# Incident Summary #II-1011141-2020 (#17213) (FINAL)

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| SUPPORTING INFORMATION | Incident Date | | May 7, 2020 |
| | Location | | Prince George |
| | Regulated industry sector | | Gas - Natural gas system |
| | Impact – Injury | Qty injuries | 1 |
| | | Injury description | Lacerations to face and legs |
| | | Injury rating | Moderate |
| | Impact – Damage | Damage description | Fire place glass expelled into living space |
| | | Damage rating | Moderate |
| | Incident rating | | Moderate |
| | Incident overview | | A fireplace explosion in a residence completely shattered the fireplace glass and causing lacerations to face and legs to one person. |
| INVESTIGATION CONCLUSIONS | Site, system and components | | **Direct-vent fireplaces work** by employing outside air rather than air inside the home for combustion. The air comes in through a double vent pipe's outer chamber, while the inside chamber is used to send exhaust fumes outside the home.<br><br>-It incorporates a gas valve which controls the heat to the space, standing pilot, and a manual spark ignitor.<br><br>- an internal relief damper which is designed to open to relieve excess pressure from a delayed ignition to preventing the glass from shattering. |
| | Failure scenario(s) | | A possible buildup of gas which caused a delayed ignition which lead to the fireplace glass being expelled into the living space.<br><br>The relief damper may have failed to open or is of insufficient size to prevent the glass from blowing outward in to the living space in a delayed ignition situation. |
| | Facts and evidence | | Person operating the fireplace stated that fireplace had been on during the night and she was turning the gas valve from the on position to the pilot position so the fireplace would not operate during the day. Did not have any trouble with the fireplace prior to the event.<br><br>The HO stated that he has owned the property for two years and had not had the fireplace serviced in that time.<br><br>Log set may have been incorrectly positioned as they were not in the correct position at the time of investigation which could cause improper ignition of the main burner however the log set may have been dislodged from the possible delayed ignition of gas. |

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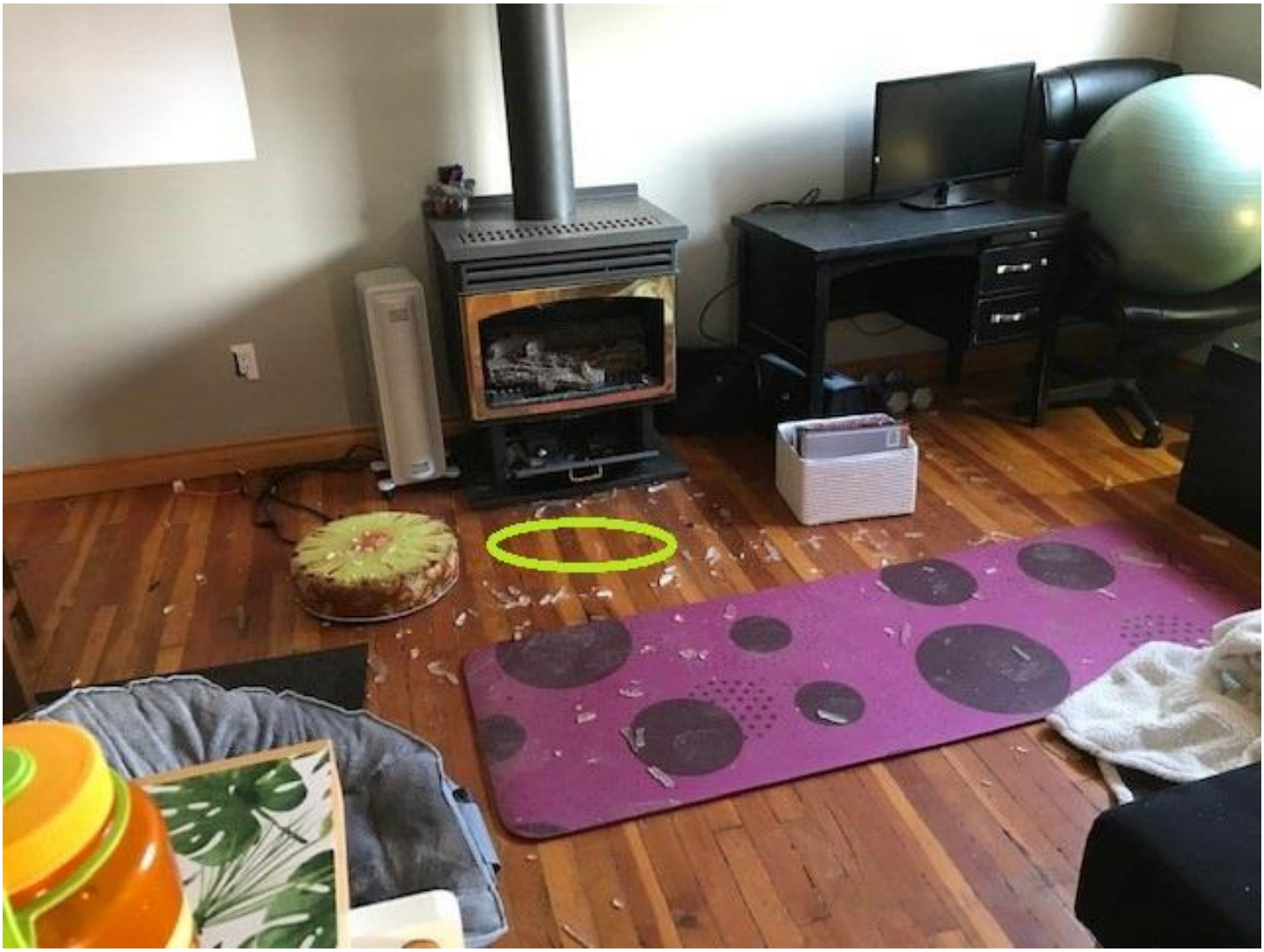
| | The gas valve was able to be turned from the off position directly to the on position bypassing the pilot which would allow full gas flow into the burner compartment. Which could indicate that the pilot safety feature is faulty in the gas valve.<br><br>If somebody was attempting to light the fireplace pilot light they could in fact inadvertently turn the gas valve to full open by passing the pilot setting filling the burner compartment with gas then press the manual spark ignitor causing an explosion.<br><br>Manufacture of the fireplace has had similar incidents with other modes of their fireplaces as reported by Health Canada http://www.healthycanadians.gc.ca/recall-alert-rappel-avis/hc-sc/2012/15058a-eng.php and as reported by Technical Safety BC. installation_or_use_of_majestic_fireplace_direct_vent_free_standing_gas_fireplace_-_prohibited_so-ga_2012-01_rev_01.pdf<br><br>Gas utilities Technician that attended site performed lock up test on regulator to ensure the gas system was not in an over pressure situation, checked gas supply pressure to the dwelling regulator performed as required. He measured the glass had been thrown 19 and one half feet away from the front of the fireplace. |
| Causes and contributing factors | The design of the explosion relief damper was insufficient to protect the glass from blowing out when exposed to the pressure from a delayed gas ignition. |



Glass on floor

Yellow oval is where person was kneeling at time of explosion


NORTHERN- FLAME
MODEL/ MODELE
D230 TN
SERIAL NO./ Nº de SERIE
001654
NAT. GAS/GAZ
4.5"W.C.
7"W.C.
41 DMS
53 DMS
3.5"W.C.
PROP GAS/GAZ
N/A
N/A
N/A
N/A
N/A
21,000 BTUH
30,000 BTUH
21,400 BTUH
0-610M (0-2,000 Ft/Pi)
610-1370M(2,000-4500Ft/Pi)
CAUTION:

Data tag

Log set as found

Red arrow indicates relief opening (7 ea)

Log set correct position