

## Incident Summary #II-1263531-2021 (#24279) (FINAL)

|                           |                             |  |  |
|---------------------------|-----------------------------|--|--|
| SUPPORTING INFORMATION    | Incident Date               | October 2, 2021  |  |
|                           | Location                    | Abbotsford B.C   |  |
|                           | Regulated industry sector   | Gas - Natural gas system   |  |
|                           | Impact                      | Qty injuries   | 0  |
|                           |                             | Injury description   | N/A  |
|                           |                             | Injury rating  | None   |
|                           | Damage                      | Damage description   | A Damaged, leaking copper gas line feeding a range |
|                           |                             | Damage rating  | Moderate   |
|                           | Incident rating             | Moderate   |  |
|                           | Incident overview           | A broken copper gas line behind a residential range, resulted in a kitchen fire.   |  |
| INVESTIGATION CONCLUSIONS | Site, system and components | <p>½" copper tubing was used to run gas from the basement furnace room to a gas range installed in a residential kitchen.</p> <p>Copper tubing is commonly used to run gas lines to appliances in residential homes. It is important that copper tubing is protected from mechanical impact, stress, punctures etc. It also needs to be clamped and supported so that the tubing cannot be subject to movement which can result in damage to the tubing. Moveable appliances such as gas ranges may be connected to the gas supply using a flexible gas connector. These gas connectors must only be connected to clamped and supported piping and tubing so that any movement is limited to the flexible gas connector and does not strain the piping/ tubing.</p>  |  |
|                           | Failure scenario(s)         | <p>A gas range was installed in a residential home. It had previously been an electric range, so a gas supply needed to be installed. Copper tubing was used as the material for the new gas line. The gas line was routed from the basement furnace room, up through the floor and routed through a kitchen cabinet to the range location. The copper tubing was not properly clamped and supported in the cabinet and behind the range. This left the tubing subject to movement during the installation as well as over the years any time the range was moved in or out.</p> <p>One morning as the range was being used, a strong gas odour was noticed by one of the occupants. They were about to report this to the gas utility when flames were noticed coming from the cabinet next to the range. The occupants quickly evacuated the home and called for emergency responders.</p> |  |
|                           | Facts and evidence          | <p>-The homeowner stated that the gas range had been installed approximately 3 years ago in 2018. They mentioned that they had been using it without issue almost daily.</p> <p>-The owners said that around 7:30 am on the day of the incident, they had used the gas range to prepare breakfast. They began using the range again at around 11:30</p>  |  |

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|                                 | <p>Am for lunch. Right around this time their tenant called from the basement saying that they were smelling natural gas. The owners were about to contact the gas utility to report the gas odour when they noticed flames coming from a kitchen cabinet beside the gas range.</p> <p>-close inspection of the copper tubing revealed that it had been pressed tightly up against the corner of the cabinet. A break in the copper line can be seen in the crease (See picture 3)</p> <p>-the owners were asked if they had ever moved the range for cleaning or any other purpose, they stated that they do not think it had been moved since installation.</p> <p>-No installation permit could be located, so qualifications of the installer cannot be confirmed.</p> |
| Causes and contributing factors | <p>It is likely that sometime during the installation of the gas range, the copper gas line was badly damaged and almost leaking. The gas line was not supported and clamped, so while the gas range was being positioned into place, the copper tubing may have been pulled hard against the corner of the cabinet causing the kink and stress in the copper. Over the next few years, slight movements of the range and gas line finally caused a break in the copper where it was creased against the cabinet and resulted in a gas leak. The gas range was being used at the time that the gas odour was reported so a source of ignition was present near the leaking gas.</p>  |



**Picture 1-** Front of the residential home.

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**Picture 2-** The flexible gas connector can be seen connected to the gas supply. The piping/ regulator was not clamped to the rear wall, this caused the assembly to pull forward straining the copper tubing against the edge of the cabinet. (copper tubing against cabinet circled in red)

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**Picture 3-** Close examination of the copper tubing shows a break where the tubing was kinked/creased.



**Picture 4-** Picture above taken from behind cabinet where the tubing can be seen pushed up tight against the edge of the cabinet.