NGV1 connectors) and additional expansion when heaters came on could have failed 3750 psi cylinder burst disc. No injuries.	1993-2
Engine performance/design issues	1993 - 1996	Hercules engines in school buses and shuttle buses. Various engine (throttle body, sensors, computers, head gaskets, low compression, melted pistons) and fuel problems.	1993-3
Cylinder failure fire no PRD	1993	Italy - Faber Type 1 Failed in fire (traffic accident) there was no PRD insralled on cylinder	1993-4 PT
Leak due to failed breakaway disconnect	1/15/94	Las Vegas transit bus drove away w/o disconnecting fueling connector. Breakaway at dispenser did not function. Check valve on outside of bulkhead connector pulled loose, allowing gas flow which ignited. No injuries but bus heavily damaged.	1994-1
Cylinder failure - SSC	1/18 and 2/1/94	Comdyne (type 3) tank ruptured during refueling in PG&E and Minnegasco 1992 GMC Sierra pickup trucks. Caused by stress corrosion cracking of cylinder composite wrap, from exposure to battery acid dripped through bolt holes in truck bed. No fires, two injuries.	1994-2
NONE PRD release	Fire - Feb-94	CNG powered bus caught fire in a maintenance garage in Bryan, TX (Brazos Transit). Fire caused by short circuit igniting leaking power steering fluid. CNG vented properly. "Gas ignited in a fireball against the door, but did no damage."	1994-3

NONE Pressure relief valve on station released in operation		3/23/94	Sun Oil Co. fueling station in Philadelphia area PRV automatically relieved to reduce system pressure. No fire or equipment failure. Noise of valve relieving brought the fire department and media attention.	1994-4
NONE accident	Traffic	4/94 (?)	1992 CNG pickup owned by Energas Co. was broadsided in Midland, TX. Tanks, valves and fuel lines all remained intact. One tank supporting strap broke. No injuries or fire.	1994-5
Leak due to traffic accident - broken connector		Oct-94	SaskEnergy CNG pickup hit by oncoming car. The two steel Faber 70 liter cylinders mounted in the truck box stayed in place. Threaded connection stripped off valve and leaked. No fire or injury noted.	1994-6
Leak - poor PRD design and installation		1994 - 1996	Widespread Mirada PRD leakage failures caused by O-ring extrusion, low eutectic melt temperature, ice formation and over torquing causing premature trigger failure.	1994-7
Cylinder leak manufacturing defect		1994	Canada at Union Gas an EDO Type 4 had a leak of the plastic liner due to manufacturing defect at neck	1994-8 PT
Cylinder leak manufacturing defect		1994	Las Vegas Lincoln Type 4 leaks in plastic liner of several tanks due to poor fusion welds	1994-9 PT
Cylinder leaks from poor cylinder and valve design		1995 - 1997	EDO LiteRider (type 4) tank leaks from o-rings at the valve/boss interface, from the valve/liner interface and cracking of the liner. Leaks noted in many different transit applications throughout North America.	1995-1
CNG station cylinder failure due to poor relief valve installation		2/13/96	A gas recovery vessel ruptured at a Columbia Gas CNG fueling station in Toledo, OH. The relief valve on the pressure vessel failed to operate, probably because water had collected in the vent pipe and rendered it inoperable. Explosion and fire. No injuries.	1996-1
Cylinder failure - over wrap damage and overpressure		4/3/96	A 12-year old aluminum-lined Type 2 cylinder produced by NGV Systems ruptured on a pick-up truck at Alabama Gas Co. No injuries were reported. The cylinder was suspected of having external physical and ultraviolet (UV) damage as well as being overpressurized.	1996-2
Cylinder failure - possible SSC		6/3/96	A Comdyne Type 3 cylinder in a converted Chevrolet van owned and operated by Crown Services ruptured in Houston, Texas. No serious injuries reported other than temporary loss of hearing.	1996-3
Cylinder failure - damage from impact		8/21/96	Rupture of one of 10 EDO cylinders on LACMTA Neoplan bus. No one on board and no fire or injuries. Extensive damage to bus. Determined that some sort of impact had damaged tank. Tanks were mounted under the bus and not protected from damage. Aluminum panels were placed under underfloor tanks to provide future protection.	1996-4
NONE - engine design issues		1996 - 1997	"Combustion irregularities" in Ford Contour bi-fuel vehicles.	1996-5
Cylinder failure fire poor installation of PRD		1996	Canada - private conversion in Surrey a Faber Type 1 failed in fire (vandalism) since PRD was located in a separate compartment from the cylinder	1996-6 PT
Cylinder failure SSC		1996	Argentina Kalvanco Type 3 (aluminum liner with E glass uncoated) exhibited stress corrosion cracking (SSC) of overwrap and failed during fueling	1996-7 PT
Cylinder leak damaged		1996	Pennsylvania CATA - EDO Type 4 damaged by overpass which punctured cylinder causing rapid leak	1996-8 PT
Cylinder failure SSC		6/20/97	A Comdyne Type 3 cylinder on a United Airlines ground vehicle failed in Los Angeles, apparently due to battery acid dripping on cylinder.	1997-1
Fire - PRD release		10/23/97	LAMTA bus electrical fire in engine compartment. PRD "operated as designed... however, the released fuel ignited, resulting in a rapid, highly visible burn-off. All CNG tanks...are intact, and the fire does not appear to have been caused by the CNG fueling system." No injuries.	1997-2
Cylinder failure		1997	Argentina Kalvanco Type 3 (aluminum liner with E glass uncoated) exhibited stress corrosion cracking (SSC) of overwrap and failed during fueling	1997-3 PT
Cylinder leaks - liner weld failure		1997	Winnipeg Canada Lincoln Type 4 Liner weld leaks caused by low temperature fast filling	1997-4 PT
NONE - Traffic accident		5/20/98	1991 Honda Accord converted to bi-fuel impacted by another vehicle traveling "at nearly 160 km/h." Honda was stopped at Peace Arch border crossing between BC and WA state. Ensuing fire fed by gasoline. 50 liter CNG cylinder stayed intact and secure in its brackets. Two fatalities.	1998-1
Cylinder leak SSC		1998	Argentina Kalvanco Type 3 (aluminum liner with E glass uncoated) exhibited stress corrosion cracking (SSC) of overwrap and leaked during fueling	1998-2 PT
Cylinder Failure SSC multiple failures		1998	Argentina several Kalvanco Type 3 (aluminum liner with E glass uncoated) exhibited stress corrosion cracking (SSC) of overwrap and failed during fueling	1998-3 PT
Leak - fueling receptacle		1999	Ford CNG vehicle fuel-fill receptacle leakage.	1999-1 PT
Fire - PRD release - poor vent design		8/10/99 and 12/22/99	Engine fires on El Dorado buses at BWI airport. CNG vented properly. Vent line running through engine compartment melted and CNG fed fire. No injuries.	1999-2
Station filter housing failure poor design		1999	Canco filter housing failures at the Los Angeles County MTA and City of Mesa.	1999-3

Compressor inter cooler failure - design issue	10/8/99	Knox-Western compressor high-pressure intercooler failure at the Jackie Gleason bus garage in Brooklyn, NY. No injuries or fire.	1999-4
Fueling adaptor leak - adaptors not acceptable	10/15/99	NGV1 nozzle adapter to Hansen coupling separated (unscrewed), Laclede Gas. Minor injury, no fire.	1999-5
Cylinder failure - SSC	10/31/99	Comdyne Type 3 cylinder rupture on 1996 Dodge van, Enbridge Consumers Gas Co, Toronto, ON. No injuries or fire.	1999-6
Leak in fueling station poor design of valve gasket	11/23/99	High pressure release of CNG at Jackie Gleason bus garage in Brooklyn, NY. Temporary flexible gasket in outdoor modulating valve failed. Minor injuries to three NYC Transit employees. No fire.	1999-7
PRD failure (ice) - gas vented	12/24/99	Mirada Gen. 2.5 PRD malfunctioned (caused by ice) on New Flyer bus with Lincoln cylinders in State College, PA, allowing unintended CNG venting. No fire or injuries.	1999-8
PRD failures - poor design	12/16 (?), 26 and 27/99	Mirada Gen. 2.5 PRDs malfunctioned on Akron RTD Orion buses with SCI cylinders in Akron, OH, allowing unintended CNG venting. No fire or injuries in first two incidents. Explosion and one minor injury in third incident.	1999-9
Cylinder failure - over pressure station design and maintenance issue	2/5/00	FuelMaker C3 VRA overpressure sensing system clogged, allowing overpressurization of CNG cylinder on delivery truck being fueled in Montreal. One of four Faber Type 1 cylinders ruptured. No fire or injuries.	2000-1
Cylinder failure - flammable gas air mixture created in cylinder during testing - poor procedure	3/1/00	Chevrolet Cavalier CNG container ruptured at Transport Canada's Blainville, PQ, contract test facility. Vehicle was being prepared for CMVSS crash test. Cylinder was not completely purged of CNG (air used as purge medium), then refilled to 3777 psi with compressed air. Solenoid valve was then activated to drain air to 3600 psi. Electric arc from solenoid valve inside the tank caused the explosion. Three fatalities.	2000-2
Leak (line break) caused buy traffic accident led to fire	5/11/00	Eleven foot, six inch tall Command bus shuttling race goers around Belmont Park attempted to go under a 9' 6" underpass. The entire supporting frame of the roof mounted fuel storage system was pushed back approximately 10 feet. A high pressure fuel line detached causing a violent decompression of the entire fuel storage system. As the released gas rose it was trapped by the overpass and ignited by a damaged underpass light fixture. Three confirmed minor injuries.	2000-3
PRD release during fueling - possible defective PRD	6/20/00	Circle Seal RV 99-273 PRD on Lincoln cylinder leaked on initial fueling of new New Flyer bus at NYC Transit. Fueller heard whistle and hit ESD. PRD replaced and bus put back in service. No injuries, no damage. Bus had been refueled six times en route to NYC. Cause of leakage unknown as yet.	2000-4
Fire - PRD release -poor vent design	6/22/00	Fire broke out in the engine compartment of a 1998 El Dorado shuttle bus, operated by Dollar Rent A Car, at Denver International Airport. Cummins engine and stainless vent line in this bus (see BWI incidents above). CNG cylinders vented as designed, but loose connection at "Y" in vent line popped off during venting, allowing gas to feed the fire.	2000-5
Fire - PRD release poor vent design	6/23/00	Engine compartment fire in a 1995 LACMTA Neoplan bus led to venting of CNG, which fueled the fire. Damage was estimated at between \$10,000 and \$15,000. Two minor injuries. Source of fire was separation of flexible and solid exhaust pipe connection (clamp let go). Exhaust caused fiberglass cowling on back to bus to catch fire.	2000-6
PRD failures - design issues	Oct-00	Blue Bird recalled 134 of its 1992-93 CNG buses to replace PRDs, some of which may vent unexpectedly. The original Superior valve apparently was both temperature and pressure actuated. It relieved at 4000 psi and was replaced with a valve that relieved at 5000 psi.	2000-7
Cylinder failure - overpressure form station failures	12/14/00	Type 1 cylinder failed, probably from overpressurization. Four 2400 psi cylinders were mounted in bed of NIPSCO 1992 converted S10 meter reading truck. Speculate that multiple failures of pressure regulating and relief systems allowed dispensing of 6000 psi gas, failing cylinder during fueling. No injuries, but damage to truck and fueling station.	2000-8
Cylinder leaks design issues multiple cylinders	1997 - 2000	Venezuela, Argentina & Egypt multiple Mat Incendio, Argentoil & Faber Type 1 steel (tube stock with end spun closed) had pinhole leaks caused by improper end closures	2000-9 PT
Maintenance blowdown tank failure due to over pressure Relief Valve failure	3/13/01	Blowdown (recovery) tank regulator failed and overpressurized tank which ruptured. PRV did not function. Tank designed for 200 psi - it failed as it should have, perhaps around 800 psi. Location was the New Flyer bus manufacturing plant in Crookston, MN. No injuries. Small fires put out by local fire department. Property damage to fueling station and local area.	2001-1
Buffer tank at station failed cause undetermined	3/29/01	DOT 3AA, 3600 psi, 9 1/4 x 58 buffer tank ruptured at slow fill station at Tumwater School District in Tumwater, WA at 5:13 a.m. Apparently buffer tank was not overpressurized, so must have been defect in cylinder although hydro tested in 1998. Supply line to compressors was sheared and gas caught fire. Put out by fire department. No injuries but PD.	2001-2
NONE	5/2/01	LACMTA CNG transit bus hijacked. After two-mile chase bus collided with minivan and UPS CNG delivery truck. Driver of minivan killed. No damage to CNG systems on bus or truck. No mention of vehicles being CNG-powered in press.	2001-3
PRD failure - poor design	1-Aug	Shook PRD on SCI cylinder on Sacramento RTD "trolley" replica unintentionally vented during fueling. Other Shook PRDs on all four RTD trolleys showed initial symptoms of a similar problem, extrusion of the eutectic material from the valve.	2001-4
Cylinder failure Fire PRD failed	2001	Recife Brazil Cibras Type 1 failed in fire because OYRSA or Thermadyne PRD did not activate	2001-5 PT

Cylinder failure Fire PRD failed	2001	Salvador Brazil Cibras Type 1 failed in fire because MAT or Thermadyne PRD did not activate	2001-6 PT
Cylinder failure Fire PRD failed	2001	Vitoria Brazil Cibras Type 1 failed in fire because MAT PRD did not activate	2001-7 PT
Cylinder failure Fire PRD failed	2001	Malaysia Faber Type 1 failed in fire (arson) because EMER PRD did not activate	2001-8 PT
Cylinder failure Fire PRD failed	2001	Rio de Janiero Brazil MAT Type 1 failed in fire because EMER PRD did not activate	2001-9 PT
NONE	Summer/02	NYSDOT Honda GX struck from behind by tanker truck in NYC. Left rear corner crushed to B-pillar. No leak or rupture of the CNG fueling system. Driver walked away with minor injuries.	2002-1
Fire - PRD release	7/15/02	El Dorado bus operated by San Gabriel Transit caught fire and was totally destroyed. No injuries. Origin was an oil fire, and after about 2/3 of the bus was burned, the CNG tanks vented and contributed to the fire. Believed to be Cummins engine.	2002-2
Cylinder failure - PRD did not release in fire	9/24/02	WI state-owned 1998 Ford Crown Vic CNG PST Type 2 steel w/ glass hoop wrap tank ruptured in vehicle fire. Apparently Superior PRD did not vent gas. Three other tanks did not explode. No injuries but local property damage.	2002-3
NONE LNG tank vacuum issue	2002/2003	High-capacity NexGen LNG vehicular fuel tanks have lost vacuum in the insulating section of the double-walled tanks faster than expected. NexGen is working with tank users to repump the vacuum on-site and to set up periodic maintenance to assure vacuum is not lost in the future.	2002-4
LNG Tanker Truck accident fire and explosion	Jun-02	IN Tivissa Spain a LNG tanker turned over in an accident. There was an initial fire (LNG leak and diesel fuel) after 20 minutes of fire exposure the tank ruptured and exploded. Probable BLEVE (boiling liquid expanding vapor explosion)	2002-5
PRD failure - design issues and ice buildup	3-Jan	A Mirada PRD ruptured on a Bi-State (St. Louis) 40 foot Neoplan CNG bus in an inside vehicle wash area. The PRD failure was apparently caused by water and ice inside the vent tube, which was missing its exterior cap. No injuries or damage.	2003-1
Fire - PRD release	4/14/03	A MARTA (Metropolitan Atlanta Rapid Transit Authority) CNG bus caught fire and completely burned. The fire originated in a rear tire and spread throughout the bus. PRDs on the roof-mounted CNG tanks functioned as designed, venting CNG above the bus where it caught fire. The bus was completely destroyed as the fire burned itself out. No injuries.	2003-2
NONE - design issue with materials used in NGV1 receptacles	2003	Wear on the outer surface of NGV1 CNG receptacles, variously described as "mushrooming," or "Brinelling" has been found on receptacles from a number of manufacturers and seems to appear whether "jaw lock" or "ball lock" design fueling nozzles have been used. Material builds up on the outer surface of the receptacle, making it increasingly difficult to attach and properly seat the nozzle or to remove the nozzle after fueling. Improper seating of nozzles on these receptacles can lead to them popping off with significant force when fueling is attempted.	2003-3
Leak due to failed breakaway disconnect design	4/27/03	LACMTA experienced fueling breakaway separating on bus fueling hose during operations with no undue tension on hose. High pressure gas continued to flow through hose and caused hose to whip. No injuries. By May a total of seven breakaway separations occurred, all at Hanover stations. No injuries but minor PD reported.	2003-4
Leak due to failure of fueling receptacle - design issue	4/28/03	Sherex 5000 bus receptacle failed at LACMTA. Internal brass part broke into three pieces and clogged check valve, allowing gas to escape once nozzle was removed. No injuries or PD. LACMTA campaigned fleet and replaced this design with later Sherex design using stainless steel for the part.	2003-5
Cylinder failure - external corrosion	9/3/03	A Faber type 1 (all steel) CNG cylinder burst during fueling of a 1994 converted van in a Toronto suburb. "Massive external corrosion" is the apparent cause. Filling pressure was approximately 1400 psi at time of rupture. There is no evidence of the cylinder having been inspected. There were no injuries but "extensive damage to the vehicle and the natural gas dispensing system at the station."	2003-6
Leak fuel line - poor installation	3-Oct	CNG fuel line from tank behind rear axle in Ford E450 rubbing against brake line. Wears through fuel line causing leak. Reported by Laclede gas. Vehicles at Lambert Field (St. Louis airport). No injuries, PD, fire, etc.	2003-7
Cylinder failure PRD did not release in fire	3/1/03	Argentina Mat Incendio Type 1 cylinder failed in fire because PRD did not activate (fire did not impinge on PRD) installation issue	2003-8 PT
Cylinder failure PRD did not release in fire	5/1/03	Saarbrucken Germany Dynetek Type 3 Aluminum liner w/ carbon full wrap failed in bus fire because the PRD did not activate (fire did not impinge on PRD) installation issue	2003-9 PT
Cylinder failure overpressure solenoid valve failure	7/1/03	Brescia Italy Faber Type 2 Steel w/ glass hoop wrap failed from overpressure when solenoid valve failed and PRD had backed burst disk	2003-10 PT
Cylinder failure - Localized fire exposure no PRD release Installation design issue	6/1/03	Saarbucken Germany Ullit Type 4 failed in bus fire PRD did not release on number 1 cylinder (9 cylinders mounted transversly on top of bus) because fire impinged on center of cylinder the rest of the cylinders were protected by release of PRDs as expected. The first cylinder on the roof of the buss was exposed to fire coming through the escape hatch that was centered directly in front of the cylinder.	2003-11

NONE - design recall of LNG tanks	4-May	Mack recall of up to 317 LNG trucks because of potential malfunction of Chart LNG tank pressure relief valves. Based on Chart safety alert to all shrouded (truck) tank customers on replacing old shroud doors with vented doors and installing pressure relief vent tube.	2004-1
Leak due to trffice accident - PRD broken in one case. No leak from line break because internal valve stopped flow	Spring 04	CNG tanks on top of two WMATA (Washington, DC) CNG transit buses were damaged when separate buses ran under low overpasses. On first one cylinder scraped and gouged and one fuel line severed. Internal tank solenoid valve stopped flow. On second two PRDs were severed and gas vented down. Gas detection system shut down system and isolated other cylinders. No injuries or third-party property damage in either case.	2004-2
Maintenance / training issue - improper removal of cylinder valve	7/5/04	Technician removed valve on CNG tank at Mesa, AZ Chevrolet dealership without fully depressurizing it. Cylinder was "launched...more than 500 feet" coming down through the roof of a nearby body shop. Technician suffered minor injuries but body shop employee was seriously injured.	2004-3
Leak due to installation issues with fuel lines	4-Oct	63 Converted Dallas police cars grounded because of leaky gas lines and purported "CO" poisoning. In Sept 26 were "grounded for the second time because of a faulty fuel hose in one car" where "a pressurized fuel line had come unattached from the intake." Ford Crown Vics converted by BAF.	2004-4
Cylinder failure - unknown cause	Feb-04	Zhengzhou China Sichuan Jiuda Salt Corp Type 4 plastic liner w/glass fiber wrap failed during fueling at 120 bar cause unknown	2004-5 PT
NONE - fire with no CNG issues	2/1/05	Sacramento RT bus carrying students caught fire on I-5. Orion VIII with Cummins 8.3+ gas engine, and original SCI tanks. Fire started inside the bus, and did not involve the fuel system in any way. No injuries.	2005-1
NONE Operational issues with wet gas	5-Feb	Montgomery County, MD's bus fleet received a slug of very wet (90-100 lbs/mmscf) gas (versus the 20 to 30 lbs normal maximum). This extremely unusual situation overwhelmed the gas dryer and led to water in the bus fuel tanks, which then froze due to the Joule-Thompson effect and cold weather, and disabled bus operation.	2005-2
NONE Operational issues with change in gas composition	2/28/05	A severed gas main interrupted South County Area Transit's (Ventura County, CA) normal supply of. Replacement gas to the station from local off-shore production had a methane number much lower than that allowed for their Detroit Diesel engines, making it likely they could be seriously damaged. Old diesel buses were found and refurbished but full service was not restored for five weeks until normal gas service was restored.	2005-3
Fire - dryer design issues at station	5-Jun	Two Xebec CNG fueling station dryer fires. No injuries in either case. Both started in regeneration heater assembly. Poor maintenance/operations practices identified by Xebec.	2005-4
Fire - PRD release	26-Jul	On July 26 five Waste Management CNG refuse trucks and one sewage truck were destroyed by fire at Palm Desert, CA. Suspected trash lodged in engine compartment or exhaust starting fire. Believe PRDs relieved as designed. Believe trucks to be EcoTrans converted Volkswagens. No injuries.	2005-5
Fire - PRD release - poor vent design may have spread fire to other vehicles	8/3/05	On Aug. 3 four CNG trash trucks burned in Santa Monica, CA. Possible cause an electrical short or failed high pressure regulator. Fire started on truck not being fueled but spread to others, possibly because PRD's vented toward them. No injuries.	2005-6
Cylinder failures design issue	1/1/2005 and 8/1/2005	Korea NK Type 2 steel w/ glass fiber wrap failed because of liner defect	2005-7 PT
Cylinder failure - internal corrosion and external damage	12/12/05	Jakarta Indonesia Faber Type 1 cylinder failed during fueling. The cylinder exhibited severe internal corrosion from improper storage and external damage from poor installation. The internal corrosion and external damage were at the same location and precipitated the failure.	2005-8
Cylinder failures -localized fire exposure no PRD release - installation design issue	8/1/05	Montbellard France & Besancon France Ullit Type 4 failed in bus fire PRD did not release on number 1 cylinder (9 or 10 cylinders mounted transversly on top of bus) because fire impinged on center of cylinder the rest of the cylinders were protected by release of PRDs as expected. In all cases the first cylinder on the roof of the busses was exposed to fire coming through the escape hatch that was centered directly in front of the cylinder.	2005-9
Fueling Nozzle Failure	2/1/05	In Hamburg Germany a fueling nozzle failed during fueling and injured one individual. Details are not known at this time.	2005-10
LNG Tanker Leak/Fire	9/14/05	Reno NV LNG tanker - leaking valve led to fire after the truck had stopped and emergency crew was on site. Possible defective valve. The LNG tank itself did not fail it operated properly.	2005-11
Leak on fuel line - poor installation	2005-2006	Thomas Built school buses in Virginia Beach and Charlottesville, VA developed CNG leak just downstream of receptacle. No PD, injuries nor fire. Repaired by Thomasbuilt.	2006-1
NONE - fire at station during decommissioning	4/10/06	Fire during decommissioning of CNG bus fueling station at NY City MTA. Release of gas at service feed area ignited by unknown source. No CNG buses involved. No injuries.	2006-2
NONE traffic accident	4/28/06	Toyota ran off road and hit CNG transit bus on roof. Shield over CNG tanks damaged. No known damage to CNG fuel system. Serious injuries to car driver, minor injuries to one bus passenger.	2006-3

Fire - PRD release		10/7/06	Fire at rear of Kansas City airport shuttle bus caused by hydraulic fluid leaking from engine fan onto exhaust pipe. PRD vented gas safely. Three minor injuries, but an airport terminal was evacuated.	2006-4
Fire - PRD release		12/7/06	2002 CNG-powered Orion bus caught fire on I-85, a major commuter route outside Atlanta, during evening rush hour. No one was hurt in the fire and the CNG tanks vented as designed. The fire was caused by a hydraulic line failure.	2006-5
Cylinder failure - non standard tank		4/1/06	Chongqing China Modified steel cylinder failed during fueling. Additional information not available	2006-6
Fuel line leak due to bus engine fire		5/10/06	Gujarat India CNG bus fire in engine compartment due to electrical short. CNG fuel line after second stage regulator was burnt in the fire, no damage to balance of CNG system.	2006-7
Cylinder failure at fueling station		9/1/06	Mirpur Bangladesh Cylinder failed during fueling no details on cylinder type and cause of failure	2006-8
Cylinder failure - at fueling station		12/13/06	Karachi Pakistan CNG Cylinder failed at fueling station no details available	2006-9
NONE no CNG involvement	-Fire	1/11/07	CNG powered trash truck caught fire in Irvine, CA. Fire originated in trash. No noted involvement of CNG fuel system. No injuries, \$7000 PD.	2007-1
NONE no CNG involvement	- fire	2/7/07	Gwinnett County (GA) Transit CNG Orion VII bus caught fire on I-85 outside of Atlanta. No injuries. The fire was caused by a hydraulic line failure. No known CNG system involvement.	2007-2
Fire - PRD release		3/22/07	Boise, ID bus "burst into flames." No injuries. Looks like engine fire as damage is to rear of bus. PRD venting system seems to have worked as designed. No information on mfg, year, etc. yet.	2007-3
Cylinder failure - Fire localized PRD did not function		3/26/07	Arsonist torched 12 vehicles in Seattle, WA city vehicle yard, including one Honda CNG car. Fuel tank ruptured, apparently due to localized flame impingement away from PRD. No injuries.	2007-4
Cylinder failure SSC		5/26/07	Comdyne add-on tank at rear of Ford E350 SuperShuttle van ruptured during first fueling after repair of rear-end accident in Carson, CA. One fatality. Stress corrosion cracking of overwrap caused by exposure to battery acid in previous accident.	2007-5
Leak - fuel line - installation issue		7/7/08	Flex line just downstream of receptacle tube sprung small leak. Norwich, CT Public Utilities E350 Ford Van.	2007-6
Traffic accident - Fire CNG bus and LPG tanker		5/14/07	Gujarat India CNG bus collided with a LPG tanked that had just been in an accident and was apparently on fire, the bus also caught fire. Investigation to date did not give any specifics of CNG involvement/failure. Ned additional information if available.	2007-7
NONE - Bus fire was diesel not CNG		1/6/07	Bangladesh bus accident resulted in fire but the Bus was diesel powered not CNG as initially reported	2007-8
Cylinder Failure - Bus Fire localized PRD did not function		12/1/07	Korea NK Type 2 steel w/ glass fiber wrap failed because localized fire did not activate the VTI PRD	2007-9 PT
Cylinder Failure- tampering by owner		7/1/07	Russia -Owner of vehicle cut a section out of the cylinder to make it fit his vehicle then welded the cylinder back together - it failed during fueling	2007-10
NONE - fire no CNG involvement		2/12/08	Santa Barbara County (CA) commuter bus (coach) fire in left rear wheel well area. No involvement of CNG fuel system.	2008-1
Cylinder failure Damaged overwrap		4/1/08	Bangkok Thailand either Type 2 or 3 cylinders that were sold as scrap and had the class over wrap damaged were installed on a truck and the cylinder(s) failed while be fueled.	2008-2
Cylinder Failure during fueling		4/20/08	Brisbane Australia Type 4 cylinder failed during fueling and was thrown about 60 meters cause of failure is being investigated	2008-3
Cylinder failure during fueling (possible substandard cylinder)		1/8/08	Dhaka Bangladesh CNG cylinder failed during fueling. The station operator at first refused to fill cylinder but then relented. It is suspected that the cylinder was substandard (?) and that there may have been installation issues. Follow up articles in local newspapers noted that there have been numerous (18) cylinder failures since 1/2007 and were attributed to "counterfit CNG cylinders and installation issues". A formal investigation is not yet available.	2008-4
CNG fueling station fire and explosion		2/17/08	Tharkayta, Myanmar Reported fire and explosion at CNG station. No details limited investigation to date.	2008-5
Cylinder failure during fueling (possible substandard cylinder)		5/25/08	Narayanganj, India. Investigation looked into the possibility of substandard cylinder that failed during fueling. One pedestrian was killed and twenty injured in fire in adjacent structures.	2008-6
Cylinder Failure after fueling manufacturing and/or design issues (NK type 2 - multiple failures)		7/12/08	International -Type 2 NK 119 L cylinder failed just after fueling. There have been multiple failures of these same cylinders that were manufactured by NK cylinder company. All cylinders manufactured on the same date (total of 1,800) were initially recalled and a total of 9,208 cylinders manufactured at the same time were recalled for additional testing and will not be reused.	2008-7

Cylinder Failure during fueling (possible damage to wrap)	4/22/08	Grand Rapids Mich. Type 3 Cylinder failed during fueling. Investigation is under way and preliminary information may indicated damage to overwrap from road debris. The cylinders were not shielded from road hazards.	2008-8
Cylinder failure - unknown cause	7/16/08	Cylinder failed at fueling station in Corona CA. The City of Corona would not share any information on the incident. It is believed that the cylinder was a type 2 Comdyne cylinder that had been retrofitted to 1995 Chrysler van. If Corona ever release additional information it will be made available. Five people were injured.	2008-9
Pipe fitting failed releasing gas that ignited - on station	3/25/08	Fire at Questar CNG fueling station in Salt Lake City, UT. Relief valve fitting on one tank failed, causing failure of two other fittings (banded together), which vented gas and caught fire. Fire-fighters turned off gas and put out flames. No injuries.	2008-10
Cylinder failure - SSC + overpressured by fueling station	6/9/08	Rupture of Lucas Type 2 cylinder on 1998 Ford E350 van owned by Philadelphia Gas Works in Philadelphia suburb. Occurred soon after fueling. No injuries. The cylinder showed possible stress corrosion cracking that caused the hoop wrap to fail and there was evidence that the station had overpressured the cylinder during fueling.	2008-11
Bus Fire - no CNG involvement	12/29/08	Phoenix, AZ LNG transit bus fire started at rear wheel oil seal. No injuries or explosion. Bus was allowed to burn to the ground.	2008-12
CNG bus - train accident - CNG fuel line sheared and leaked.	9/19/08	Out-of-service Los Angeles (LAMTA) bus broadsided by commuter train. 14 train occupants suffered minor injuries. A fuel line was sheared off and leaked; there was no damage to the fuel tanks.	2008-13
Improper conversion - fuel leak during filling	11/11/08	During fueling NG leaked into passenger cabin of Chevrolet Suburban, rendering four children unconscious (no permanent injury). Conversion to NG had been done by owner of vehicle, father of children.	2008-14
Accident - fuel line broken	12/24/08	Boston MBTA bus struck object, ripped off cylinder cover on roof and compromised CNG fuel line. Firefighters let gas dissipate, then transit employee shut off valve. No injuries.	2008-15
Two cylinder failures - Heat treatment issue with NK Cylinders	5/1/08	Iran - Two Type 1 NK cylinders failed the investigation stated that the cylinders were improperly heat treated during manufacture	2008-16
NGV Fire - accident	11/1/08	India - NGV caught fire after a high speed accident, report stated a concern about substandard CNG kits being installed on vehicles but did not provide evidence of CNG involvement in the accident and fire.	2008-17
Possible Cylinder failure - cause unknown	10/1/08	Yangon, Myanmar - Possible CNG cylinder rupture during operation - killed 7 people - limited information available and there is a concern that the cylinder would fail when operating at lower stress levels. No information on cylinder type or make	2008-18
Cylinder Failure - Possible substandard cylinder	5/1/08	India - Cylinder on micro bus failed during operation. Investigation noted possible substandard cylinder installed as seen on other NGVs in India - one death	2008-19
Cylinder Failure - Suspected manufacturing problems and/or physical damage	8/1/08	Kuala Lumpur - One of four 1451 Type 1 Finetec cylinders failed during fueling. The investigation listed a number of potential causes but noted manufacturing/material issues and possible physical damage of under vehicle mounted cylinders	2008-20
CNG Bus Fire - PRDs released as designed	12/1/08	Phoenix - Bus fire from non CNG related failure. The fire department let the bus burn and the PRDs released as designed, no cylinder failures	2008-21
Cylinder failure - Possible manufacturing issues	8/1/10	Bangkok - Type 1 cylinder failed during fueling, investigation provided limited information but suspected that the cylinder was of substandard design but did not name the manufacturer.	2008-22
Cylinder Failed - substandard design	9/1/08	Bangladesh - Cylinder failed while parked in a garage under a 22 story building. Indications that the cylinder was not manufactured to CNG standards. A number of similar failures were noted in this report.	2008-23
Cylinder Failures during fueling - two scenarios being investigated, one cylinder failed due to either to improper mounting or lack of shielding, the second failed from damaged caused by first failure	3/16/09	On March 16, 2009 (early afternoon) Dy-Dee van # 45 experienced a rupture of two of its 3000 psi Lincoln Type 4 cylinders, with expiry dates in 2009. The ruptured cylinders included the vertically mounted cylinder behind the driver, and the horizontal cylinder with the valve end directly below this vertical cylinder. The rupture occurred during fueling and caused the injury of three employees who were loading/unloading the van at the time, as is the usual practice at this operation.	2009-1
No CNG involvement - lubrication failure to compressor and electrical fault	3/9/09	The failure was with an oil lubrication vessel becoming over pressurized and rupturing. At no time did any of the natural gas systems or equipment fail or even lose integrity, there was no thermal event and no leaks or damage to any of the plumbing. What did happen is that the failed vessel caused electrical damage to the controller on one of the compressors and the vessel that was part of the lubricating system for the second compressor caused that compressor to lose lubrication and then it failed.	2009-2

CNG Cylinder failure - SCC of Comdyne Type 3	8/11/09	San Diego - 1996 Dodge B van with OEM installed Comdyne Type 3 cylinders experienced a cylinder rupture shortly after fueling. The cylinder failed due to SCC from exposure to acid	2009-3
Cylinder Failure - possible substandard cylinder	6/8/09	Rawalpindi - Pakistan Cylinder (unknown type and make) failed during fueling a NGV taxi. Two deaths. Possible substandard cylinder.	2009-4
CNG Bus fire - engine malfunction	10/5/09	OCTA Bus Fire in San Clemente, fire started due to engine malfunction and as the fire progressed a PRD on one of the six tanks released as designed and there was not cylinder failure.	2009-5
CNG Bus Fire - No CNG involmnet	10/4/09	Gwinette County GA Bus fire due to oil leak in engine compartment. Fire supression system on bus put out fire and there was no CNG involmnet	2009-6
Cylinder Strap failure -corrosion	10/9/09	Lamber Airport - Mounting straps on Dyetek cylinders failed due to corrosion displacing cylinders. No reported cylinder damage, straps replaced	2009-7
Bus Fire - Prds release as designed	12/15/09	Perth - Bus fire PRDs released as designed and there was no cylinder failure	2009-8
Bus fires - 7 during one month	12/1/09	India - Limited investigation indicates that there was no CNG involmnet in noted fires. It was reported that there were at least seven similar fires in a one month peroid	2009-9
Bus fire	1/10/10	India - Bus fire from engine failure, no CNG involmnet	2010-1
Bus Fire -no CNG involmnet	1/6/10	METRO Bus Pasadena, CA fire started in engine compartment and was extinguished by Fire Department in a few minutes, no indication of CNG involmnet	2010-2
Cylinder failure SSC	3/10/10	Ohio, Comdyne Type 3 cylinder (two years after end of life date) failed during fueling due to SCC most probably for exposure to acid.	2010-3
Cylinder failure - Damage to wrap on Type 2 plus overpressure and possible heat treating issues	8/9/10	Keora Type 2 Faber Cylinder failure. The investigation noted damage to hopop wrap due to mounting bolts, possible overpressure due to failed solenoid valve and the technical report indicated poor heat treatment of the liner	2010-4
Bus Fire - electrical failure	8/1/10	Singapore - Bus fire due to electrical fault, report stated that all cylinders were intact but did not note if any PRDs released.	2010-5
Cylinder failure - physical force	10/1/10	Bridgeport CT - LucasType 2 cylinder was sent to a scrap yard and a searing blade on a piece of heavy equipment punctured the cylinder while sorting the scrap. They did not know what the cylinder was and it still contained considerable pressure. The cylinder flew through the roof of a house 600' away.	2010-6
Cylinder Failure - Unknown failure	10/27/10	Barzil - Type one cylinder failure during fueling. Cause of failure unknown at this time investigation ongoing.	2010-7

Cylinder Failure - Unknown failure	10/30/10	Buenos Aries - Type 1 cylinder failure and fire. Cause unknown at this time, investigation ongoing.	2010-8
Filter failure due to pressure testing with air and using 1/4 turn valve that led to excessive flow rates	12/28/10	Michigan, While pressure testing the CNG system a refurbished transit bus the downstream fuel filter failed due to potential internal explosion when high pressure air was mixed with residual natural gas and/or filter material as the heat of compression from the high flow rates ignited the mixture. There was damage to the filter and associated piping. One person was injured when their arm was in close proximity to the filter.	2010-9
CNG Fuel station fire due to installation/operational errors - still under investigation	2/28/11	Due to legal actions the final report on the incident has not been released. There were a combination of issues that may have led to the fire, including partially installed relief valve, lack of operations plan during the upgrade and addition of storage cylinders and uncontrolled connection between high pressure storage cylinders. Changes to NFPA 52 have been made to protect from similar hazardous situations going forward.	2011-1
PRD failure on Faber cylinder on an IVECO garbage truck in Brescia Italy	4/1/11	Italy - A report of the root cause of the PRD failure has not yet been received from Faber or the PRD manufacturer.	2011.2
Tite Flex hose failures - first noticed in 2007	7/11/11	The four known hose failures occurred between the receptacle and the containers after several years of service in Connecticut and Oklahoma. The stainless steel reinforcing braid failed in the body portion of the hose, away from the ends and related in a blowout of the Teflon liner. The wire braid is made from high-strength cold-worked 304 stainless steel wire. CVEF has proposed a number of changes to the standards to improve the chloride SCC resistance in wire braid hoses. It is proposed to move vehicle hose requirements from NGV 4.2 (station document) to NGV 3.1 (vehicle document)	2011-3
Cylinder failure - at fueling station	1/21/12	Bus was being fueled at the Brisbane transit facility when a cylinder failed. The cause has not yet been determined.	2012-1
Bus fire due to electrical short - no CNG involvement	2/23/12	Georgia US - electrical fire on CNG bus at a college - no CNG involvement	2012-2
Fatality due to incorrect procedure in removing a cylinder valve	4/12/12	The preliminary investigation indicates that the victim was attempting to remove the solenoid cylinder valve from a cylinder that he probably mistakenly believed had been vented. The technician did not follow the manufacturer's procedure and did not use the approved tool to vent a cylinder with a failed solenoid valve. Cylinder solenoid valves are intended to be a safety improvement for NGVs but there is no reliable way to be sure that the cylinder has been depressurized without carefully following the service procedures of the vehicle manufacturer in the case of an OEM NGV or the valve manufacturer in the case of a converted vehicle.	2012-3
Cylinder failure - external corrosion	8/3/12	In Germany VW cylinders are 3000 psig, small diameter and high-strength resulting in sidewall thickness a small fraction of what is used in the US for 3600 psig steel cylinders. The cylinder was three years old and failed during filling. The coating on the cylinder did not offer adequate corrosion protection and the manufacturer has stated that a new coating process has been developed.	2012-4
Cylinders displace from roof of bus not fire or failure of cylinder	6/4/12	Bangkok CNG bus hit overhead sign displacing rack mounted cylinders from top of bus. Gas release but no fire or cylinder failure.	2012-5
LPG tank used on CNG vehicle failed during fueling	6/22/12	Improper use of LPG tank on CNG vehicle - tank failure and fire during fueling	2012-6
CNG release at fueling station	8/27/12	The leak was stopped by Trillium CNG shortly after the incident was reported. The gas company said about 4,500 cubic feet of compressed natural gas was released into the air, but dissipated rapidly. No injuries were reported. Visalia CA	2012-7
Fire 1/2 ton truck - electrical fire - PRD release as designed	8/29/12	CNG truck experience electrical fire in engine compartment that fully involved the truck causing the bed mounted CNG cylinder's PRD to release. Notrees Tx.	2012-8

CNG release - no fire - Incorrect or defective PRD	10/7/12	Vehicle Production Group recalled 435 M-1 CNG vehicles after four PRDs released prematurely.	2012-9
Cylinder failure - defective cylinder - no inspection	11/17/12	CNG cylinder failed during filling - assumed to be defective and had not been inspected during its life. Mumbai	2012-10
Cylinder failure- over pressure or out of specifications	11/18/12	KARACHI: Mohammad Khan, driver of a mini-bus G-17 lost his life Sunday morning while five others were injured as the obsolete cylinder installed in the vehicle exploded at a local CNG station, on Abul Hassan Isfahani Road. DSP of Gulshan e Iqbal, Farhat Iqbal giving details of the unfortunate incident said the cylinder presumably exploded while being filled with compressed natural gas (CNG) beyond its specified capacity.	2012-11
Cylinder failure during filling	1/4/13	The incident was originally reported in the news and a subsequent conversation with Nabil Sablini disclosed that a 3,600 psi Type 1 steel cylinder manufactured in Argentina by Kioshi and certified in accordance with FMVSS 304 had ruptured on about 1/2/13 while being filled. The cylinder was not installed in a vehicle but was connected to a CNG-ONE compressor equipped with pressure controls and pressure relief valve. The cylinder and compressor were located outdoors in an ambient of 17F. A pressure gauge was checked shortly before the rupture and it indicated about 2,000 psi. The cylinder was approximately 14" diameter and 50-60" long. The fracture edge is described as a 45 degree slant and therefore ductile in nature. The typical Kioshi cylinder has no external neck. The cylindrical portion of the cylinder split with a typical slant fracture and the "top" dome was separated and traveled 70-100 feet. A Kioshi engineer has been on-site but no conclusions have been reported.	2013-1
CNG Trolley bus fire - cause not known - PRD release	2/4/13	CNG Trolley bus fire Birmingham AL. PRD release during fire.	2013-2
CNG bus fire - cause not determined - no apparent CNG involvement	2/10/13	Determination of cause of fire has not been made available at this time. Perth AU	2013-3
Hose leaks on low pressure hose downstream of final stage regulator. No fire or damage.	3/15/13	Use of low pressure hose that was not rated for CNG vehicle applications - incorrect hose specifications from conversion kit supplier	2013-4
CNG release due to over pressure on tube trailer - no fire	4/12/13	"The leak from a trailer at the NG Advantage compressed natural gas company was discovered around lunchtime. The company believes too much pressure on the trailer led its safety system to release 350,000 cubic feet of gas into the atmosphere." Milton VT	2013-5
Fire - CNG Bus - electrical fire- PRD release	4/30/13	CNG bus fire El Paso Tx. Electrical fire fully involved the bus and the TPRDs on the roof mounted cylinders released the CNG as designed through a single vehicle vent system.	2013-6
Fire - CNG truck accident minor CNG involvement	4/8/13	INDOT truck in a traffic accident caught on fire. The aluminum cylinder box was burnt through on the lower left front. The wire braid is all that's left of the LP fuel hose from the regulator to the LP filter. One corner of the toughshell on the bottom cylinder is burnt enough to have loose fibers and the cylinders are still pressurized, we think.	2013-7
Cylinder failure - Buss roof mounted - no fire -cause unknown	5/7/13	A fuel cylinder reportedly exploded on roof a CNG powered bus near Rechnoy Vokzal Metro station in the far north of the Russian capital. Reported as Type 2 but photos indicate Type 1 cylinders.	2013-8

CNG trailer accident in Mexco - Fire	5/13/13	Truck transporting CNG cylinders (not sure what type due to limited information). Gas released and was ignited - there may have been cylinder failure as well -.	2013-9
Traffic accident LNG truck - no initial release of LNG - until uninformed AHJ ordered a hole to be drilled into LNG tank?	5/14/13	the LNG truck rolled over and that the CT DEP ordered the on-site contractor to drill a hole into the tank to remove the fuel so as to eliminate the possible threat of a spill. They did not know the type of fuel because the tank was located on the side of the rollover.	2013-10
Assumed CNG cylinder failure - no details Waziristan, PK	5/7/13	The van stopped for security checking at Khajori check post when its CNG cylinder exploded, said an official of the political administration. Thirteen people were killed on the spot and five were wounded. Two of them succumbed to their injuries, while the rest were shifted to the District Headquarters Hospital in Bannu.	2013-11
Fire - gasoline fire on CNG school bus- no CNG involvement	5/25/13	Gujrat PK. Open gasoline containers inside school bus were being used to fuel the bus since the gasoline fuel tank was rusted through. The gasoline leaked inside and caught fire. 16 people died in the fire.	2013-12
Natural Gas leaks internal to PRDs and use of under rated imported PRDs	7/13/13	The issues with internal PRD leaks under extreme cold weather and the use of underrated pressure activated PRDs imported from Europe are being investigated by the industry Critical Issues Task Groups	2013-13
Fire - CNG van - electrical fire- PRD release	9/24/13	Bus fire on Lahore Rd PK - PRD release - no cylinder failure	2013-14
Natural gas release due to o-ring failure on bus - no fire	10/14/13	Early Monday morning, the fire department in Napa, Calif., responded to a 911 call reporting an explosion near a compressed natural gas (CNG) school bus at Napa Valley Unified School District's yard in the city. However, the deafening sound was not an explosion, but the high-pressure rupture of an O-ring on one of the CNG system's filters.	2013-15
Fire - CNG van - electrical fire- PRD release	12/20/13	Despite the fact that this is not the first instance of its kind, there was no probe into the reasons behind the fire. The Dadar police have taken the cabbie's explanation that it was a short-circuit fire and that they will probe no further.	2013-16
Fire - CNG van - electrical fire- PRD release	12/20/13	Based on the initial investigation, it is believed that the fire occurred due to short circuit in wiring. The van was equipped with three cylinders placed under the passenger seats, which is illegal according to the law. A public transport vehicle, fueled by CNG, has to obtain a fitness certificate from the Hydro Carbon Institute of Pakistan. The van's conversion to CNG was also illegal, said the RTA official.	2013-17
Cylinder failure during fueling - rejected during inspection then repaired with welded patch -	1/17/14	The cylinder had been rejected during a periodic inspection and punctured to remove it from service, but someone had the bright idea of welding a metal plate to cover the hole. The result has been terrible, one woman lost both her legs and is in critical condition, and there are four other injured, including a small child.	2014-1
Leak and detached fill hose fitting during fueling	1/17/14	A loose connection fitting, on a natural gas pump, is believed to have damaged a customer's car windows at LW's Truck Stop, 1020 West 200 North. Questar Gas spokesman Darren Shepherd said the accident was reported to them Friday just after 7 a.m. "We received a call from someone at this station that the hose to one of the compressed natural gas refueling pumps broke loose of a vehicle that was refueling there," said Shepherd. "The hose started to just whip around as the pressure of the gas was coming out. It was banging against the car and the glass on the car." The hose ended up damaging the side of the car and breaking the side and rear windows, before the gas was shutoff.	2014-2
Pressure relief valve leak on station during fueling tube trailer	1/24/14	Bangor firefighters were dispatched to a compressed natural gas station on Maine Avenue after a pressure relief valve leaked shortly before 8 a.m., Fire Chief Scott Lucas said at the scene. "One of the tanks just became over-pressurized," said Lucas. The natural gas station is owned by Global CNG. According to a statement from the company, a valve failed to close while a trailer was being filled. The relief valve protecting the system then opened as designed, releasing a small amount of gas.	2014-3

Fire - PRD release - exhaust fire caused the PRD to release due to close proximity	1/21/14	The operating problems resulted in an off-mixture fuel-air mixture to the engine and a resultant flame at the exhaust outlet. The exhaust flame transferred heat through the aluminum cylinder box to the attached PRD trigger. The trigger was heated above its activation temperature and caused the PRD to suddenly release the full cylinder pressure. The PRD opening at high pressure results in a loud pop. The CNG was discharged downward from the inner front portion of the cylinder box. A cloud of CNG developed rapidly and grew to include an ignition source, possibly the exhaust fire. Once ignited, the rapid discharge of CNG produced a large fire while the cylinders were drained of fuel. If the fuel flow to the PRD was not great enough to close the EFD on the other cylinder valve, both cylinders could have vented through a single PRD. It is more likely that the EFD in the second cylinder valve would have been triggered and that cylinder would have drained when the general fire triggered its PRD.	2014-4
Fire - PRD release - exhaust fire caused the PRD to release due to close proximity	1/21/14	the Emcara PRD trigger tube that was anchored to the 1/8" aluminum inner cylinder shield got hot. The exhaust pipe, catalyst and exhaust outlet are 2-4" on the other side of the aluminum. The witness saw about a 12" diameter flame directed toward the rear at about where the exhaust outlet is between the frame rails and before the rear axles. Then a loud pop like a gunfire and fire engulfed the truck. The PRD discharges were at the front of the tanks and just about under the doors.	2014-5
House fire due to leak from a CNG vehicle that was being repaired by untrained homeowner	2/12/14	He said that the source of the fire was believed to be a leak from a natural gas-powered vehicle the owner had been trying to repair. "We believe it leaked and the gas found an ignition source in the garage," Killinen said.	2014-6
Overpressure time fill causes CNG release through PRD - garage fire	2/12/14	Non temperature compensated fueling at low temperature cause pressure activated PRD to release when vehicle was parked in a warm garage - the released gas was ignited and caused extensive damage.	2014-7
Landi Renzo recall of 350 Ford E-Series vehicles - replacement of CNG Cylinder brackets	3/31/14	The company submitted a defect report to the National Highway Traffic Safety Administration (NHTSA) in early March, explaining that both brackets that support the rear CNG tank in these conversions could become compromised "due to excessive wear and tear" and that "the ear of both brackets could develop cracks and eventually break."	2014-8
CNG cylinder damaged due to shifting load in truck - cylinder failed due to damage	4/1/14	The driver of a Class 7 straight truck was killed and the passenger injured when a forklift truck was being carried as cargo moved forward during braking and a fork impacted on a CNG cylinder causing it to rupture.	2014-9
Cylinder failure - at fueling station	7/22/14	Substandard cylinder failed during fueling - three deaths - Karachi.	2014-10
Leak - Cylinder damage - Cylinders on roof hit low bridge	8/5/14	A waste collection truck powered by natural gas drove underneath a too-short bridge in Woonsocket, tearing off fuel tanks and causing immediate evacuations. The truck was damaged, and the street was shut down.	2014-11
Cylinder failure -initial fire was localized- assumed PRD did not function	8/19/14	A CNG fueled street sweeper truck was fully destroyed in a fire while parked in a carport after fueling. The truck CNG storage system consisted of a bank of three Type 3 cylinders stacked behind the cab in an aluminum cabinet. The top cylinder failed due to the fire exposure and was ejected from the truck. The remaining two cylinders were damaged by the fire and balst wave from the top cylinder but remained on the vehicle.	2014-12
Cylinder damaged in scrap yard- gas release	8/27/14	The tanks were still attached to a CNG passenger bus that was being processed for scrap. The incident occurred when a worker began shearing operations and pinched one of the eight cascading manifold CNG tanks causing the pressure release. There were no injuries. However, the explosion and concussion wave was heard and felt by a Sacramento Fire Dept. Engine Company over two blocks away	2014-13
CNG leak on EMER Mark 522-003 solenoid valve	9/9/14	The investigation indicated a conflict between the valve body and the main o-ring and venting holes.	2014-14
GM recalled 3,196 CNG vans in the US and Canada	9/18/14	Recall to possible leak on CNG regulator.	2014-15

LNG Vehicle Accident no release of LNG	10/1/14	LNG truck hit guard rail and damaged LNG fuel tank. There was no release of LNG even though the tank sustained considerable damage.	2014-16
Type 1 cylinder faile during fueling - two reported deaths	11/18/14	A type 1 cylinder failed during fueling - two deaths reported. Rio de Janeiro	2014-17
Leak during fueling CNG Cylinders on Chevy Express CNG Vans	1/1/15	Vermont Natural Gas Chevy CNG Vans experienced leaks while fueling. The issue was turned over to GM to respond.	2015-01
Cylinder failure - Fire localized PRD did not function	1/27/15	On January 27, 2015, two CNG cylinders ruptured while firefighters in Indianapolis, Indiana were fighting a refuse truck fire that appears to have started in the truck's hopper. The CNG cylinders on this truck were located in the area above the hopper. PRDs did not open and either did not experience the heat fire or may have been cooled down by hose stream or both.	2015-02