

Worksheet

HAZOP-PC 1.00

Company: DOW CHEMICAL CO.
 Process: HDPE - POLY B

Node: 17
 Page: 1

Node: 17 Heating Water to DR-2007 (Including E-2017)					
Parameter: Flow			Intention: As Required to Vapor. Isop.		
GUIDEWORD	DEVIATION	POSSIBLE CAUSES	CONSEQUENCES	RECOMMENDATIONS	BY
No	No Flow	Pump trip. Valve blocked in. Control valve failure. D-2811 low level.	Lead to shutdown of train. High volatiles in powder and transfer system.	Put manual valve in pump discharge Operator training Make discharge AOV fail open. Develop standby procedures following maintenance.	GH RF GH RF
More	More Flow		No Problem		
Less	Less Flow	Control upset.	See No Flow	MOD redundancy	*
OtherThan	OtherThan Flow				

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Node: 17 Heating Water to DR-2007 (Including E-2017)					
Parameter: Temperature			Intention: 102 Deg.C		
GUIDEWORD	DEVIATION	POSSIBLE CAUSES	CONSEQUENCES	RECOMMENDATIONS	BY
More	Higher Temp	Steam control valve failure. Temperature control upset. Steam valve bypass open.	Fuse polymer. Lead to a Train shutdown. Rotor damage. Plugged transfer system. Loss of heat transfer. Slurry to hydroclone due to loss of flow.	Operator training Cascade temperature and cond. level control system. Shutdown feed to dryer on high temperature. Multiple alarms designed into control system.	RF * * *
Less	Lower Temp		See No Flow		

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Node: 17 Heating Water to DR-2007 (Including E-2017)					
Parameter: Pressure			Intention: 50. psig at Jacket		
GUIDEWORD	DEVIATION	POSSIBLE CAUSES	CONSEQUENCES	RECOMMENDATIONS	BY
More	Higher Pressure	D-2811 pad/depad valve failure. Water makeup valve failure.	Overpressure dryer jacket.	System pressure alarms installed.	KW
			Low level in D-2811	PSVs installed.	GH
			PSV on dryer jackets open.	Evaluate jacket/shell differential indication.	GH
				Determine and communicate response to high drum pressure.	RF