AIXTRON

Enable Table

Comission:	**AIXG5HT**	**Revision**	**4.0**
FS CRC :	**CF5A**	**Date**	**23.06.2016**
ST CRC:	**0634**		

Safety Action:	**Enable_Motion_Control**		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
Enable_Motion_Control.Request	TRUE		
! Trolley_Front_Door_left	Maintenance_Mode		
! Trolley_Front_Door_right	Maintenance_Mode		
! Trolley_Rear_Door_left	Maintenance_Mode		
! Trolley_Rear_Door_right	Maintenance_Mode		
! Ackn_Watchdog_Alarm			

Safety Action:	**Rotation_Enabled_Signal**		
Condition A (Logical AND)	**ConditionB (LogicalORtoA)**	**ConditionC (LogicalORtoB)**	**ConditionD (LogicalORtoC)**
Rotation_Enabled_Signal.Request	TRUE		
Ackn_Enable_Motion_Control			

Action:	**Rotation_Enabled**		
Condition A (Logical AND)	**ConditionB (LogicalORtoA)**	**ConditionC (LogicalORtoB)**	**ConditionD (LogicalORtoC)**
Rotation_Enabled.Request	TRUE		
Ackn_Enable_Motion_Control			

Safety Action:	**SafetyIdle**		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
SafetyIdle.Request			

Safety Action:	**RequestSafetyForProcess**		**SafetyProcess**
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**

RequestSafetyForProcess.Request			
! Pre_Process_Purge			
! Maintenance_Mode			
Ackn_Hyd_Enable			
No Alarm according Cause / Effect Process_State_Release			

Safety Action:	**RequestSafetyForManualLoad**		**ReqManLoad**
Condition A **(Logical AND)**	**Condition B** **(Logical OR to A)**	**Condition C** **(Logical OR to B)**	**Condition D** **(Logical OR to C)**
RequestSafetyForManualLoad.Request			

Safety Action:	**RequestSafetyForTransfer**		
Condition A **(Logical AND)**	**Condition B** **(Logical OR to A)**	**Condition C** **(Logical OR to B)**	**Condition D** **(Logical OR to C)**
RequestSafetyForTransfer.Request			

Safety Action:	**Hydride_sources_pneumatic_Out**		
Condition A **(Logical AND)**	**Condition B** **(Logical OR to A)**	**Condition C** **(Logical OR to B)**	**Condition D** **(Logical OR to C)**
Hydride_sources_pneumatic_Out.Request	RequestSafetyForProcess.Output	Ackn_Leaktest_Mode	
! Ackn_G09_Reactor.vac			
! Pre_Process_Purge			
Ackn_Cabinet_Doors_Closed	Ackn_Leaktest_Mode		
Ackn_Hyd_Enable	Ackn_Leaktest_Mode		
Position_G59_ScrubberSelect	Ackn_Leaktest_Mode		
Position_G60_ScrubberSelect	Ackn_Leaktest_Mode		
! Ackn_RequestSafetyForManualLoad	Ackn_Leaktest_Mode		
RequestSafetyForProcess.Output	Ackn_Leaktest_Mode		
! Ackn_RequestSafetyForTransfer	Ackn_Leaktest_Mode		
No Alarm according Cause / Effect Hydride_sources_Release			

Safety Action:	**Cl2_Sources_Pneumatic_Out**		
Condition A **(Logical AND)**	**Condition B** **(Logical OR to A)**	**Condition C** **(Logical OR to B)**	**Condition D** **(Logical OR to C)**
Cl2_Sources_Pneumatic_Out.Request	Ackn_Leaktest_Mode	H131_RUN_VENT.Output	H132_RUN_VENT.Output
! Ackn_G09_Reactor.vac			
! Pre_Process_Purge			
Ackn_Cabinet_Doors_Closed	Ackn_Leaktest_Mode		
Ackn_Cl2_Enable	Ackn_Leaktest_Mode		
Ackn_H40_Vent.vac	Ackn_Leaktest_Mode		
! Position_G59_ScrubberSelect	Ackn_Leaktest_Mode		
! Position_G60_ScrubberSelect	Ackn_Leaktest_Mode		
! Ackn_RequestSafetyForManualLoad	Ackn_Leaktest_Mode		

! Ackn_RequestSafetyForTransfer	Ackn_Leaktest_Mode		

No Alarm according Cause / Effect

Cl2_sources_Release

Safety Action:	**Cl2_Sources_Electric_Out**		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
Cl2_Sources_Electric_Out.Request	Ackn_Leaktest_Mode	H131_RUN_VENT.Output	H132_RUN_VENT.Output
! Ackn_G09_Reactor.vac			
! Pre_Process_Purge			
Ackn_Cabinet_Doors_Closed	Ackn_Leaktest_Mode		
Ackn_Cl2_Enable	Ackn_Leaktest_Mode		
Ackn_H40_Vent.vac	Ackn_Leaktest_Mode		
! Position_G59_ScrubberSelect	Ackn_Leaktest_Mode		
! Position_G60_ScrubberSelect	Ackn_Leaktest_Mode		
! Ackn_RequestSafetyForManualLoad	Ackn_Leaktest_Mode		
! Ackn_RequestSafetyForTransfer	Ackn_Leaktest_Mode		

No Alarm according Cause / Effect

Cl2_sources_Release

Safety Action:	**Hydride_sources_electric_Out**		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
Hydride_sources_electric_Out.Request	RequestSafetyForProcess.Output	Ackn_Leaktest_Mode	
! Ackn_G09_Reactor.vac			
! Pre_Process_Purge			
Ackn_Cabinet_Doors_Closed	Ackn_Leaktest_Mode		
Ackn_Hyd_Enable	Ackn_Leaktest_Mode		
Position_G59_ScrubberSelect	Ackn_Leaktest_Mode		
Position_G60_ScrubberSelect	Ackn_Leaktest_Mode		
! Ackn_RequestSafetyForManualLoad	Ackn_Leaktest_Mode		
RequestSafetyForProcess.Output	Ackn_Leaktest_Mode		
! Ackn_RequestSafetyForTransfer	Ackn_Leaktest_Mode		

No Alarm according Cause / Effect

Hydride_sources_Release

Safety Action:	**MO_sources_pneumatic_Out**		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
MO_sources_pneumatic_Out.Request	RequestSafetyForProcess.Output	Ackn_Leaktest_Mode	
! Ackn_G09_Reactor.vac			
! Pre_Process_Purge			
! Pressure_Limit_3_Reactor	Maintenance_Mode		
Ackn_Hyd_Enable	Ackn_Leaktest_Mode		
Position_G59_ScrubberSelect	Ackn_Leaktest_Mode		
Position_G60_ScrubberSelect	Ackn_Leaktest_Mode		
! Ackn_RequestSafetyForManualLoad	Maintenance_Mode		
RequestSafetyForProcess.Output	Maintenance_Mode		
! Ackn_RequestSafetyForTransfer	Maintenance_Mode		

No Alarm according Cause / Effect

MO_sources_Release

Safety Action:	MO_sources_electric_Out		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
MO_sources_electric_Out.Request	RequestSafetyForProcess.Output	Ackn_Leaktest_Mode	
! Ackn_G09_Reactor.vac			
! Pre_Process_Purge			
! Pressure_Limit_3_Reactor	Maintenance_Mode		
Ackn_Hyd_Enable	Ackn_Leaktest_Mode		
Position_G59_ScrubberSelect	Ackn_Leaktest_Mode		
Position_G60_ScrubberSelect	Ackn_Leaktest_Mode		
! Ackn_RequestSafetyForManualLoad	Maintenance_Mode		
RequestSafetyForProcess.Output	Maintenance_Mode		
! Ackn_RequestSafetyForTransfer	Maintenance_Mode		
No Alarm according Cause / Effect MO_sources_Release			

Safety Action:	H2_Source_pneumatic_Out		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
H2_Source_pneumatic_Out.Request	Ackn_Leaktest_Mode		
Ackn_Hyd_Enable	Ackn_Leaktest_Mode		
Position_G59_ScrubberSelect	Ackn_Leaktest_Mode		
Position_G60_ScrubberSelect	Ackn_Leaktest_Mode		
! RequestSafetyForTransfer.Output			
No Alarm according Cause / Effect H2_Source_Supply_Release			

Safety Action:	H2_Source_electric_Out		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
H2_Source_electric_Out.Request	Ackn_Leaktest_Mode		
Ackn_Hyd_Enable	Ackn_Leaktest_Mode		
Position_G59_ScrubberSelect	Ackn_Leaktest_Mode		
Position_G60_ScrubberSelect	Ackn_Leaktest_Mode		
! RequestSafetyForTransfer.Output			
No Alarm according Cause / Effect H2_Source_Supply_Release			

Safety Action:	H2_Run_pneumatic_Out		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
H2_Run_pneumatic_Out.Request	RequestSafetyForProcess.Output	Ackn_Leaktest_Mode	
! Pre_Process_Purge			
! Pressure_Limit_3_Reactor	Ackn_Leaktest_Mode		
Ackn_Hyd_Enable	Ackn_Leaktest_Mode		
Position_G59_ScrubberSelect	Ackn_Leaktest_Mode		
Position_G60_ScrubberSelect	Ackn_Leaktest_Mode		
! Ackn_RequestSafetyForManualLoad	Ackn_Leaktest_Mode		

RequestSafetyForProcess.Output	Ackn_Leaktest_Mode		

No Alarm according Cause / Effect

H2_Run_Supply_Release

Safety Action:	**H2_Run_electric_Out**		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
H2_Run_electric_Out.Request	RequestSafetyForProcess.Output	Ackn_Leaktest_Mode	
! Pre_Process_Purge			
! Pressure_Limit_3_Reactor	Ackn_Leaktest_Mode		
Ackn_Hyd_Enable	Ackn_Leaktest_Mode		
Position_G59_ScrubberSelect	Ackn_Leaktest_Mode		
Position_G60_ScrubberSelect	Ackn_Leaktest_Mode		
! Ackn_RequestSafetyForManualLoad	Ackn_Leaktest_Mode		
RequestSafetyForProcess.Output	Ackn_Leaktest_Mode		

No Alarm according Cause / Effect

H2_Run_Supply_Release

Safety Action:	**Door_Open_Release_GMS**		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
Door_Open_Release_GMS.Request	TRUE		
H2_Toxic_Valves_Off			
! H2_Monitor_external			
! Toxic_Gas_Monitor			
Ackn_Timer_Door_Open_Release			

Safety Action:	**G41_N2_Hyd.supply**	**close**	**N./O.**
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
G41_N2_Hyd.supply.Request	Excess_Outlet_Pressure		
ChlorScrubber_Safestate	Excess_Outlet_Pressure		
! Scrubberhydride	Excess_Outlet_Pressure		
! Process_Stop_Button_1	Excess_Outlet_Pressure		
! Process_Stop_Button_2	Excess_Outlet_Pressure		

No Alarm according Cause / Effect

N2_Source_Supply_Release

Action:	**H41_H2_source_supply**	**open**	**N./C.**
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
H41_H2_source_supply.Request			
Ackn_G41_N2_Hyd.supply			
H2_Source_pneumatic_Out.Output			
H2_Source_electric_Out.Output			

Safety Action:	G42_N2_Vent.supply	close	N./O.
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
G42_N2_Vent.supply.Request	Excess_Outlet_Pressure		
ChlorScrubber_Safestate	Excess_Outlet_Pressure		
! Scrubberhydride	Excess_Outlet_Pressure		
! Process_Stop_Button_1	Excess_Outlet_Pressure		
! Process_Stop_Button_2	Excess_Outlet_Pressure		
No Alarm according Cause / Effect N2_Source_Supply_Release			

Action:	H42_H2_source_supply	open	N./C.
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
H42_H2_source_supply.Request			
Ackn_G42_N2_Vent.supply			
H2_Source_pneumatic_Out.Output			
H2_Source_electric_Out.Output			

Safety Action:	G43_N2_MO2.supply	close	N./O.
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
G43_N2_MO2.supply.Request	Excess_Outlet_Pressure		
ChlorScrubber_Safestate	Excess_Outlet_Pressure		
! Scrubberhydride	Excess_Outlet_Pressure		
! Process_Stop_Button_1	Excess_Outlet_Pressure		
! Process_Stop_Button_2	Excess_Outlet_Pressure		
No Alarm according Cause / Effect N2_Source_Supply_Release			

Action:	H43_H2_source_supply	open	N./C.
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
H43_H2_source_supply.Request			
Ackn_G43_N2_MO2.supply			
H2_Source_pneumatic_Out.Output			
H2_Source_electric_Out.Output			

Safety Action:	G44_N2_MO1.supply	close	N./O.
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
G44_N2_MO1.supply.Request	Excess_Outlet_Pressure		

ChlorScrubber_Safestate	Excess_Outlet_Pressure		
! Scrubberhydride	Excess_Outlet_Pressure		
! Process_Stop_Button_1	Excess_Outlet_Pressure		
! Process_Stop_Button_2	Excess_Outlet_Pressure		
No Alarm according Cause / Effect			
N2_Source_Supply_Release			

Action:	**H44_H2_source_supply**	**open**	**N./C.**
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
H44_H2_source_supply.Request			
Ackn_G44_N2_MO1.supply			
H2_Source_pneumatic_Out.Output			
H2_Source_electric_Out.Output			

Safety Action:	**G45_N2_MOVac.purge**	**open**	**N./C.**
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
G45_N2_MOVac.purge.Request			
! P_below_Limit_MO_Vac			
No Alarm according Cause / Effect			
N2_MOVac_Line_Release			

Safety Action:	**G46_N2_Cl2.supply**	**close**	**N./O.**
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
G46_N2_Cl2.supply.Request	Excess_Outlet_Pressure		
ChlorScrubber_Safestate	Excess_Outlet_Pressure		
! Scrubberhydride	Excess_Outlet_Pressure		
! Process_Stop_Button_1	Excess_Outlet_Pressure		
! Process_Stop_Button_2	Excess_Outlet_Pressure		
No Alarm according Cause / Effect			
N2_Source_Supply_Release			

Action:	**H45_H2_MOVac.purge**	**open**	**N./C.**
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
H45_H2_MOVac.purge.Request			
! P_below_Limit_MO_Vac			
H2_Source_pneumatic_Out.Output			
H2_Source_electric_Out.Output			
! Ackn_G45_N2_MOVac.purge			

Safety Action:	**G51_N2_Run.supply**	**close**	**N./O.**

Condition A (Logical AND)	Condition B (Logical OR to A)	Condition C (Logical OR to B)	Condition D (Logical OR to C)
G51_N2_Run.supply.Request	Excess_Outlet_Pressure	Excess_Reactor_Pressure	
Ackn_PreProcessPurge	Excess_Outlet_Pressure	Excess_Reactor_Pressure	
ChlorScrubber_Safestate	Excess_Outlet_Pressure	Excess_Reactor_Pressure	
! Scrubberhydride	Excess_Outlet_Pressure	Excess_Reactor_Pressure	
! Process_Stop_Button_1	Excess_Outlet_Pressure	Excess_Reactor_Pressure	
! Process_Stop_Button_2	Excess_Outlet_Pressure	Excess_Reactor_Pressure	
! Ackn_RequestSafetyForManualLoad	Excess_Outlet_Pressure	Excess_Reactor_Pressure	

No Alarm according Cause / Effect

N2_Run_Supply_Release

Action:	H51_H2_Run_supply	open	N./C.

Condition A (Logical AND)	Condition B (Logical OR to A)	Condition C (Logical OR to B)	Condition D (Logical OR to C)
H51_H2_Run_supply.Request			
Ackn_G51_N2_Run.supply			
H2_Run_pneumatic_Out.Output			
H2_Run_electric_Out.Output			

Safety Action:	G50_N2_Run.supply	close	N./O.

Condition A (Logical AND)	Condition B (Logical OR to A)	Condition C (Logical OR to B)	Condition D (Logical OR to C)
G50_N2_Run.supply.Request	Excess_Outlet_Pressure	Excess_Reactor_Pressure	
Ackn_PreProcessPurge	Excess_Outlet_Pressure	Excess_Reactor_Pressure	
ChlorScrubber_Safestate	Excess_Outlet_Pressure	Excess_Reactor_Pressure	
! Scrubberhydride	Excess_Outlet_Pressure	Excess_Reactor_Pressure	
! Process_Stop_Button_1	Excess_Outlet_Pressure	Excess_Reactor_Pressure	
! Process_Stop_Button_2	Excess_Outlet_Pressure	Excess_Reactor_Pressure	
! Ackn_RequestSafetyForManualLoad	Excess_Outlet_Pressure	Excess_Reactor_Pressure	

No Alarm according Cause / Effect

N2_Run_Supply_Release

Safety Action:	G52_N2_Purge.supply	close	N./O.

Condition A (Logical AND)	Condition B (Logical OR to A)	Condition C (Logical OR to B)	Condition D (Logical OR to C)
G52_N2_Purge.supply.Request	Excess_Outlet_Pressure	Excess_Reactor_Pressure	
Ackn_PreProcessPurge	Excess_Outlet_Pressure	Excess_Reactor_Pressure	
ChlorScrubber_Safestate	Excess_Outlet_Pressure	Excess_Reactor_Pressure	
! Scrubberhydride	Excess_Outlet_Pressure	Excess_Reactor_Pressure	
! Process_Stop_Button_1	Excess_Outlet_Pressure	Excess_Reactor_Pressure	
! Process_Stop_Button_2	Excess_Outlet_Pressure	Excess_Reactor_Pressure	
! Ackn_RequestSafetyForManualLoad	Excess_Outlet_Pressure	Excess_Reactor_Pressure	

No Alarm according Cause / Effect

N2_Run_Supply_Release

Safety Action:	G72_N2_Purge.supply	close	N./O.

Condition A (Logical AND)	Condition B (Logical OR to A)	Condition C (Logical OR to B)	Condition D (Logical OR to C)
G72_N2_Purge.supply.Request	Excess_Outlet_Pressure	Excess_Reactor_Pressure	
Ackn_PreProcessPurge	Excess_Outlet_Pressure	Excess_Reactor_Pressure	
ChlorScrubber_Safestate	Excess_Outlet_Pressure	Excess_Reactor_Pressure	
! Scrubberhydride	Excess_Outlet_Pressure	Excess_Reactor_Pressure	
! Process_Stop_Button_1	Excess_Outlet_Pressure	Excess_Reactor_Pressure	
! Process_Stop_Button_2	Excess_Outlet_Pressure	Excess_Reactor_Pressure	
! Ackn_RequestSafetyForManualLoad	Excess_Outlet_Pressure	Excess_Reactor_Pressure	

No Alarm according Cause / Effect

N2_Run_Supply_Release

Action:	H72_H2_Run_supply	open	N./C.

Condition A (Logical AND)	Condition B (Logical OR to A)	Condition C (Logical OR to B)	Condition D (Logical OR to C)
H72_H2_Run_supply.Request			
H2_Run_pneumatic_Out.Output			
H2_Run_electric_Out.Output			

Safety Action:	G11_N2.main	close	N./O.

Condition A (Logical AND)	Condition B (Logical OR to A)	Condition C (Logical OR to B)	Condition D (Logical OR to C)
G11_N2.main.Request	! Ackn_PreProcessPurge	! Reactor_Lid_Lift_Down	RequestSafetyForManualLoad.Output

No Alarm according Cause / Effect

N2_Inlet_Bypass_Release

Safety Action:	H2_On

Condition A (Logical AND)	Condition B (Logical OR to A)	Condition C (Logical OR to B)	Condition D (Logical OR to C)
H2_On.Request			

Safety Action:	H2_GB_Out

Condition A (Logical AND)	Condition B (Logical OR to A)	Condition C (Logical OR to B)	Condition D (Logical OR to C)
H2_GB_Out.Request	TRUE		
! H2_Monitor_Internal			

Safety Action:	Light_tower_Red

Condition A (Logical AND)	Condition B (Logical OR to A)	Condition C (Logical OR to B)	Condition D (Logical OR to C)

Light_tower_Red.Request	! Light_tower_red_Interlock_Alarm.AllowON	Light_red_trigger	

Safety Action:	**Light_tower_Yellow**		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
Light_tower_Yellow.Request	Ackn_Watchdog_Alarm	! Light_tower_yellow_Interlock_Alarm.AllowON	Light_yellow_trigger

Safety Action:	**Light_tower_Green**		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
Light_tower_Green.Request	TRUE		
! Light_tower_Red.Output			
! Light_tower_Yellow.Output			

Safety Action:	**Light_tower_Blue**		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
Light_tower_Blue.Request	Maintenance_Mode		

Action:	**H2>50SLM**		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
H2>50SLM.Request			

Action:	**Process_On**		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
Process_On.Request	TRUE		
Ackn_Recipe_Running			

Safety Action:	**Alarm_Buzzer**		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**

Alarm_Buzzer.Request	Set_Buzzer		

Safety Action:	**Buzzer_Reset**		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
Buzzer_Reset.Request	Buzzer_Reset_ext		

Safety Action:	**Laser_on_Release**		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
Laser_on_Release.Request			

Safety Action:	**Heater_Release_RF**		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
Heater_Release_RF.Request	RequestSafetyForProcess.Output	RequestSafetyForTransfer.Output	
! RequestSafetyForManualLoad.Output			
No Alarm according Cause / Effect Heater_Mainpower_Release			

Safety Action:	**G09_Reactor.vac**	**close**	**N./O.**
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
G09_Reactor.vac.Request	! Reactor_Lid_Lift_Down		
Maintenance_Mode	! Reactor_Lid_Lift_Down		
! Ackn_H40_Vent.vac	! Reactor_Lid_Lift_Down		
Ackn_G51_N2_Run.supply	! Reactor_Lid_Lift_Down		
Ackn_G52_N2_Purge.supply	! Reactor_Lid_Lift_Down		
ATM_Pressure_Limit	! Reactor_Lid_Lift_Down		
! Throttle_Valve_Not_Closed	! Reactor_Lid_Lift_Down		
! Ackn_Cl2_Sources_Electric_Out	! Reactor_Lid_Lift_Down		
! Ackn_Cl2_Sources_Pneumatic_Out	! Reactor_Lid_Lift_Down		
! Ackn_Hydride_sources_pneumatic_Out	! Reactor_Lid_Lift_Down		
! Ackn_Hydride_sources_electric_Out	! Reactor_Lid_Lift_Down		
! Ackn_MO_sources_pneumatic_Out	! Reactor_Lid_Lift_Down		
! Ackn_MO_sources_electric_Out	! Reactor_Lid_Lift_Down		
! Ackn_Run_Vent_line_pneumatic_Out	! Reactor_Lid_Lift_Down		
! Ackn_Run_Vent_line_electric_Out	! Reactor_Lid_Lift_Down		
! Ackn_Watchdog_Alarm	! Reactor_Lid_Lift_Down		
! Fuse_Fail_1	! Reactor_Lid_Lift_Down		
H2_RunOrReac_Lid_Dow			

Safety Action:	G22_Reactor2.vac		open N./C.
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
G22_Reactor2.vac.Request	Control.Output		
Ackn_S1_MainPump.power			
Ackn_Process_Pump_SF01			
! Ackn_G09_Reactor.vac			
Ackn_Timer_TV_Init			
No Alarm according Cause / Effect			
Pressure_Control_Release			

Safety Action:	S03_Cooling		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
S03_Cooling.Request	Waterleak_1	Waterleak_2	Waterleak_3
! Ackn_Reactor_Temp_above_Limit_1_Result			

Safety Action:	G16_Reactor_Cooling.supply		close N./O.
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
G16_Reactor_Cooling.supply.Request	Waterleak_1	Waterleak_2	Waterleak_3
! Ackn_Reactor_Temp_above_Limit_1_Result			

Safety Action:	G17_Cooling.supply		close N./O.
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
G17_Cooling.supply.Request	Waterleak_1	Waterleak_2	Waterleak_3
! Ackn_Reactor_Temp_above_Limit_1_Result			

Safety Action:	Clamps_Close		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
Clamps_Close.Request	! Ackn_Reactor_Open_Release	! Clamps_Open.Setpoint	
! Ackn_Hold_Clamps			
! Ackn_Clamps_Open			
Reactor_Lid_Lift_Down			
Reactor_Locking_Ring_Locked			

Safety Action:	Clamps_Open		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
Clamps_Open.Request	! Reactor_Locking_Ring_Locked		
Ackn_Reactor_Open_Release	Ackn_Hold_Clamps	Ackn_BypassReactorOpenRelease	

Safety Action:	Hold_Clamps		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
Hold_Clamps.Request	Ackn_Clamps_Open		
! Reactor_Locking_Ring_Locked			

Safety Action:	Bypass_Temp_Limit_1		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
Bypass_Temp_Limit_1.Request	TRUE		
Ackn_Clamps_Open	Bypass_Temp_Limit_1		
! Reactor_Lid_Lift_Down	Bypass_Temp_Limit_1		
! Ackn_Heater.power			

Safety Action:	Reactor_Temp_above_Limit_1_Result		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
Reactor_Temp_above_Limit_1_Result.Request	TRUE		
! Ackn_Bypass_Temp_Limit_1			
Reactor_Temperature_above_Limit_1			

Safety Action:	ReactorLockingRingLock		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
ReactorLockingRingLock.Request			
Reactor_Clamps_opened			
Reactor_Lid_Lift_Down			

Safety Action:	ReactorLockingRingUnlock

Condition A (Logical AND)	Condition B (Logical OR to A)	Condition C (Logical OR to B)	Condition D (Logical OR to C)
ReactorLockingRingUnlock.Request			
Ackn_Reactor_Open_Release	Ackn_BypassReactorOpenRelease		

Safety Action:	Glove_Box_Control_Release		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
Glove_Box_Control_Release.Request	TRUE		
! H2_Monitor_external			
! H2_Monitor_Internal			

Safety Action:	DORPump.power		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
DORPump.power.Request			
No Alarm according Cause / Effect DOR_Pump_Release			

Safety Action:	SafetyReset		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
SafetyReset.Request	TRUE		
Reset			

Safety Action:	Door_open_Release_Pump_Cabinet		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
Door_open_Release_Pump_Cabinet.Request	TRUE		
H2_Toxic_Valves_Off			
! H2_Monitor_external			
! Toxic_Gas_Monitor			
Ackn_Timer_Door_Open_Release			

Safety Action:	Run_Vent_line_pneumatic_Out		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
Run_Vent_line_pneumatic_Out.Request	RequestSafetyForProcess.Output	Ackn_Leaktest_Mode	
Ackn_Cabinet_Doors_Closed	Ackn_Leaktest_Mode		

Ackn_Hyd_Enable	Ackn_Leaktest_Mode		
Position_G59_ScrubberSelect	Ackn_Leaktest_Mode		
Position_G60_ScrubberSelect	Ackn_Leaktest_Mode		
! Ackn_RequestSafetyForManualLoad	Ackn_Leaktest_Mode		
RequestSafetyForProcess.Output	Ackn_Leaktest_Mode		

No Alarm according Cause / Effect

Run_Vent_Release

Safety Action: Run_Vent_line_electric_Out

Condition A (Logical AND)	Condition B (Logical OR to A)	Condition C (Logical OR to B)	Condition D (Logical OR to C)
Run_Vent_line_electric_Out.Request	RequestSafetyForProcess.Output	Ackn_Leaktest_Mode	
Ackn_Cabinet_Doors_Closed	Ackn_Leaktest_Mode		
Ackn_Hyd_Enable	Ackn_Leaktest_Mode		
Position_G59_ScrubberSelect	Ackn_Leaktest_Mode		
Position_G60_ScrubberSelect	Ackn_Leaktest_Mode		
! Ackn_RequestSafetyForManualLoad	Ackn_Leaktest_Mode		
RequestSafetyForProcess.Output	Ackn_Leaktest_Mode		

No Alarm according Cause / Effect

Run_Vent_Release

Safety Action: ExhaustHeaterReset

Condition A (Logical AND)	Condition B (Logical OR to A)	Condition C (Logical OR to B)	Condition D (Logical OR to C)
ExhaustHeaterReset.Request	Reset		

Safety Action: ExhaustHeater.main

Condition A (Logical AND)	Condition B (Logical OR to A)	Condition C (Logical OR to B)	Condition D (Logical OR to C)
ExhaustHeater.main.Request			
Process_Stop_Alarm			
Exhaust_Bimetals			
! Ackn_Watchdog_Alarm			
! Main_Power_Fail			

Safety Action: Door_open_Release_Reactor_Cabinet

Condition A (Logical AND)	Condition B (Logical OR to A)	Condition C (Logical OR to B)	Condition D (Logical OR to C)
Door_open_Release_Reactor_Cabinet.Request	TRUE		
H2_Toxic_Valves_Off			
! H2_Monitor_external			
! Toxic_Gas_Monitor			
Ackn_Timer_Door_Open_Release			

Safety Action:	Control		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
Control.Request	! Ackn_Timer_TV_Init		
! Ackn_G09_Reactor.vac	! Ackn_Timer_TV_Init		
Ackn_S1_MainPump.power	! Ackn_Timer_TV_Init		
Ackn_Process_Pump_SF01	! Ackn_Timer_TV_Init		
No Alarm according Cause / Effect Pressure_Control_Release			

Safety Action:	G18_Cooling.supply	close	N./O.
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
G18_Cooling.supply.Request	Waterleak_1	Waterleak_2	Waterleak_3
! Ackn_Reactor_Temp_above_Limit_1_Result			

Safety Action:	Reactor_Lid_Up_Intern		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
Reactor_Lid_Up.Request	TRUE		
! Gloves_In_Operating_Range			
Ackn_Reactor_Open_Release	Ackn_BypassReactorOpenRelease		
! Reactor_Lid_Lift_Over_Upper_Limit			
! Excess_Reactor_Pressure			
! Excess_Reactor_Temperature			
ATM_Pressure_Limit			
! Excess_Water_Temperature_Reactor			
! Throttle_Valve_Not_Closed			
Inner_Door_Antechamber_Down_2			
Reactor_Clamps_opened			
Reactor_Locking_Ring_Unlocked			
ShutterLowerSensor			
ShutterUnlockedSensor			

Safety Action:	Reactor_Lid_Down_Intern		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
Reactor_Lid_Down.Request	TRUE		
! Gloves_In_Operating_Range			
Inner_Door_Antechamber_Down_2			
Reactor_Clamps_opened			
Reactor_Locking_Ring_Unlocked			
ShutterLowerSensor			
ShutterUnlockedSensor			

Safety Action:	Lid_Timer_1		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
Lid_Timer_1.Request	! Ackn_Reactor_Lid_Up_Intern		
! Ackn_Reactor_Lid_Up_Intern			

Safety Action:	Lid_Timer_2		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
Lid_Timer_2.Request	! Ackn_Reactor_Lid_Down_Intern		
! Ackn_Reactor_Lid_Down_Intern			

Safety Action:	Reactor_Lid_Up		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
Reactor_Lid_Up.Request			
! Ackn_Lid_Timer_1			

Safety Action:	Reactor_Lid_Down		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
Reactor_Lid_Down.Request			
! Ackn_Lid_Timer_2			

Safety Action:	Heater.power		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
Heater.power.Request			
Ackn_PreProcessPurge			
! Ackn_G09_Reactor.vac			
! Ackn_G16_Reactor_Cooling.supply			
! Ackn_G17_Cooling.supply			
! Ackn_G18_Cooling.supply			
! Pressure_Limit_1_Reactor			
Reactor_Gate_Close	! Reactor_Temperature_above_Limit_2		
Ackn_Heater_Release_RF			

! RotDriveSpeed	! Reactor_Temperature_above_Limit_2		
No Alarm according Cause / Effect Process_Heater_Release			

Safety Action:	**HeaterReset**		
Condition A **(Logical AND)**	**Condition B** **(Logical OR to A)**	**Condition C** **(Logical OR to B)**	**Condition D** **(Logical OR to C)**
HeaterReset.Request	Reset		

Safety Action:	**SF01_Process_Pump_Reset**		
Condition A **(Logical AND)**	**Condition B** **(Logical OR to A)**	**Condition C** **(Logical OR to B)**	**Condition D** **(Logical OR to C)**
SF01_Process_Pump_Reset.Request			

Safety Action:	**S1_MainPump.power**		
Condition A **(Logical AND)**	**Condition B** **(Logical OR to A)**	**Condition C** **(Logical OR to B)**	**Condition D** **(Logical OR to C)**
S1_MainPump.power.Request			
Ackn_G19_Main_Pump_Cooling.supply			
! Ackn_G08_IGS			
No Alarm according Cause / Effect Process_Pump_Release			

Safety Action:	**S7_MainPump2.power**		
Condition A **(Logical AND)**	**Condition B** **(Logical OR to A)**	**Condition C** **(Logical OR to B)**	**Condition D** **(Logical OR to C)**
S7_MainPump2.power.Request			
Ackn_G30_MainPump2Cooling.supply			
! Ackn_G14_MainPump2.purge			
No Alarm according Cause / Effect Process_Pump_Release			

Safety Action:	**G06_Pump_Bypass**		**open**	**N./C.**
Condition A **(Logical AND)**	**Condition B** **(Logical OR to A)**	**Condition C** **(Logical OR to B)**	**Condition D** **(Logical OR to C)**	
G06_Pump_Bypass.Request	G06_Pump_Bypass.Setpoint			
No Alarm according Cause / Effect Pump_Bypass_Valve_Release				

Safety Action:	**H40_Vent.vac**		**open**	**N./C.**
Condition A	**Condition B**	**Condition C**	**Condition D**	

(Logical AND)	(Logical OR to A)	(Logical OR to B)	(Logical OR to C)
H40_Vent.vac.Request			
! Ackn_G09_Reactor.vac			
! Throttle_Valve_Not_Closed	Ackn_H40_Vent.vac		
ATM_Pressure_Limit	Ackn_H40_Vent.vac	Maintenance_Mode	
Ackn_PreProcessPurge			
! Ackn_RequestSafetyForManualLoad			
No Alarm according Cause / Effect Vac_Vent_Valve_Release			

Safety Action:	G01_DOR.fill	open	N./C.
Condition A **(Logical AND)**	**Condition B** **(Logical OR to A)**	**Condition C** **(Logical OR to B)**	**Condition D** **(Logical OR to C)**
G01_DOR.fill.Request	Reactor_Lid_Up_PB	! Reactor_Clamps_closed	
Ackn_Reactor_Open_Release			

Action:	Hydride_Source_Supply(H01-H10)	open	N./C.
Condition A **(Logical AND)**	**Condition B** **(Logical OR to A)**	**Condition C** **(Logical OR to B)**	**Condition D** **(Logical OR to C)**
Hydride_Source_Supply.Request			
Hydride_sources_electric_Out.Output			
Hydride_sources_pneumatic_Out.Output			

Action:	MO_Source_Supply(H21-H32)	open	N./C.
Condition A **(Logical AND)**	**Condition B** **(Logical OR to A)**	**Condition C** **(Logical OR to B)**	**Condition D** **(Logical OR to C)**
MO_Source_Supply.Request			
MO_sources_pneumatic_Out.Output			
MO_sources_electric_Out.Output			

Action:	RUN_VENT(H61-H69;H76-H77;H81-H99)	open	N./C.
Condition A **(Logical AND)**	**Condition B** **(Logical OR to A)**	**Condition C** **(Logical OR to B)**	**Condition D** **(Logical OR to C)**
RUN_VENT.Request			
Run_Vent_line_pneumatic_Out.Output			
Run_Vent_line_electric_Out.Output			

Action:	RUN_VENT(H110-H114)	open	N./C.
Condition A	**Condition B**	**Condition C**	**Condition D**

(Logical AND)	(Logical OR to A)	(Logical OR to B)	(Logical OR to C)
H110_RUN_VENT.Request			
Run_Vent_line_pneumatic_Out.Output			
Run_Vent_line_electric_Out.Output			

Action:	H121_Cl2_Source	open	N./C.

Condition A (Logical AND)	Condition B (Logical OR to A)	Condition C (Logical OR to B)	Condition D (Logical OR to C)
H121_Cl2_Source.Request			
Ackn_Cl2_Sources_Electric_Out			
Ackn_Cl2_Sources_Pneumatic_Out			
Ackn_H131_RUN_VENT			

No Alarm according Cause / Effect
Cl2_sources_Release

Action:	H122_Cl2_Source	open	N./C.

Condition A (Logical AND)	Condition B (Logical OR to A)	Condition C (Logical OR to B)	Condition D (Logical OR to C)
H122_Cl2_Source.Request			
Ackn_Cl2_Sources_Electric_Out			
Ackn_Cl2_Sources_Pneumatic_Out			
Ackn_H132_RUN_VENT			

No Alarm according Cause / Effect
Cl2_sources_Release

Action:	H123_Cl2_Source	open	N./C.

Condition A (Logical AND)	Condition B (Logical OR to A)	Condition C (Logical OR to B)	Condition D (Logical OR to C)
H123_Cl2_Source.Request			
Ackn_Cl2_Sources_Electric_Out			
Ackn_Cl2_Sources_Pneumatic_Out			
Ackn_H133_RUN_VENT			

No Alarm according Cause / Effect
Cl2_sources_Release

Action:	H124_Cl2_Source	open	N./C.

Condition A (Logical AND)	Condition B (Logical OR to A)	Condition C (Logical OR to B)	Condition D (Logical OR to C)
H124_Cl2_Source.Request			
Ackn_Cl2_Sources_Electric_Out			
Ackn_Cl2_Sources_Pneumatic_Out			
Ackn_H134_RUN_VENT			

No Alarm according Cause / Effect
Cl2_sources_Release

Action:	H125_Cl2_Source	open	N./C.

Condition A (Logical AND)	Condition B (Logical OR to A)	Condition C (Logical OR to B)	Condition D (Logical OR to C)
H125_Cl2_Source.Request			
Ackn_Cl2_Sources_Electric_Out			
Ackn_Cl2_Sources_Pneumatic_Out			
Ackn_H135_RUN_VENT			
No Alarm according Cause / Effect Cl2_sources_Release			

Action:	H126_CL2_Source	open	N./C.

Condition A (Logical AND)	Condition B (Logical OR to A)	Condition C (Logical OR to B)	Condition D (Logical OR to C)
H126_Cl2_Source.Request			
Ackn_Cl2_Sources_Electric_Out			
Ackn_Cl2_Sources_Pneumatic_Out			
Ackn_H136_RUN_VENT			
No Alarm according Cause / Effect Cl2_sources_Release			

Action:	RUN_VENT(H131-H136)	open	N./C.

Condition A (Logical AND)	Condition B (Logical OR to A)	Condition C (Logical OR to B)	Condition D (Logical OR to C)
H131-H136_RUN_VENT.Request			
! Ackn_G09_Reactor.vac			
! Pre_Process_Purge			
Ackn_Cabinet_Doors_Closed	Ackn_Leaktest_Mode		
Ackn_Cl2_Enable	Ackn_Leaktest_Mode		
Ackn_H40_Vent.vac	Ackn_Leaktest_Mode		
! Ackn_RequestSafetyForManualLoad	Ackn_Leaktest_Mode		
! Ackn_RequestSafetyForTransfer	Ackn_Leaktest_Mode		
No Alarm according Cause / Effect Cl2_sources_Release			

Action:	H141_RUN_VENT	open	N./C.

Condition A (Logical AND)	Condition B (Logical OR to A)	Condition C (Logical OR to B)	Condition D (Logical OR to C)
H141_RUN_VENT.Request	H131_RUN_VENT.Sepoint		
! Ackn_G09_Reactor.vac			
! Pre_Process_Purge			
Ackn_Cabinet_Doors_Closed	Ackn_Leaktest_Mode		
Ackn_Cl2_Enable	Ackn_Leaktest_Mode		
Ackn_H40_Vent.vac	Ackn_Leaktest_Mode		
! Ackn_RequestSafetyForManualLoad	Ackn_Leaktest_Mode		
! Ackn_RequestSafetyForTransfer	Ackn_Leaktest_Mode		
No Alarm according Cause / Effect Cl2_sources_Release			

Safety Action:	Cl2_Hyd_EnableTimer

Condition A (Logical AND)	Condition B (Logical OR to A)	Condition C (Logical OR to B)	Condition D (Logical OR to C)
Cl2_Hyd_EnableTimer.Request	TRUE		
Nitrogen_On_Cl2_Hyd_Off			
Pressure_Limit_2_Reactor	Ackn_Cl2_Hyd_EnableTimer		
Throttle_Valve_Not_Closed	Ackn_Cl2_Hyd_EnableTimer		
! N2_Pressure	Ackn_Cl2_Hyd_EnableTimer		
! Ackn_MFM_Cl2LevelExceeded			
! Ackn_MFC_Cl2LevelExceeded			
! Ackn_Cl2_LeakCheck			
Cl2_DeviceNetNodeFail			

Safety Action:	Cl2_Enable		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
Cl2_Enable.Request	TRUE		
Ackn_Cl2_Hyd_EnableTimer	Ackn_Cl2_Enable		
Hyd_Off			

Safety Action:	Hyd_Enable		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
Hyd_Enable.Request	TRUE		
Ackn_Cl2_Hyd_EnableTimer	Ackn_Hyd_Enable		
! Ackn_Cl2_Sources_Electric_Out			
! Ackn_Cl2_Sources_Pneumatic_Out			

Safety Action:	Timer_DORPump_Delay		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
Timer_DORPump_Delay.Request	TRUE		
Ackn_DORPump.power			

Action:	G02_DOR_vac	open	N./C.
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
G02_DOR_vac.Request	G02_DOR_vac.Setpoint		
Reactor_Clamps_closed			
Reactor_Locking_Ring_Locked			
! Ackn_G01_DOR.fill			
Ackn_DORPump.power			

DORPumpAck			
Ackn_Timer_DORPump_Delay			
No Alarm according Cause / Effect DOR_Evac_Valve_Release			

Action:	**G03_Vacuum_Wand_1**		**open** **N./C.**
Condition A **(Logical AND)**	**Condition B** **(Logical OR to A)**	**Condition C** **(Logical OR to B)**	**Condition D** **(Logical OR to C)**
G03_Vacuum_Wand_1.Request	Vacuum_Wand_1_Request		
! G02_DOR_vac			
DORPump.power			
DORPumpAck			

Action:	**G04_Vacuum_Wand_2**		**open** **N./C.**
Condition A **(Logical AND)**	**Condition B** **(Logical OR to A)**	**Condition C** **(Logical OR to B)**	**Condition D** **(Logical OR to C)**
G04_Vacuum_Wand_2.Request	Vacuum_Wand_2_Request		
! G02_DOR_vac			
DORPump.power			
DORPumpAck			

Action:	**G05_Bypass**		**close** **N./O.**
Condition A **(Logical AND)**	**Condition B** **(Logical OR to A)**	**Condition C** **(Logical OR to B)**	**Condition D** **(Logical OR to C)**
G05_Bypass.Request			
Maintenance_Mode			
No Alarm according Cause / Effect Maintenance_Valve_Release			

Action:	**G07_MOVac**		**open** **N./C.**
Condition A **(Logical AND)**	**Condition B** **(Logical OR to A)**	**Condition C** **(Logical OR to B)**	**Condition D** **(Logical OR to C)**
G07_MOVac.Request			
Maintenance_Mode			
! Hydride_sources_pneumatic_Out			
! Hydride_sources_electric_Out			
! MO_sources_pneumatic_Out			
! MO_sources_electric_Out			
! Ackn_Cl2_Sources_Electric_Out			
! Ackn_Cl2_Sources_Pneumatic_Out			
Ackn_Process_Pump_SF01			
! Ackn_G45_N2_MOVac.purge			
! Ackn_H45_H2_MOVac.purge			
ATM_Pressure_Limit			
No Alarm according Cause / Effect			

MO_Vac_Valve_Release

Action:	G08_IGS		close N./.O.
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
G08_IGS.Request	Excess_Outlet_Pressure		
! Ackn_S1_MainPump.power	Excess_Outlet_Pressure		
Maintenance_Mode	Excess_Outlet_Pressure		

Action:	G14_MainPump2.purge		close N./.O.
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
G14_MainPump2.purge.Request	Excess_Outlet_Pressure_2		
! Ackn_S7_MainPump2.power	Excess_Outlet_Pressure_2		
Maintenance_Mode	Excess_Outlet_Pressure_2		

Action:	G19_Main_Pump_Cooling.supply		open N./C.
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
G19_Main_Pump_Cooling.supply.Request			
! Ackn_G08_IGS			
No Alarm according Cause / Effect			
Process_Pump_Release			

Action:	G30_MainPump2Cooling.supply		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
G30_MainPump2Cooling.supply.Request	G19_Main_Pump_Cooling.supply.Output		
! Ackn_G14_MainPump2.purge			
No Alarm according Cause / Effect			
Process_Pump_Release			

Action:	G20_Cooling.supply		open N./C.
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
G20_Cooling.supply.Request	TRUE		
Waterleak_Alarm			
Glove_Box_Cooling_Request	Ackn_Vacuum_Cleaner		

Action:	G21_Thermobaths_Cooling.supply		open N./C.

Condition A (Logical AND)	Condition B (Logical OR to A)	Condition C (Logical OR to B)	Condition D (Logical OR to C)
G21_Thermobaths_Cooling.supply.Request	! Maintenance_Mode		
Waterleak_Alarm			

Safety Action:	R08_Axis_Lift_Up_EPV

Condition A (Logical AND)	Condition B (Logical OR to A)	Condition C (Logical OR to B)	Condition D (Logical OR to C)
R08_Axis_Lift_Up_EPV.Request	Axis_Release_PB	R08_Axis_Lift_Up_EPV.Output	
LidUp			
Indexing_Mode_Foot_Switch_1	Indexing_Mode_Foot_Switch_2		

Action:	Axis_Release_Light_Signal

Condition A (Logical AND)	Condition B (Logical OR to A)	Condition C (Logical OR to B)	Condition D (Logical OR to C)
Axis_Release_Light_Signal.Request	LidUp		
Indexing_Mode_Foot_Switch_1	Indexing_Mode_Foot_Switch_2		

Action:	Tweezer_Pump

Condition A (Logical AND)	Condition B (Logical OR to A)	Condition C (Logical OR to B)	Condition D (Logical OR to C)
Tweezer_Pump.Request	Gloves_In_Operating_Range		

Action:	Valve_GB_Cooling

Condition A (Logical AND)	Condition B (Logical OR to A)	Condition C (Logical OR to B)	Condition D (Logical OR to C)
Valve_GB_Cooling.Request	TRUE		
Waterleak_Alarm			
Glove_Box_Cooling_Request			

Action:	Change_Parameter

Condition A (Logical AND)	Condition B (Logical OR to A)	Condition C (Logical OR to B)	Condition D (Logical OR to C)
Change_Parameter.Request			
Control.AllowON	Maintenance_Mode		

Action:	H2_Run_Supply_(H52-H58)		open N./C.
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
H52-H58_H2_Run_supply.Request			
H2_Run_pneumatic_Out.Output			
H2_Run_electric_Out.Output			

Action:	Inner_Door_Antechamber_down_SD3		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
Inner_Door_Antechamber_down_SD3.Request	TRUE		
Inner_Door_Antechamber_Down_2			

Action:	Inner_Door_Antechamber_unlocked_SD1		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
Inner_Door_Antechamber_unlocked_SD1.Request	TRUE		
Inner_Door_Antechamber_Unlocked_2			

Safety Action:	Reset		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
Reset.Request			

Safety Action:	Watchdog_toggle		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
Watchdog_toggle.Request	! Watchdog_toggle		

Safety Action:	SetReactorOpenReleaseRETAIN		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
SetReactorOpenRelease.Request	TRUE		

Ackn_Reactor_Open_Release			

Safety Action:	**ResetReactorOpenReleaseRETAIN**		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
ResetReactorOpenRelease.Request	TRUE		
Reactor_Locking_Ring_Locked			
Reactor_Clamps_closed			
H2_Toxic_Valves_On			

Safety Action:	**BypassReactorOpenRelease**		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
BypassReactorOpenRelease.Request	TRUE		
! ReactorOpenReleaseRETAIN			

Safety Action:	**Reactor_Open_Release**		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
Reactor_Open_Release.Request	TRUE		
Reactor_Nitrogen_On			
! Ackn_Heater_Release_RF			
Ackn_Reactor_Open_Enable	Ackn_Timer_Reactor_Open_Release		
ATM_Pressure_Limit			
! Ackn_H40_Vent.vac	System_Nitrogen_On		
! Ackn_Reactor_Temp_above_Limit_1_Result			
No Alarm according Cause / Effect Reactor_Open_Not_Release			

Safety Action:	**Timer_Reactor_Open_Release**		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
Timer_Reactor_Open_Release.Request	TRUE		
Reactor_Nitrogen_On			
! Ackn_H40_Vent.vac	System_Nitrogen_On		
Maintenance_Mode			
No Alarm according Cause / Effect Reactor_Open_Not_Release			

Safety Action:	**Timer_Door_Open_Release**		
Condition A	**Condition B**	**Condition C**	**Condition D**

(Logical AND)	(Logical OR to A)	(Logical OR to B)	(Logical OR to C)
Timer_Door_Open_Release.Request	TRUE		
H2_Toxic_Valves_Off			
! H2_Monitor_external			
! Toxic_Gas_Monitor			

Safety Action:	Reactor_Open_Enable		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
Reactor_Open_Enable.Request	TRUE		
Ackn_downto40mbar			
ATM_Pressure_Limit			
! Ackn_H40_Vent.vac	System_Nitrogen_On		

Safety Action:	downto40mbar		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
downto40mbar.Request	TRUE		
Reactor_Nitrogen_On			
Pressure_Limit_2_Reactor	Ackn_downto40mbar		
Throttle_Valve_Not_Closed	ATM_Pressure_Limit		
! Ackn_H40_Vent.vac	System_Nitrogen_On		
! N2_Pressure			

Action:	Reactor_Open_Released_light		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
Reactor_Open_Released_light.Request	Reactor_Open_Release.AllowON	Ackn_BypassReactorOpenRelease	
Reactor_Open_Release.AllowON	Ackn_BypassReactorOpenRelease		
! Excess_Reactor_Pressure			
! Excess_Reactor_Temperature			
ATM_Pressure_Limit			
! Excess_Water_Temperature_Reactor			
! Throttle_Valve_Not_Closed			

Safety Action:	MFC_deviation		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
MFC_deviation.Request			

Safety Action:	LidUp		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
LidUp.Request			

Safety Action:	LidLiftDown		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
LidLiftDown.Request			

Safety Action:	dP_over_Limit_Pressure_Deviation		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
dP_over_Limit_Pressure_Deviation.Request			

Safety Action:	dP_over_Limit_Pressure_Increase		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
dP_over_Limit_Pressure_Increase.Request			

Safety Action:	dP_Filter		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
dP_Filter.Request			

Safety Action:	dP_Filter_2		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
dP_Filter_2.Request			

Safety Action:	DOR_Pressure_Limit

Condition A (Logical AND)	Condition B (Logical OR to A)	Condition C (Logical OR to B)	Condition D (Logical OR to C)
DOR_Pressure_Limit.Request			

Safety Action:	dT_Exhaust_1		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
dT_Exhaust_1.Request			

Safety Action:	dT_Exhaust_2		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
dT_Exhaust_2.Request			

Action:	Light_tower_red_Interlock_Alarm		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
Light_tower_red_Interlock_Alarm.Request	TRUE		
No Alarm according Cause / Effect Light_Tower_RED_Release			

Action:	Light_tower_yellow_Interlock_Alarm		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
Light_tower_yellow_Interlock_Alarm.Request	TRUE		
No Alarm according Cause / Effect Light_Tower_YELLOW_Release			

Action:	GMS_Lights_ON		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
GMS_Lights_ON.Request	GMS_Cabinet_Doors	GMS_Extention_Cabinet_Door_Front	GMS_Extention_Cabinet_Door_Rear
GMS_Cabinet_Doors	ExtendedCabinet_Select		

Action:	DP_MO1.mode		
Condition A	**Condition B**	**Condition C**	**Condition D**

(Logical AND)	(Logical OR to A)	(Logical OR to B)	(Logical OR to C)
DP_MO1.mode.Request			

Action:	DP_MO2.mode		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
DP_MO2.mode.Request			

Action:	DP_HydTop.mode		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
DP_HydTop.mode.Request			

Action:	DP_HydBot.mode		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
DP_HydBot.mode.Request			

Action:	CeilingControl		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
CeilingControl.Request			

Safety Action:	InternalO2Check		N2 PURGE
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
InternalO2Check.Request	TRUE		
Reactor_Clamps_closed			
! O2_or_H2O_Limit	Ackn_InternalO2Check		
! Ackn_DummyN2Purge	Ackn_InternalO2Check		

Safety Action:	Timer_N2_Purge		N2 PURGE
Condition A	**Condition B**	**Condition C**	**Condition D**

(Logical AND)	(Logical OR to A)	(Logical OR to B)	(Logical OR to C)
Timer_N2_Purge.Request	TRUE		
Reactor_Clamps_closed			

Safety Action:	DummyN2Purge		N2 PURGE
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
DummyN2Purge.Request	TRUE		
Reactor_Clamps_closed			

Safety Action:	PreProcessPurge		N2 PURGE
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
PreProcessPurge.Request	TRUE		
Ackn_InternalO2Check	Ackn_Timer_N2_Purge	! Reactor_Clamps_closed	

Safety Action:	Preprocess_Purge_On		N2 PURGE
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
Preprocess_Purge_On.Request	TRUE		
Ackn_PreProcessPurge			

Safety Action:	CoolingPlausibilityErrorReset		CoolingPlausibility
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
CoolingPlausibilityErrorReset.Request	TRUE		
! Ackn_CoolingPlausibilityErrorLow			
! Ackn_CoolingPlausibilityErrorHigh			
Reset			

Safety Action:	CoolingPlausibilityError		CoolingPlausibility
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
CoolingPlausibilityError.Request	TRUE		
Ackn_CoolingPlausibilityErrorHigh	Ackn_CoolingPlausibilityErrorLow	Ackn_CoolingPlausibilityError	
! Ackn_CoolingPlausibilityErrorReset			

Safety Action:	CoolingPlausibilityErrorHigh		CoolingPlausibility
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
CoolingPlausibilityErrorHigh.Request	TRUE		
Ackn_S03_Cooling			
! Low_Waterflow_Reactor			

Safety Action:	CoolingPlausibilityErrorLow		CoolingPlausibility
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
CoolingPlausibilityErrorLow.Request	TRUE		
! Ackn_S03_Cooling			
Low_Waterflow_Reactor			

Safety Action:	ReactorLeak_Monitor_Reset		ReactorLeakMonitor
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
ReactorLeak_Monitor_Reset.Request	DOR_Pressure_Limit.Output		
! Ackn_Reactor_Open_Release			

Safety Action:	ReactorLeak_Monitor		ReactorLeakMonitor
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
ReactorLeak_Monitor.Request	Ackn_ReactorLeak_Monitor	! DOR_Pressure_Limit.Output	Reactor_Open_Release.Output
Reset	Ackn_ReactorLeak_Monitor		
! Ackn_ReactorLeak_Monitor_Reset			

Action:	LineHeat(1-12)		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
LineHeat1.Request			

Action:	Spare(1-4)

Condition A (Logical AND)	Condition B (Logical OR to A)	Condition C (Logical OR to B)	Condition D (Logical OR to C)
Spare1.Request			

Action:	Select.Filter1		N./.O.

Condition A (Logical AND)	Condition B (Logical OR to A)	Condition C (Logical OR to B)	Condition D (Logical OR to C)
Select.Filter1.Request			
Ackn_Select.Filter2			

Action:	Select.Filter2		open	N./C.

Condition A (Logical AND)	Condition B (Logical OR to A)	Condition C (Logical OR to B)	Condition D (Logical OR to C)
Select.Filter1.Request	Ackn_Select.Filter1		

Action:	SSR(1-48)

Condition A (Logical AND)	Condition B (Logical OR to A)	Condition C (Logical OR to B)	Condition D (Logical OR to C)
SSR_01.Request			
Ackn_ExhaustHeater.main			

Action:	ExhaustAutotune(1-48)

Condition A (Logical AND)	Condition B (Logical OR to A)	Condition C (Logical OR to B)	Condition D (Logical OR to C)
ExhaustAutotune01.Request			
Ackn_ExhaustHeater.main			

Action:	ShutterOpenValve

Condition A (Logical AND)	Condition B (Logical OR to A)	Condition C (Logical OR to B)	Condition D (Logical OR to C)
ShutterOpenValve.Request			
Reactor_Lid_Lift_Down	Maintenance_Mode		
ShutterUnlockedSensor			
! Reactor_Temperature_above_Limit_2			
! ShutterCloseValve			

Action:	ShutterCloseValve		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
ShutterCloseValve.Request			
Reactor_Lid_Lift_Down	Maintenance_Mode		
ShutterUnlockedSensor	ShutterUpperSensor		

Action:	ShutterLockValve		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
ShutterLockValve.Request			
Reactor_Lid_Lift_Down	Maintenance_Mode		
ShutterUpperSensor			

Action:	ShutterUnlockValve		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
ShutterUnlockValve.Request			
Reactor_Lid_Lift_Down	Maintenance_Mode		
! Reactor_Temperature_above_Limit_2			
! ShutterLockValve			

Safety Action:	Ready_To_Open_1		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
Ready_To_Open_1.Request	TRUE		
Ackn_Timer_Gate_Enable	Reactor_Open_Release		
Reactor_Clamps_closed	Ackn_StartHandlerSetupMode	Maintenance_Mode	
Reactor_Lid_Lift_Down	Ackn_StartHandlerSetupMode	Maintenance_Mode	
! P_Limit_DOR_1	Ackn_StartHandlerSetupMode	Maintenance_Mode	
No Alarm according Cause / Effect Reactor_Gate_Release			

Safety Action:	Ready_To_Open_2		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
Ready_To_Open_2.Request	TRUE		
Ackn_Timer_Gate_Enable	Reactor_Open_Release		
Reactor_Clamps_closed	Ackn_StartHandlerSetupMode	Maintenance_Mode	
Reactor_Lid_Lift_Down	Ackn_StartHandlerSetupMode	Maintenance_Mode	

! P_Limit_DOR_1	Ackn_StartHandlerSetupMode	Maintenance_Mode	
No Alarm according Cause / Effect Reactor_Gate_Release			

Safety Action:	**Timer_Gate_Enable**		
Condition A **(Logical AND)**	**Condition B** **(Logical OR to A)**	**Condition C** **(Logical OR to B)**	**Condition D** **(Logical OR to C)**
Timer_Gate_Enable.Request	TRUE		
System_Nitrogen_On			
Pressure_Limit_2_Reactor	Ackn_Timer_Gate_Enable		
Throttle_Valve_Not_Closed	Ackn_Timer_Gate_Enable		

Action:	**Customer_Out(1-2)**		
Condition A **(Logical AND)**	**Condition B** **(Logical OR to A)**	**Condition C** **(Logical OR to B)**	**Condition D** **(Logical OR to C)**
Customer_Out1.Request			

Action:	**TFB_Measure**		
Condition A **(Logical AND)**	**Condition B** **(Logical OR to A)**	**Condition C** **(Logical OR to B)**	**Condition D** **(Logical OR to C)**
TFB_Measure.Request			

Action:	**TFB_ReMeasure**		
Condition A **(Logical AND)**	**Condition B** **(Logical OR to A)**	**Condition C** **(Logical OR to B)**	**Condition D** **(Logical OR to C)**
TFB_ReMeasure.Request			

Action:	**TFB_Apply**		
Condition A **(Logical AND)**	**Condition B** **(Logical OR to A)**	**Condition C** **(Logical OR to B)**	**Condition D** **(Logical OR to C)**
TFB_Apply.Request			

Action:	**TFB_Allowed**		
Condition A **(Logical AND)**	**Condition B** **(Logical OR to A)**	**Condition C** **(Logical OR to B)**	**Condition D** **(Logical OR to C)**

TFB_Allowed.Request			

Action:	EpiTT.analysis		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
EpiTT.analysis.Request			

Action:	EpiTT.substrate		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
EpiTT.substrate.Request			

Action:	EpiTT.start		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
EpiTT.start.Request			

Action:	FastLog		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
FastLog.Request			

Safety Action:	Recipe_Running		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
Recipe_Running.Request			

Safety Action:	StartHandlerSetupMode		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
StartHandlerSetupMode.Request			

Safety Action:	Leaktest_Mode		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
Leaktest_Mode.Request			
Maintenance_Mode			

Safety Action:	Cabinet_Doors_Closed		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
Cabinet_Doors_Closed.Request	TRUE		
PUMP_Cabinet_Doors_Alarm			
Reactor_Cabinet_Doors_Alarm			
GMS_Cabinet_Doors_Alarm			

Action:	PurgeBox_O2_H20_Limit		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
PurgeBox_O2_H20_Limit.Request	TRUE		
! O2_warn			
! H2O_livebit_alarm			
! O2_livebit_alarm			
! H2O_warn			
! H2O_alarm			
! O2_alarm			

Action:	N2_PID_execute		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
N2_PID_execute.Request	TRUE		
Glove_Box_Control_Release			
PurgeBox_O2_H20_Limit			

Action:	G25_Purge_Valve_PB		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
G25_Purge_Valve_PB.Request	TRUE		
! PurgeBoxMaintenance.Setpoint	! Maintenance_Mode		
Air_Extraction_Flow_Sensors_Alarm			

Action:	**PurgeBox_Light**

Condition A (Logical AND)	Condition B (Logical OR to A)	Condition C (Logical OR to B)	Condition D (Logical OR to C)
PurgeBox_Light.Request	PB_Light		

Action:	**LED_Vacuum_Cleaner**

Condition A (Logical AND)	Condition B (Logical OR to A)	Condition C (Logical OR to B)	Condition D (Logical OR to C)
LED_Vacuum_Cleaner.Request	TRUE		
Ackn_Vacuum_Cleaner			

Action:	**Vacuum_Cleaner**

Condition A (Logical AND)	Condition B (Logical OR to A)	Condition C (Logical OR to B)	Condition D (Logical OR to C)
Vacuum_Cleaner.Request	PB_Vacuum_Cleaner		

Action:	**Rot_Position_Mode**

Condition A (Logical AND)	Condition B (Logical OR to A)	Condition C (Logical OR to B)	Condition D (Logical OR to C)
Rot_Position_Mode.Request			

Action:	**TV.Auto**

Condition A (Logical AND)	Condition B (Logical OR to A)	Condition C (Logical OR to B)	Condition D (Logical OR to C)
TV.Auto.Request	Ackn_Control		

Action:	**TV.Manual**

Condition A (Logical AND)	Condition B (Logical OR to A)	Condition C (Logical OR to B)	Condition D (Logical OR to C)
TV.Manual.Request	Ackn_Change_Parameter		

Action:	TV.Close		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
TV.Close.Request			

Action:	TV.Open		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
TV.Open.Request			
Maintenance_Mode			

Action:	TV.Learn		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
TV.Learn.Request			
Maintenance_Mode			

Action:	TV.Zero		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
TV.Zero.Request			
Maintenance_Mode			

Safety Action:	TV_Init_Flag		
Condition A	**Condition B**	**Condition C**	**Condition D**
(Logical AND)	**(Logical OR to A)**	**(Logical OR to B)**	**(Logical OR to C)**
	Ackn_Reset	Ackn_TV_Init_Flag	

Safety Action:	Timer_TV_Init		
Condition A	**Condition B**	**Condition C**	**Condition D**
(Logical AND)	**(Logical OR to A)**	**(Logical OR to B)**	**(Logical OR to C)**
	TRUE		
Ackn_TV_Init_Flag			

Safety Action:	ATM_Reactor_out		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
ATM_Reactor.Request			

Safety Action:	G59_ScrubberHydride.Select	close	N./O.
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
G59_ScrubberHydride.Select.Request			
Ackn_Hyd_Enable	Ackn_G59_ScrubberHydride.Select		
! Ackn_G60_ScrubberChlor.Select	Ackn_G59_ScrubberHydride.Select		

Safety Action:	G60_ScrubberChlor.Select	open	N./C.
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
G60_ScrubberChlor.Select.Request			
Ackn_Cl2_Enable	Ackn_G60_ScrubberChlor.Select		
! Ackn_G59_ScrubberHydride.Select	Ackn_G60_ScrubberChlor.Select		

Safety Action:	Timer_Air_Extraction_Pressure_delay_out		
Condition A	**Condition B**	**Condition C**	**Condition D**
(Logical AND)	**(Logical OR to A)**	**(Logical OR to B)**	**(Logical OR to C)**
	TRUE		
Air_Extraction_Pressure_Sensor_2	Air_Extraction_Pressure_Sensor_3		

Action:	Thermostat_Bath_(1-12)		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
Thermostat_Bath_(1-12).Request			

Safety Action:	HeatExError		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**

HeatExError.Request			

Safety Action:	Light_red_trigger		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
Light_red_trigger.Request			

Safety Action:	Light_yellow_trigger		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
Light_yellow_trigger.Request			

Safety Action:	MFM_Cl2LevelExceeded		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
MFM_Cl2LevelExceeded.Request			

Safety Action:	MFC_Cl2LevelExceeded		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
MFC_Cl2LevelExceeded.Request			

Safety Action:	Cl2_LeakCheck		
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
Cl2_LeakCheck.Request			

Safety Action:	G70_Ar_Switch	open	N./C.
Condition A (Logical AND)	**Condition B (Logical OR to A)**	**Condition C (Logical OR to B)**	**Condition D (Logical OR to C)**
G70_Ar_Switch.Request			
Ackn_PreProcessPurge			
Reactor_Lid_Lift_Down			

! Excess_Outlet_Pressure			
! Excess_Reactor_Pressure			
! RequestSafetyForManualLoad.Output			
! Ar_Pressure			
No Alarm according Cause / Effect N2_Inlet_Bypass_Release			