Incident Summary #II-1069070-2020 (#19265) (FINAL)

SUPPORTING INFORMATION	Incident Date		September 18, 2020
	Location		Nanaimo
	Regulated industry sector		Gas - Natural gas system
	Impact – Injury	Qty injuries	0
		Injury description	NA
		Injury rating	None
	Impact – Damage	Damage description	An uncontrolled release of natural gas on a newly installed piping system, resulted in a fire which damaged the floor and warped a stainless steel wall.
		Damage rating	Moderate
	Incident rating		Moderate
	Incident overview		Natural gas leaked from a newly installed gas line in the deli section of a warehouse type grocery store. The Deli department was only accessible to employees, and the uncontrolled release of natural gas was ignited by a nearby appliance resulting in a fire.
INVESTIGATION CONCLUSIONS	Site, system and components		A gas contractor assembled a newly installed gas line which was approximately 65 feet in length and equipped with the following: -The piping which contains the natural gas was assembled with black iron piping. -The fittings used to connect the black iron piping in this installation are known as MegaPressG fittings. These fittings are constructed of carbon steel with a corrosion-resistant zinc/nickel coating. - MegapressG fittings are sealed when force of the crimping tools jaws are applied to the fitting. -The crimping tool seals MegapressG fittings onto the piping system when the jaws of this tool are placed around the fitting. The battery operated tool applies hydraulic force which then crimps and seals the fittings onto the pipe. Historically black iron piping has been traditionally threaded and assembled by tightening the threaded fittings onto the pipe. Due to the fact threading is not required on a MegaPressG system, the installation time is drastically reduced. The newly installed piping system operates at a pressure of 5psi. The natural gas pressure then would be further reduced by 2 gas regulators prior to fuel reaching the appliance. Prior to energizing a newly installed gas line the following is required per code - Before an appliance is connected a piping or tubing system which contains fittings and joints shall be pressure tested with either air, inert gas or carbon dioxide. -A system which will operate at a pressure of 5psig shall be pressure tested at 50psig for a test duration of 60 minutes per code requirements.

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Failure scenario(s)	Natural gas was isolated with a shut off valve while the contractor was assembling the new piping system. The contractor had failed to pressure test the newly installed piping system upon completion of work and opened the shut off valve which then energized the piping system with natural gas. Natural gas leaked from the unsealed fitting on the top portion of a Tee fitting. The fuel was released from the un sealed MegapressG fitting and was ignited by a nearby gas fired rotisserie oven.
Facts and evidence	Upon visual inspection of the Tee, it was apparent the MegaPressG fitting was not mechanically crimped on to the piping system. The location of the unsealed MegaPressG fitting is where staff had indicated the flames were coming from. Upon interviewing the gas contractor who had assembled the piping system, the contractor indicated that the newly installed piping system was not pressure tested and that natural gas was introduced into the piping system without the required pressure test. When the natural gas leaked out of the unsealed fitting, the natural gas was ignited by a nearby oven resulting in a fire. The Assistant Warehouse Manager had indicated in an interview that the fire occurred at approximately 10:15 am. Staff extinguished the flames with 2 portable fire extinguishers and the fire suppression system was energized by employees. The fire department had attended the scene. As a result of the fire, the floor was damaged and the stainless steel wall was warped.
Causes and contributing factors	If a pressure test was conducted prior to the introduction of fuel into the newly installed piping system, the leak would have been more than likely found at the non-mechanically sealed fitting.


Megapress fitting not sealed on top portion off Tee fitting.


SANITIZER