F4 time series Air_Avg Amm_Flow_Pv Amm_Flow_tot Amm_Rec_SP Fermenter_Air_PV Ammo_Fudge_Factor 1.5 -1.5 -75 1000 -70 -1.0 0.0 -50 500 -60 -0.5 25 -0.5 0.0 -50 0.0 500 1000 1500 0 500 1000 1500 1000 1500 500 1000 1500 1000 1500 500 500 500 1000 1500 Fermenter_Level_Pv FID PV Mol_Flow_Pv Mol_Flow_tot Fermenter_Temp_Pv Mol_Fudge_Factor 35 -300 -20000 -30 -200 -15000 -0.0 -10000 -100 -5000 --0.20 --0.3 **-**500 1000 1500 1000 1500 500 1000 1500 500 1000 1500 500 1000 1500 500 1000 1500 Mol_Rec_SP Ozone_Gen_Out zone_Gen_PID_SP_Ma Ozone_Gen_PID_Ymar Ozone_Gen_PID_Yout Ozone PV 0.0125 1.00 -0.100 -100 -0.0100 0.75 -0.075 -75 - -20 -0.0075 0.50 - • 0.050 - • 50 -10 0.25 -0.0025 label 0.00 -0.000 - • • • • • 0.0000 500 1000 1500 500 1000 1500 1000 500 1000 1500 500 1000 1500 500 1000 1500 REJECT RELEASE Ozone SP Phos Tot Phos_Tot_Req VOC_Avg VOC Pv Step 0.100 -300 -RESTRICT 60 -150 **-**100 -7.5 **-**0.075 -200 -40 -100 -0.050 - • 100 -20 -50 0.025 -2.5 0.000 -500 1000 1500 500 1000 1500 500 1000 1500 500 1000 1500 500 1000 1500 500 1000 1500 0 VPR09 PID Out VPR09 PV VPR09 SP VPR10 PID Out VPR10 PV VPR10 SP 50 -30 -30 -1.5 -1.5 75 · 20 -20 1.0 0.5 0.0 - : 0.0 -500 1000 1500 500 1000 1500 500 1000 1500 500 1000 1500 500 1000 1500 500 1000 1500 0 VPR11_PID_Out VPR11 PV VPR11 SP Water Out Temp Pv Yeast In Temp Pv Yeast Out Temp Pv 32 -60 -30 20 28 -25 24 -0 -

500 1000 1500

500

0

1000

1500

1000 1500

500

20 -

500

1000 1500

0

Step time

1000

1500

500