Incident Summary Reference #5616081 - Final

SUPPORTING INFORMATION	Incident Date			May 17, 2017
	Location			Peace River Region
	Regulated industry sector			Boiler and Pressure Vessel
	Impact	Injury	Qty injuries	None
			Injury description	None
			Injury rating	None
		Damage	Damage description	Loss of equipment
			Damage rating	Major
	Incident rating			Major
	Incident overview			May 18, 2017 initial notification received indicated that: The plant facility received an alarm from its fire detection system; and a loss of containment of process involving a fire occurred.
INVESTIGATION CONCLUSIONS	Site, system and components			A pressure vessel separator was involved in this event. The vessel separates gas from liquids during processing. A safety relief valve protects the vessel from an overpressure event. This separator has an 18 inch manway door for access to the units inside compartment. A gasket is used to seal the 18 inch door. During the analysis of the event it was revealed that the wrong size of gasket may have been used.
	Failure scenario(s)			1. A Contributing factor may have been the wrong class series of gasket used – a class 300 was used instead of a class 600. Each gasket class has different dimensional sizes which if the correct size is not used, may contribute to failure of the gasket. 2. Safety relief valve may not have functioned as intended, 3. A vapour cloud may have leaked out of the 18 inch inspection nozzle (manway) and may have been ignited by compressor
	Facts and evidence			1. The 18 inch door gasket indicates class 300 series, 2. The safety relieve valve examined by valve service shop indicated that the valve set pressure could not be determined, 3. Security footage shows ignition of a possible vapour cloud just after operator entered the control room
	Causes and contributing factors			1. A contributing factor may have been that the wrong gasket class (size) was used 2. The safety relief valve may have failed to operate as designed.

Photos: - Begin next page:

K-400 & K-440 Compressor Buildings in front of scene as seen from near Control Room

Operators camp accommodation as seen from control room to the right approximately 300m from scene

K-400 Compressor Skid which is next to K-440 Compressor skid in front of scene

K-440 Compressor intake – may have contributed to ignition of vapour cloud - notice damaged doors

K-440 Compressor damage on rear side of air intake assembly

K-440 rear damaged intake as observed – note intake bulged

K-440 Compressor doorway – Note broken safety glass

K-440 building door- note heat pattern around broken window

K-440 Compressor building melted ESD button

K-440 Compressor building melted paint, windows and exterior steel wall

K-440 Compressor building on left – Scene on right (building removed as per WorkSafe BC)

V-665 (horizontal Low pressure separator on left) - Z-650 Refrigeration Building (on right)

K-650 Refrigeration Building Side – V665 Low Pressure Separator on far side of building

Right side of V-665 Low Temperature Separator

V-665 Low Temperature Separator – exterior fire damaged.

V-665 Low Temperature Separator – Inspection Nozzle in opened during investigation by Owner

V-665 Low Temperature 18 Inch Inspection Nozzle gasket – removed by Owner representative

V-665 Low Temperature 18 inch Inspection Nozzle gasket – Note: rated only for 300 lbs class

V-665 Low Temperature Separator – Nameplates damaged by fire.

V-665 Low Temperature Separator – Safety Relief Valve on right end at 12 o'clock position

V-665 Low Temperature Separator – Safety Relief Valve

End of photos: