Incident Summary #II-771091-2018 (#9584) (FINAL)

SUPPORTING INFORMATION	Incident Date		November 6, 2018
	Location		Prince George
	Regulated industry sector		Boilers, PV & refrigeration - Refrigeration system
	Impact – Injury	Qty injuries	0
		Injury description	No Injuries occurred.
		Injury rating	None
	Impact – Damage	Damage description	The gasket on the suction valve cover failed.
		Damage rating	Minor
	Incident rating		Minor
	Incident overview		The gasket on the suction valve cover failed allowing ammonia to release into the machine room which set off the high ammonia alarm at approximately 02:00 hours. Qualified personnel responded to find the sensor readings at 500 ppm.
INVESTIGATION CONCLUSIONS	Site, system and components		The ammonia enters the compressor through the suction valve which is designed with a cover plate that is removable. The gasket between the valve body and cover is approximately 0.020” thick and has four holes for the bolted connection. The gasket failed at one of the bolt holes.
	Failure scenario(s)		The design of the gasket is thin and the gasket material on the outside of the bolt hole was missing at two locations. At the leak location, the gasket on the outside of the bolt hole failed which allowed the ammonia to escape from the system into the machinery room.
	Facts and evidence		The compressor was approximately one year old at the time of the incident and had not been taken apart since installation. At the top left bolt hole where the gasket failed, there is gasket material missing on the outside of the hole and rust was visible at this location on the suction valve body. It appears this portion of the gasket has been missing for a period of time due to the rust corrosion. The remaining gasket material on the inside of the bolt hole also appears to have failed.
	Causes and contributing factors		It is certain that the failed gasket allowed the ammonia to escape from the system.

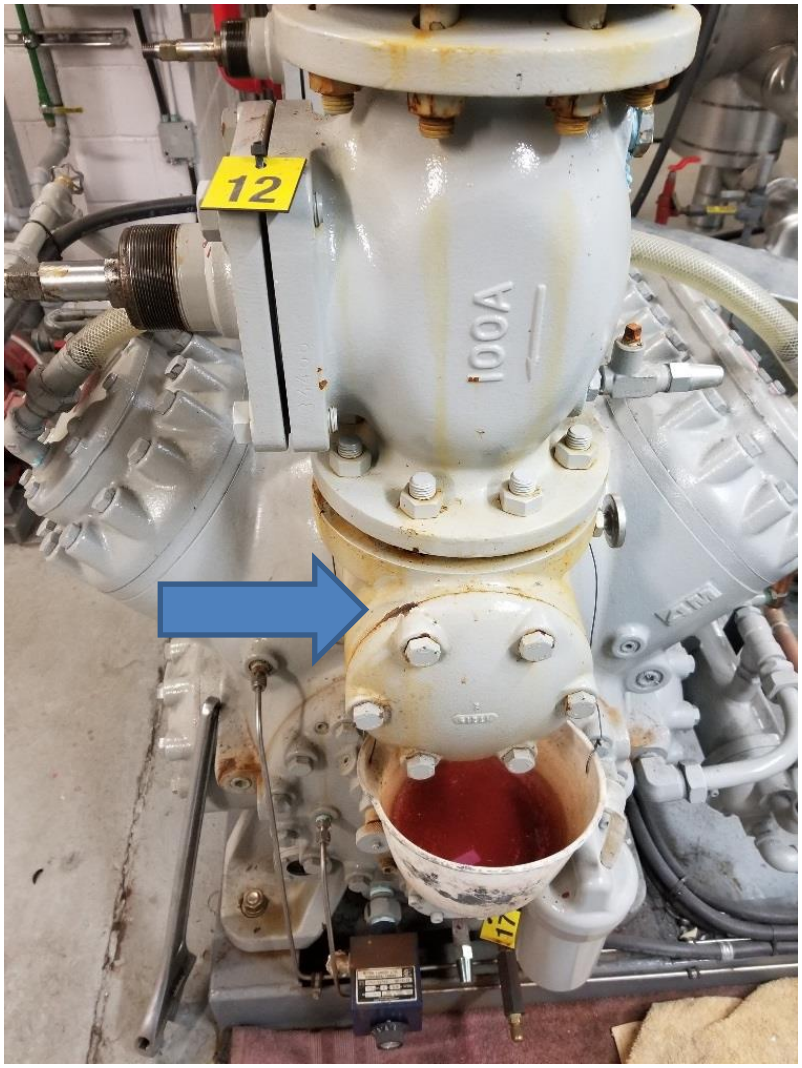

Photo 1: Photo provided by Refrigeration Contractor and used with permission.

Photo 2: Photo provided by Refrigeration Contractor and used with permission.

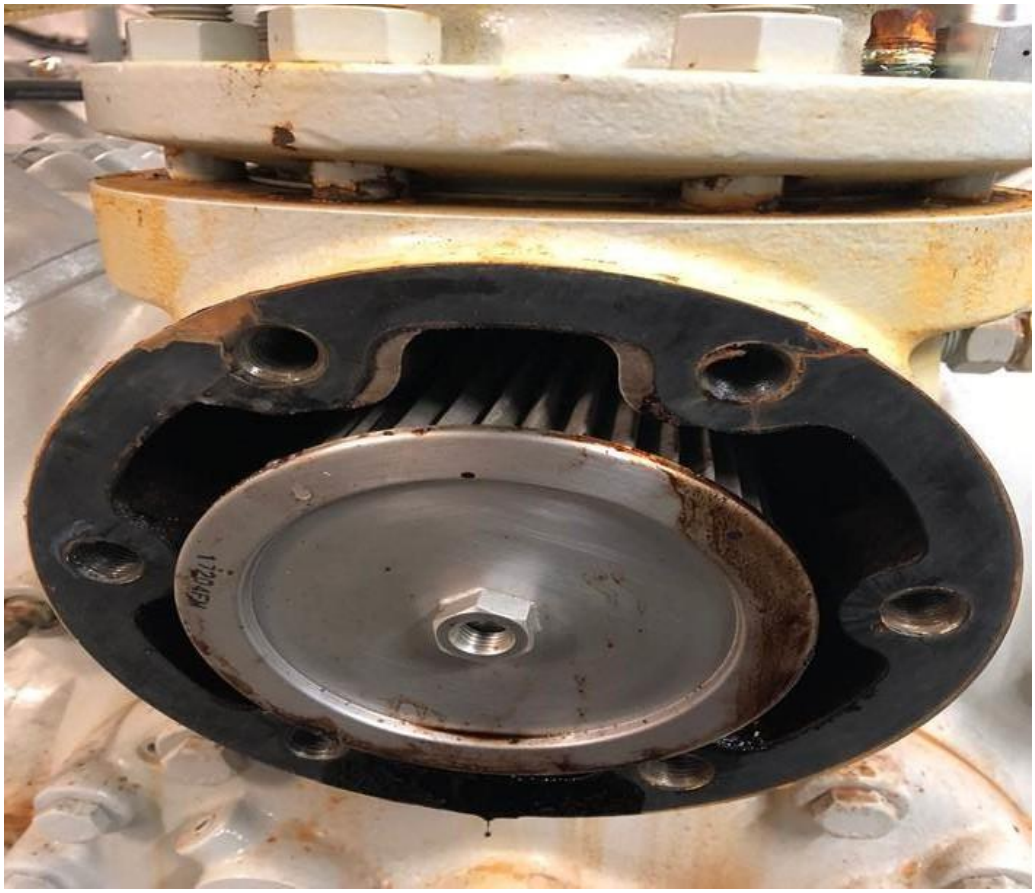

Photo 3: Photo provided by Refrigeration Contractor and used with permission.

Photo 4: Photo provided by Refrigeration Contractor and used with permission. Not failure on bottom left side of gasket below bolt hole. Also rust on suction valve body where gasket was missing above the bolt hole.

Photo 5: Photo by Boiler Safety Officer-actual gasket.