LAYERS OF PROTECTION ANALYSIS (LOPA) WORKSHEET

Project: Unit 100 LOPA	Calc no: CALC SIS 002 Rev: 0

Yellow cells: enter data. Grey cells: calculated automatically. Free template from instrumentationblog.in

Study			
Unit	Unit 100	**HAZOP reference**	HAZOP node 3
Risk criteria	Company tolerable frequencies		

Scenarios (frequencies per year)

Scenario	Initiating event	IE freq	IPL 1 PFD	IPL 2 PFD	IPL 3 PFD	Modifiers	Mitigated freq	Tolerable freq	Required RRF	SIF target	Remarks
High pressure in V 101, blocked outlet	Control valve fails closed	2.0E-01	1.0E-01	1.0E-01		1.00	2.0E-03	1.0E-05	200	SIL 2	
Tank overfill	Level control failure	1.0E-01	1.0E-01			0.50	5.0E-03	1.0E-04	50	SIL 1	
Fuel gas explosion in furnace on start up	Purge failure	2.0E-01	1.0E-01			0.30	6.0E-03	1.0E-05	600	SIL 2	

Only credit IPLs that are independent, effective and auditable. A BPCS loop cannot be credited better than PFD 0.1 (IEC 61511). Review every credit with the team.

LOPA leader	Process safety
Name:	Name:
Signature:	Signature:
Date:	Date: