

Incident Summary #II-2038643-2026 (#61809) (FINAL)

SUPPORTING INFORMATION	Incident Date		March 3, 2026	
	Location		Abbotsford	
	Regulated industry sector		Gas - Propane system	
	Impact	Injury	Qty injuries	1
			Injury description	The occupant suffered several burns requiring multiple long-term hospital stays.
			Injury rating	Major
		Damage	Damage description	The subject recreational vehicle (RV) was destroyed, with the roof and walls pushed outward. The explosion also damaged the owner’s vehicle parked beside the RV. A resulting fire further damaged the RV’s internal structure and contents.
			Damage rating	Severe
Incident rating		Severe		
Incident overview		In a mobile home park, a propane gas leak inside a fifth wheel RV caused an explosion and fire that destroyed the RV and injured the occupant and their pet dog.		
INVESTIGATION CONCLUSIONS	Site, system and components		The RV was a 2008 Jayco model 35 RLTS fifth wheel trailer. The gas system originally installed in the RV consists of two 30-lb. cylinders located in a ventilated storage compartment at the front of the unit, sealed off from the interior of the RV. The two cylinders are connected by hoses to the inlet of a two-stage propane regulator. The top portion of the regulator reduces container pressure to approximately 10–15 pounds per square inch (psi) and sends it through the second-stage portion of the regulator, which further reduces the pressure to 11 inches of water column (0.4-psi) for conveyance through the gas piping system to the inlet of the RVs gas appliances. From the outlet of the gas regulator, the piping system consists of a flexible non-metallic rubber hose that passes through the floor, runs underneath the RV, and connects to threaded black iron pipe and fittings. The black iron pipe branches off to two separate locations. At the midpoint of the RV, the line transitions to soft copper tubing, which connects to a gas-fired hot water tank and furnace. The second branch travels to the area of the RV’s mechanical slide-out. The gas line transitions to rubber hose for the flexible portion of the moving slide-out, then back to a small section of black iron piping, and finally to flexible copper tubing for connection to the range and refrigerator. CSA Z240 RV Series:23 (the “Z240 Standard”) mandates the safety requirements for RVs. At section 3 of the Z240 Standard, RVs are defined as vehicle-type units “...primarily designed as temporary living quarters for recreational, camping, or seasonal use.” The Z240 Standard provides that: Flexible non-metallic tubing or hose is permitted, and may pass through any wall, floor, partition, or ceiling so long as provisions are made to protect against chafing and the tubing is not concealed and is entirely visible for inspection. Such tubing must also be protected from damage during slide-out operation, if applicable; and	

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- Every RV with a propane gas appliance shall have in place a propane gas detector that complies with UL 1484 and is installed in accordance with the manufacturer's certified instructions.

The *Safety Standards Act* and associated regulations provide that any alteration to a propane gas system for gas-burning appliances in or on a RV (including removal of appliances) is *regulated work* and must only be performed by a person who is qualified and authorized to do so under the Act.

When the RV was situated at the site of the Incident, a qualified individual working for the propane supplier installed and connected a 420-lb cylinder at the front of the RV and connected a flexible hose to the RV's propane regulator inlet. This was done to increase fuel capacity and to allow for on-site fuel delivery for the occupant, who was living in the RV full-time.

Note: the "lb" rating of a propane cylinder refers to the maximum capacity in pounds of propane the cylinder can hold.

Technical Safety BC issued [Directive D-GA 2012-02](#) to clarify requirements for gas supply connections to mobile housing and RVs. The Directive states that connections of RVs to an external gas container or source are considered permanent installations, and such connections shall be performed under appropriate permits and must comply with CSA B149.1 and B149.2 code requirements, as applicable. If the external propane supply is removed, the system must be configured to the Z240 Standard and tested for integrity by a qualified gas fitter.

Failure scenario(s)

The fifth-wheel RV involved in the incident was originally manufactured with a propane system which utilised two onboard 30-lb propane cylinders. The system provided fuel for the range, furnace, hot water tank, and refrigerator. At (an) unknown time(s) after the RV was manufactured, modifications were made to the factory-installed gas system, including the removals of each of the original gas-fired hot water tank and refrigerator and subsequent replacement of each with electrically powered units. Technical Safety BC's Investigation Team was unable to determine whether the modifications to the gas system were performed by qualified and approved individuals.

The RV was moved into the Abbotsford RV park in June 2024, following which the occupant used it as their full-time residence. It was set up for long-term use, and a rented external 420-lb propane cylinder was installed beside the RV and connected to its gas system. The cylinder was installed by a qualified technician from a propane company. When the fuel level was low, the propane company refilled the cylinder on-site using a mobile bulk-delivery truck.

The RV's original refrigerator, which could be run on either electricity or propane, had stopped working and was removed. It was replaced with an electric-only, plug-in apartment-style refrigerator, installed in a different indoor location on the opposite side of the RV and plugged into a wall outlet. When the original refrigerator was removed, the gas supply line to it was disconnected, and a flexible rubber gas hose was left in the same space. The space previously occupied by the refrigerator was then used by the occupant for pantry storage (e.g., cookware and food items). At the end of the gas hose was a closed shut-off valve and a short section of copper tubing with a female flare fitting and nut. The corresponding male flare plug was nearby but had not been installed, leaving the end of the gas line open.

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	At some juncture, rodents entered the RV and chewed through electrical wiring and a section of the gas hose located in the area of the original refrigerator. In the days prior to the Incident, the rodent damage breached the hose's inner liner, and low-pressure propane (11" WC – 0.4-psi) began slowly leaking into the RV. The RV's propane gas alarm, originally installed by the manufacturer to detect leaks and alert the occupant and nearby residents, was not found among the debris after the Incident and was likely to have been either not present and/or non-functioning. None of the fuel delivery driver, neighbours, or occupant reported a gas alarm sounding from the RV. As propane continued to leak, the fuel level in the external propane cylinder dropped at a higher than typical rate, relative to historical fuel consumption data. The propane supplier was alerted of the low fuel level by the remote tank level monitoring system and scheduled an automatic delivery only 11 days after the previous fill. The unusually large increase in fuel consumption – in particular, relative to the mild outdoor temperatures recorded during the 11-day time period – indicates the propane leak started prior to the fuel delivery on the day of the Incident. On the morning of the Incident, the propane supplier arrived on site and delivered 261.7-litres into the cylinder, bringing it from 24% to 80% of capacity, which is the typical maximum filling level for propane cylinders. The fuel delivery driver stated that they did not alter the position of the fuel supply valve on the cylinder while present on-site, and that they did not notice anything out of the ordinary during the fuel delivery. The occupant was not home during the fuel delivery, so the fuel delivery driver left a copy of the delivery ticket in the RV door and left the cylinder supply valve in the open position, just as it was found when they had arrived. At approximately 18:20, the occupant returned home and entered the RV with their dog. Forty-nine minutes later, at 19:09, the accumulated gas–air mixture found an ignition source and an explosion occurred, blowing out the RV's wall and roof. Bystanders were able to remove the occupant from the RV. Emergency responders arrived within 10 minutes, and the occupant was transported to hospital for treatment. Immediately after the explosion, the occupant's dog escaped and was later caught by neighbours and was treated for minor burn injuries. Although an unplugged open gas line with a partially open shutoff valve upstream was discovered during the investigation of the Incident, the tank level monitoring evidence suggests that a propane leak began days prior to the Incident, which is more likely to have been caused by rodent damage that fully penetrated the flexible gas line. It is also possible that an additional leak could have originated from the open gas line if the shutoff valve had recently been moved to a partially open position. It is possible, however, that the shutoff valve position could have changed from fully closed during the explosion itself, when the wall collapsed.
Facts and evidence	Statements Occupant's daughter • The original refrigerator in the trailer had been removed when it stopped working and a conventional electric fridge was plugged into the trailer but across from where the original one was. • The location of the original fridge was used by the occupant as a kitchen pantry and was where they had stored their cooking pots and pans. Propane supplier • Propane was delivered the morning the Incident happened.

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- The remote cylinder fuel level sensor identified the tank fuel level was at 24% at 4:30, the morning of the Incident and 78% at 10:47, following the fuel delivery.
- The propane delivery driver arrived at the site approximately 10:30, performed a visual inspection of the cylinder, and filled the tank from 24% to approximately 80% using the fixed liquid level gauge.
- During the entire delivery the driver did not notice anything abnormal or out of place that was a cause of concern.
- At no time did the delivery driver open or close the fuel supply service valve to the RV gas system during the delivery.
- The owner was not home at the time of the delivery, and the fuel delivery slip was left in the door of the RV.

Site observations

- The rubber gas hose was found to have irregular longitudinal cut marks consistent with rodent chewing at one location, with holes penetrating through to the inside of the hose.
- Electrical wires in the same area also had similar cut marks.
- The area of the RV in which the hose was located contained several food products and what appeared to be rodent droppings.
- The uncapped gas hose was found with a brass flare plug, observed in the same area on the floor of the RV.
- The shutoff valve upstream of the open gas line was observed in the partially open position after the explosion.
- An apartment-sized electric fridge was observed on the ground outside of the RV, opposite the original fridge location.
- The entire gas line from the propane cylinders was examined with no evidence of any other potential leak locations.

Documents

Propane Supplier monitoring and delivery documentation

- Remote cylinder monitoring and fuel delivery documentation for the site reveals an overall average of 41.5 days between deliveries.
- For the same time period during the previous two years, the cylinder averaged 21.5 days between fuel deliveries, and fuel consumption averaged 10.27 litres per day.
- The last fuel delivery was on the morning of the Incident, 11 days after the previous fill. Gas consumption during that time averaged 23.8 litres per day, indicating an abnormal increase in fuel consumption in the days prior to the Incident.

Video

- The occupant can be seen arriving home at 18:20, and the explosion occurred 49 minutes later at 19:09.

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Causes and contributing factors

Although a partially open gas line was found inside the RV, evidence suggests the most likely cause was that rodents chewed through the flexible non-metallic gas hose that was routed inside the RV, resulting in a gas leak that caused an explosion and fire.

Contributing factors to the Incident include

1. The flexible non-metallic gas hose was routed and stored inside the RV in a location that was not readily accessible for inspection. This limited the ability to identify rodent damage before it progressed to the point of propane leakage.
2. The removal of the original RV refrigerator leaving an uncapped gas line left a hazard for a potential gas leak.
3. The original LP gas detector was not functioning. It could have alerted the occupant or neighbours of the gas leak inside the RV.



Image 1 – The propane cylinder at the time of installation (Image from the propane supplier's installation form).



Image 2 – Surveillance screenshots showing the explosion and fire.



Image 3 – Bystander captured the scene shortly after the explosion.



Image 4 – Damage from the front (north side) of the RV.



Image 5 – Damage from the rear (south side) of the RV.



Image 6 – Copper (range) and rubber (fridge) propane gas line.



Image 7 – Close-up of rodent chew marks and holes on the rubber gas line.



Image 8 – Original fridge gas line with partially open gas valve (A) and unplugged end (B).



Image 9 – Close-up of the gas valve in the partially open position.



Image 10 – Closeup of unplugged gas line (Left) and gas line plug (Right) found in close proximity on the floor of the RV.

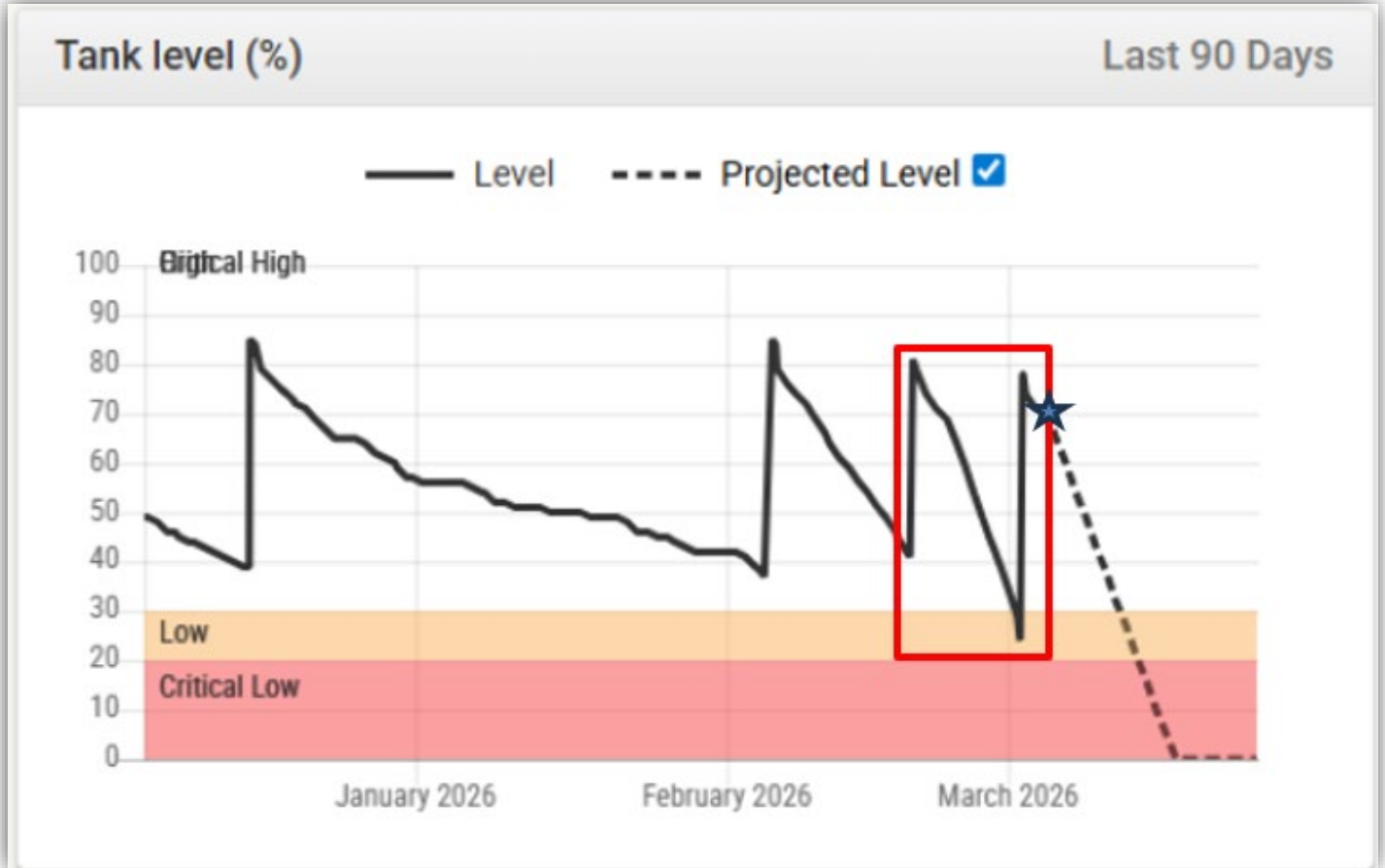


Chart 1 – Tank remote fuel level sensor readings, highlighting the higher-than-average fuel consumption rate prior to the final fuel delivery on the day of the Incident. Star showing time of Incident (Dashed line is only a projection).

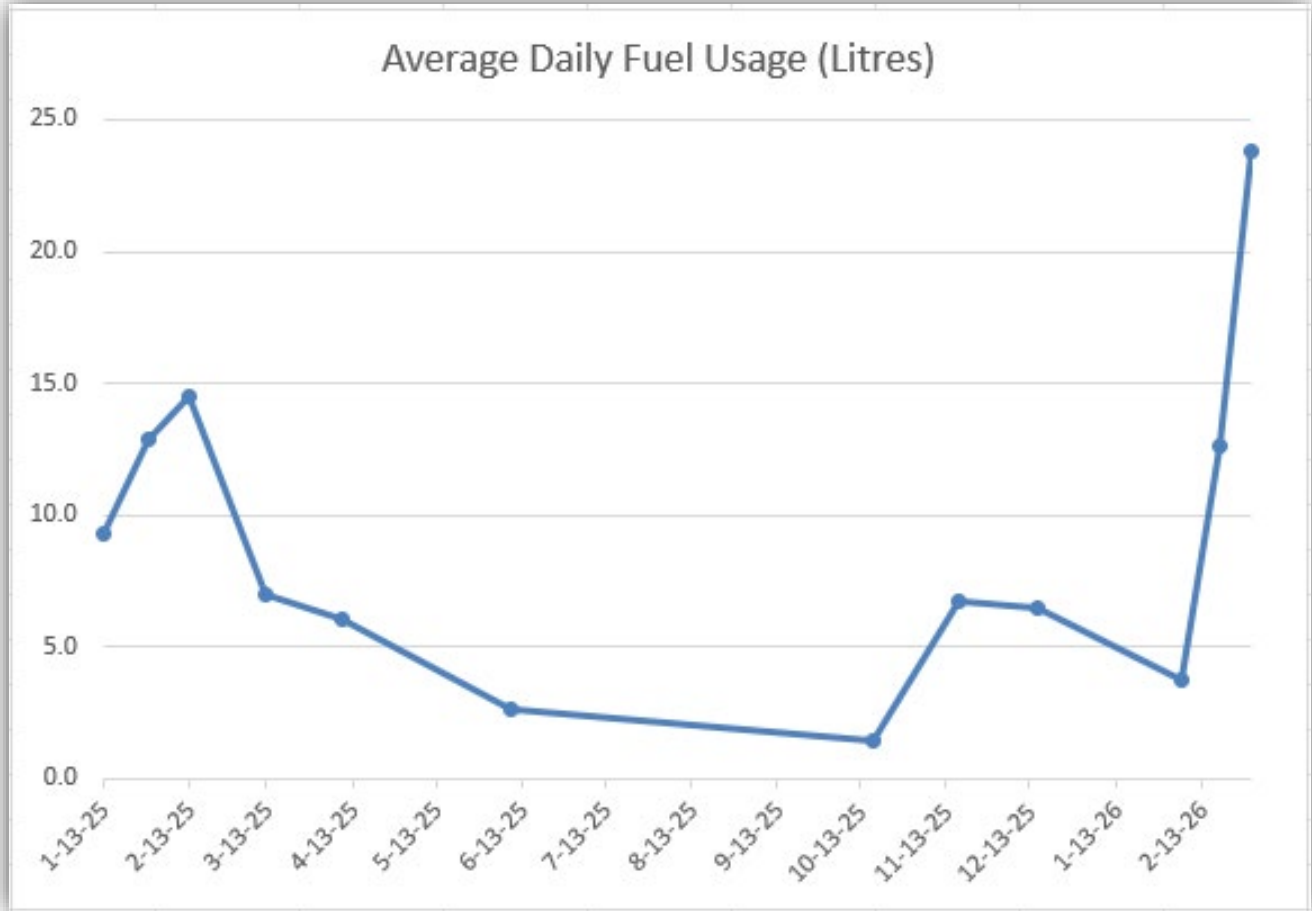


Chart 2 – Average daily fuel usage in litres based on fuel delivery times and volumes.