

Incident Summary #II-752719-2018 (#8908) (FINAL)

SUPPORTING INFORMATION	Incident Date	September 28, 2018	
	Location	Abbotsford BC	
	Regulated industry sector	Gas - Natural gas system	
	Impact	Qty injuries	0
		Injury description	None
		Injury rating	None
	Damage	Damage description	Small hole in a copper gas line
		Damage rating	Moderate
	Incident rating	Moderate	
Incident overview	Since moving into their new home in 2010, occupants of the home could smell what they thought was natural gas in different parts of the home.		
INVESTIGATION CONCLUSIONS	Site, system and components	<p>Natural gas is brought into houses through gas lines which can be copper, corrugated stainless steel tubing or black iron pipe. Natural gas has an added odorant called methyl mercaptan so that it can be detected by sense of smell in case of a leak.</p> <p>These gas lines are commonly run inside the walls so that they are out of sight and protected from physical impact.</p> <p>When running copper tubing through these walls, provisions need to be made so that nails and screws do not penetrate the copper tubing when the walls are covered up with drywall, plywood, or other materials.</p> <p>The gas installation code states that if the tubing is installed in hollow walls within 1.75" (43mm) of the surface, a metal protection plate shall be used to avoid punctures or physical damage from screws or nails.</p> <p>Before completing a gas installation, gas fitters must perform a pressure test where they pressurize all gas lines in the home and prove that they hold pressure for a predetermined duration as outlined in the gas installation code.</p>	
	Failure scenario(s)	<p>Gas tubing for gas appliances was installed in a newly constructed home.</p> <p>A screw penetrated the copper tubing where it passed from outside to inside resulting in a gas leak that was not located for several years.</p>	
	Facts and evidence	<p>-The home owner stated that since they moved into their home, they could smell natural gas in several areas of the home, mostly in the garage and nearby bedroom.</p> <p>-Close inspection of the damaged piece of copper shows that the tubing was already repaired at a previous date. It appears that after this repair another screw was driven</p>	

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	<p>into the exterior and copper tubing but went unnoticed. (see picture #3 of brazed repair and second hole next to the repair)</p> <ul style="list-style-type: none"> - The screw that punctured the copper tubing slowed down the release of gas and because it was in an insulated and sealed wall, it was difficult to determine where the gas odor was coming from. -During a recent renovation, drywall was removed in the garage and the leak was discovered. The home owner stated that the screw was found piercing the copper tubing. -The screw punctured the copper where the tubing passed through the wall on an angle from outside to inside. -Two screw holes can be seen on the exterior siding that align with the hole in the copper tubing and the solder repair. (see picture #2) -No installation permit could be located for this installation. Worker qualification/ experience could not be determined. It is also unknown if correct pressure testing procedures were followed.
Causes and contributing factors	<p>During the installation of the vinyl exterior siding and trim pieces, screws were driven into the exterior piercing the copper tubing and causing a leak. A metal protection plate installed where the copper tubing was less than 1.75" from the exterior plywood surface would have likely prevented this.</p>

Photos or diagrams (if necessary)

Picture #1



-Red oval circles the natural gas meter where gas is supplied to the home (copper is already repaired in this picture).

Picture # 2



-Red arrows point to where screws were driven into the exterior, puncturing the copper tubing

Picture #3



-Yellow arrow points to brazed repair

-Red arrow points to the hole caused by the 2nd screw