AUTOMATION MODERNIZATION PROGRAM

LOS ANGELES CARSON REFINERY

LAR1C AMP BPCS CONFIGURATION PROJECT

HMI MIGRATION SPECIFICATION –

1 REFORMER

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Revision History

Rev	Description	Section
A	Issued for Review	All
B	Issued for Review -EPKS graphics screens added based on latest backup received 03-AUG-2022. -Document number updated from 747002-LAR1-AUT-SPC-0101 to 747002-LAR1C-AUT-SPC-0101.	5 All
C	Issued for Review -Static HMI layouts for the displays are updated -Shape mapping and object scripting are moved to R520 HMI Implementation Specification. -Included new section to list the shapes associated with 1 Reformer console. -Display performance analysis appendix is now renamed as Appendix B. -HOLD 1 and HOLD 2 are cleared.	5 Appendix B & C 9 Appendix B 8, Appendix B
D	Issued for Approval -Graphics are updated to follow ASM compliance as per FDS AMP LAR-HMI-FDS-v100	5

Assumptions

Note	Description	Section/Page
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Holds

No	Description	Section
1	Displays for Cabinet alarms and Diagnostic are yet to be developed and will be captured in next revision. **CLEARED**—The displays are developed and present in other console HMI specification document.	8
2	Shape mapping, object scripting, and display performance analysis appendices will be provided in next revision. **CLEARED**—Shape mapping and object scripting are moved to R520 HMI Implementation Specification and display performance analysis appendix is provided with this document.	Appendix B
3	Display navigation tabs for navigating level 2 & level 3 graphics is not updated in graphics. Information on navigations tabs is awaited from HCS.	5

1. General

1.1 Introduction

The Los Angeles Refinery Carson (LARC) facility is completing an Automation Modernization Program (AMP) to replace obsolete automation equipment and to migrate the existing functionality and operability to the Honeywell Experion Process Knowledge System (EPKS) platform.

The LAR1C project scope is to migrate and/or upgrade the existing functionality and operability of identified Basic Process Control System (BPCS) consoles and controllers as well as operator and engineering stations to comply with current industry standards and practices. The migration will be from the existing Honeywell High Performance Process Manager (HPM)[1], Application Module (AM) controllers, Process Manager Input/Output (PMIO) and Basic Controllers to new Honeywell Experion C300 controllers and Series C and Universal Input/Output (UIO) and (UIO-2). The migration of the existing 3rd-party device serial interfaces to the C300 controllers shall be via either Modbus TCP/IP using Peer Communication Data Interfaces (PCDI), Ethernet Interface Module (EIM) or EPKS Server Supervisory Control and Data Acquisition (SCADA) points and Human Machine Interface (HMI) screens migrated using HMI WebBuilder.

1.2 Purpose of this Document

The purpose of this document is to record the migration of the LAR1 Carson Refinery HMI graphics for the 1 Reformer Console. The HMI graphics are based on the record copies received as part of the site backup and are considered as the design baseline (design freeze) for the scope to be implemented during the BPCS migration.

The document is divided into six sections:

Section 4 – Site Survey Operator HMI Review

Summary of the HMI Graphics review held with operators.

Section 5 – Migrated HMI Screens

For graphics designated as BPCS scope of responsibility, each screen is shown in its existing form. The migrated output shall be provided to the LAR site team.

Section 6 – Existing HMI Screens to be Confirmed

For graphics designated as “to be confirmed,” the migrated output needs to be confirmed by the LAR site team.

Section 7 – HMI Screens Not Being Migrated

[1] The scope of the HPM migration is limited to specific functions if it is determined to provide a more robust solution of the other control loops migrating to the C300 controllers

Graphics designated as “obsolete” or “duplicated” required based on the output of site surveys completed in 2022. The purpose of including the obsolete graphics is to ensure there are no gaps in the overall migration scope.

Section 8 – New HMI Screens for Migration

For graphics designated as ‘new’ are developed to capture new information associated with migration.

Section 9 – 1 Reformer Console Shape List

Shapes for 1 Reformer console is listed.

Supplemental information is provided in the appendices.

Appendix A – Graphics Summary List

Summary of the graphics and outcomes from the review session held with operators.

Appendix B – Display Performance Analysis Summary

Summarizes the key data parameters for each migrated graphic compared to graphic build guidelines. If these parameters exceed the guideline limits, the graphic is reviewed and modified if required to ensure the performance meets the project specifications.

2. Acronyms and Definitions

2.1 Acronyms

Table 2.1 defines the acronyms used within this document.

Table 2.1. Acronyms

Acronym	Description
AM	Application Module
AMP	Automation Modernization Program
BPCS	Basic Process Control System
CDA	Control Data Access
EIM	Ethernet Interface Module
EPKS	Experion® Process Knowledge System
GUS	Graphical User Interface
HMI	Human Machine Interface
HG	Hiway Gateway
HPM	High Performance Process Manager
I/O	Input/Output
LAR	Los Angeles Refinery
LARC	Los Angeles Refinery—Carson
LCN	Local Control Network
MPC	Marathon Petroleum Corporation
PCDI	Peer Communication Data Interface
PMIO	Process Manager Input/Output
SCADA	Supervisory Control and Data Acquisition
TPS	Total Plant Solution
UIO	Universal Input/Output

2.2 Project Definitions

Table 2.2 describes terms used in this document.

Table 2.2. Project Definitions

Definition	Description
LAR Team	Los Angeles Refinery Site and Project Team or their authorized representative(s)
Demo	Refers to scope to be "demobilized," i.e., removed from service, all hardware and software and documentation updated accordingly.
Automation Contractor	MPC appointed Automation Contractor or their authorized representative(s)

3. References

3.1 MPC and LAR Standards

Table 3.1 defines AMP specifications referenced in developing this HMI specification.

Table 3.1. Codes and Standards

Document Number	Rev	Document Title
AMP Central Global Specifications		
AMP-GBL-PM-SPC-0004	5	HMI Specification
AMP-GBL-PM-SPC-0011	1	HMI Style Specification
AMP LAR-HMI-FDS-v100	B	Functional Design Specification

3.2 Project Reference Drawings, Documents and Software Backups

Table 3.2 defines project documentation referenced in developing this HMI specification.

Table 3.2. Project Reference Drawings/Documents/Software Backup

Document Number	Rev	Document Title
LAR AMP BPCS Documentation		
747002-LAR1C-AUT-SPC-0110	A	LAR1C AMP BPCS Configuration Project Software Migration Specification - REF2-C300-21P/22S
747002-LAR1C-AUT-SPC-0111	A	LAR1C AMP BPCS Configuration Project Software Migration Specification - REF2-C300-23P/24S
747002-LAR1C-AUT-SPC-0112	A	LAR1C AMP BPCS Configuration Project Software Migration Specification - LEDDIB-C300-25P/26S
747002-LAR1C-AUT-SPC-0113	A	LAR1C AMP BPCS Configuration Project Software Migration Specification - SRD-C300-27P/28S
Software Backups		
LCN1 Graphics_PC_DIR_DS_20211025	--	Graphics Backup (Received from LAR AMP in 25th Oct 2021)
REF1 and REF2 PKS Displays_20220803	--	Graphics Backup (Received from LAR AMP in 03rd Aug 2022)
1REF_Modpack-May2023	--	HMI graphics backup (Received from LAR AMP in May 2023)

4. Site Survey Operator HMI Review

4.1 Operator HMI Review Schedule

The existing HMI Graphic screens for the units from the 1 Reformer Console listed in Table 4.1 were reviewed with the operators.

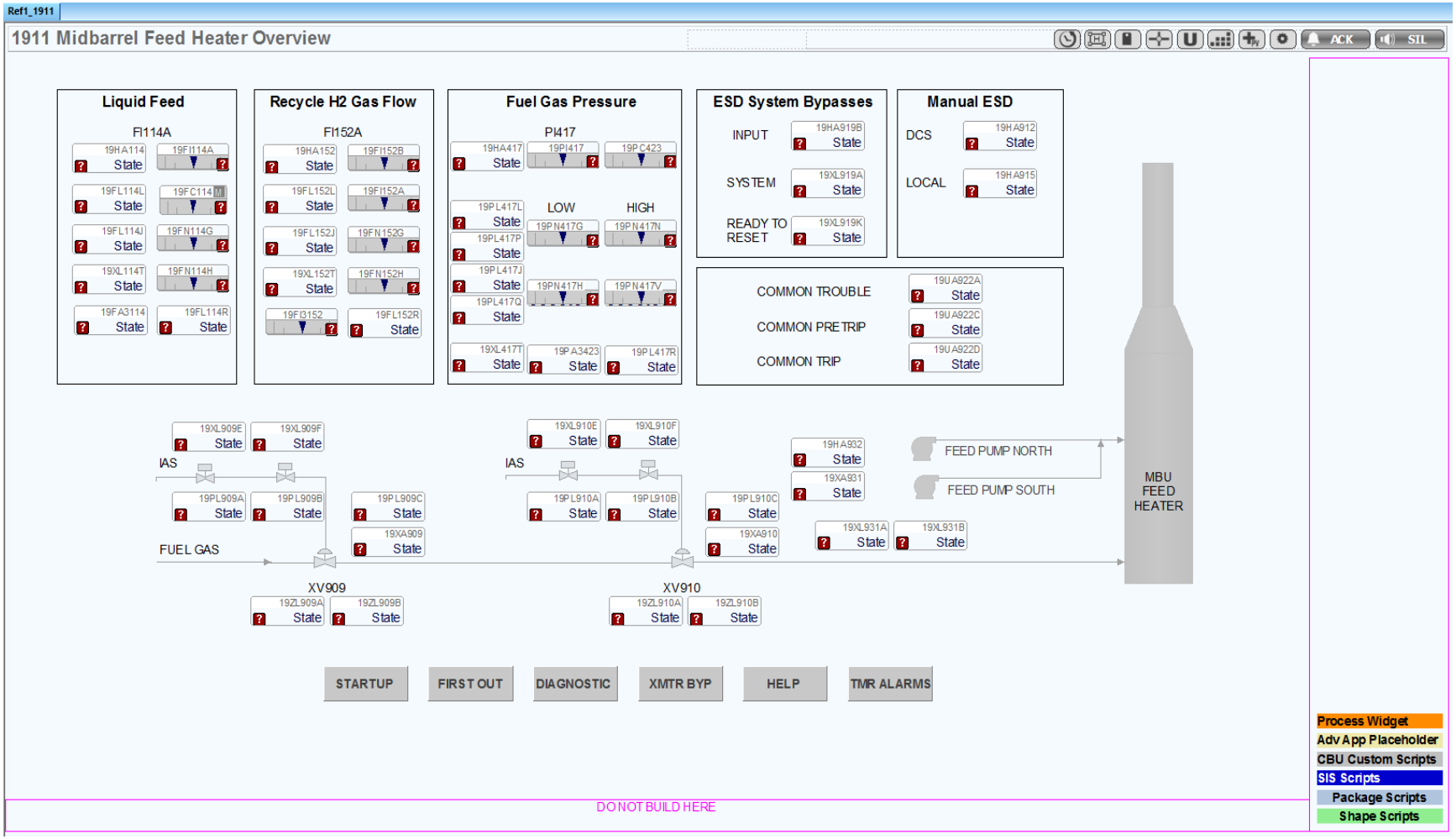
Table 4.1. HMI Graphic Review Schedule

Sr. No	Console	Unit	Total Displays	Reviewed Displays	Review Date	Review Time	LAR Personnel
1	1 Reformer	1 Ref/ Desulf, MBU, FFHDS, LHU, Heavy Hydro	377	377	14-Oct-22	--	Roger Sonza
2	1 Reformer	1 Ref/ Desulf, MBU, FFHDS, LHU, Heavy Hydro	377	377	19-Dec-22	--	Colvey, Jackie D.

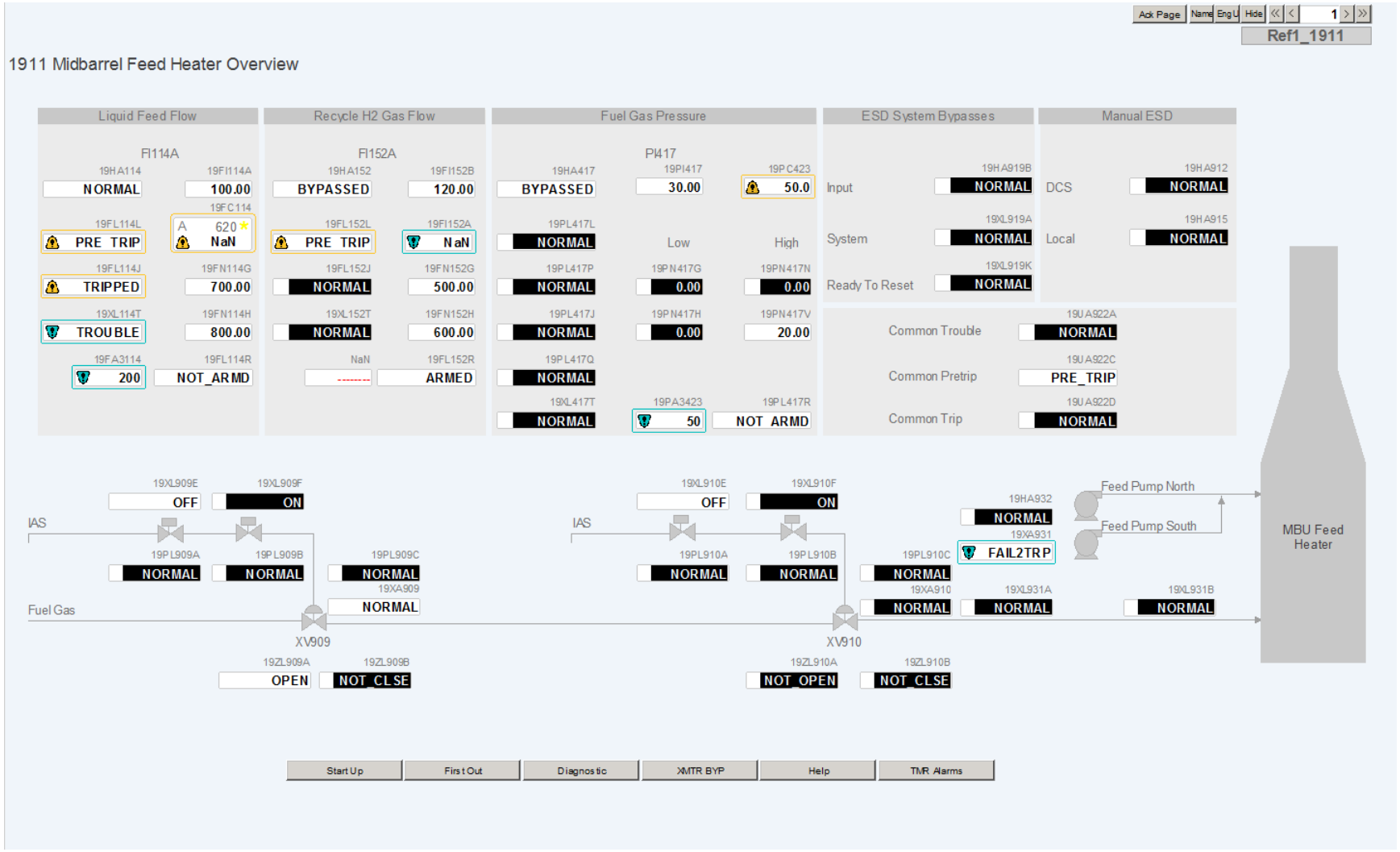
The outcome of the Site Survey Operator Review is recorded in Appendix A.

5. Migrated HMI Screens

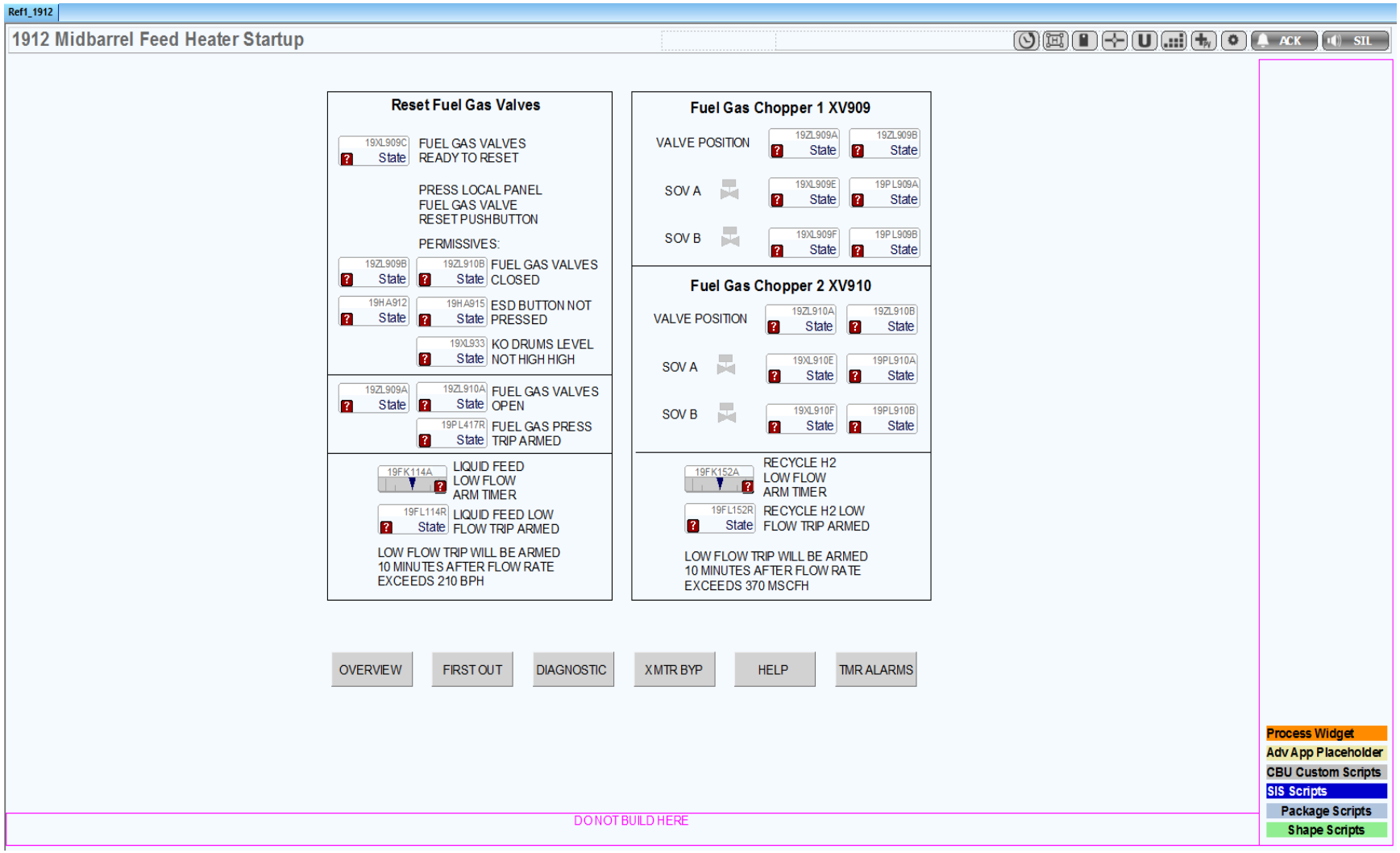
5.1 1911 MIDBARREL FEED HEATER OVERVIEW (Ref1_1911.htm)



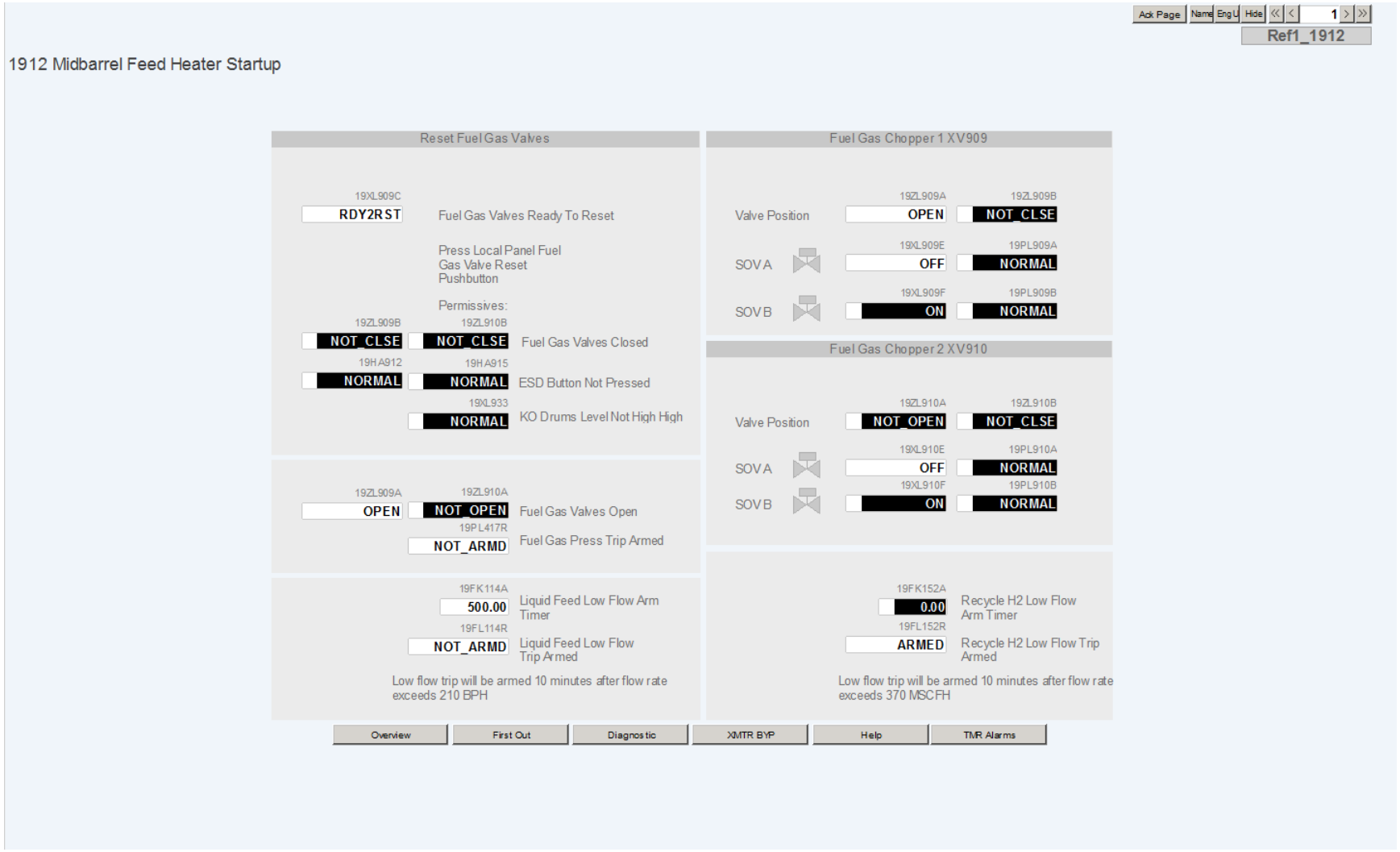
Station View



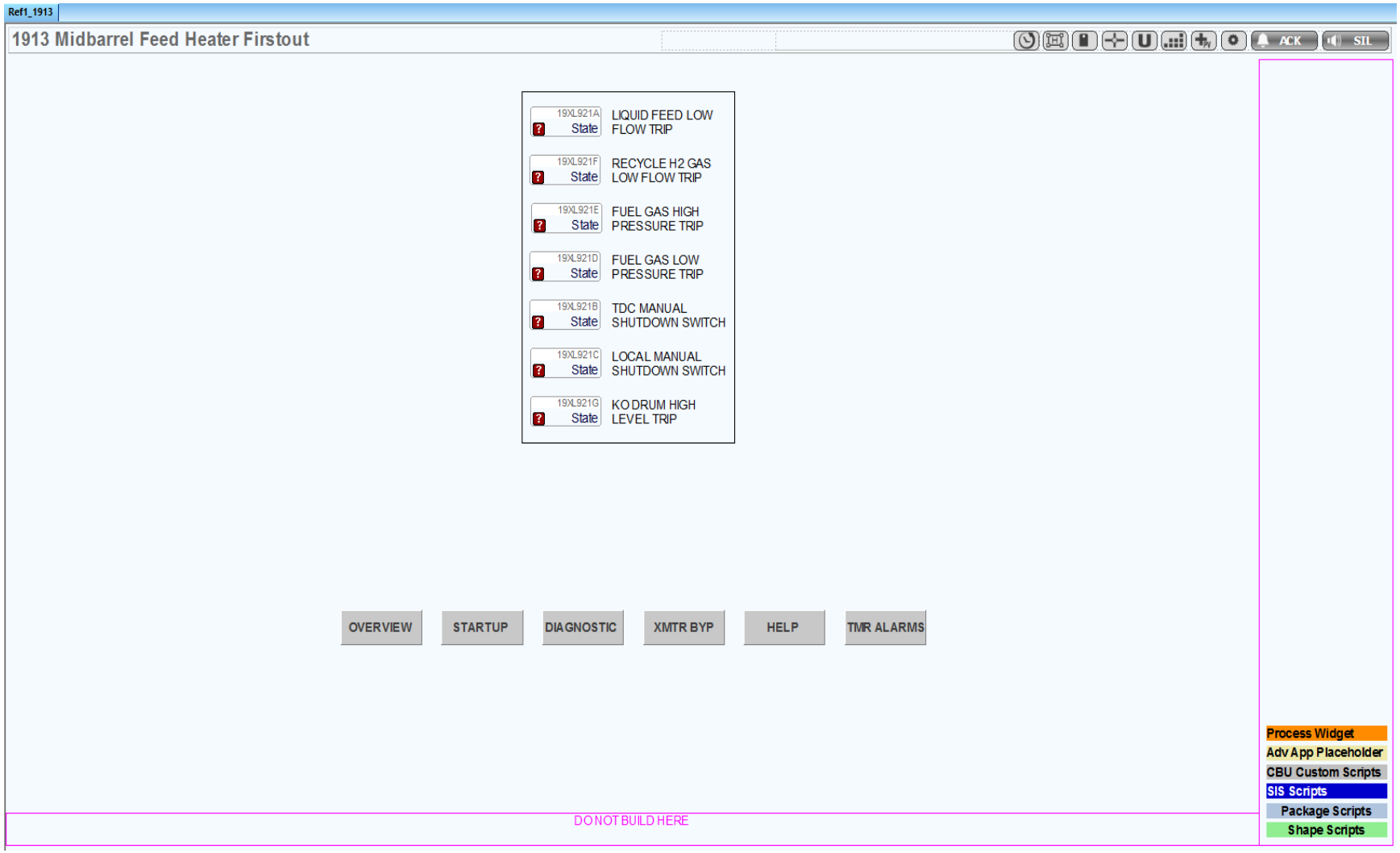
5.2 1912 MIDBARREL FEED HEATER STARTUO (Ref1_1912.htm)



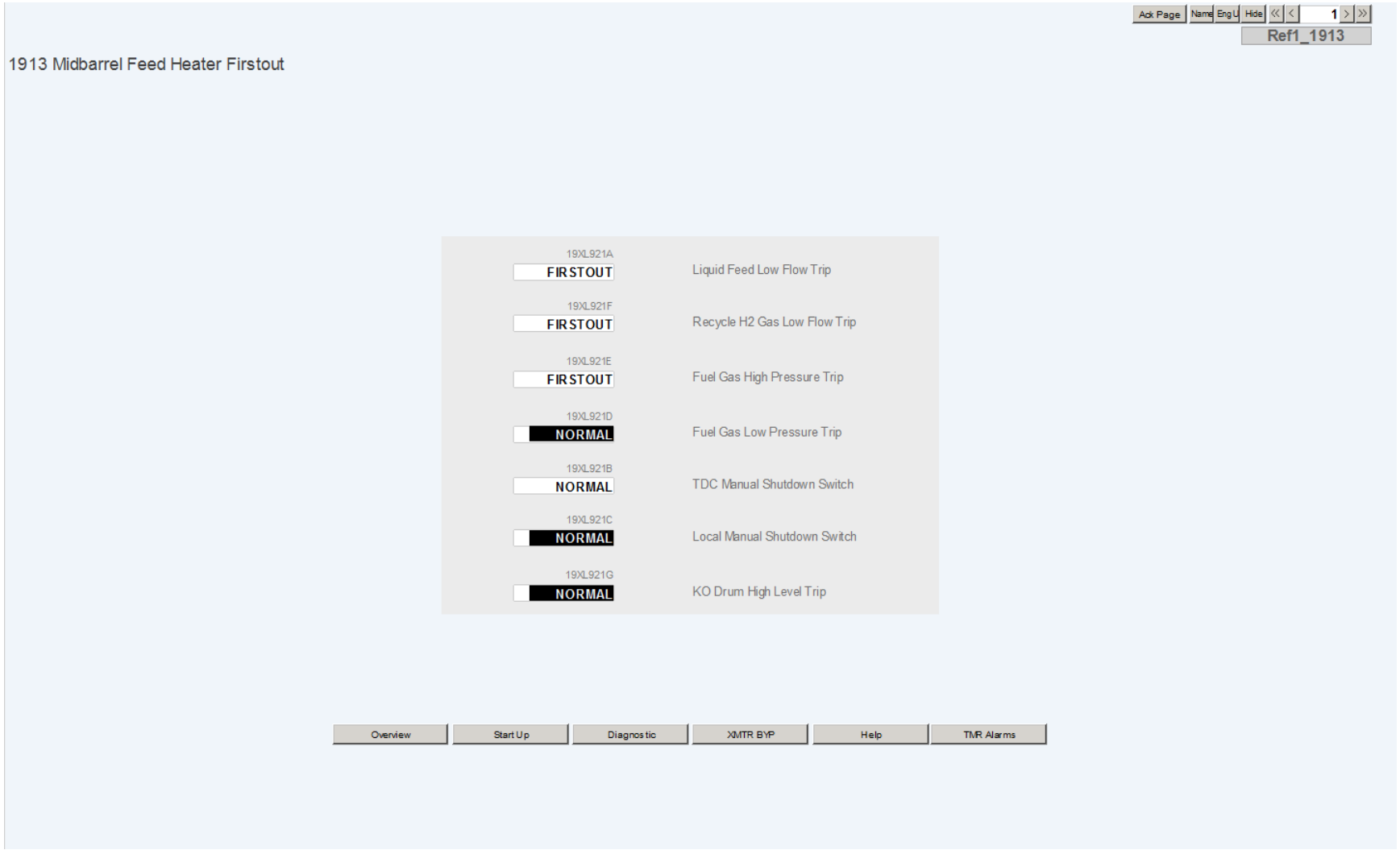
Station View



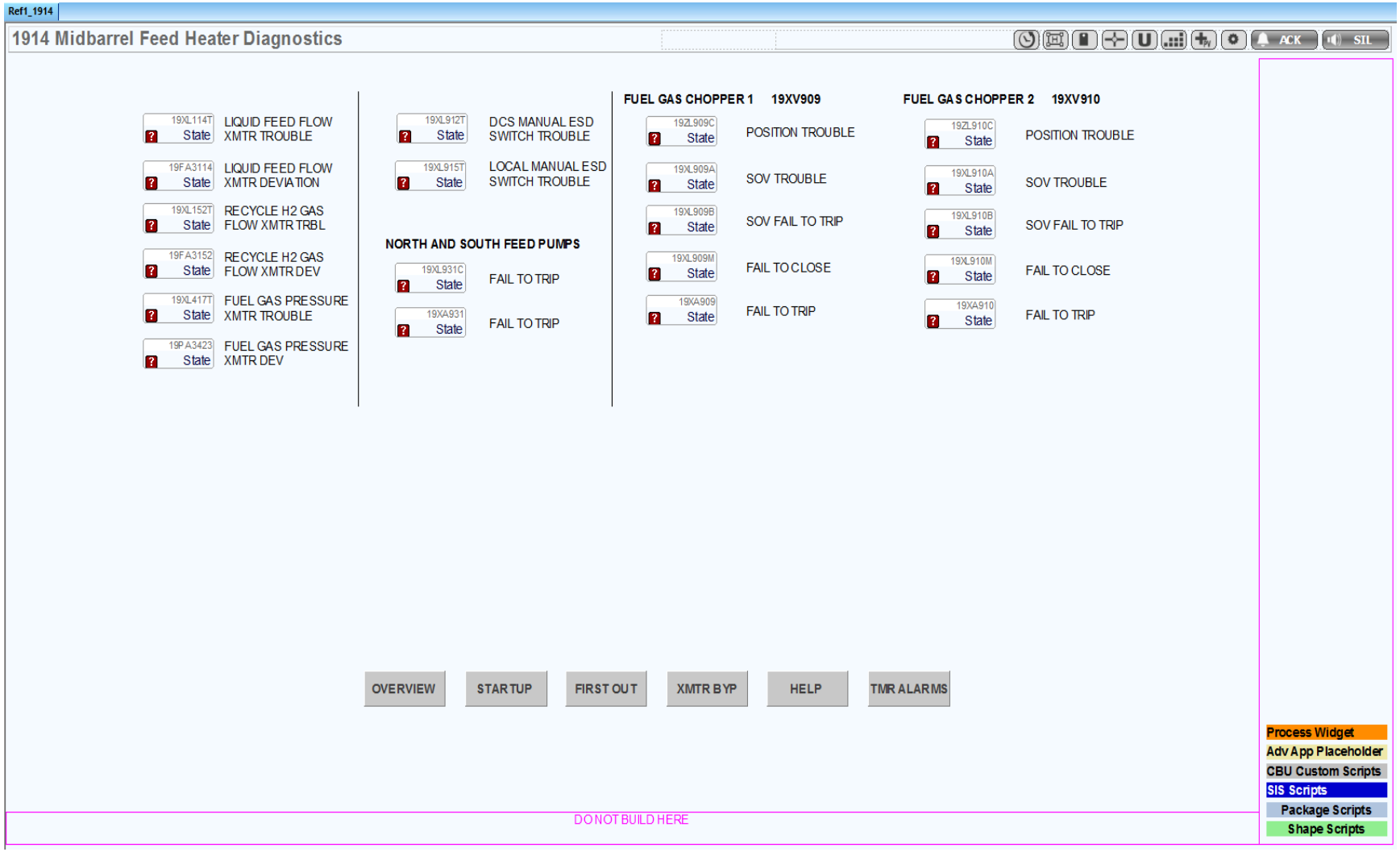
5.3 1913 MIDBARREL FEED HEATER FIRSTOUT (Ref1_1913.htm)



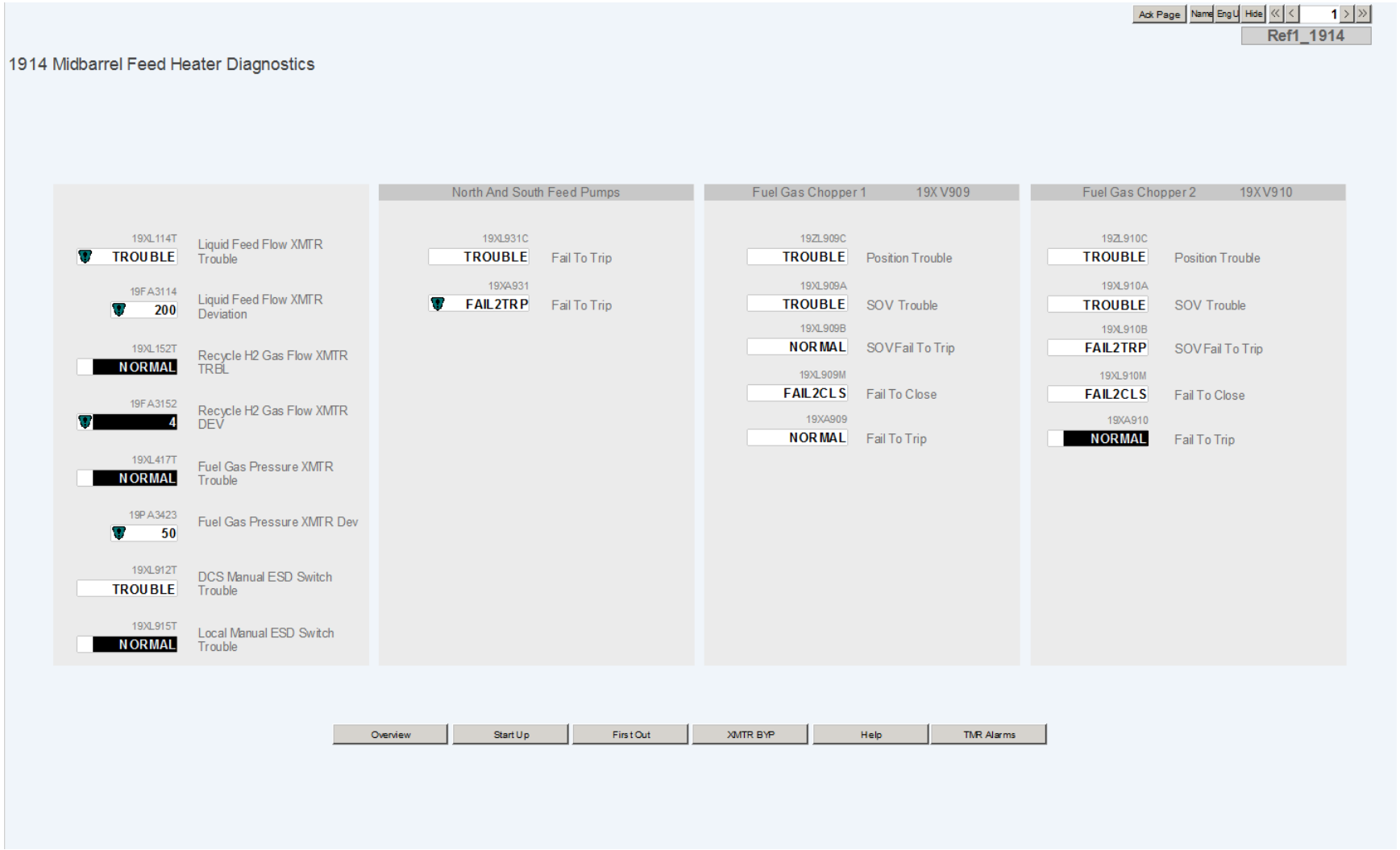
Station View



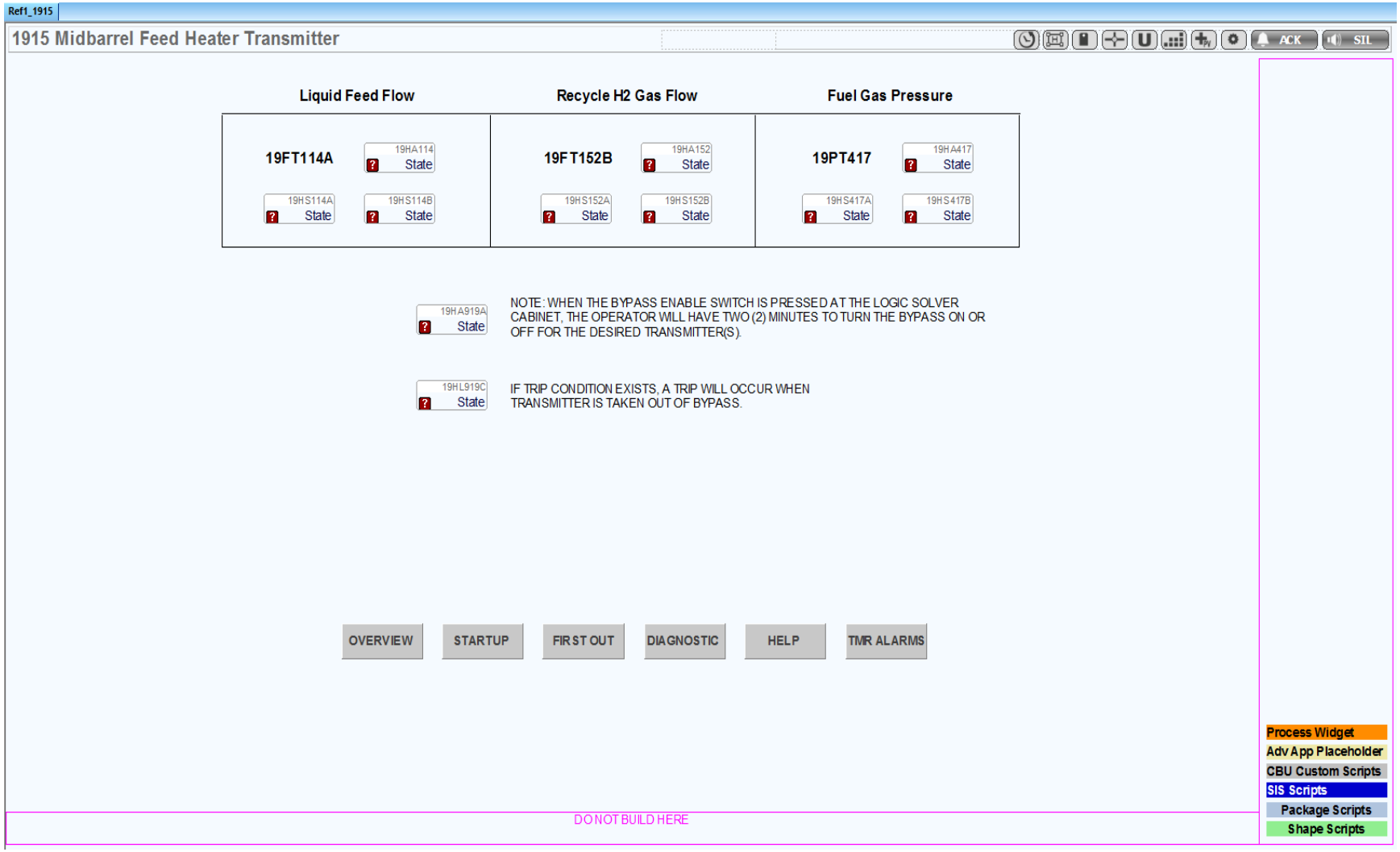
5.4 1914 MIDBARREL FEED HEATER DIAGNOSTICS (Ref1_1914.htm)



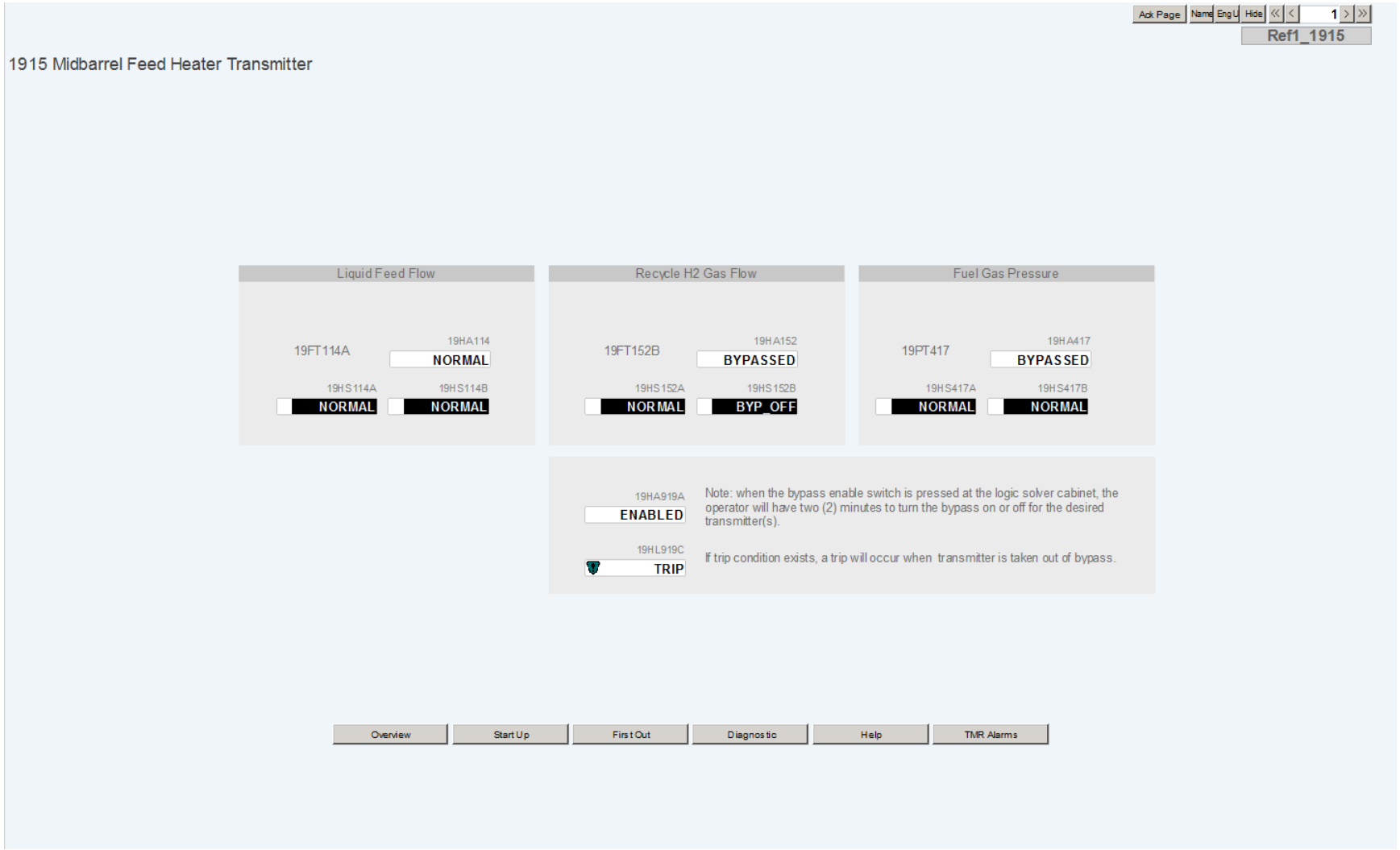
Station View



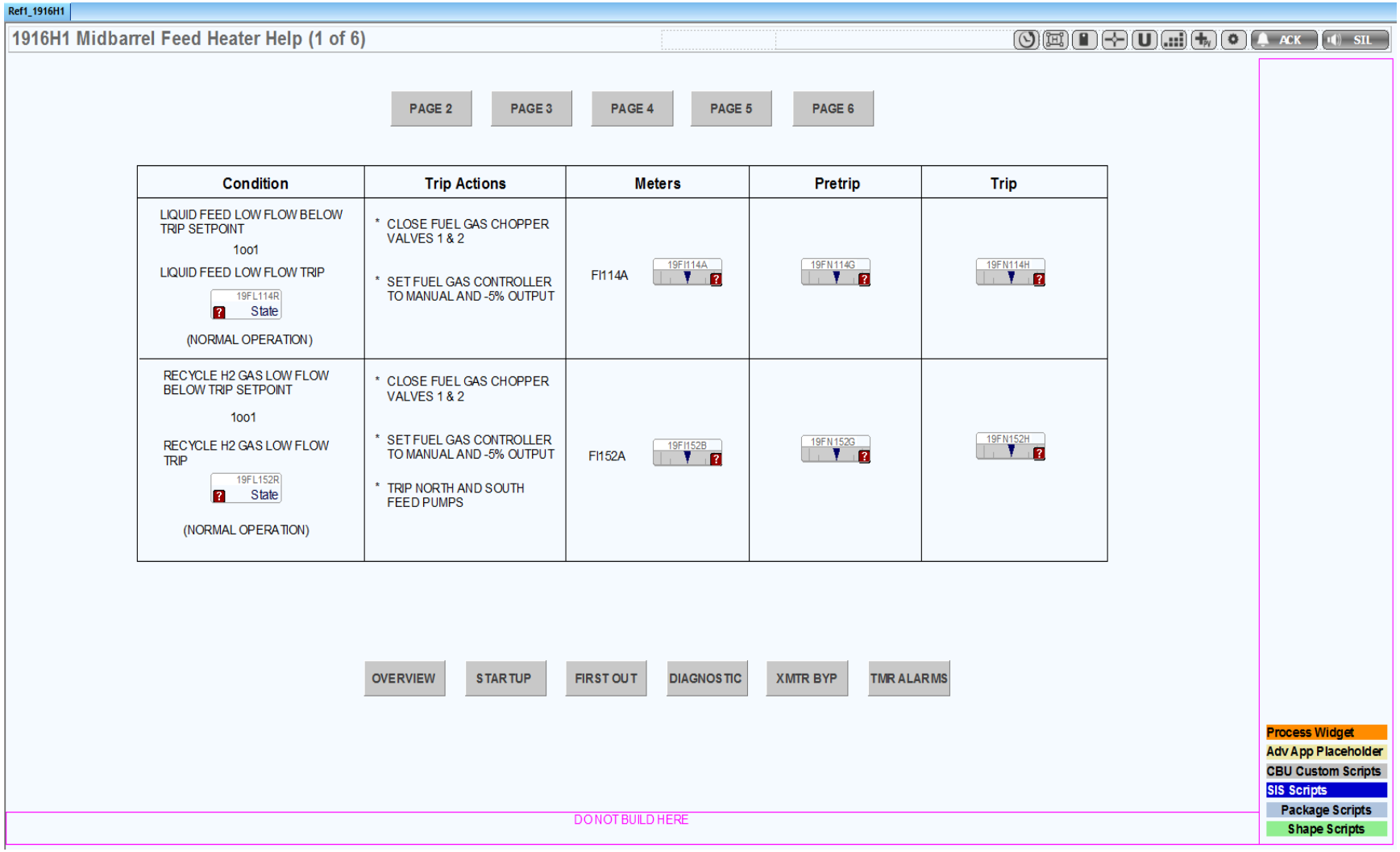
5.5 1915 MIDBARREL FEED HEATER TRANSMITTER (Ref1_1915.htm)



Station View

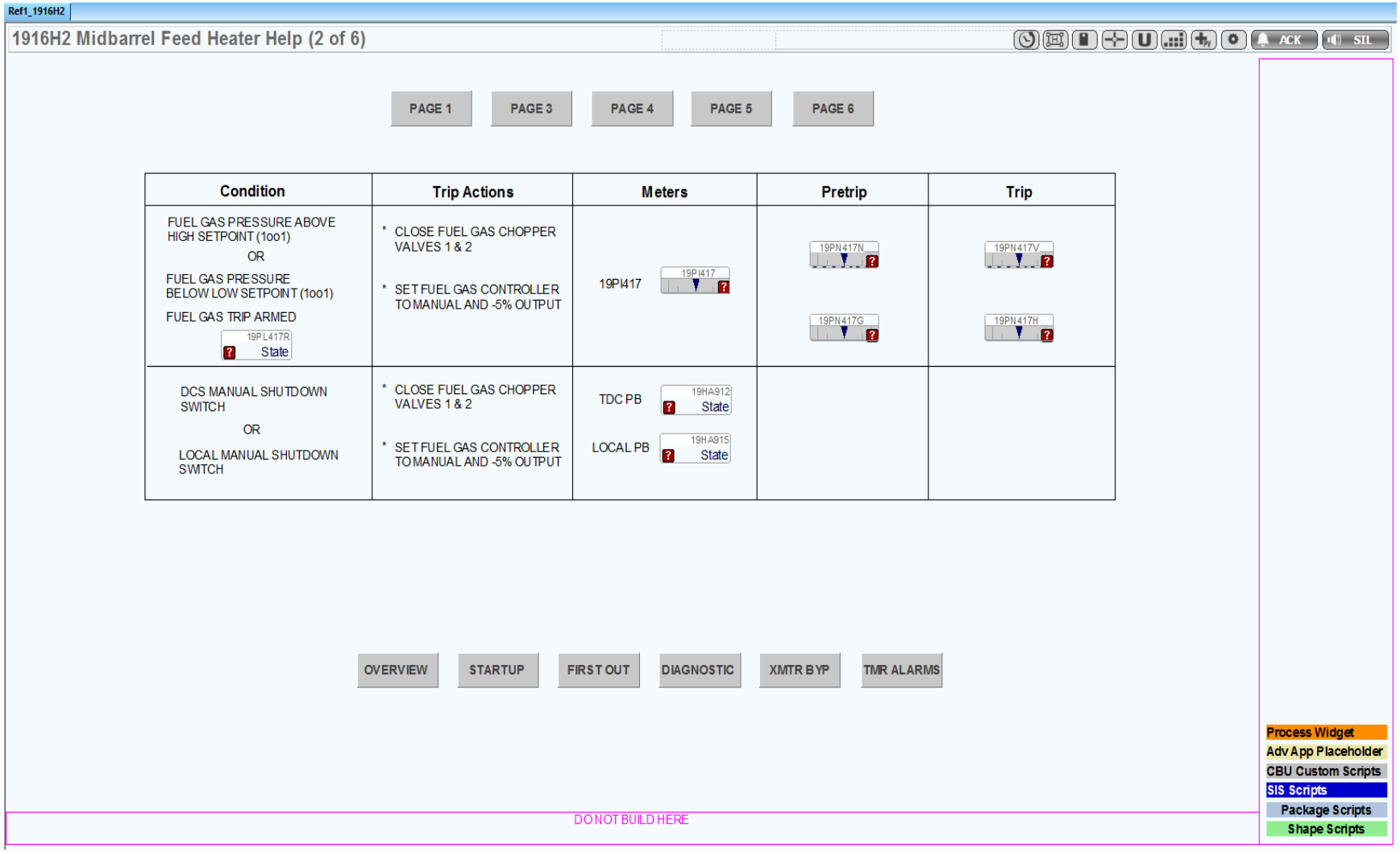


5.6 1916H1 MIDBARREL FEED HEATER HELP (1 TO 6) (Ref1_1916H1.htm)



Station View

5.7 1916H2 MIDBARREL FEED HEATER HELP (2 TO 6) (Ref1_1916H2.htm)



Station View

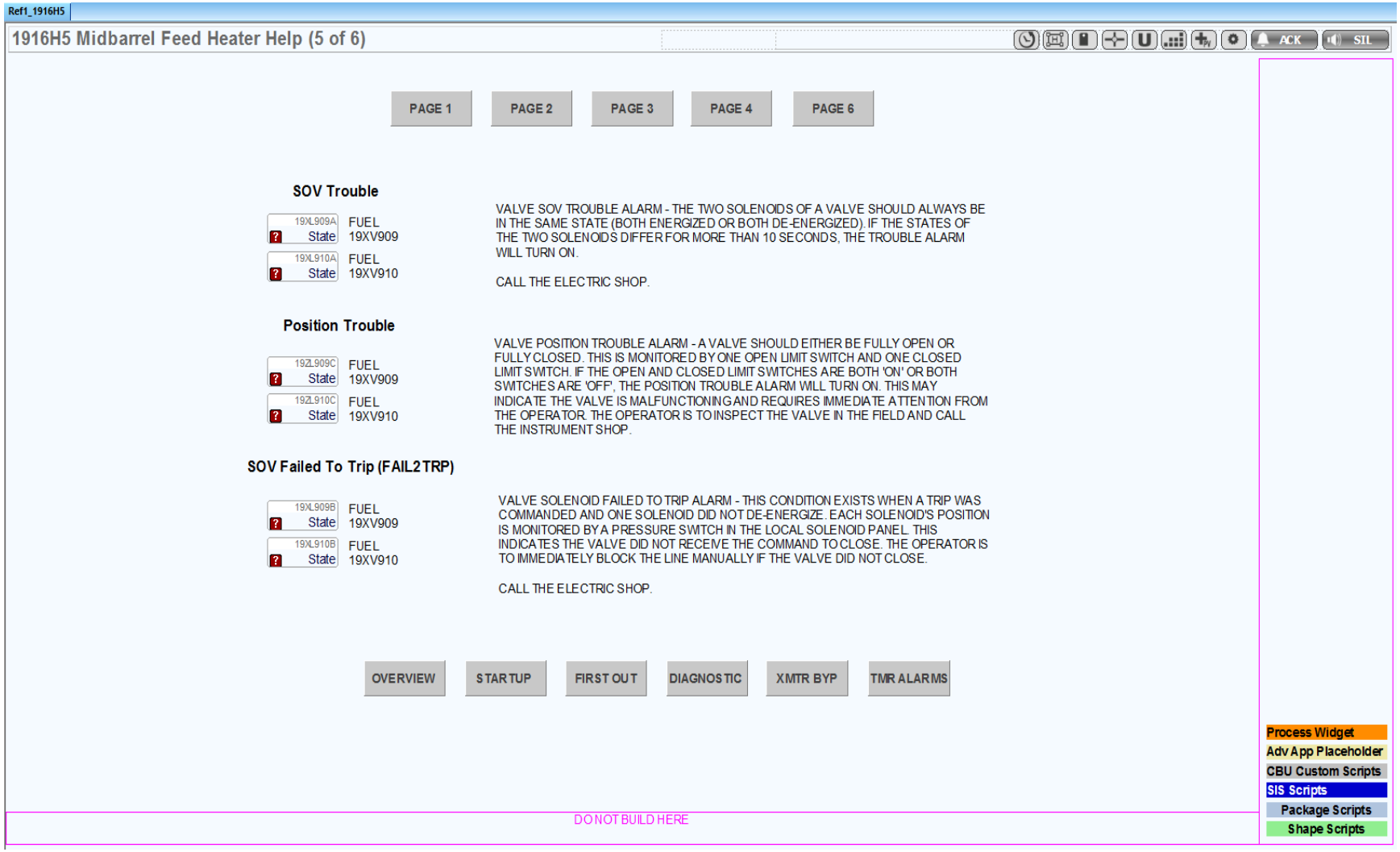
5.8 1916H3 MIDBARREL FEED HEATER HELP (3 TO 6) (Ref1_1916H3.htm)

Station View

5.9 1916H4 MIDBARREL FEED HEATER HELP (4 TO 6) (Ref1_1916H4.htm)

Station View

5.10 1916H5 MIDBARREL FEED HEATER HELP (5 TO 6) (Ref1_1916H5.htm)

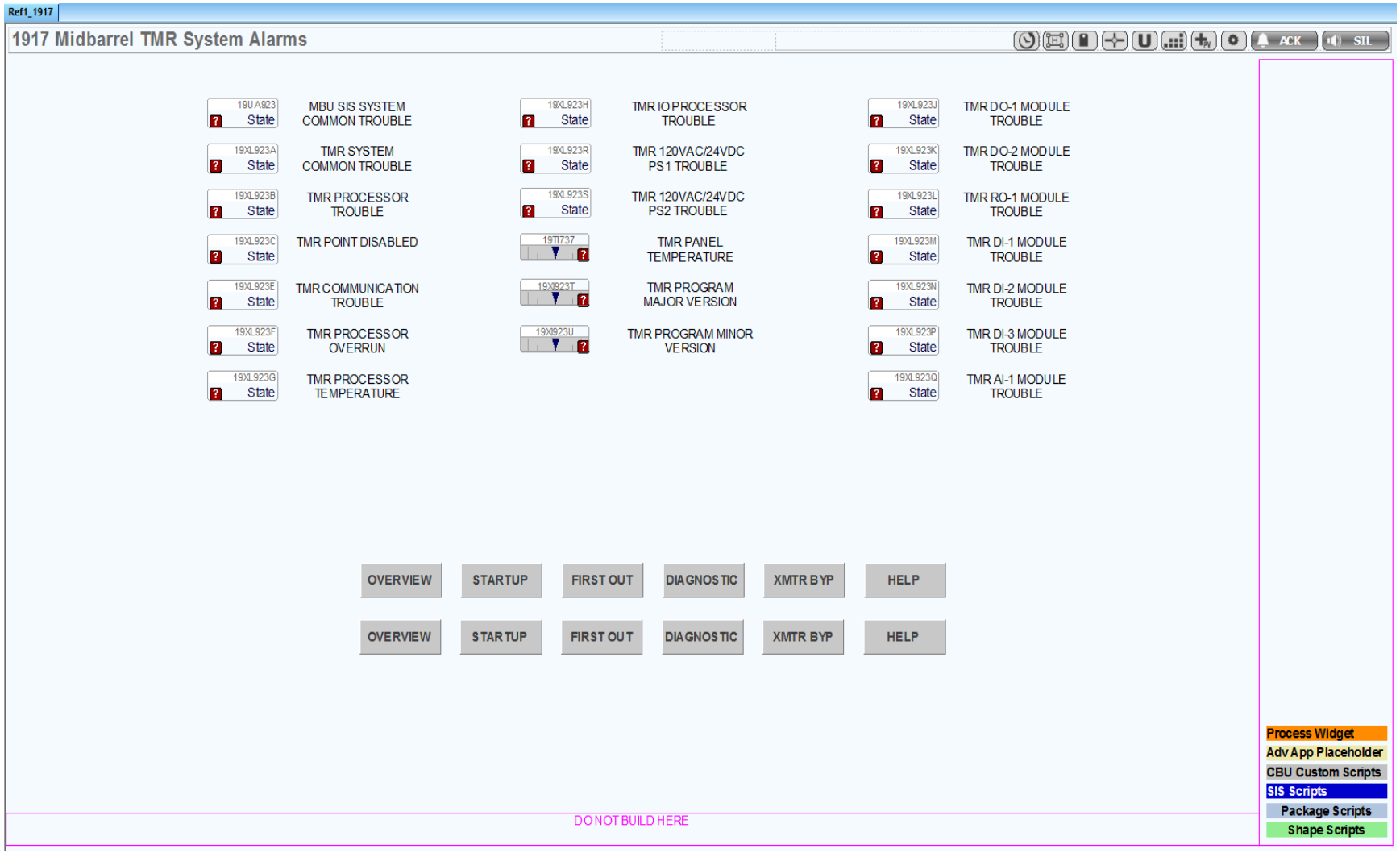


Station View

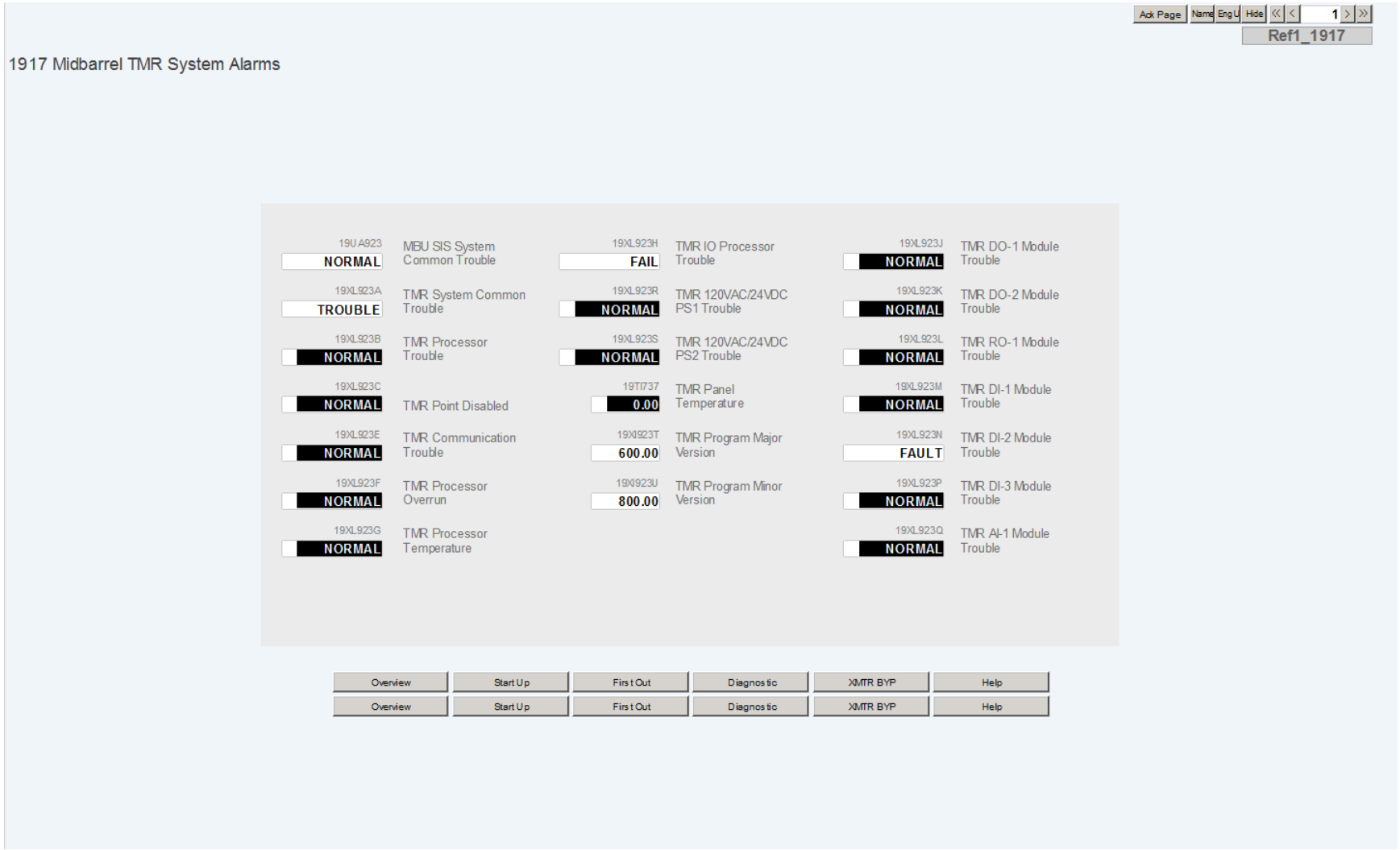
5.11 1916H6 MIDBARREL FEED HEATER HELP (6 TO 6) (Ref1_1916H6.htm)

Station View

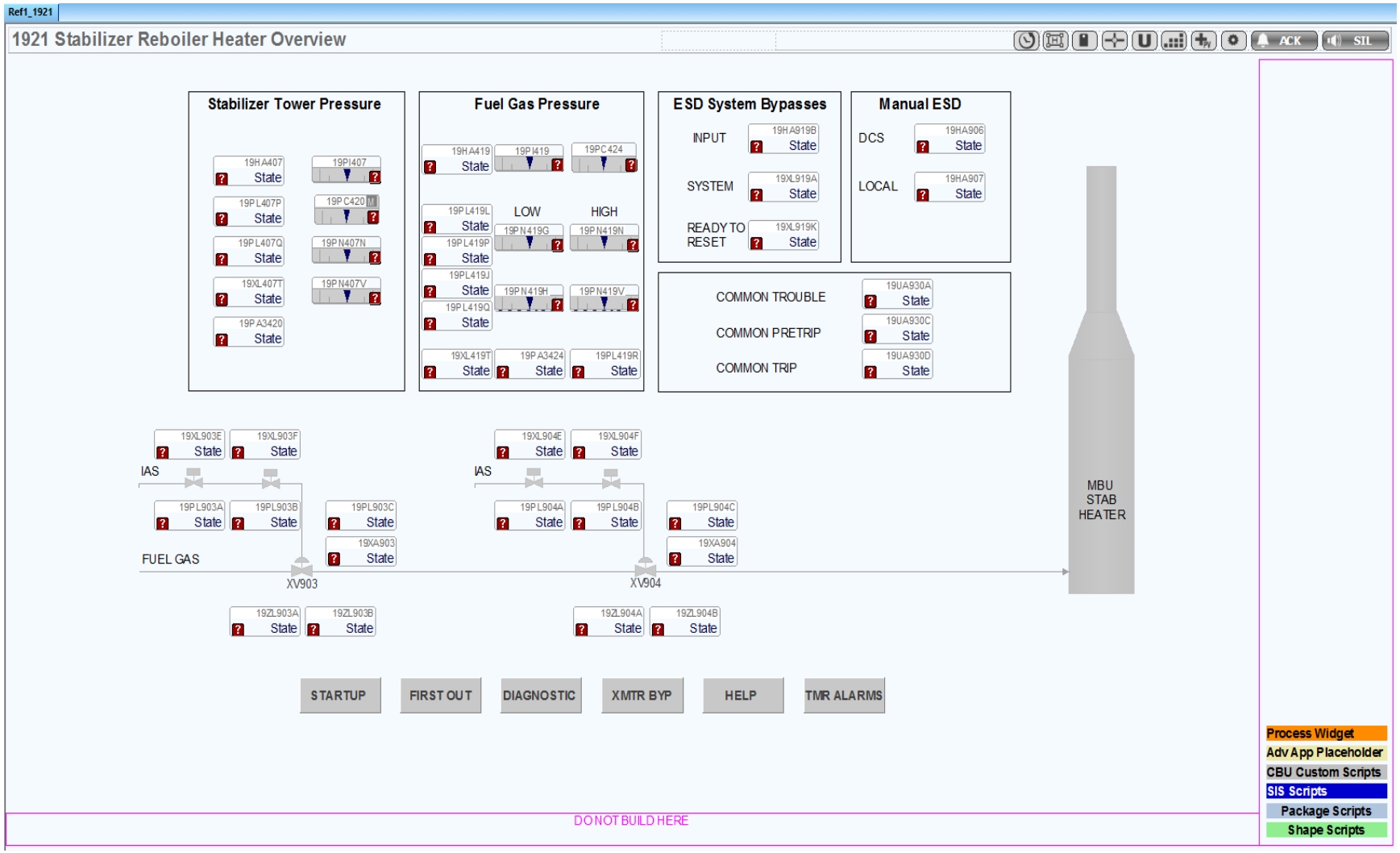
5.12 1917 MIDBARREL TWR SYSTEM ALARM (Ref1_1917.htm)



Station View

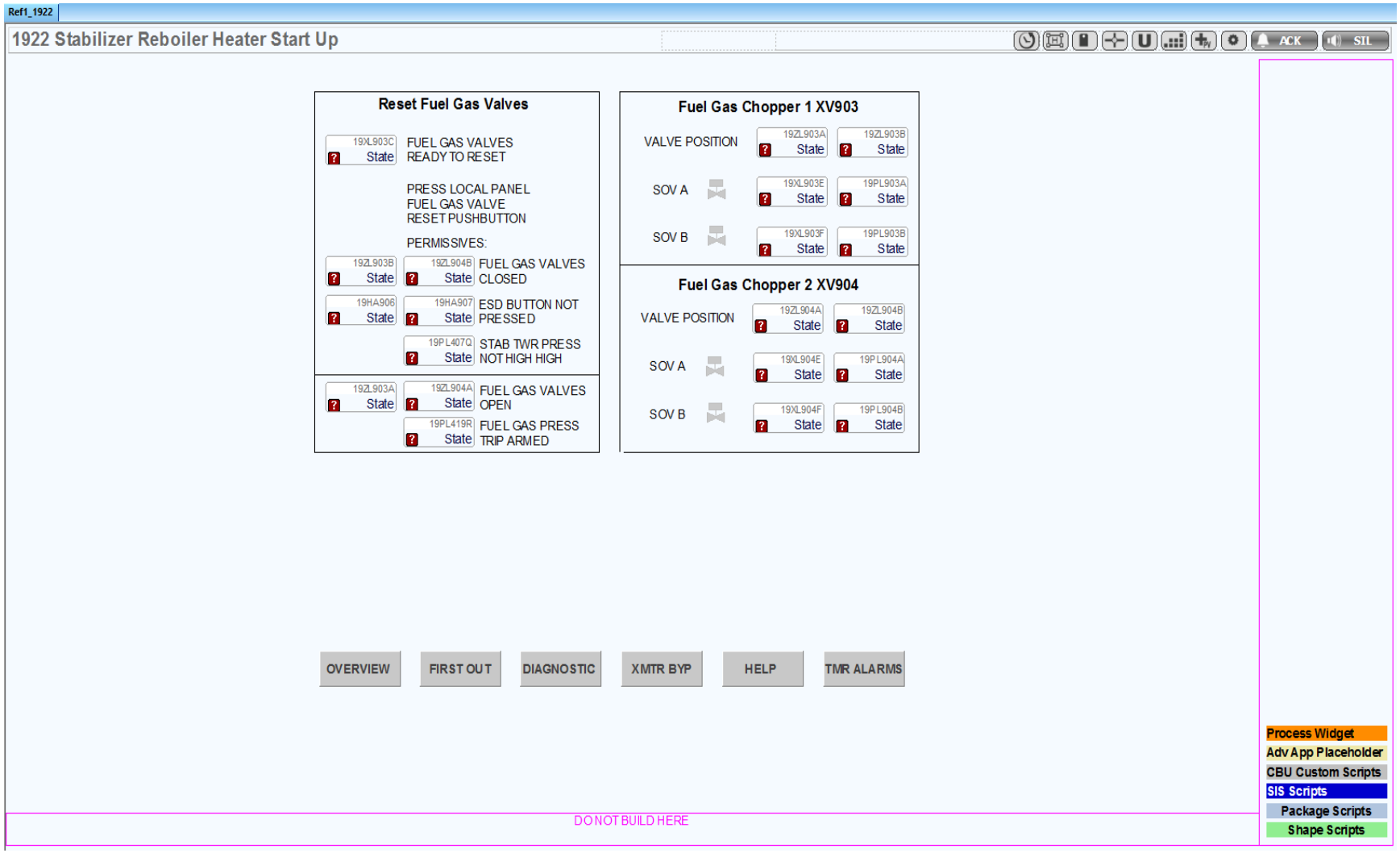


5.13 1921 STABILIZER REBOILER HEATER OVERVIEW (Ref1_1921.htm)



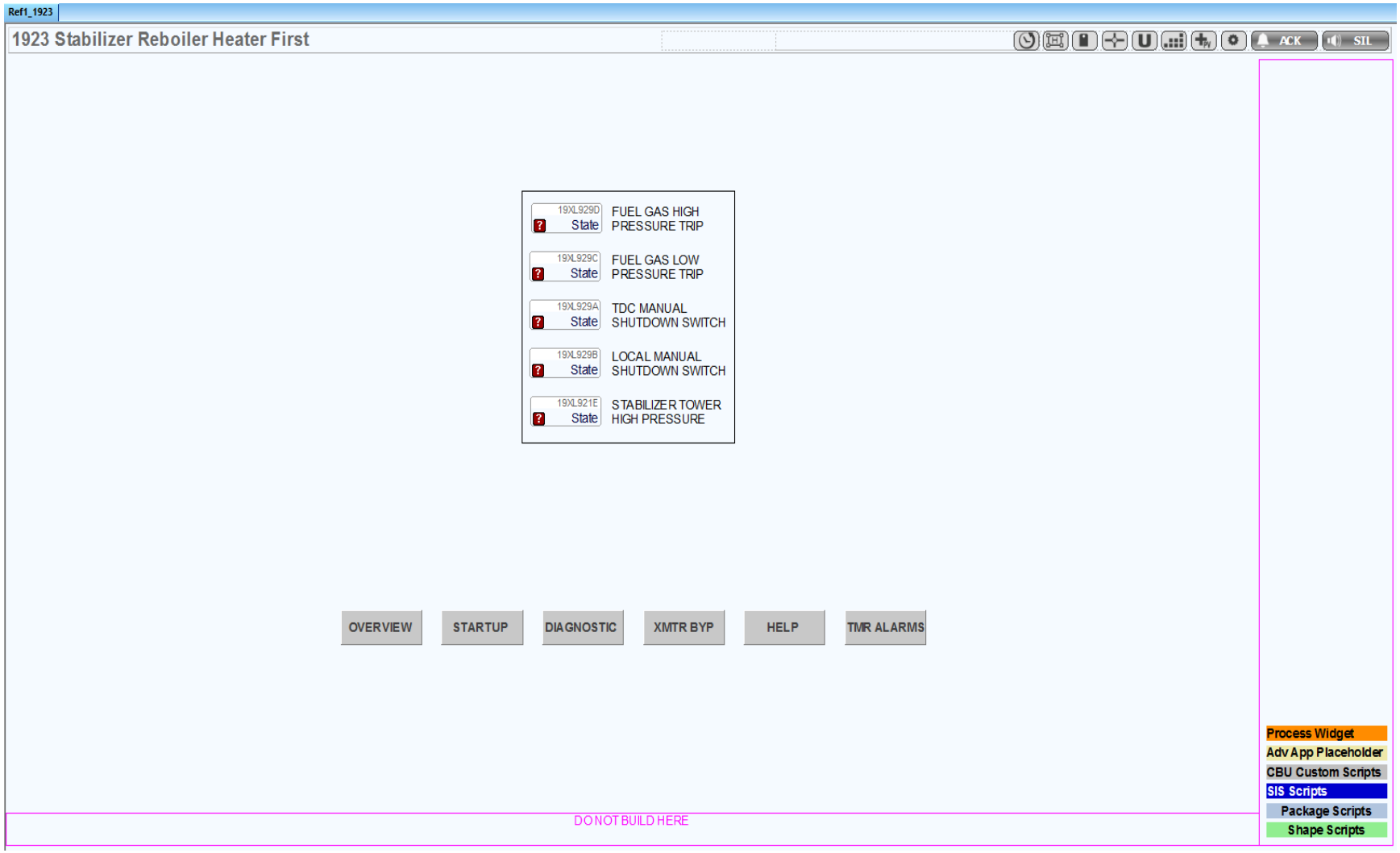
Station View

5.14 1922 STABILIZER REBOILER HEATER START UP (Ref1_1922.htm)

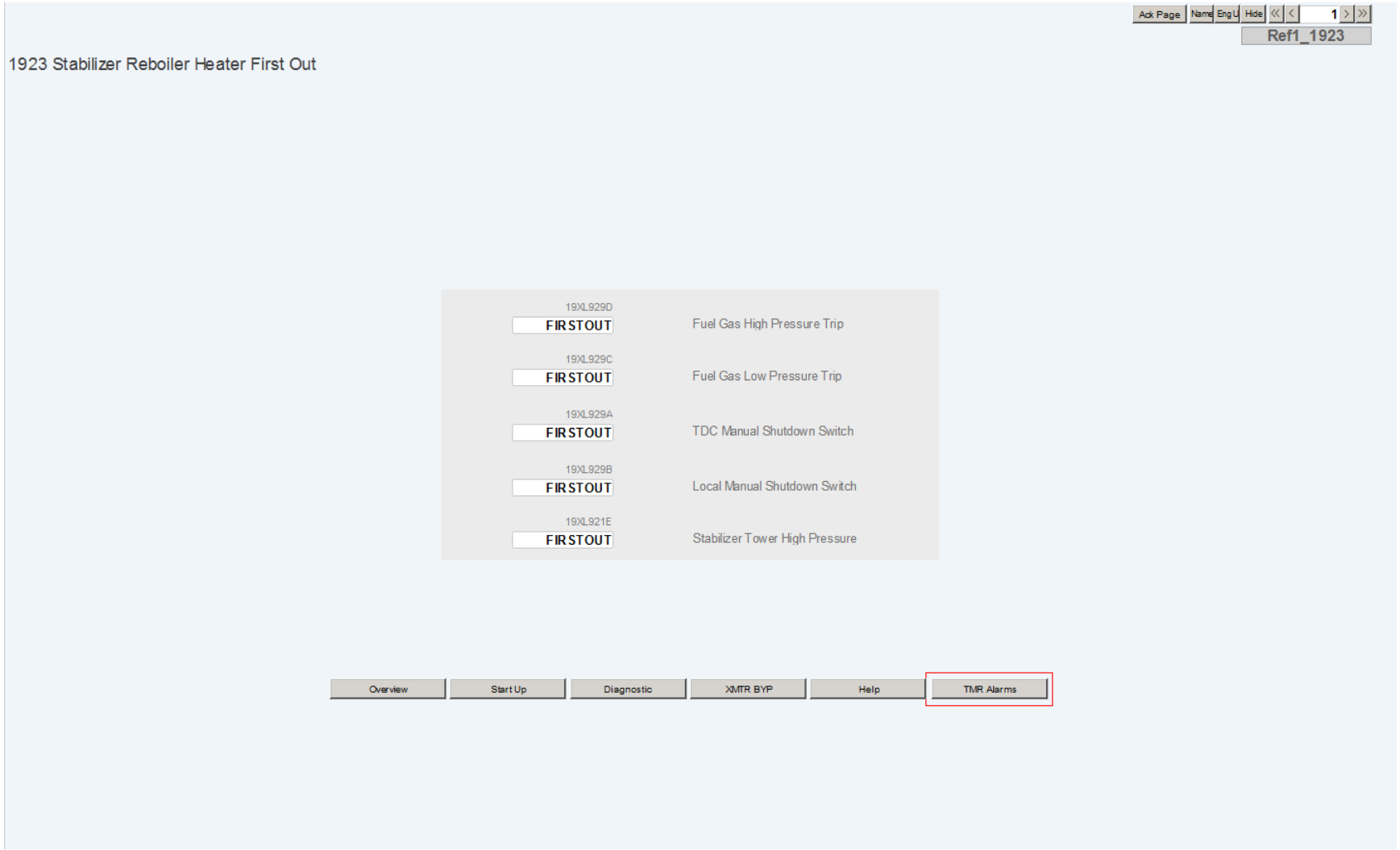


Station View

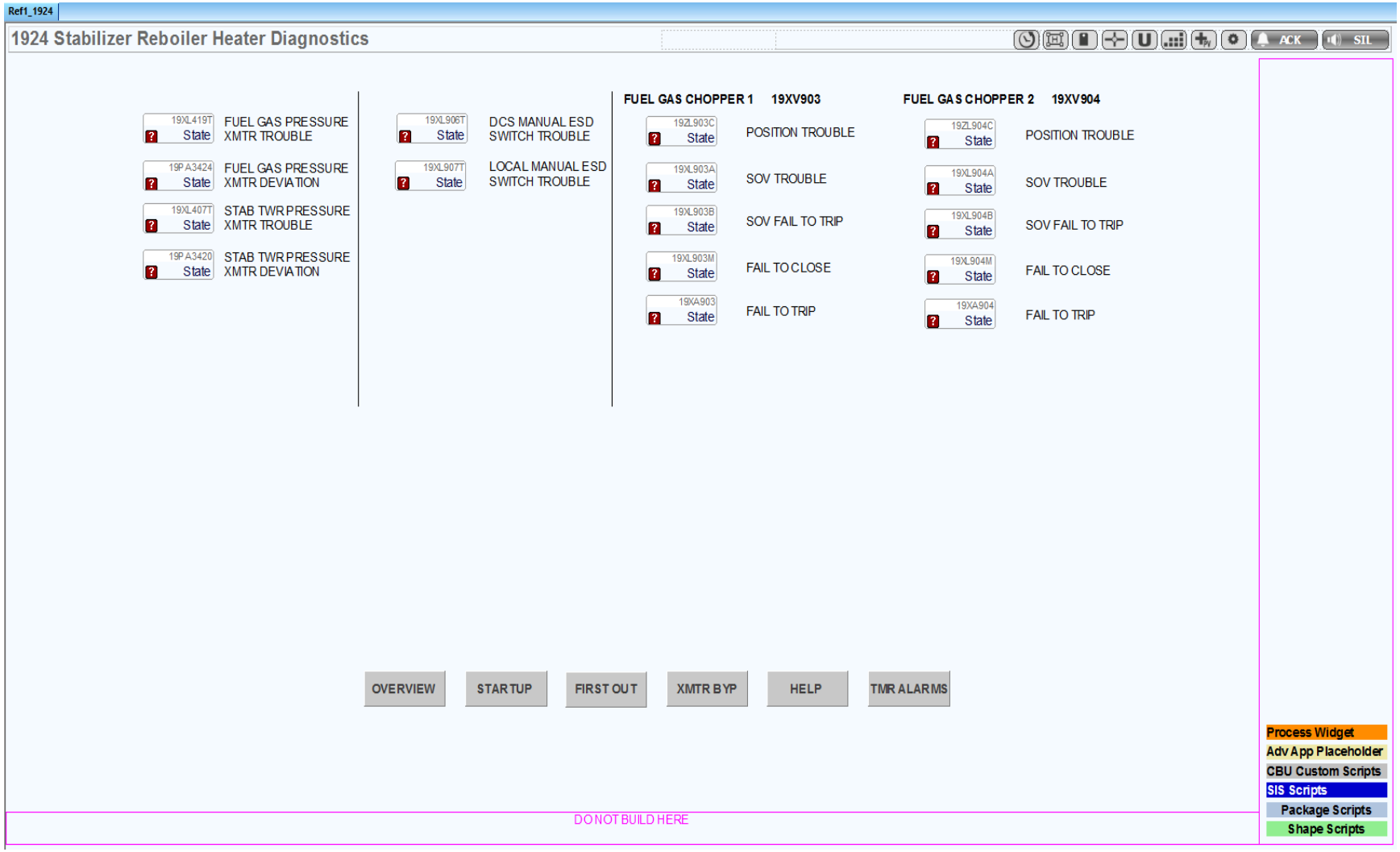
5.15 1923 STABILIZER REBOILER HEATER FIRST (Ref1_1923.htm)



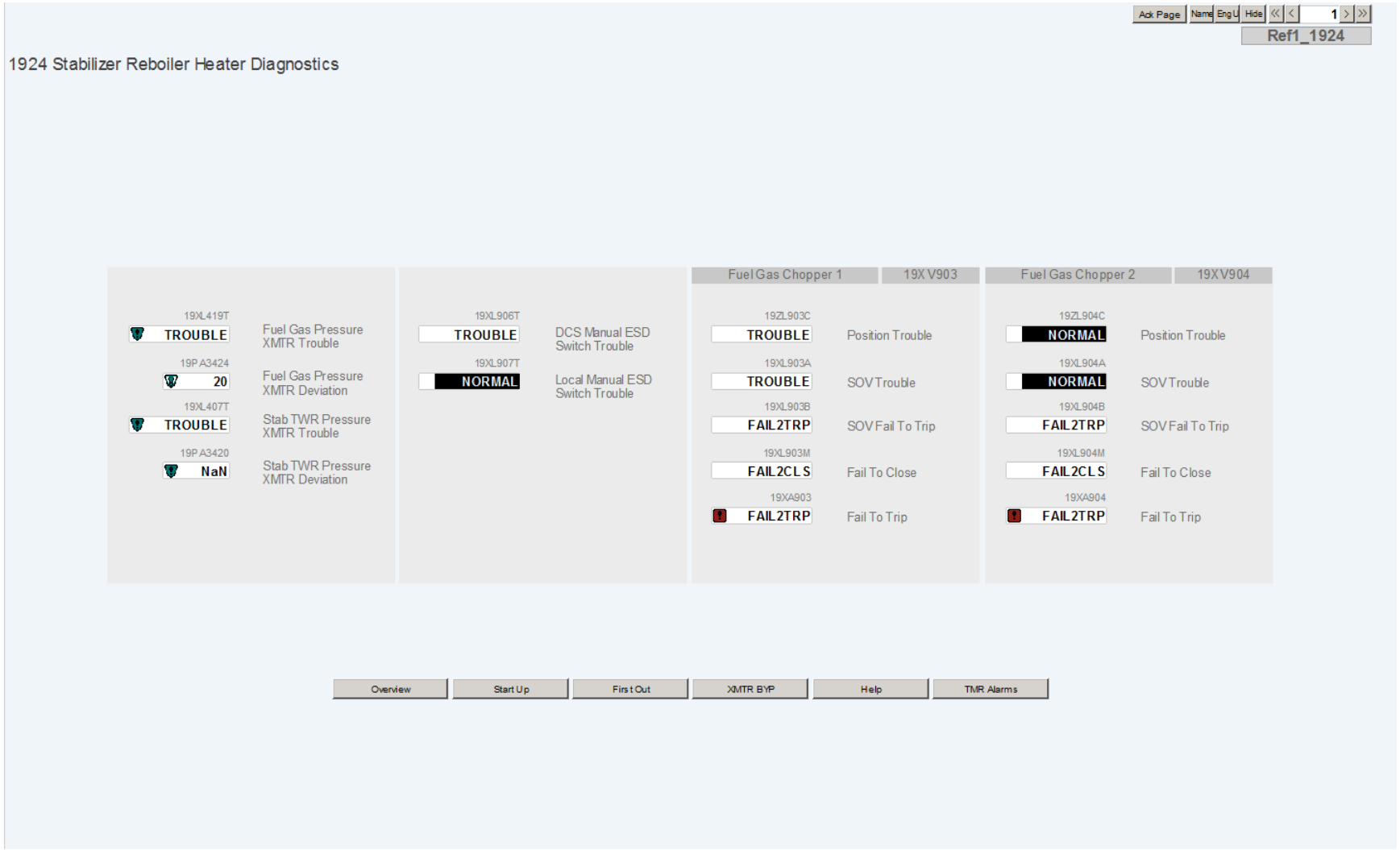
Station View



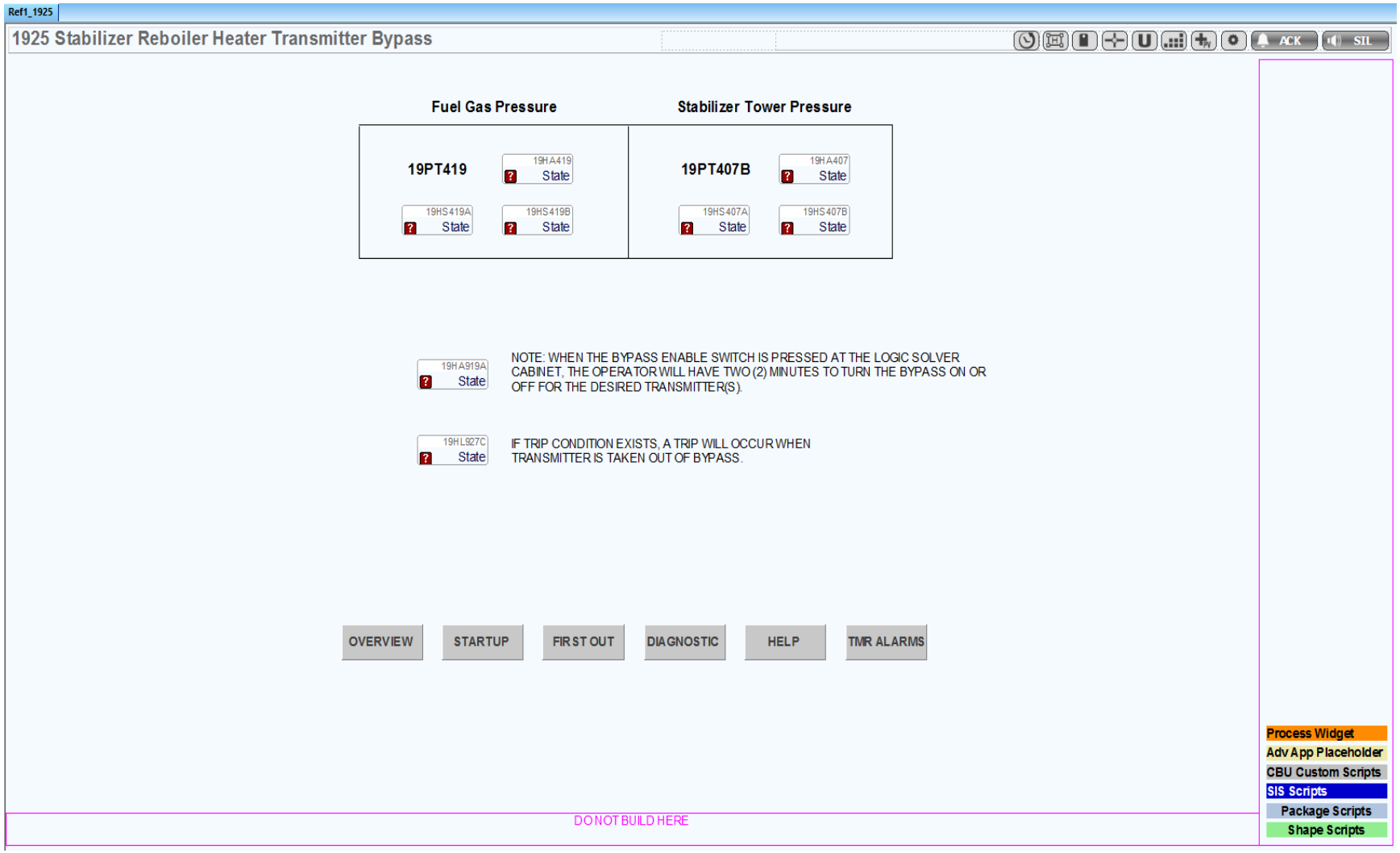
5.16 1924 STABILIZER REBOILER DIAGNOSTICS (Ref1_1924.htm)



Station View

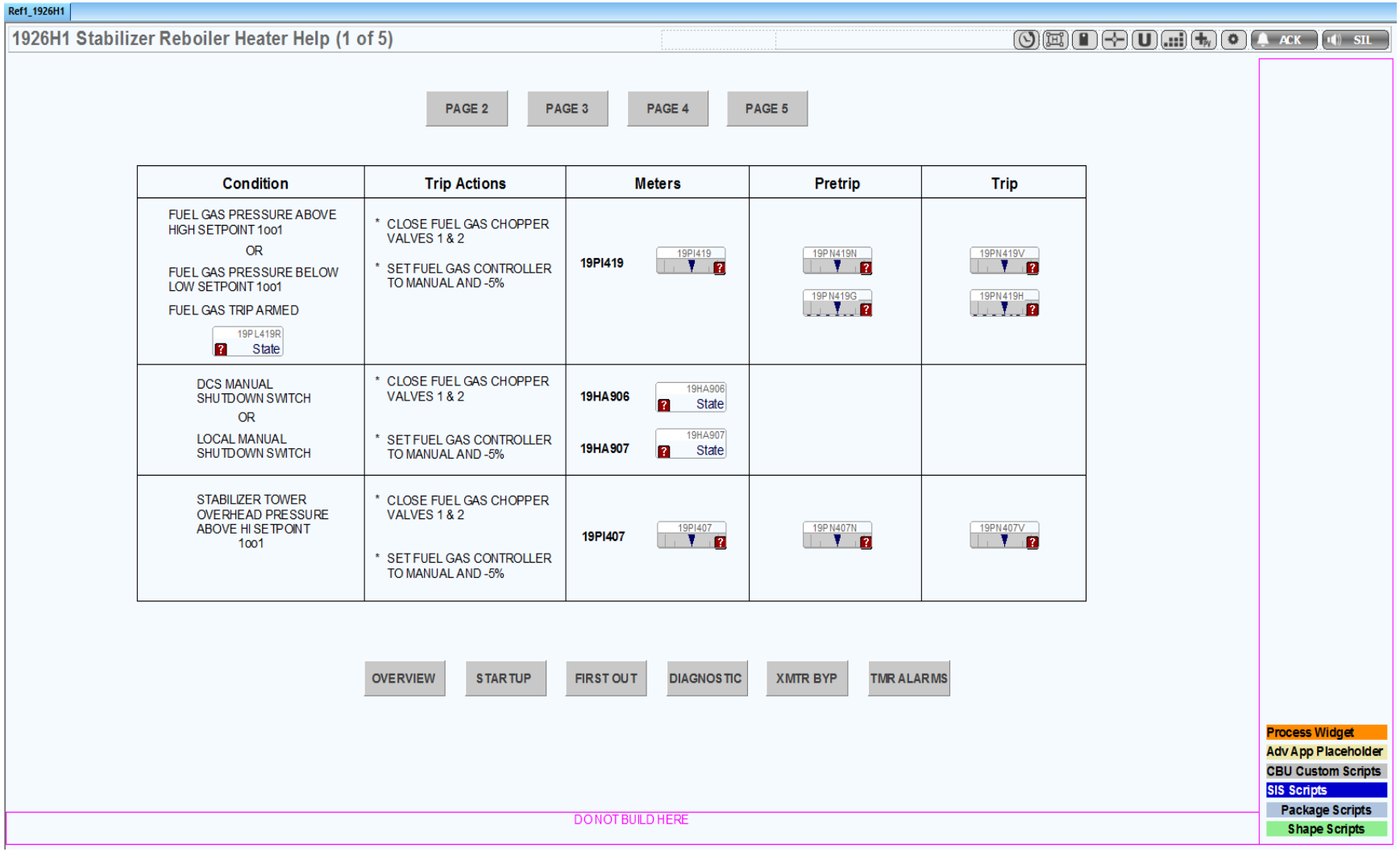


5.17 1925 STABILIZER REBOILER TRANSMITTER BYPASS (Ref1_1925.htm)



Station View

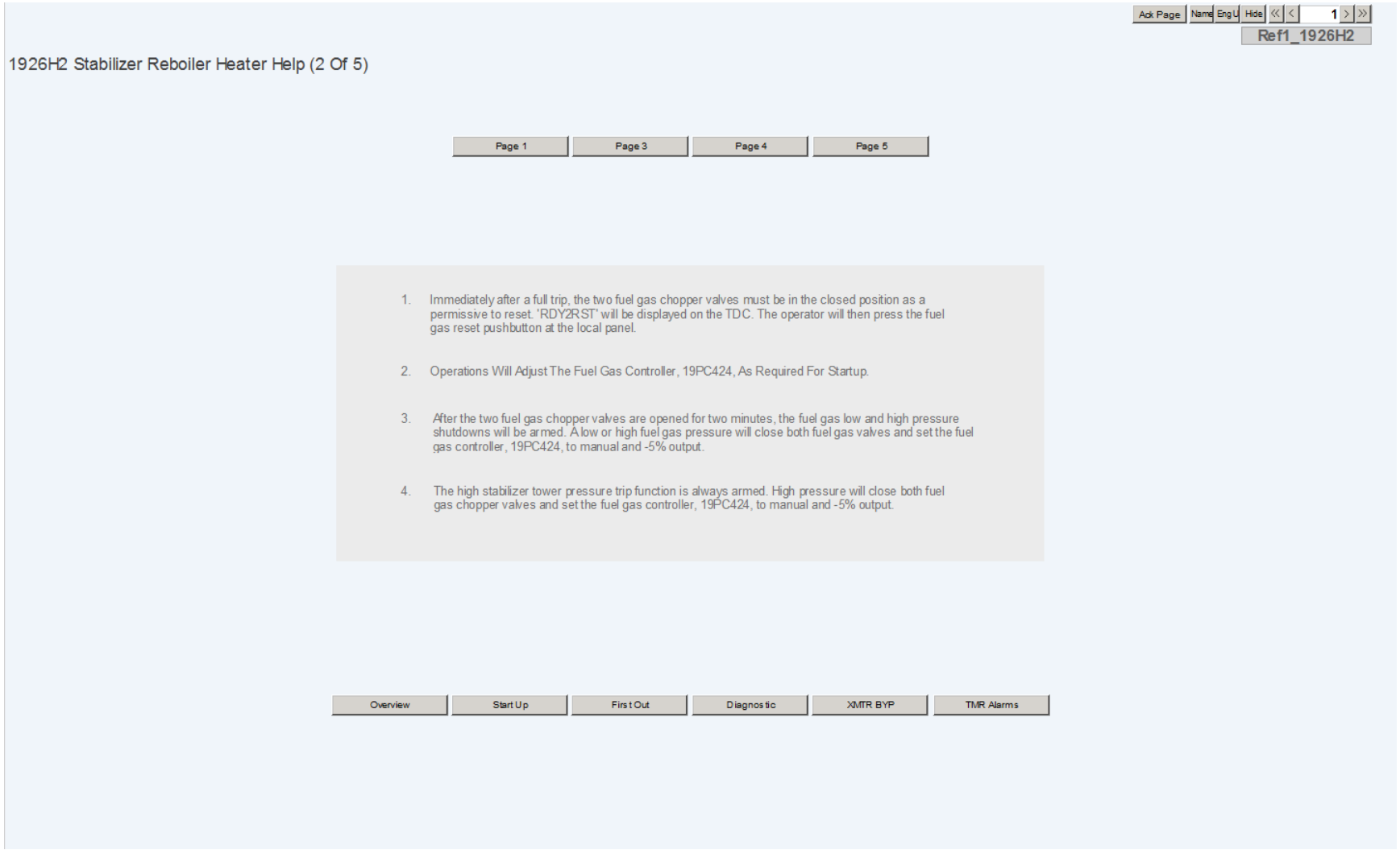
5.18 1926H1 STABILIZER REBOILER HEATER HELP (1 OF 5) (Ref1_1926H1.htm)



Station View

5.19 1926H2 STABILIZER REBOILER HEATER HELP (2 OF 5) (Ref1_1926H2.htm)

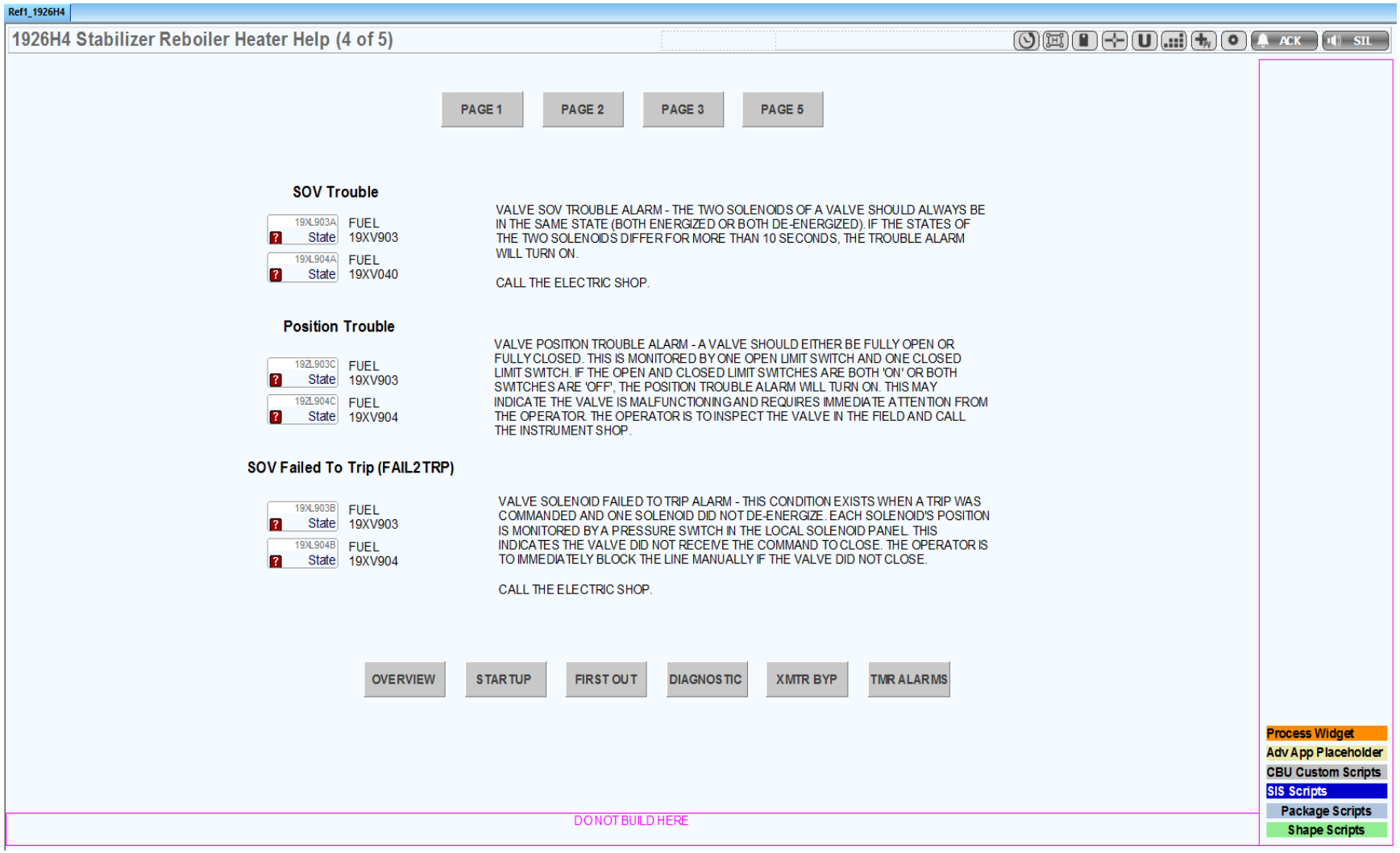
Station View



5.20 1926H3 STABILIZER REBOILER HEATER HELP (3 OF 5) (Ref1_1926H3.htm)

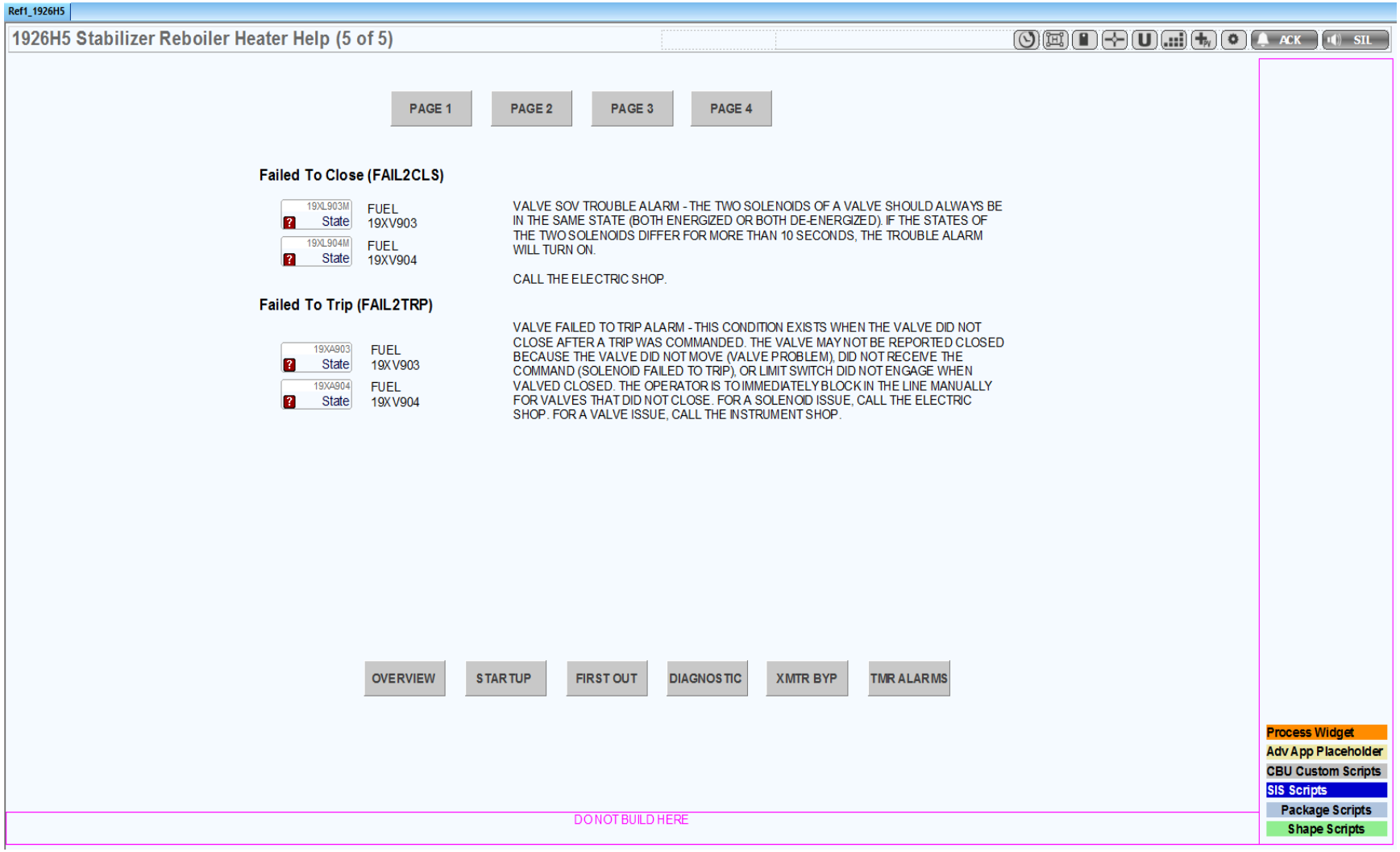
Station View

5.21 1926H4 STABILIZER REBOILER HEATER HELP (4 OF 5) (Ref1_1926H4.htm)



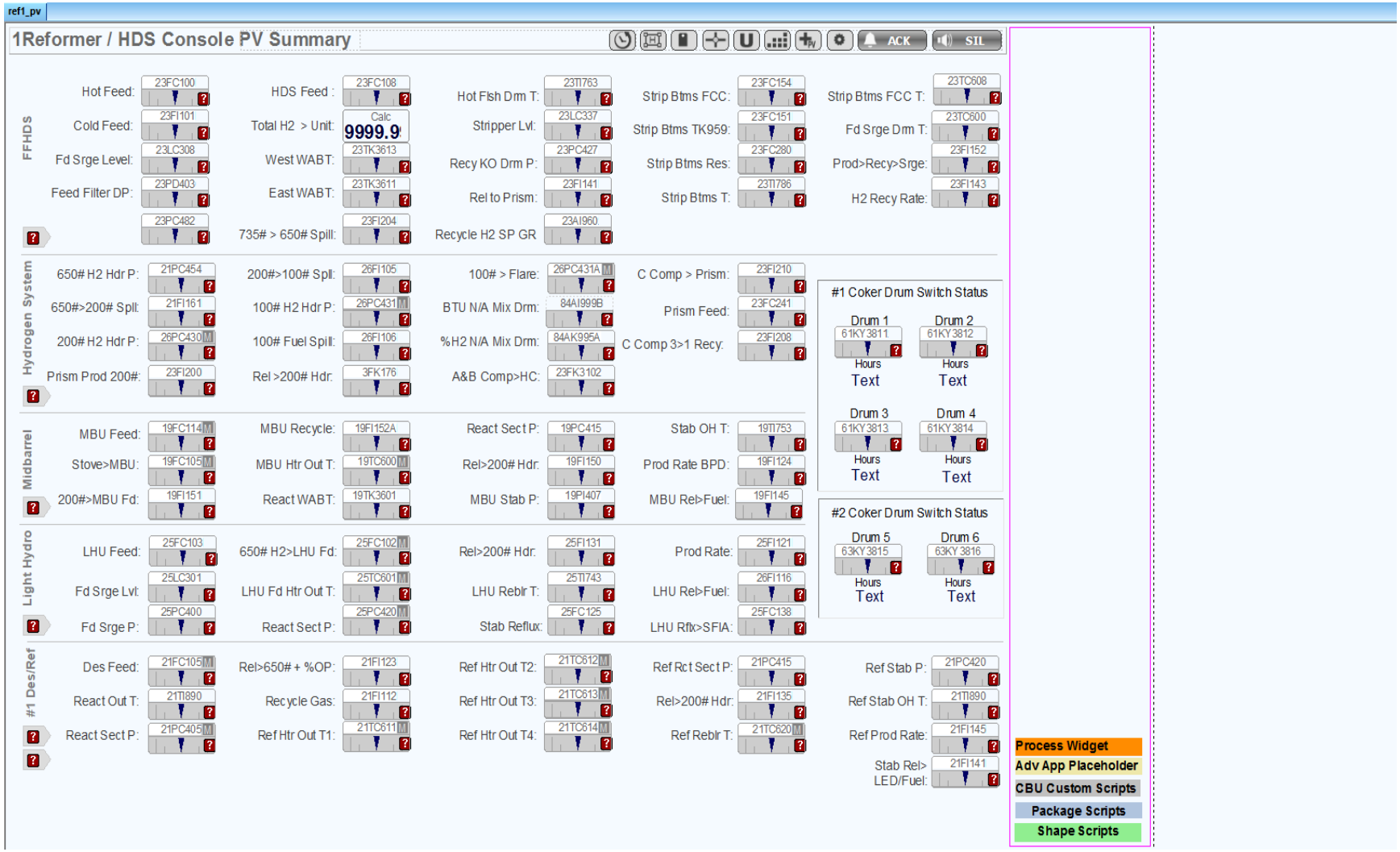
Station View

5.22 1926H5 STABILIZER REBOILER HEATER HELP (5 OF 5) (Ref1_1926H5.htm)

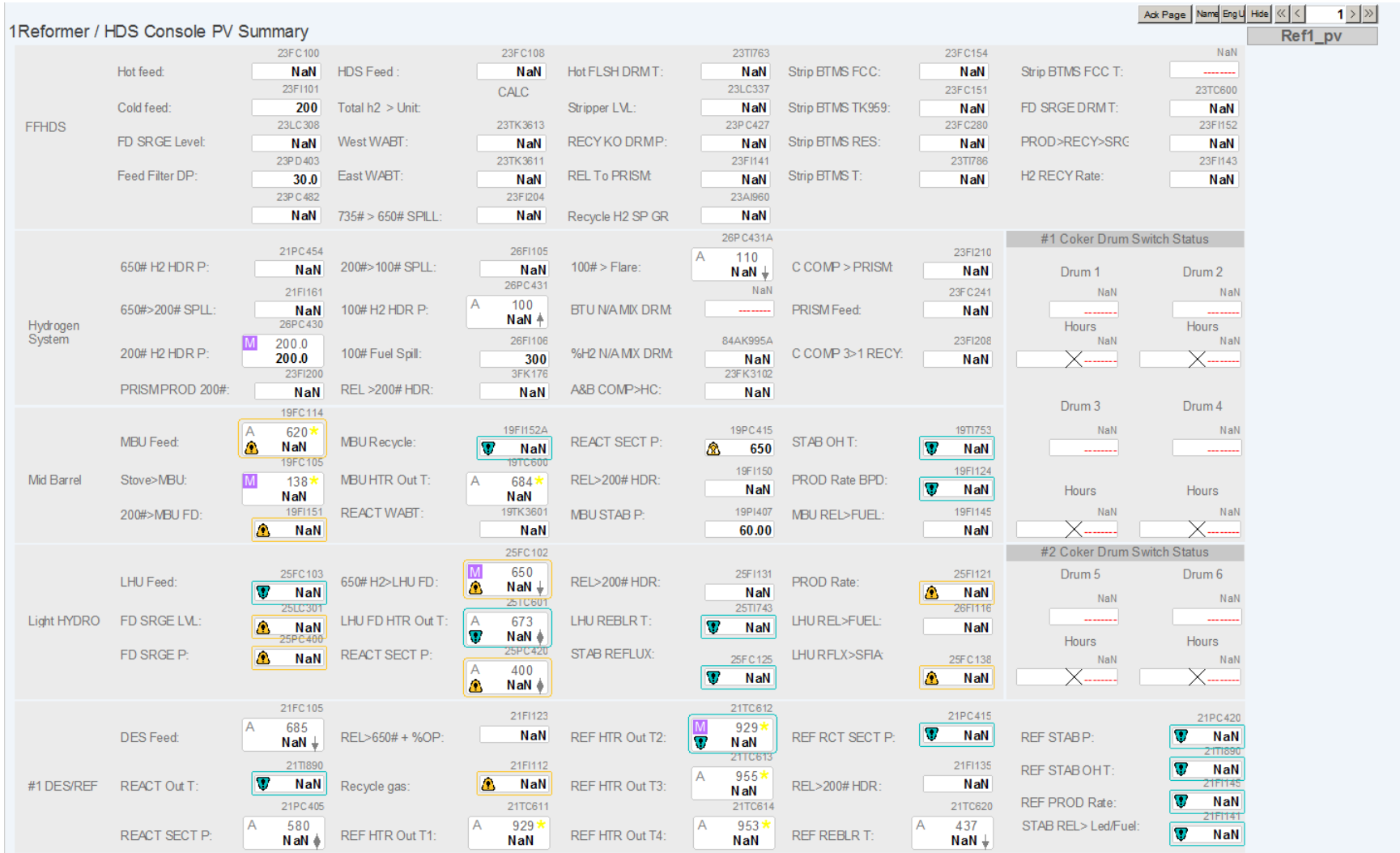


Station View

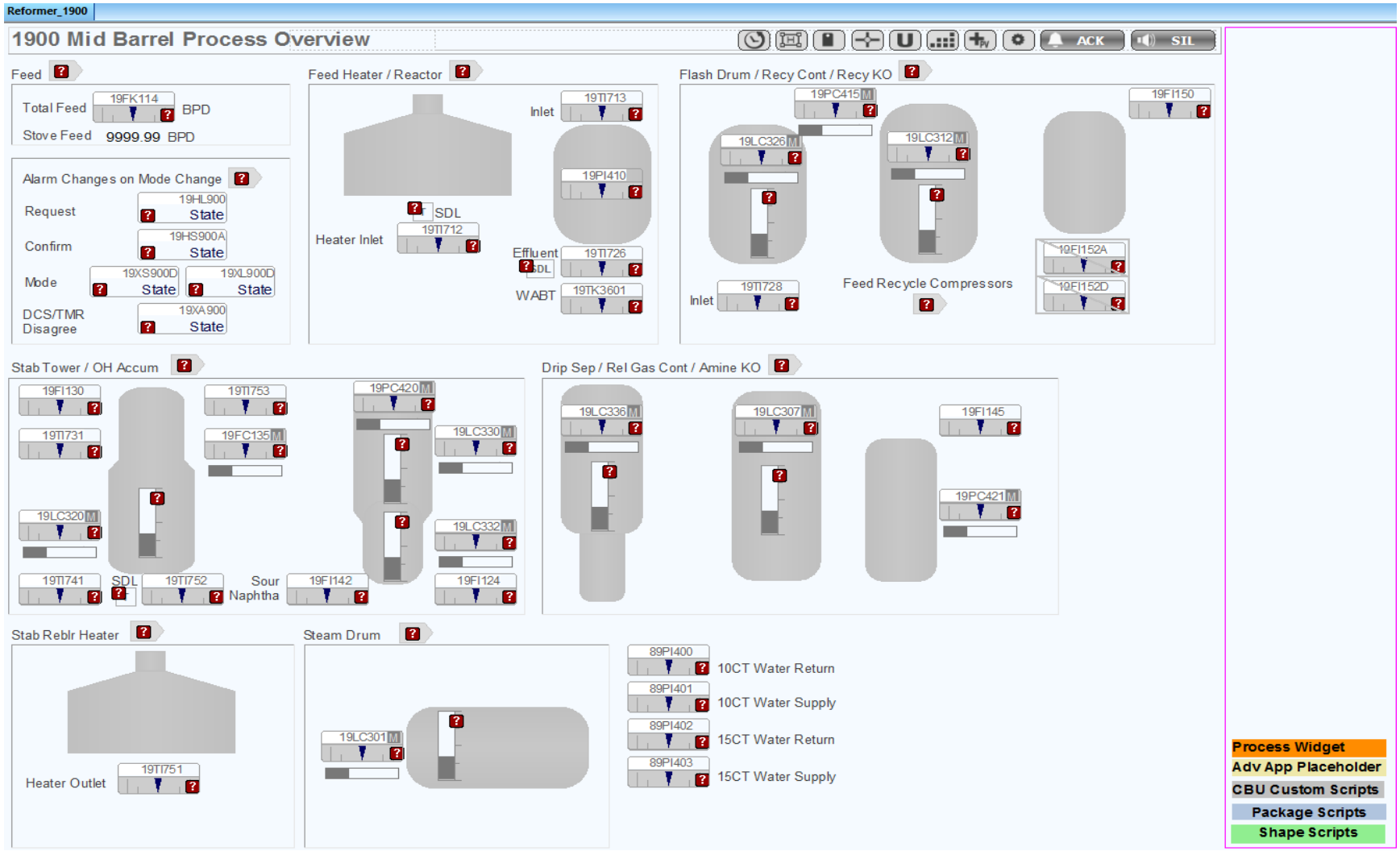
5.23 1 REFORMER / HDS CONSOLE PV SUMMARY (Ref1_pv.htm)



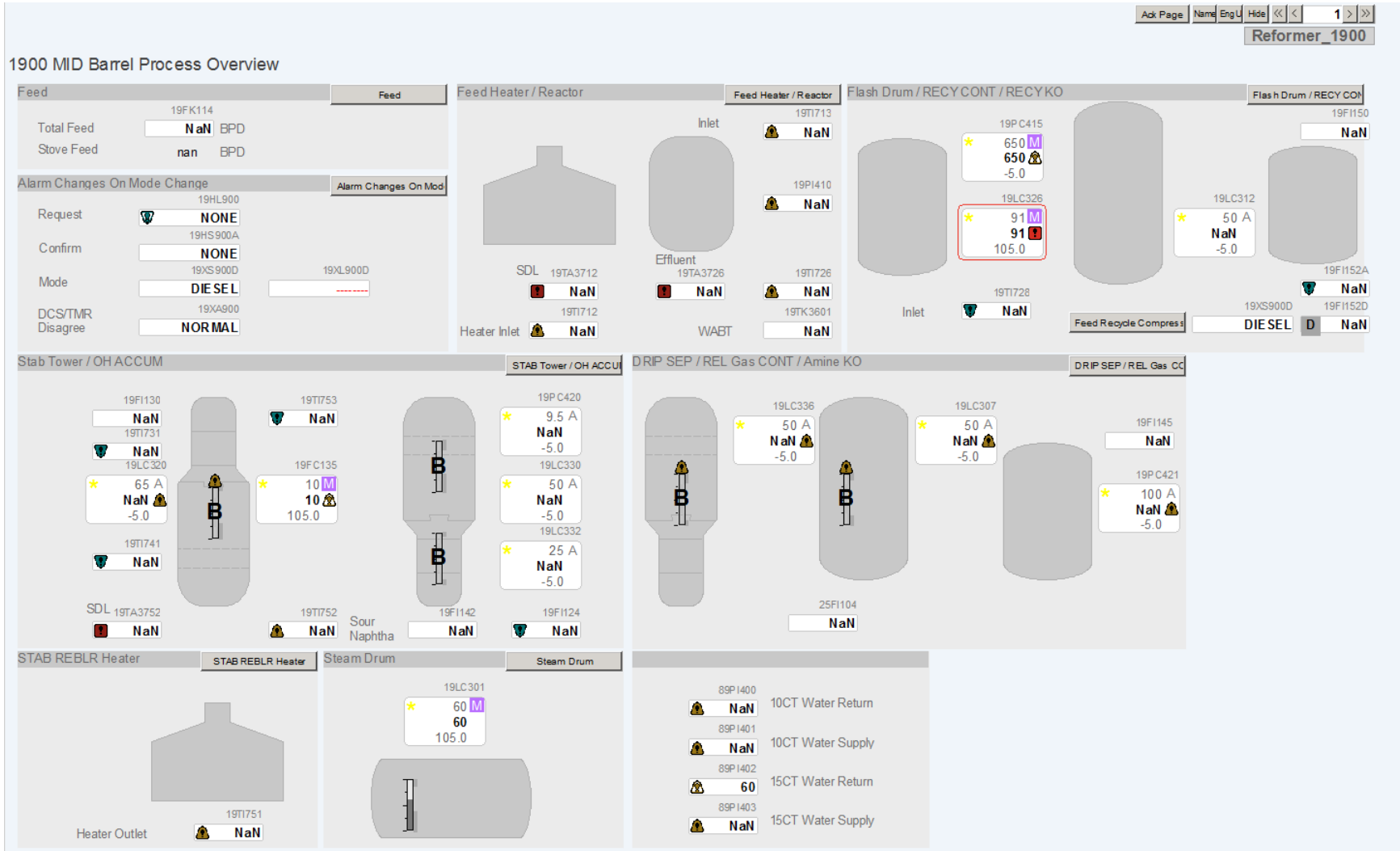
Station View



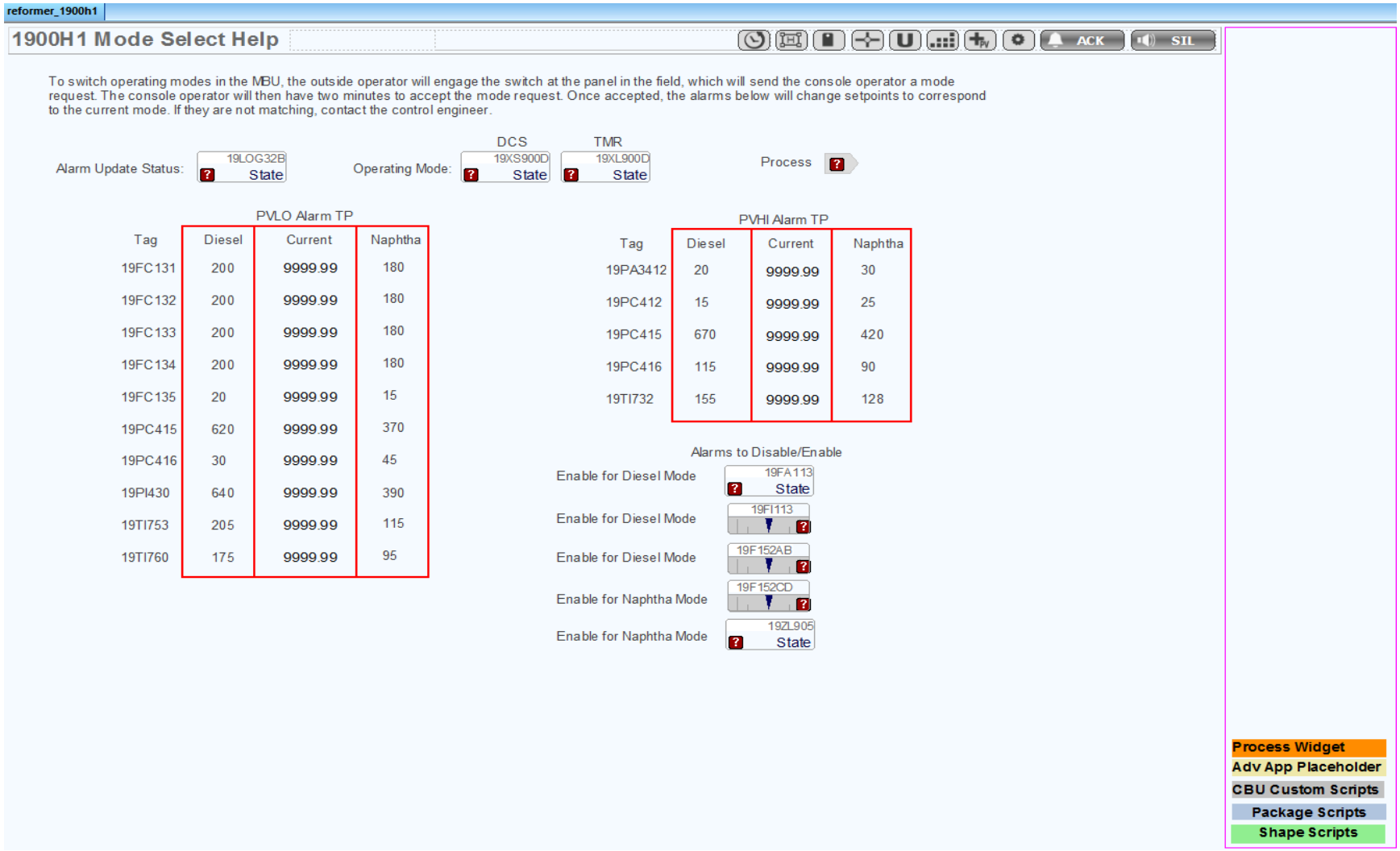
5.24 1900 MID BARREL PROCESS (Reformer_1900.htm)



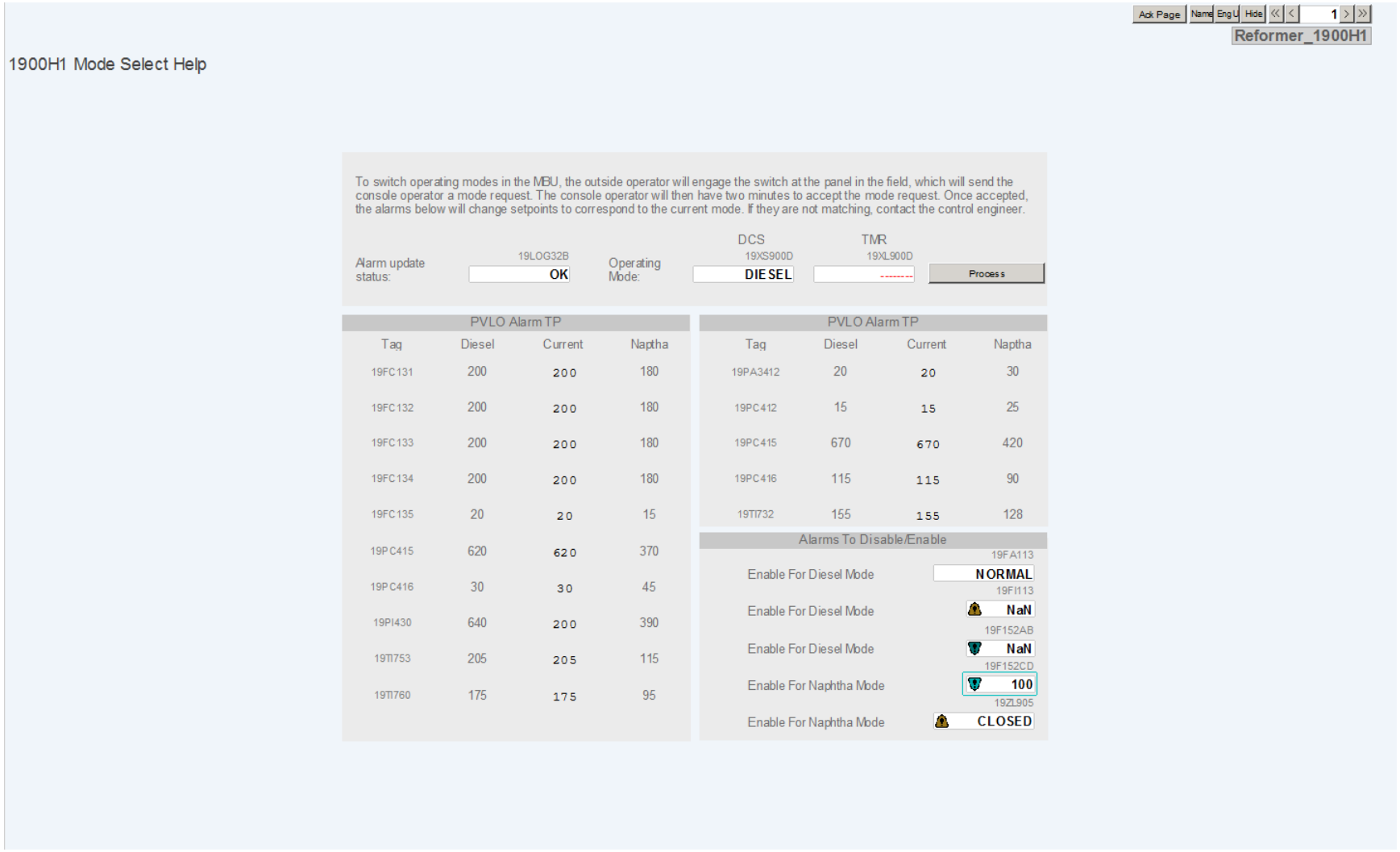
Station View



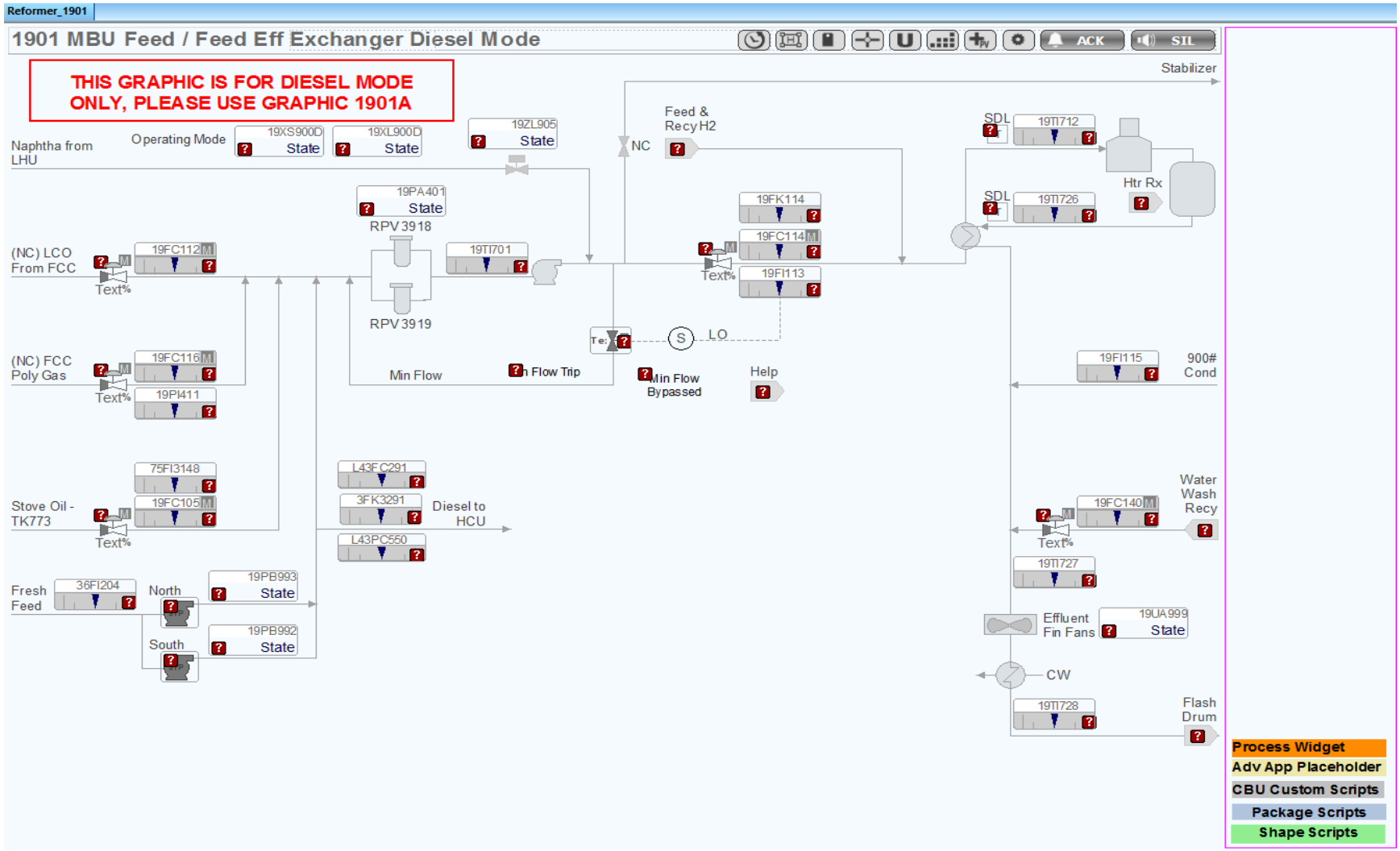
5.25 1900H1 MODE SELECT HELP (Reformer_1900h1.htm)



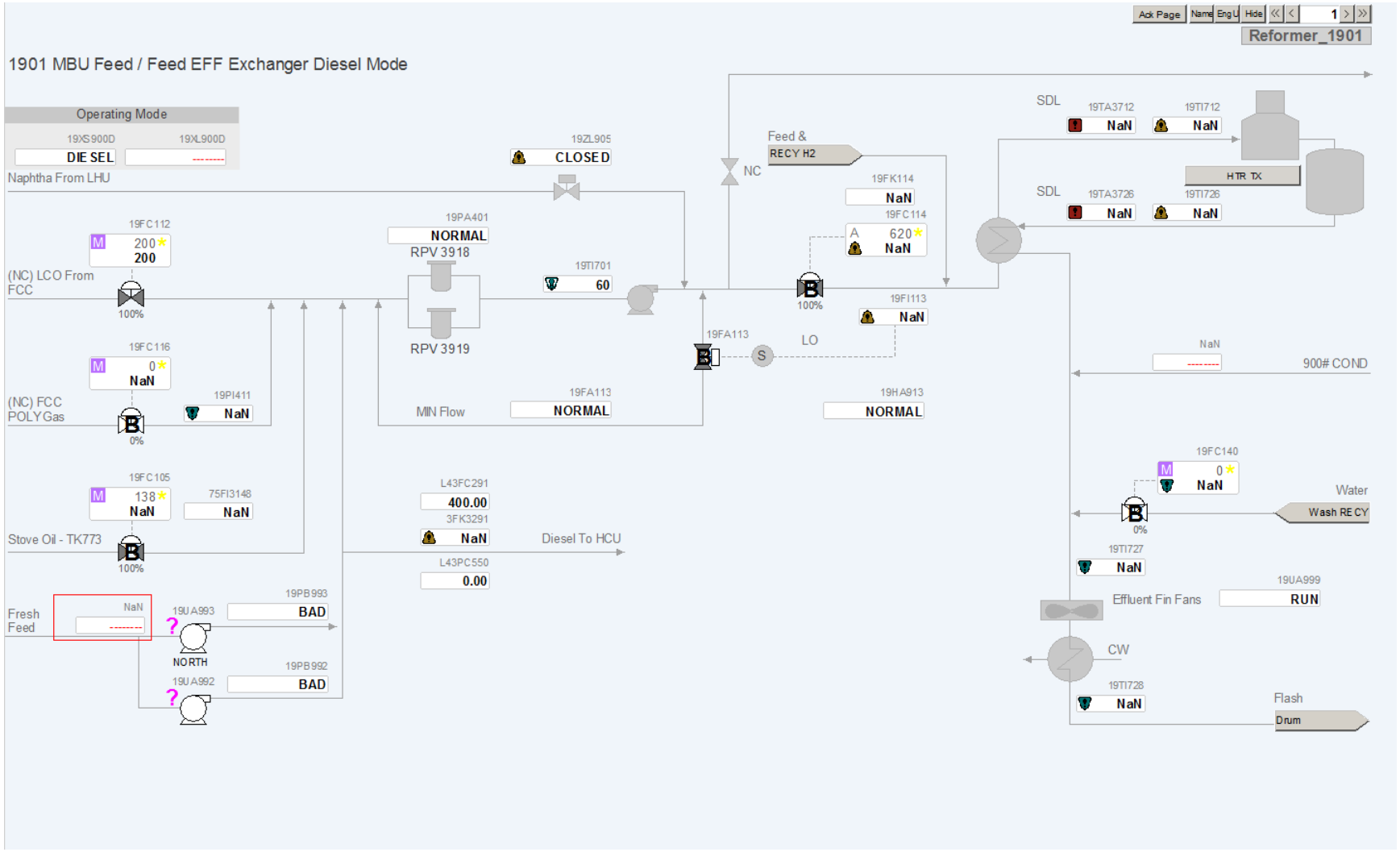
Station View



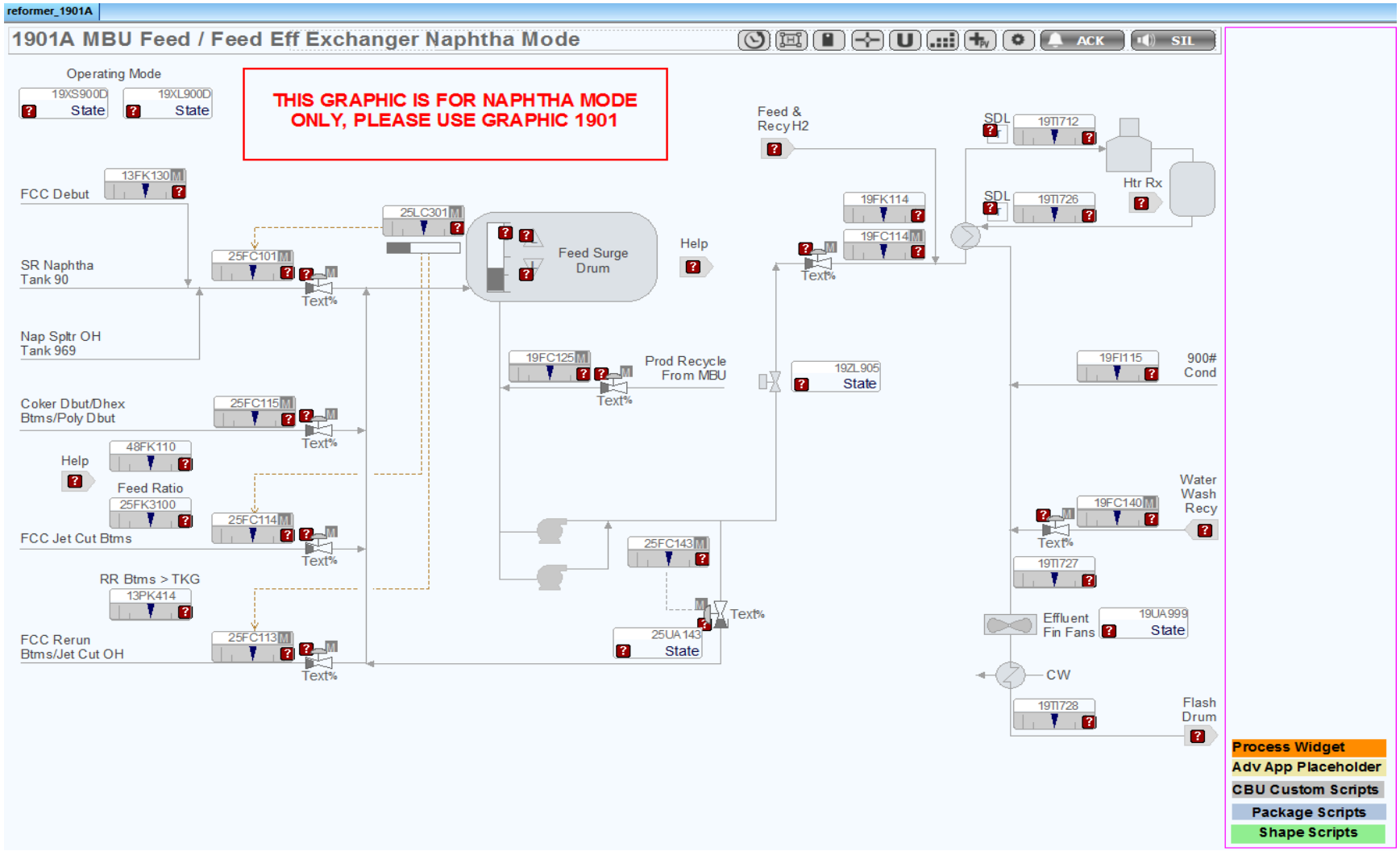
5.26 1901 MBU FEED / FEED EFT EXCHANGER DIESEL MODE (Reformer_1901.htm)



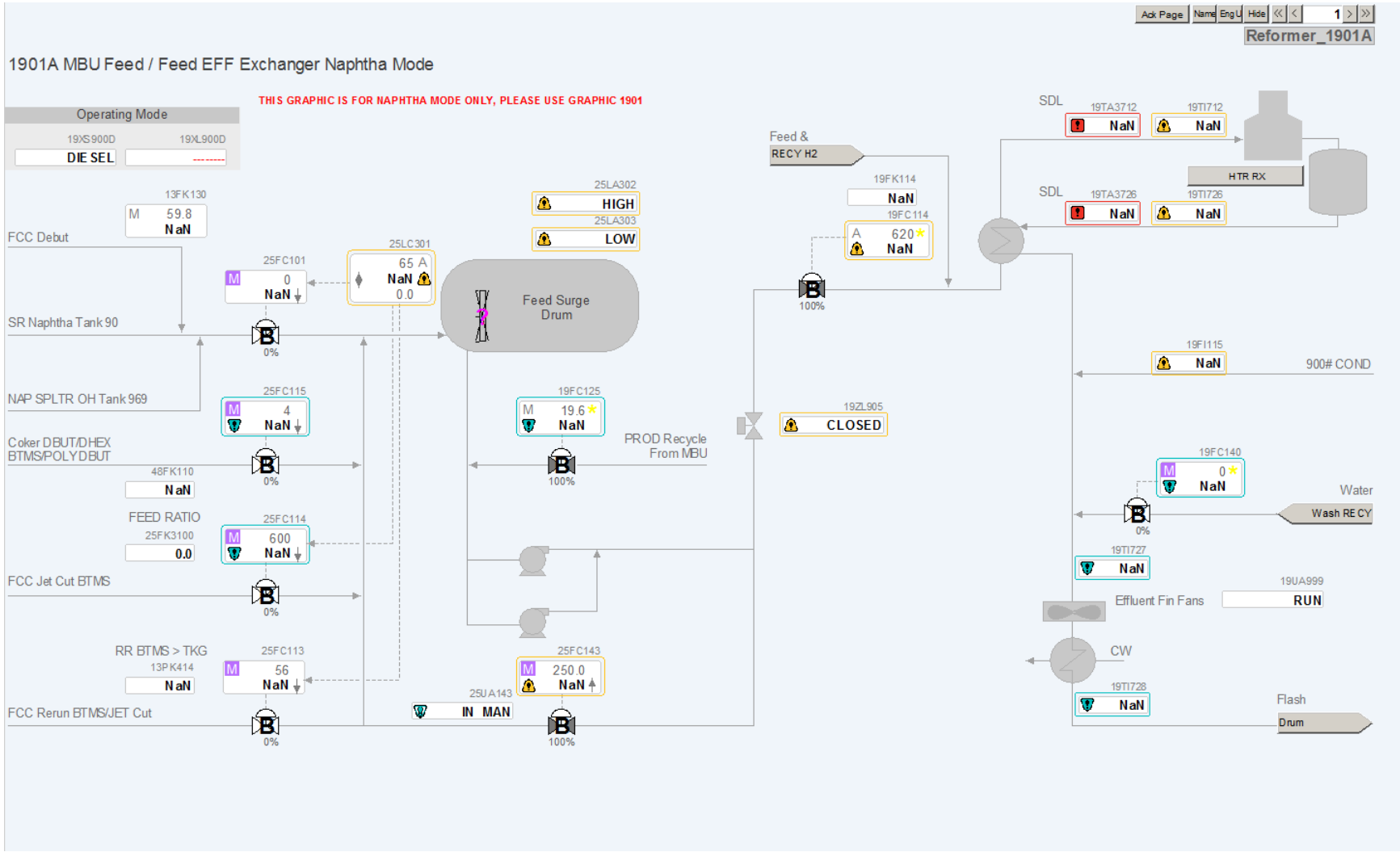
Station View



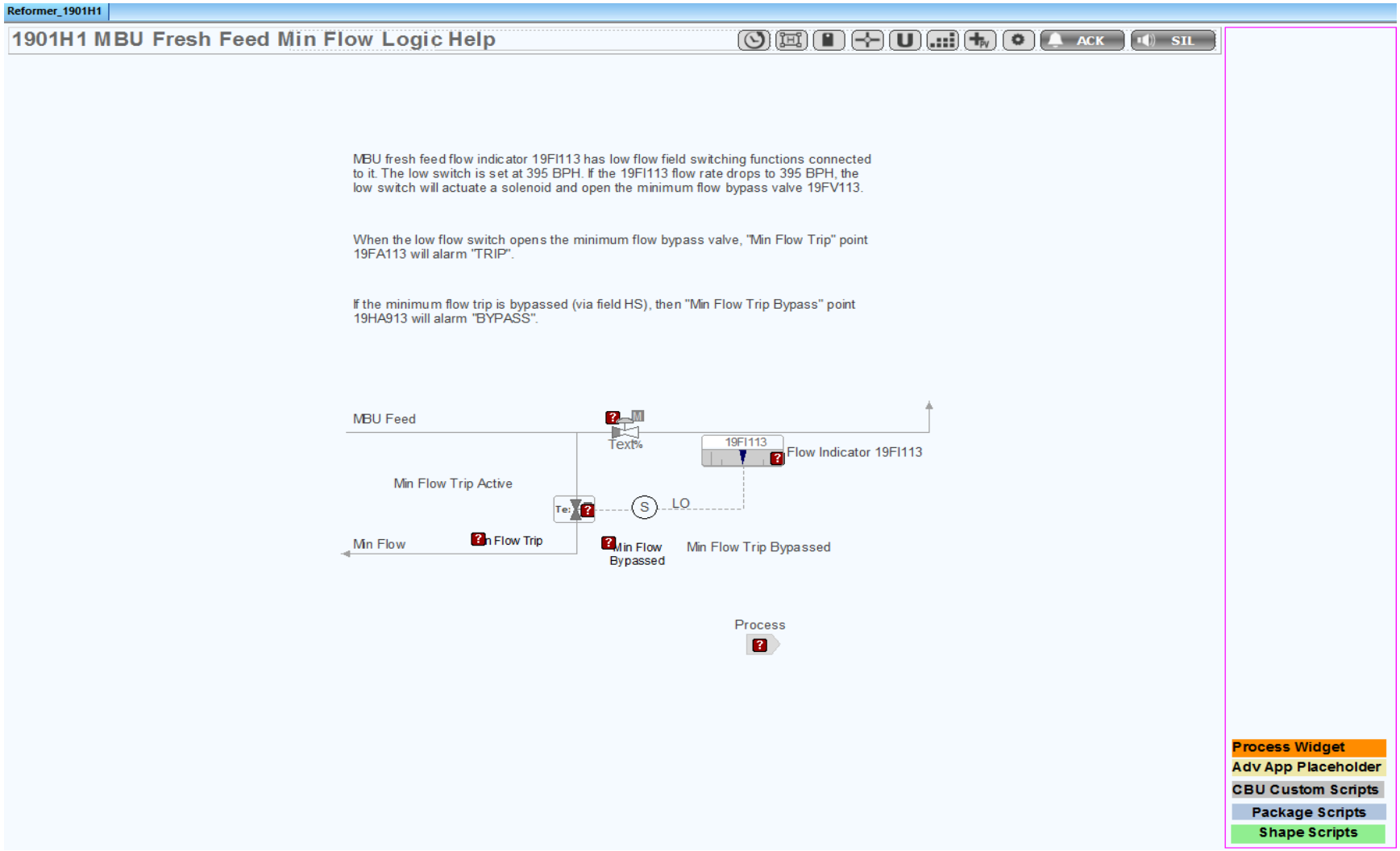
5.27 1901A MBU FEED / FEED EFT EXCHANGER NAPHTHA MODE (Reformer_1901A.htm)



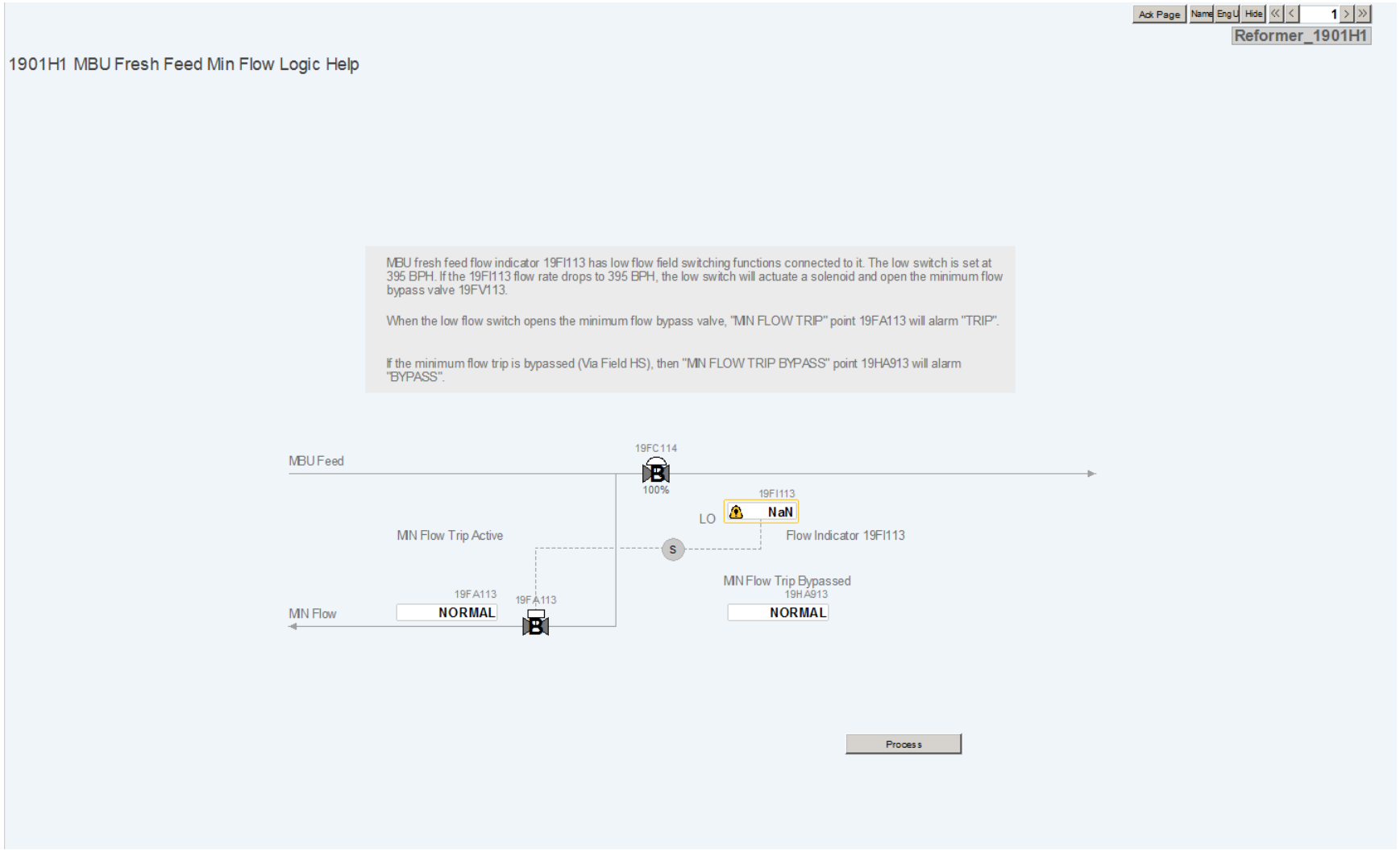
Station View



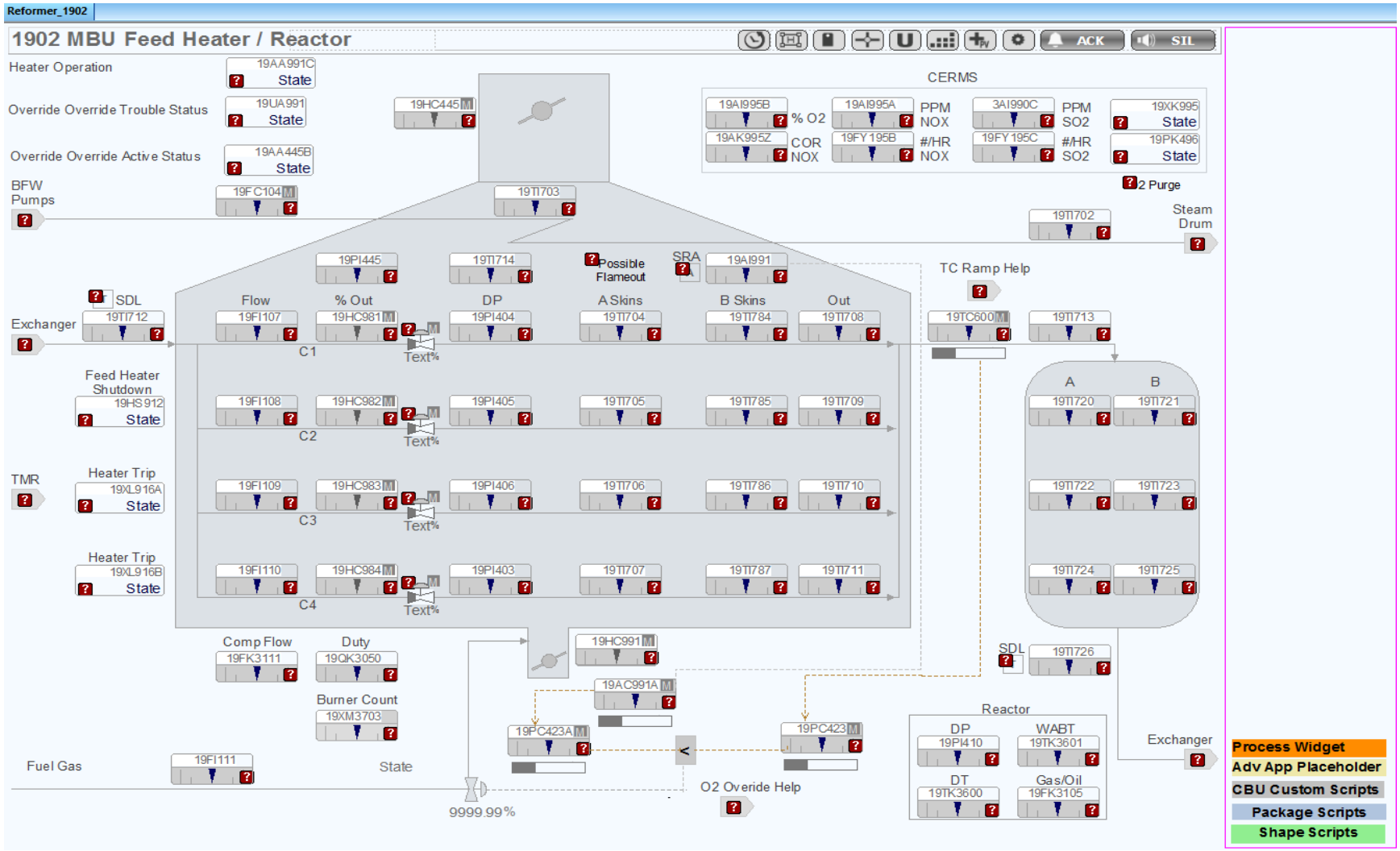
5.28 1901H1 MBU FRESH FEED MIN FLOW LOGIC HELP (Reformer_1901H1.htm)



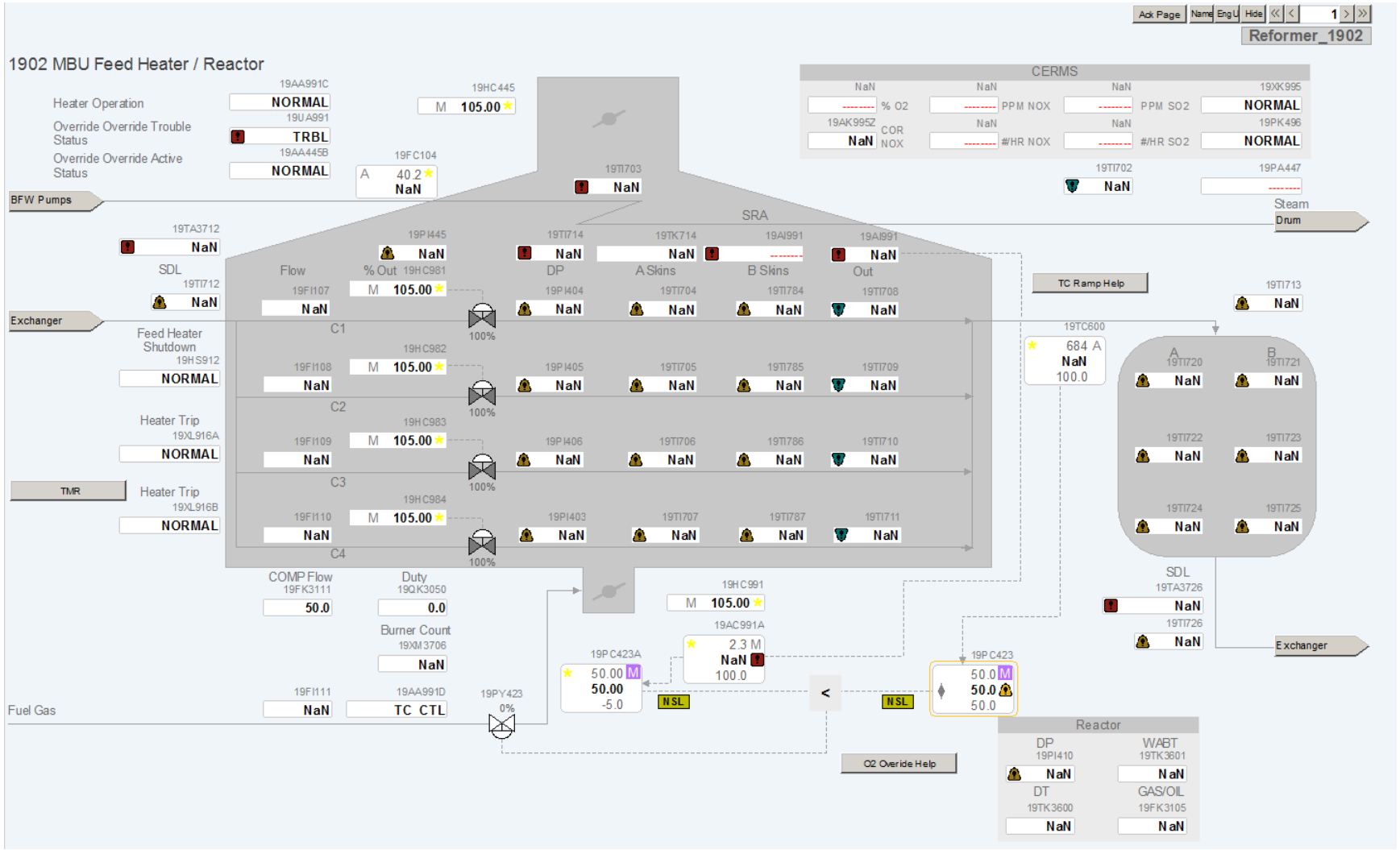
Station View



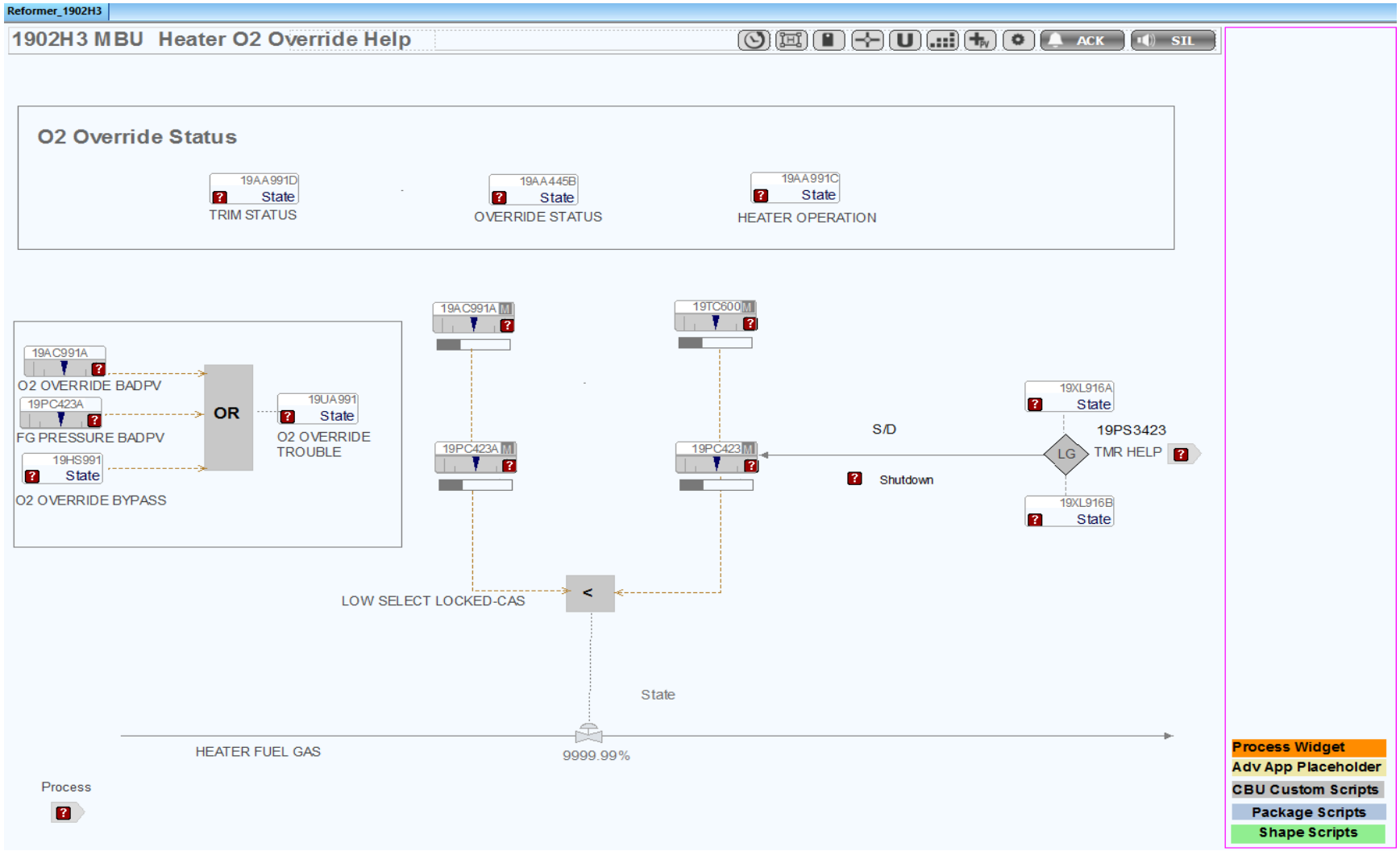
5.29 1902 MBU FEED HEATER / REACTOR (Reformer_1902.htm)



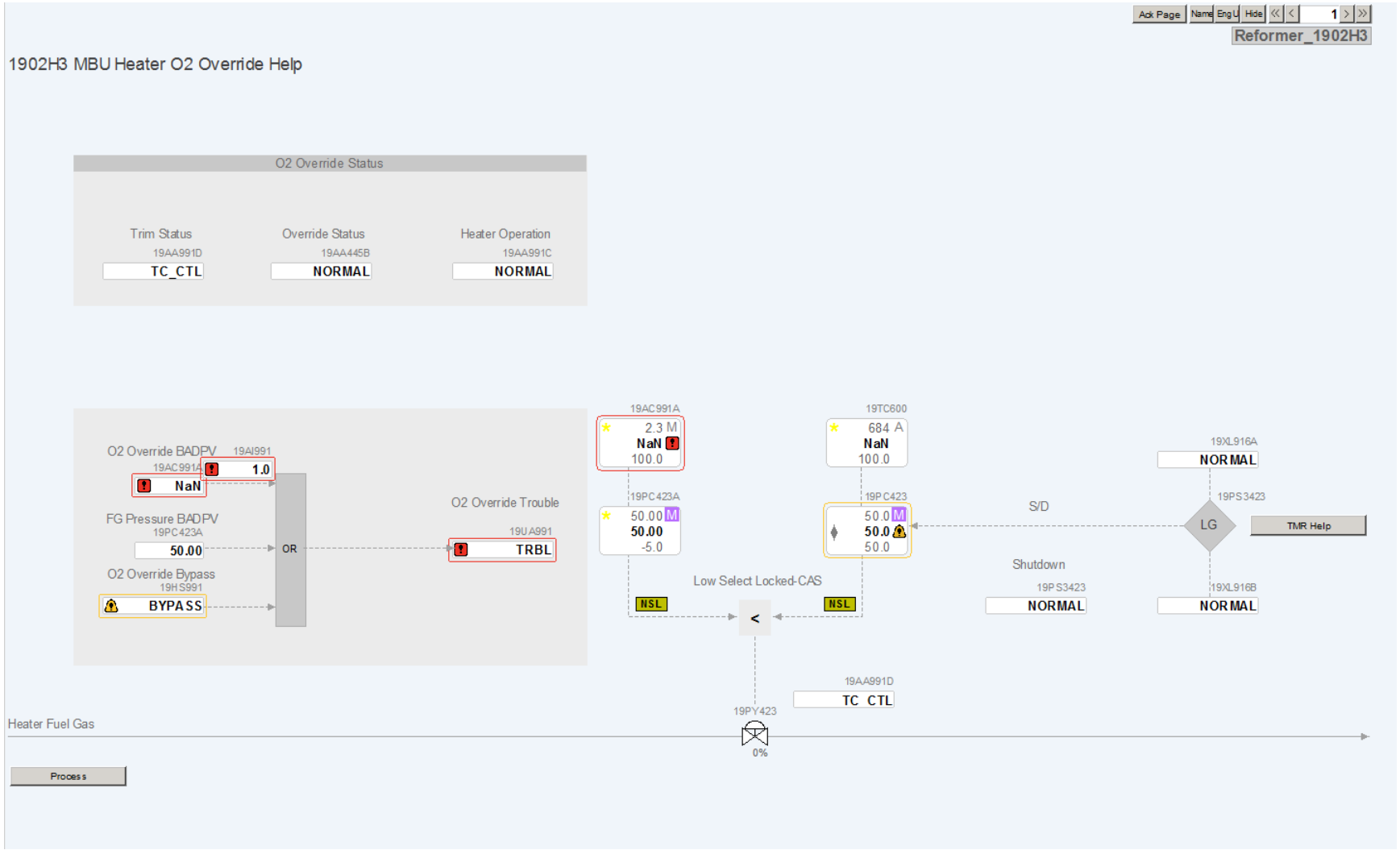
Station View



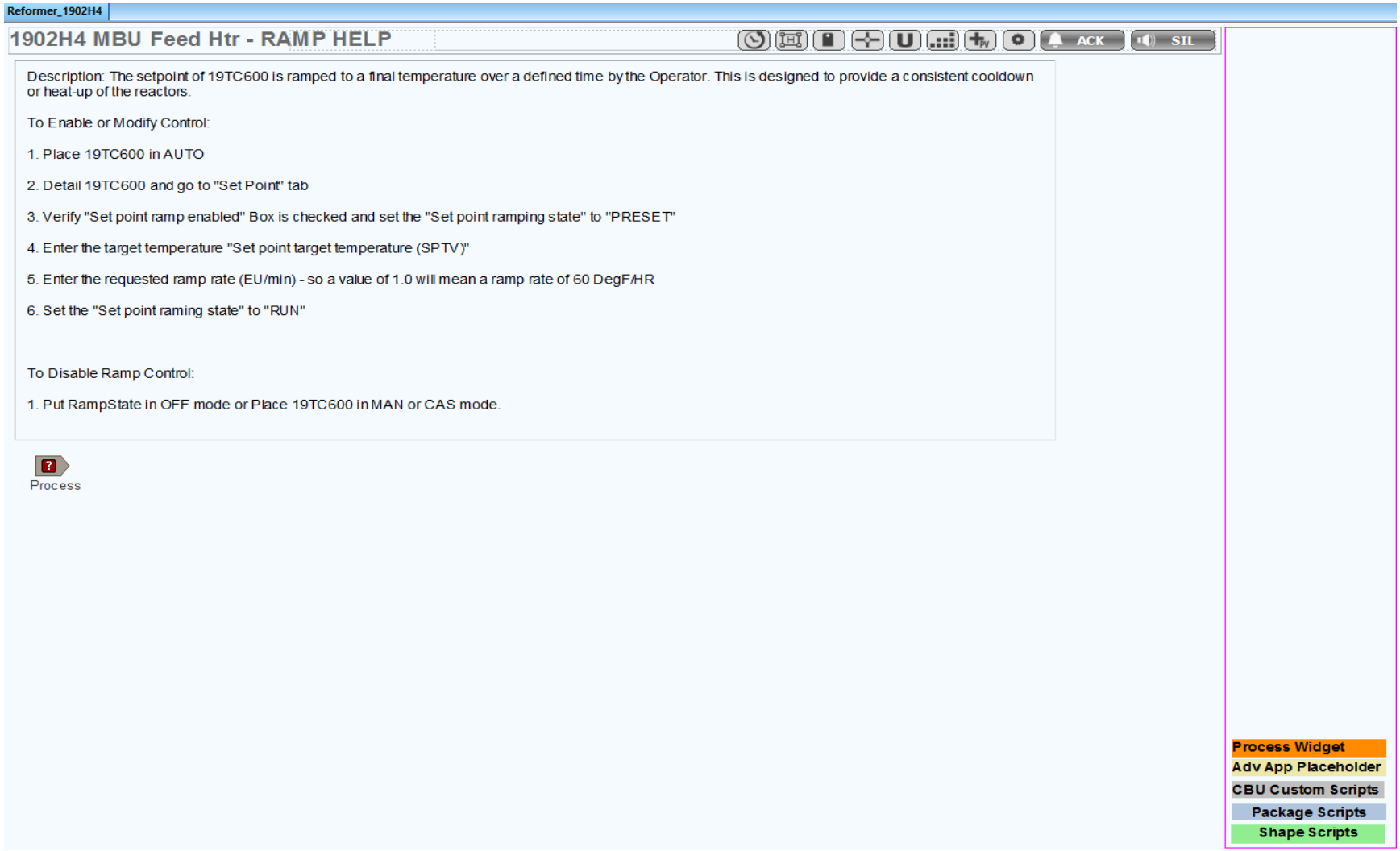
5.30 1902H3 MBU HEATER O2 OVERRIDE HELP (Reformer_1902H3.htm)



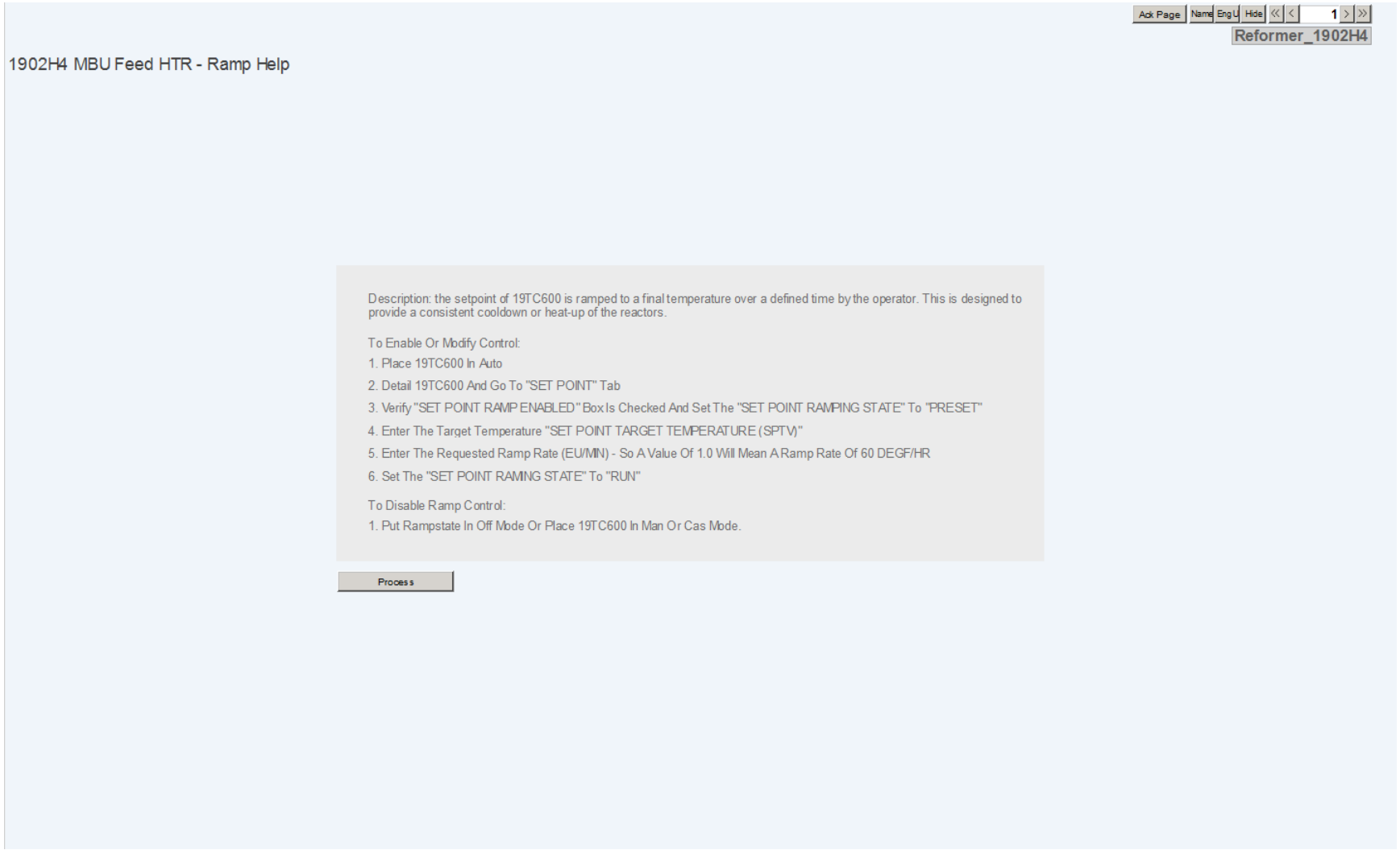
Station View



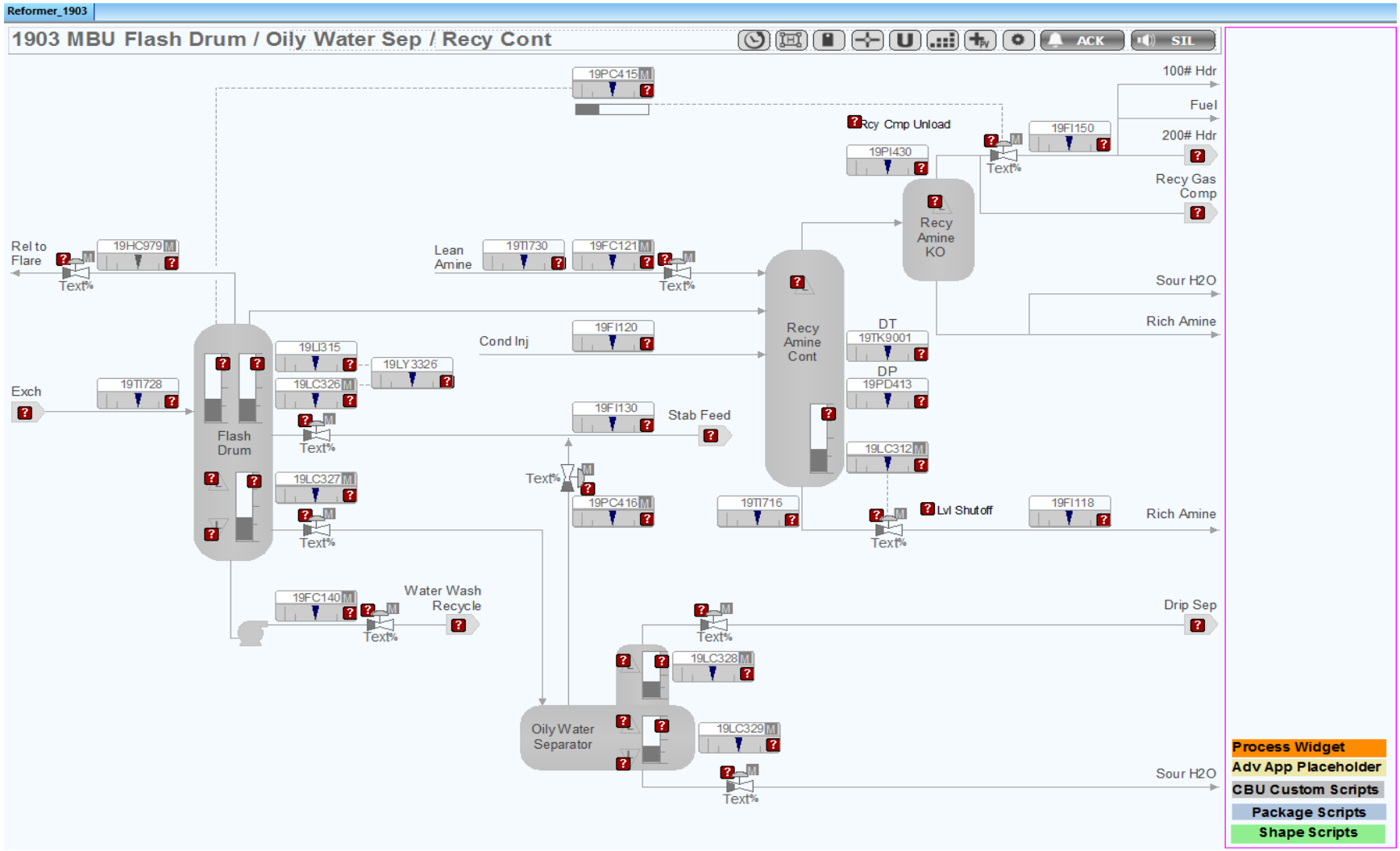
5.31 1902H4 MBU FEED HTR. RAMP HELP (Reformer_1902H4.htm)



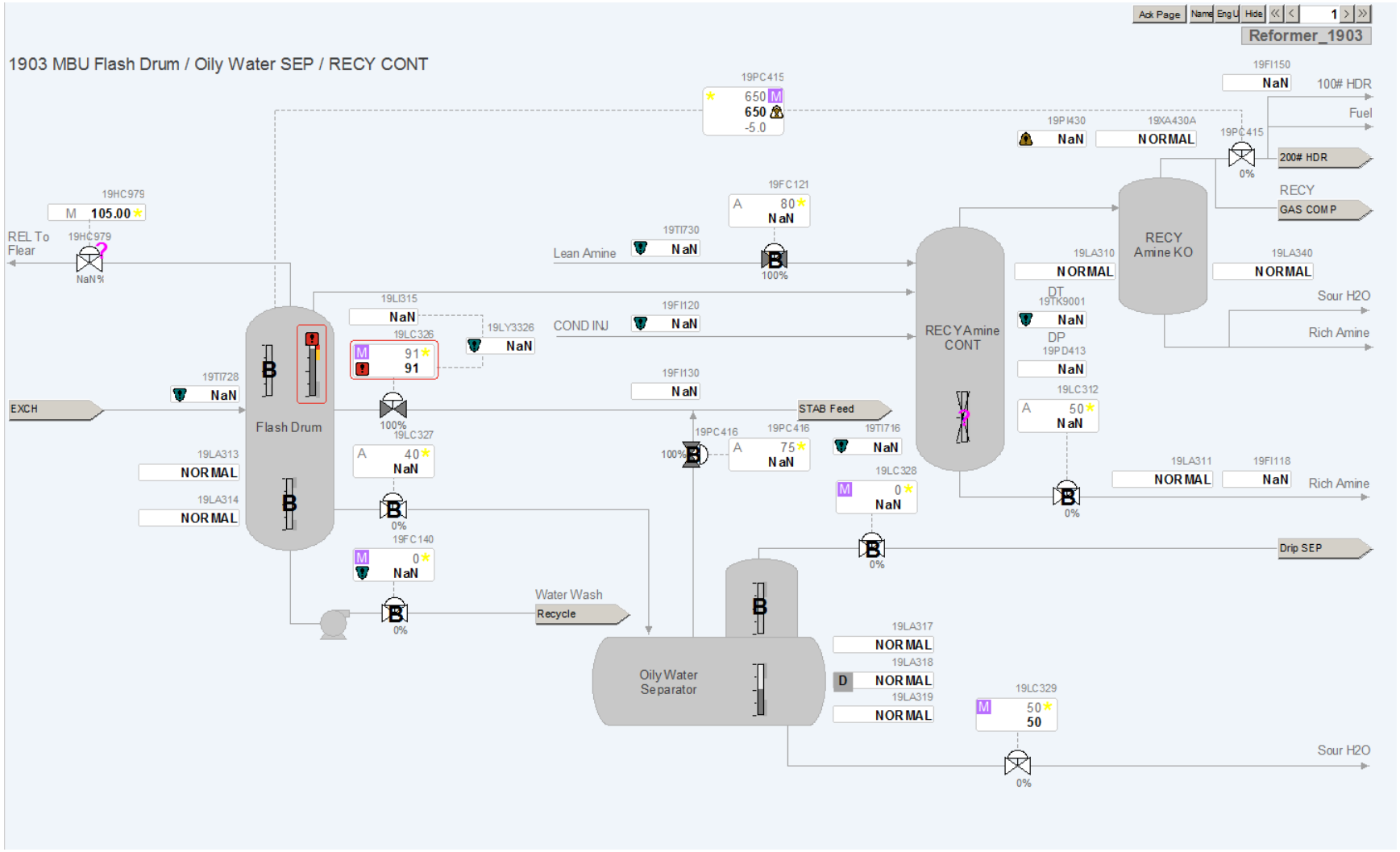
Station View



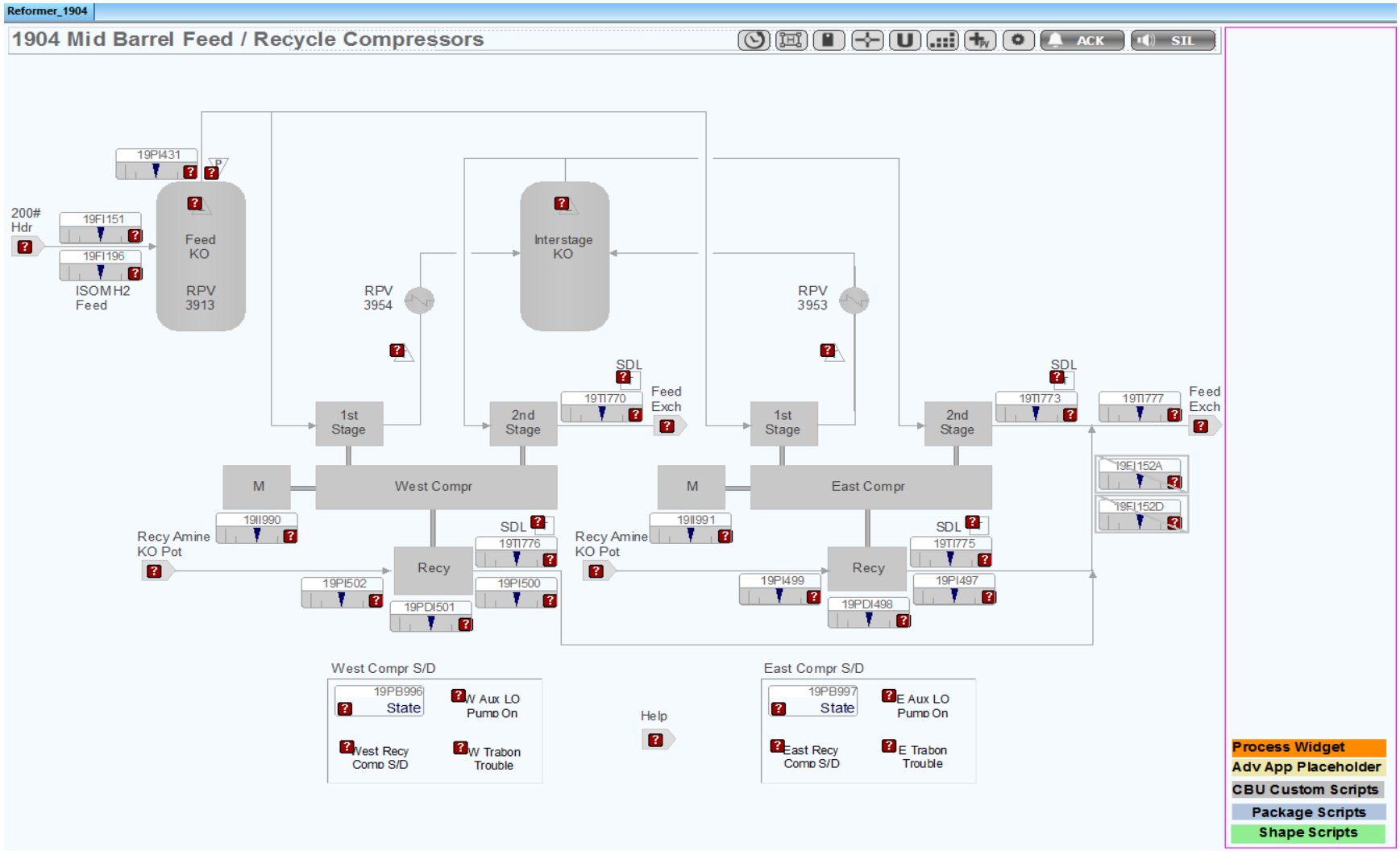
5.32 1903 MBU FLASH DRUM / OILY WATER SEP / RECY CONT (Reformer_1903.htm)



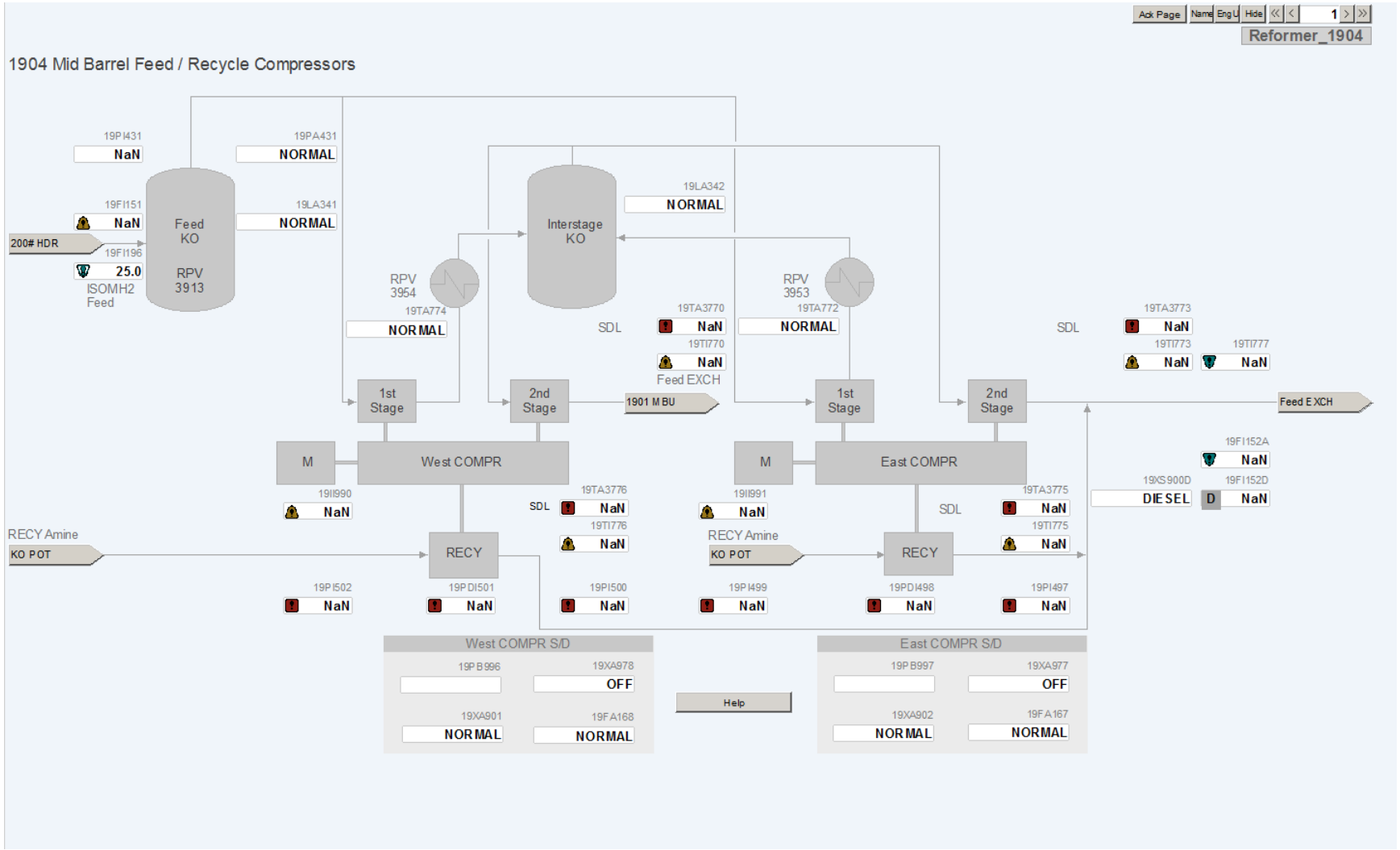
Station View



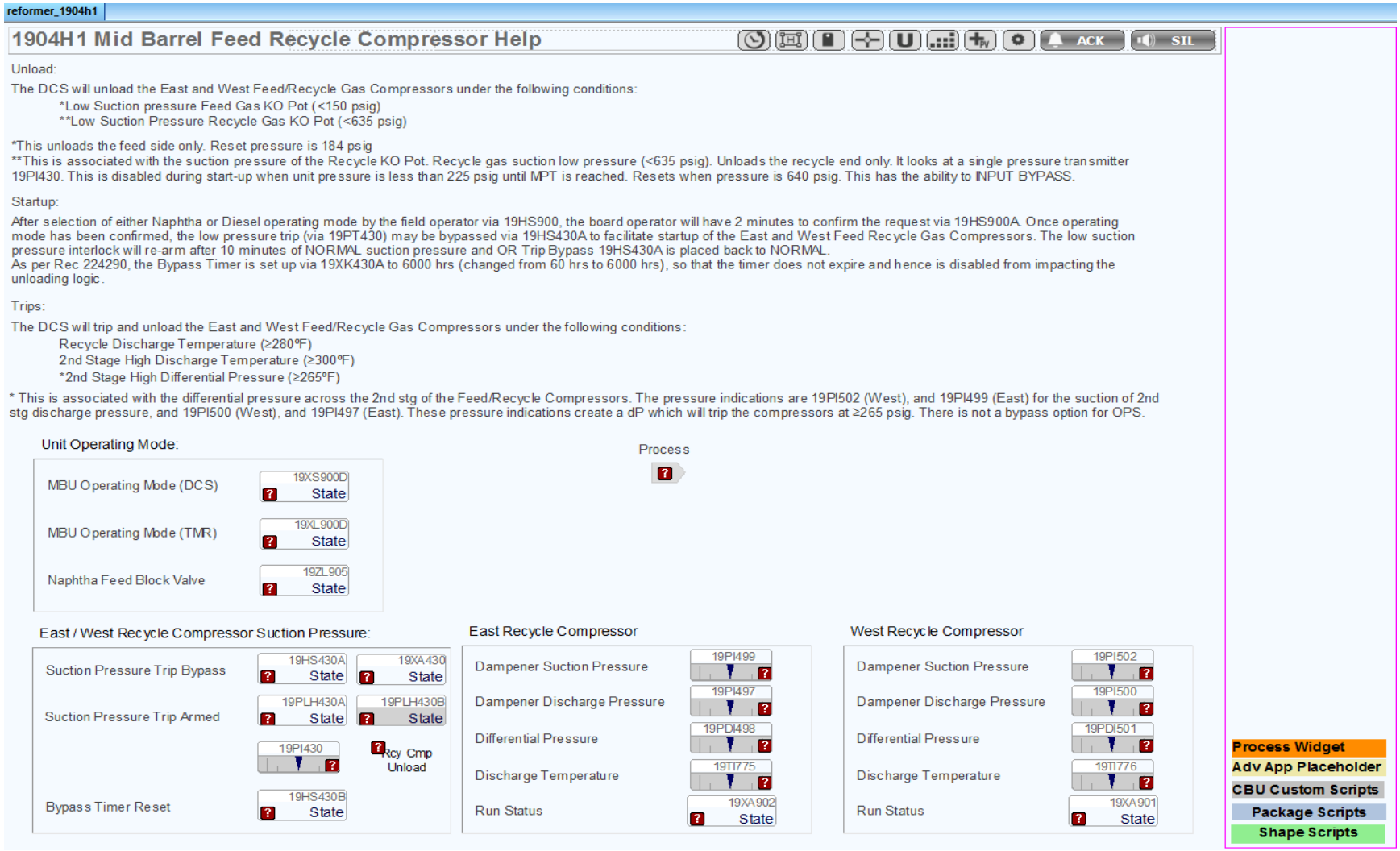
5.33 1904 MID BARREL FEED / RECYCLE COMPRESSORSS (Reformer_1904.htm)



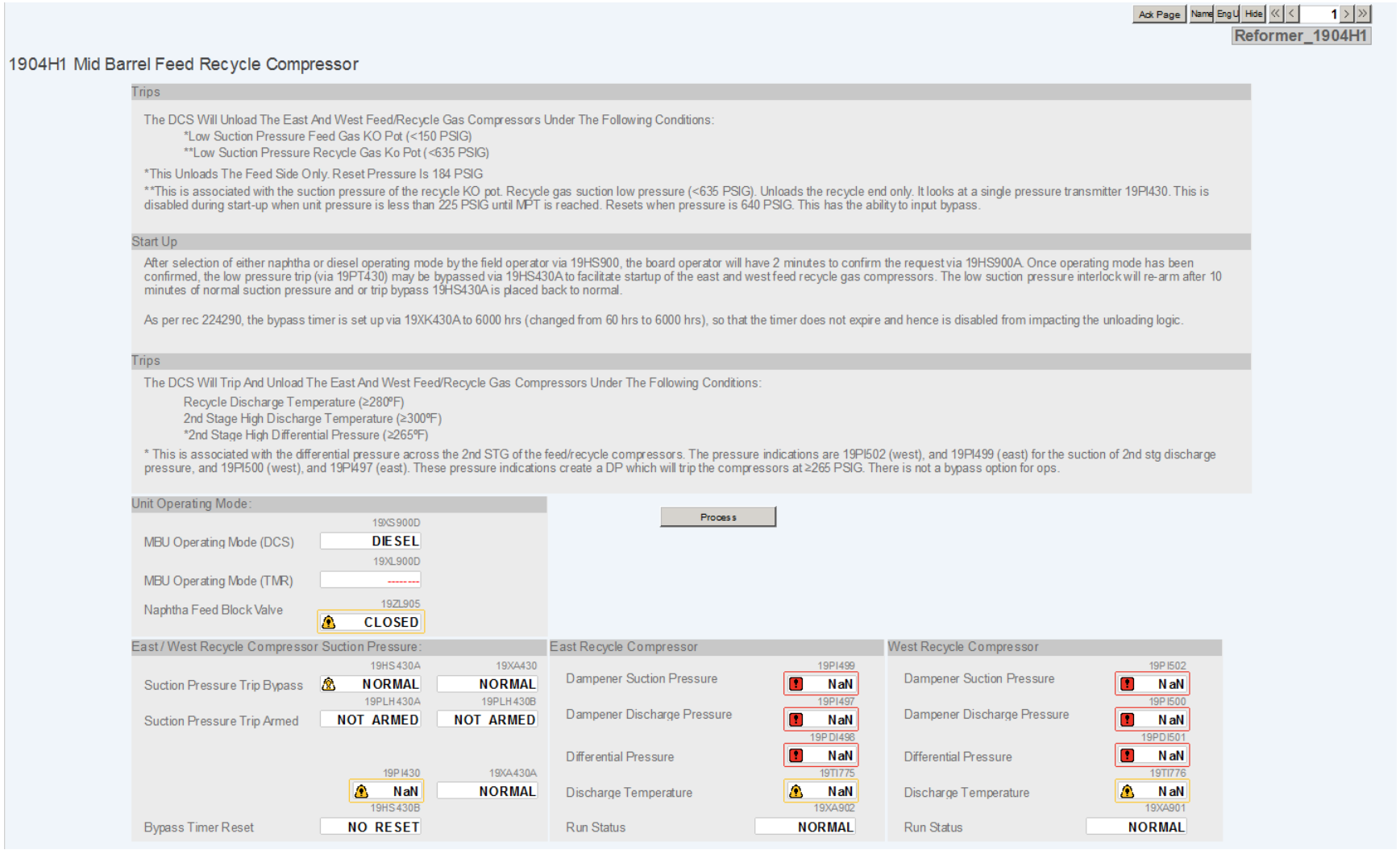
Station View



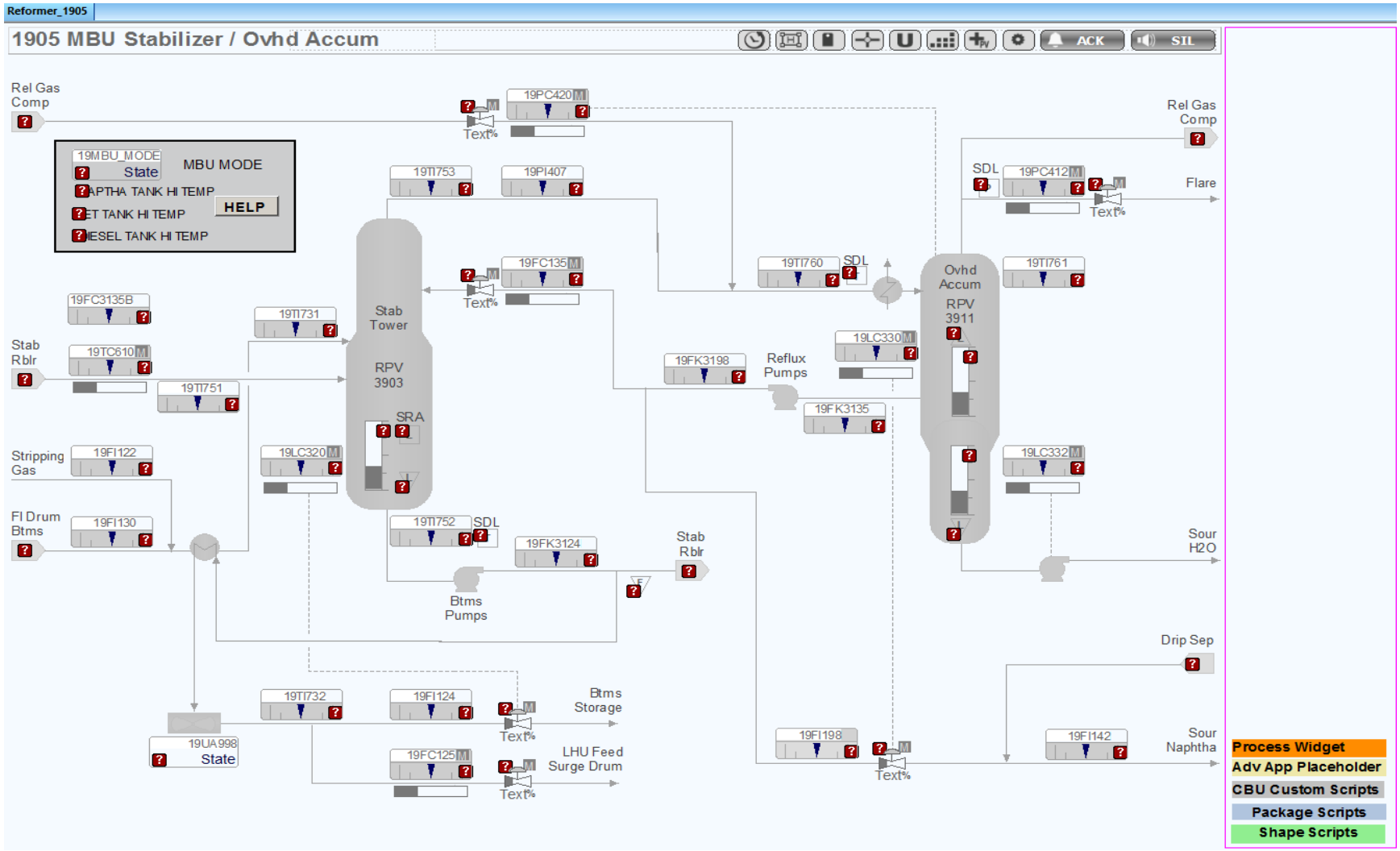
5.34 1904H1 MID BARREL FEED RECYCLE COMPRESSORSS HELP (Reformer_1904H1.htm)



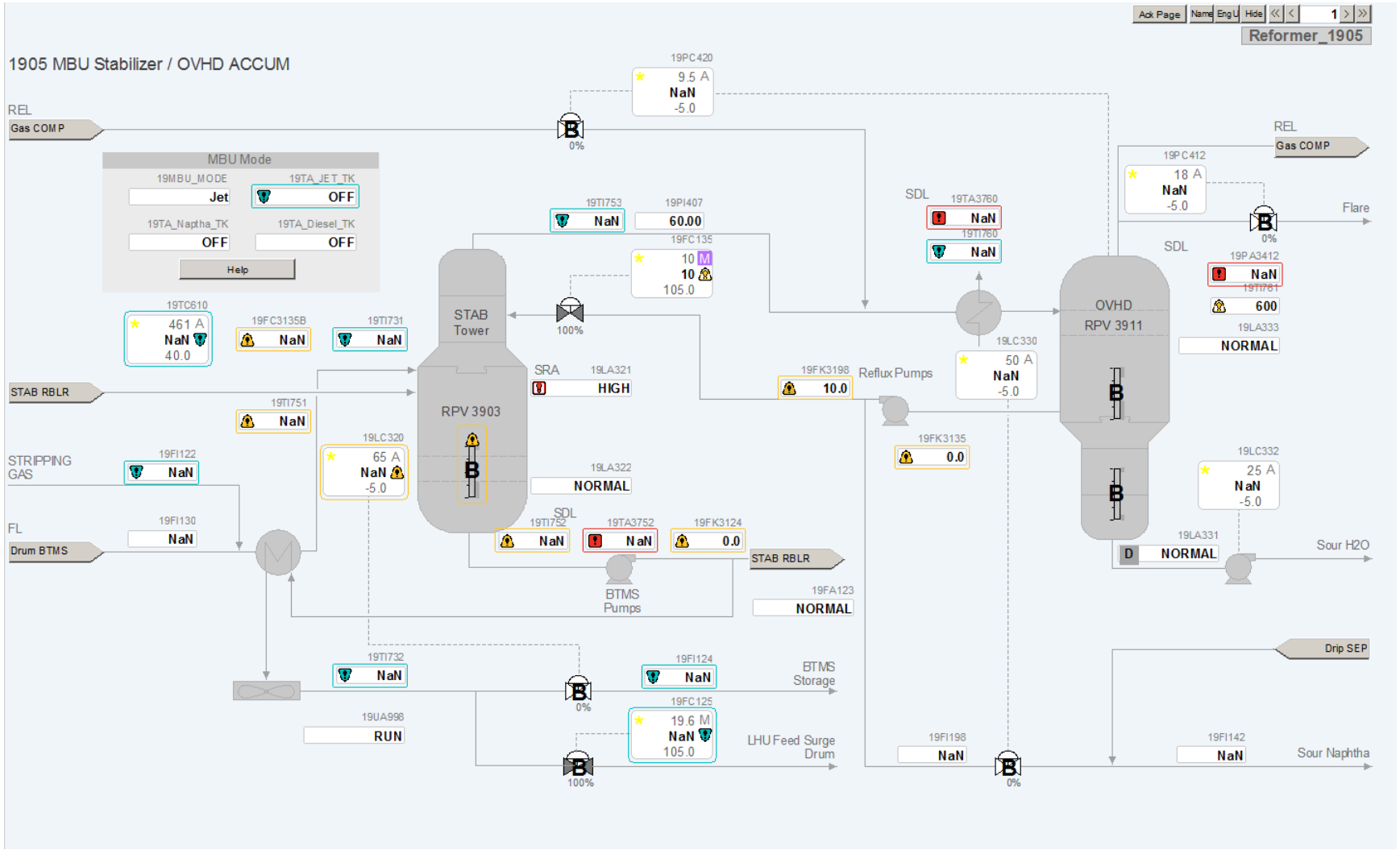
Station View



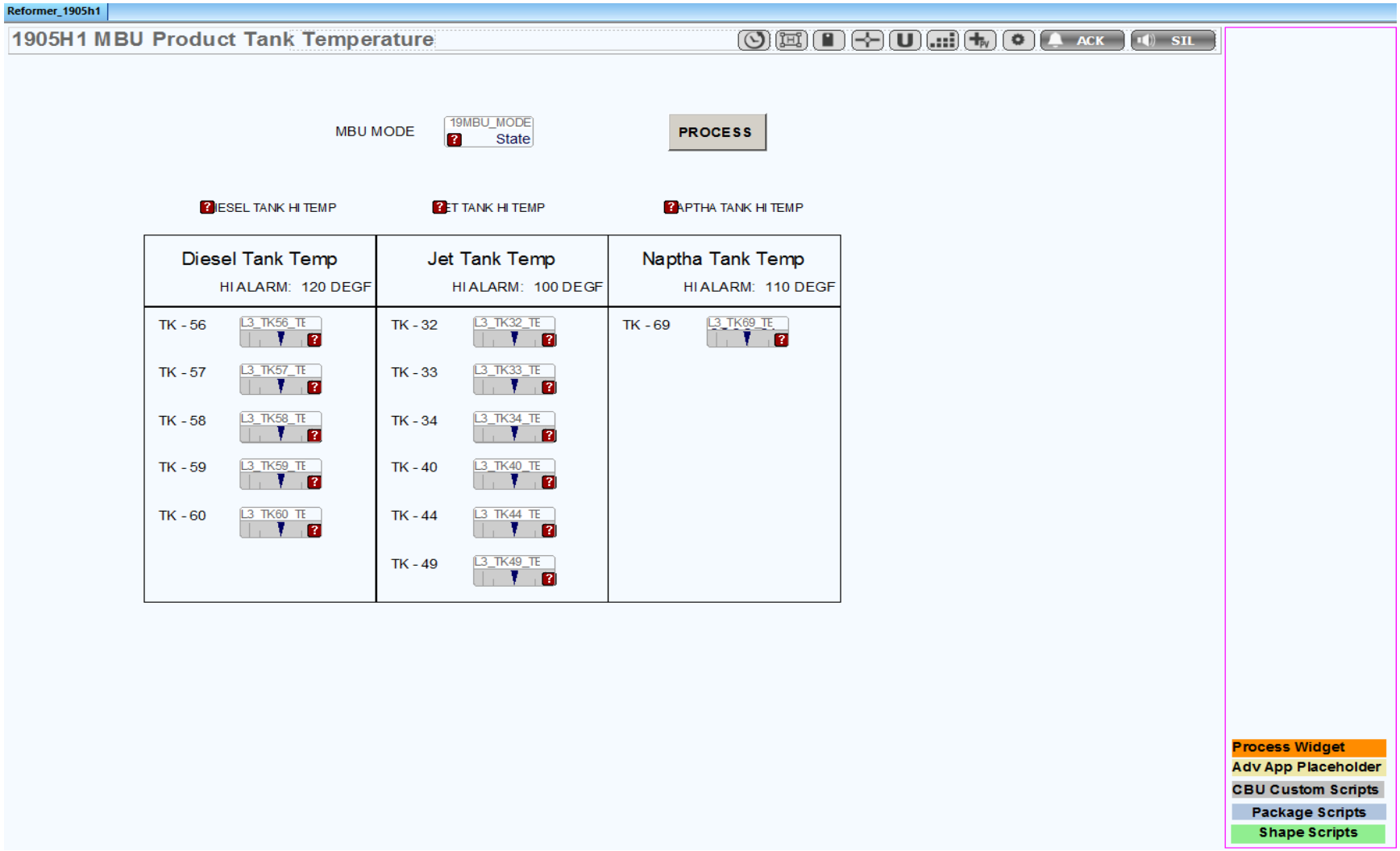
5.35 1905 MBU STABILIZER / OVHD ACCUM (Reformer_1905.htm)



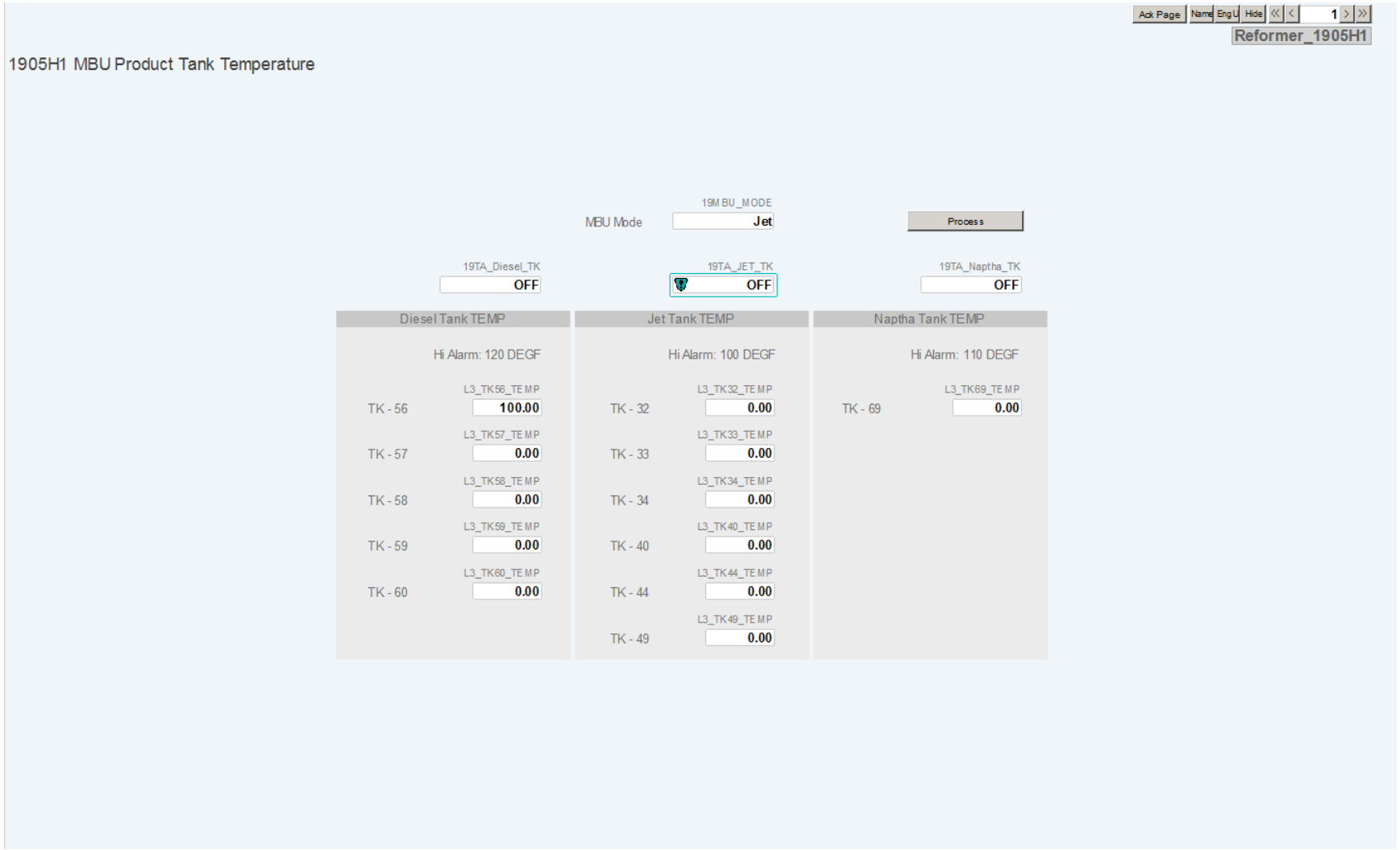
Station View



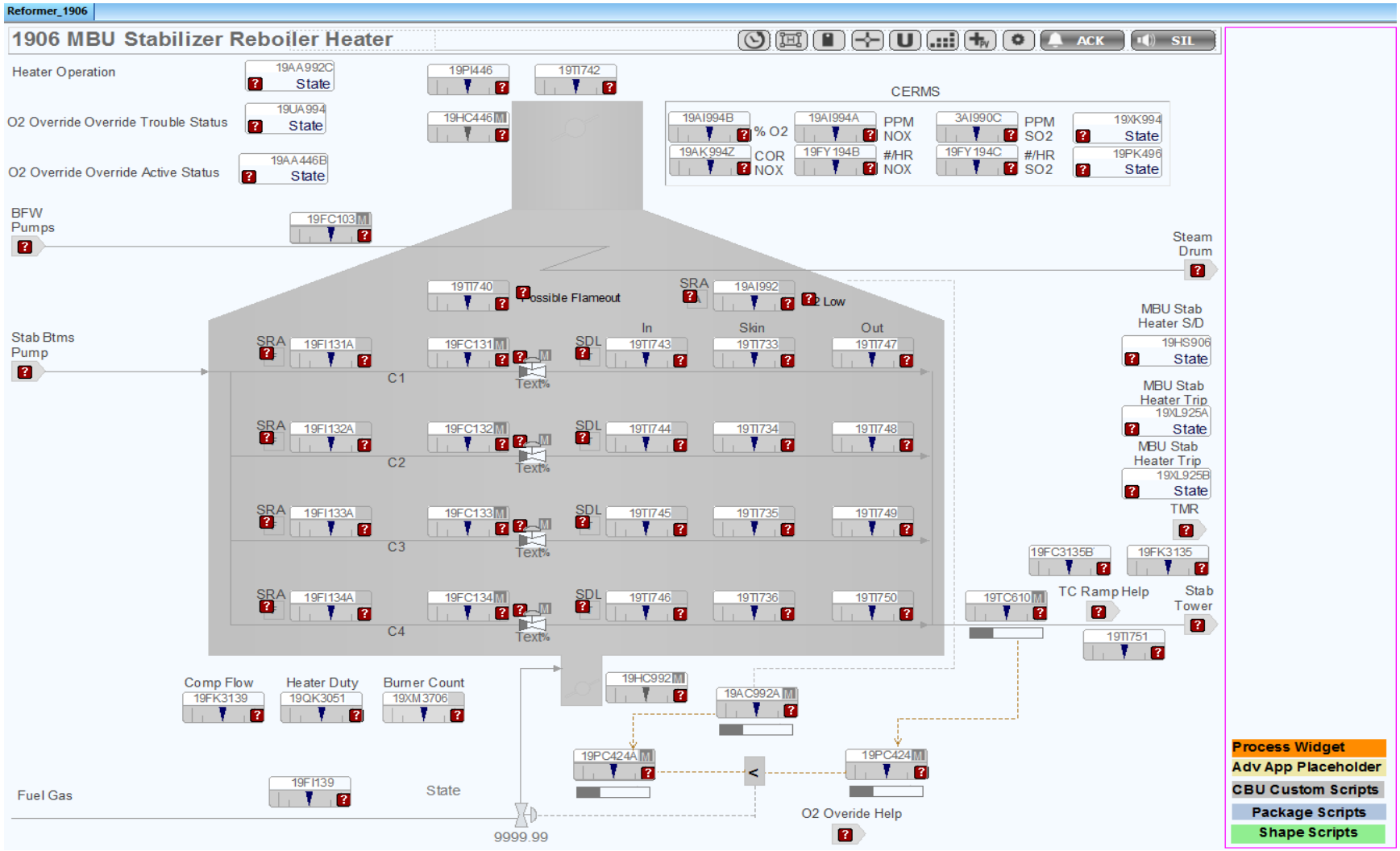
5.36 1905H1 MBU PRODUCTION TANK TEMPERATURE (Reformer_1905H1.htm)



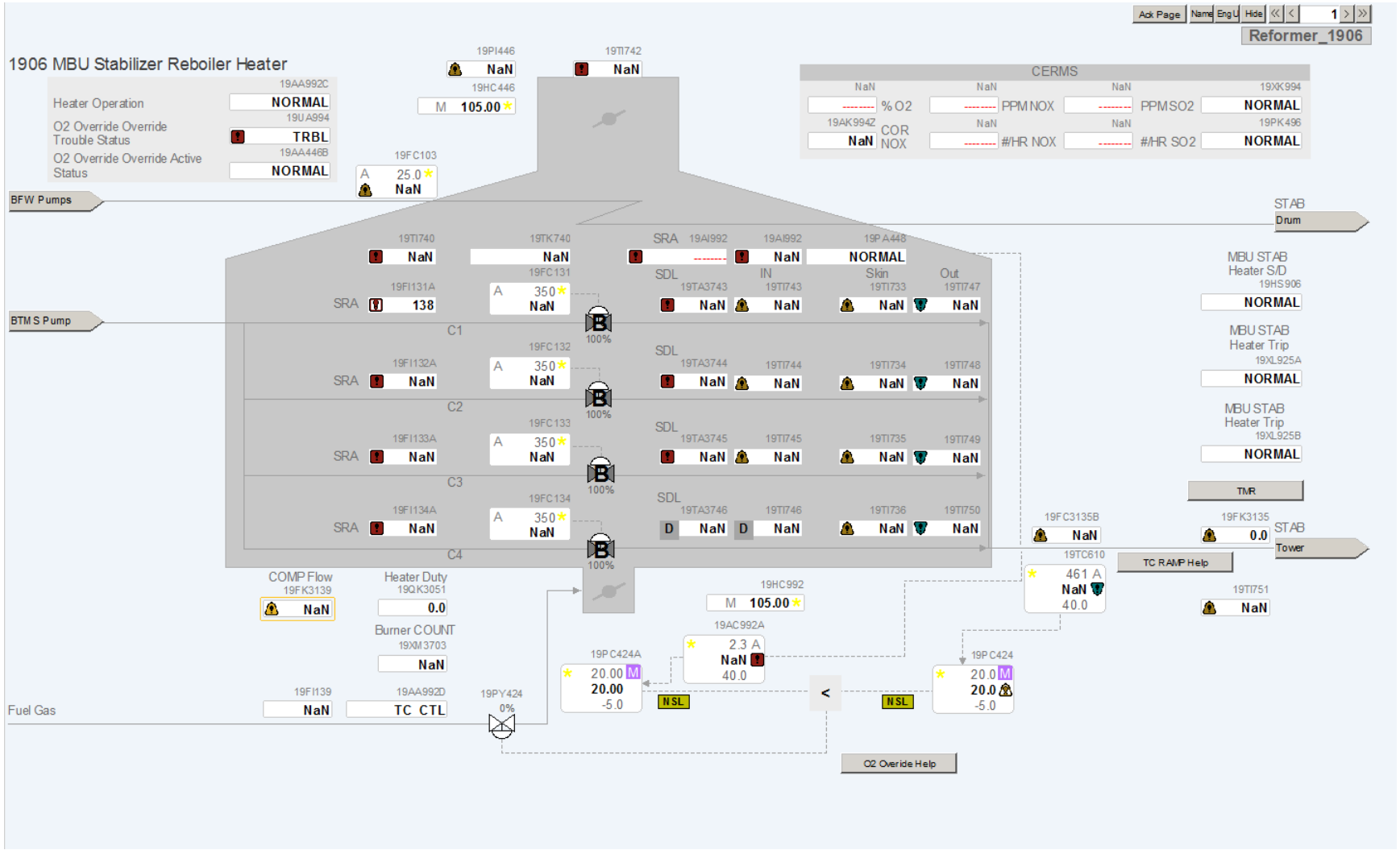
Station View



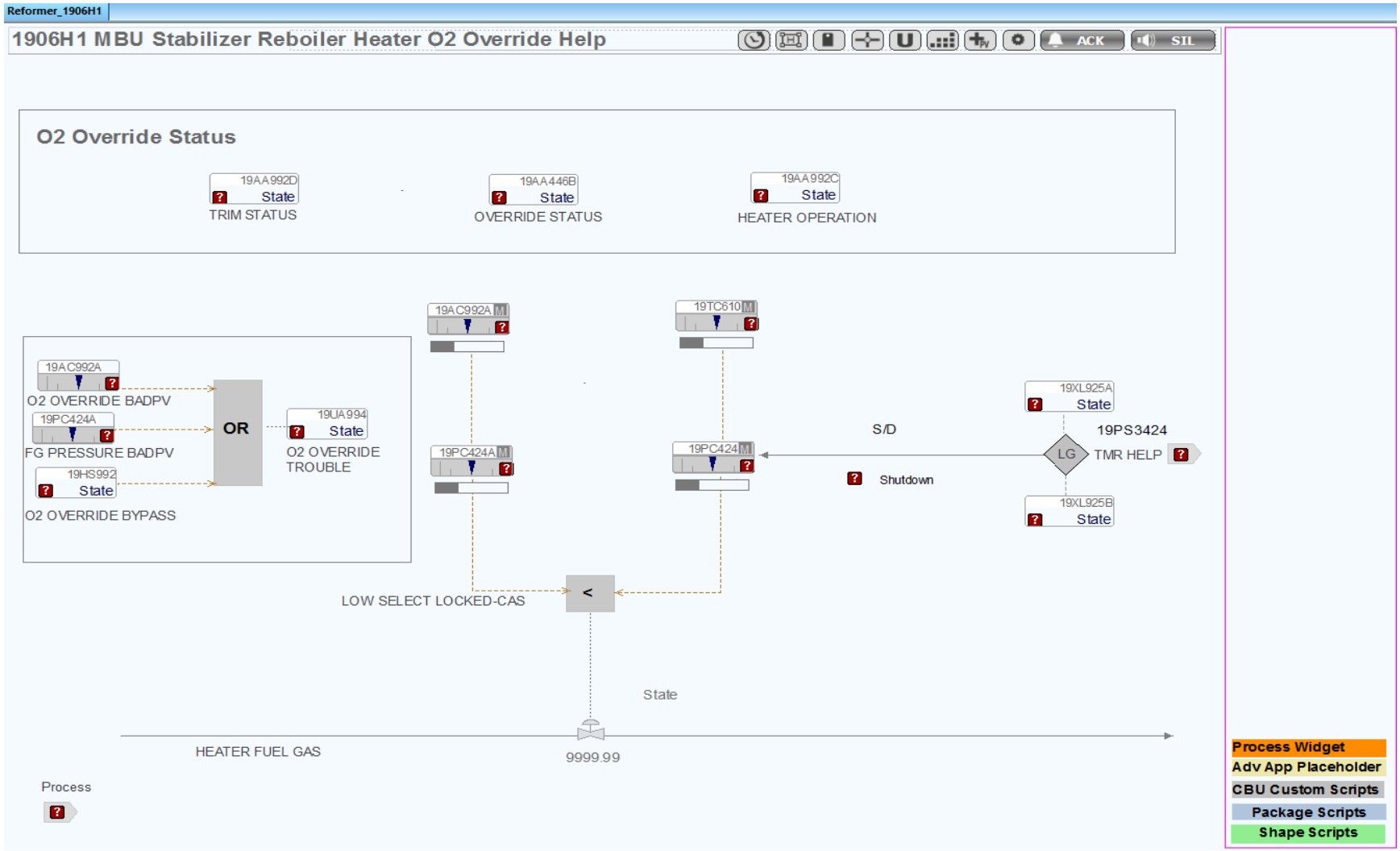
5.37 1906 MBU STABILIZER REBOILER HEATER (Reformer_1906.htm)



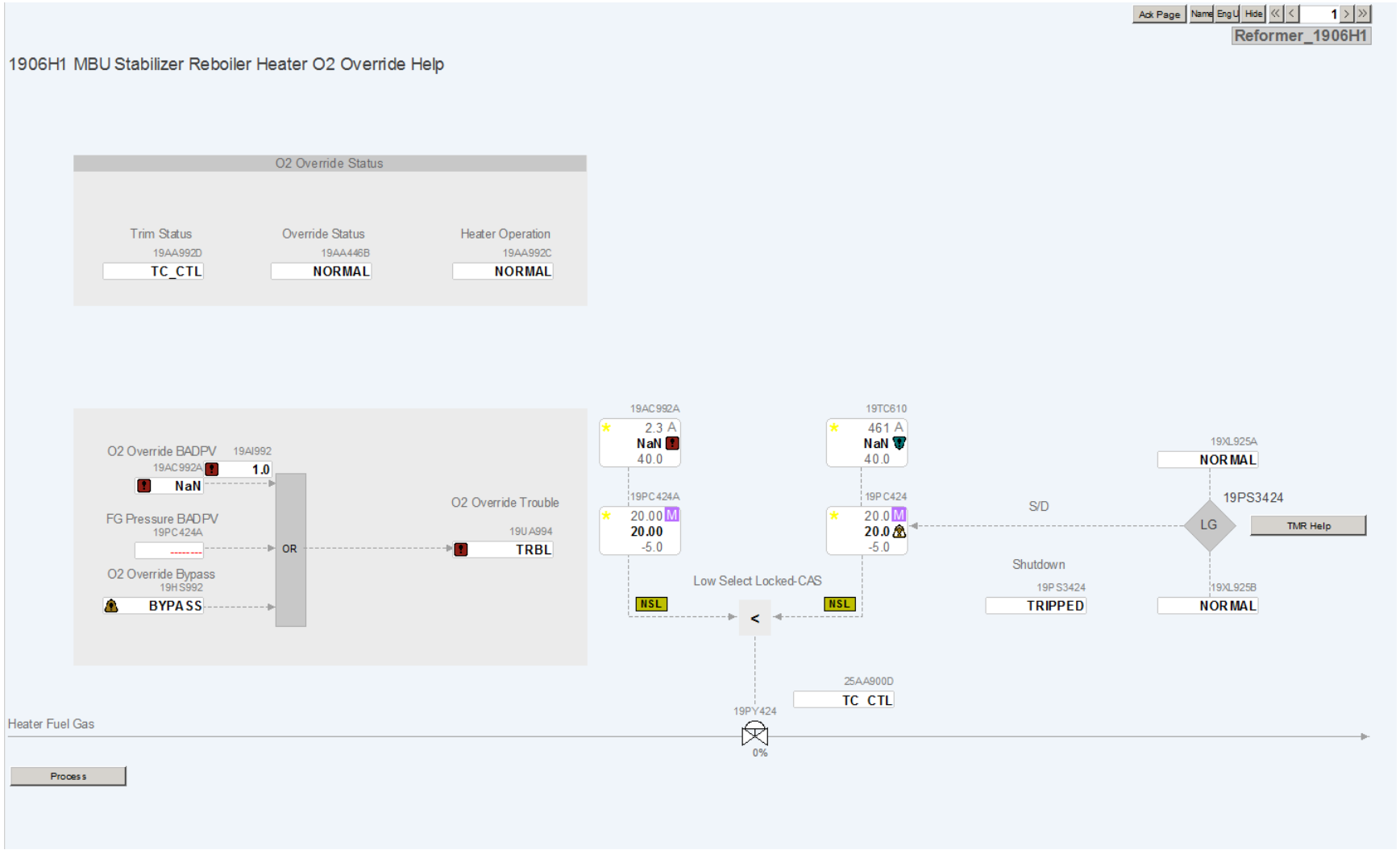
Station View



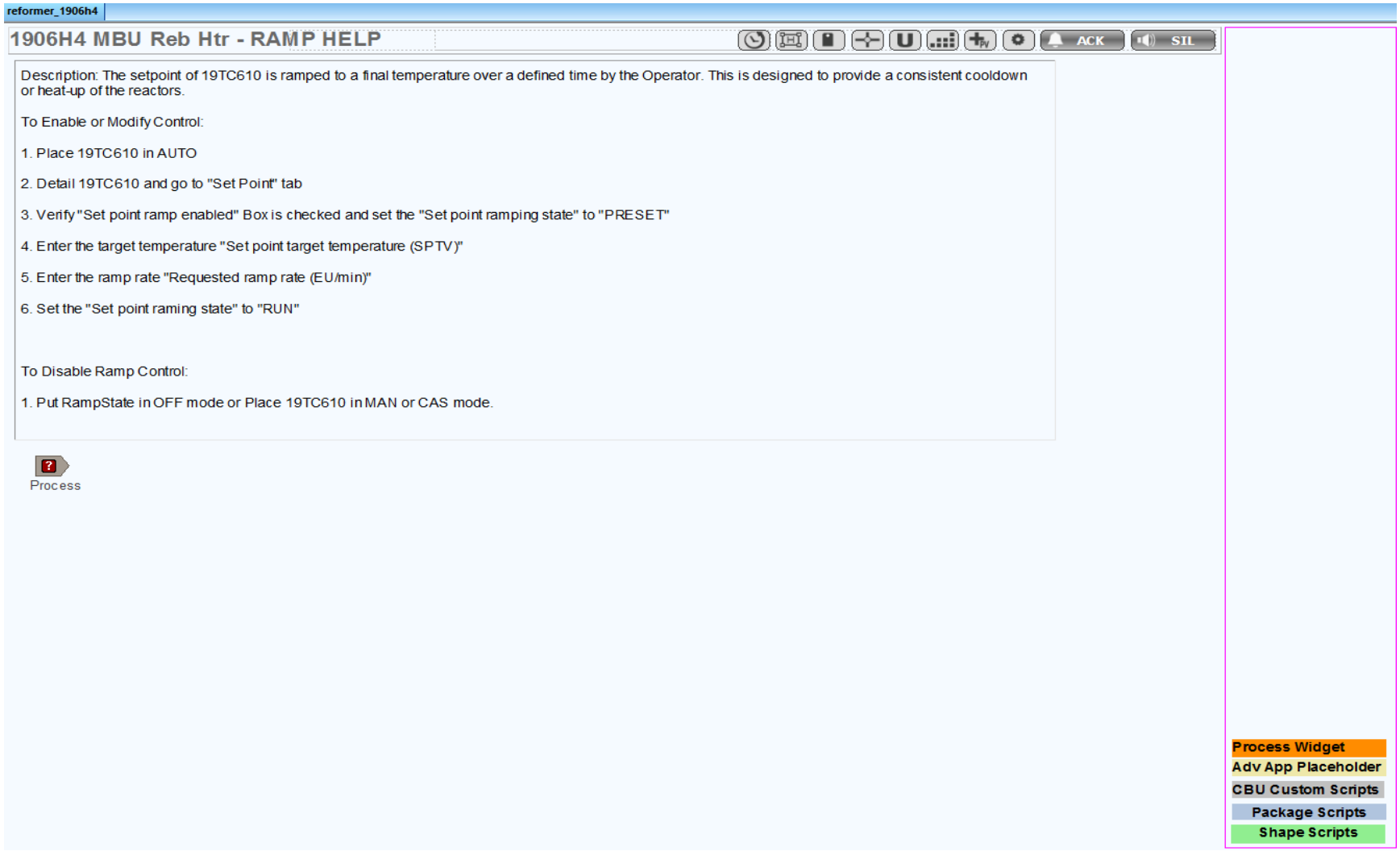
5.38 1906H1 MBU STABILIZER REBOILER HEATER O2 OVERRIDER HELP (Reformer_1906H1.htm)



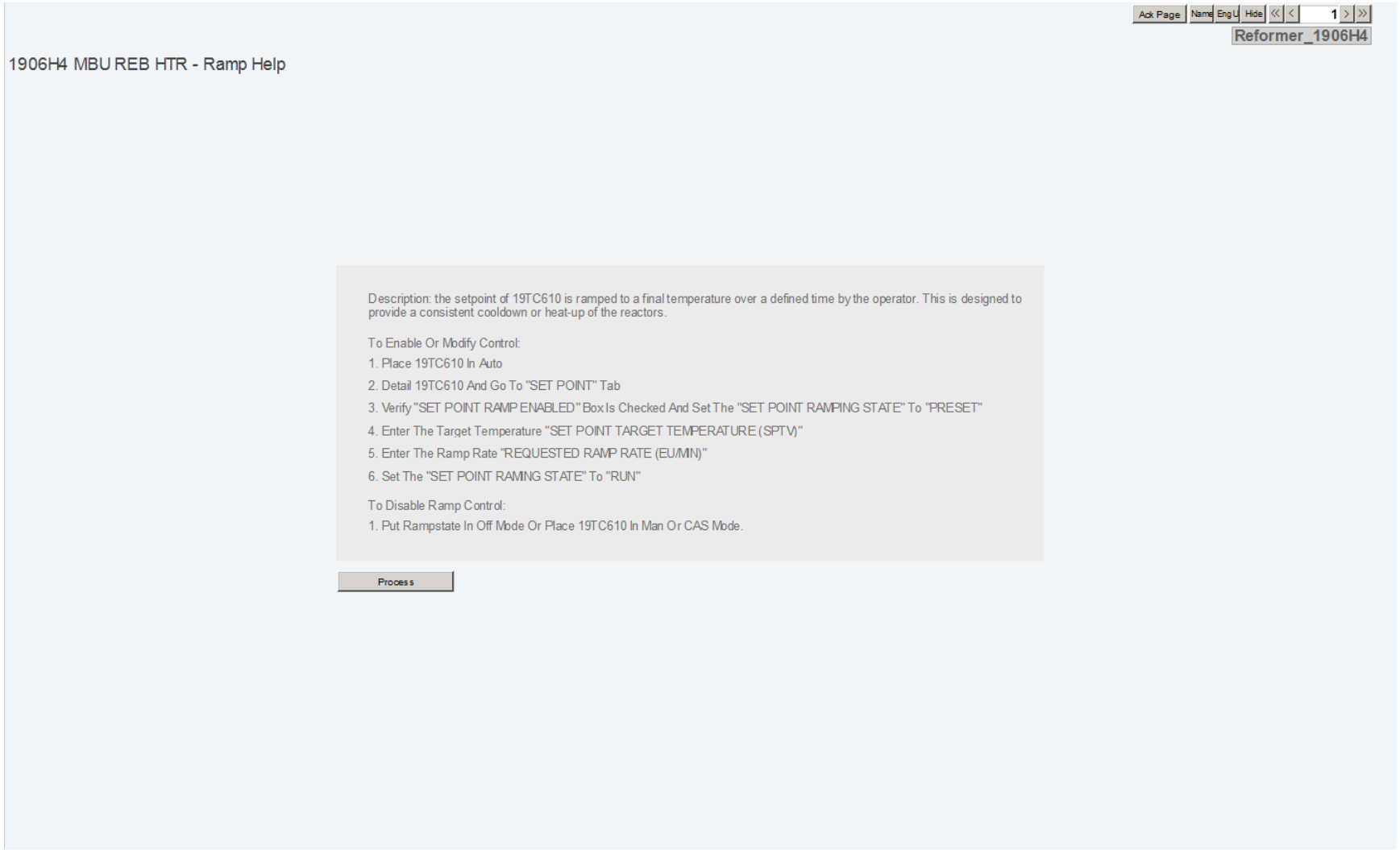
Station View



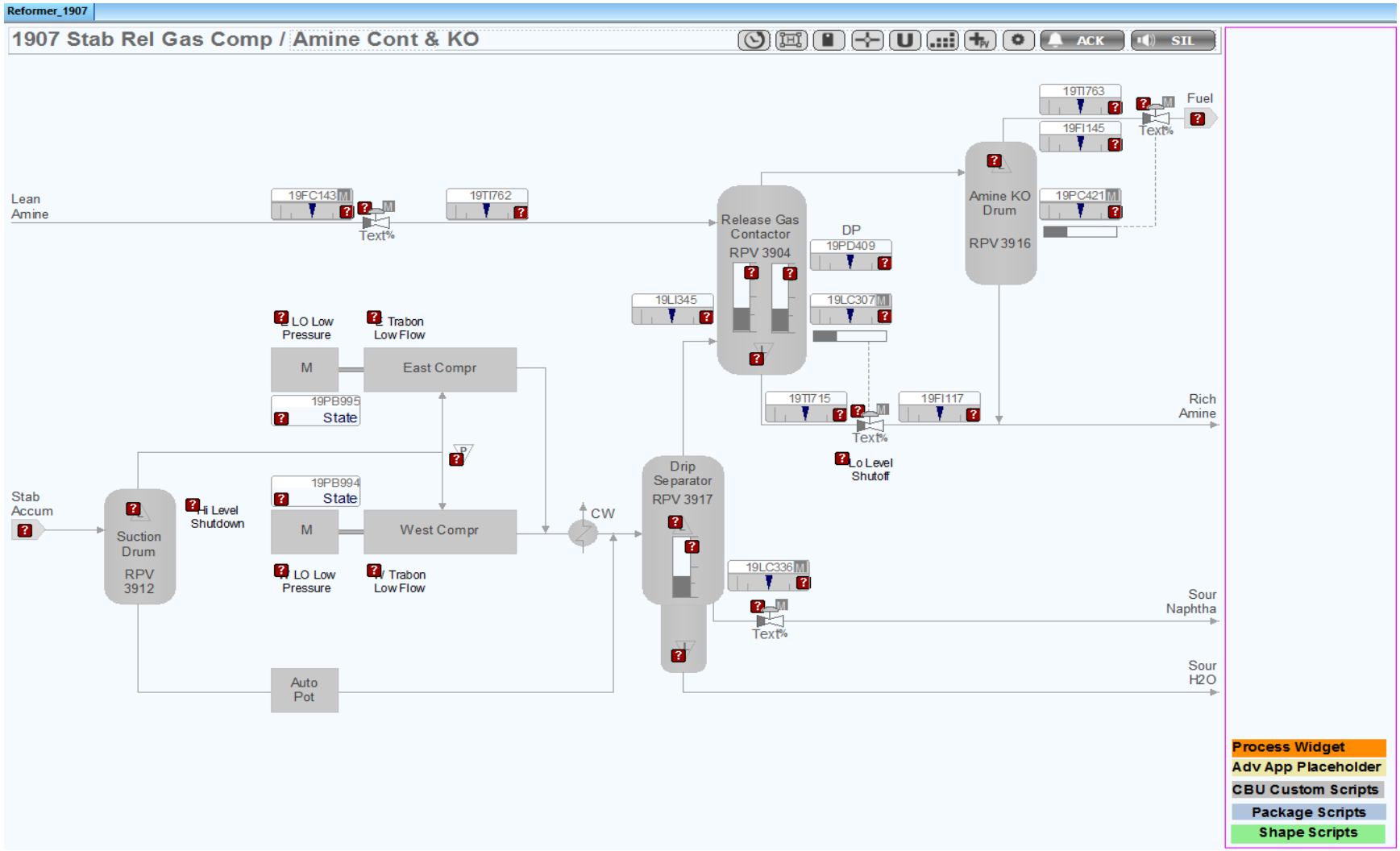
5.39 1906H4 MBU RE HTR – RAMP HELP (Reformer_1906H4.htm)



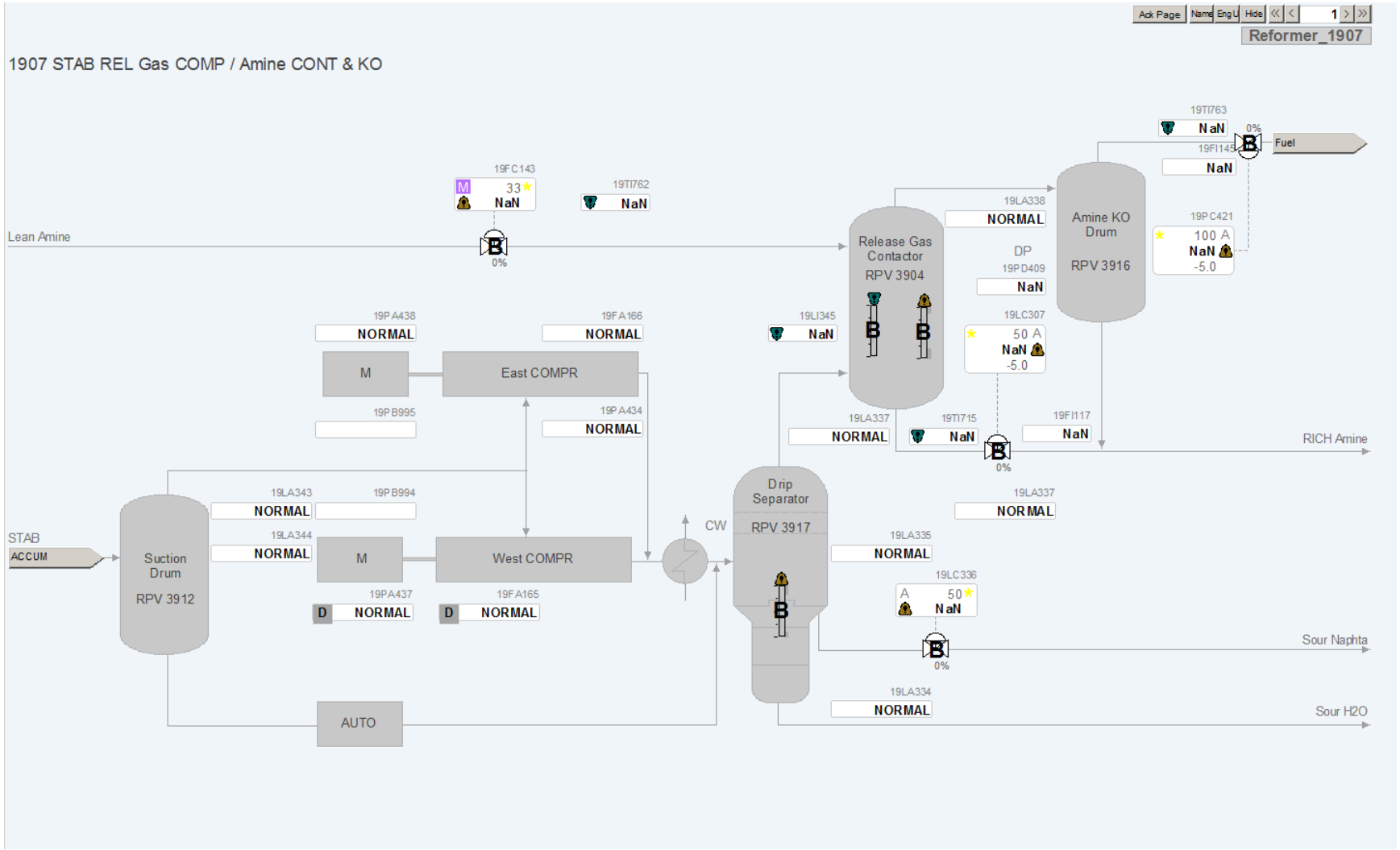
Station View



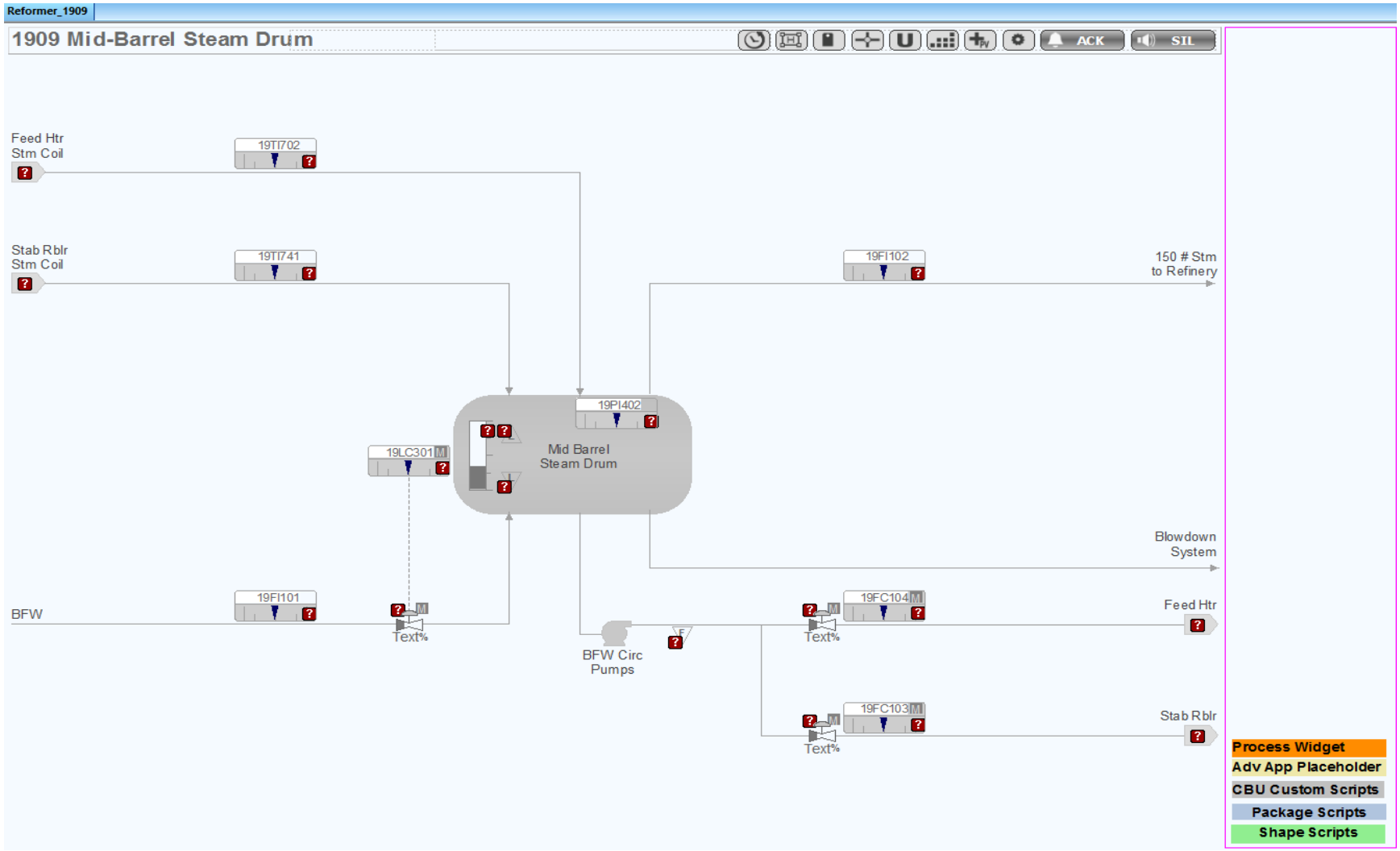
5.40 1907 STAB REL GAS COMP / AMINE CONT & KO (Reformer_1907.htm)



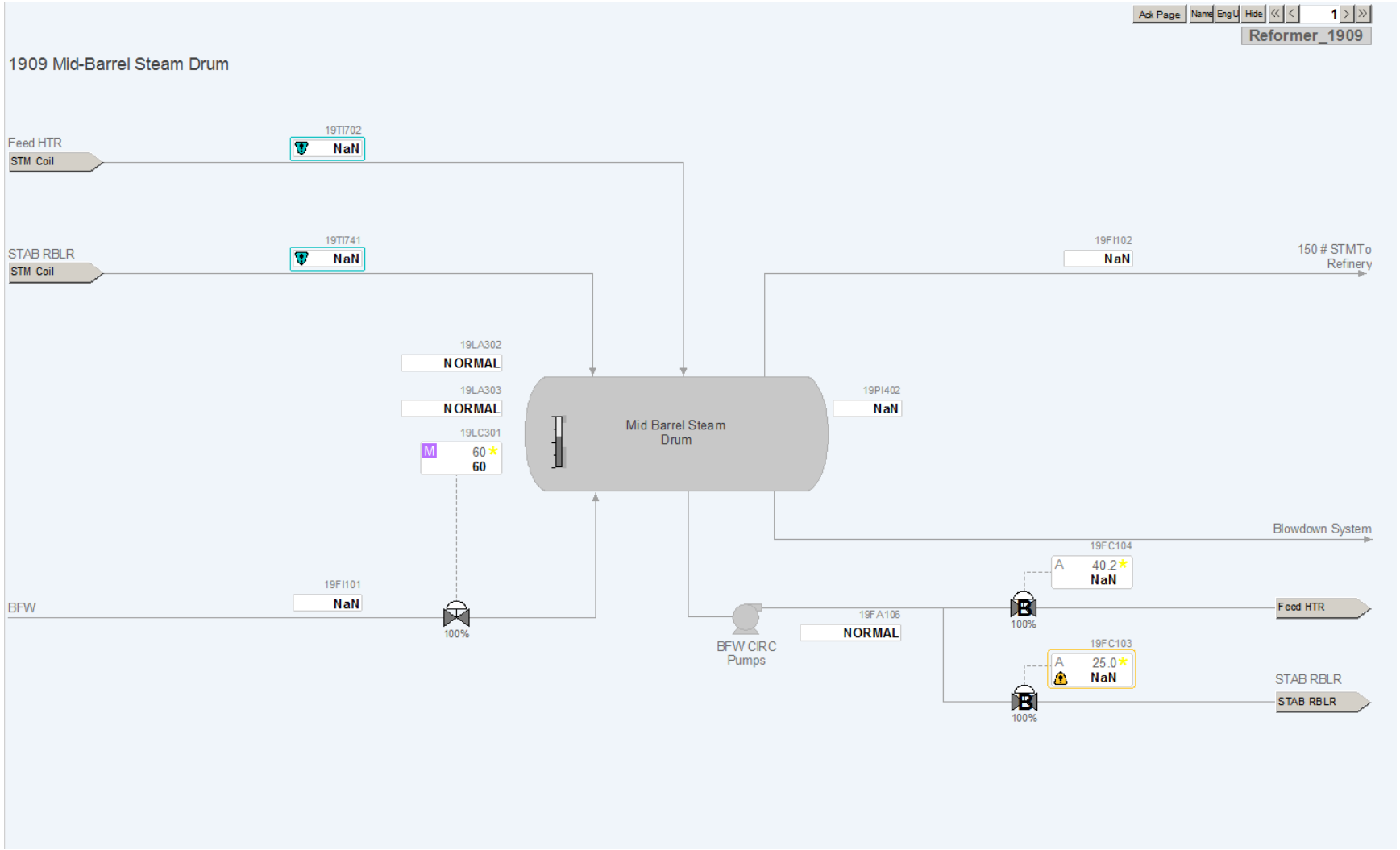
Station View



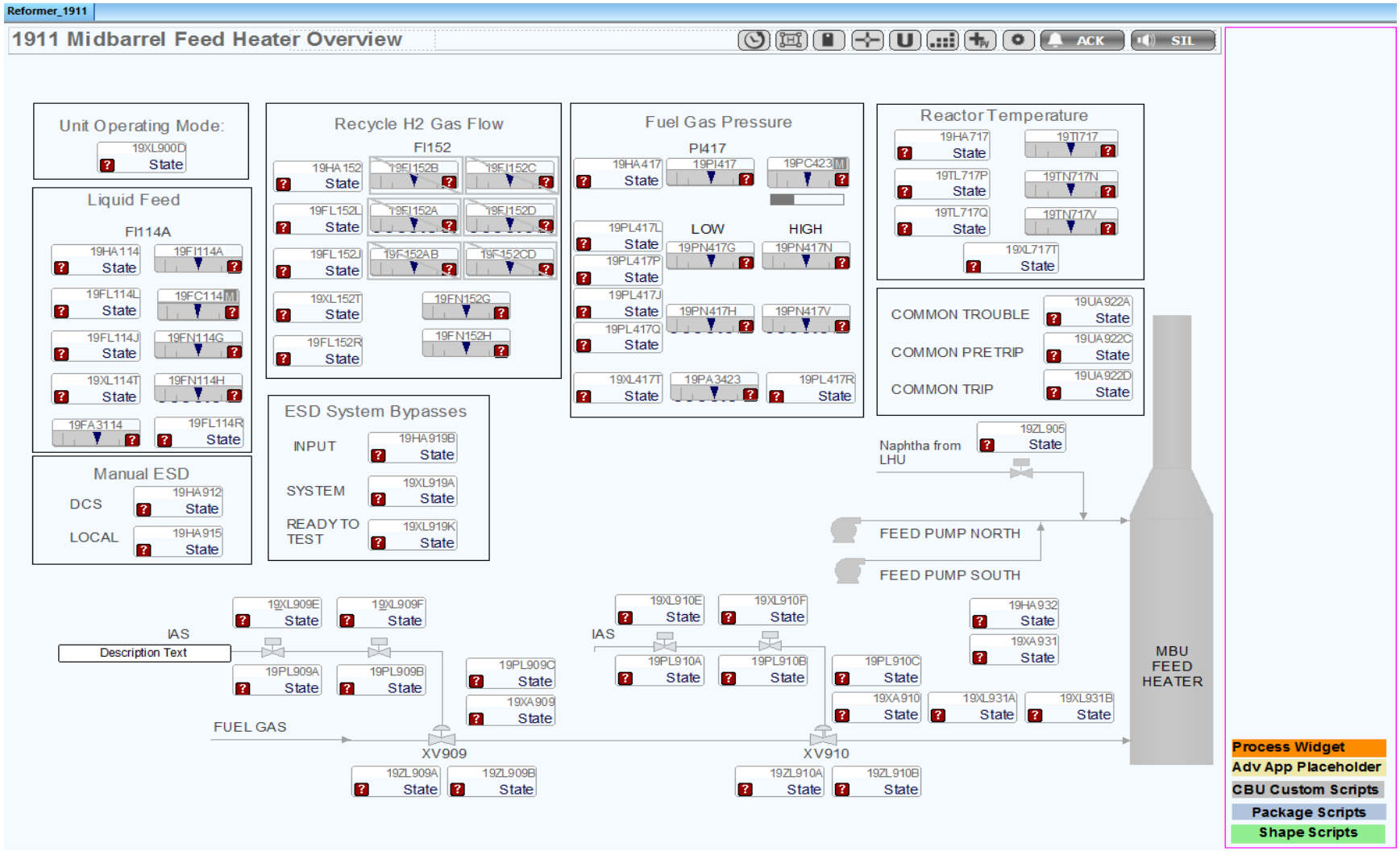
5.41 1909 MID-BARREL STEAM DRUM (Reformer_1909.htm)



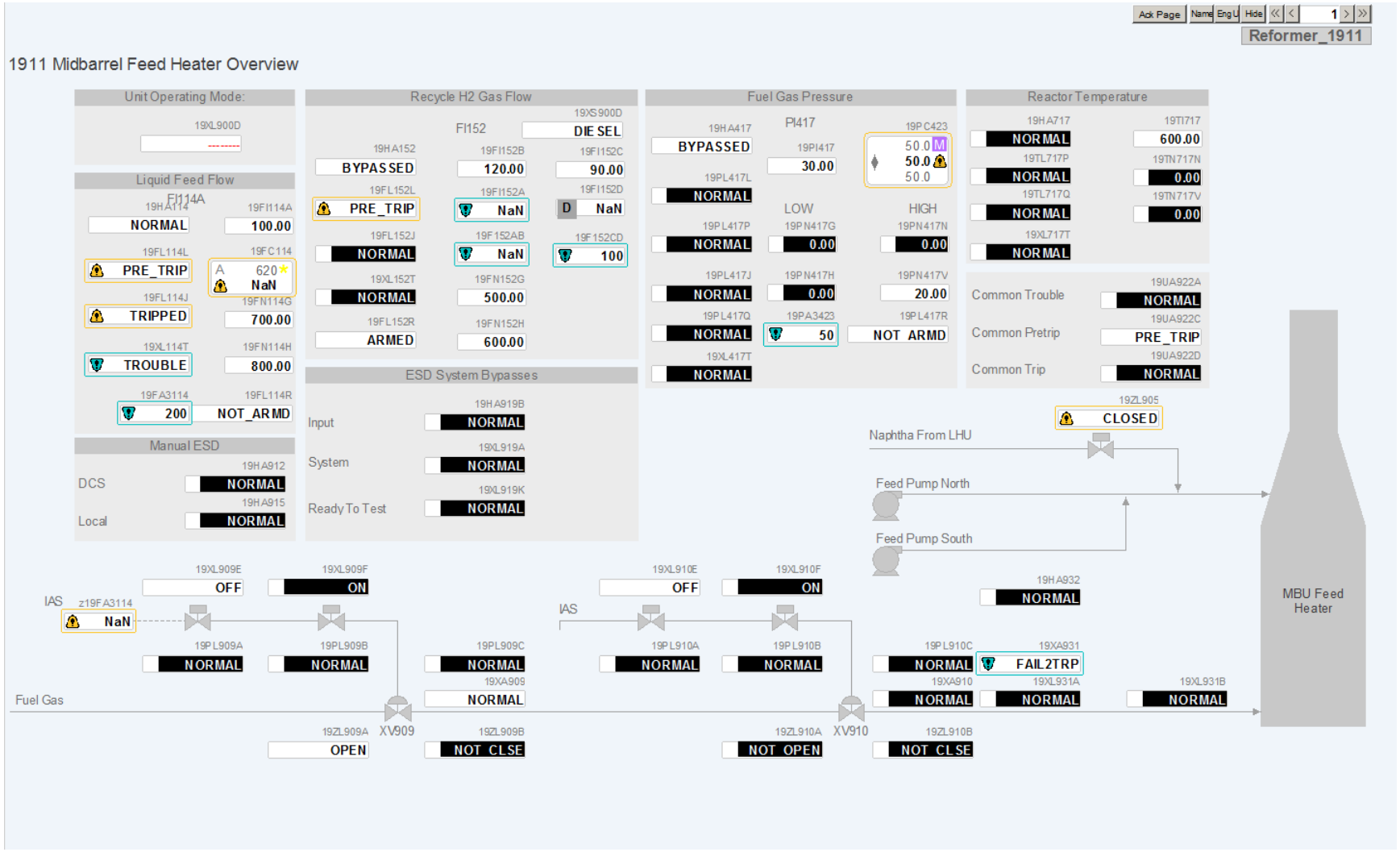
Station View



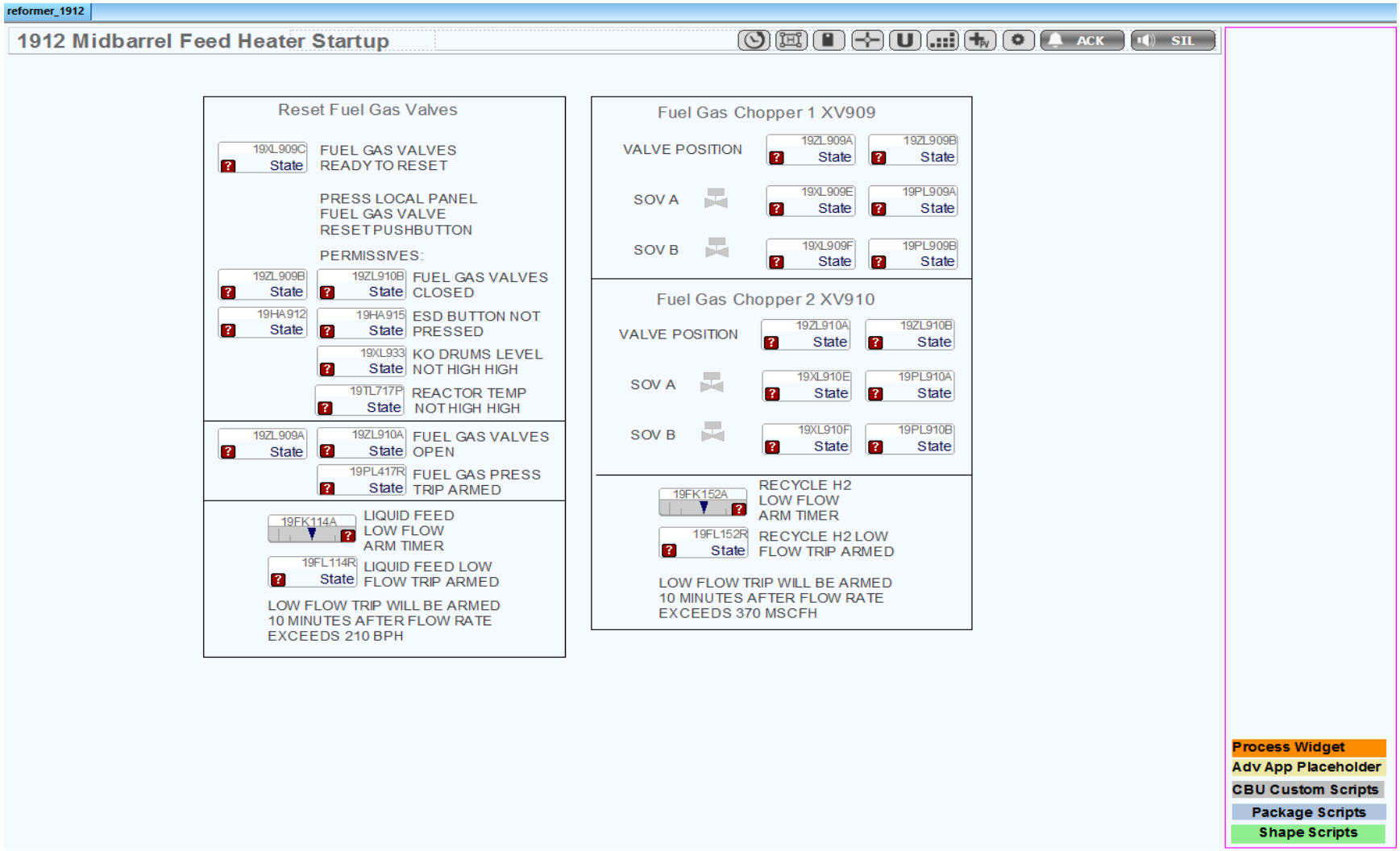
5.42 1911 MIDBARREL FEED HEATER OVERVIEW (Reformer_1911.htm)



Station View

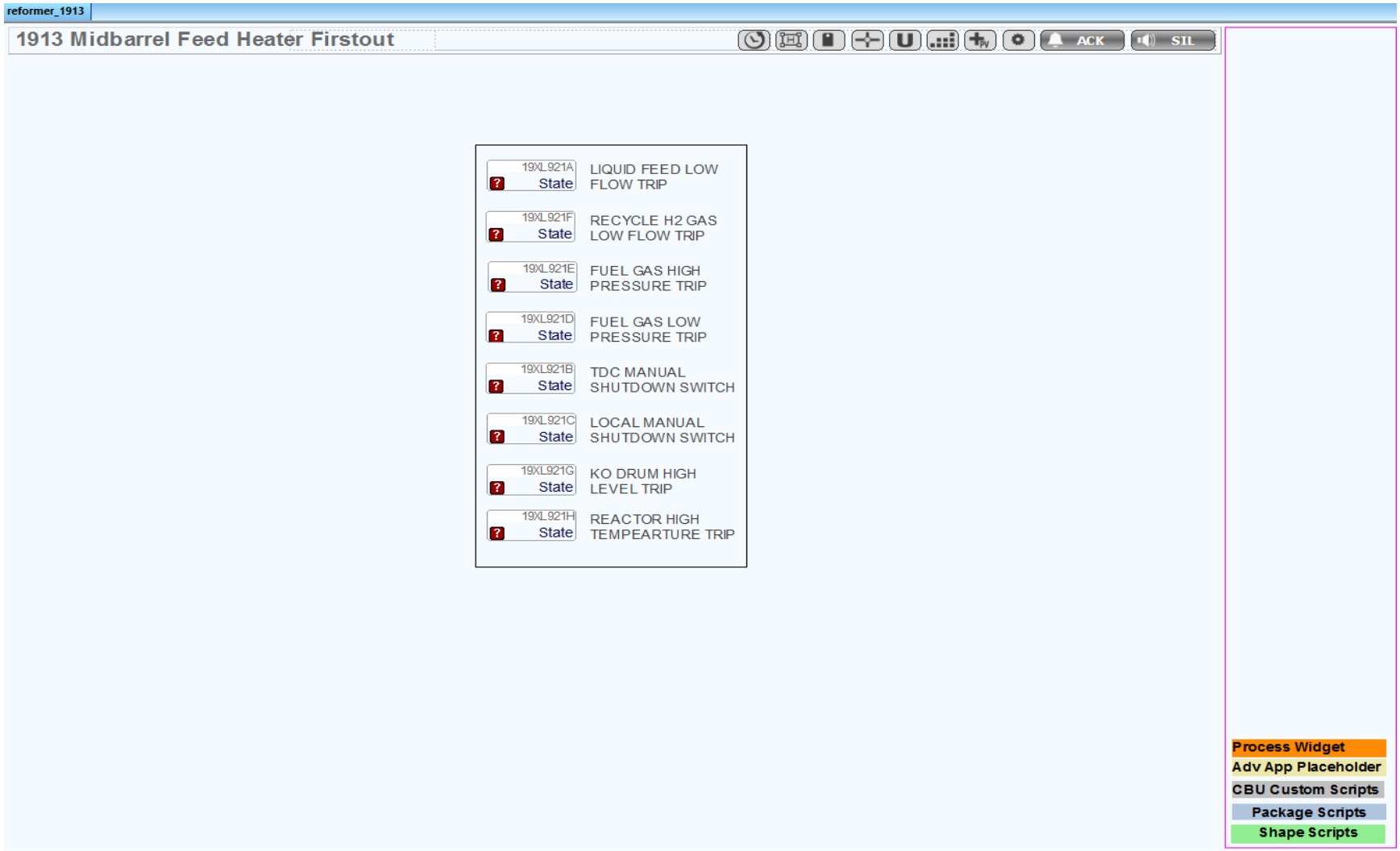


5.43 1912 MIDBARREL FEED HEATER STARTUP (Reformer_1912.htm)

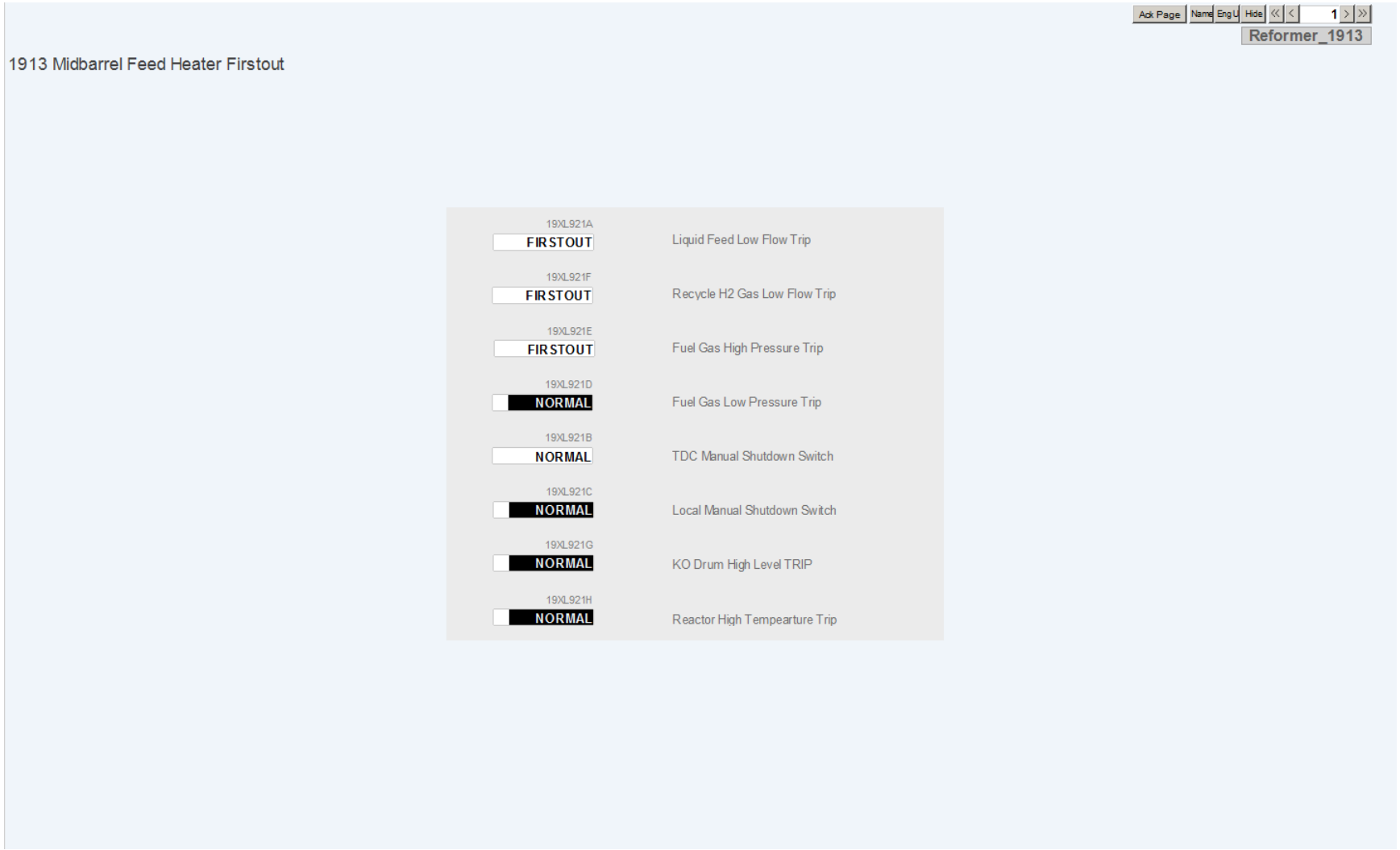


Station View

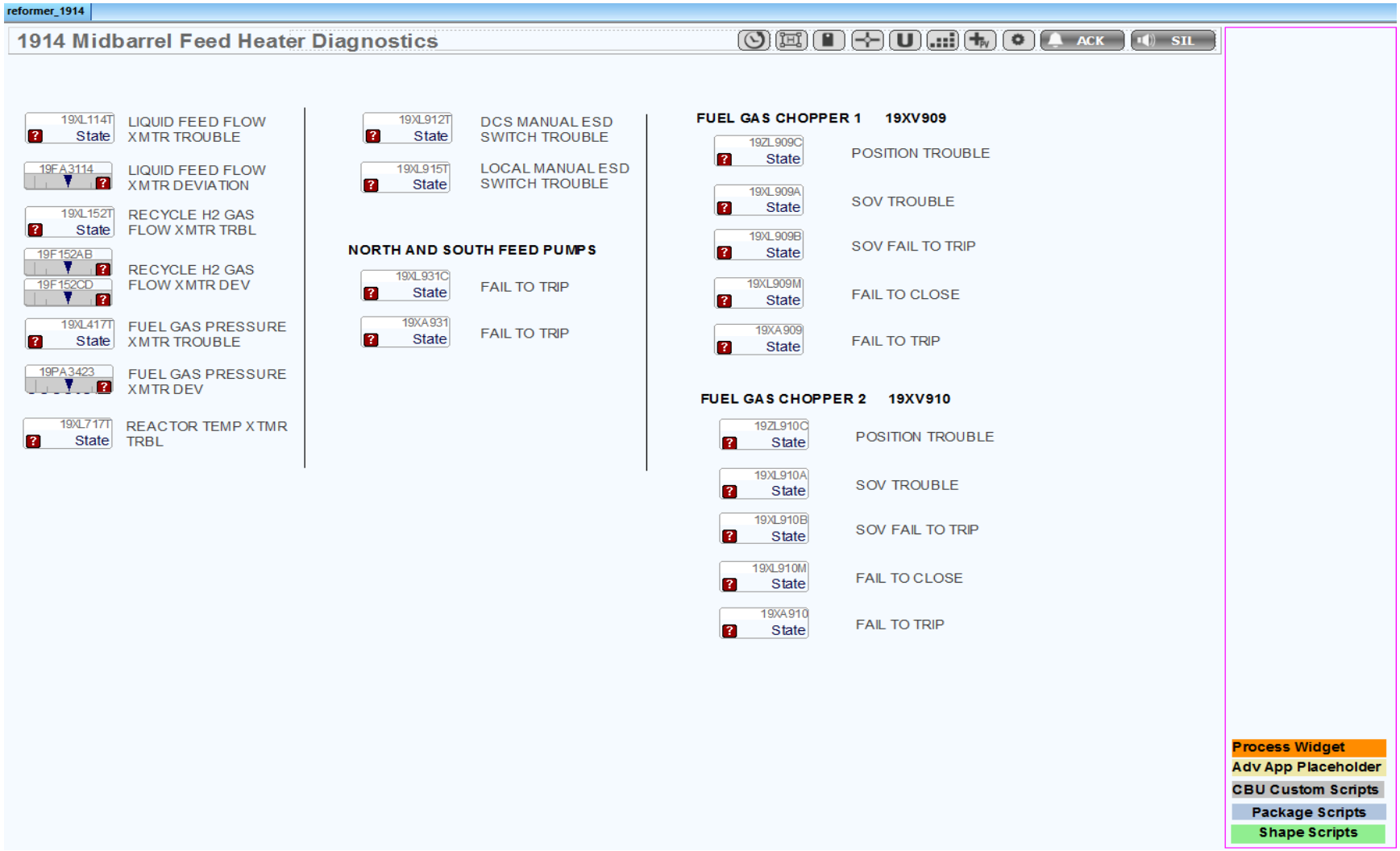
5.44 1913 MIDBARREL FEED HEATER FIRSTOUT (Reformer_1913.htm)



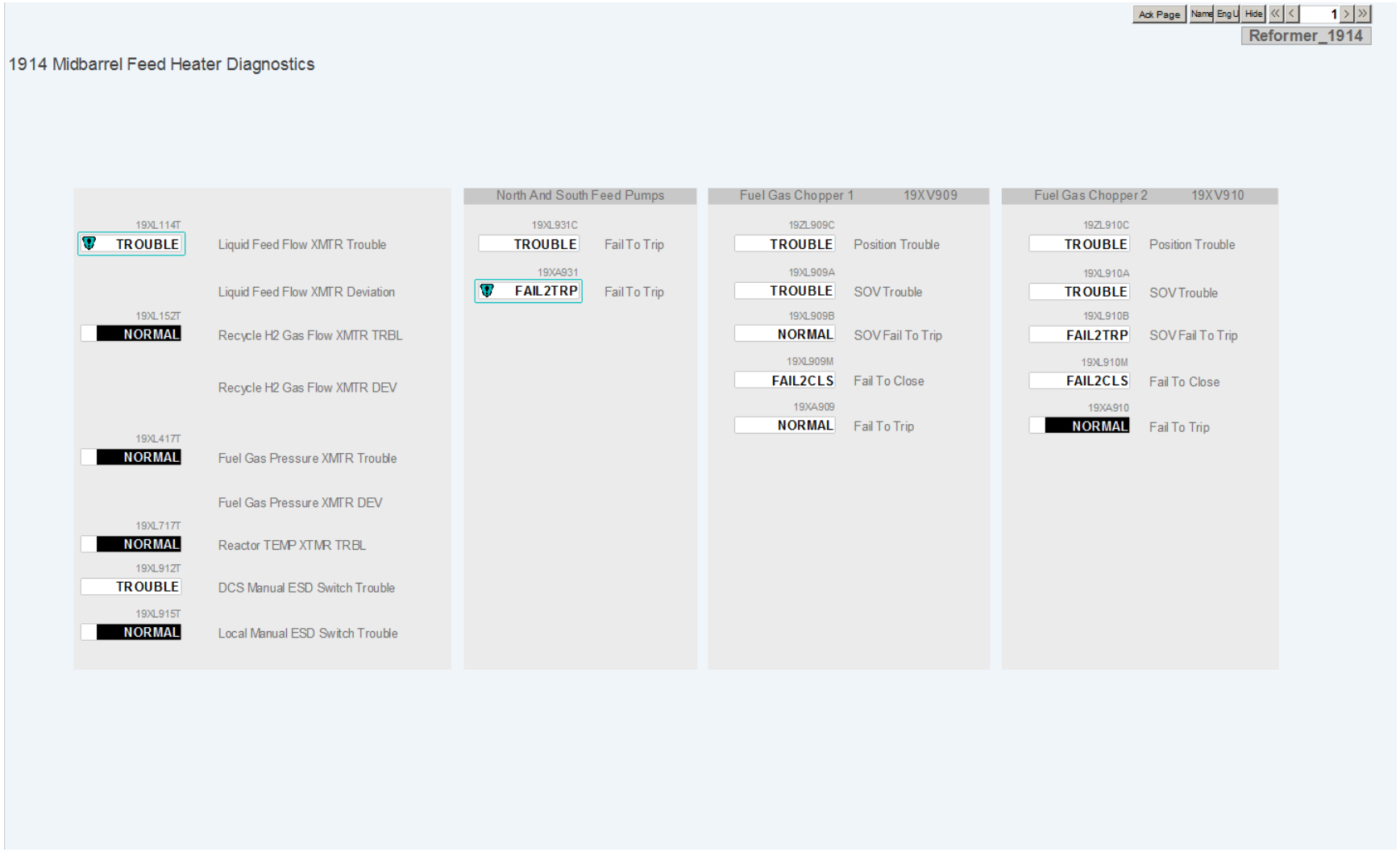
Station View



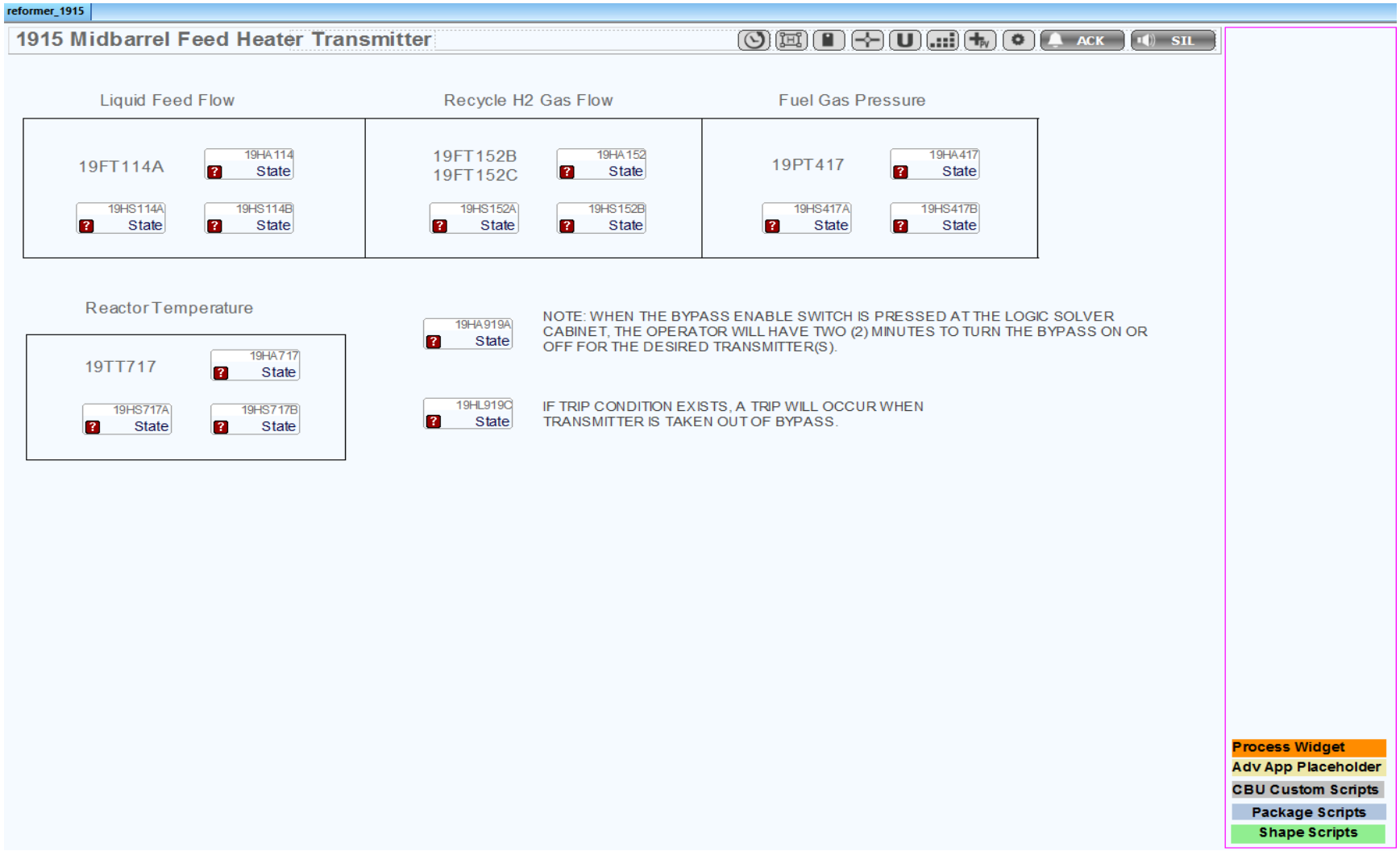
5.45 1914 MIDBARREL FEED HEATER DIAGNOSTICS (Reformer_1914.htm)



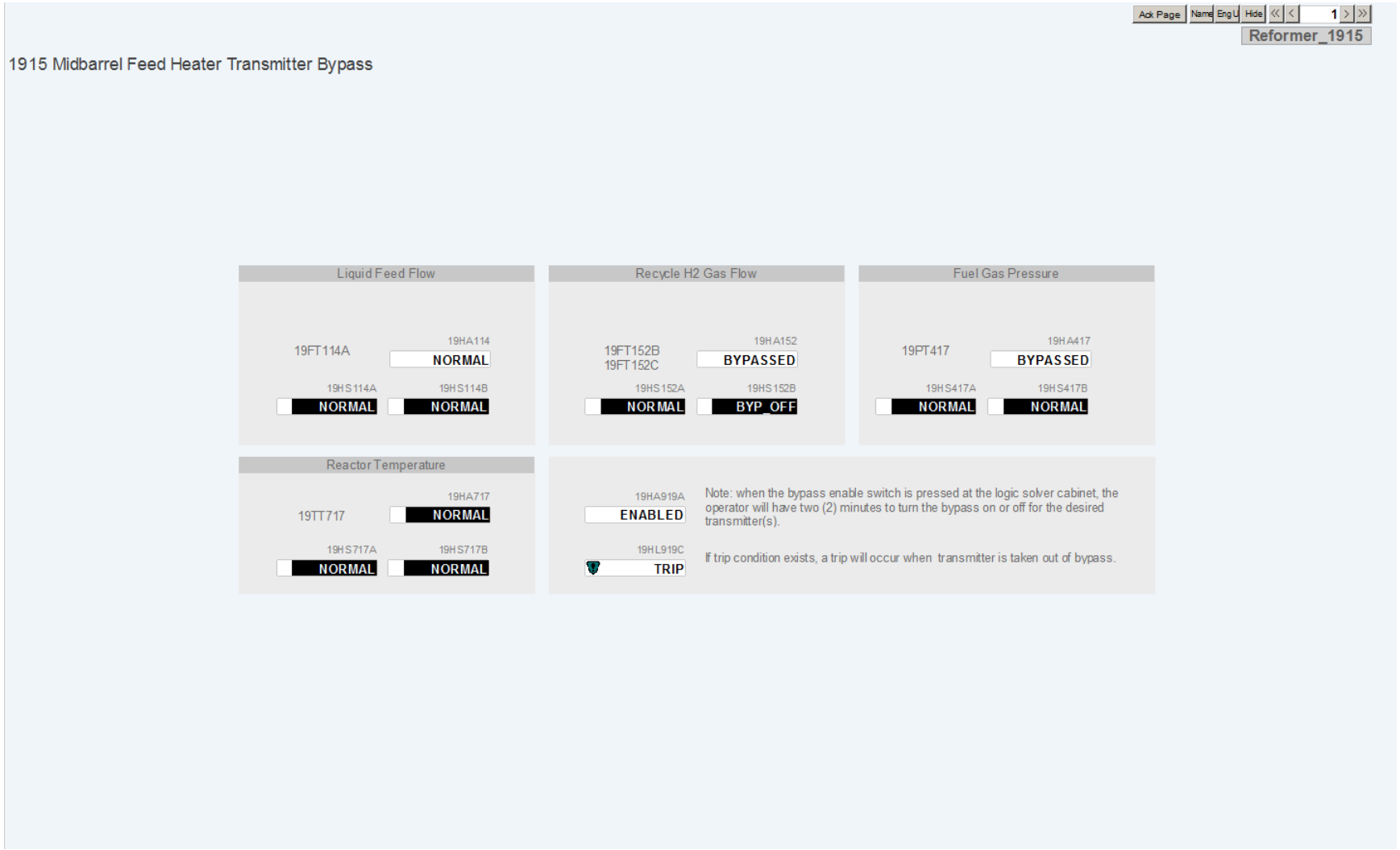
Station View



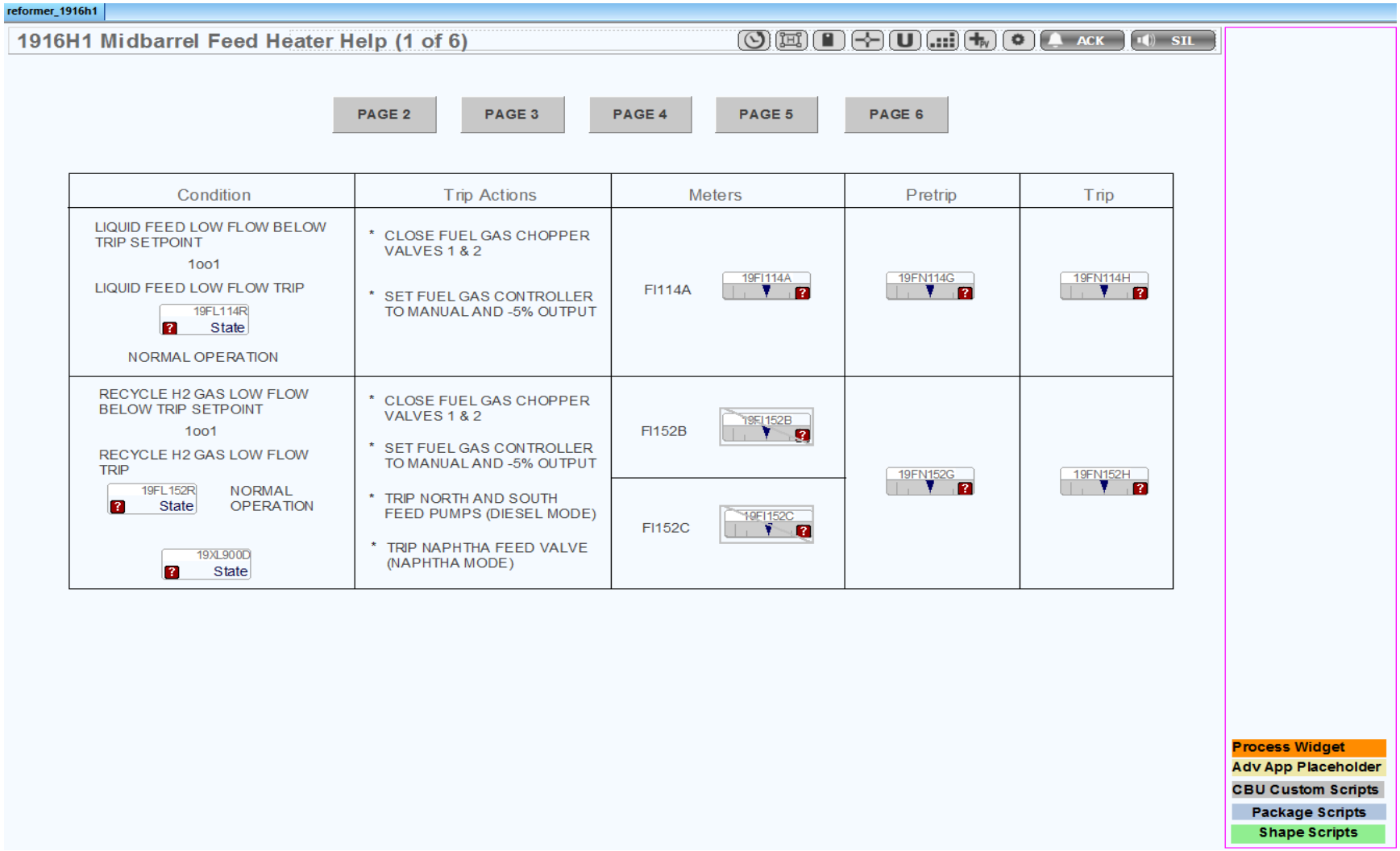
5.46 1915 MIDBARREL FEED HEATER TRANSMITTER (Reformer_1915.htm)



Station View

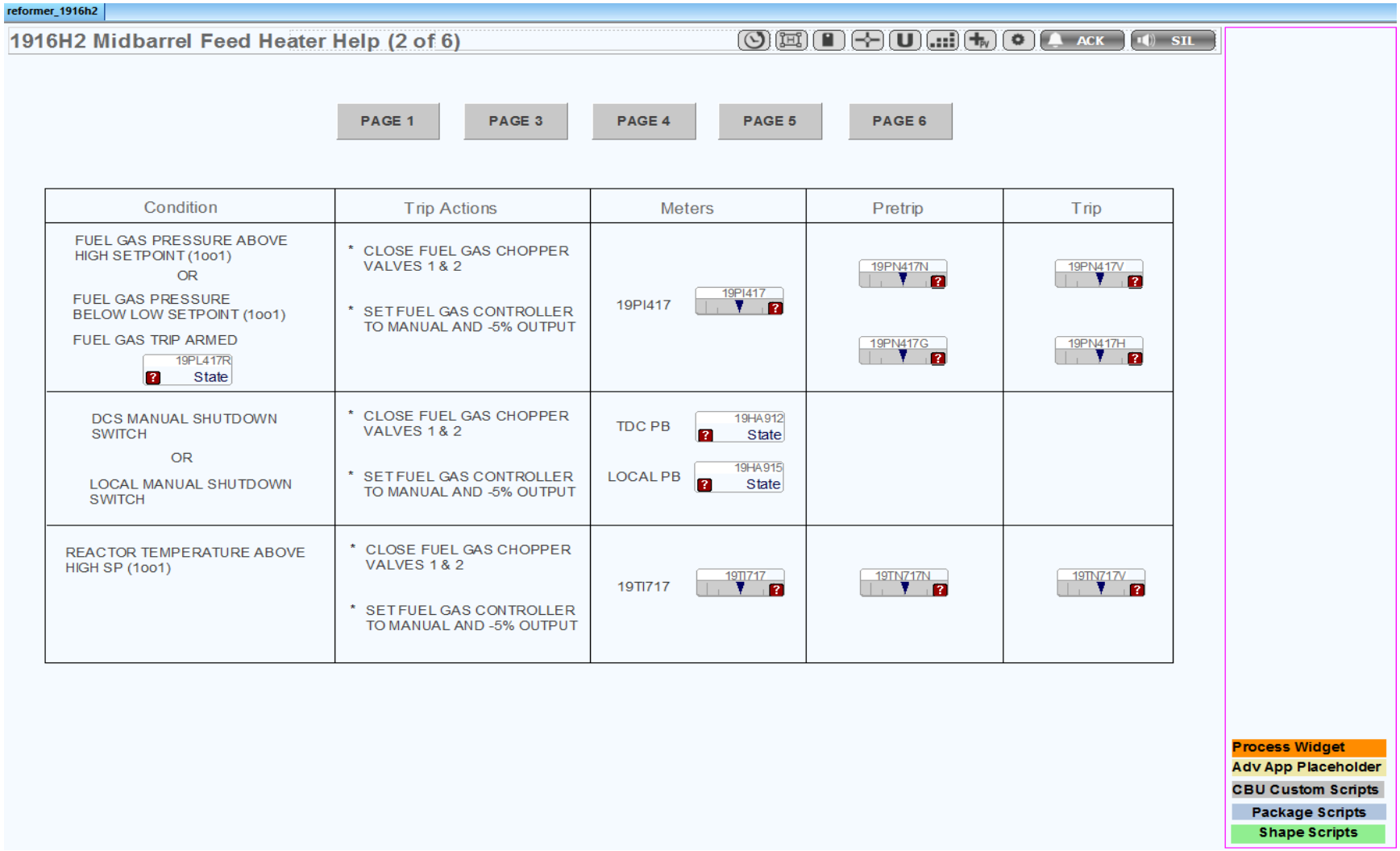


5.47 1916H1 MIDBARREL FEED HEATER HELP (1 OF 6) (Reformer_1916H1.htm)



Station View

5.48 1916H2 MIDBARREL FEED HEATER HELP (2 OF 6) (Reformer_1916H2.htm)

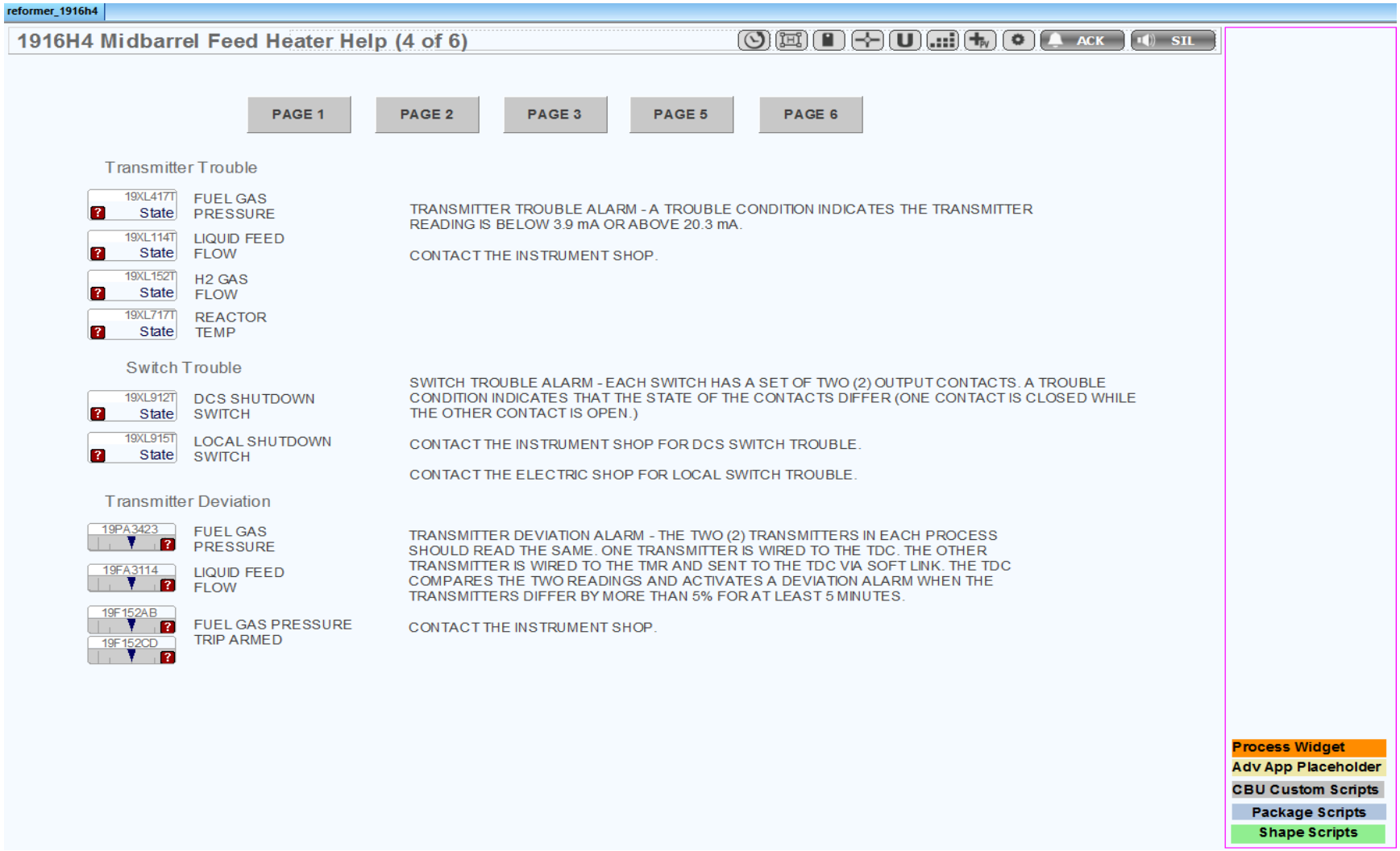


Station View

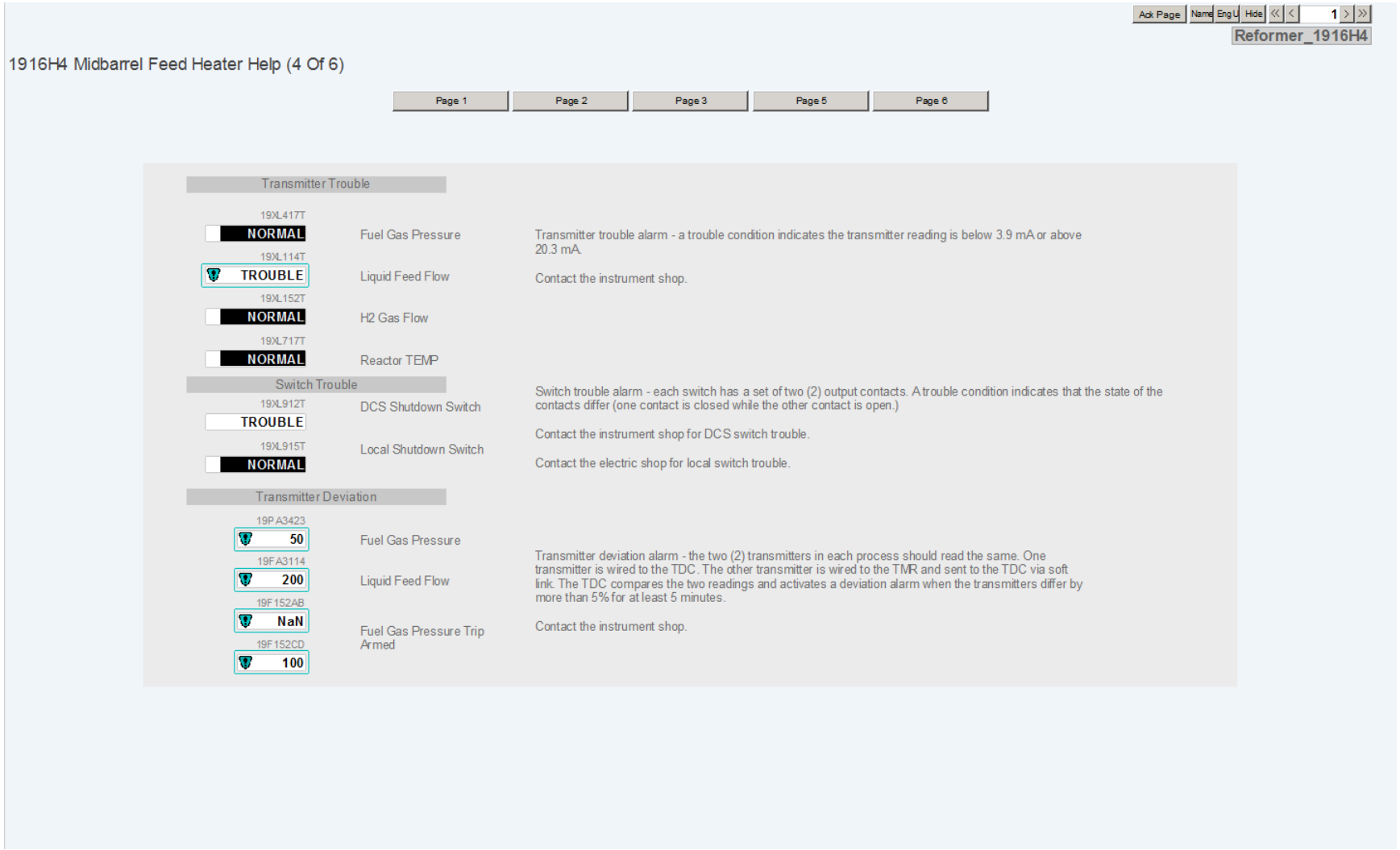
5.49 1916H3 MIDBARREL FEED HEATER HELP (3 OF 6) (Reformer_1916H3.htm)

Station View

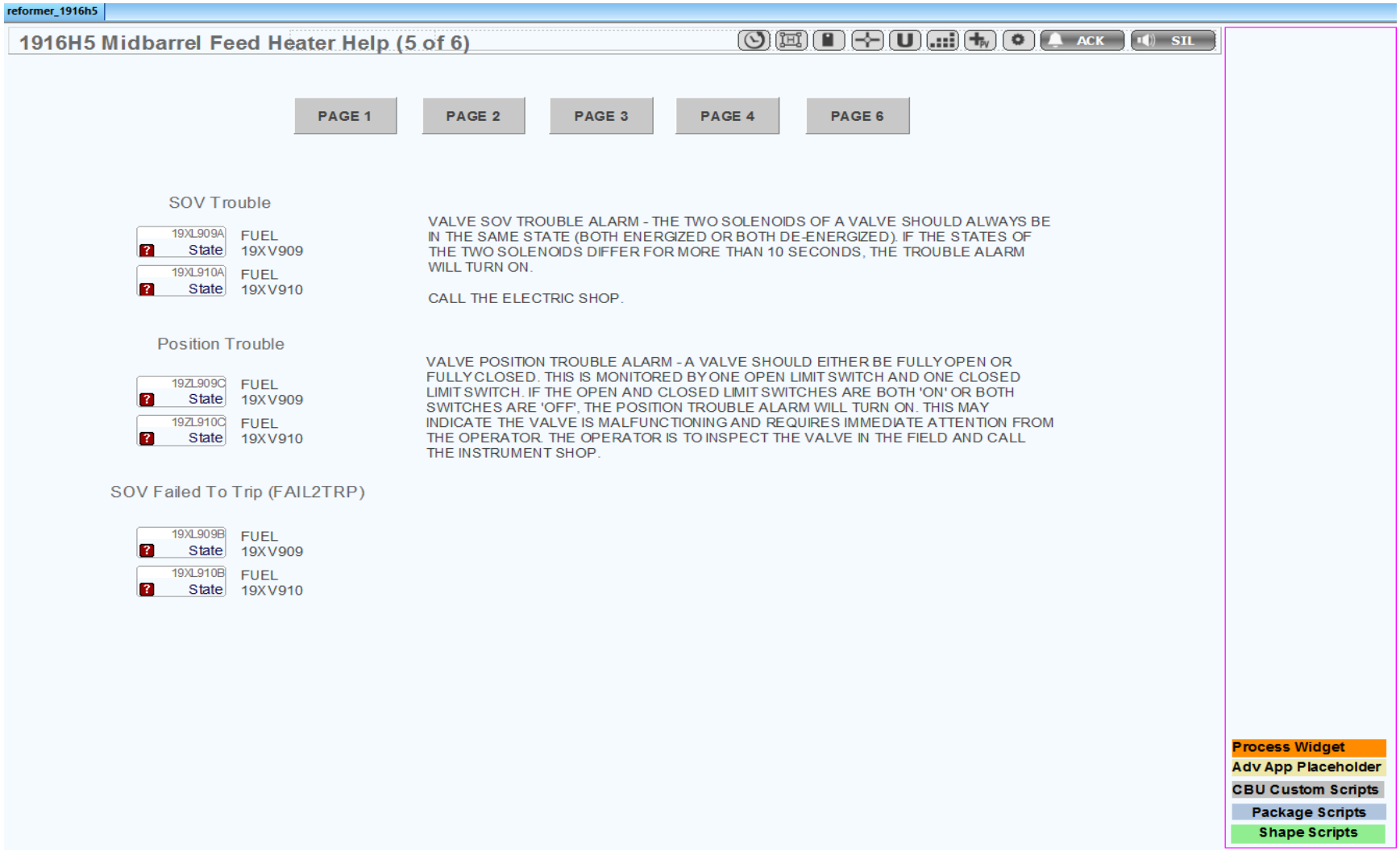
5.50 1916H4 MIDBARREL FEED HEATER HELP (4 OF 6) (Reformer_1916H4.htm)



Station View

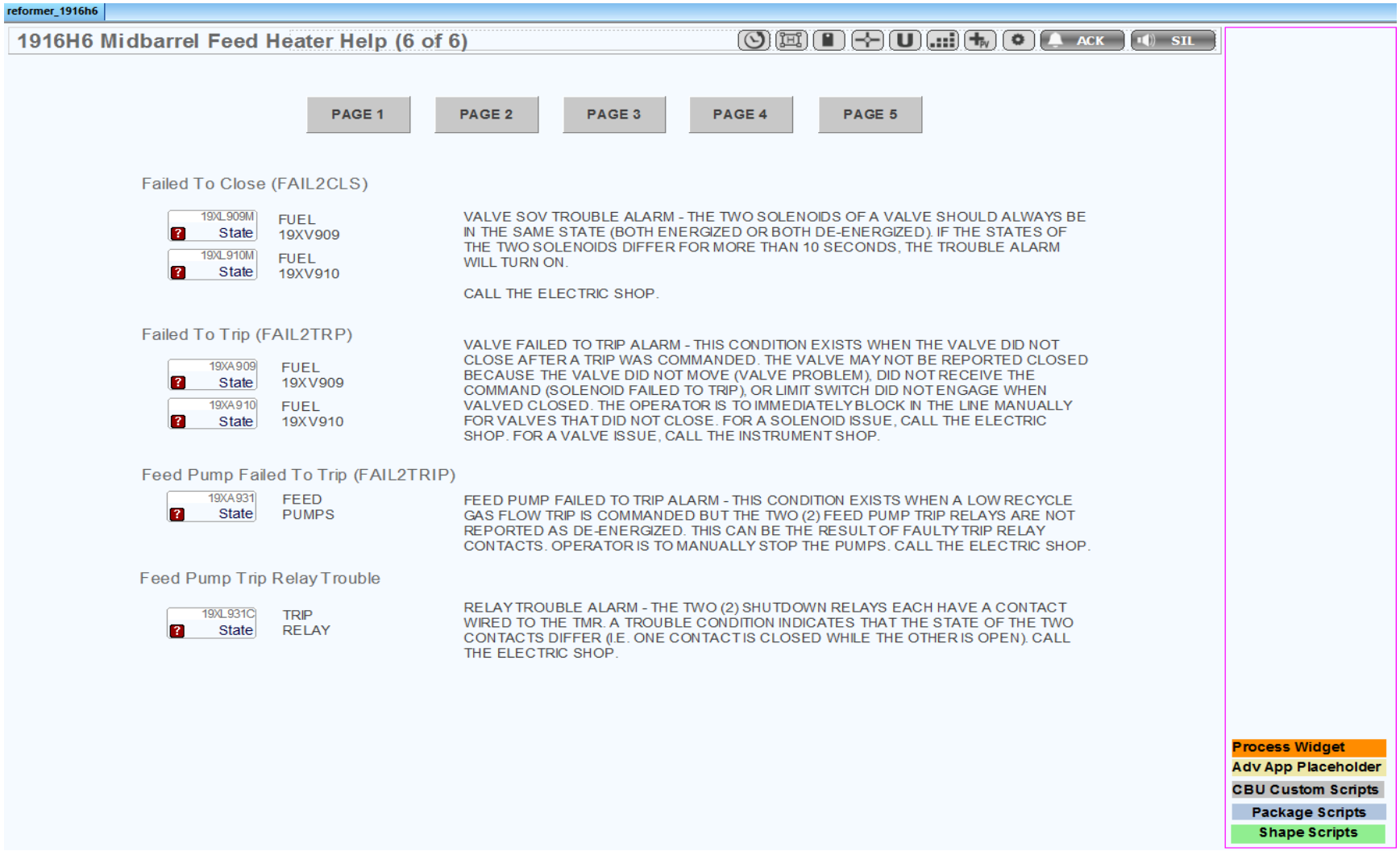


5.51 1916H5 MIDBARREL FEED HEATER HELP (5 OF 6) (Reformer_1916H5.htm)

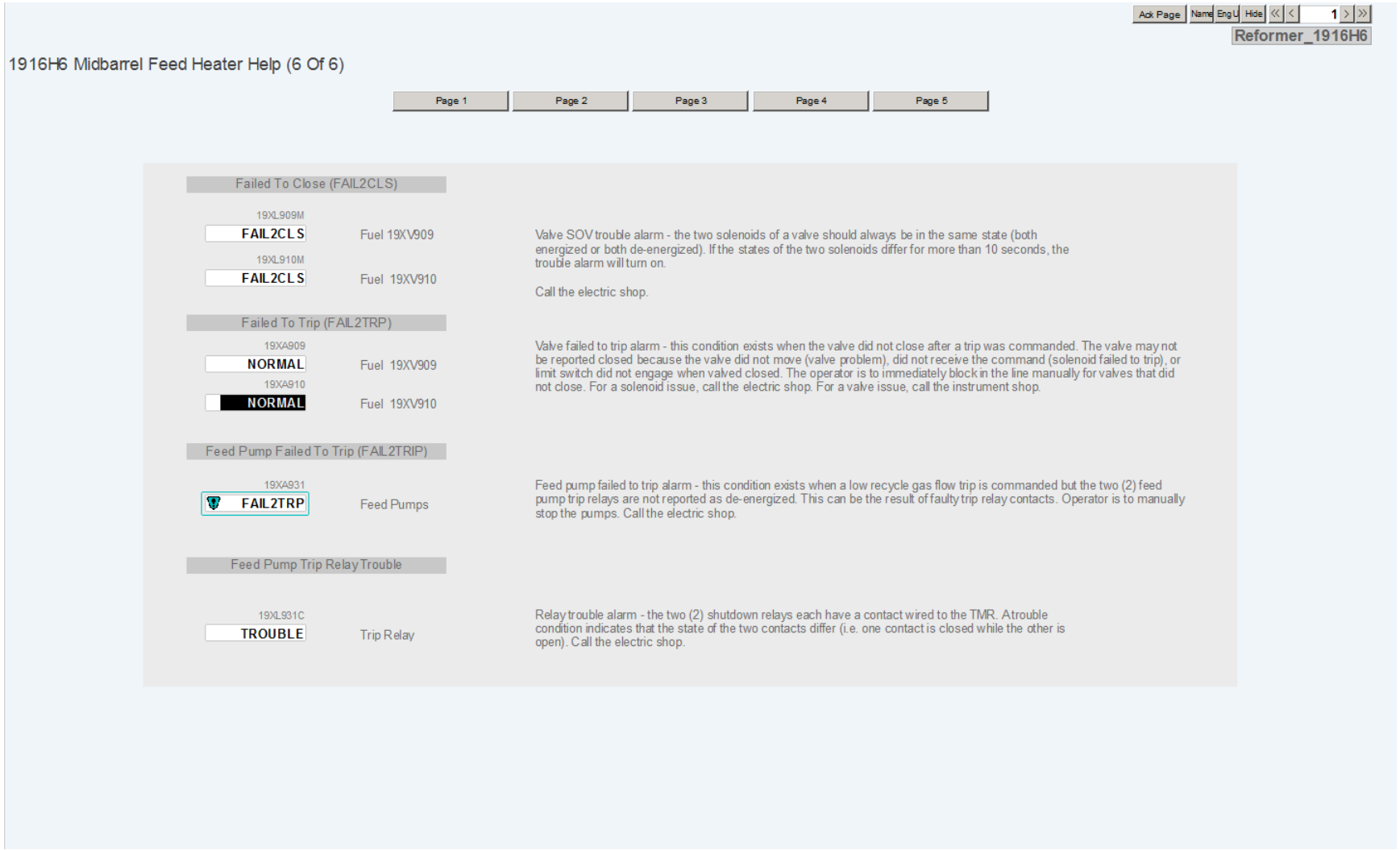


Station View

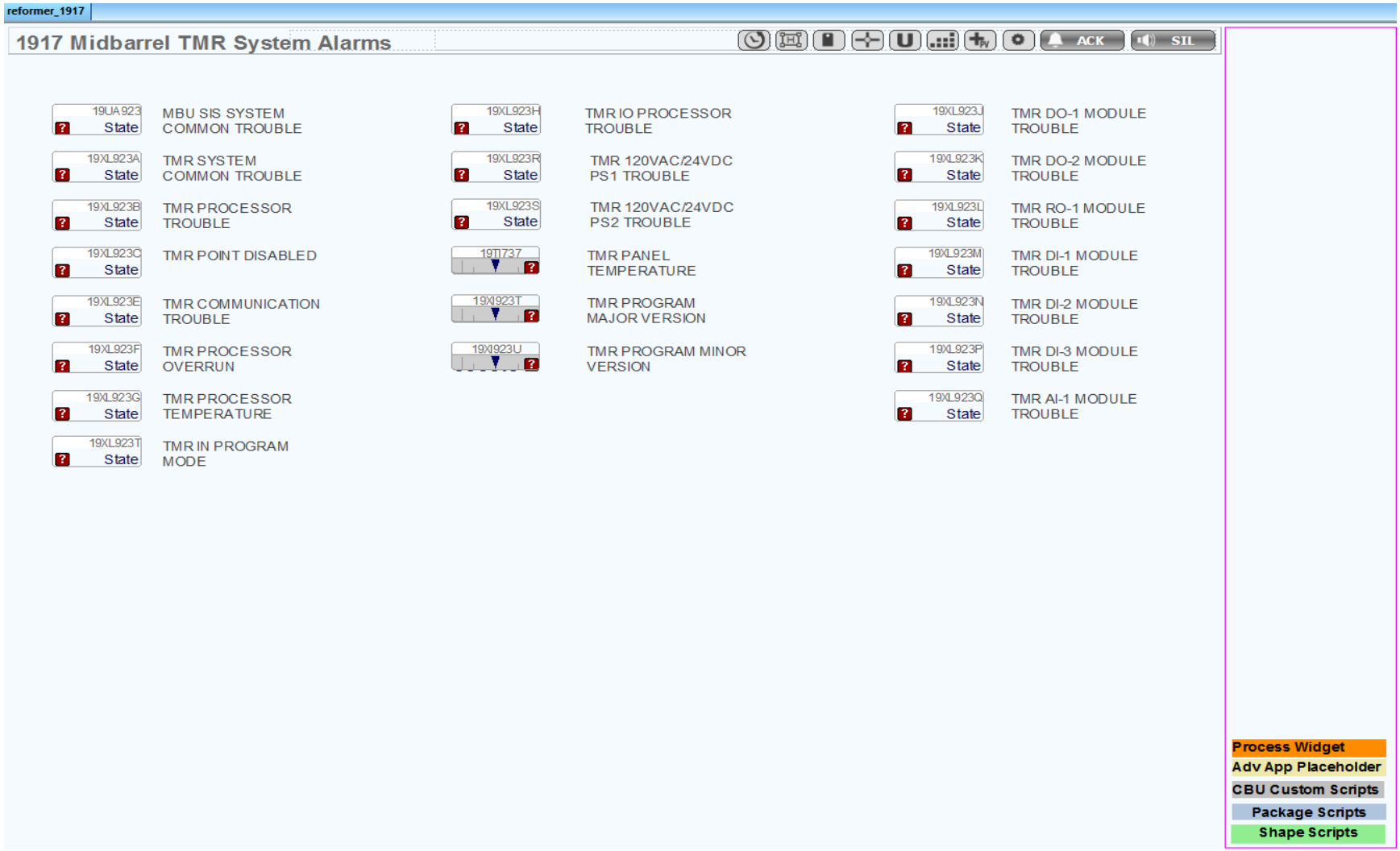
5.52 1916H6 MIDBARREL FEED HEATER HELP (6 OF 6) (Reformer_1916H6.htm)



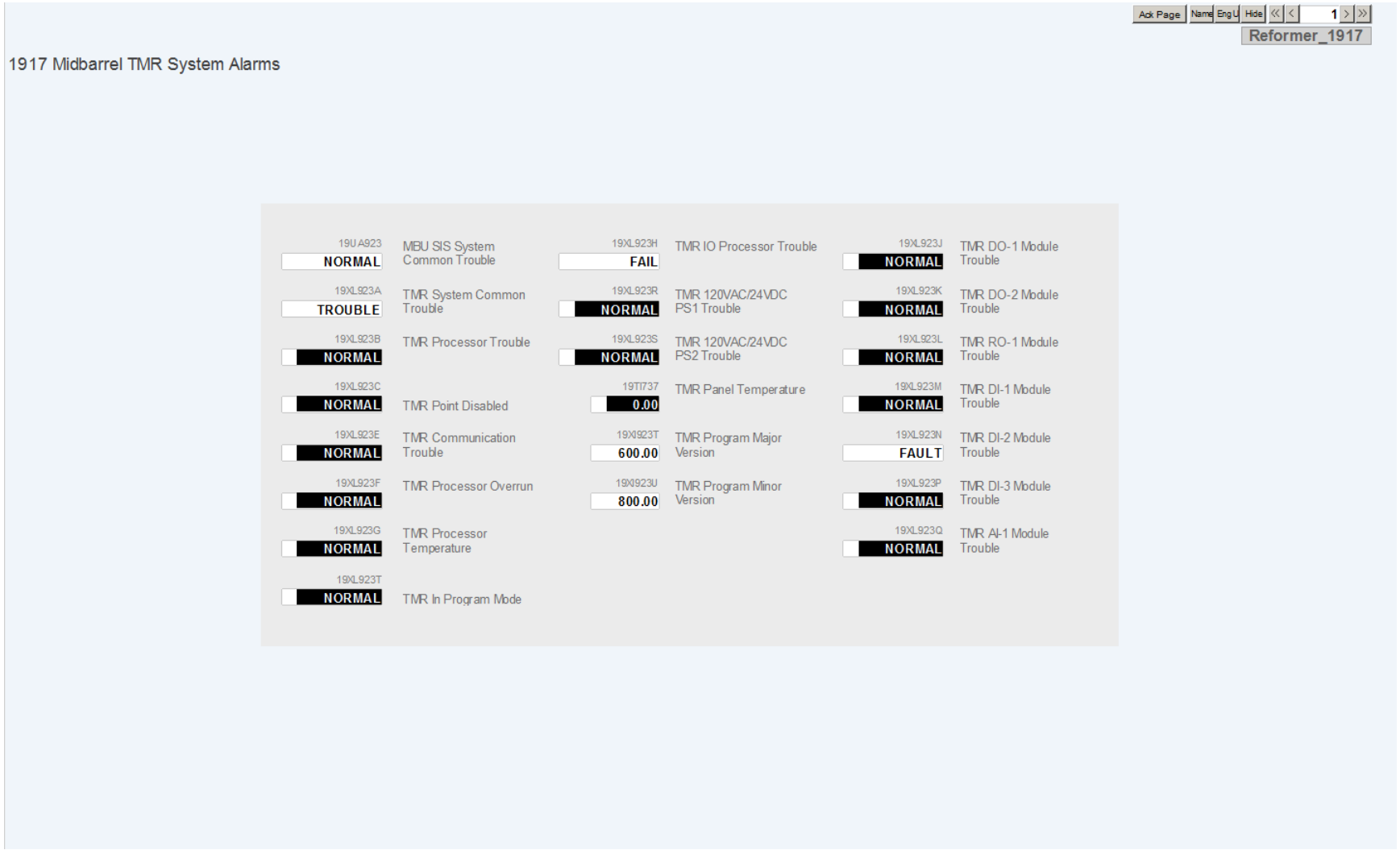
Station View



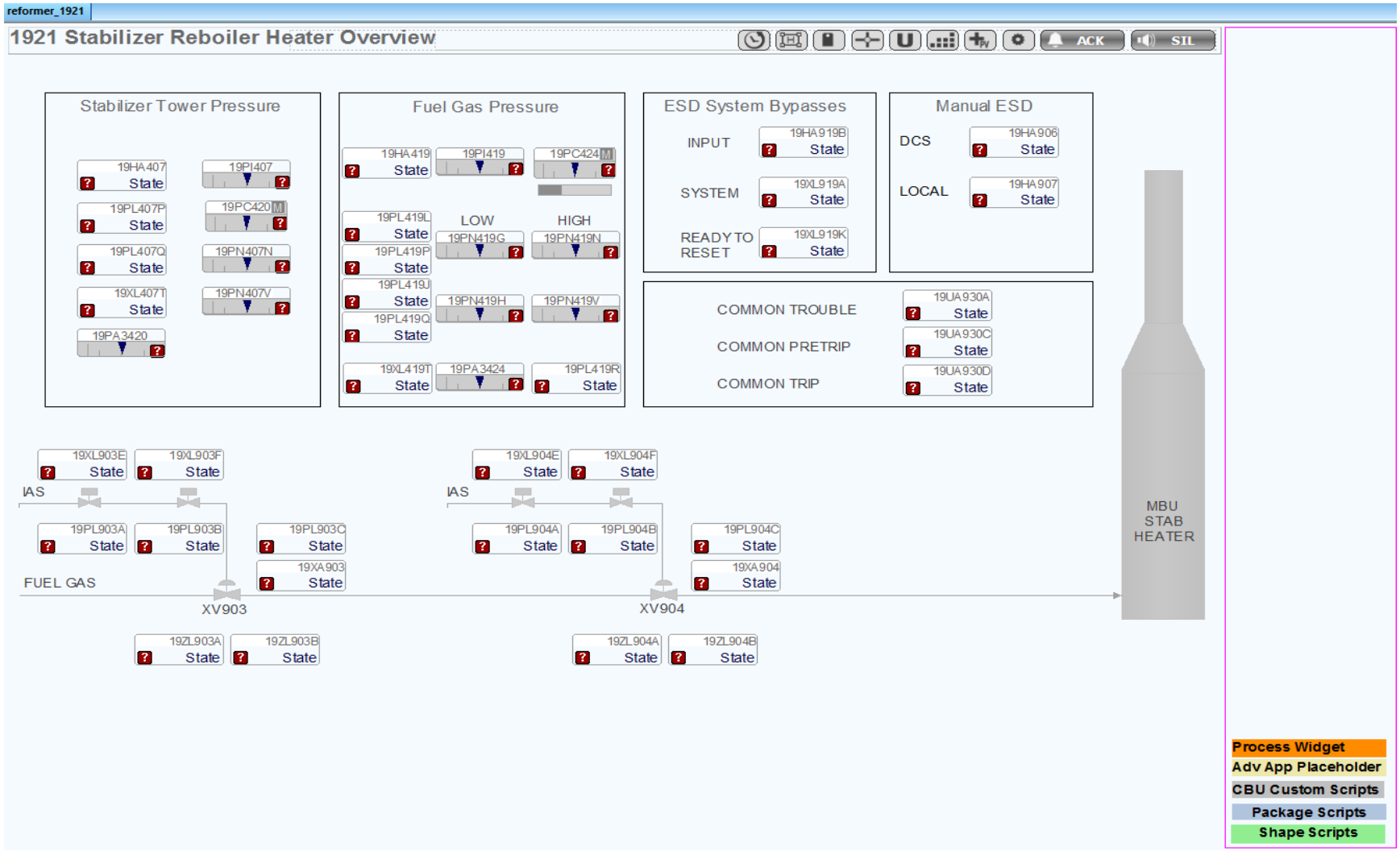
5.53 1917 MIDBARREL TMR SYATEM ALARM (Reformer_1917.htm)



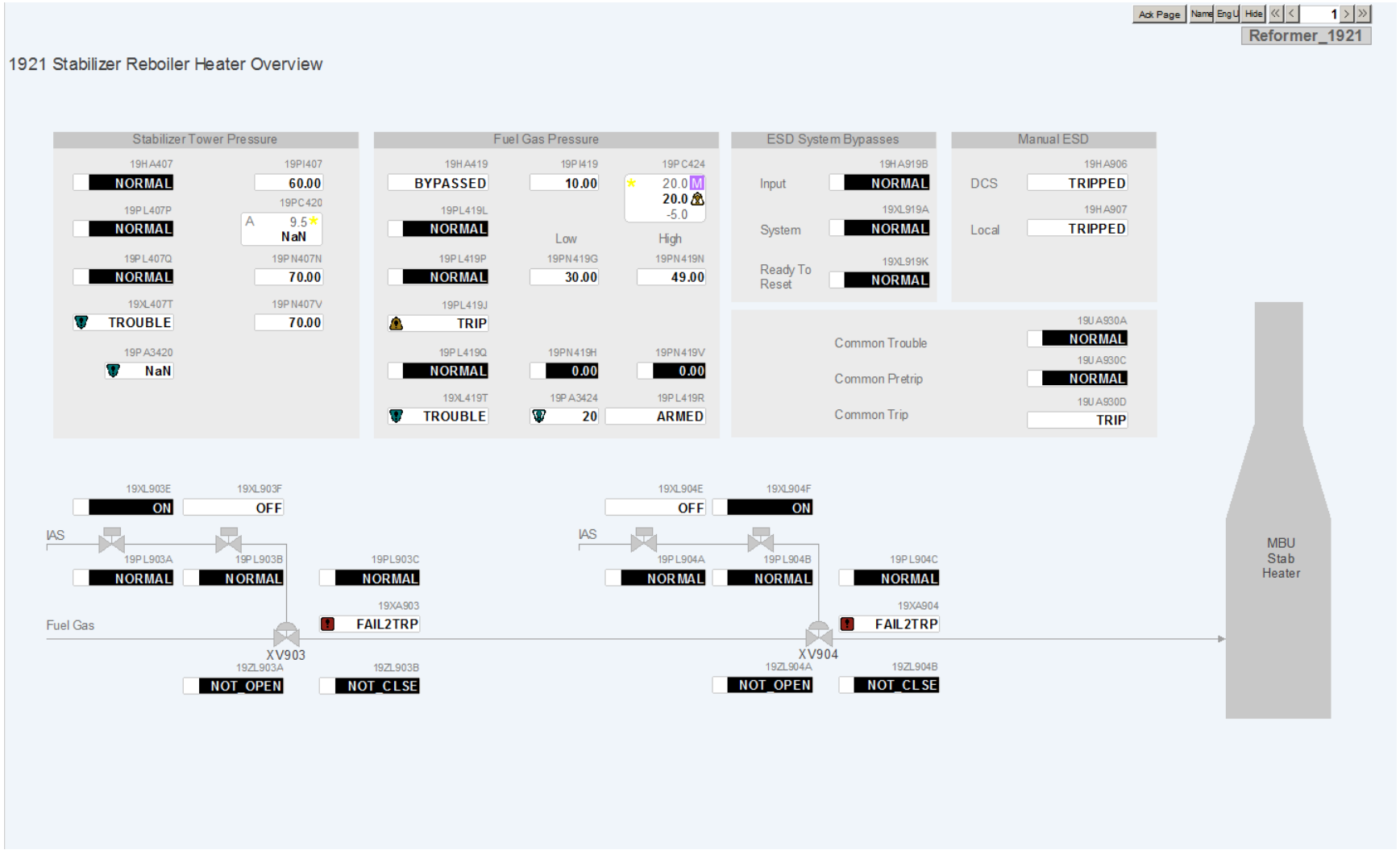
Station View



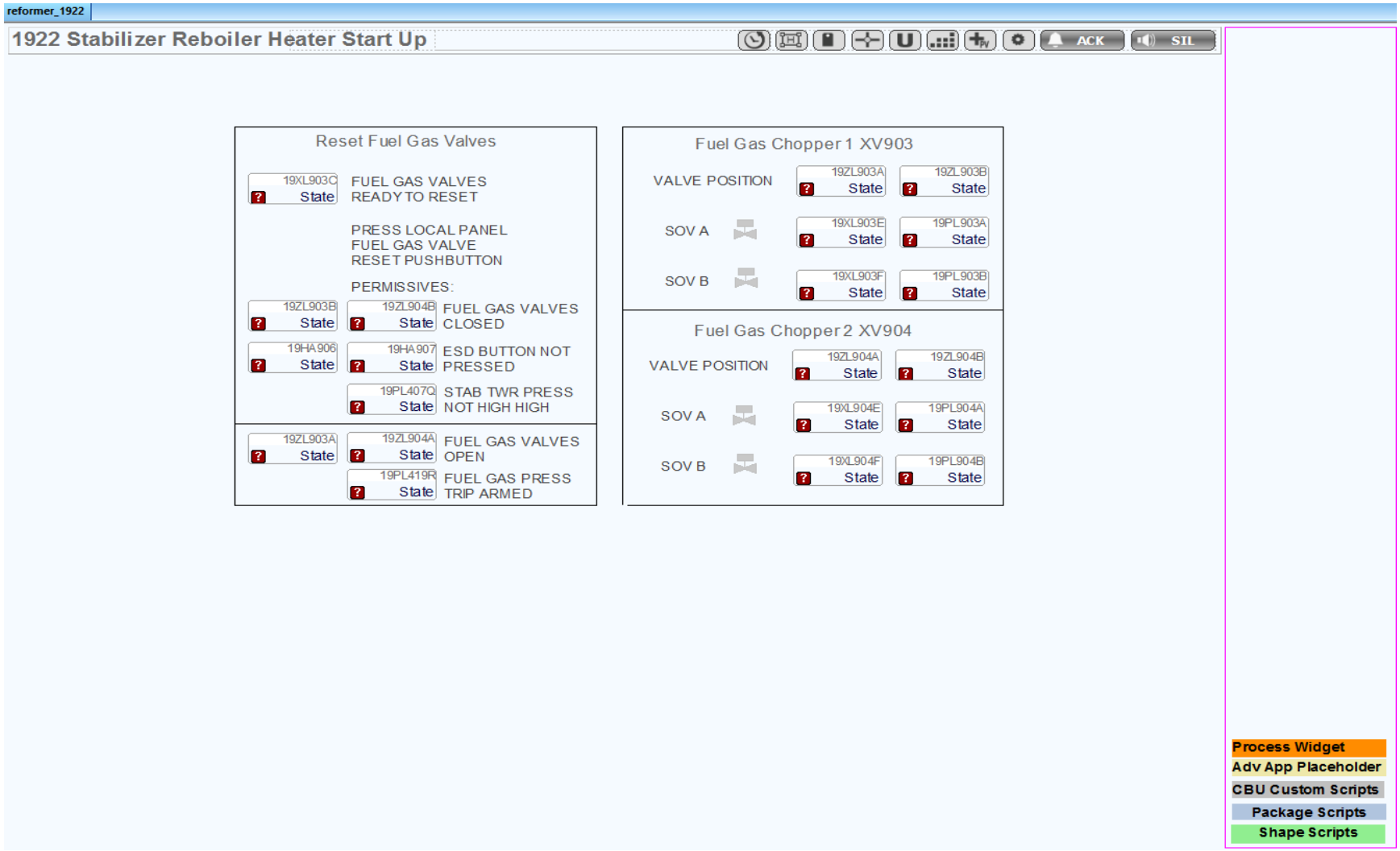
5.54 1921 STABILIZER REBOILER HEATER OVERVIEW (Reformer_1921.htm)



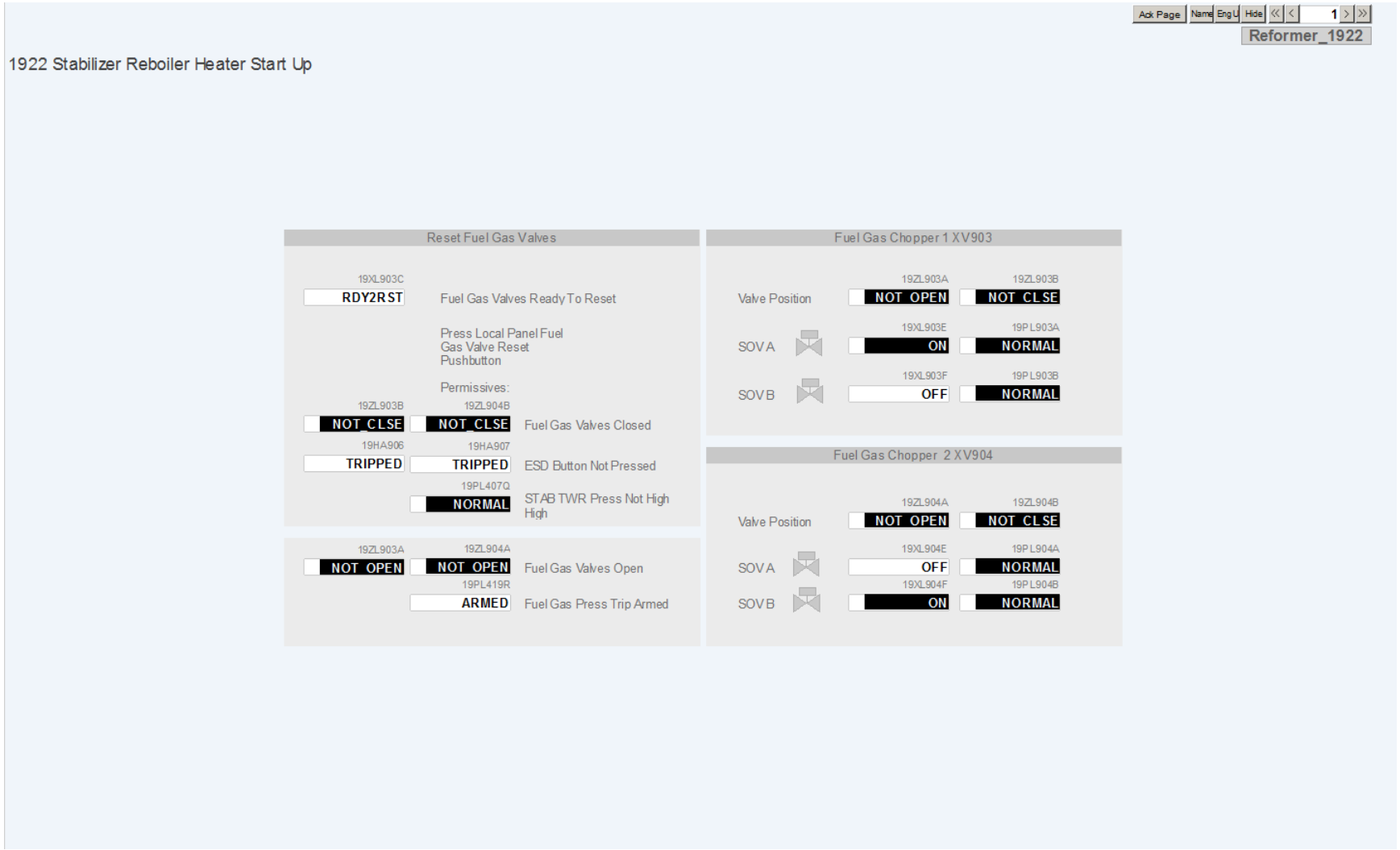
Station View



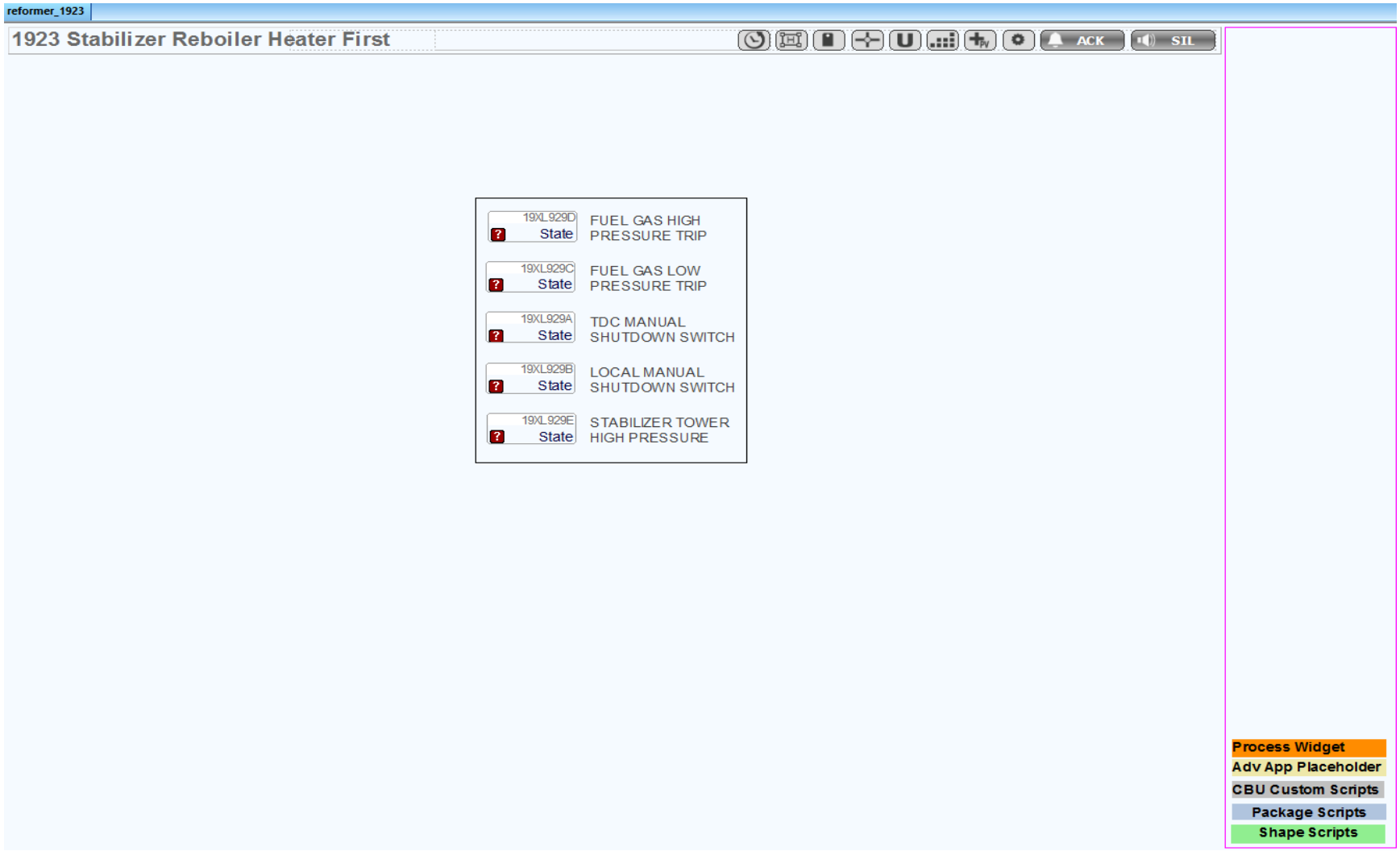
5.55 1922 STABILIZER REBOILER HEATER START UP (Reformer_1922.htm)



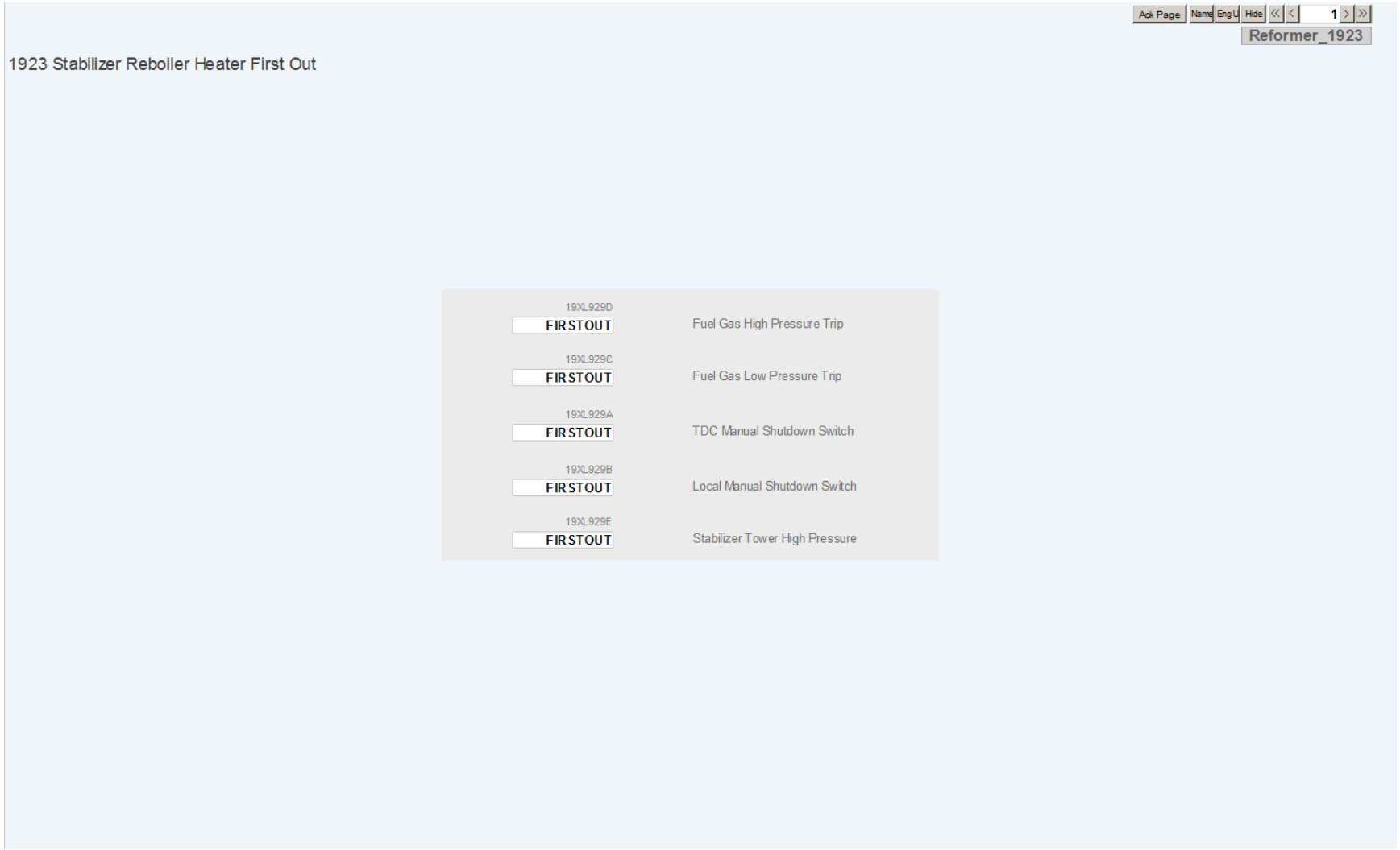
Station View



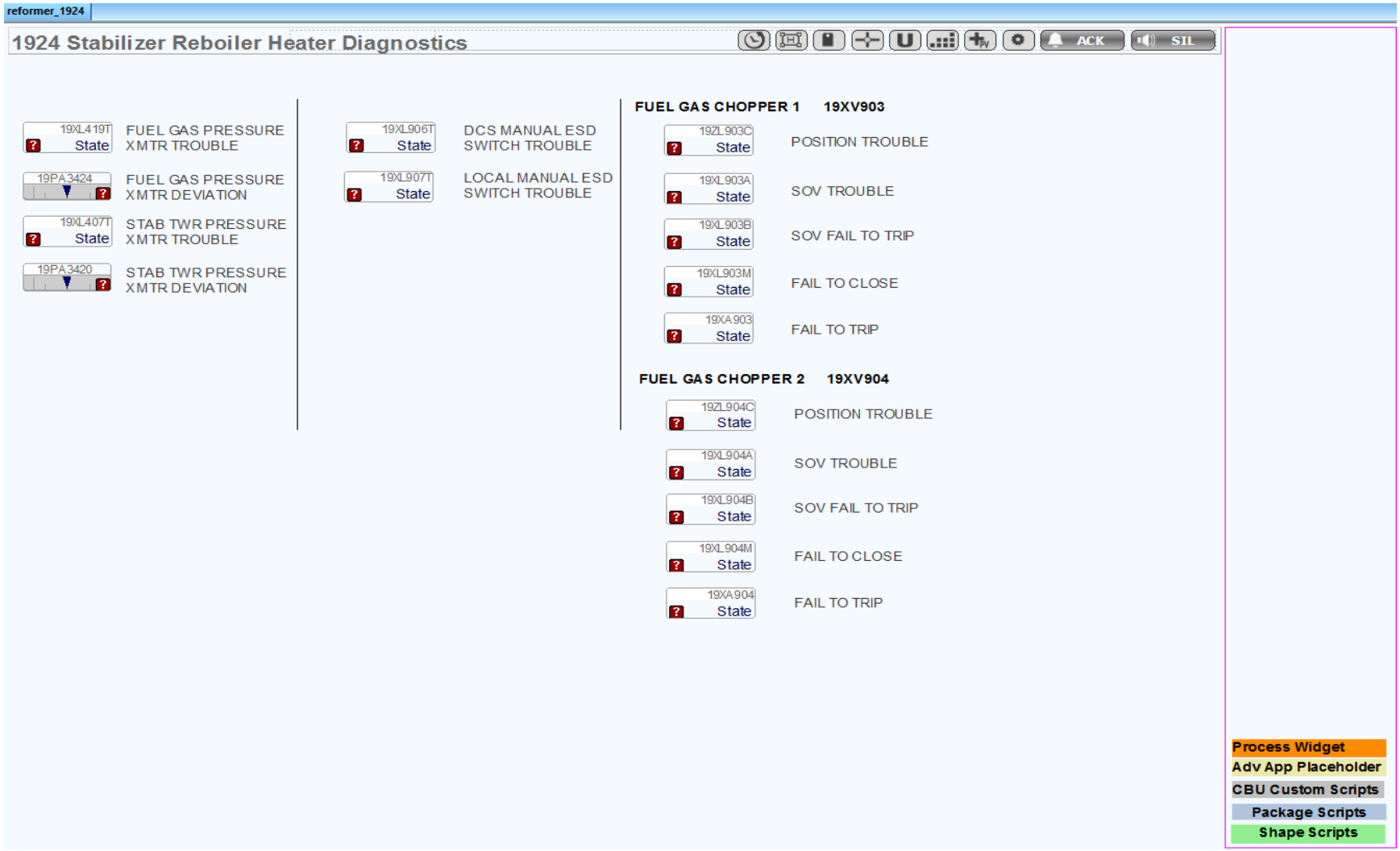
5.56 1923 STABILIZER REBOILER HEATER FIRST (Reformer_1923.htm)



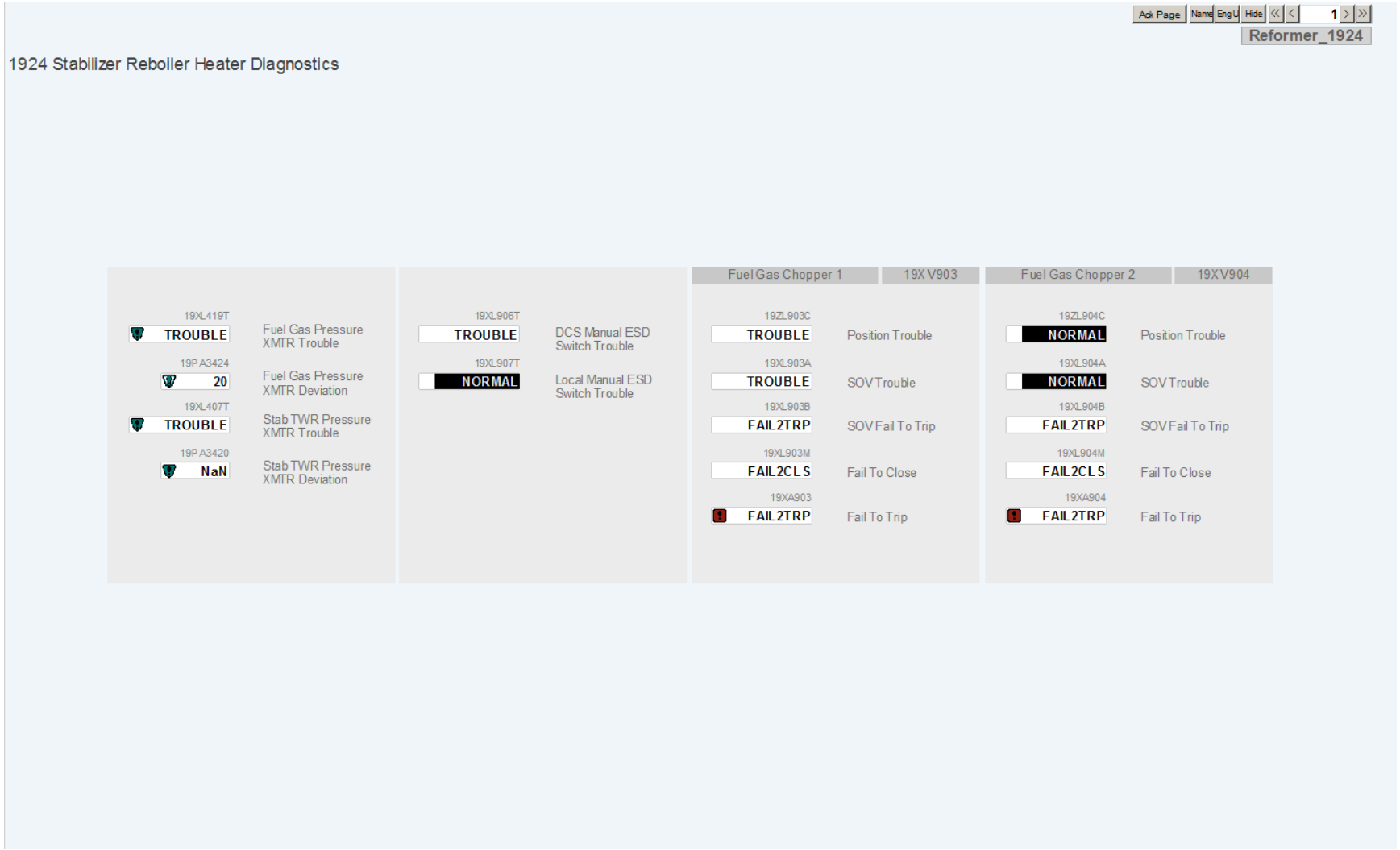
Station View



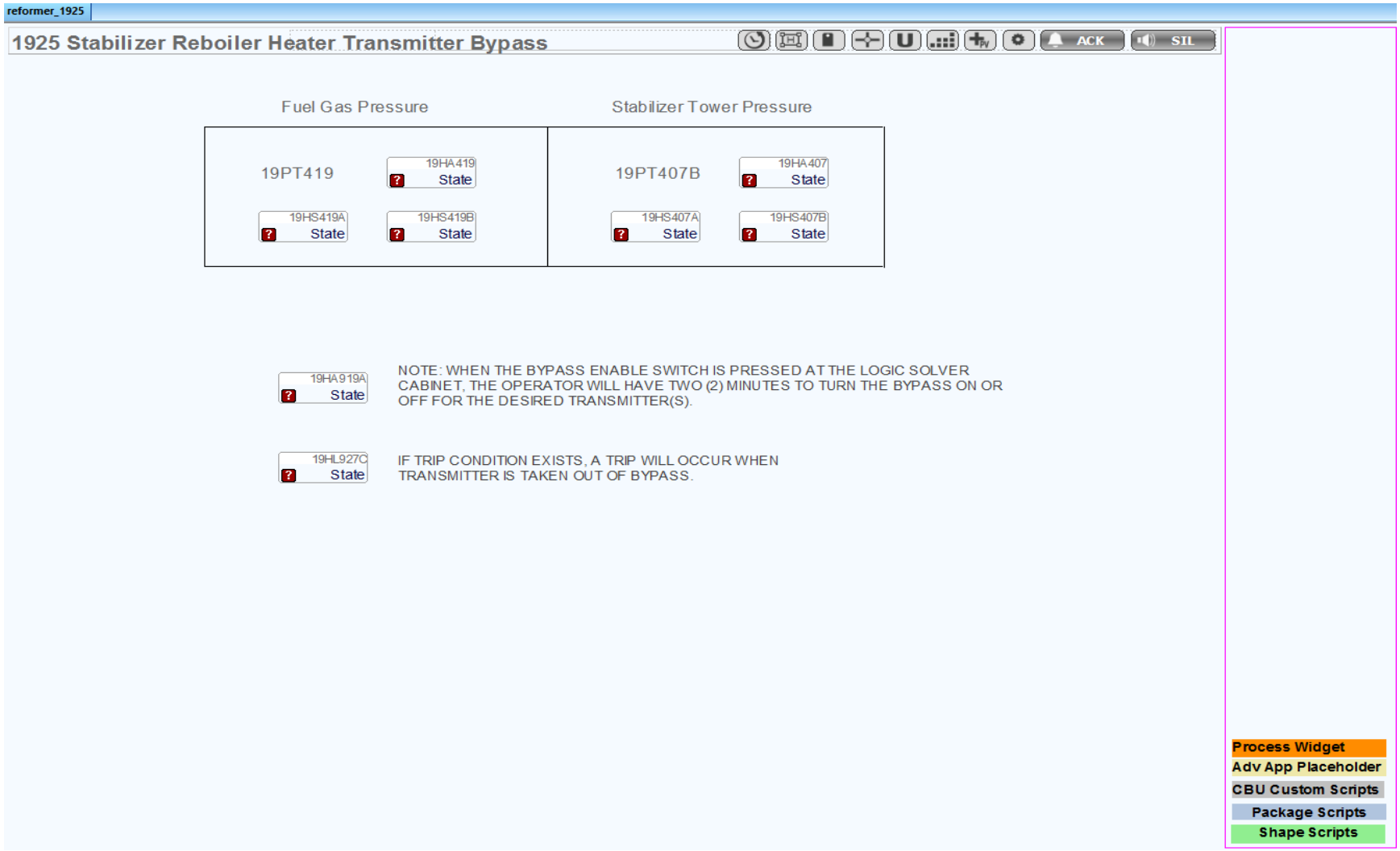
5.57 1924 STABILIZER REBOILER HEATER DIAGNOSTICS (Reformer_1924.htm)



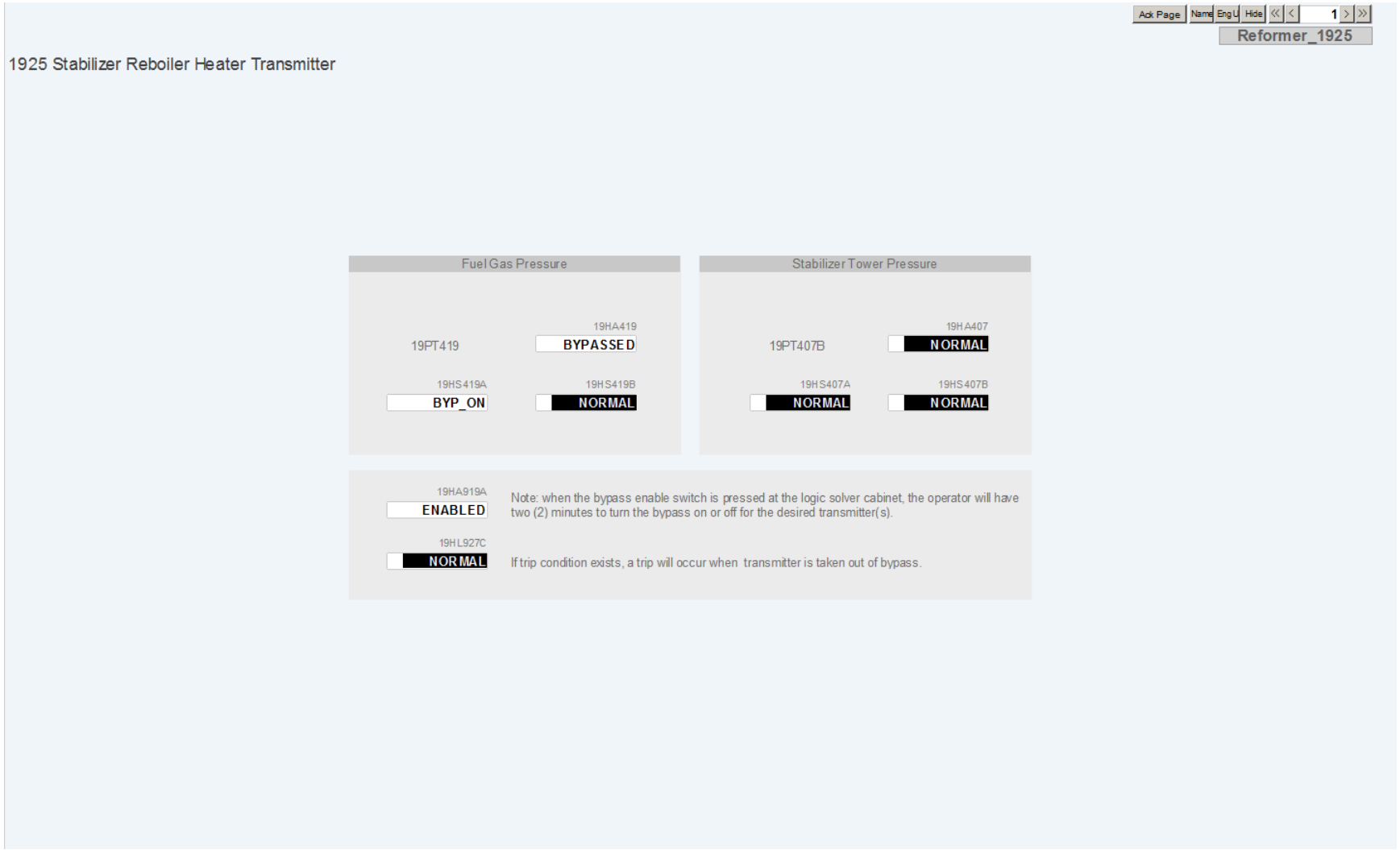
Station View



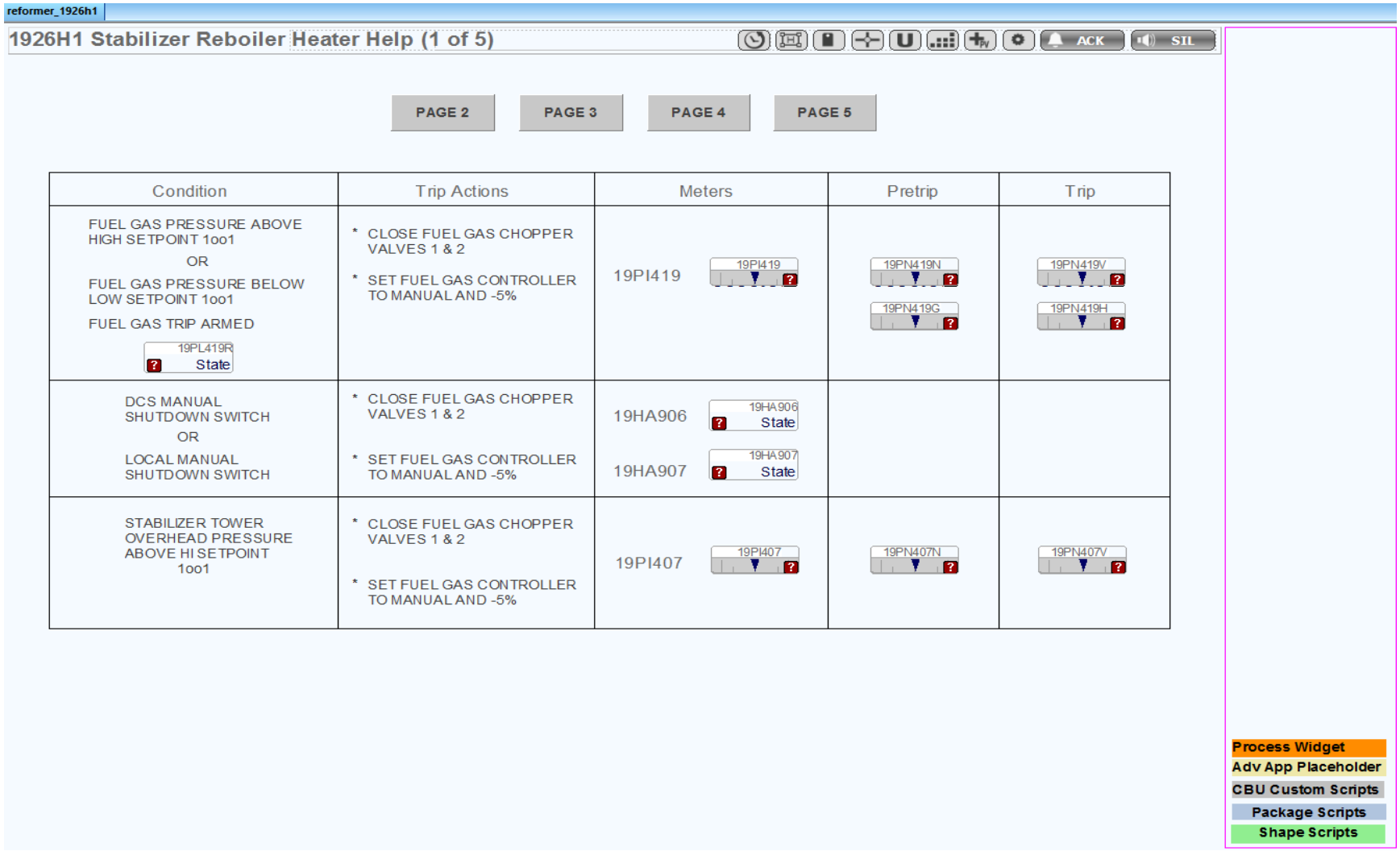
5.58 1925 STABILIZER REBOILER HEATER TRANSMITTER BYPASS (Reformer_1925.htm)



Station View



5.59 1926H1 STABILIZER REBOILER HEATER HELP (1 OF 5) (Reformer_1926H1.htm)

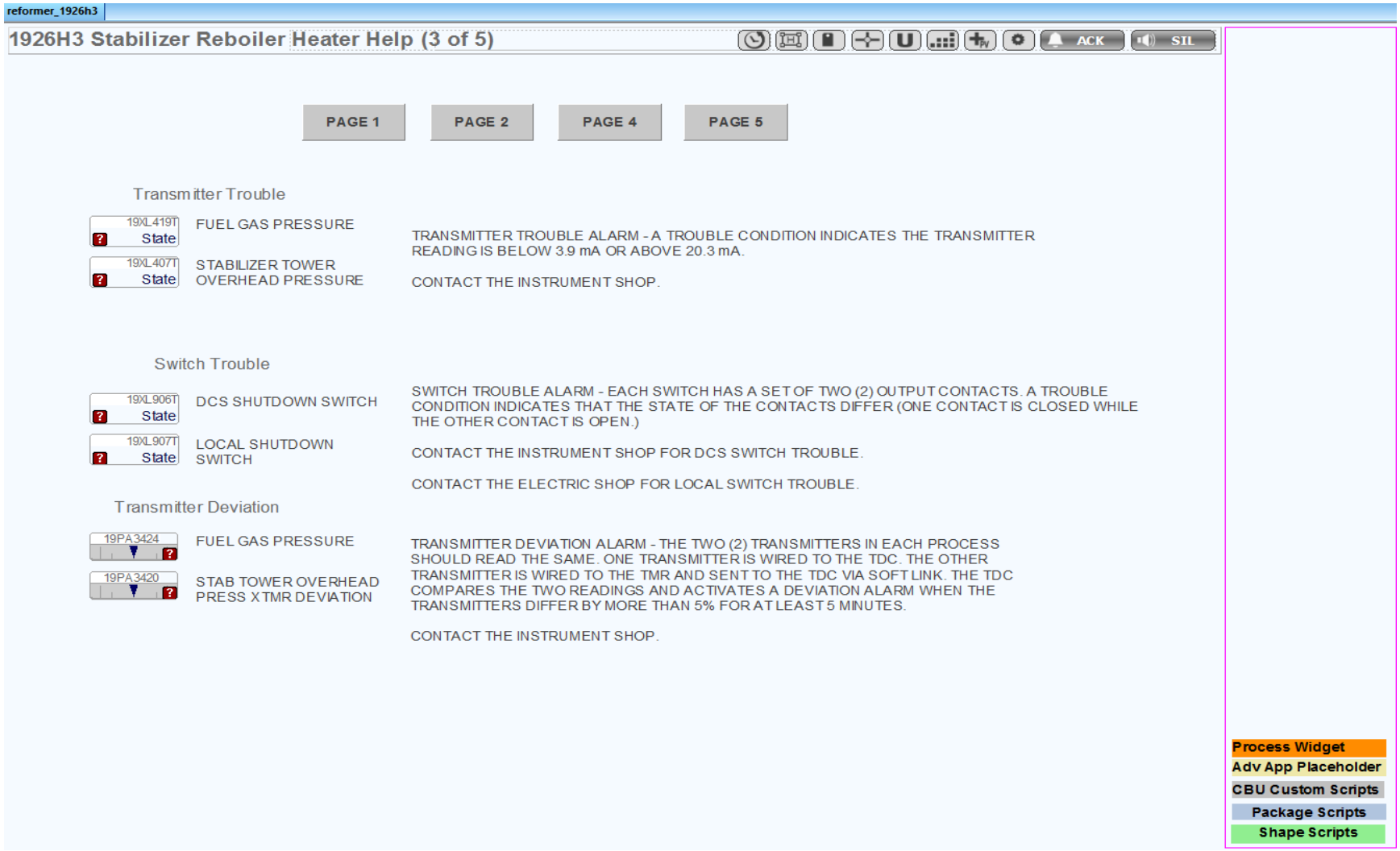


Station View

5.60 1926H2 STABILIZER REBOILER HEATER HELP (2 OF 5) (Reformer_1926H2.htm)

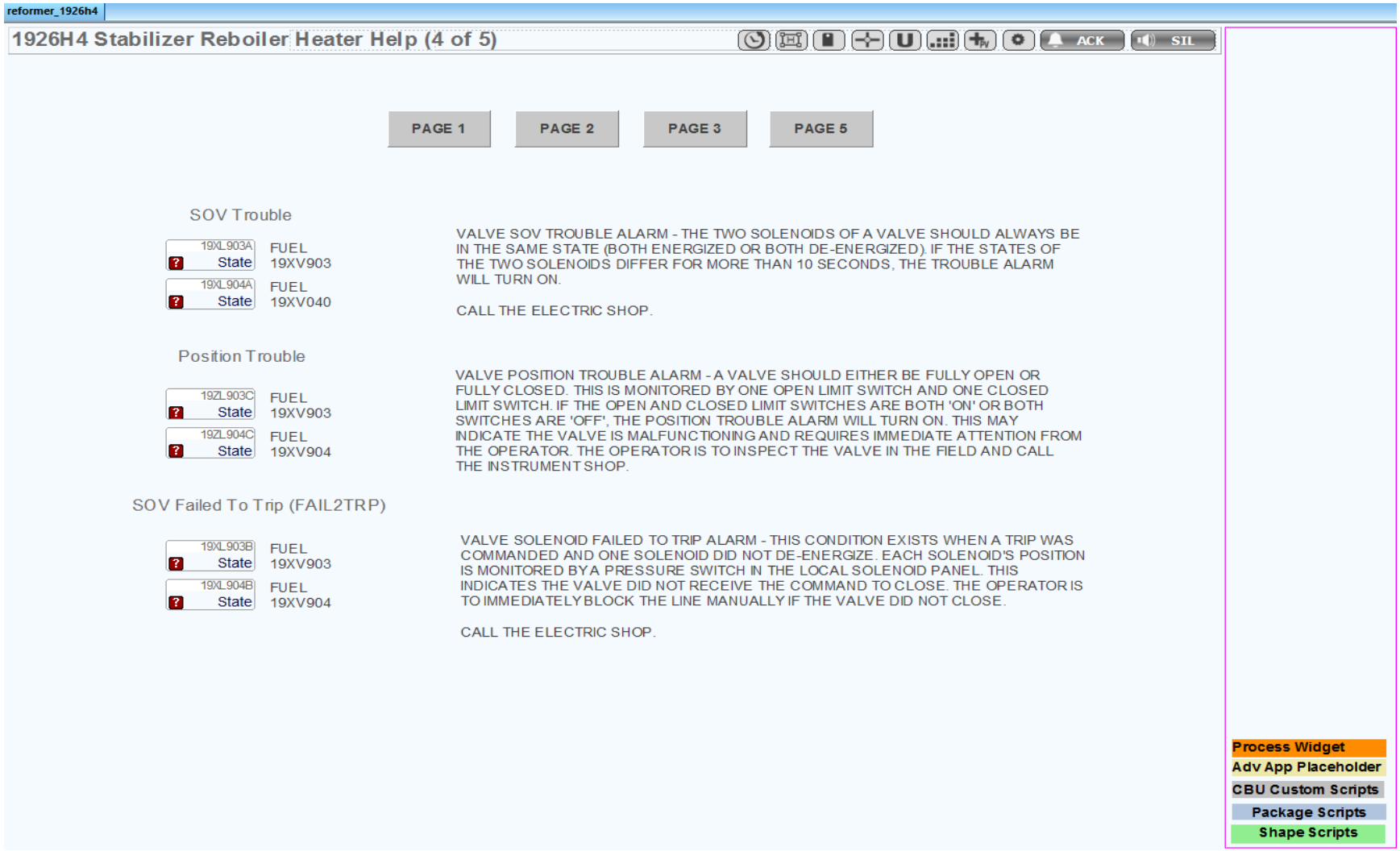
Station View

5.61 1926H3 STABILIZER REBOILER HEATER HELP (3 OF 5) (Reformer_1926H3.htm)



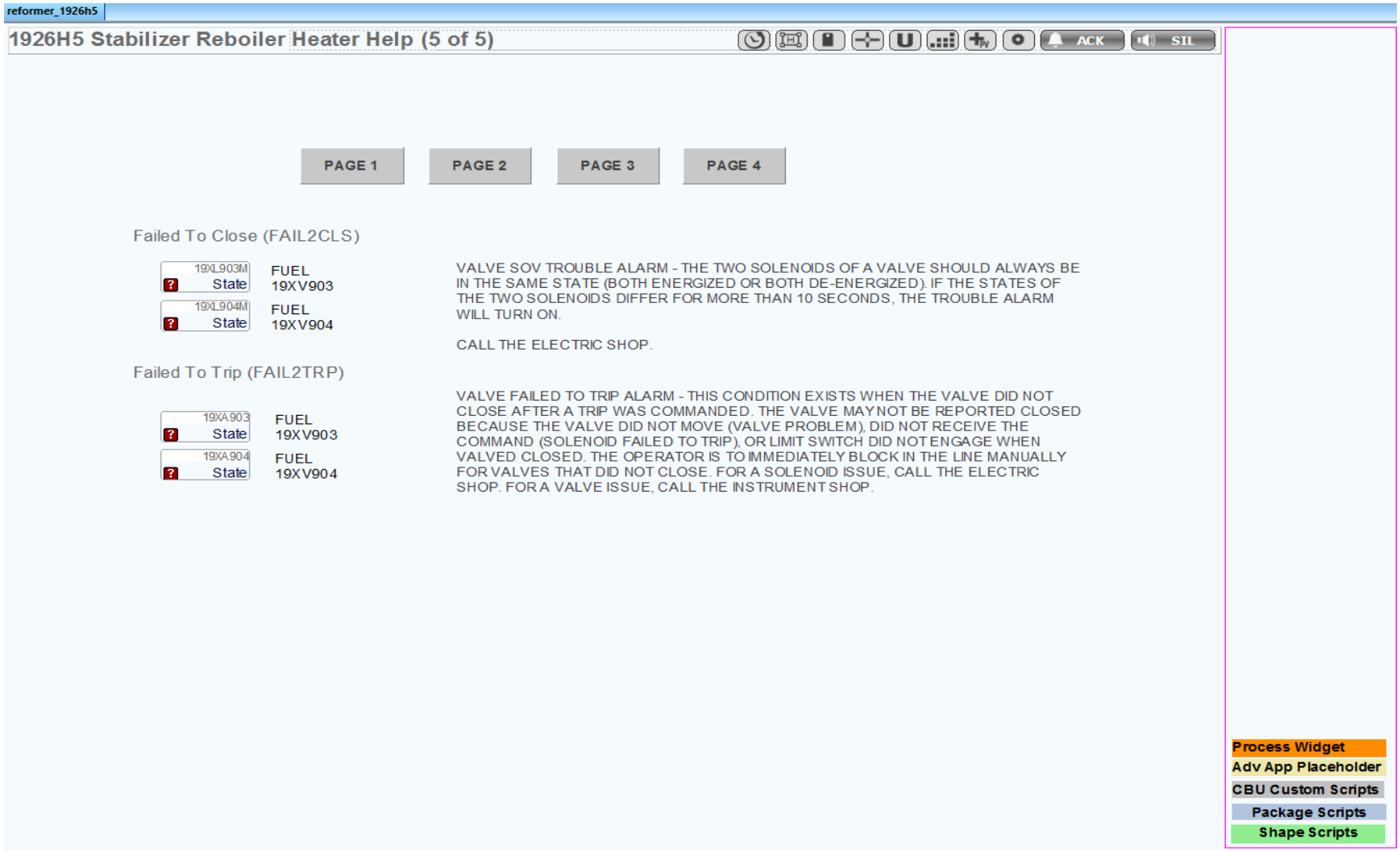
Station View

5.62 1926H4 STABILIZER REBOILER HEATER HELP (4 OF 5) (Reformer_1926H4.htm)



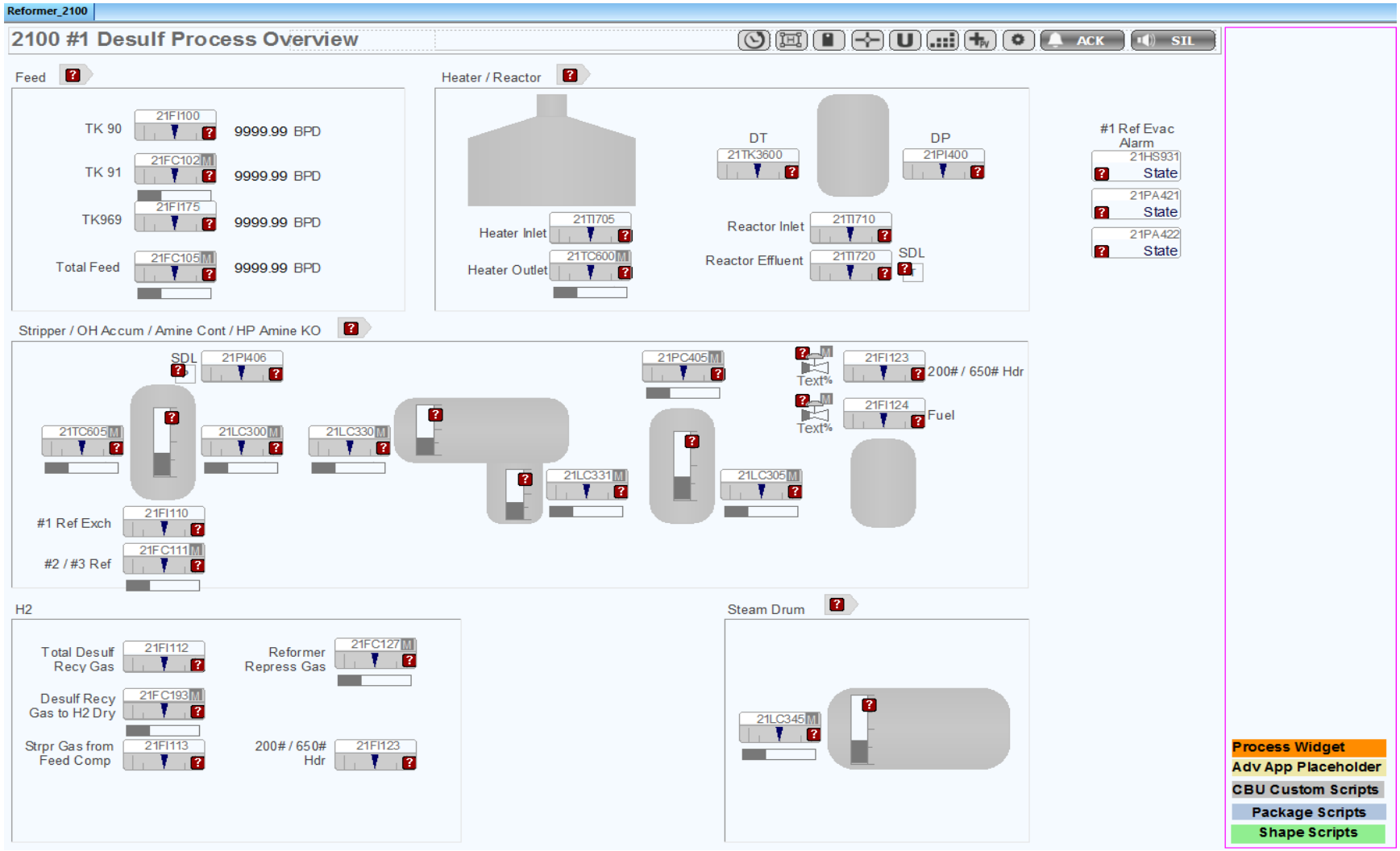
Station View

5.63 1926H5 STABILIZER REBOILER HEATER HELP (5 OF 5) (Reformer_1926H5.htm)



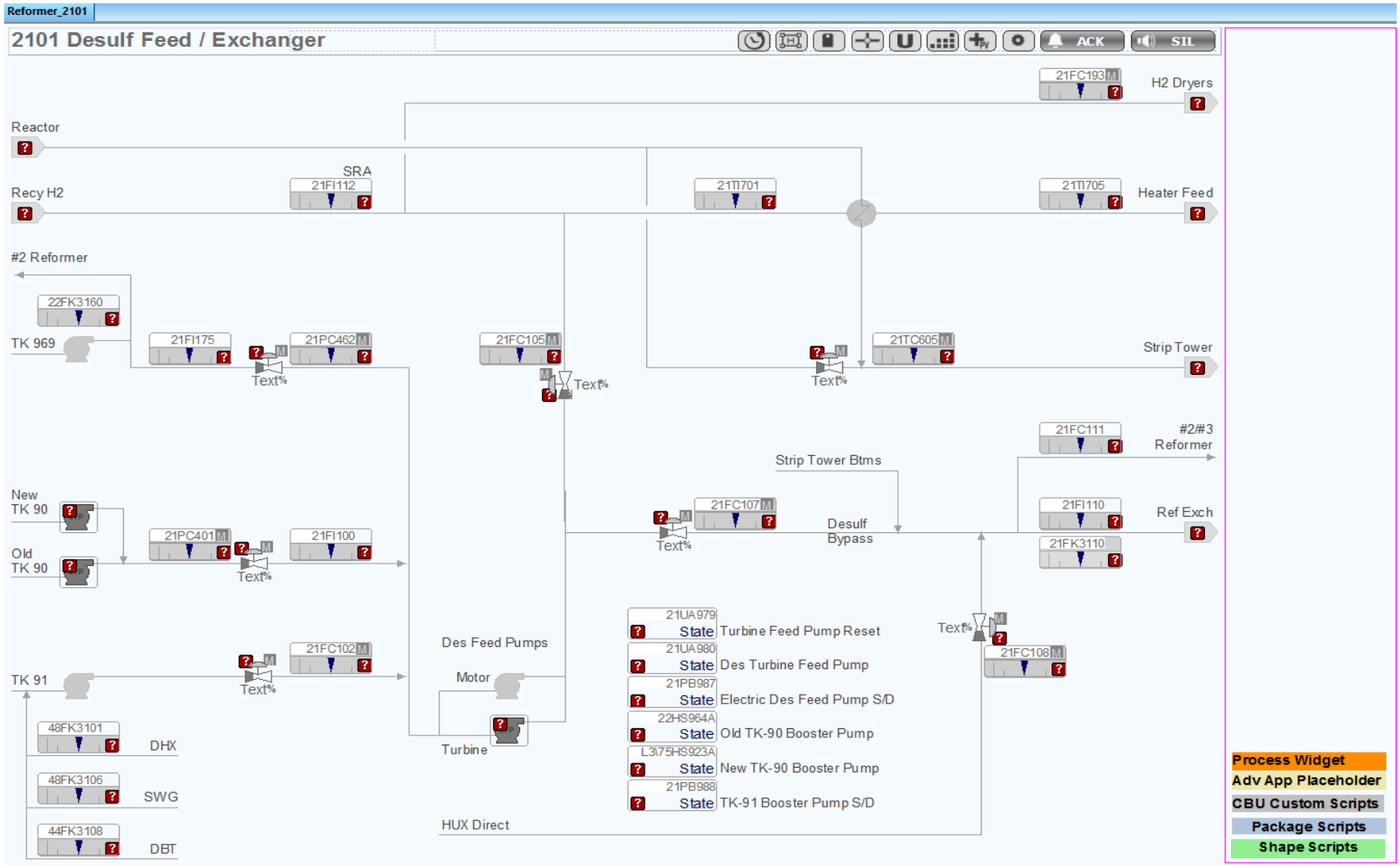
Station View

5.64 2100 #1 DESULF PROCESS OVERVIEW (Reformer_2100.htm)

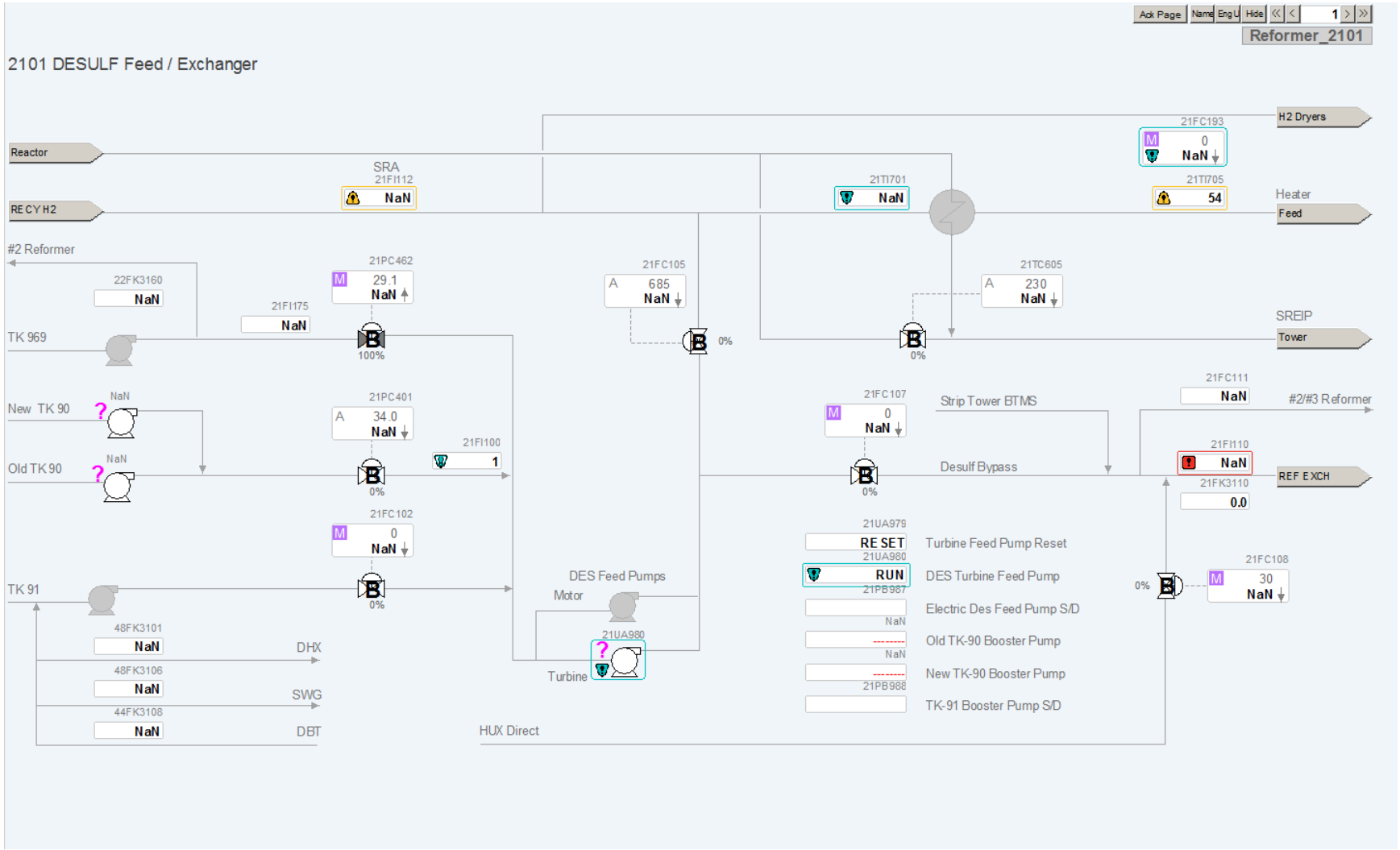


Station View

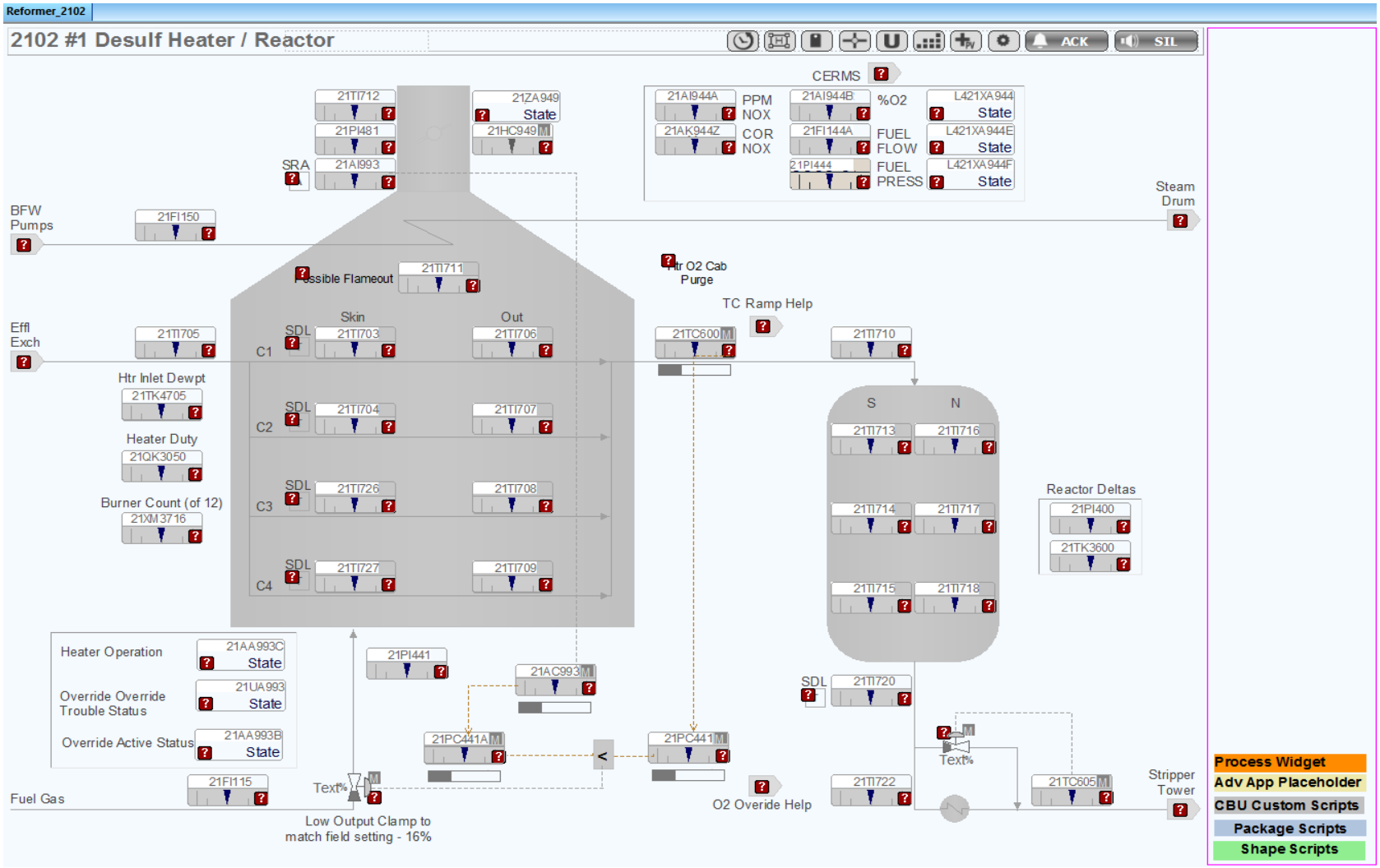
5.65 2101 DESULF FEED / EXCHANGER (Reformer_2101.htm)



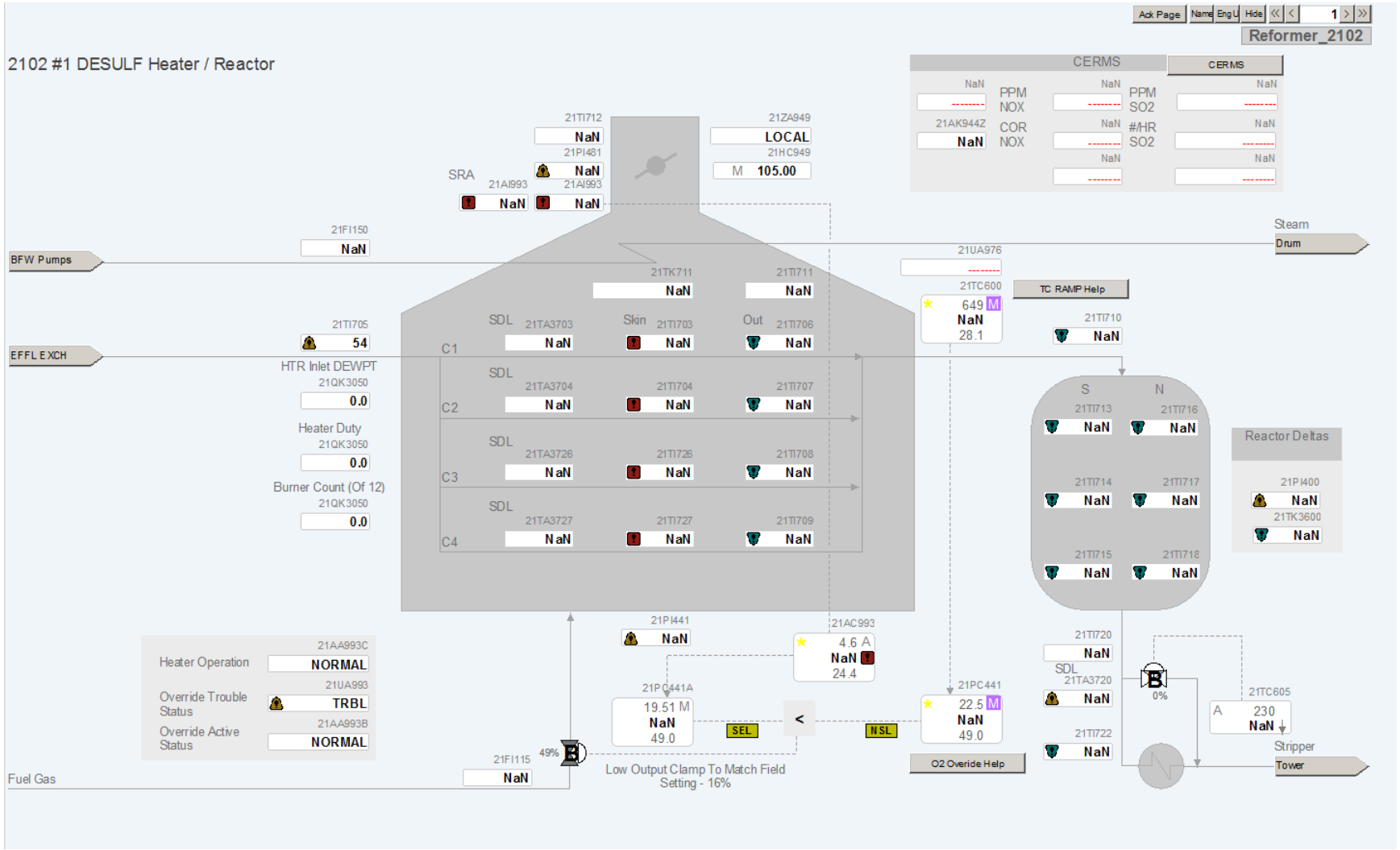
Station View



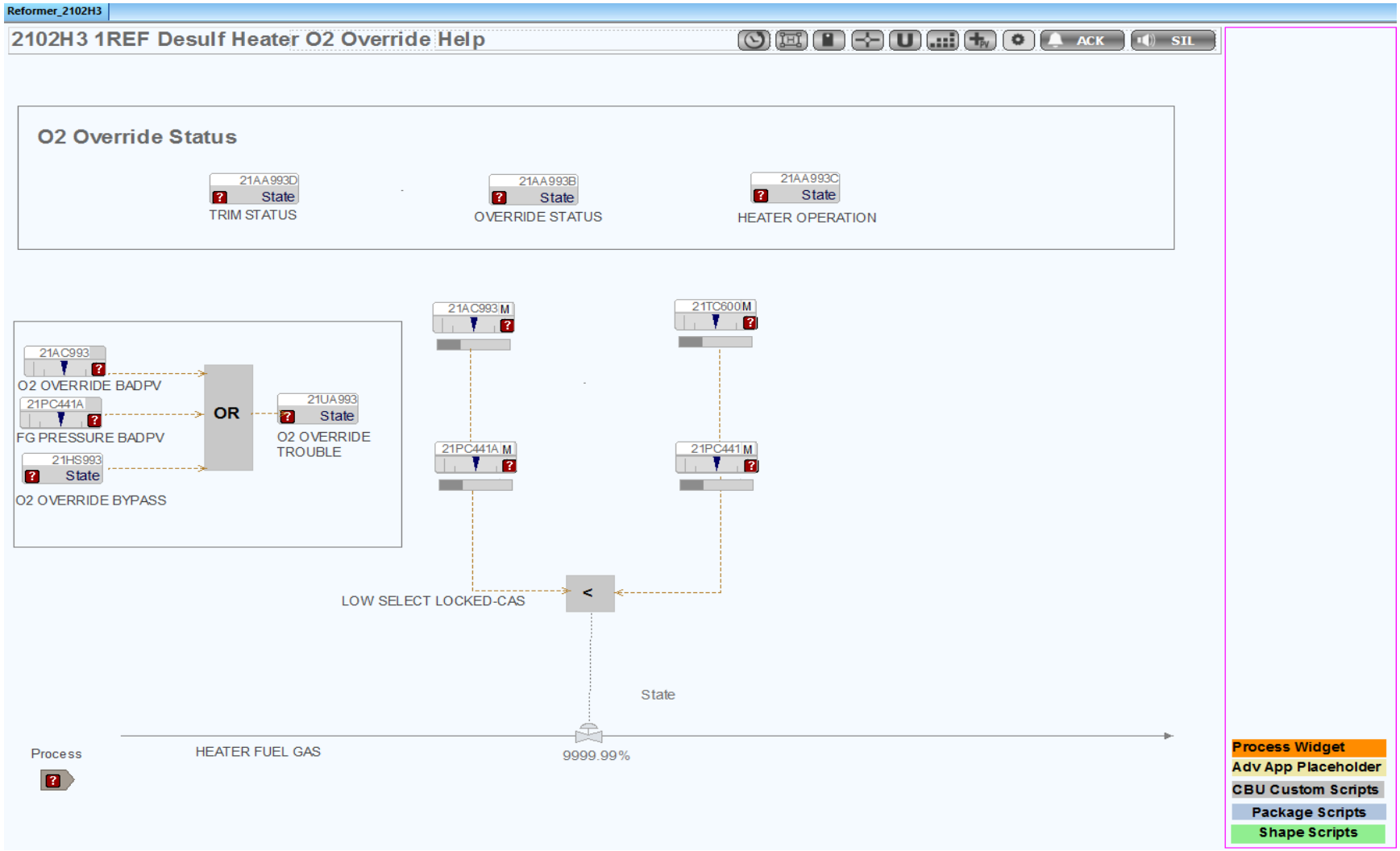
5.66 2102 #1 DESULF HEATER / REACTOR (Reformer_2102.htm)



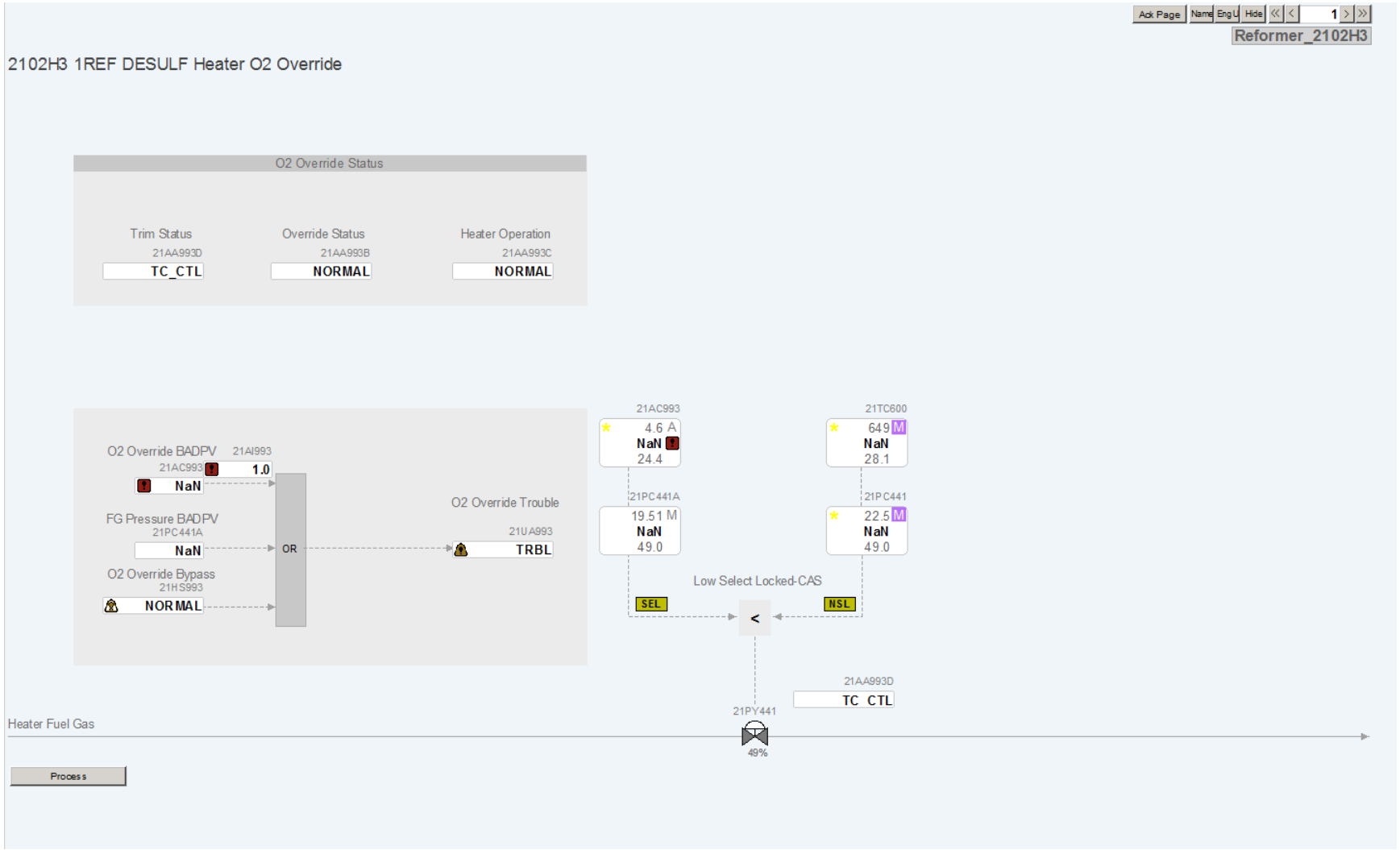
Station View



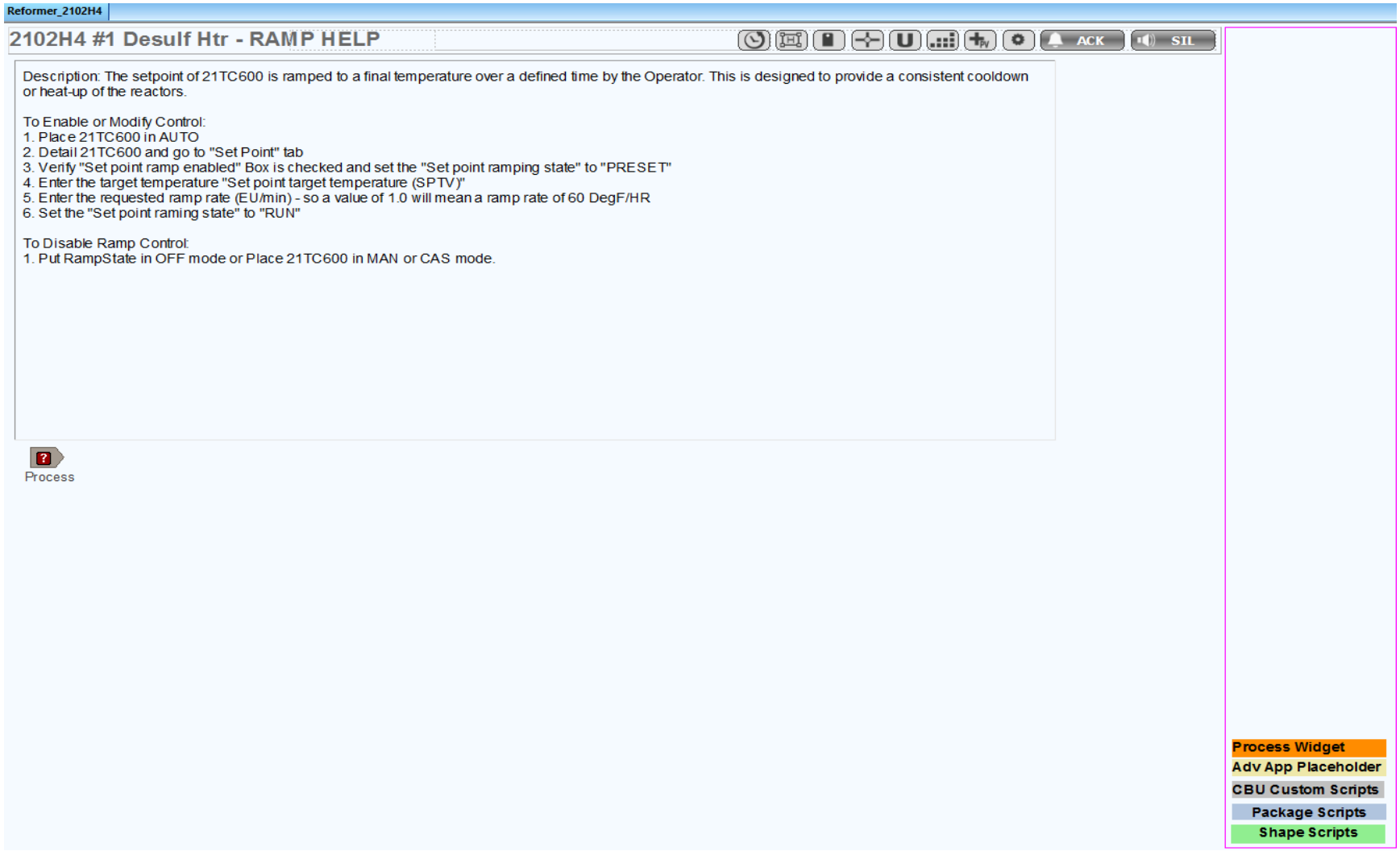
5.67 2102H3 1 REF DESULF HEATER O2 OVERVIEW HELP (Reformer_2102H3.htm)



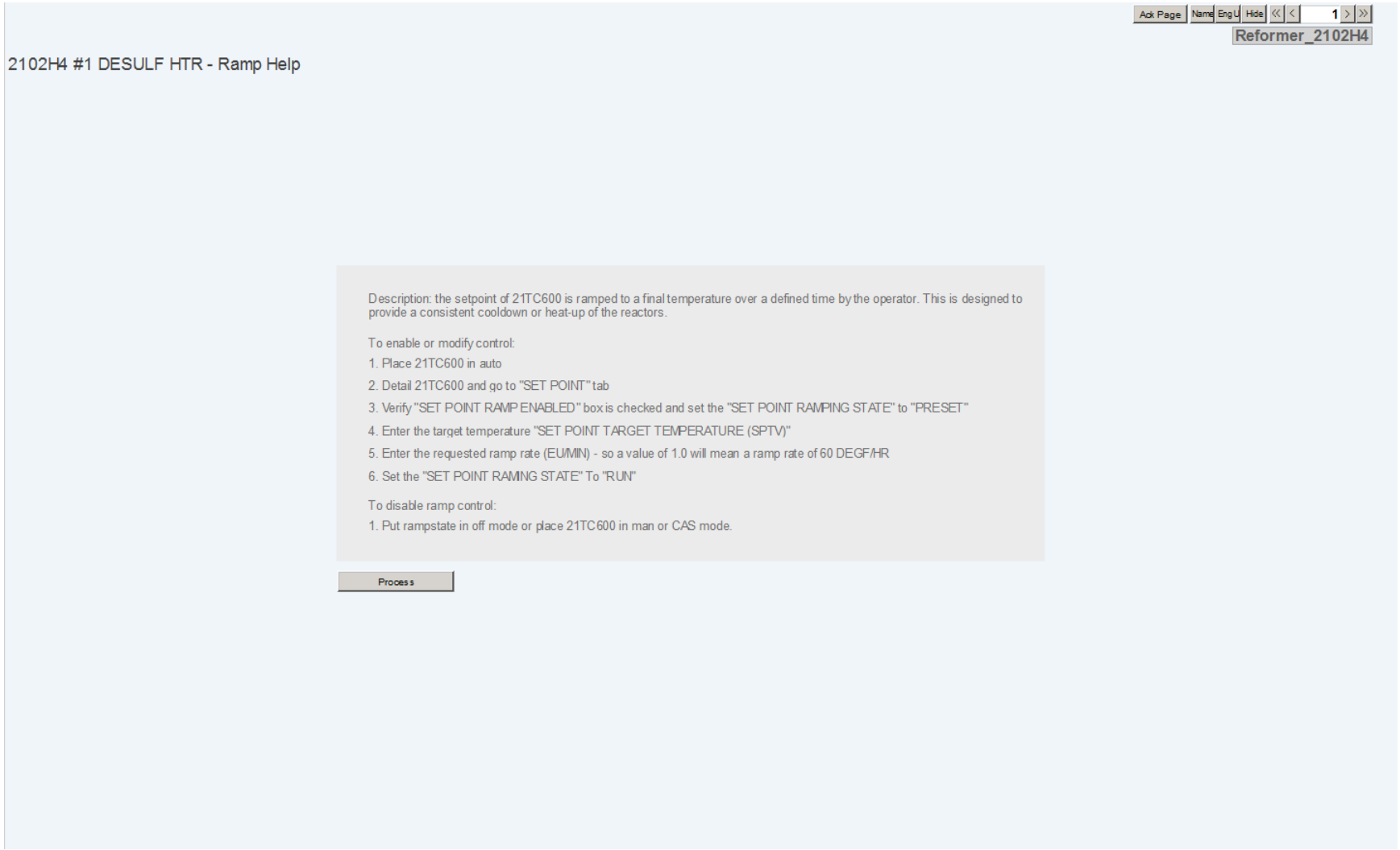
Station View



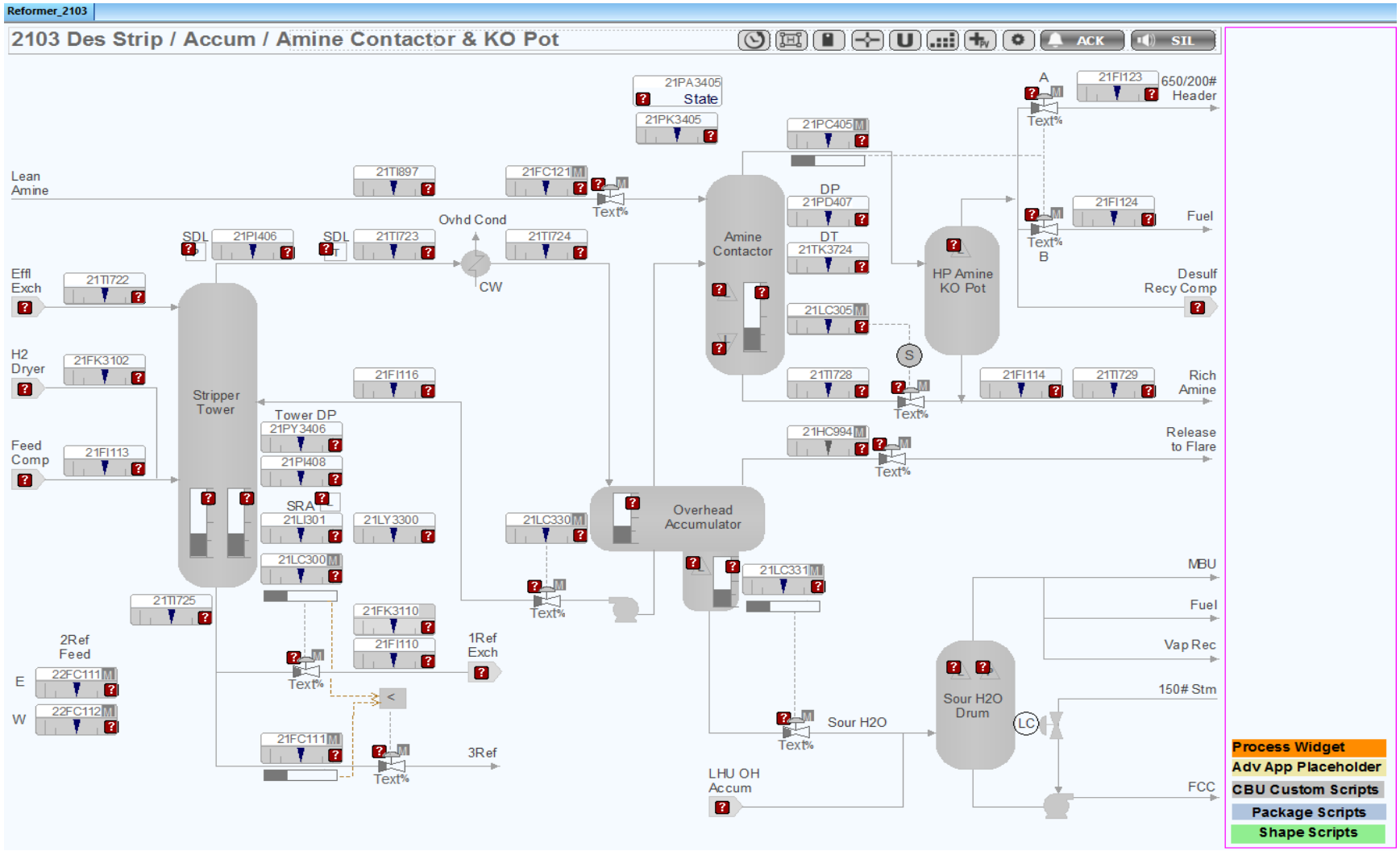
5.68 2102H4 #1 DESULF HTR - RAMP HELP (Reformer_2102H4.htm)



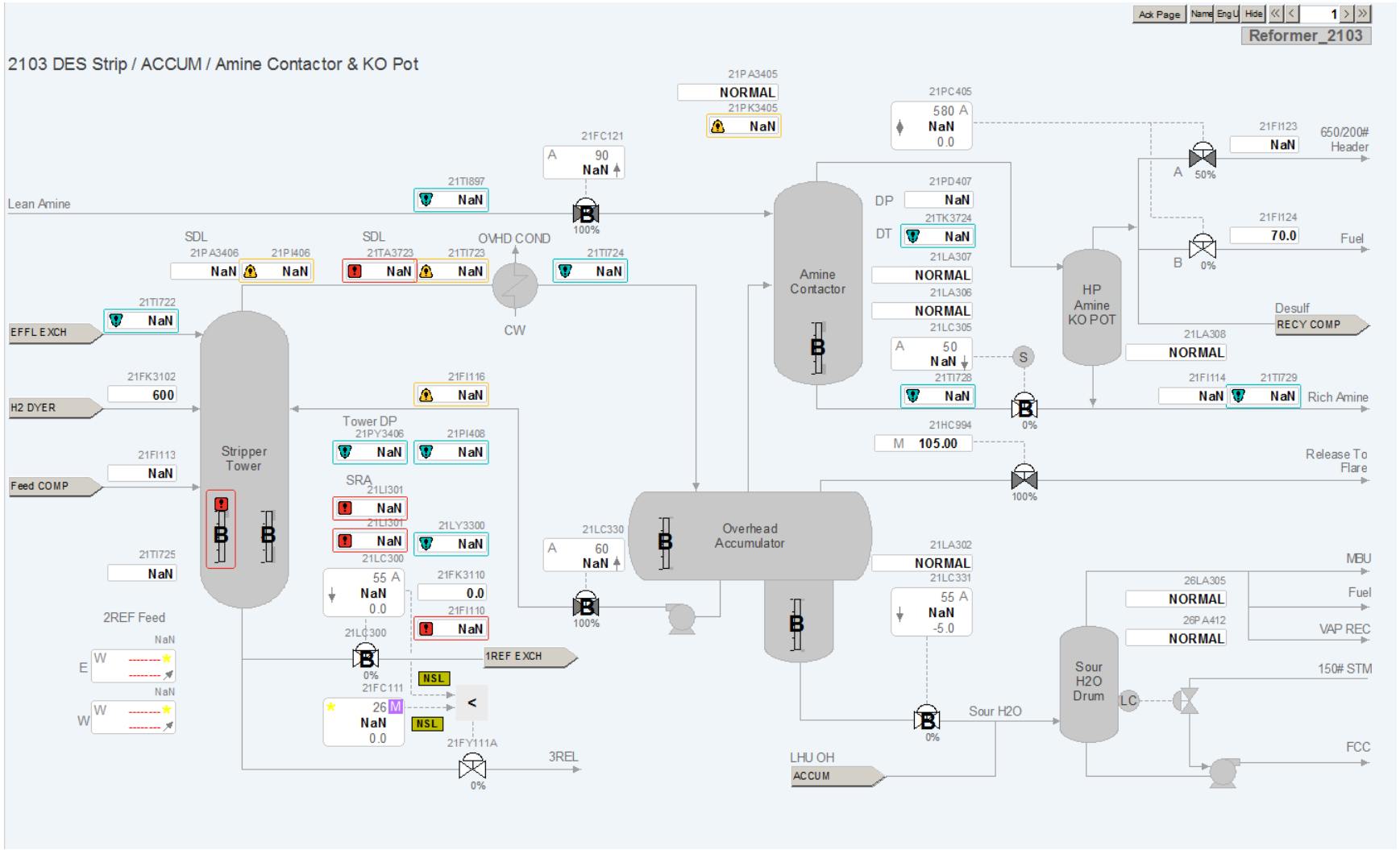
Station View



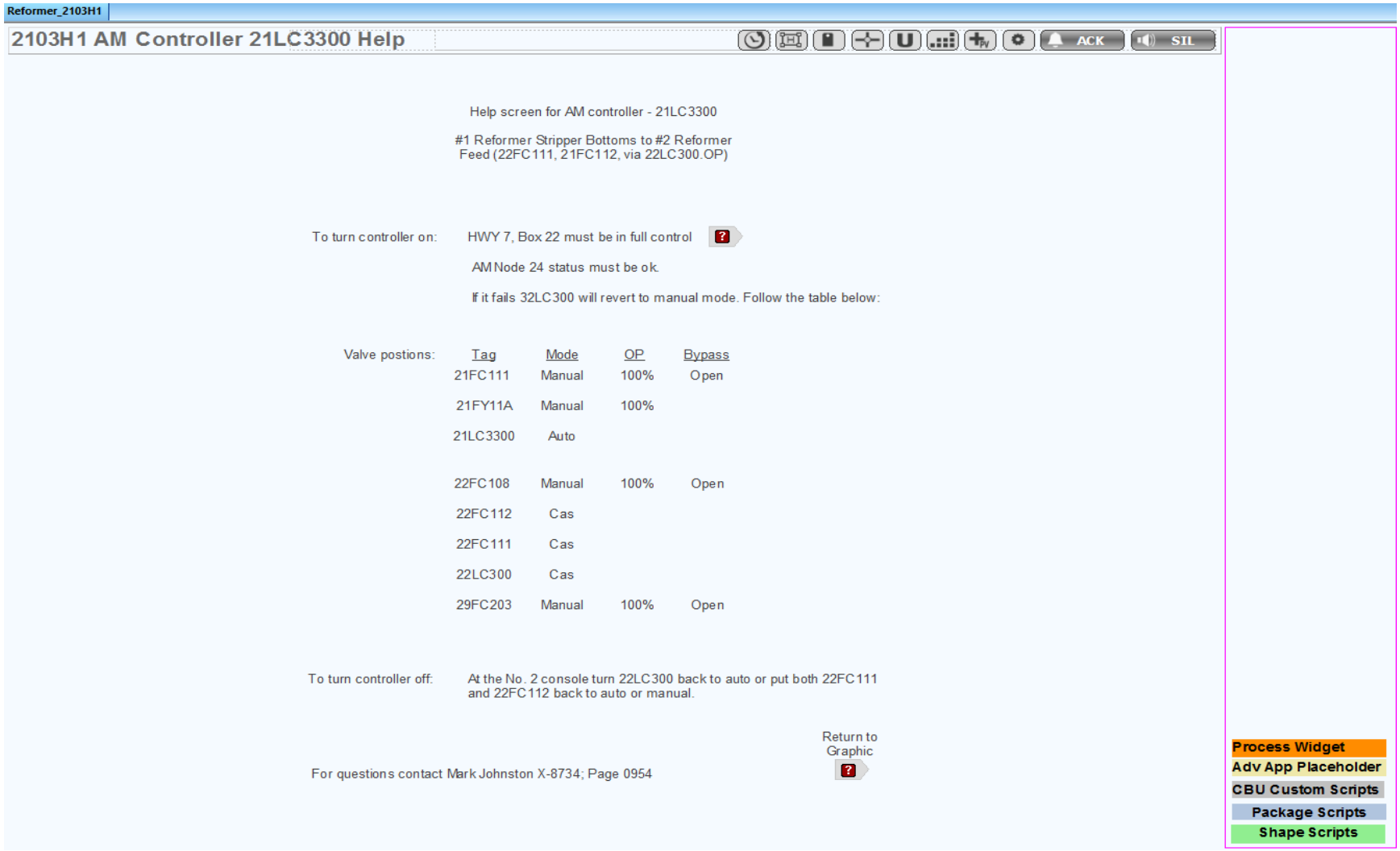
5.69 2103 DES STRIP / ACCUM / AMINE CONTACTOR & KO POT (Reformer_2103.htm)



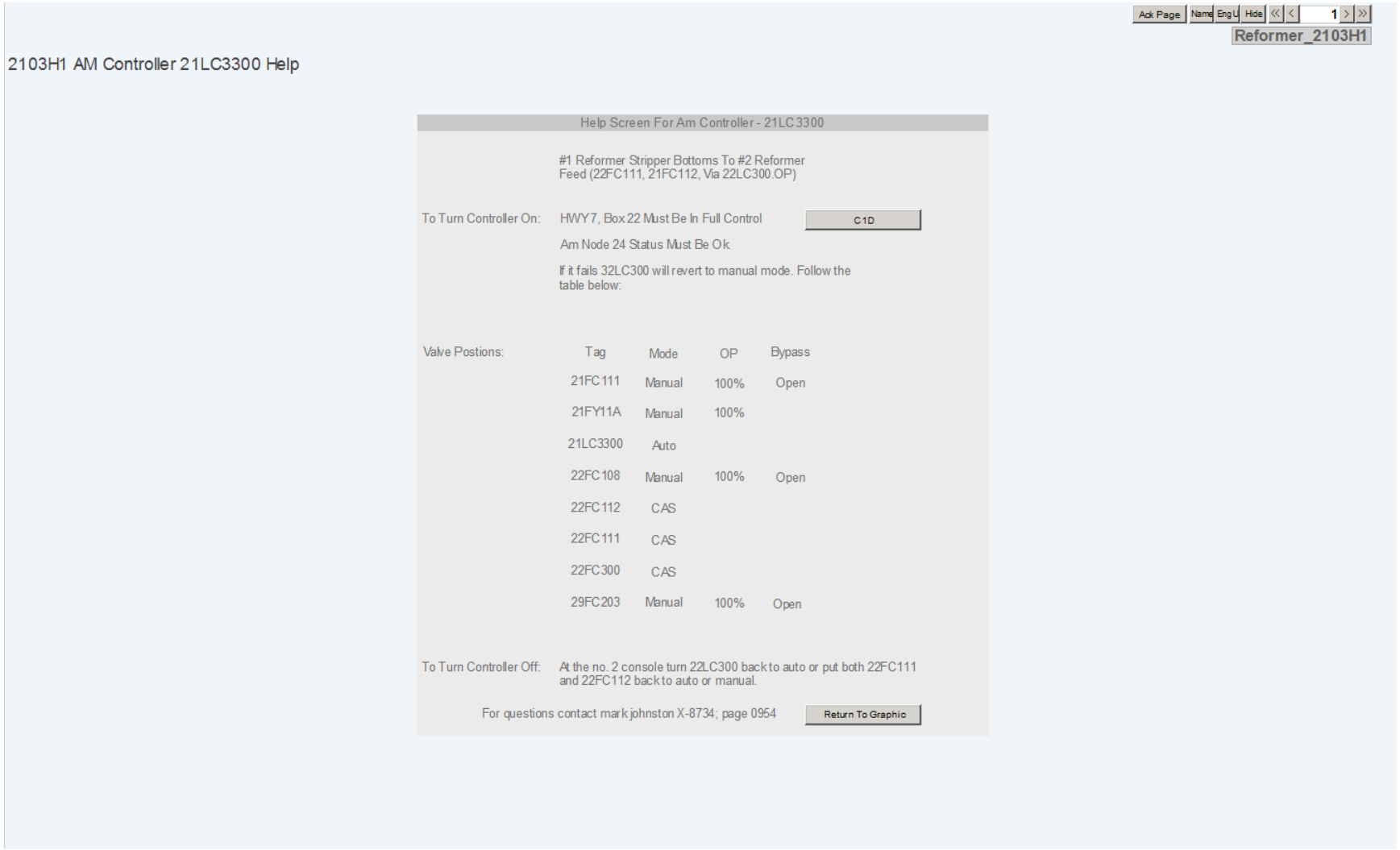
Station View



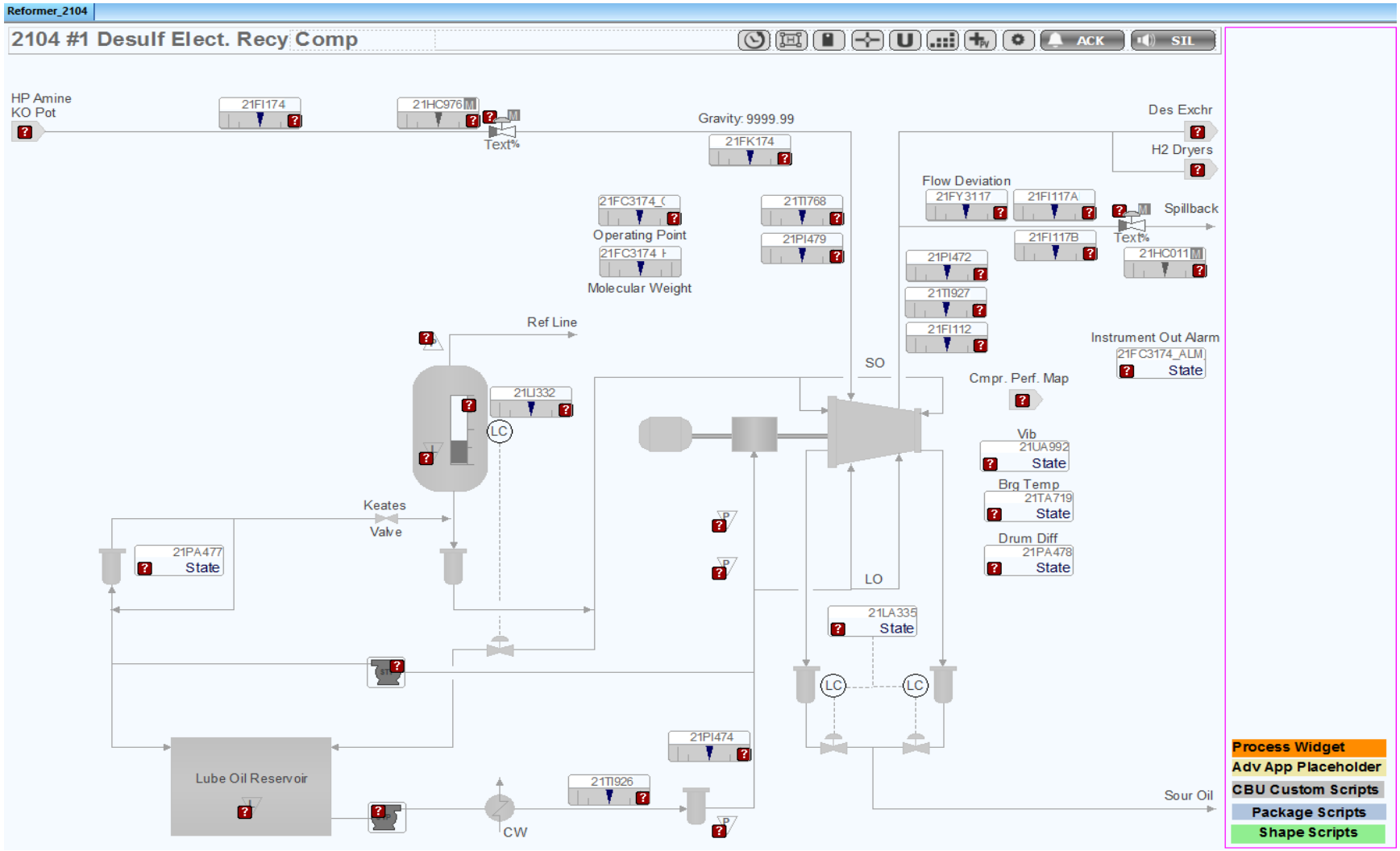
5.70 2103H1 AM CONTROLLER 21LC3300 HELP (Reformer_2103H1.htm)



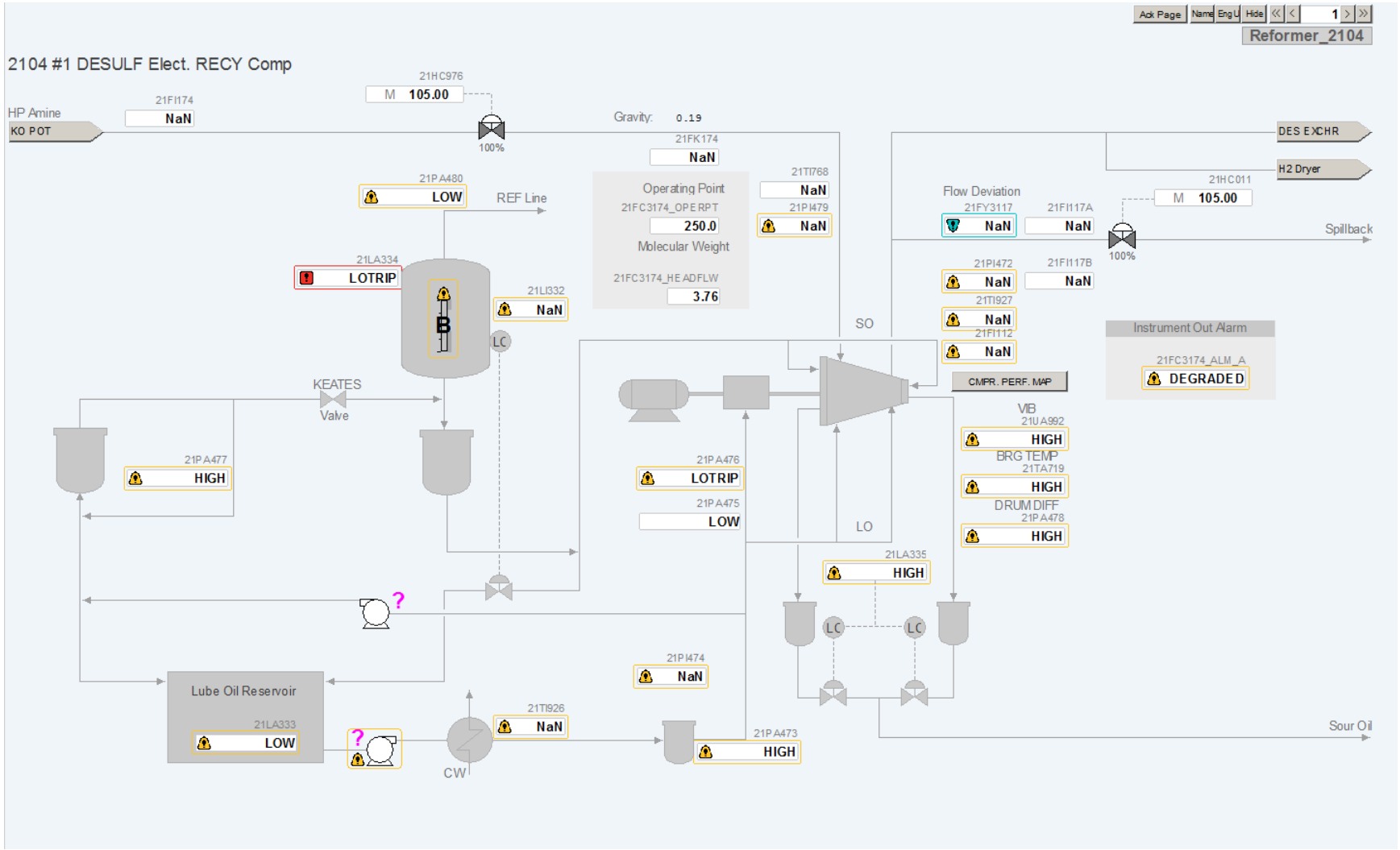
Station View



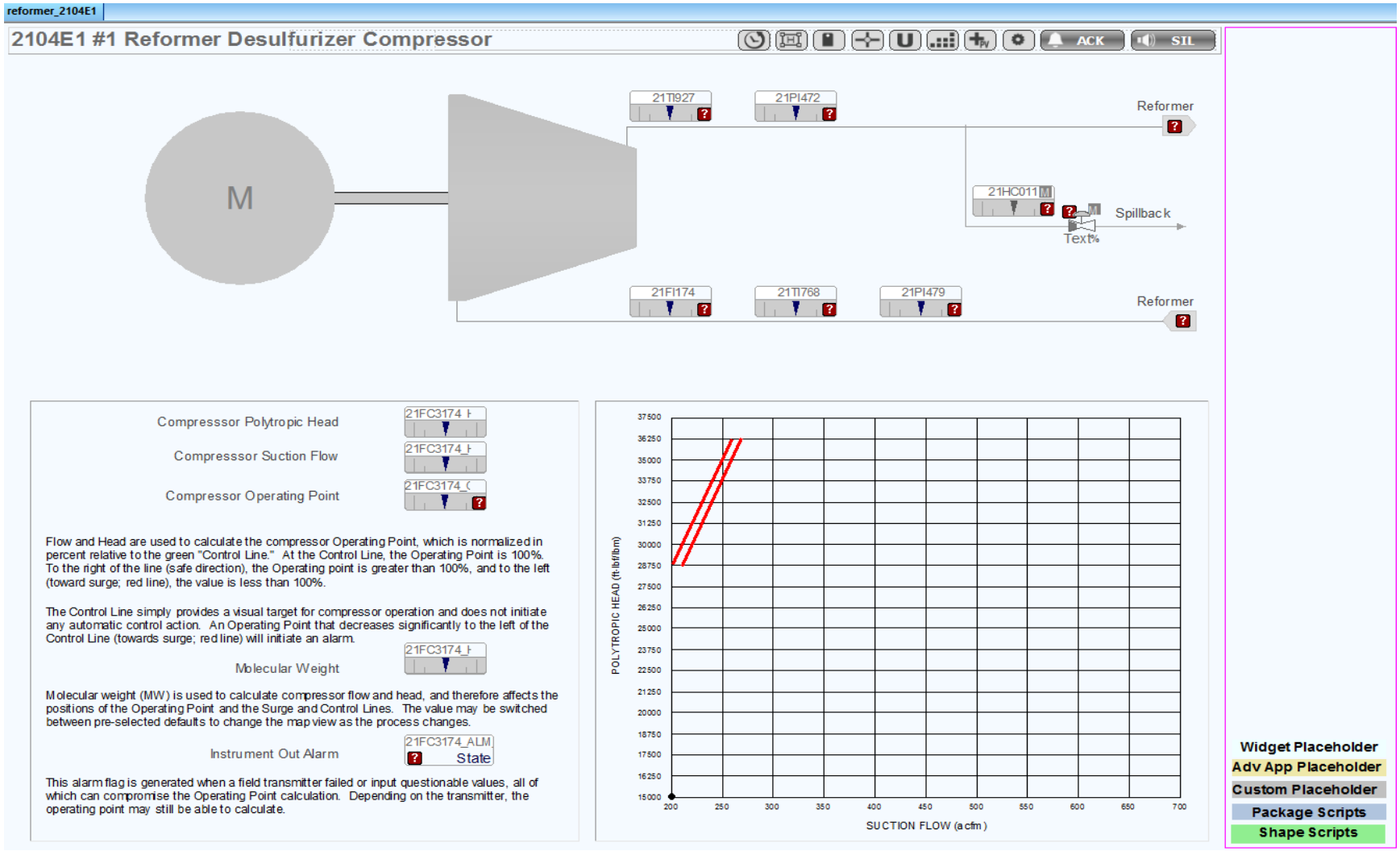
5.71 2104 #1 DESULF ELECT. RECY COMP (Reformer_2104.htm)



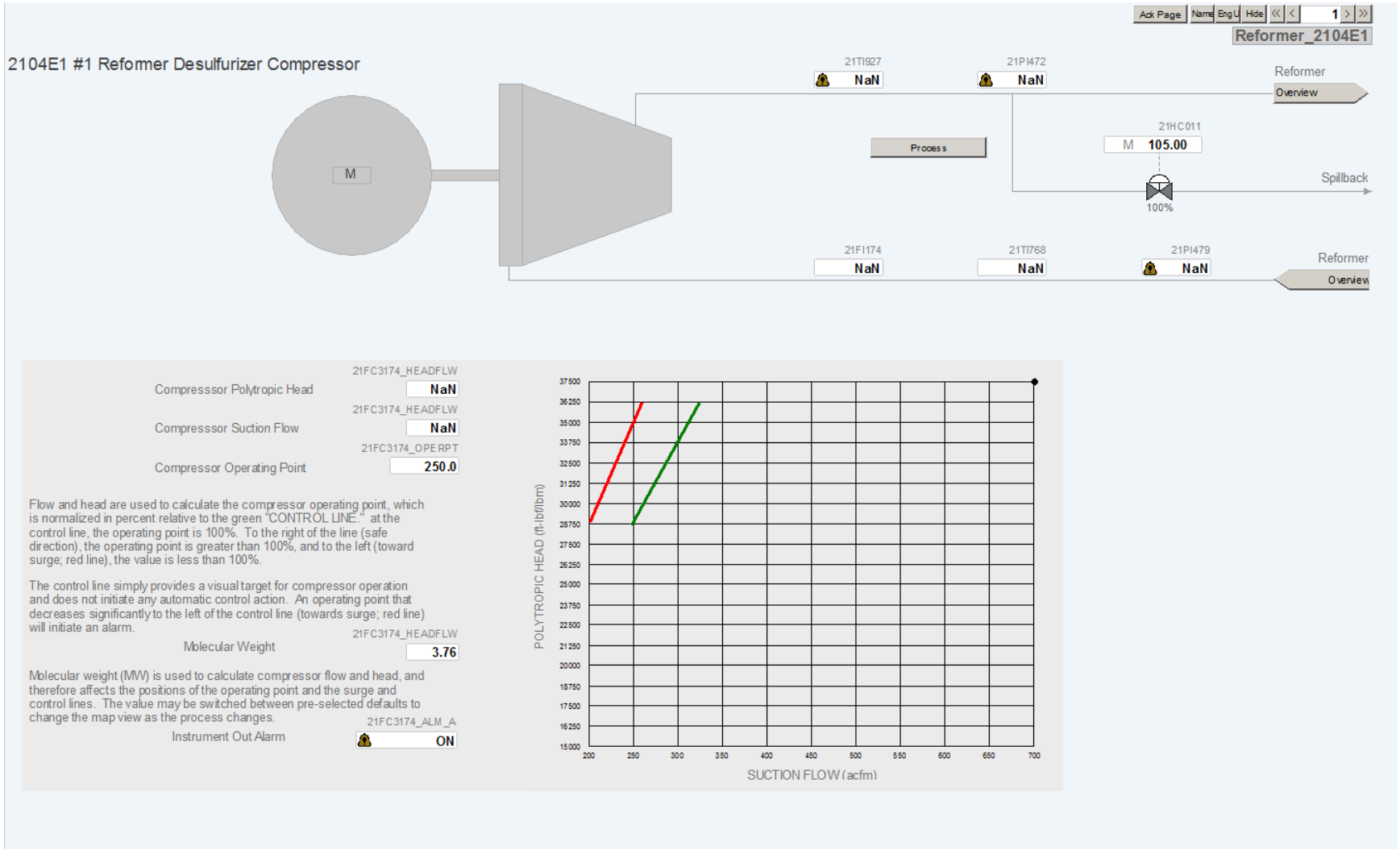
Station View



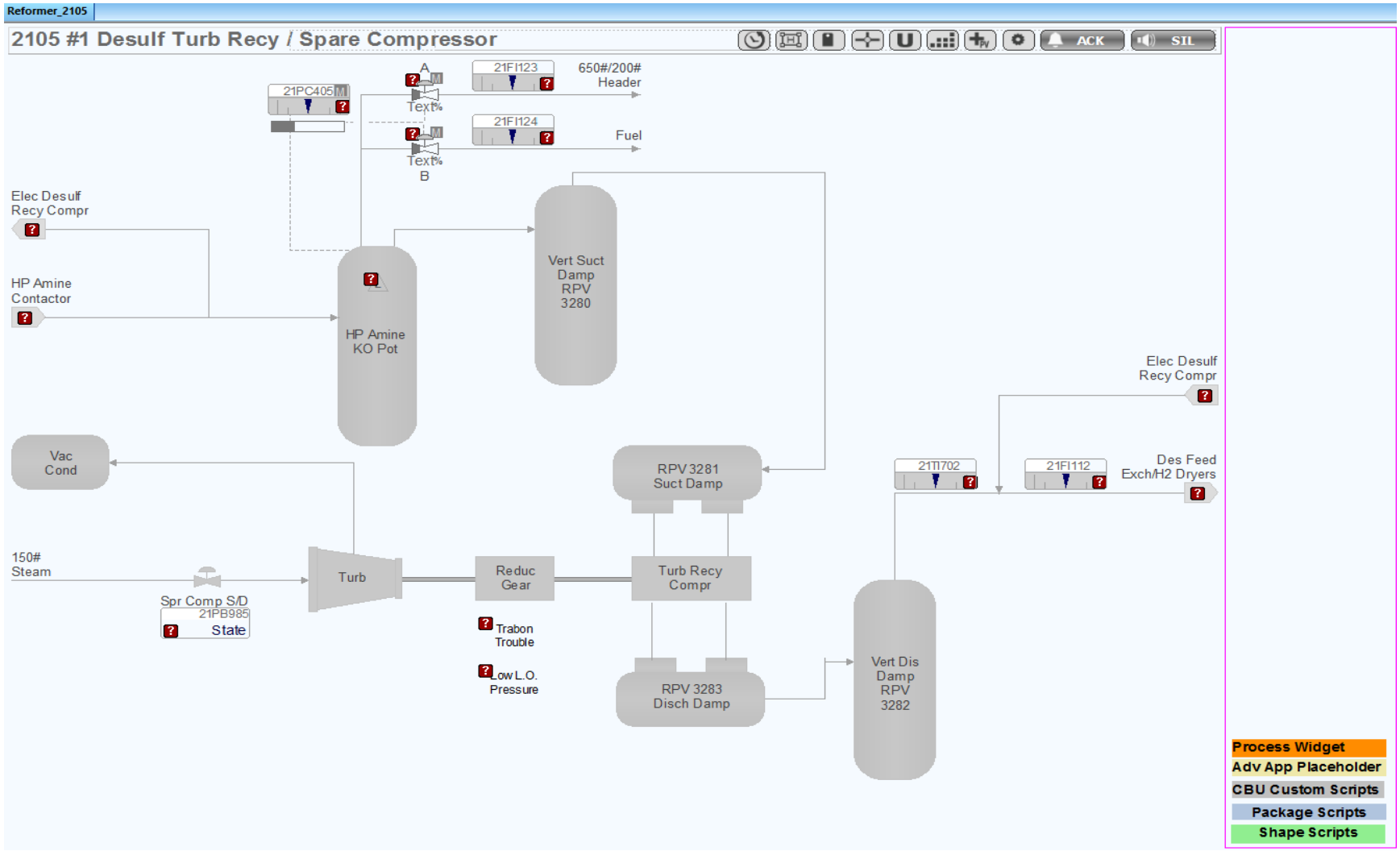
5.72 2104E1 #1 REFORMER DESULFURIZER COMPRESSOR (Reformer_2104E1.htm)



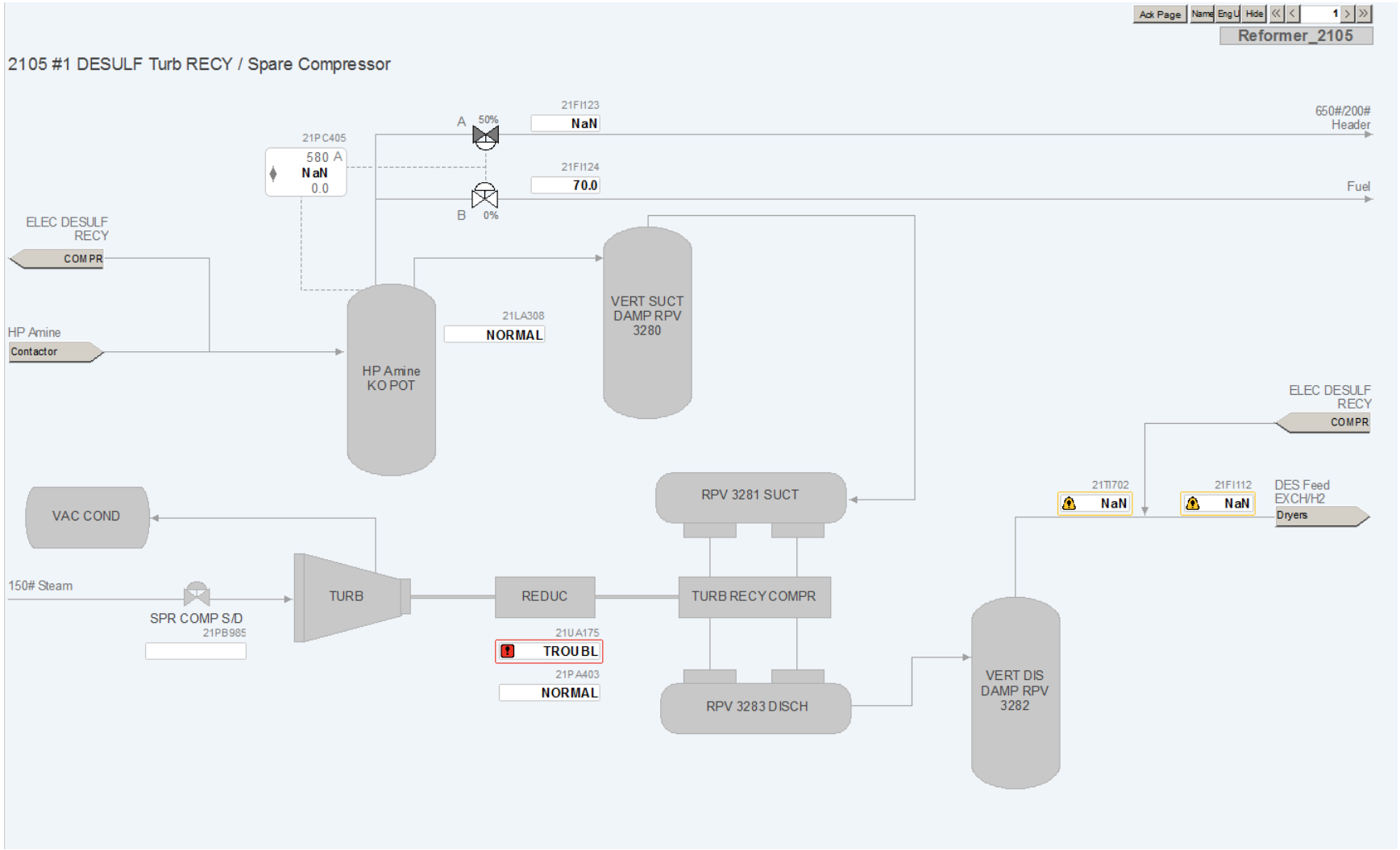
Station View



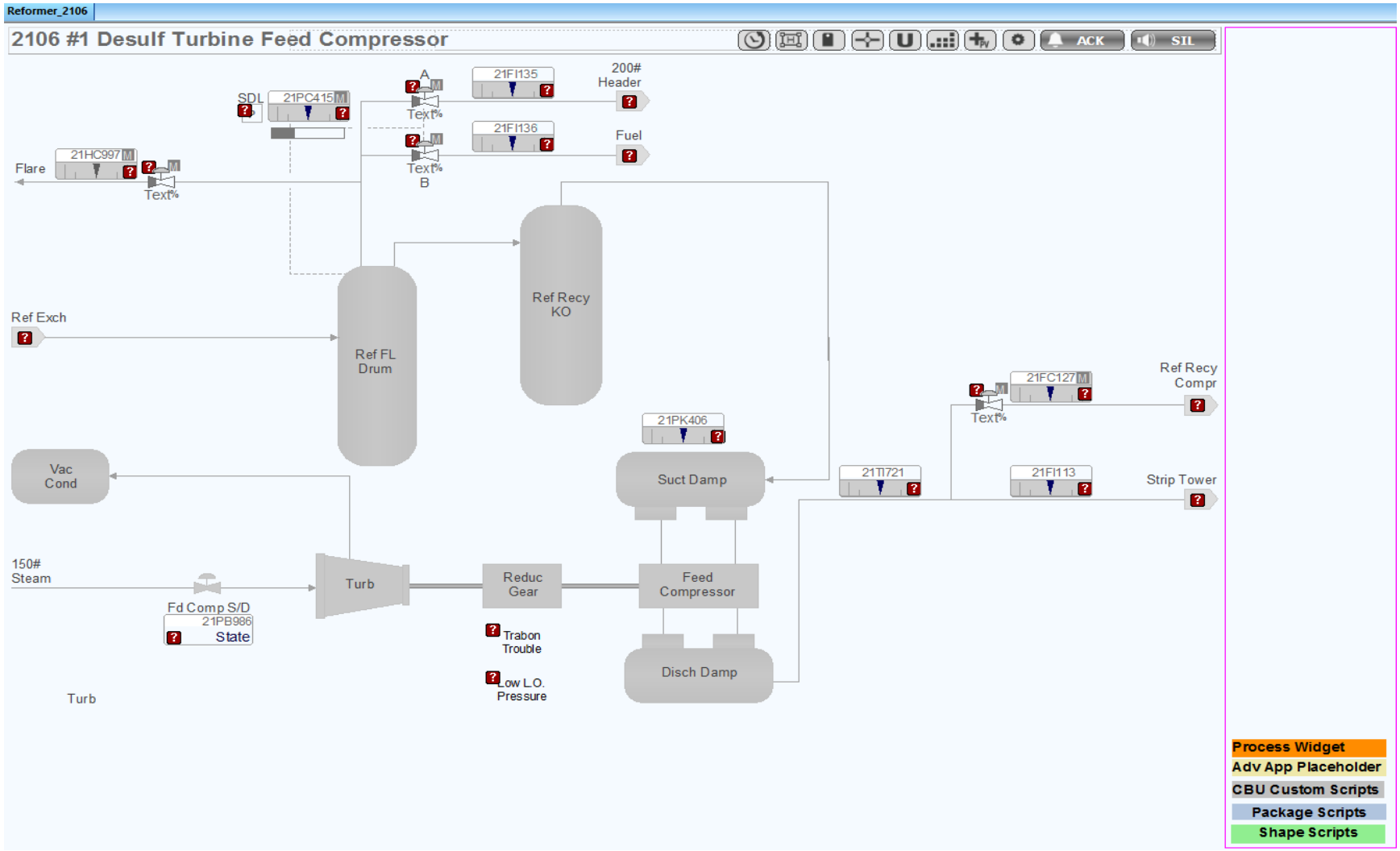
5.73 2105 #1 DESULF TURB RECY / SPARE COMPRESSOR (Reformer_2105.htm)



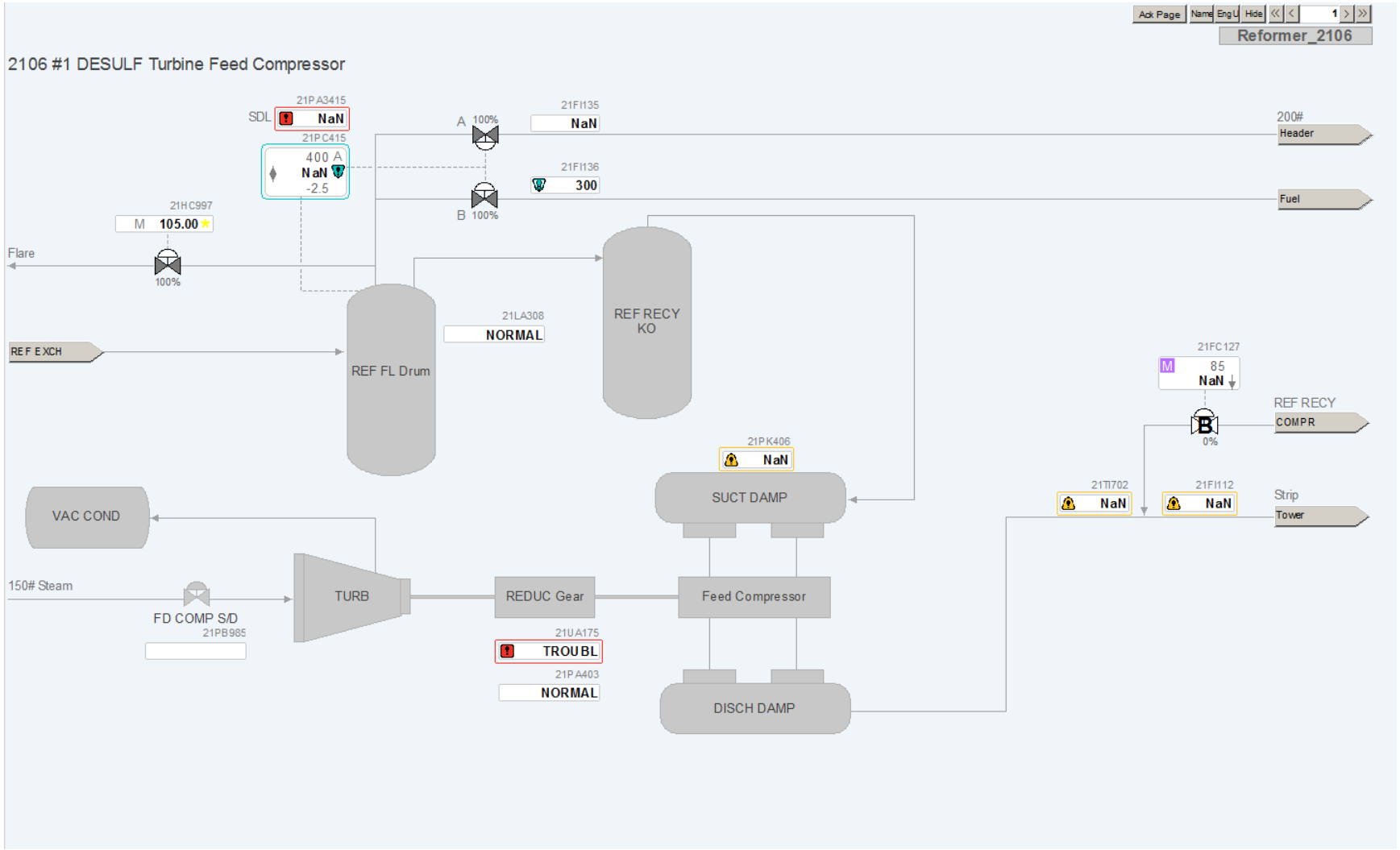
Station View



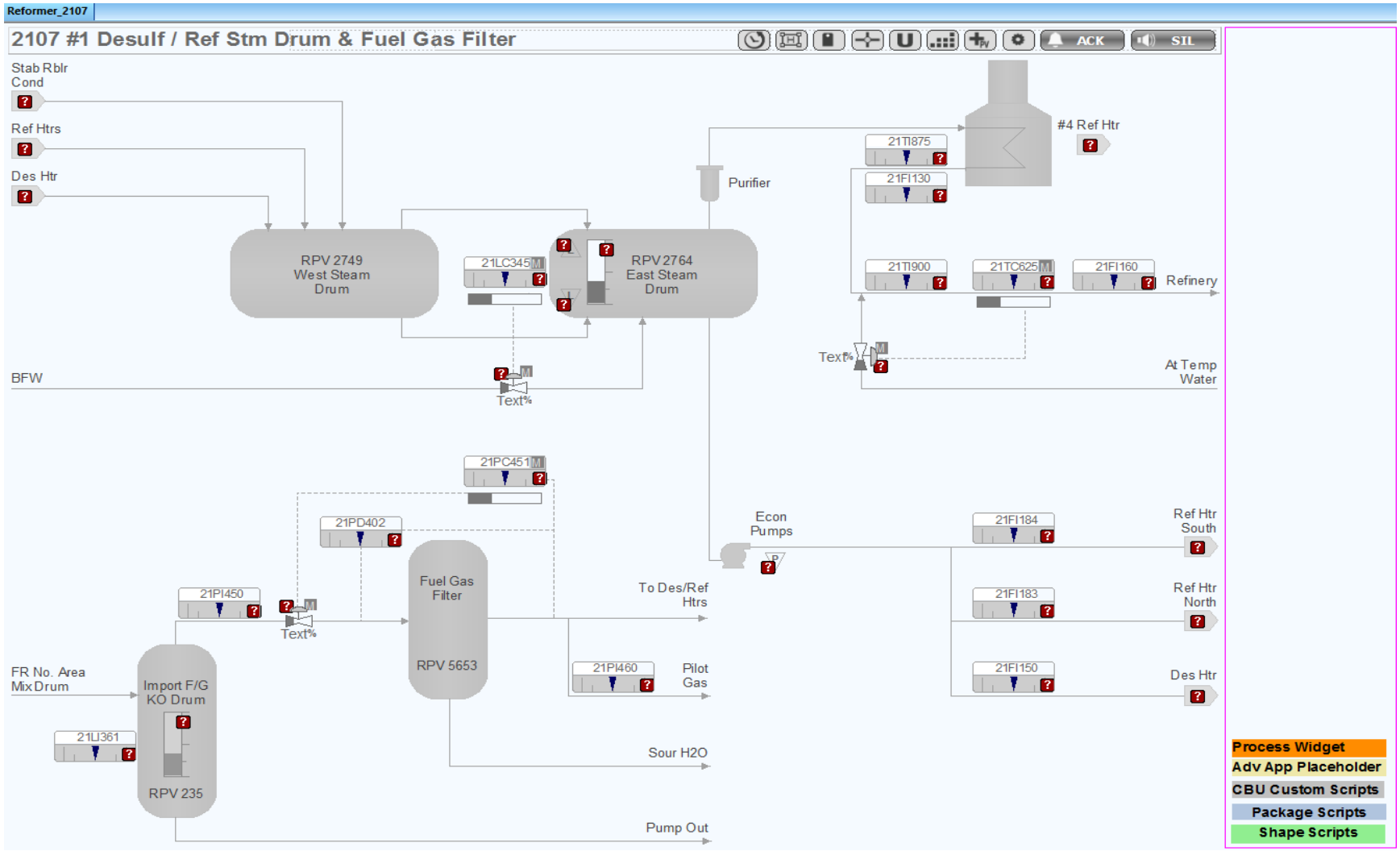
5.74 2106 #1 DESULF TURBINE FEED COMPRESSOR (Reformer_2106.htm)



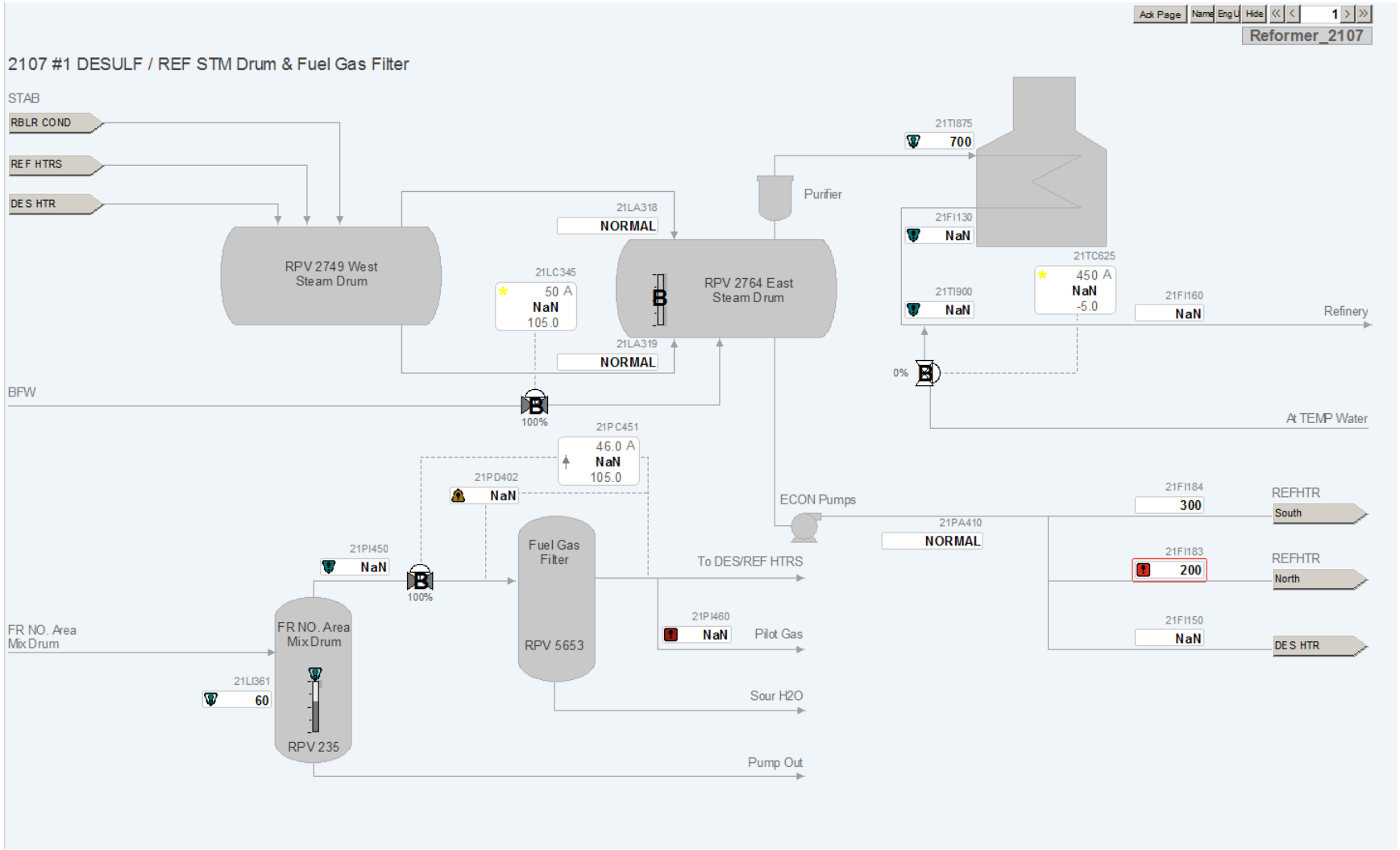
Station View



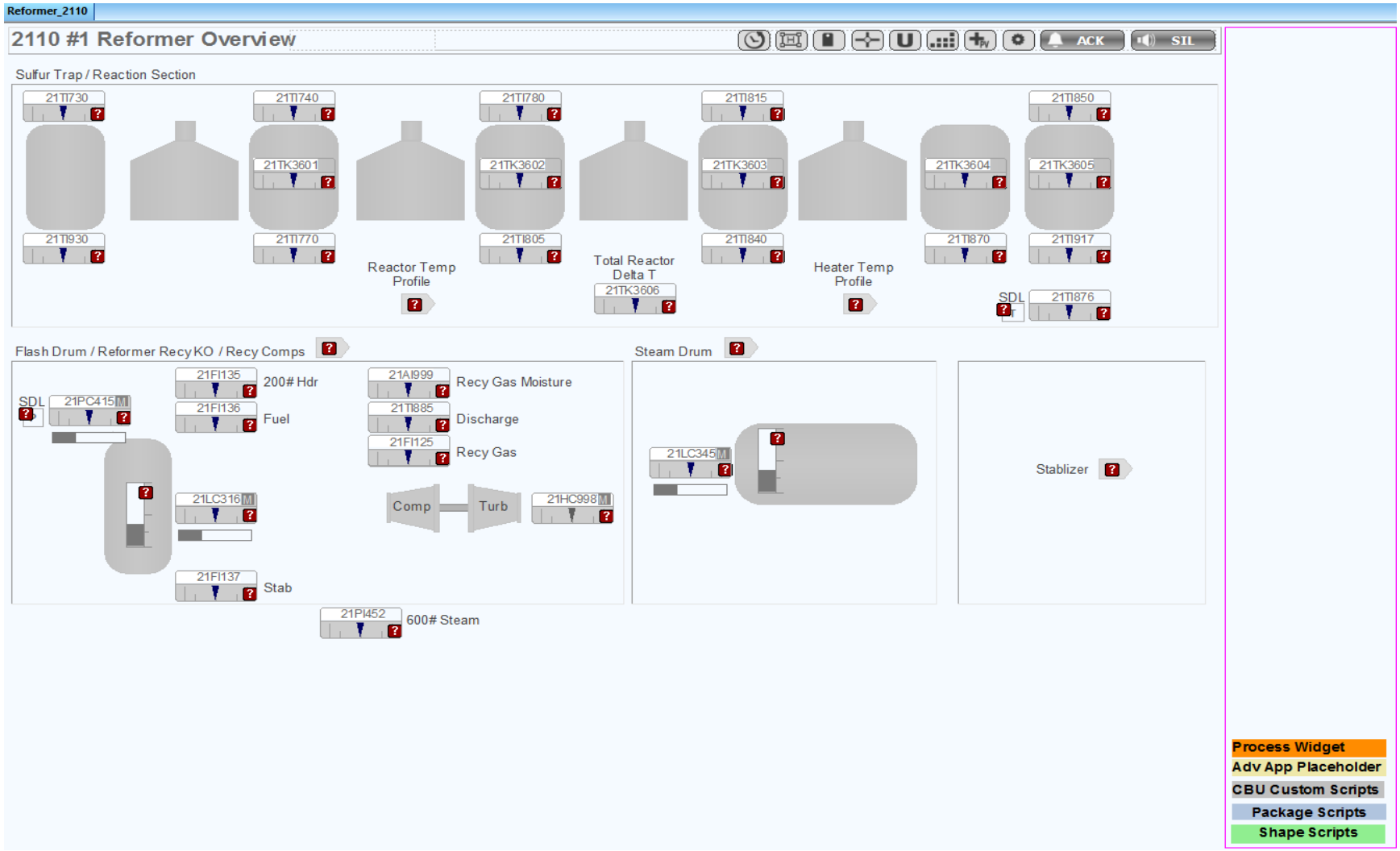
5.75 2107 #1 DESULF / REF STM DRUM & FUEL GAS FILTER (Reformer_2107.htm)



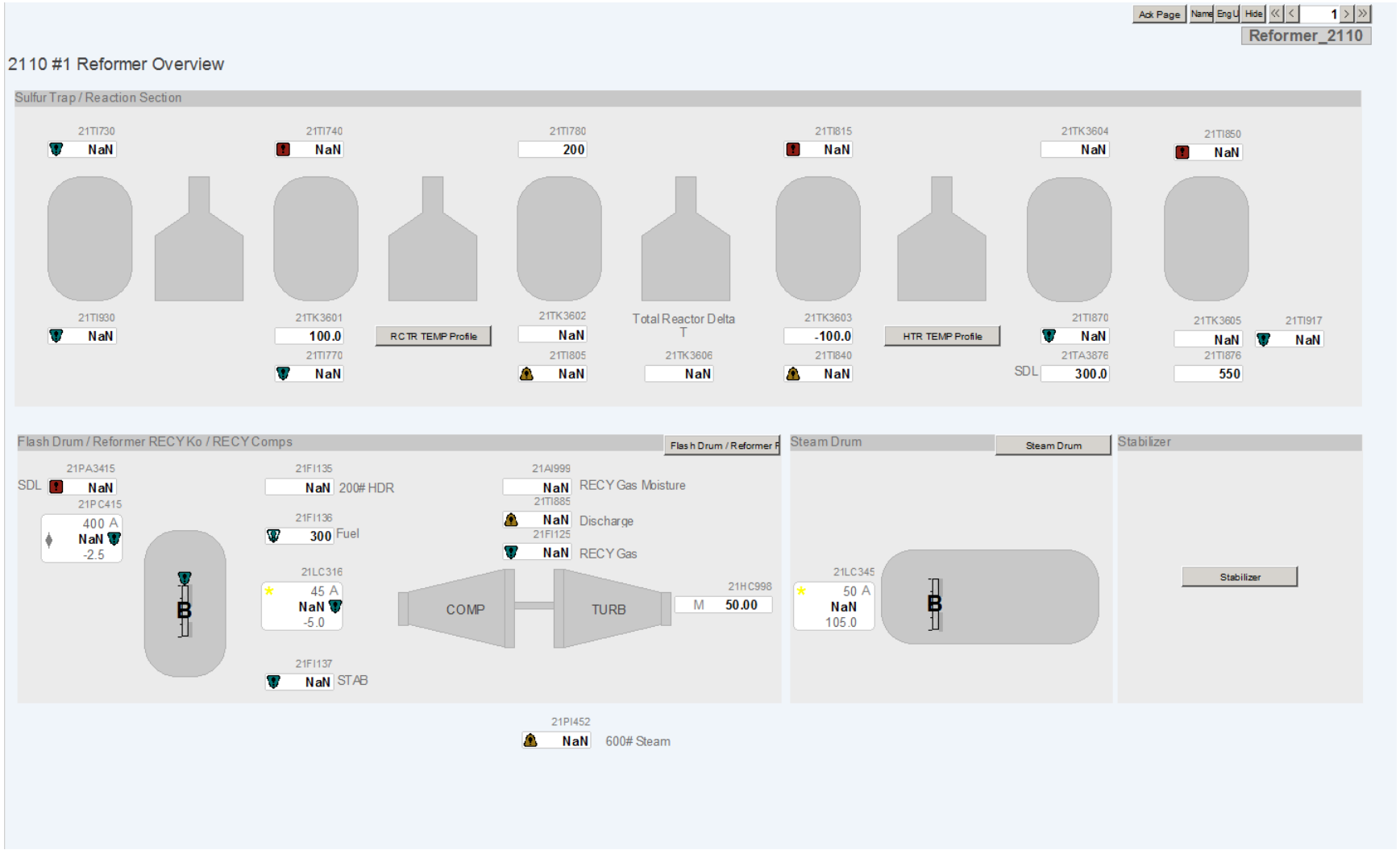
Station View



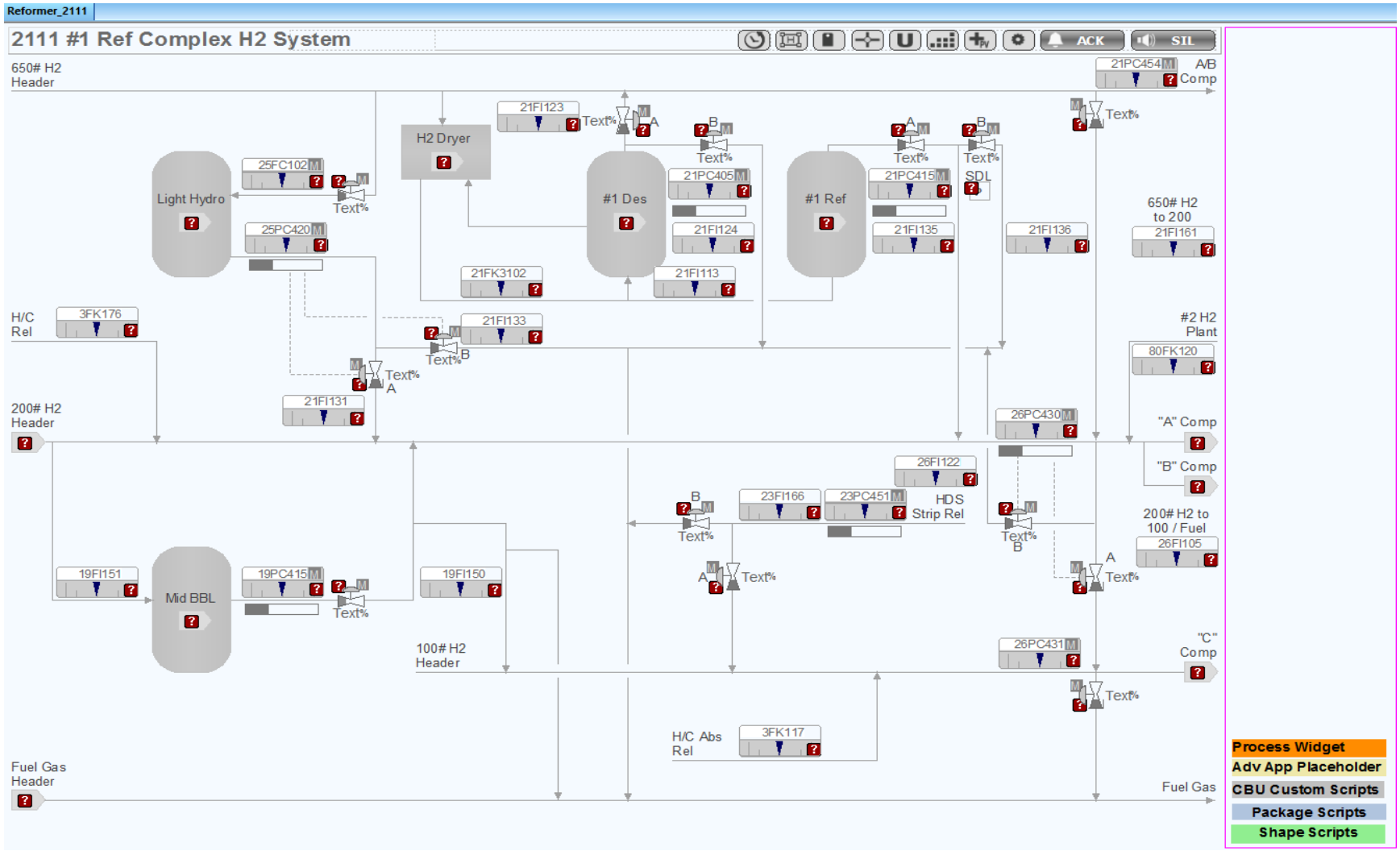
5.76 2110 #1 REFORMER OVERVIEW (Reformer_2110.htm)



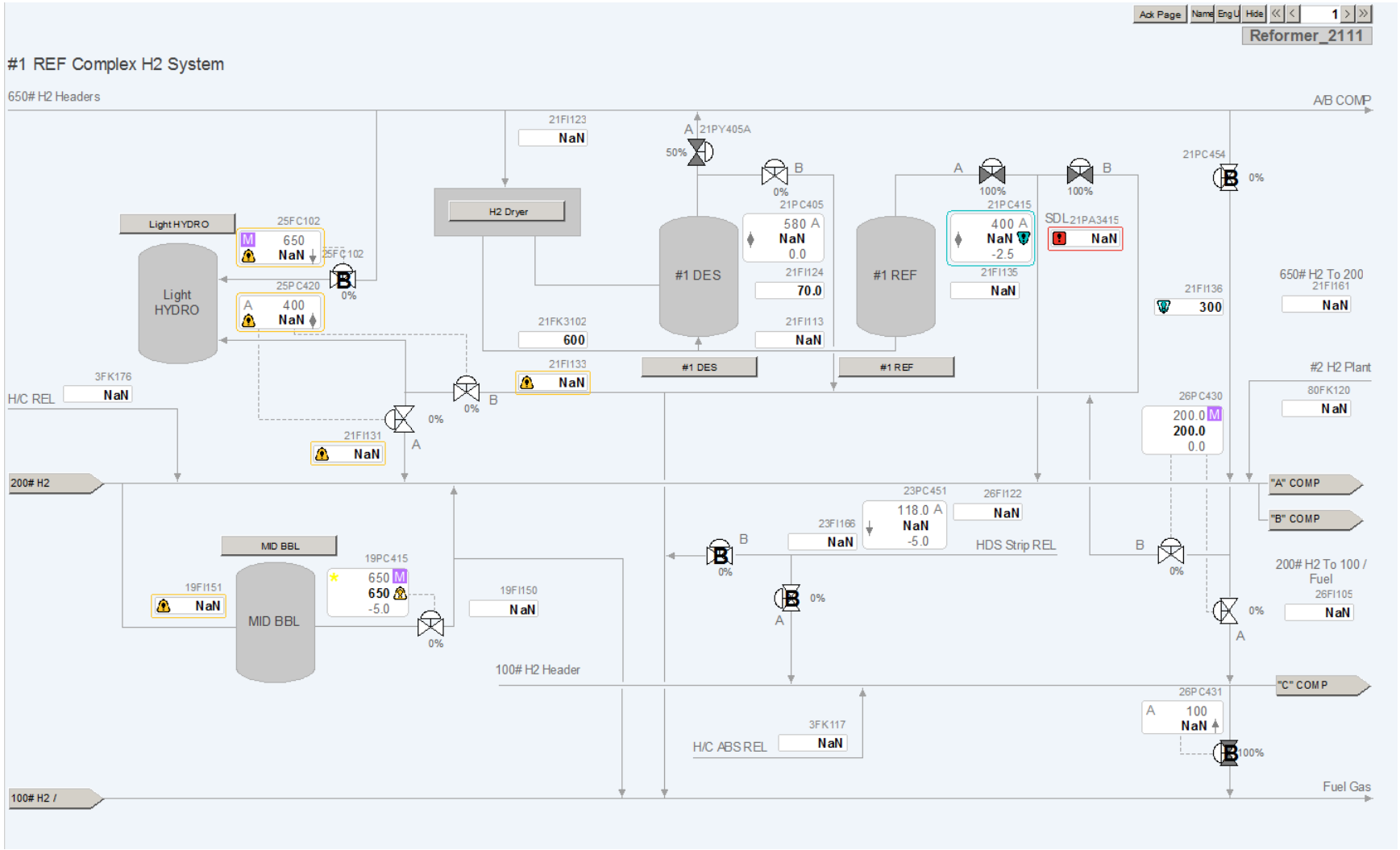
Station View



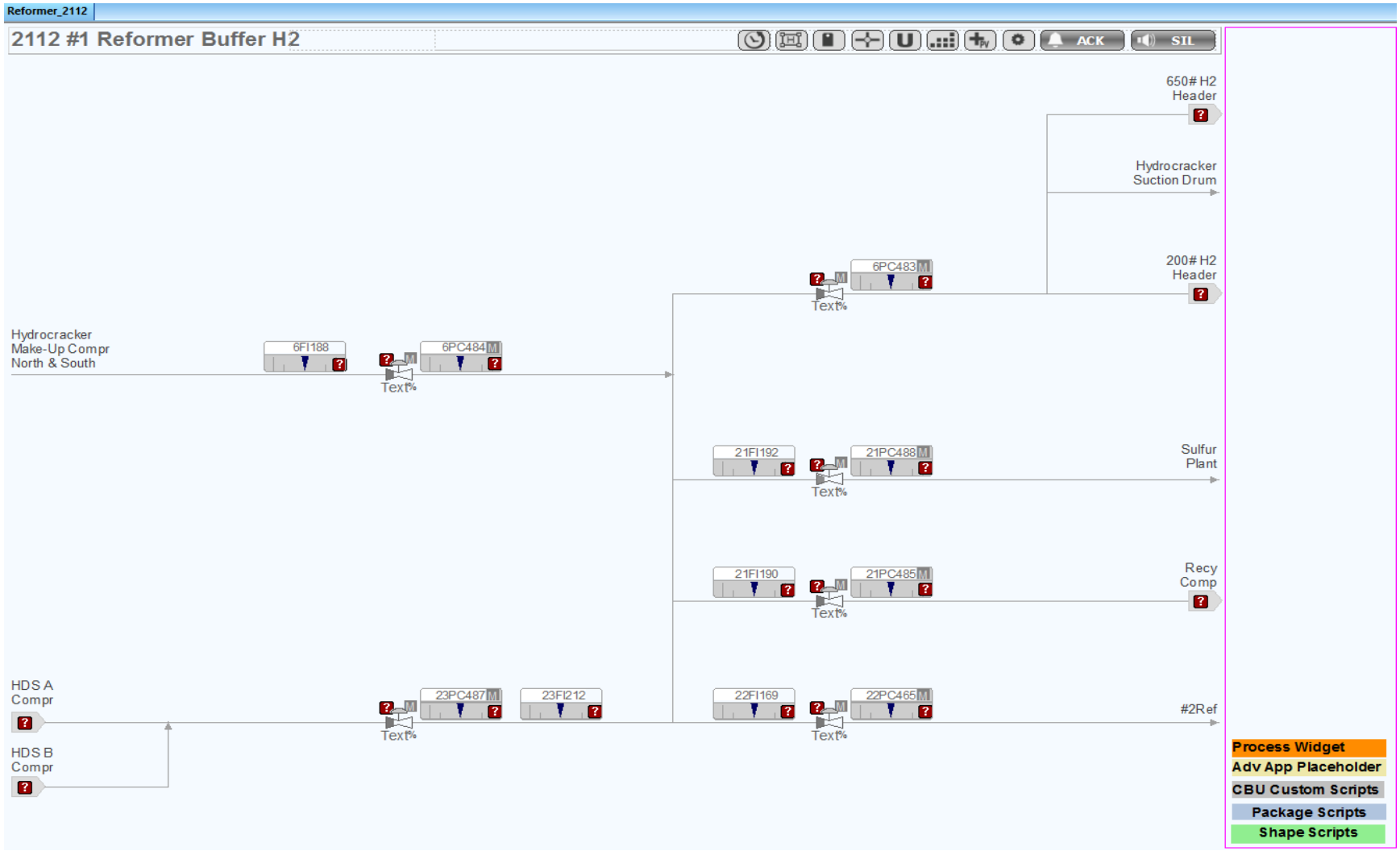
5.77 2111 #1 REF COMPLEX H2 SYSTEM (Reformer_2111.htm)



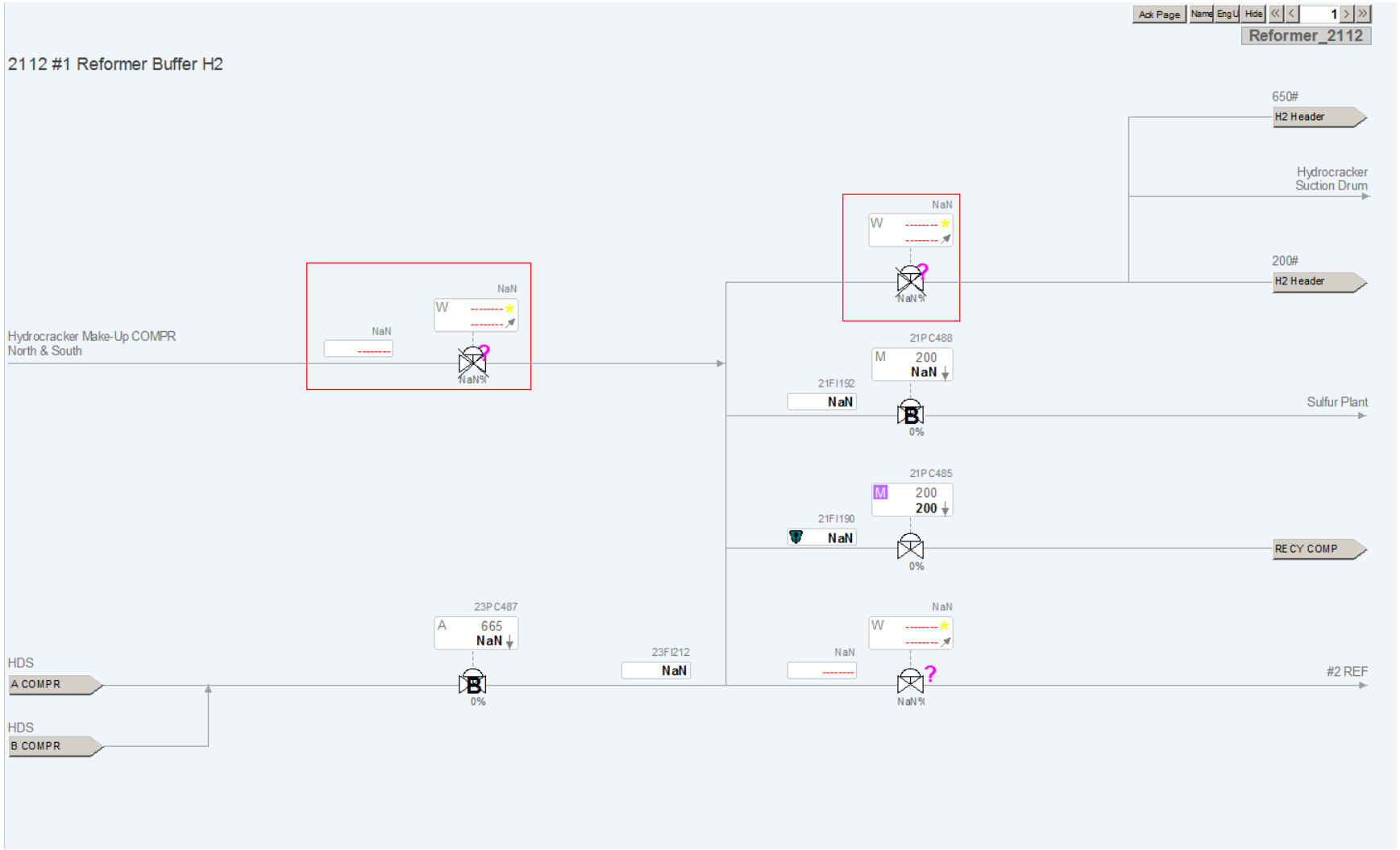
Station View



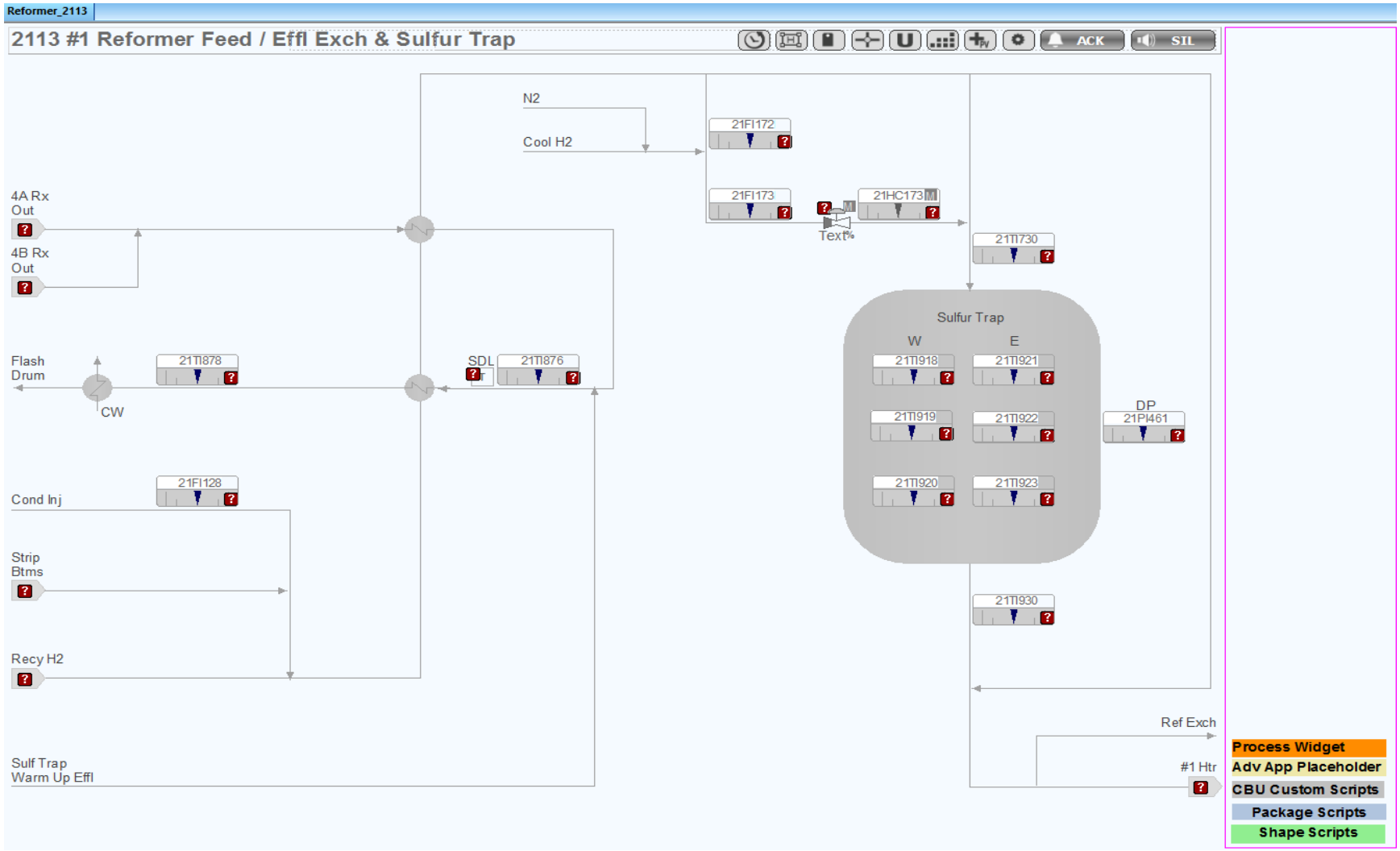
5.78 2112 #1 REFORMER BUFFER H2 (Reformer_2112.htm)



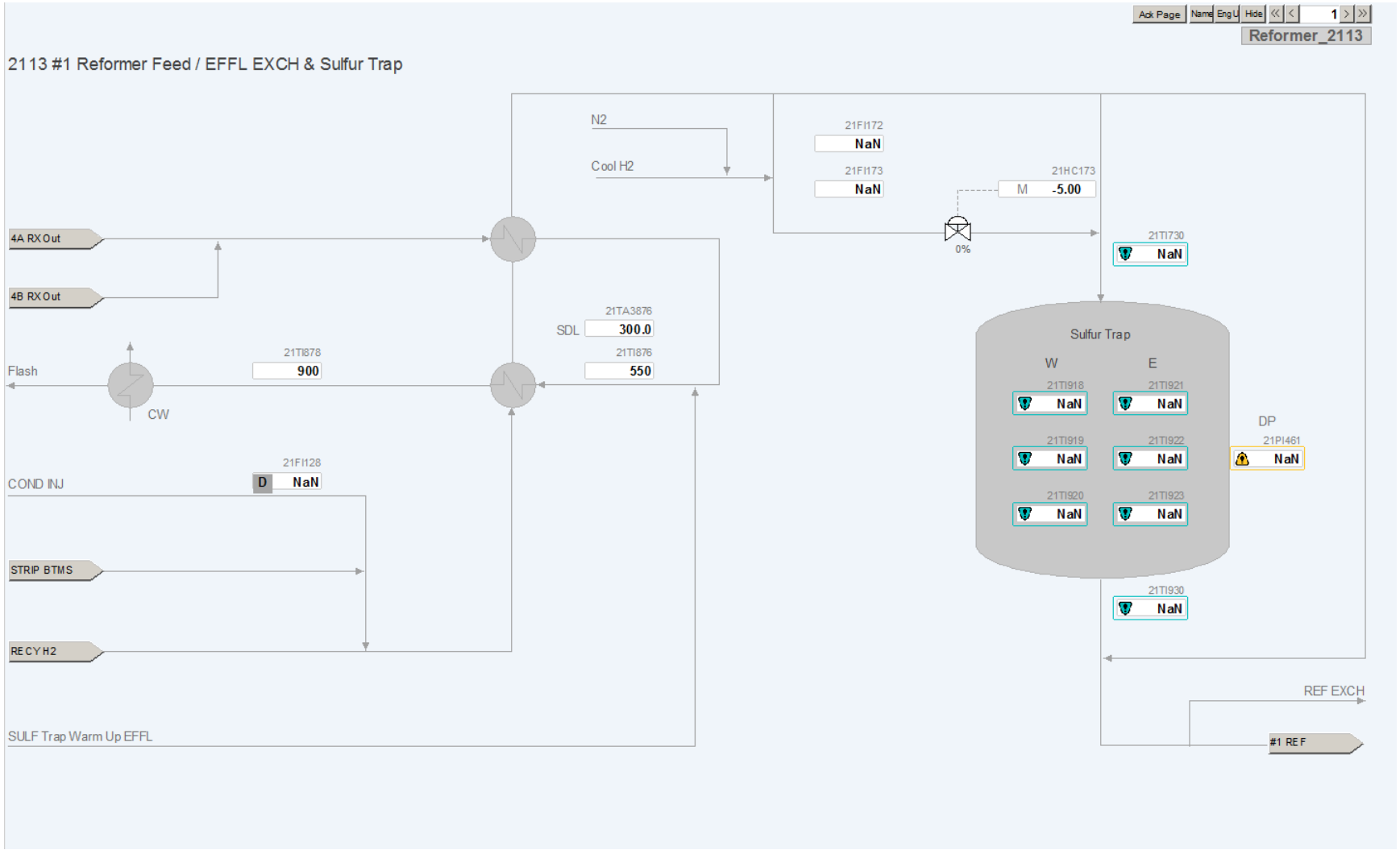
Station View



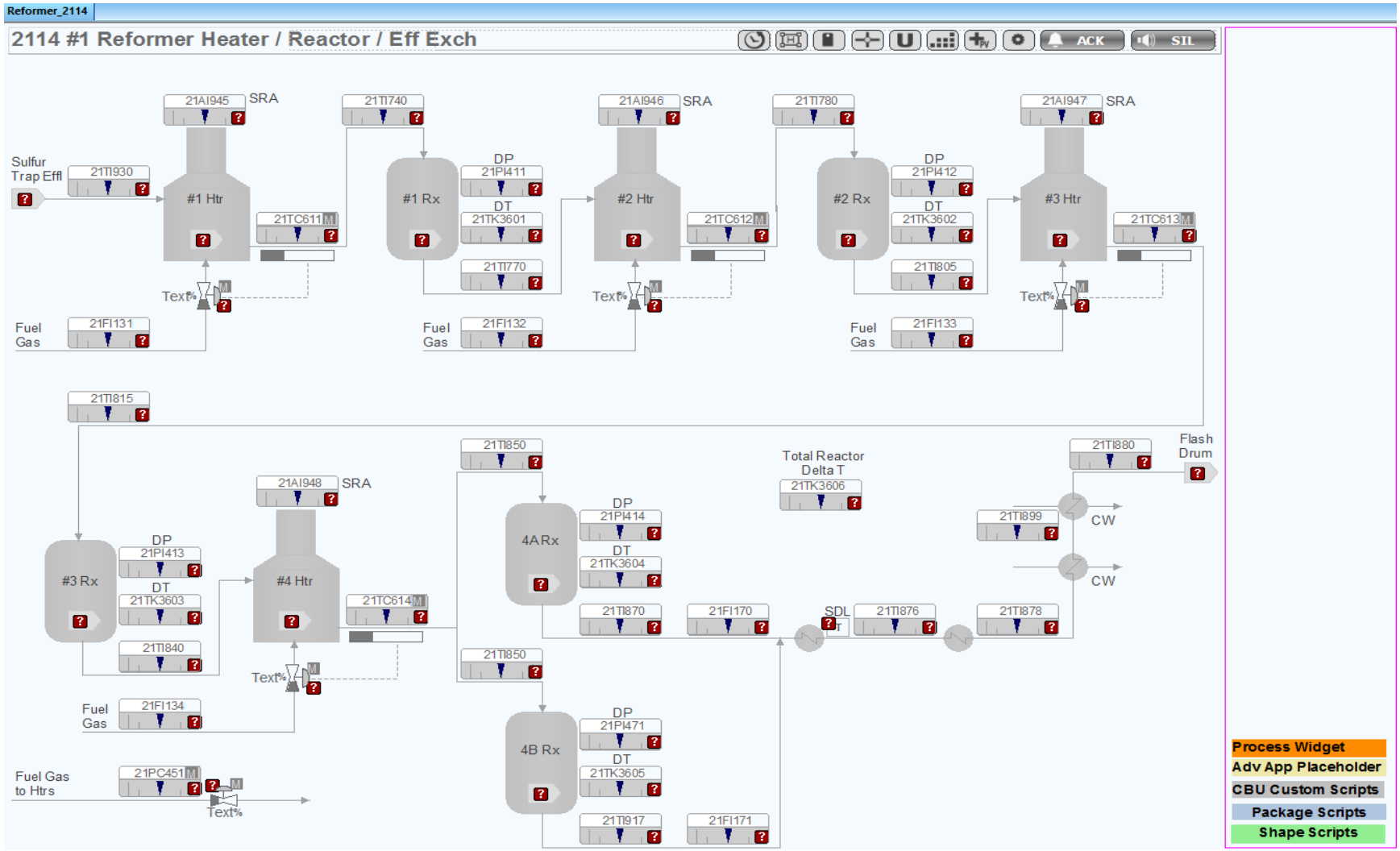
5.79 2113 #1 REFORMER FEED / EFFL EXCH & SULFUR TRAP (Reformer_2113.htm)



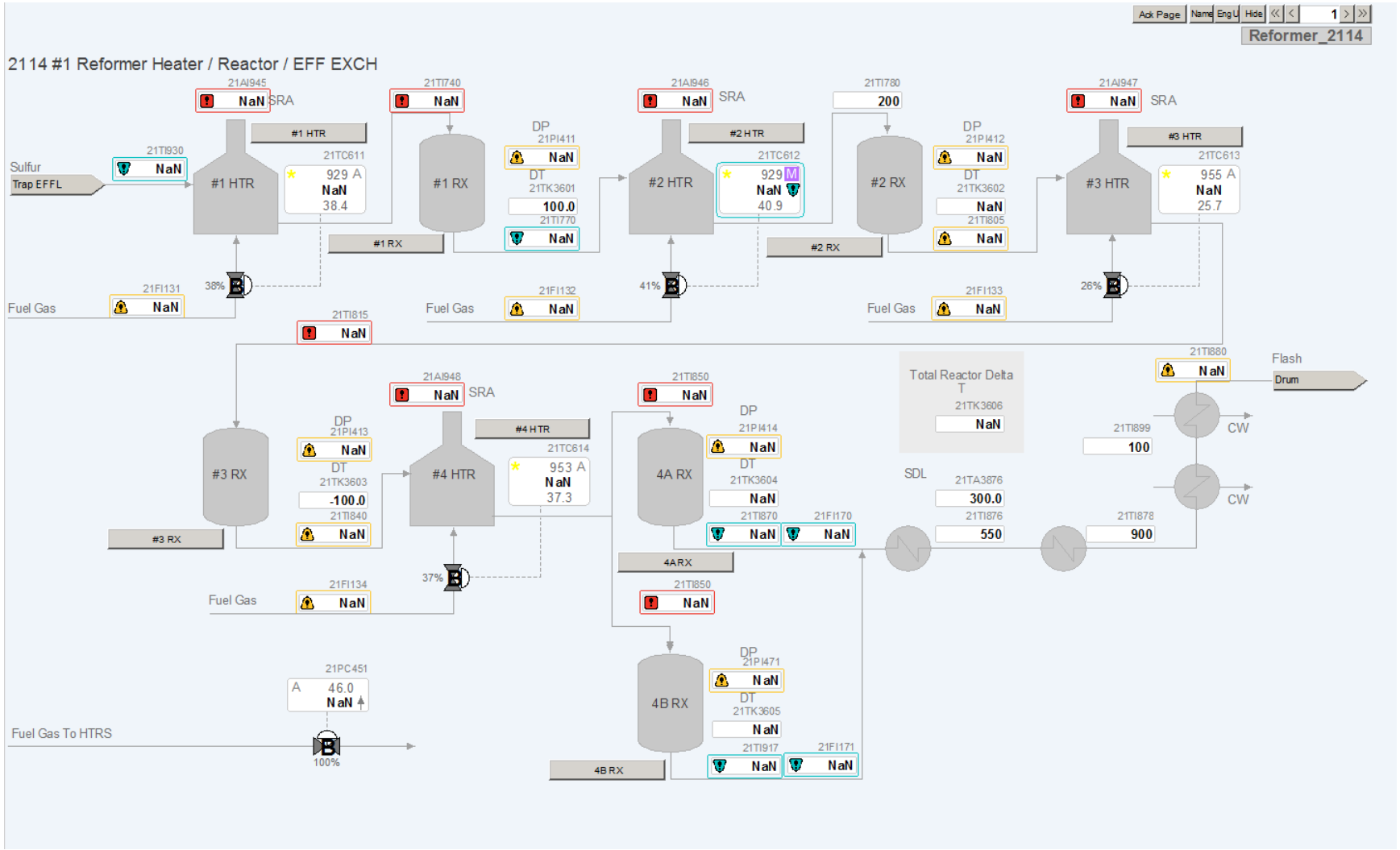
Station View



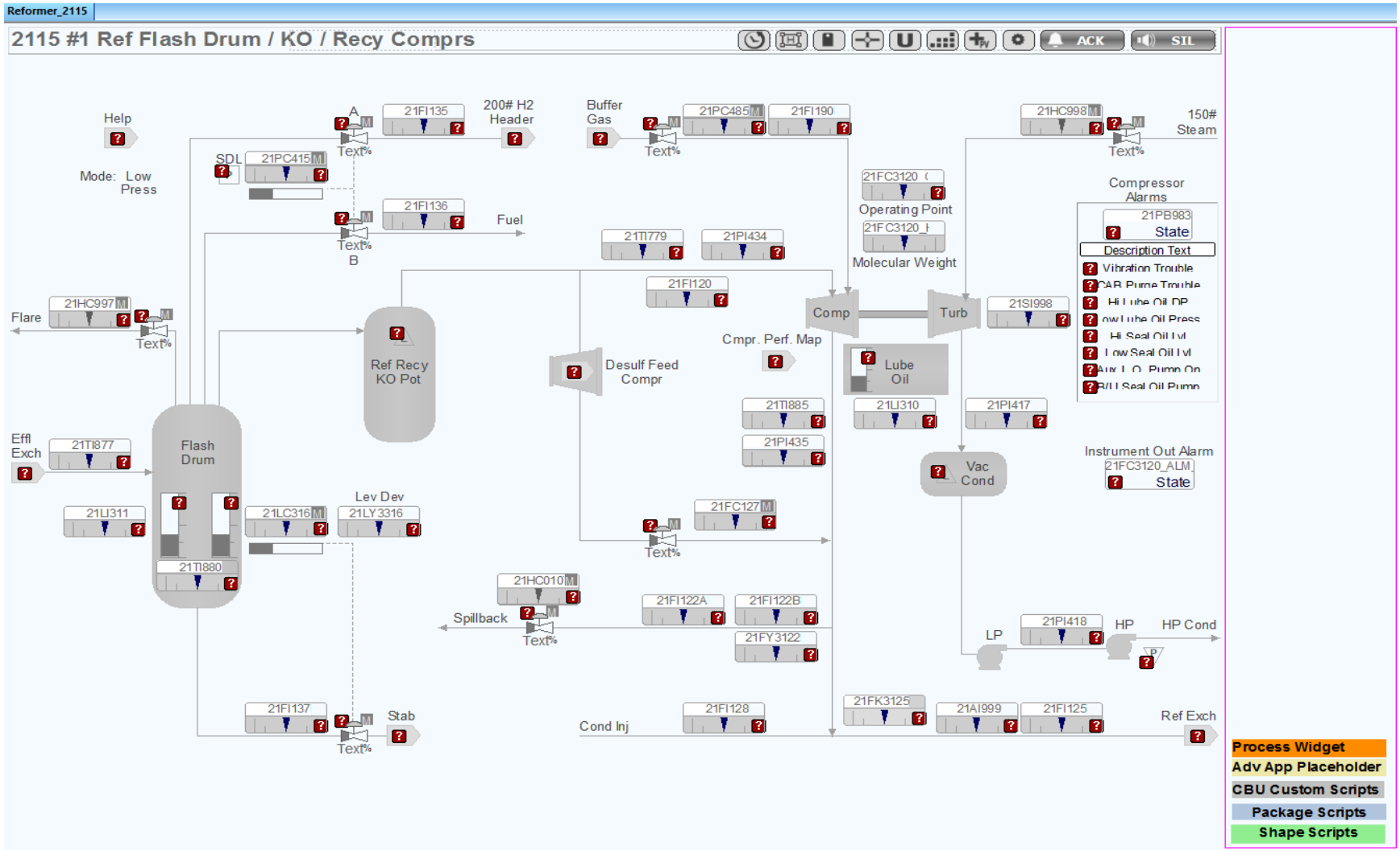
5.80 2114 #1 REFORMER HEATER / REACTOR / EFF EXCH (Reformer_2114.htm)



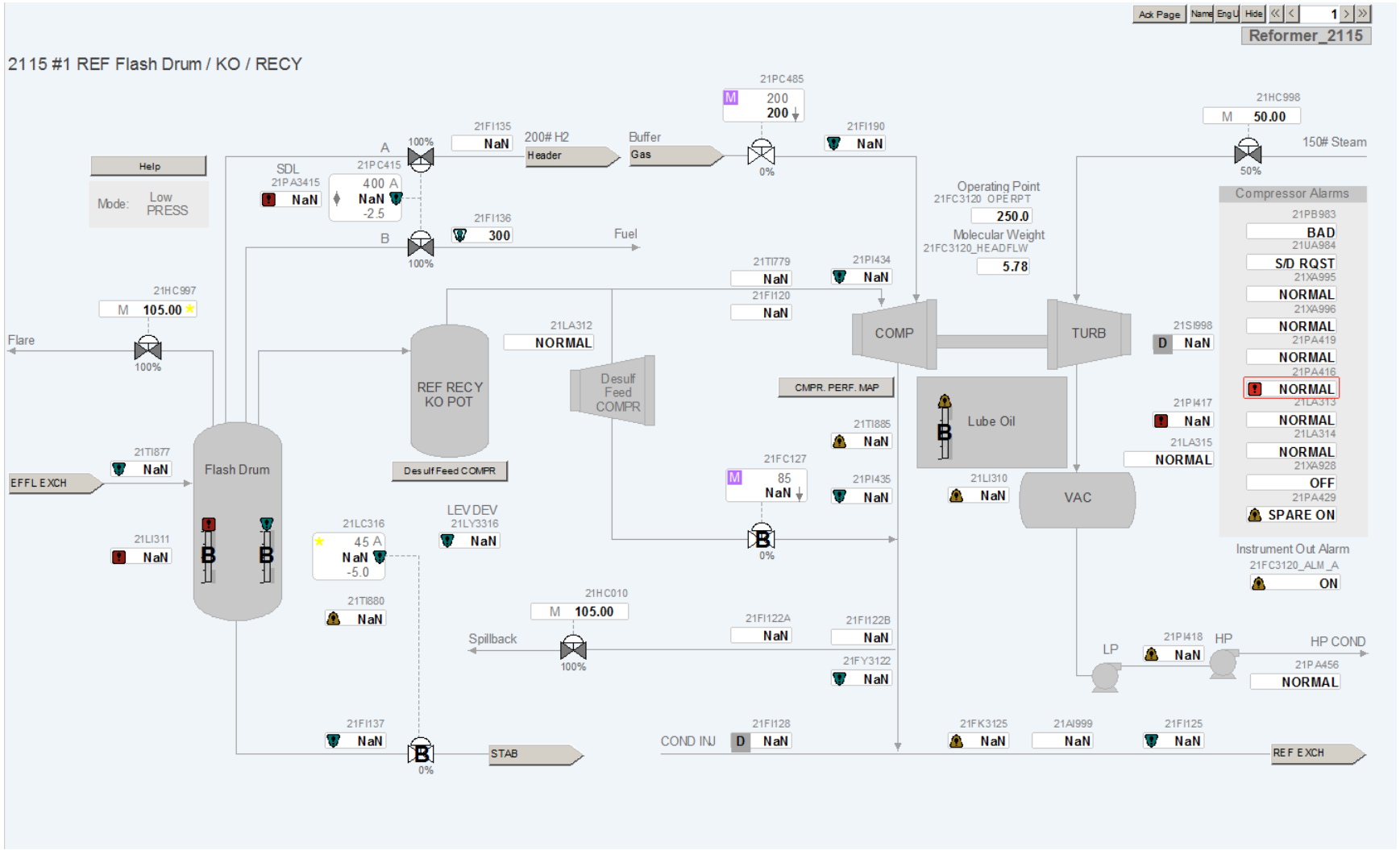
Station View



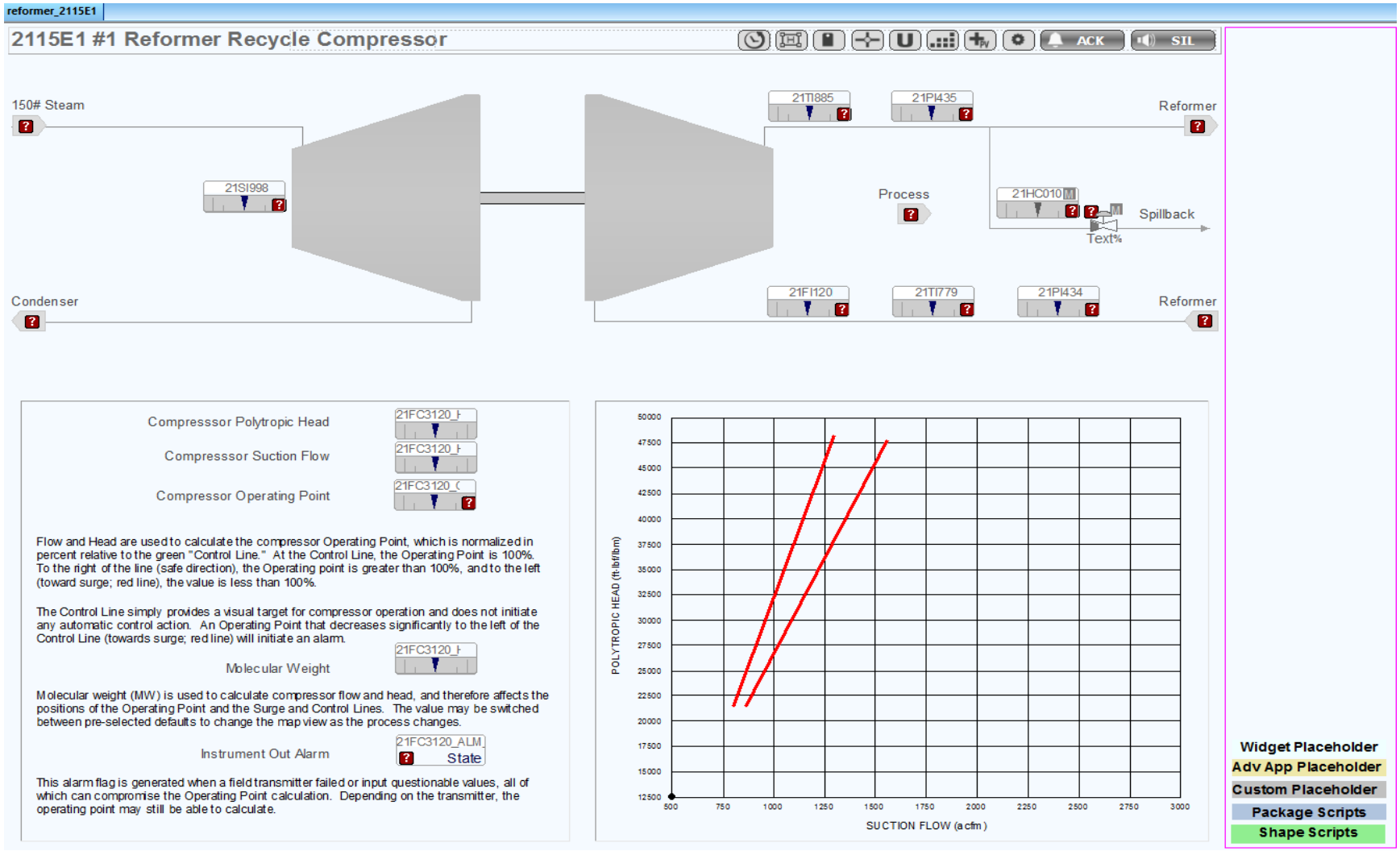
5.81 2115 #1 REF FLASH DRUM / KO / RECY COMPRS (Reformer_2115.htm)



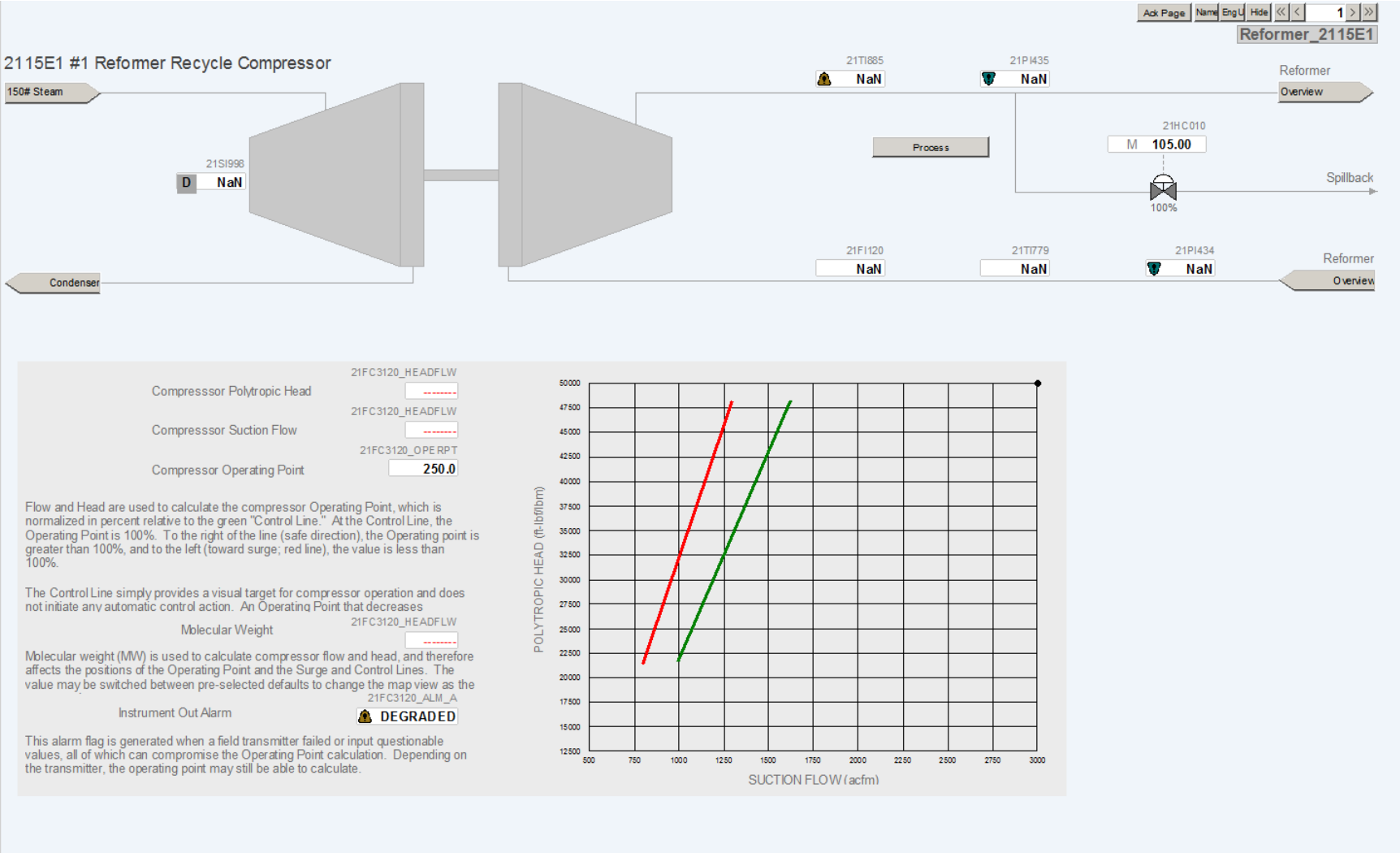
Station View



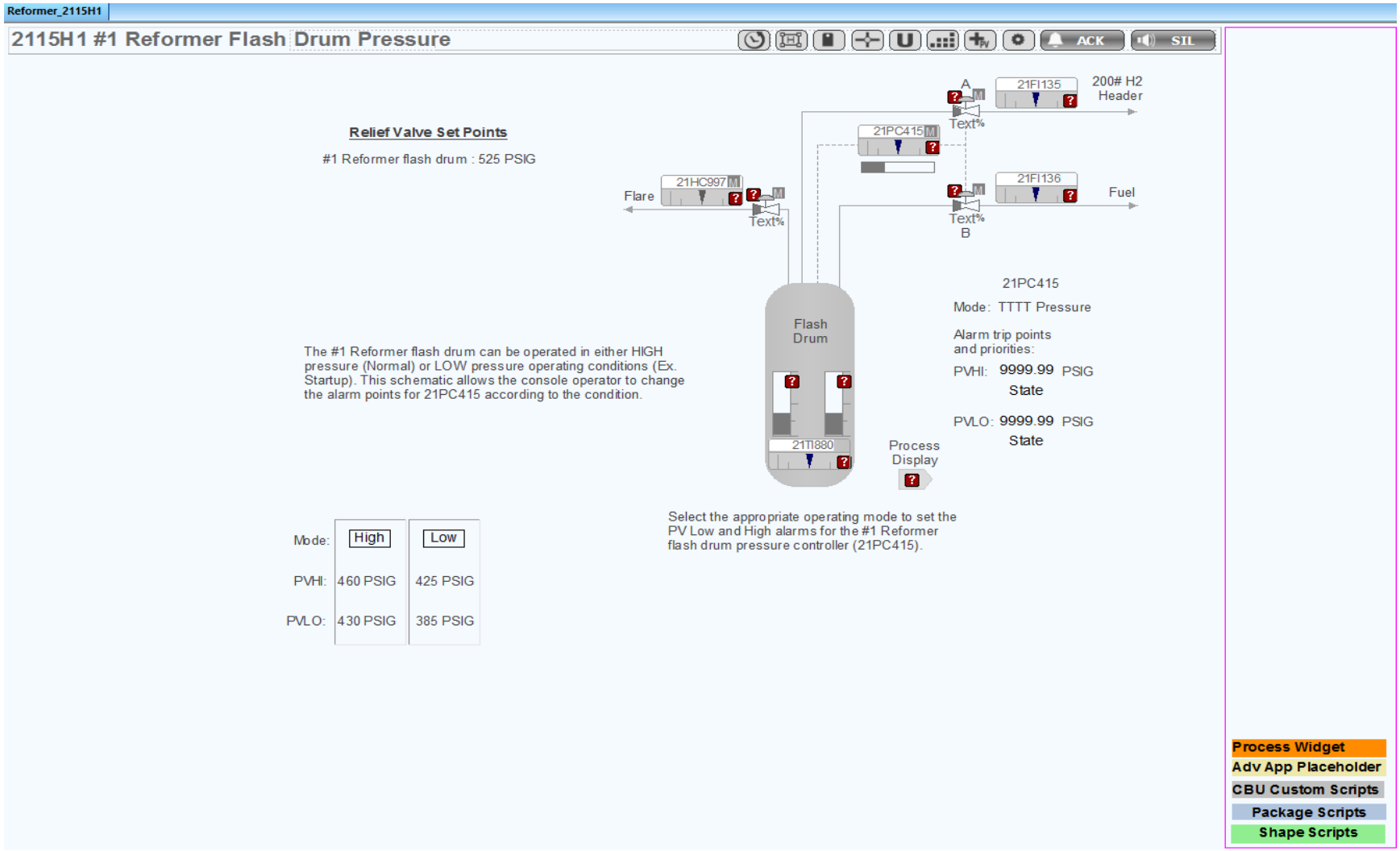
5.82 2115E1 #1 REFORMER RECYCLE COMPRESSOR (Reformer_2115E1.htm)



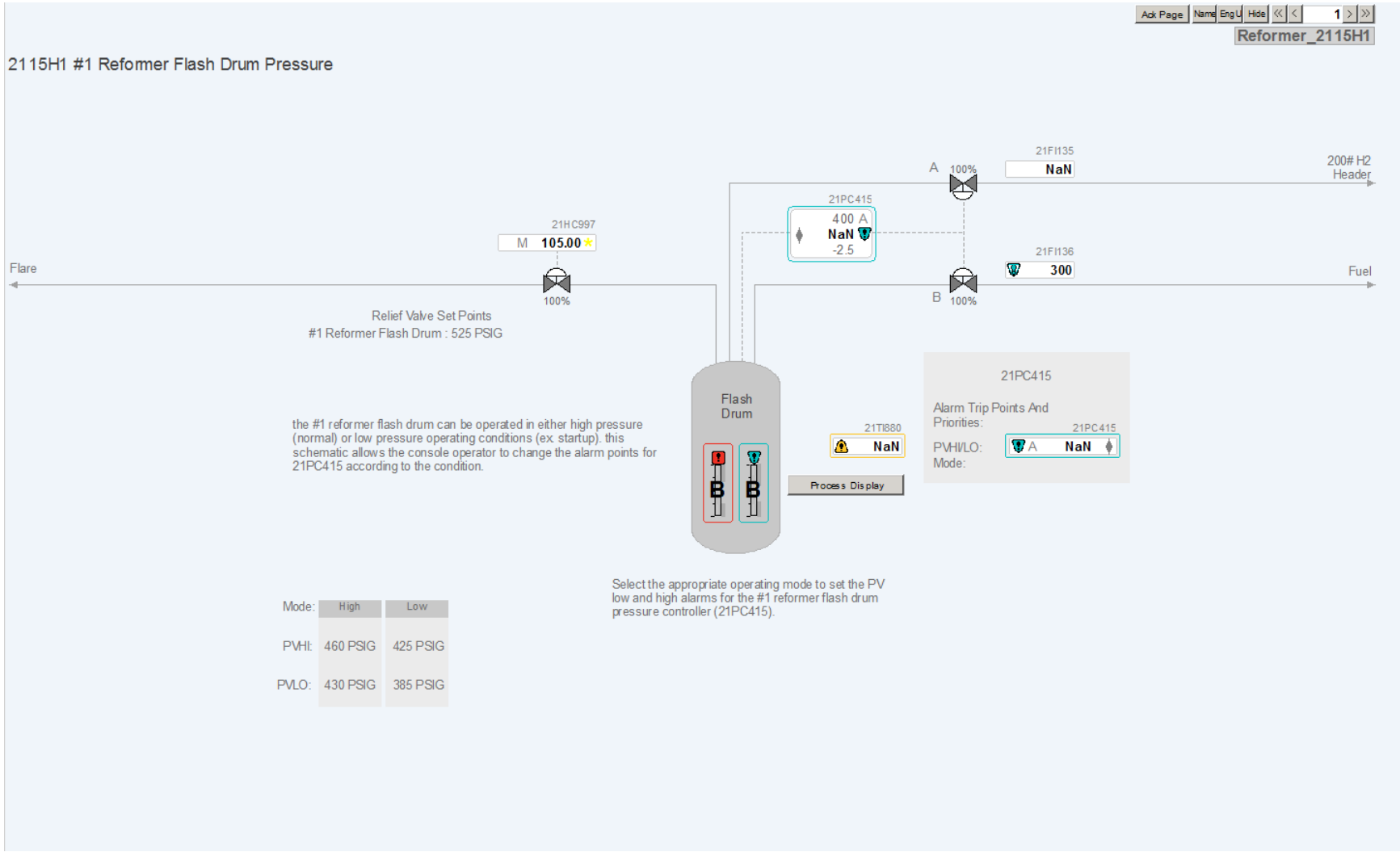
Station View



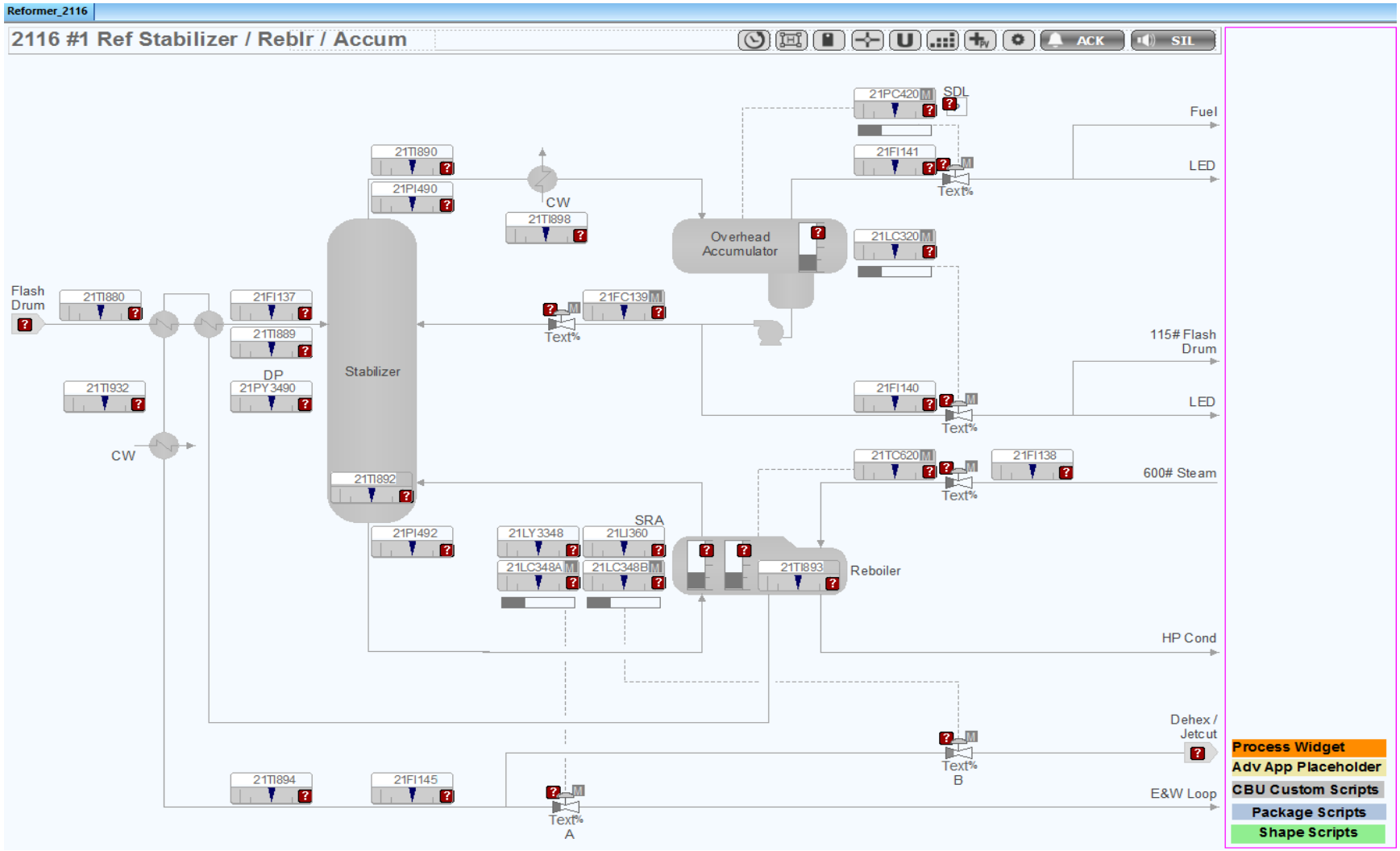
5.83 2115H1 #1 REFORMER FLASH DRUM PRESSURE (Reformer_2115H1.htm)



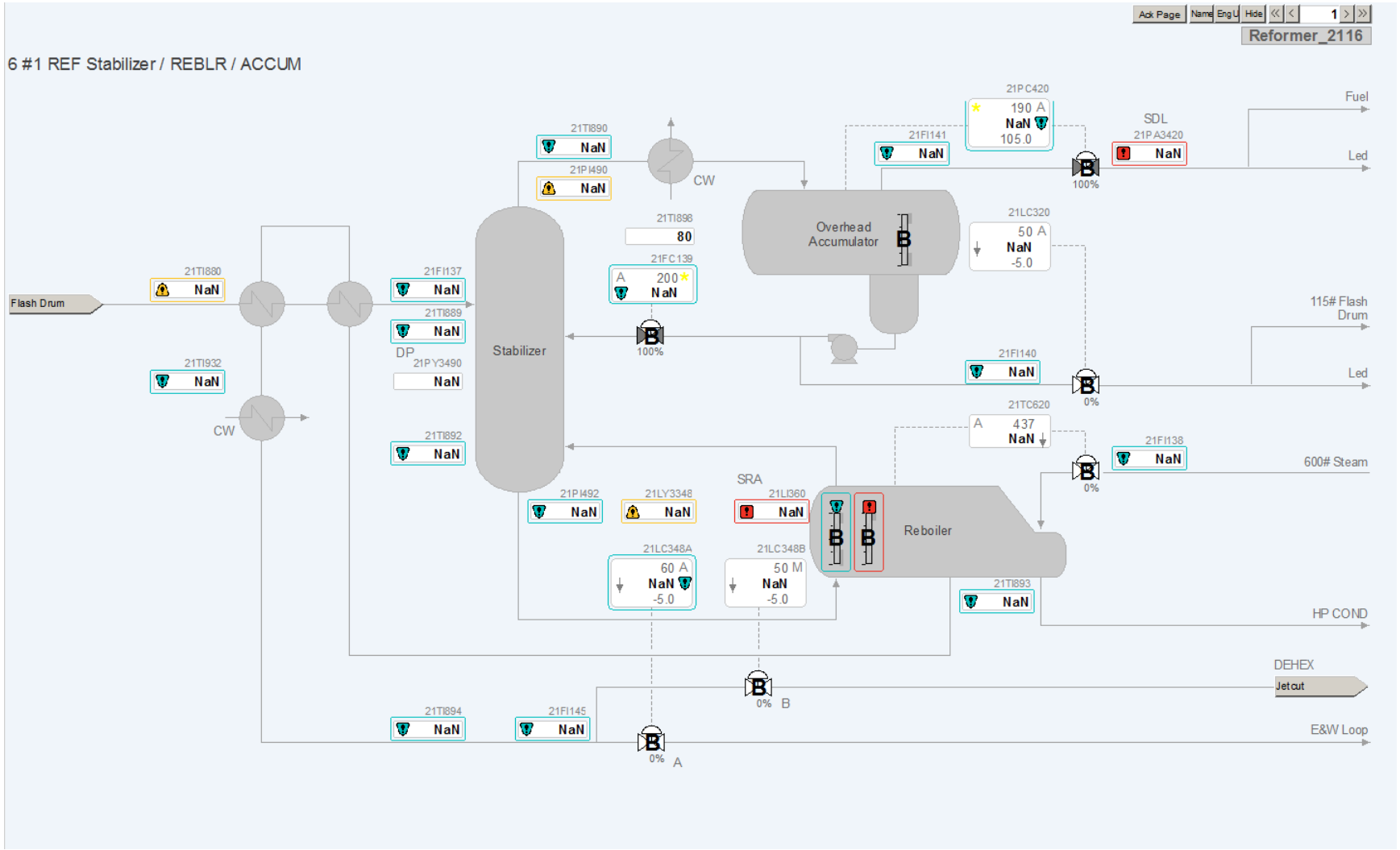
Station View



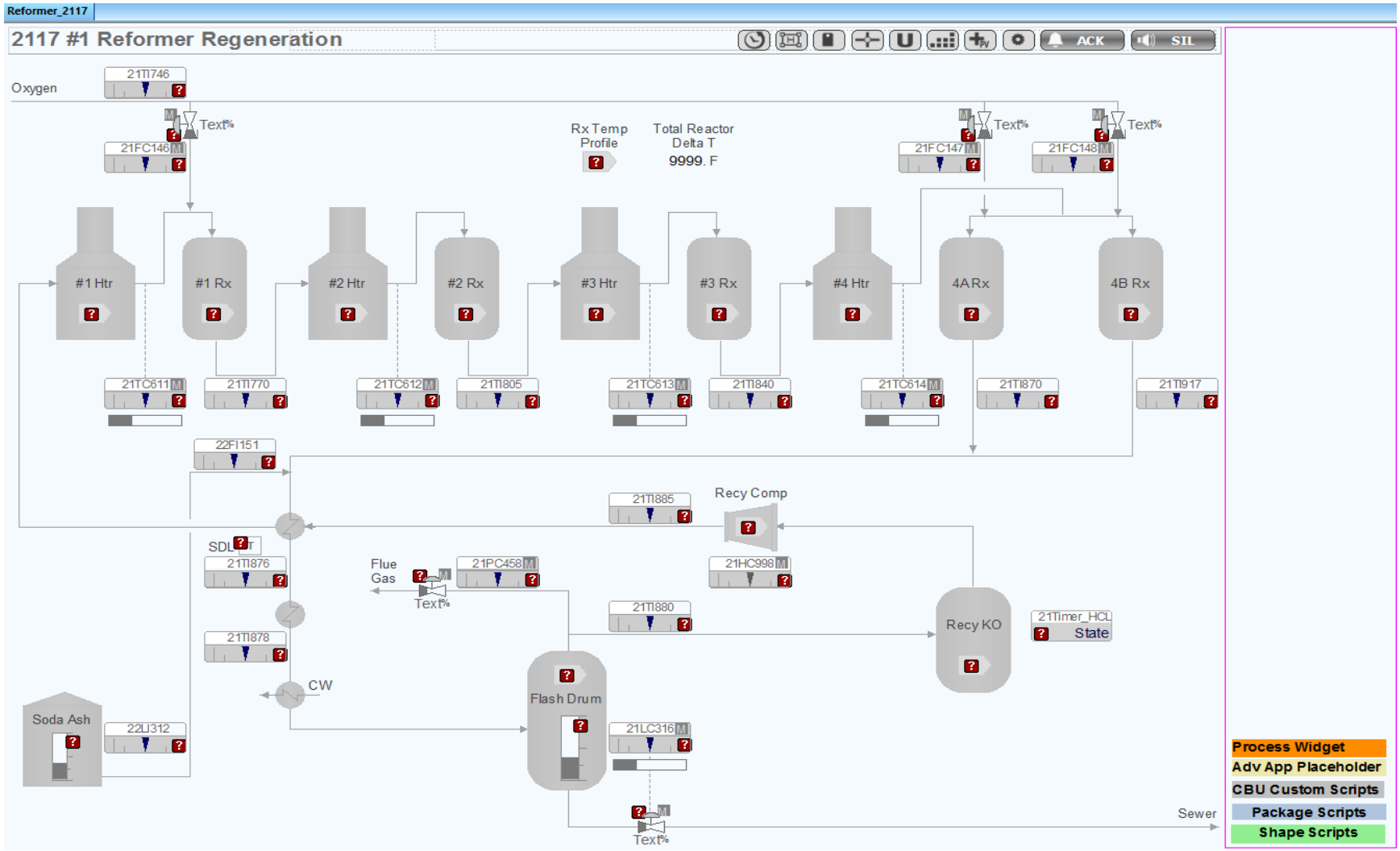
5.84 2116 #1 REF STABILIZER / REBLR / ACCUM (Reformer_2116.htm)



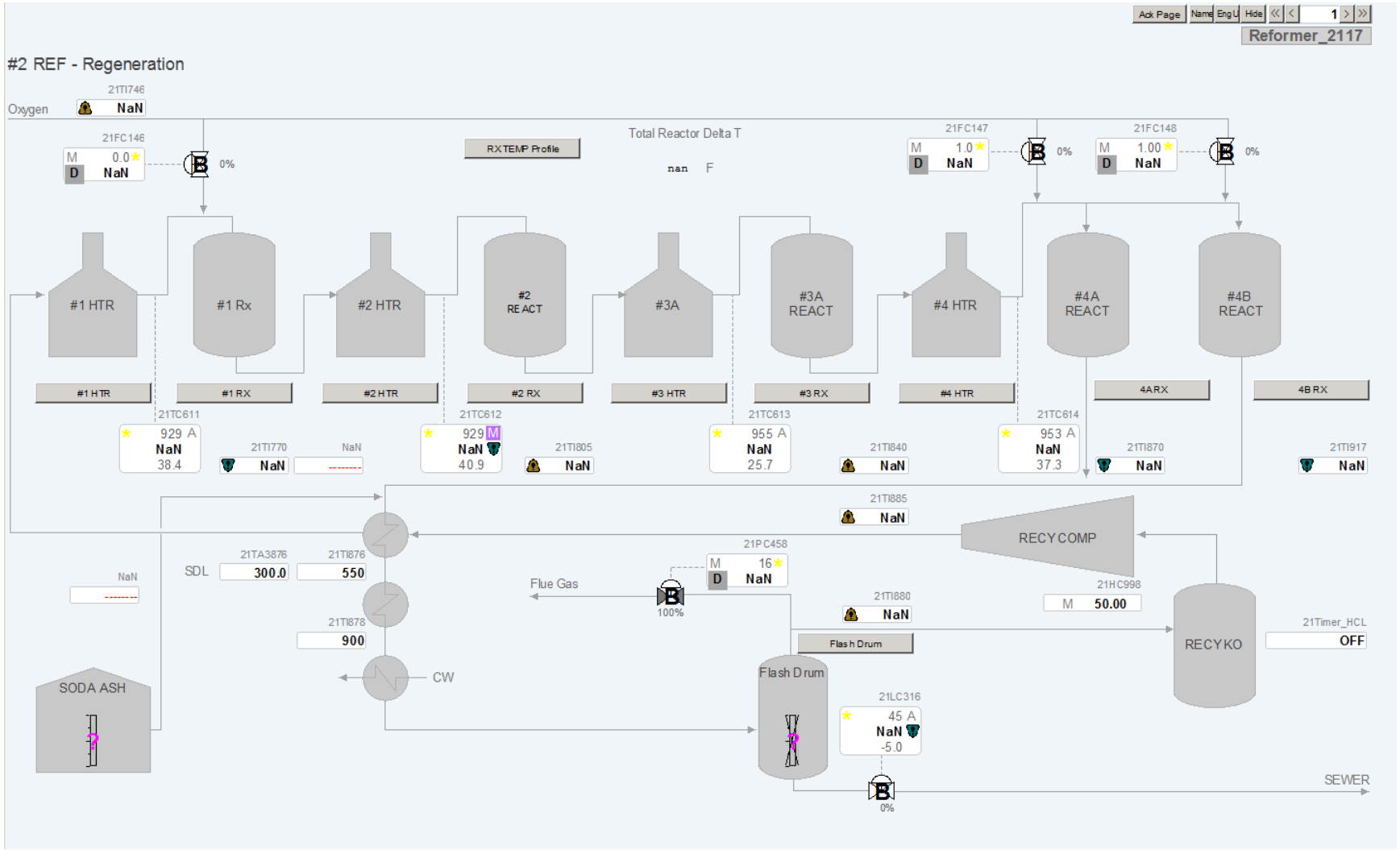
Station View



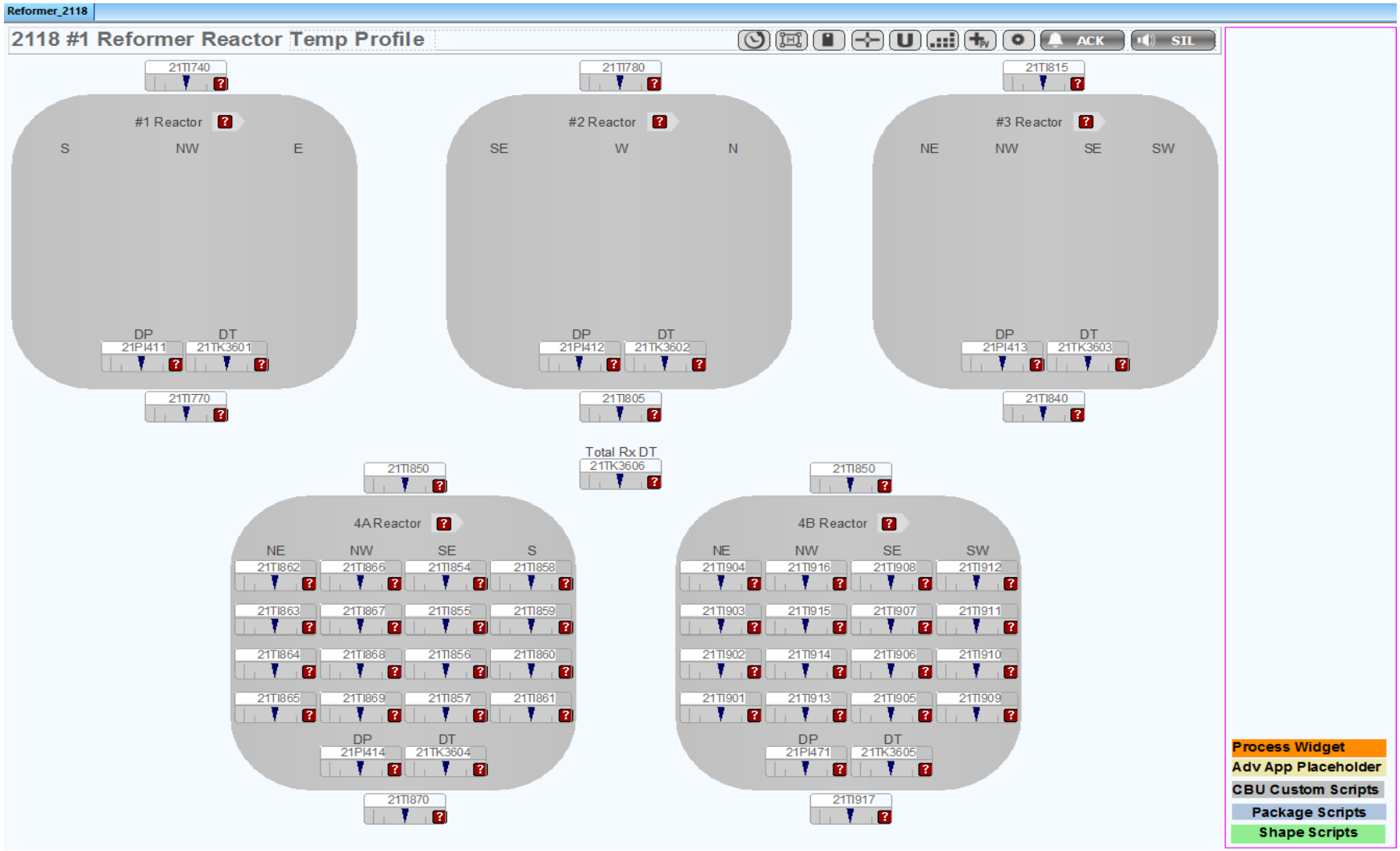
5.85 2117 #1 REFORMER REGENERATION (Reformer_2117.htm)



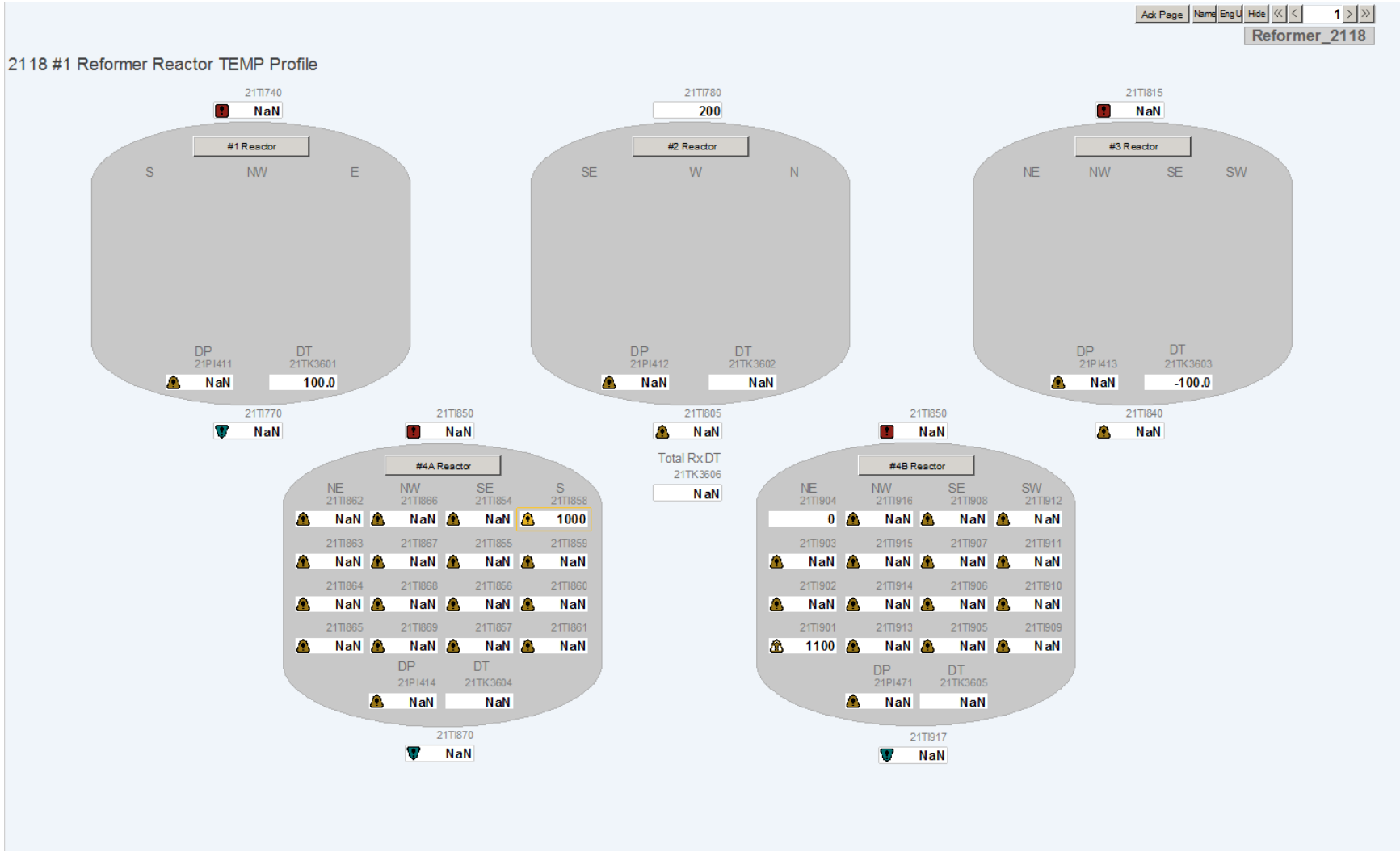
Station View



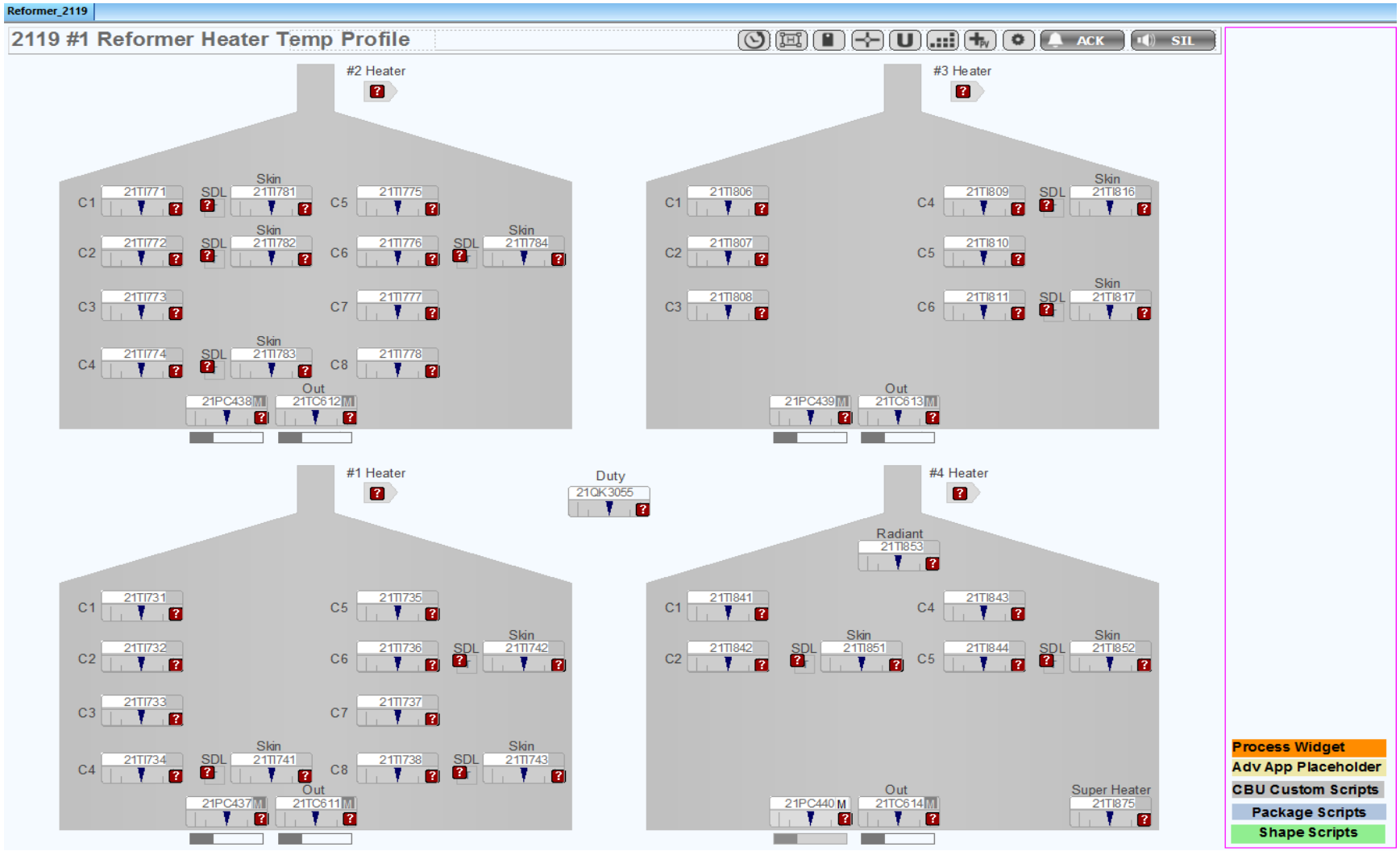
5.86 2118 #1 REFORMER REACTOR TEMP PROFILE (Reformer_2118.htm)



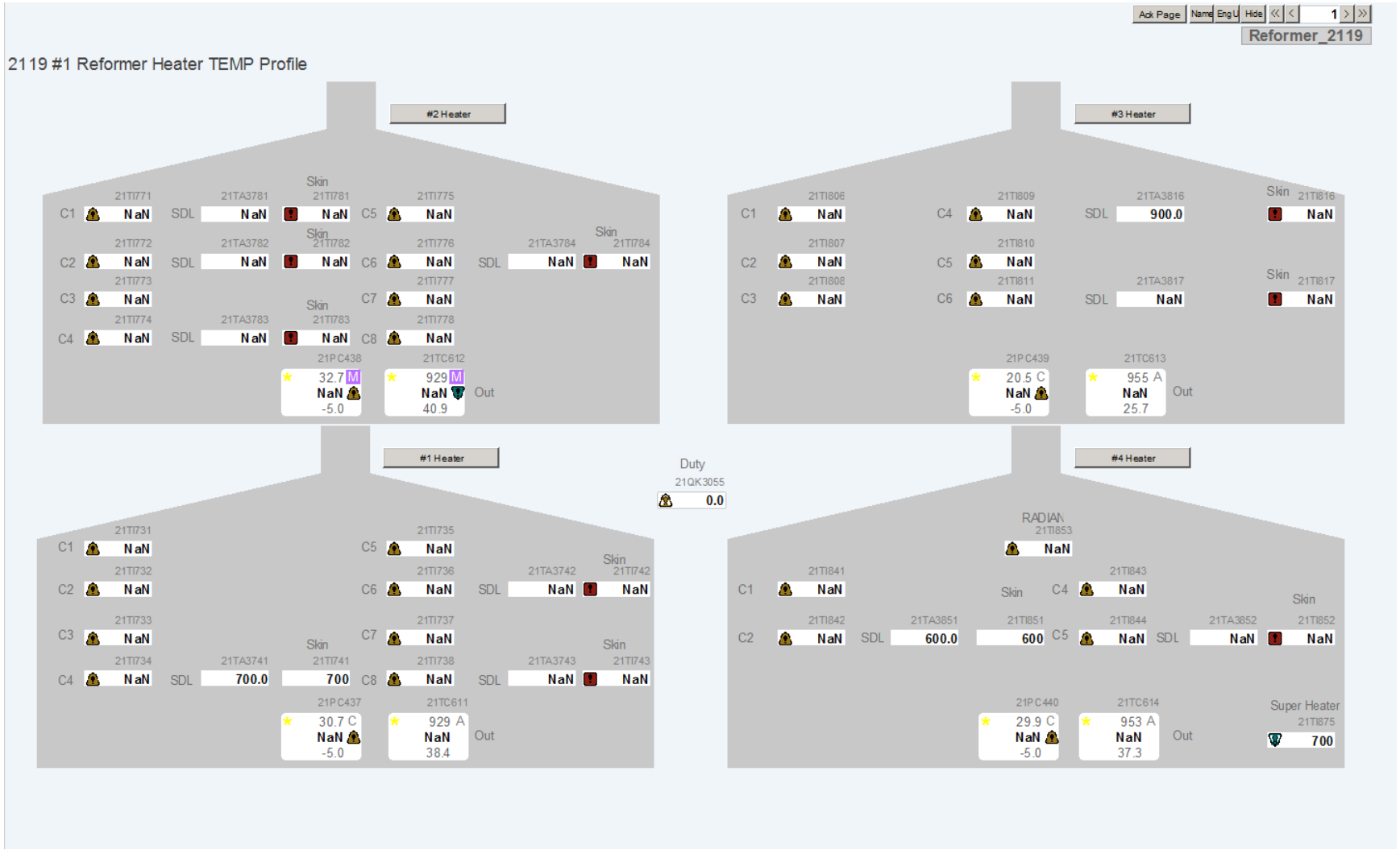
Station View



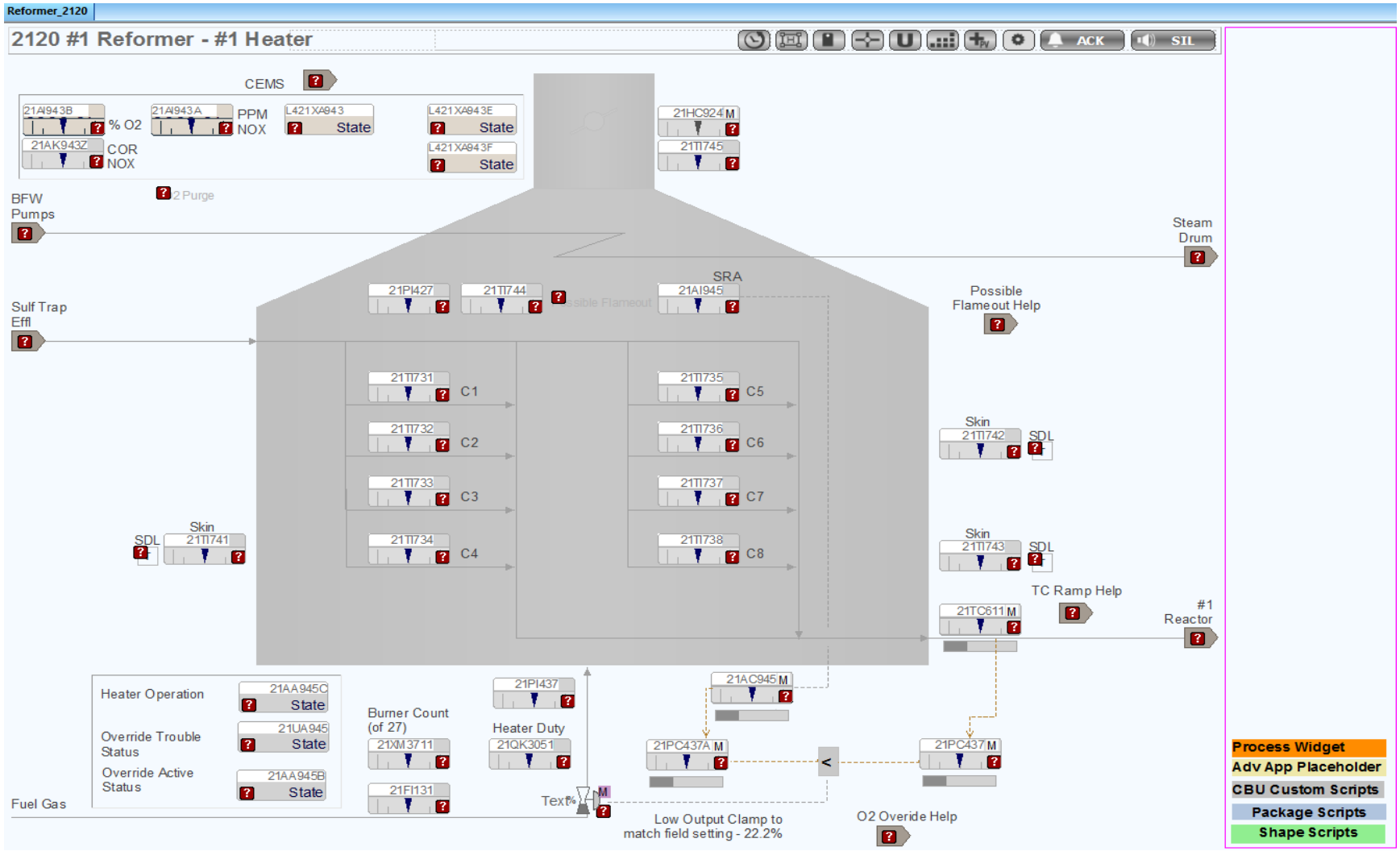
5.87 2119 #1 REFORMER HEATER TEMP PROFILE (Reformer_2119.htm)



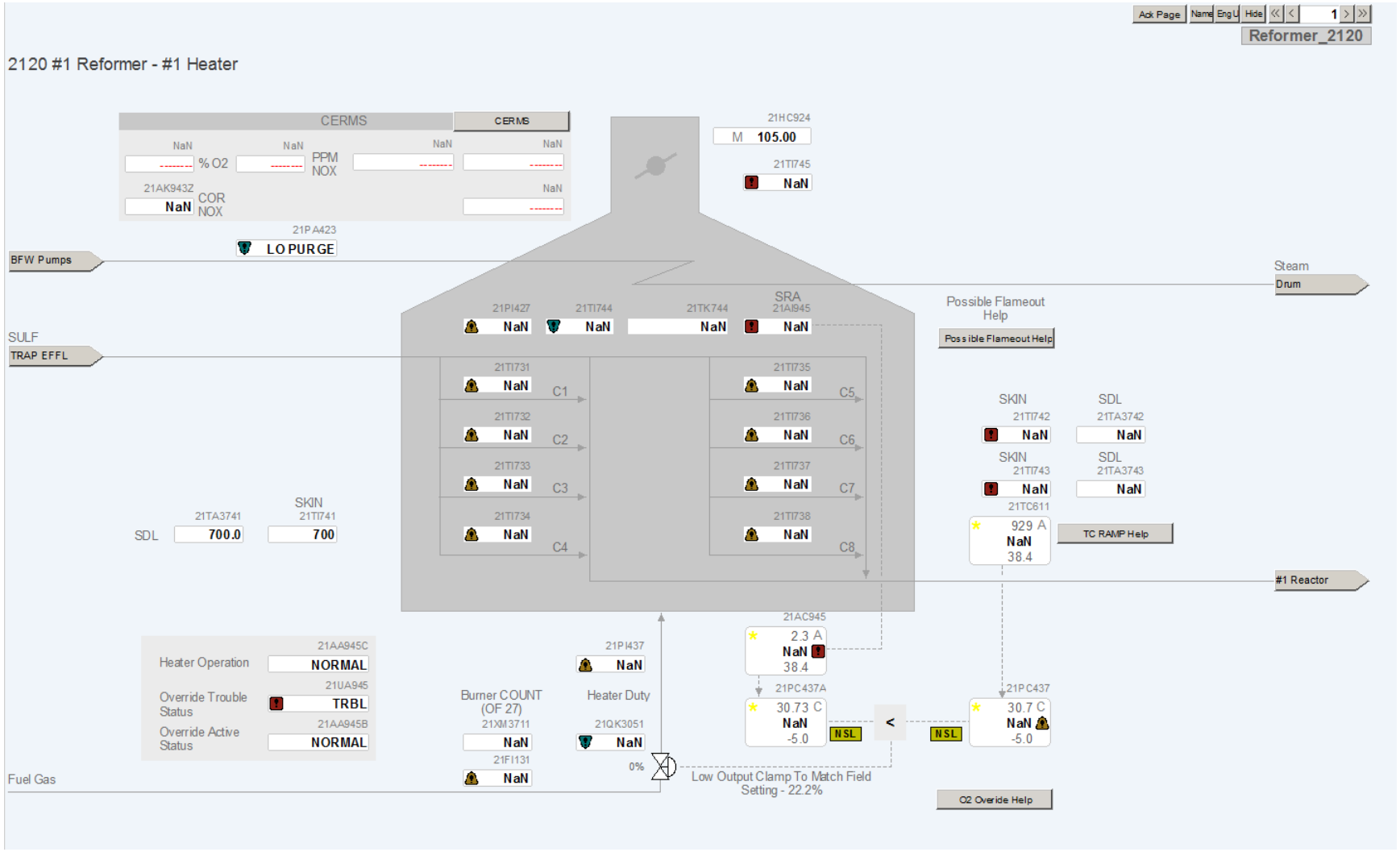
Station View



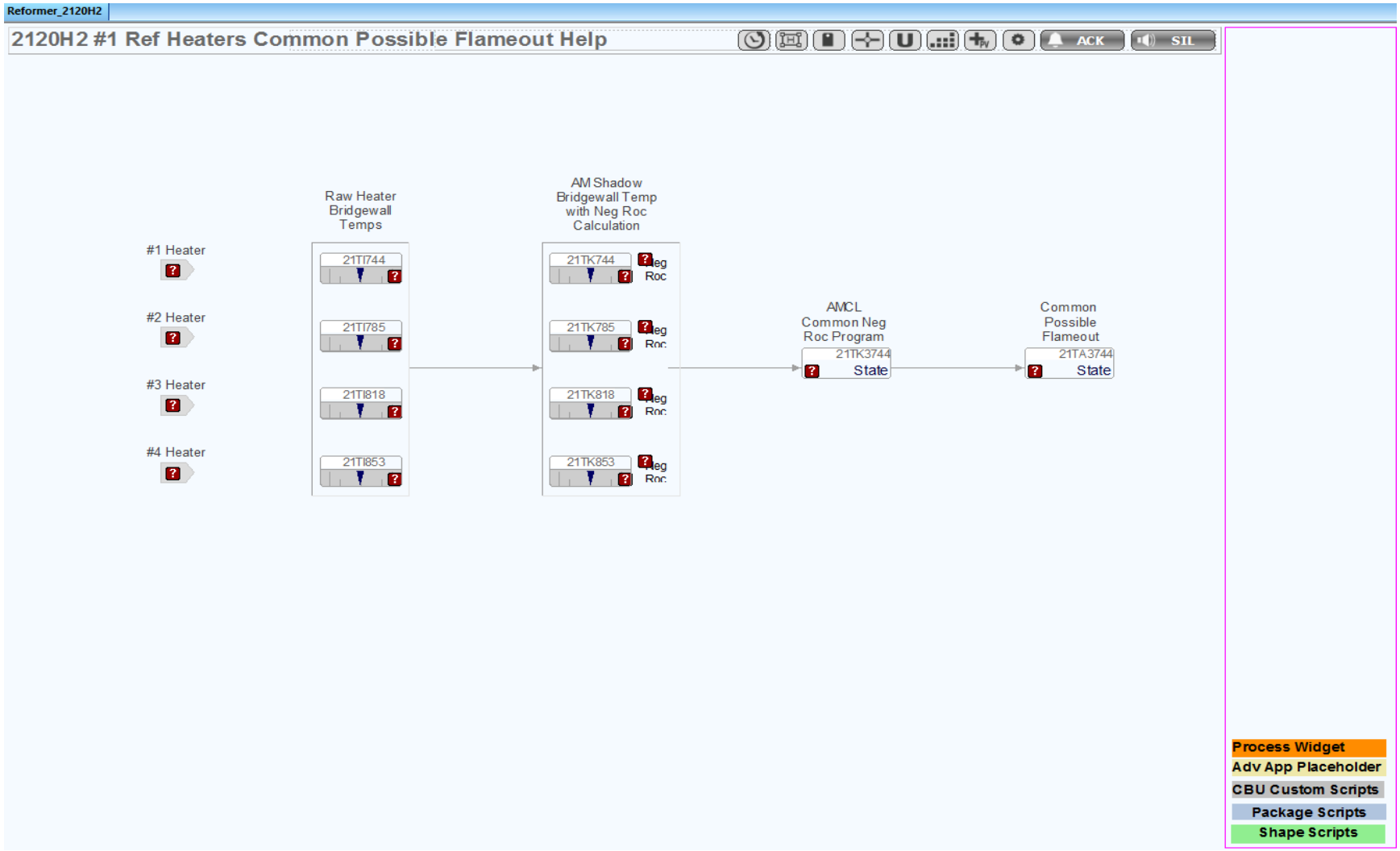
5.88 2120 #1 REFORMER - #1 HEATER (Reformer_2120.htm)



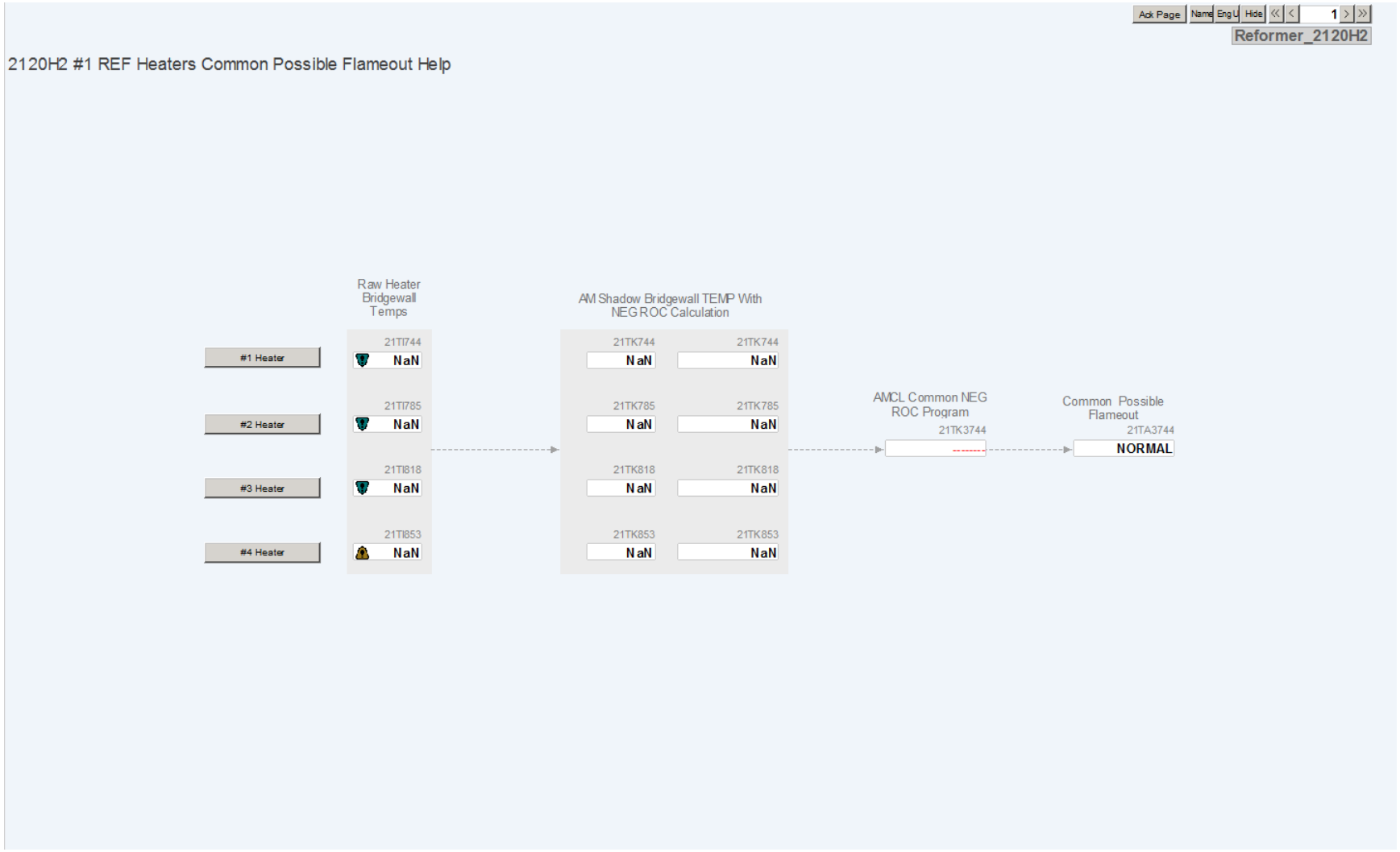
Station View



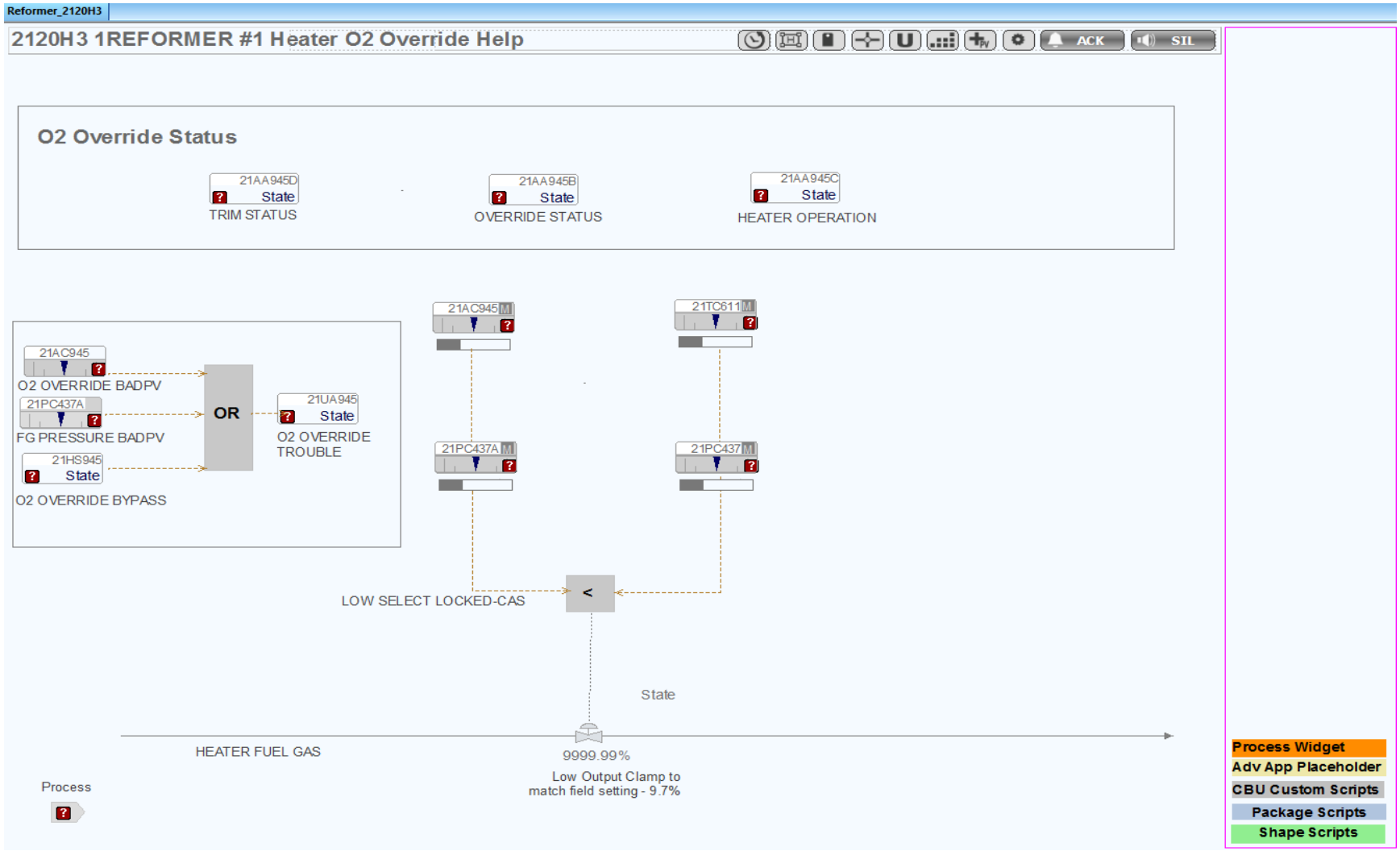
5.89 2120H2 #1 REF HEATERS COMMON POSSIBLE FLAMEOUT HELP (Reformer_2120H2.htm)



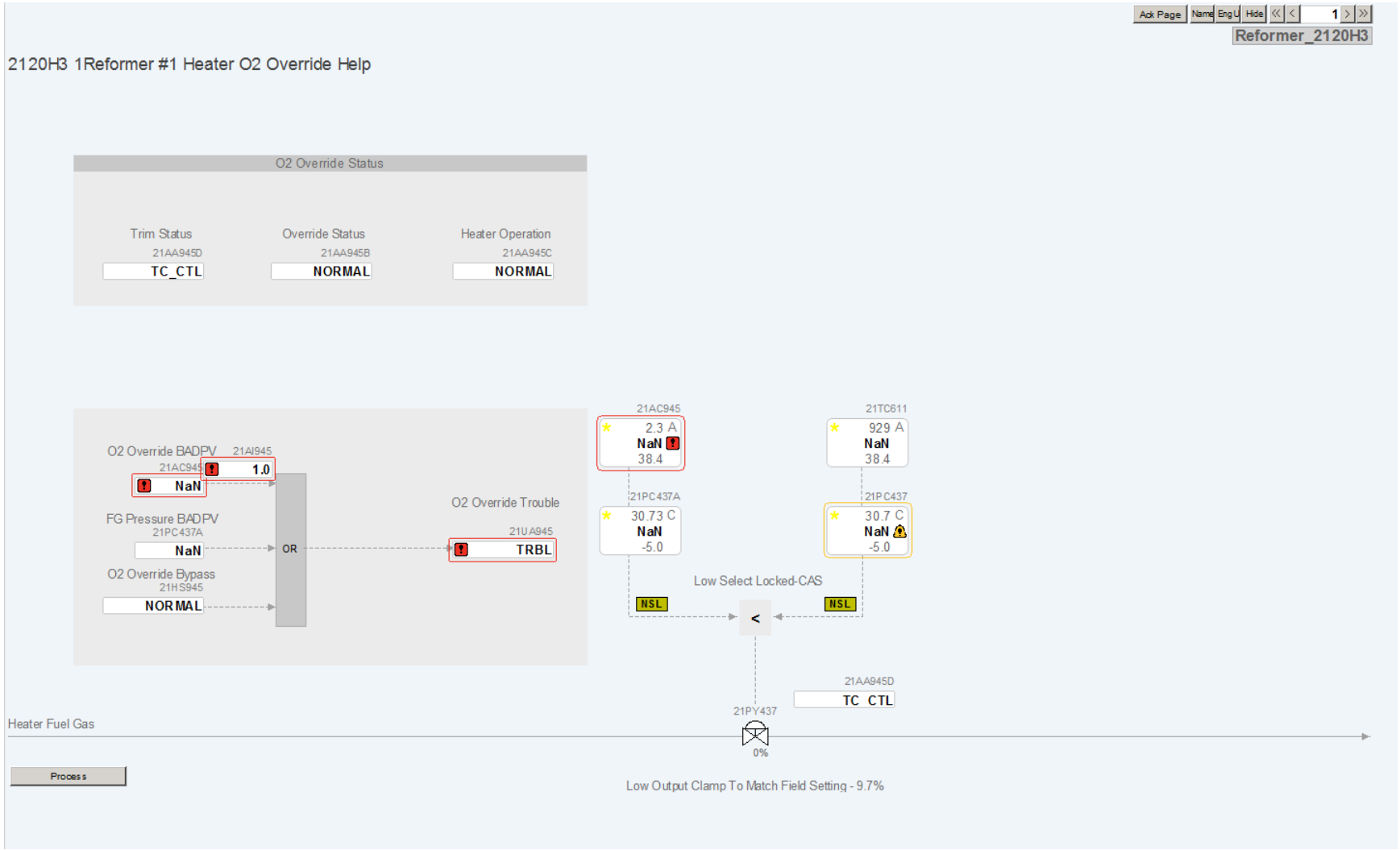
Station View



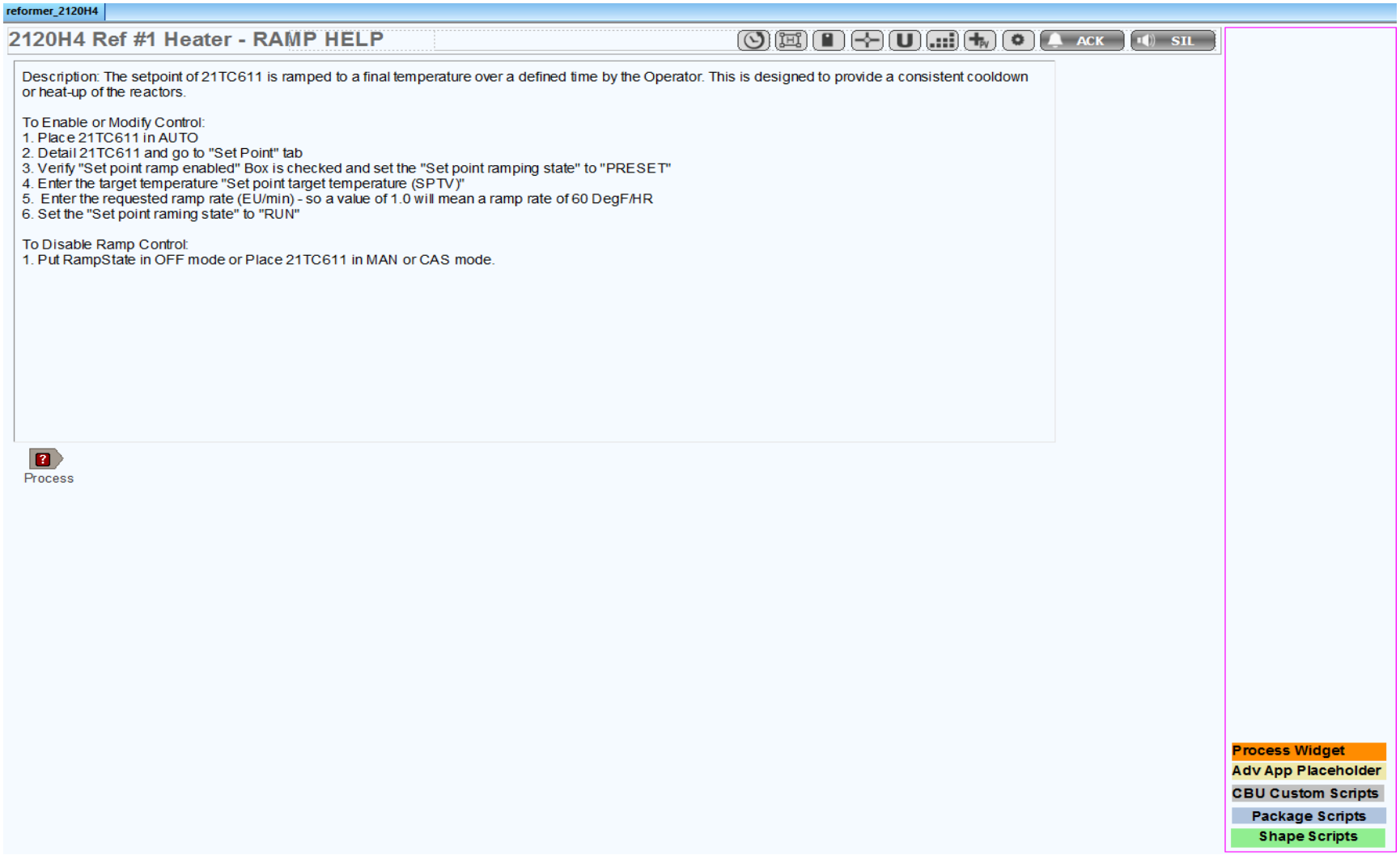
5.90 2120H3 1REFORMER #1 HEATER O2 OVERRIDE HELP (Reformer_2120H3.htm)



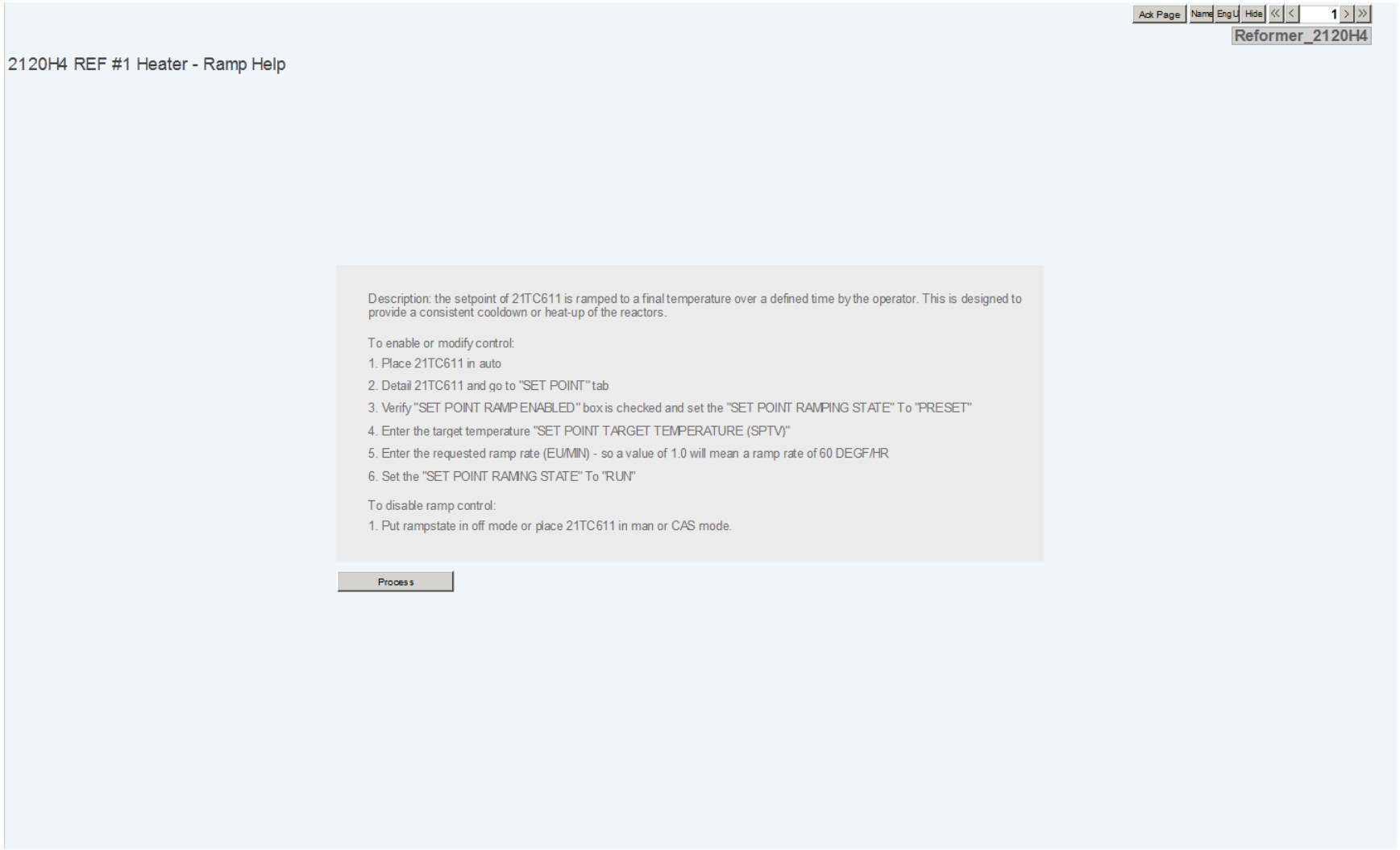
Station View



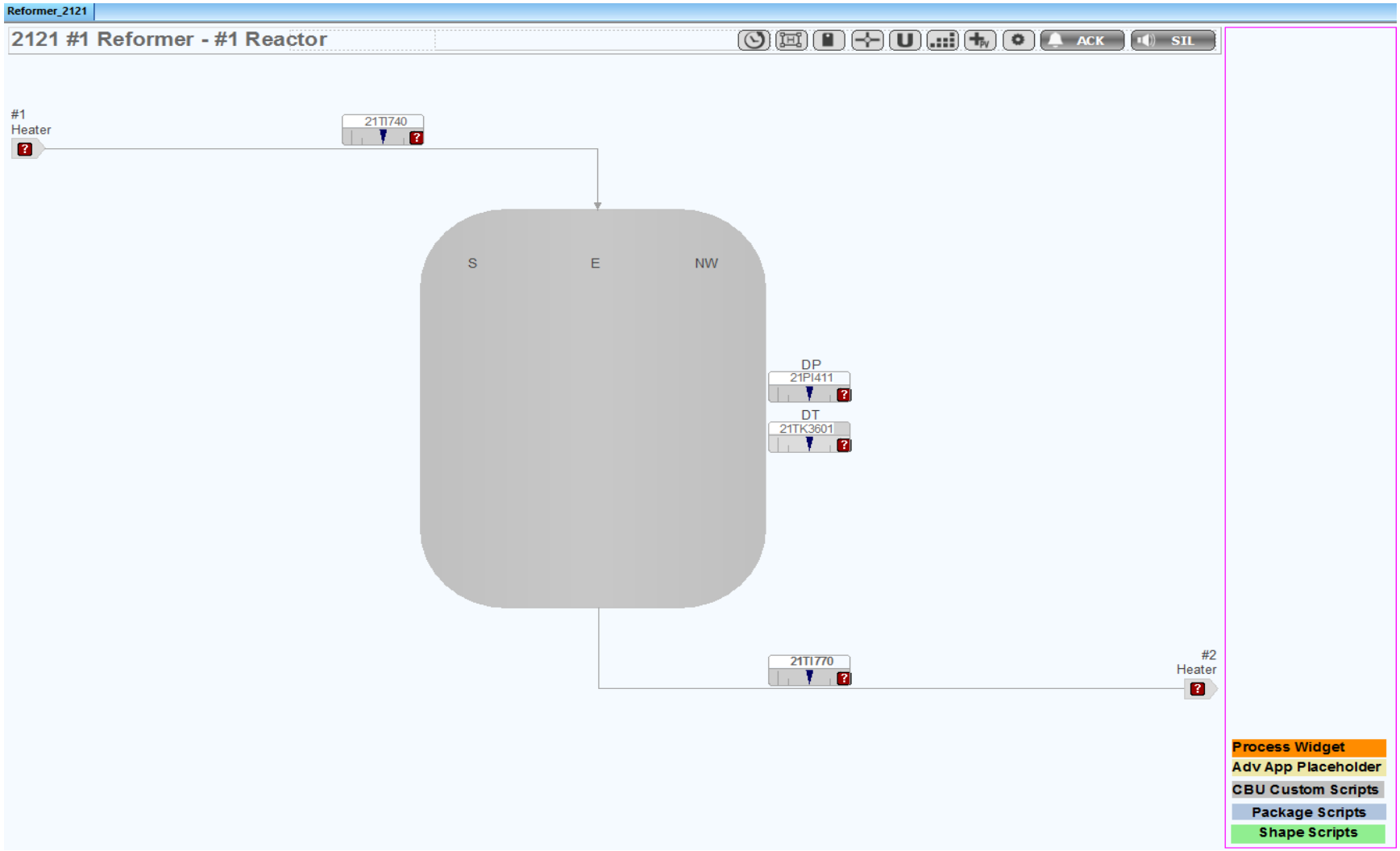
5.91 2120H4 REF #1 HEATER - RAMP HELP (Reformer_2120H4.htm)



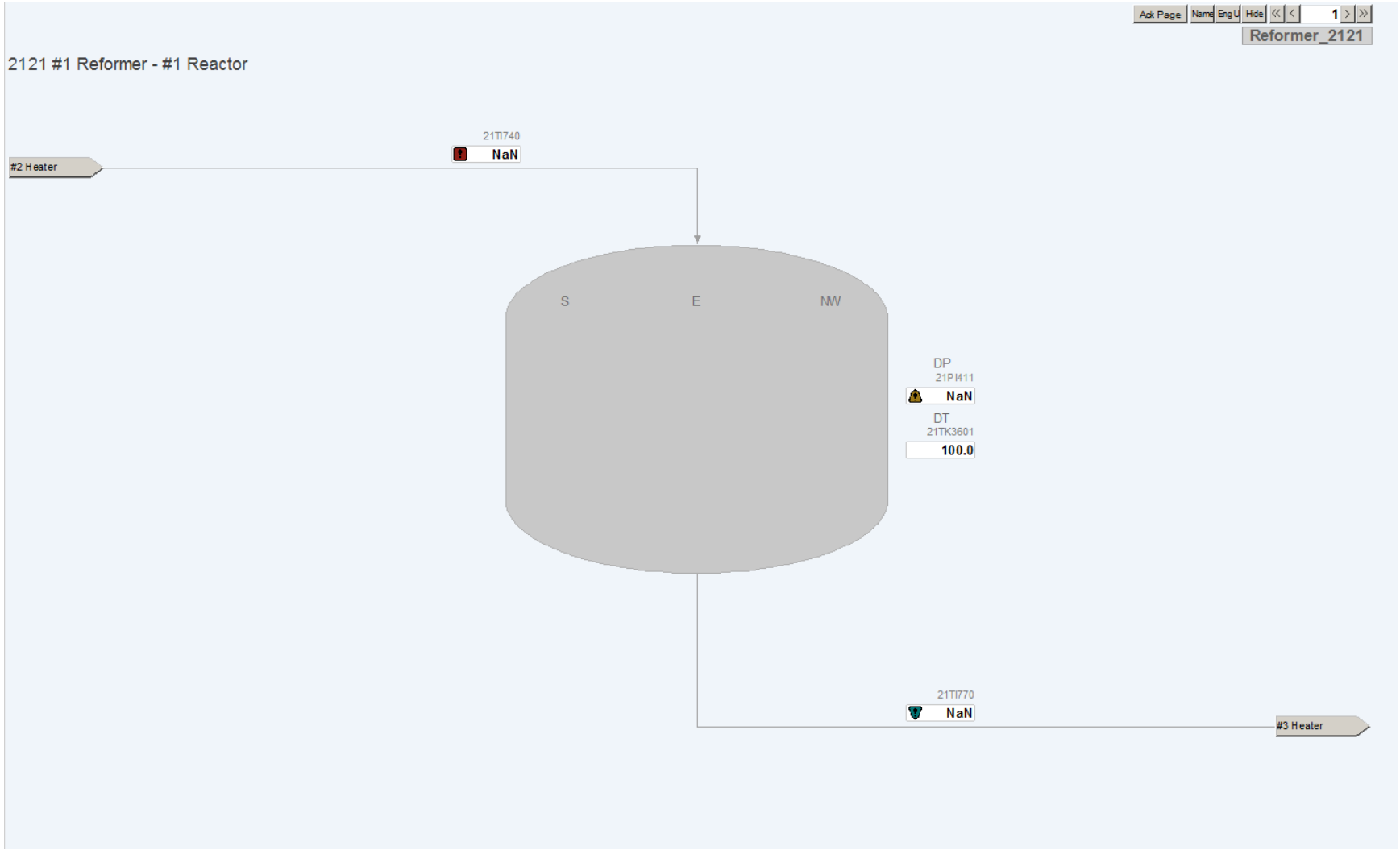
Station View



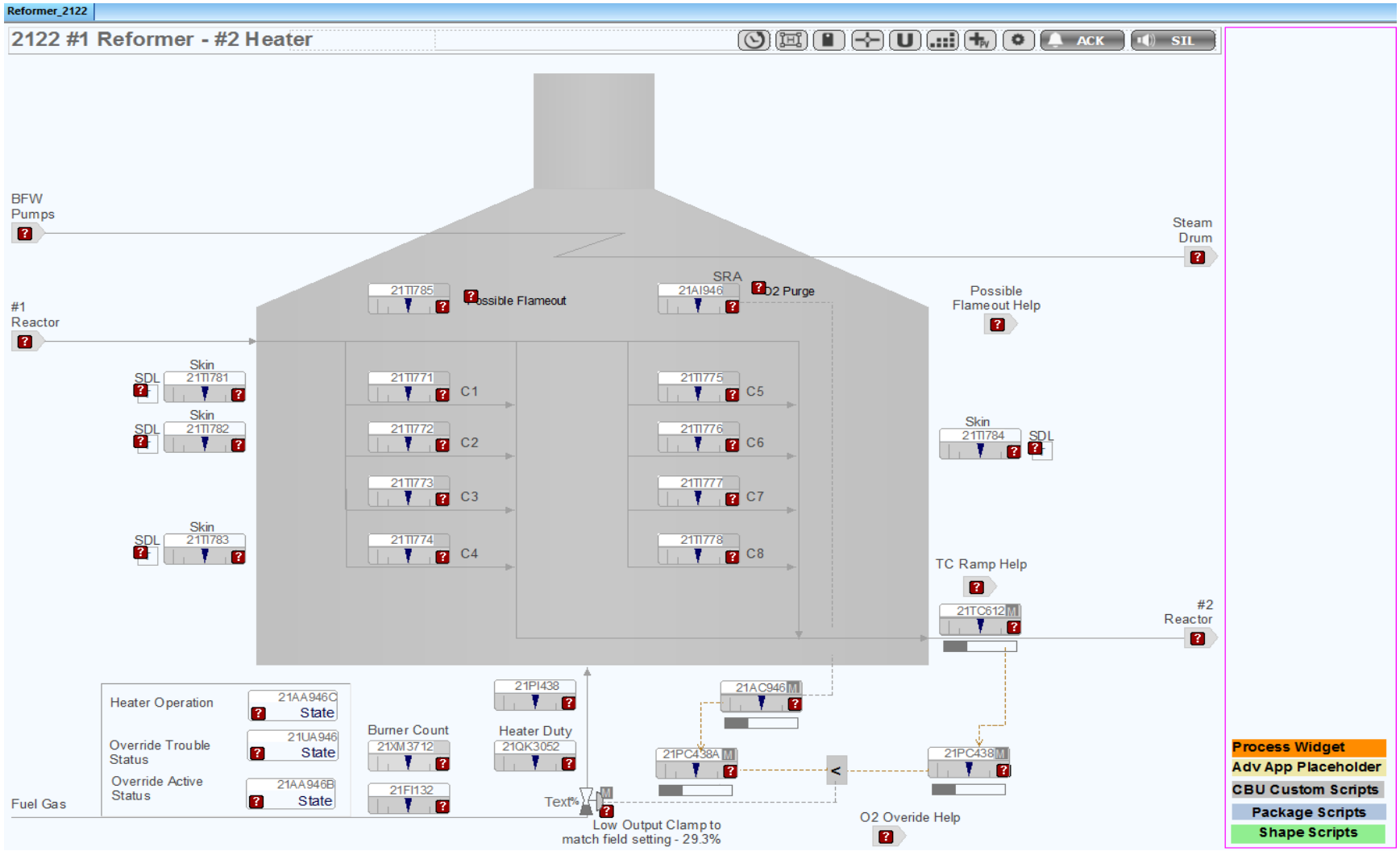
5.92 2121 #1 REFORMER - #1 REACTOR (Reformer_2121.htm)



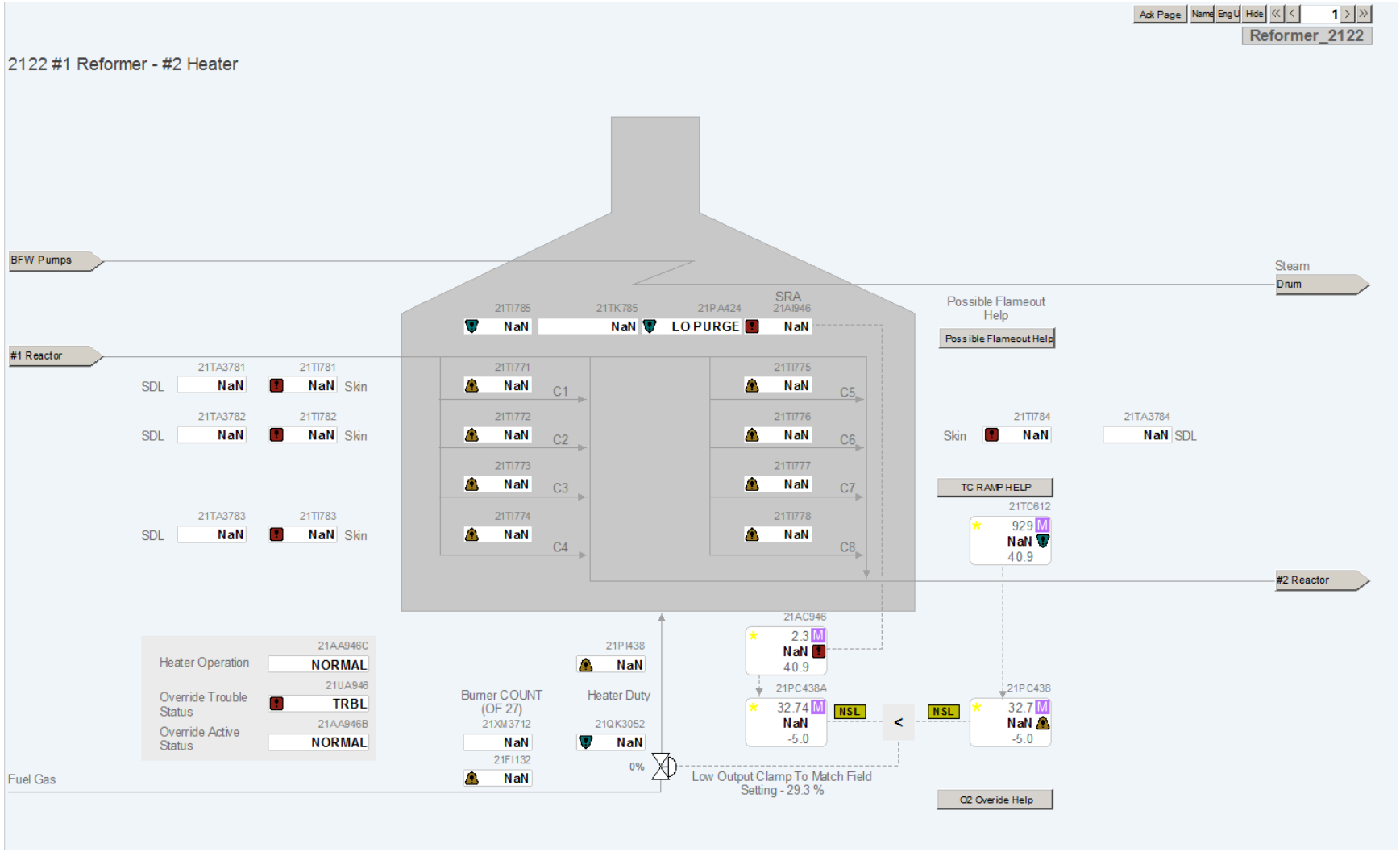
Station View



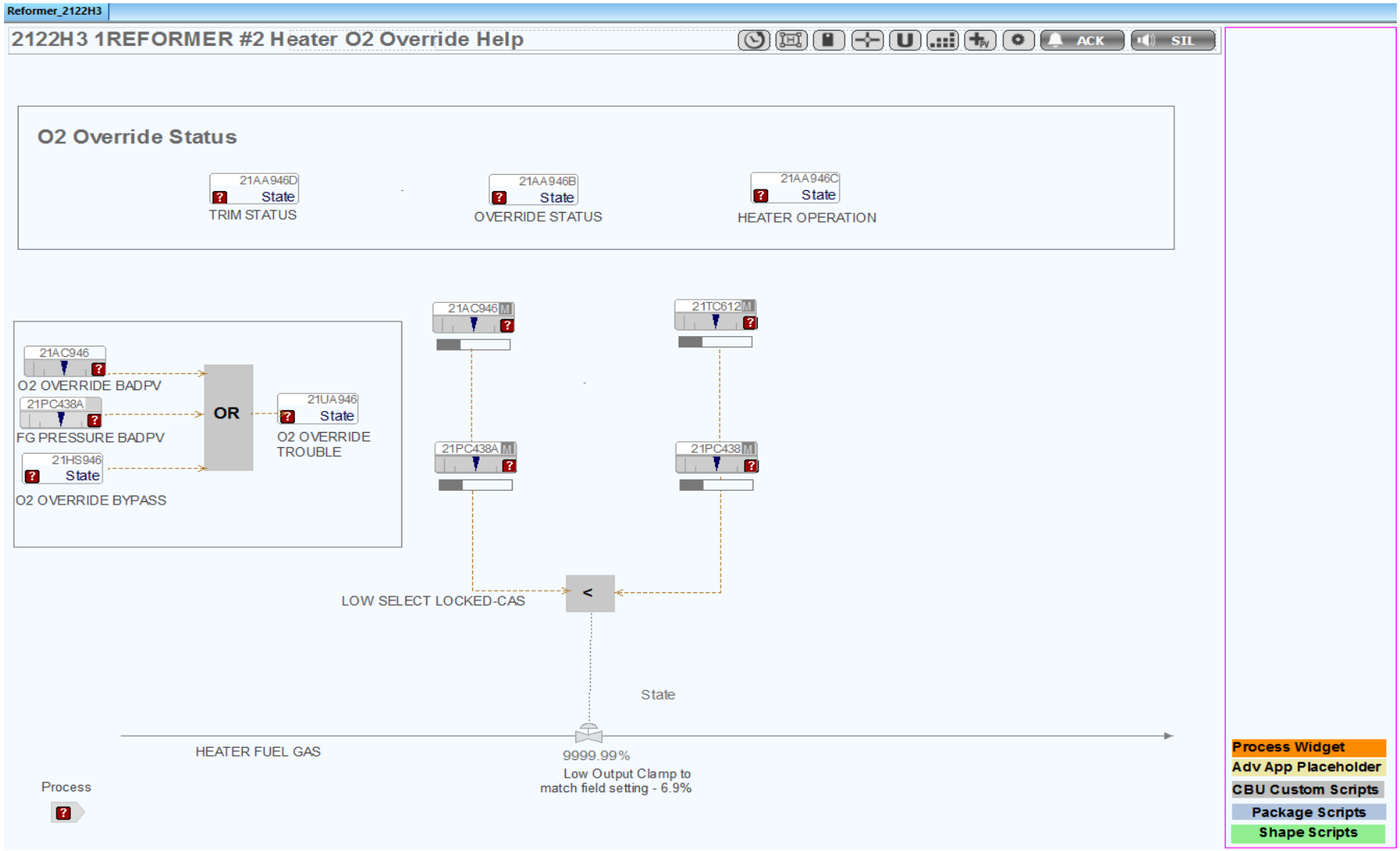
5.93 2122 #1 REFORMER - #2 HEATER (Reformer_2122.htm)



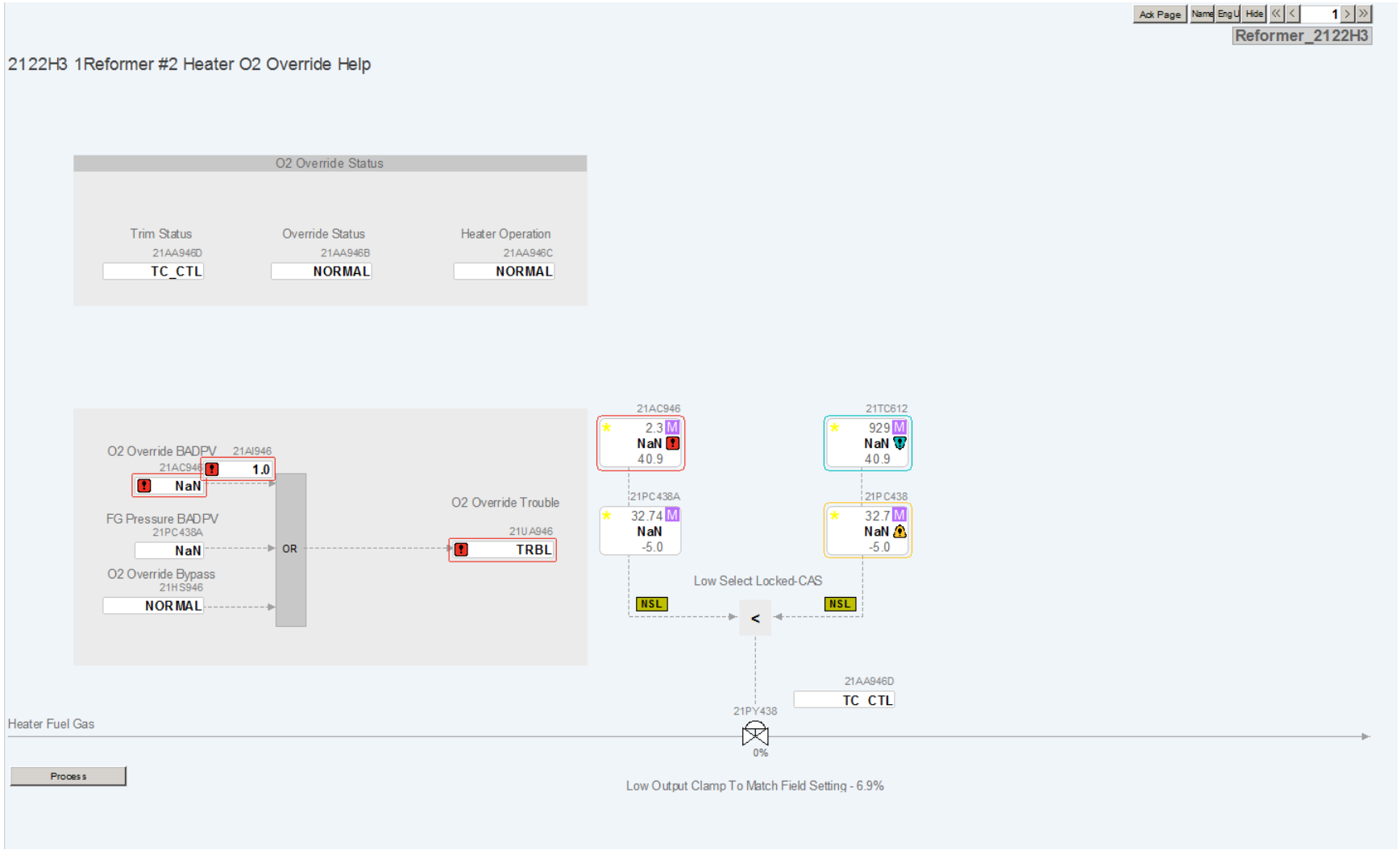
Station View



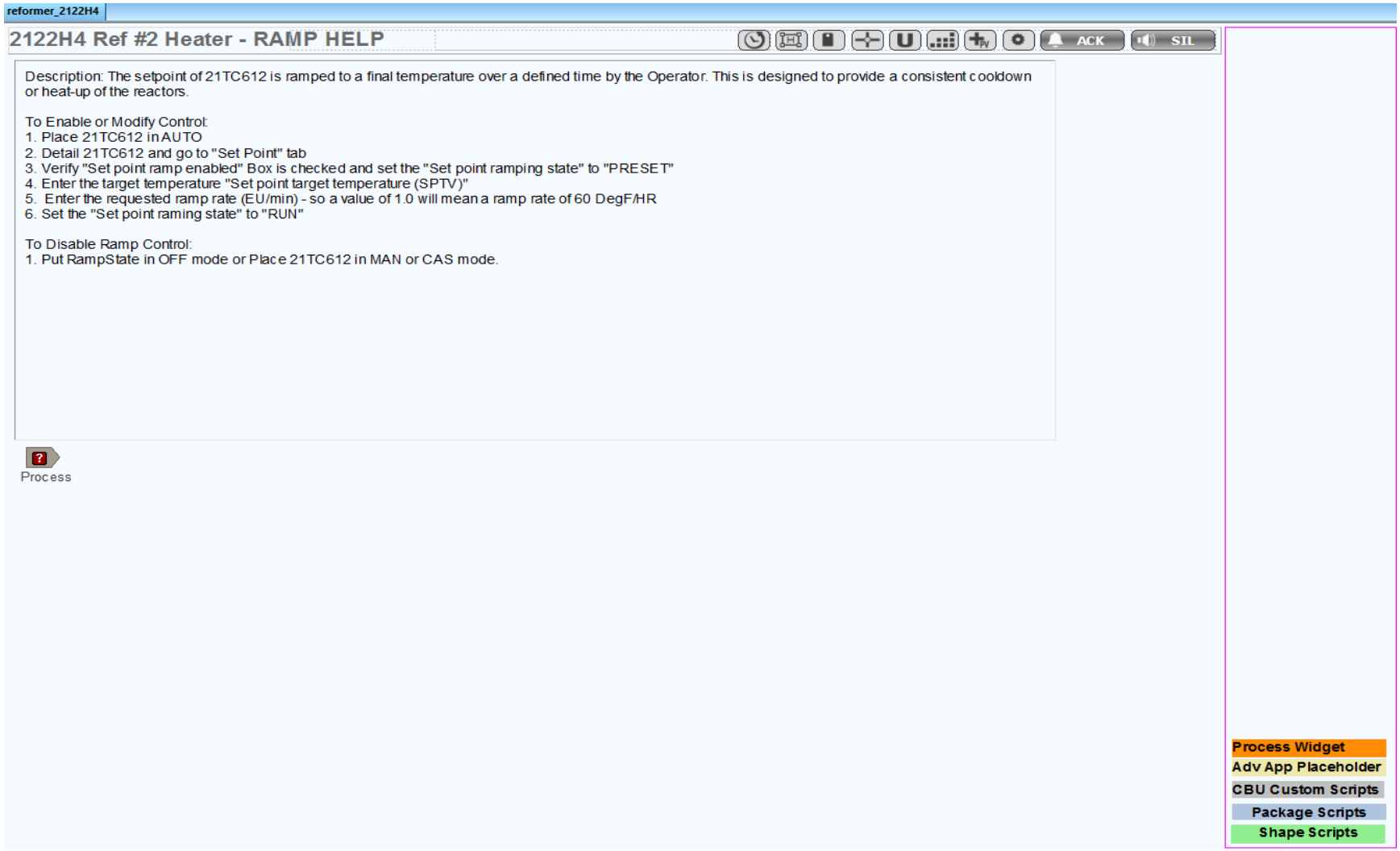
5.94 2123 1REFORMER #2 HEATER O2 OVERRIDE HELP (Reformer_2122H3.htm)



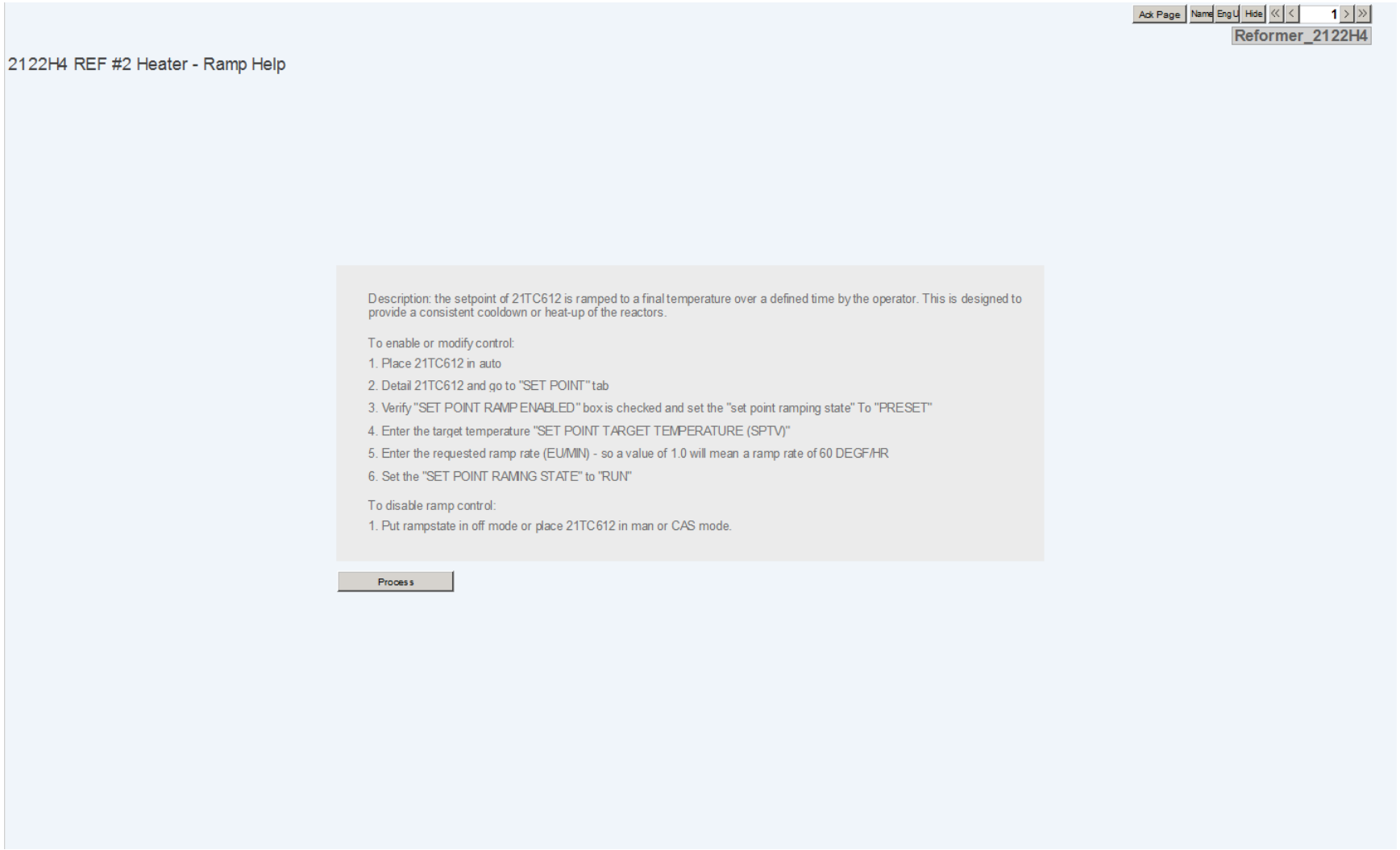
Station View



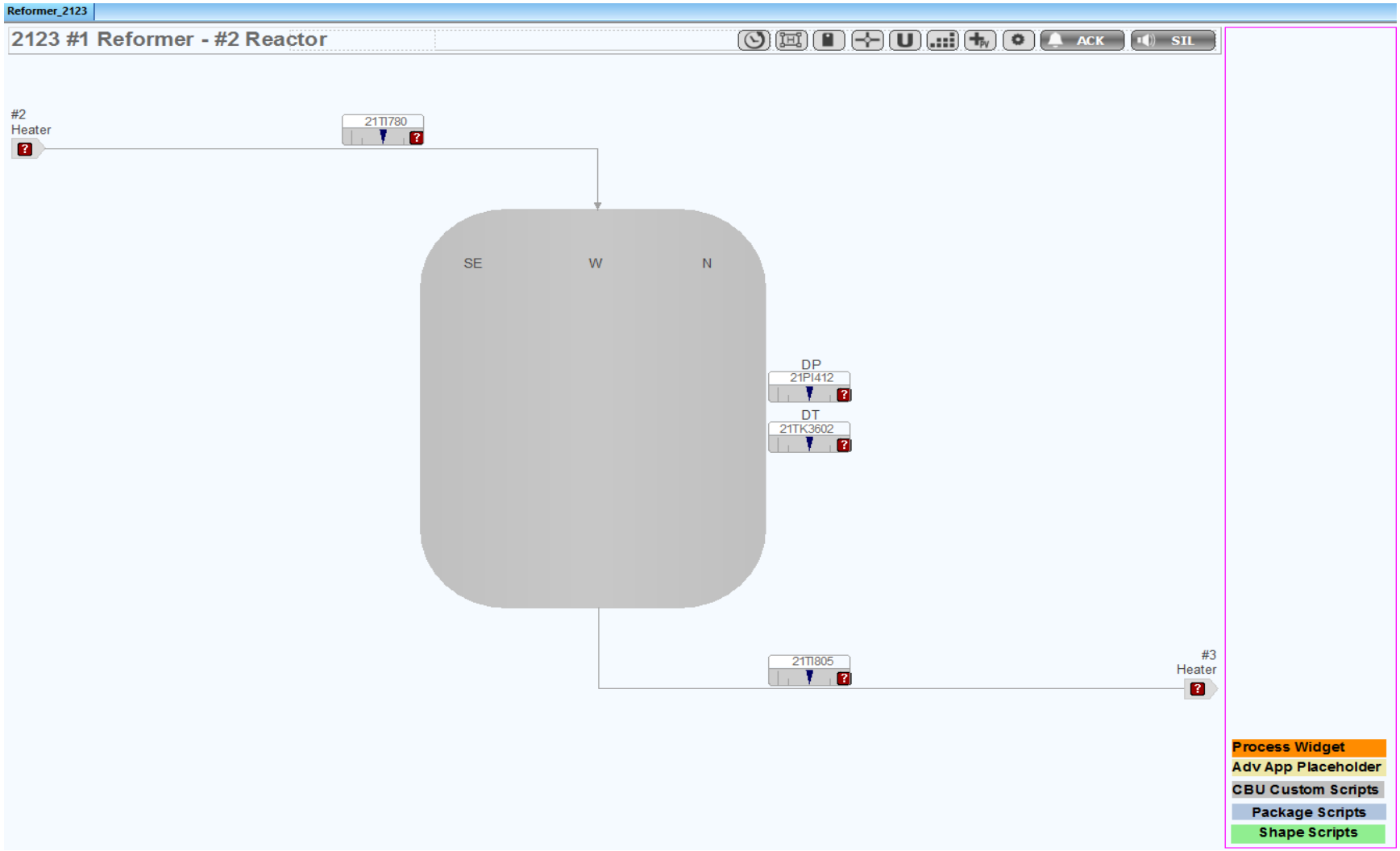
5.95 2122H4 REF #2 HEATER - RAMP HELP (Reformer_2122H4.htm)



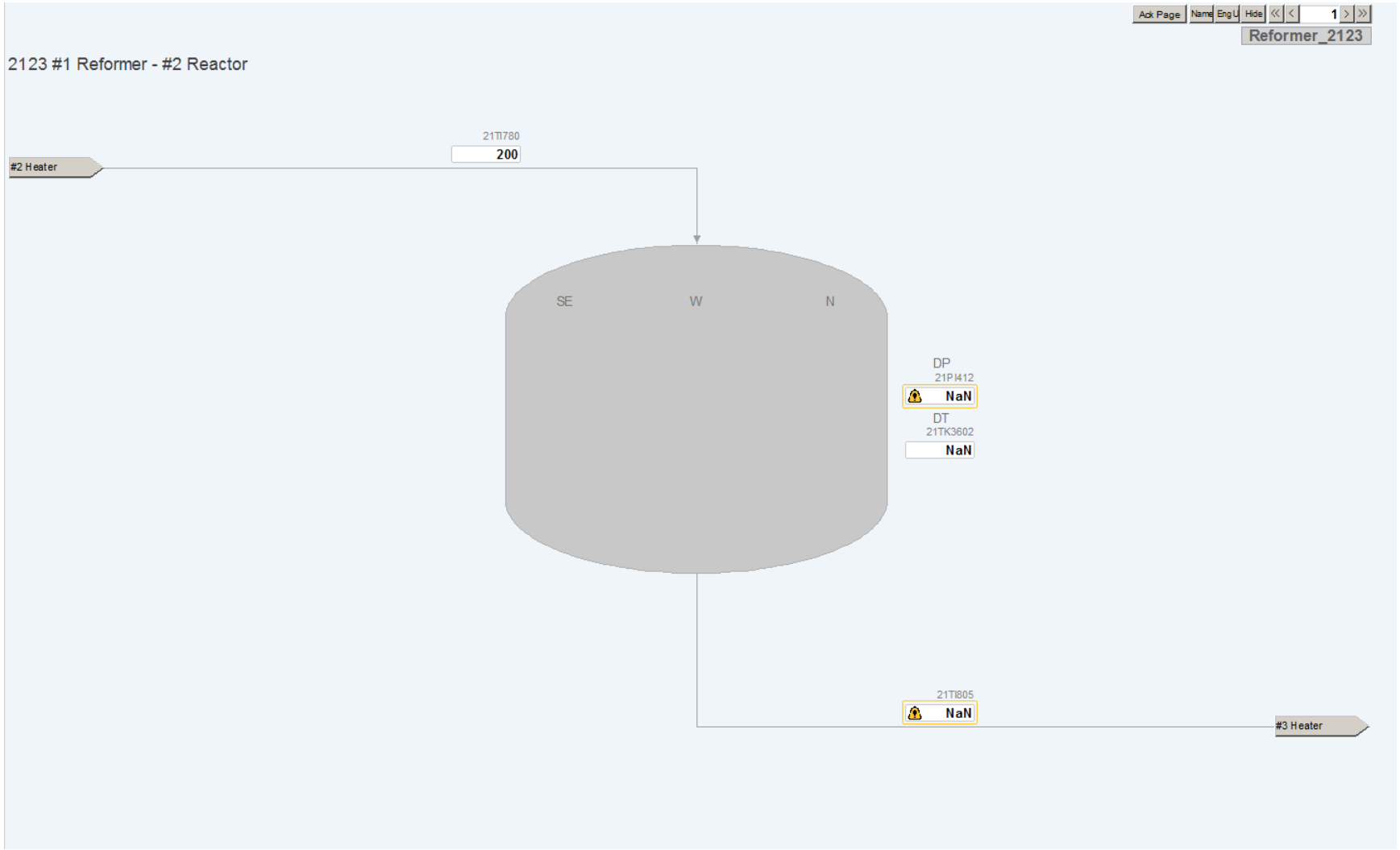
Station View



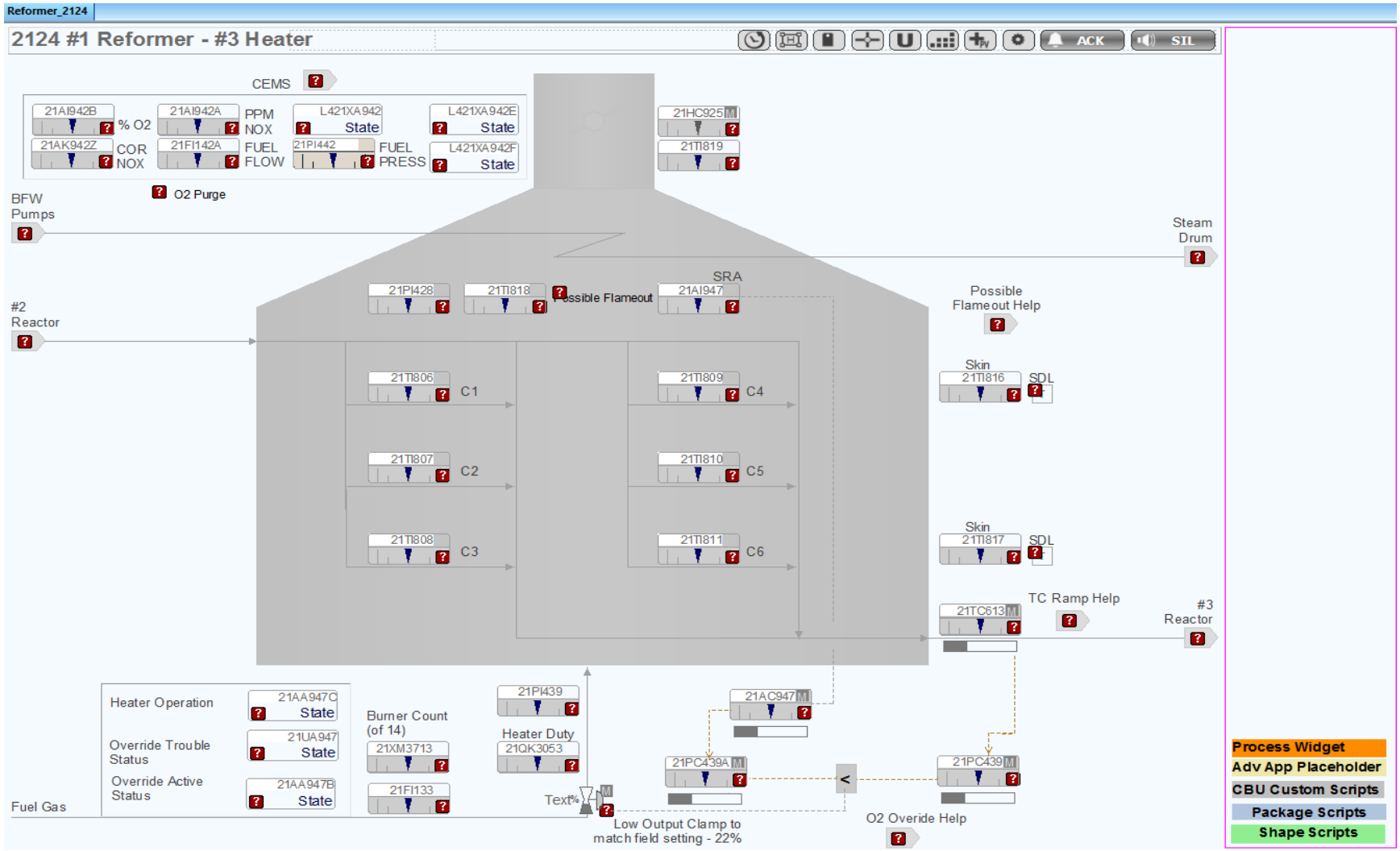
5.96 2123 #1 REFORMER - #2 REACTOR (Reformer_2123.htm)



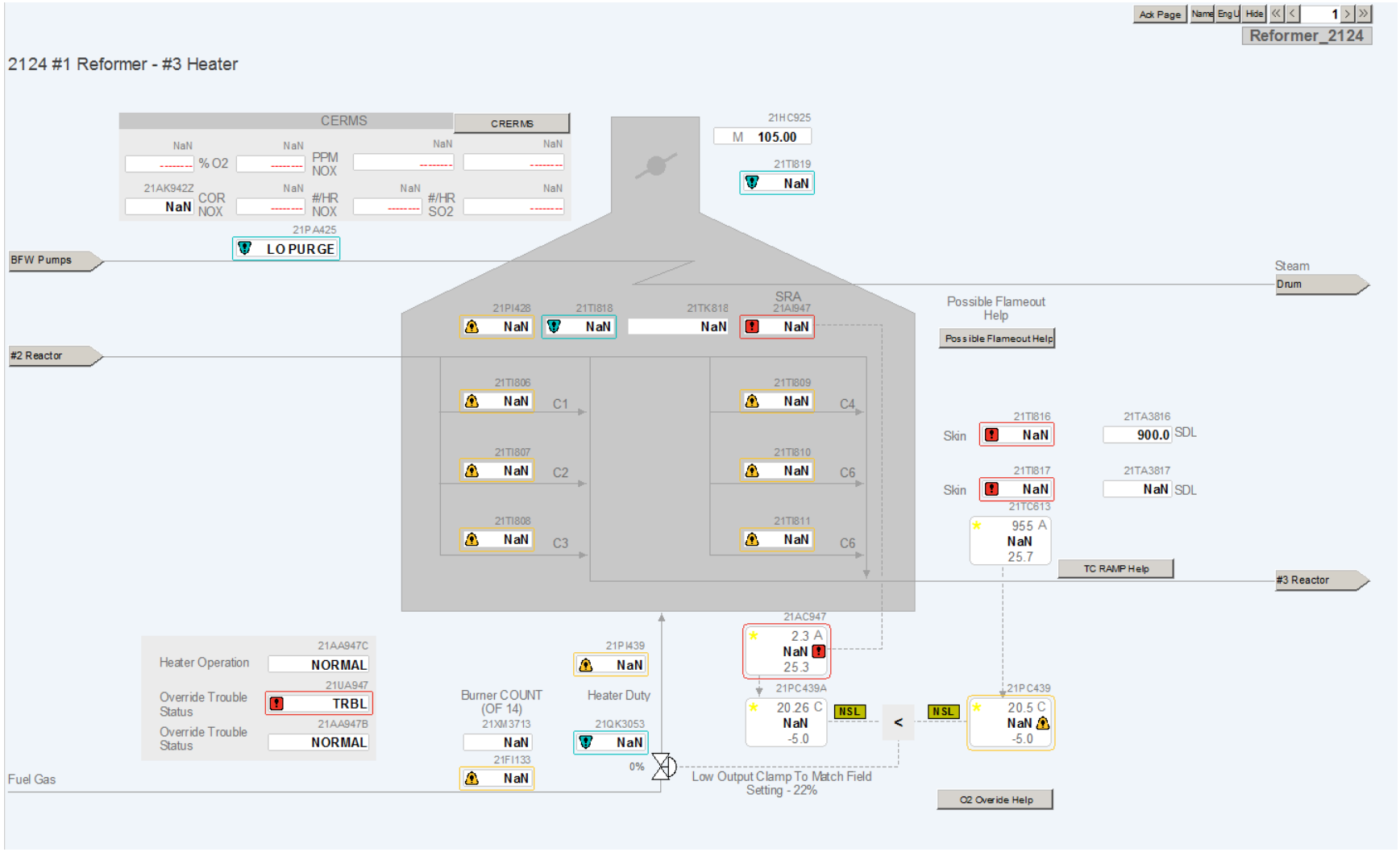
Station View



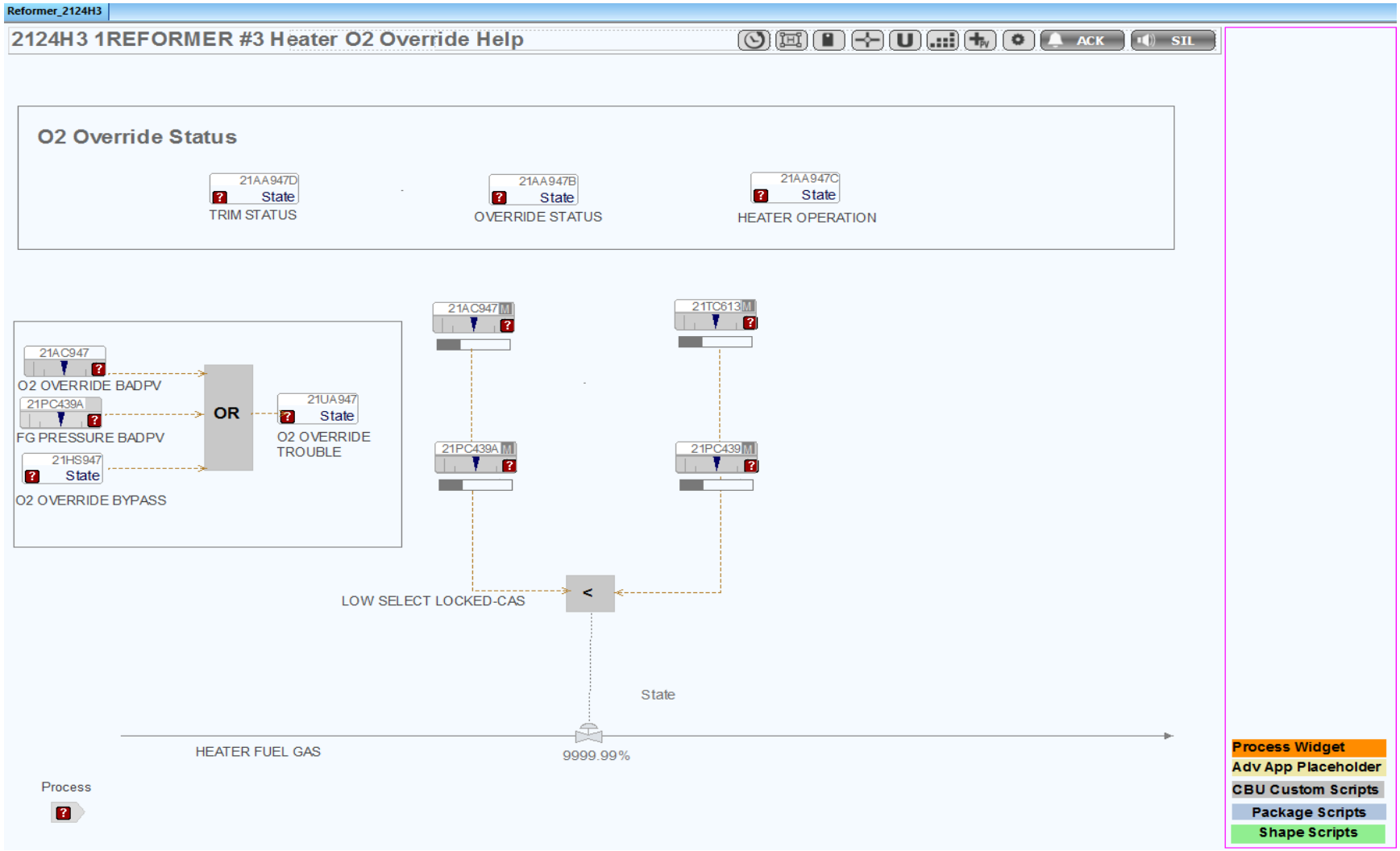
5.97 2124 #1 REFORMER - #3 HEATER (Reformer_2124.htm)



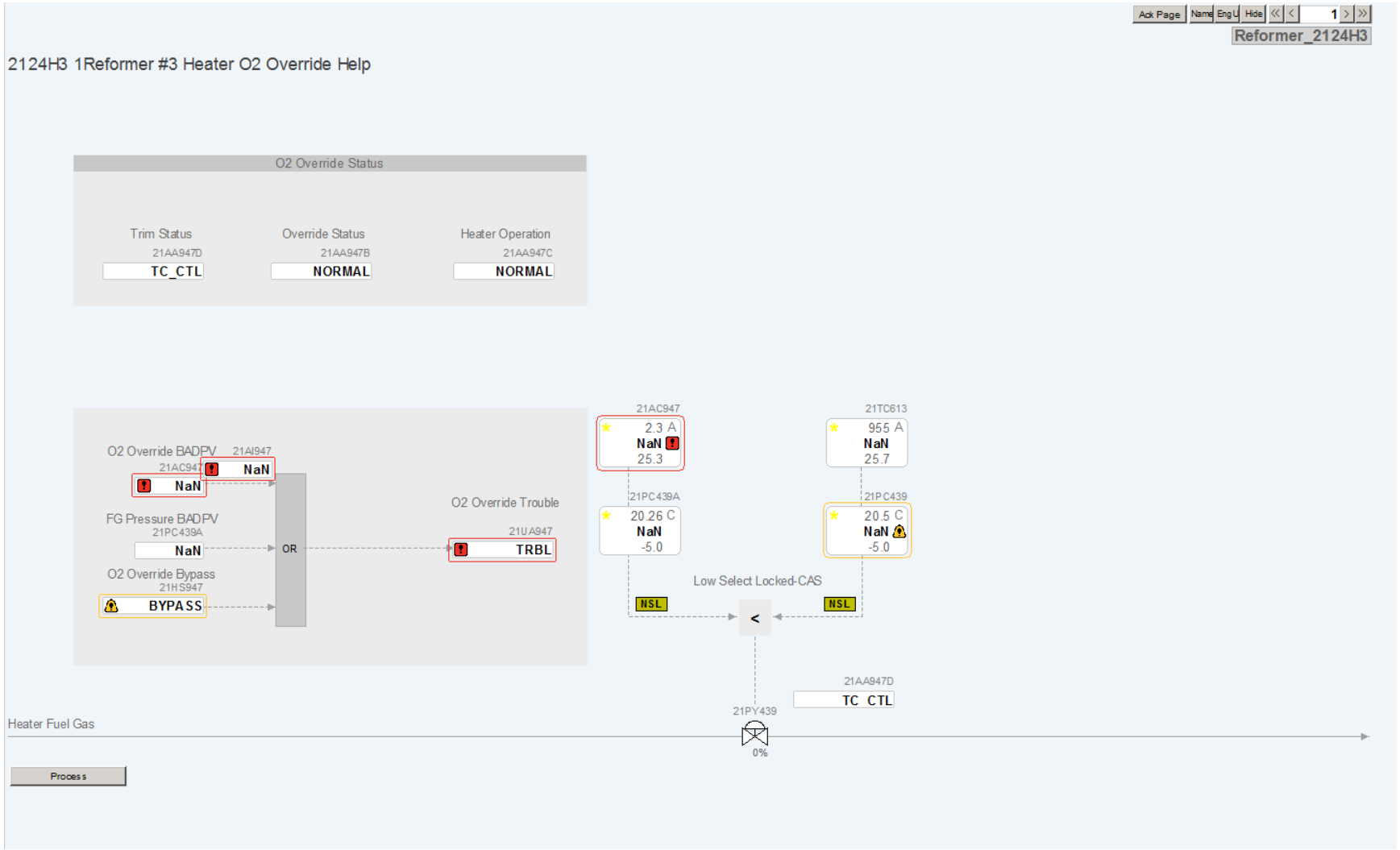
Station View



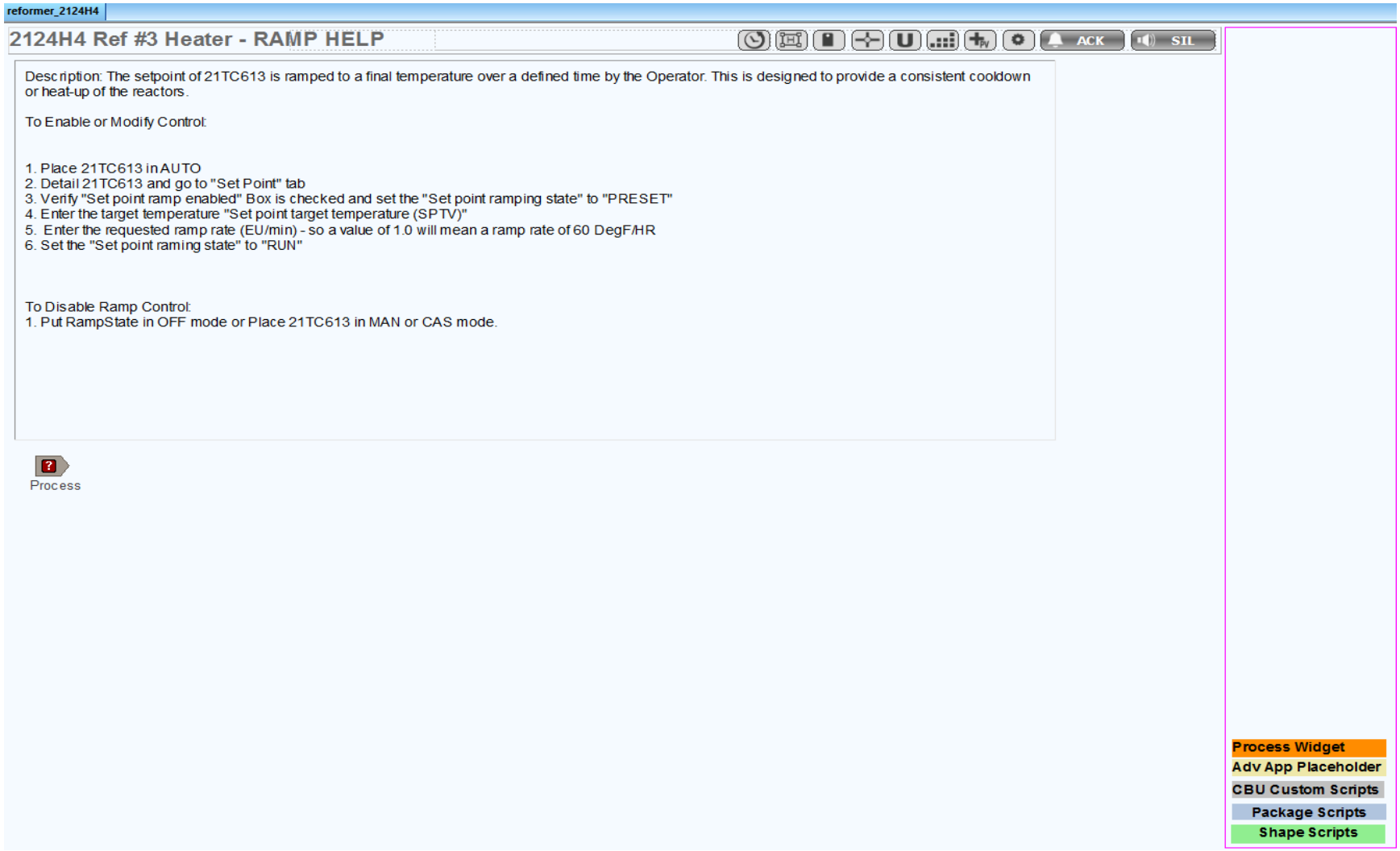
5.98 2124H3 1REFORMER #3 HEATER O2 OVERRIDE HELP (Reformer_2124H3.htm)



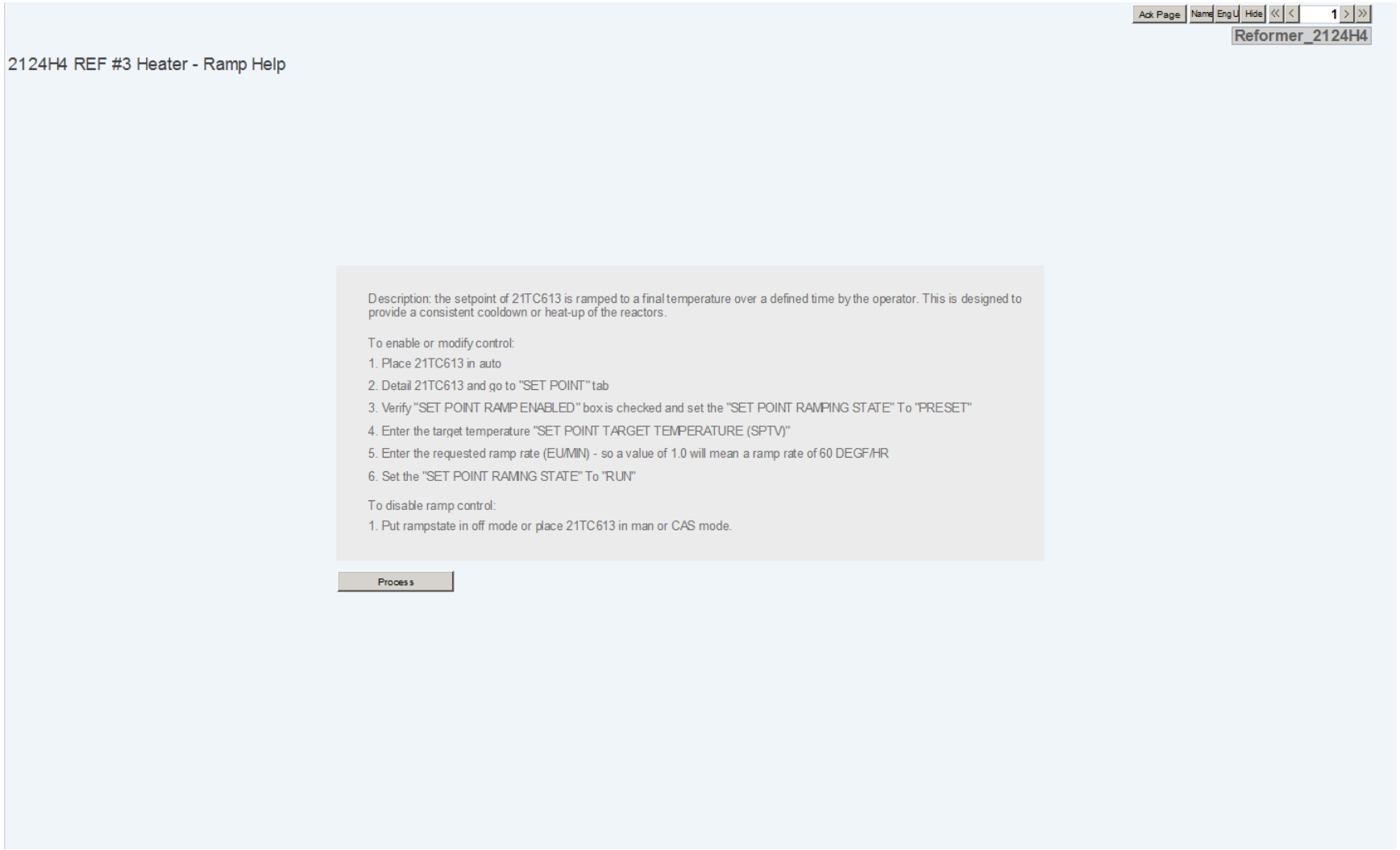
Station View



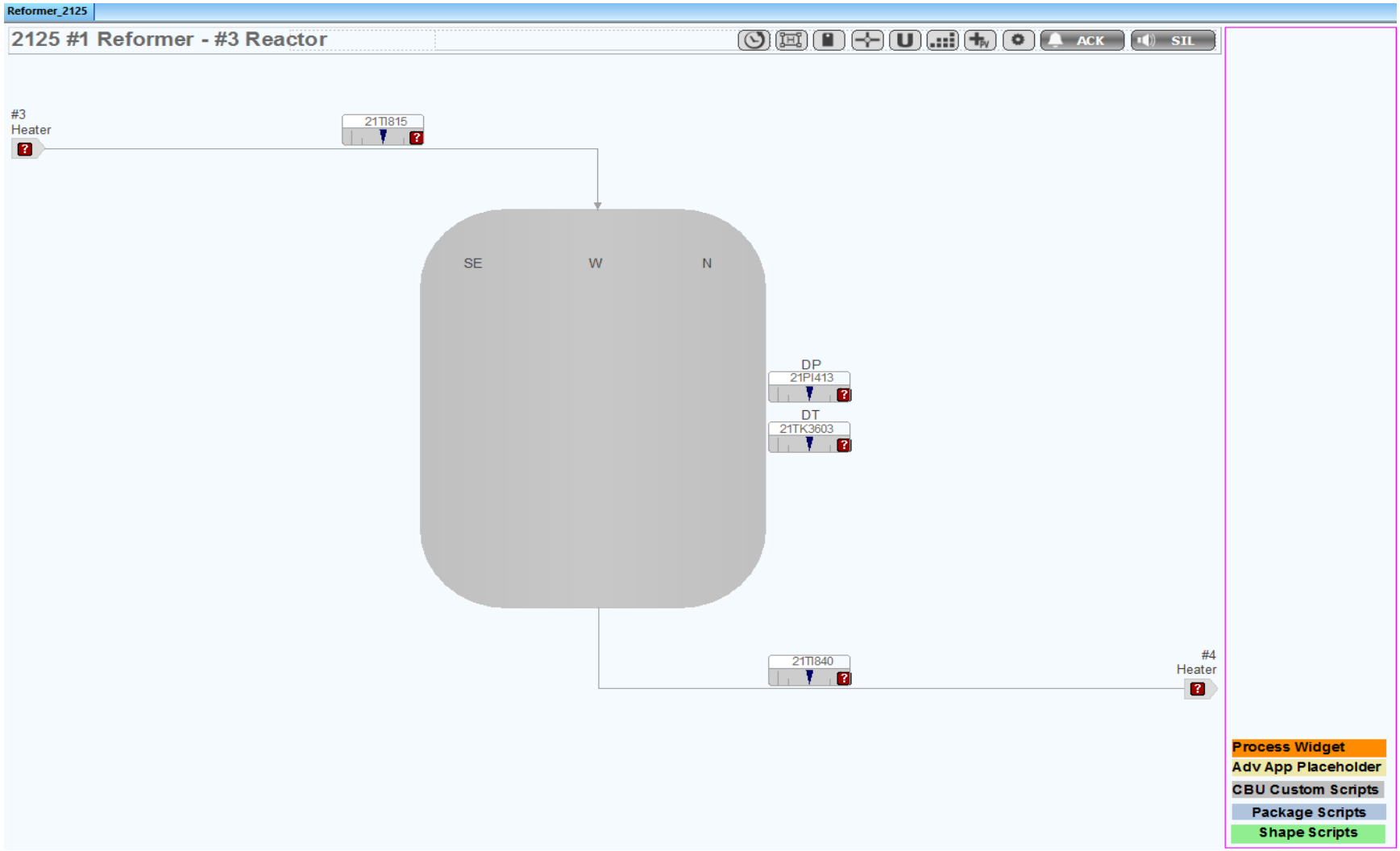
5.99 2124H4 REF #3 HEATER - RAMP HELP (Reformer_2124H4.htm)



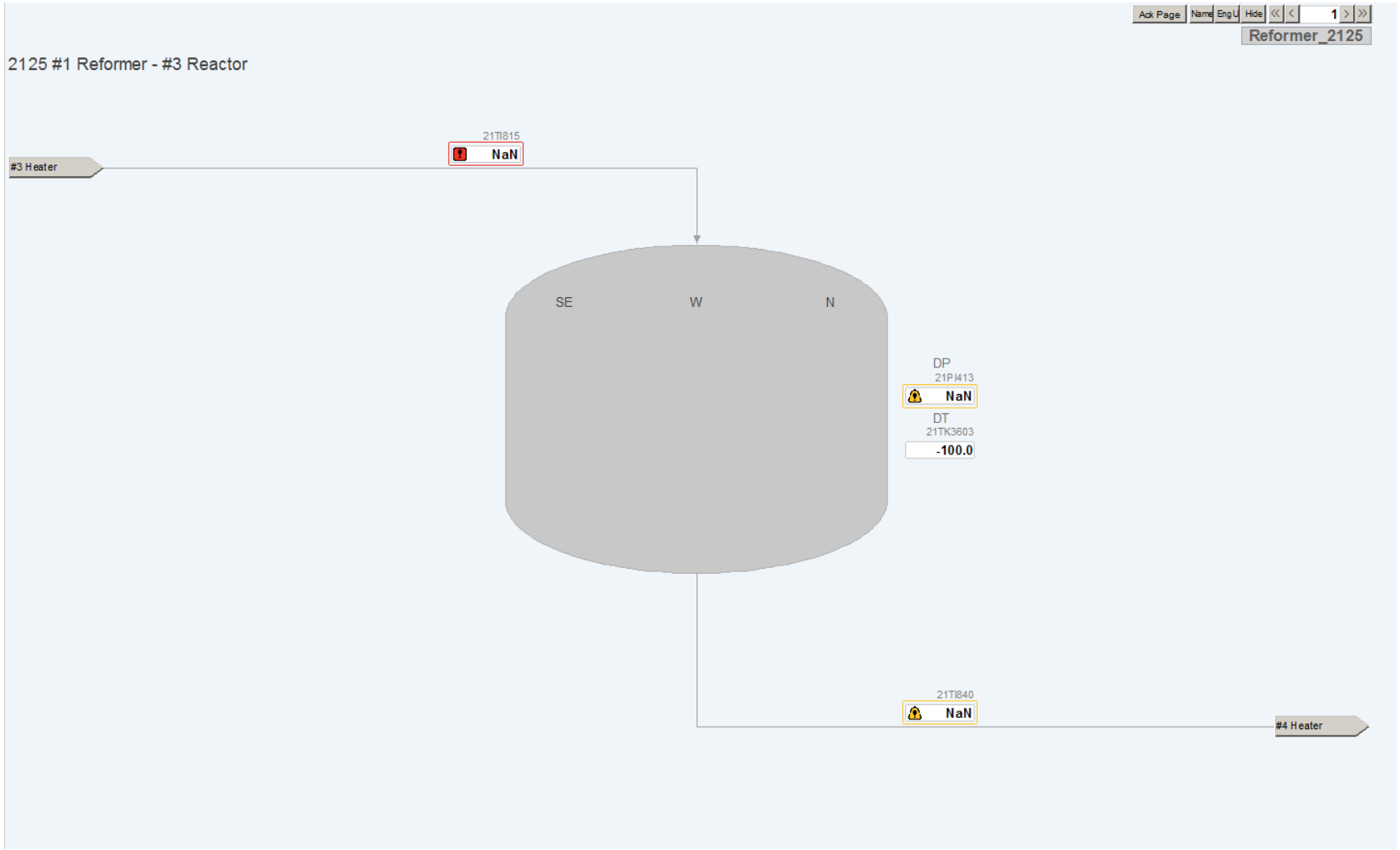
Station View



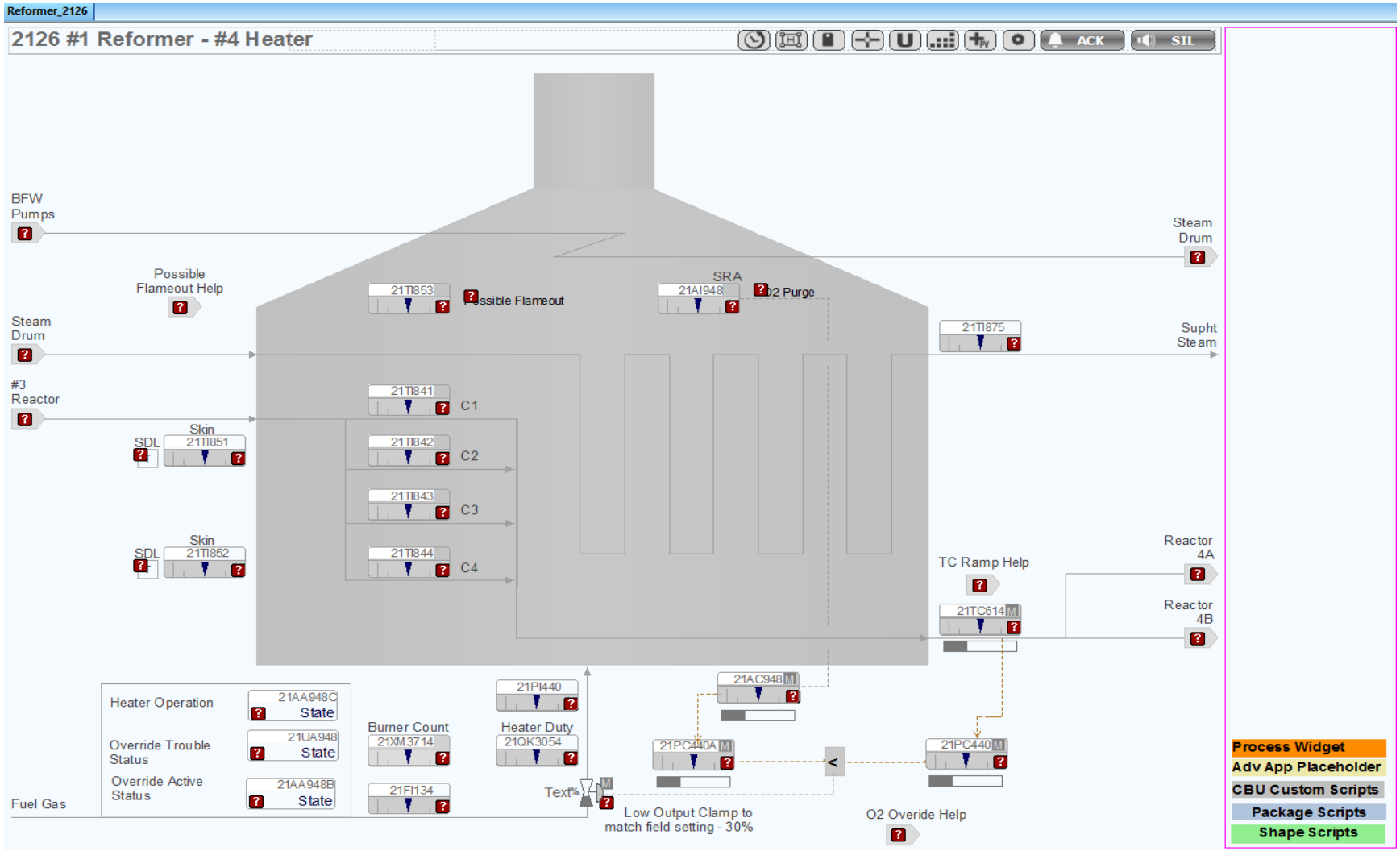
5.100 2125 #1 REFORMER - #3 REACTOR (Reformer_2125.htm)



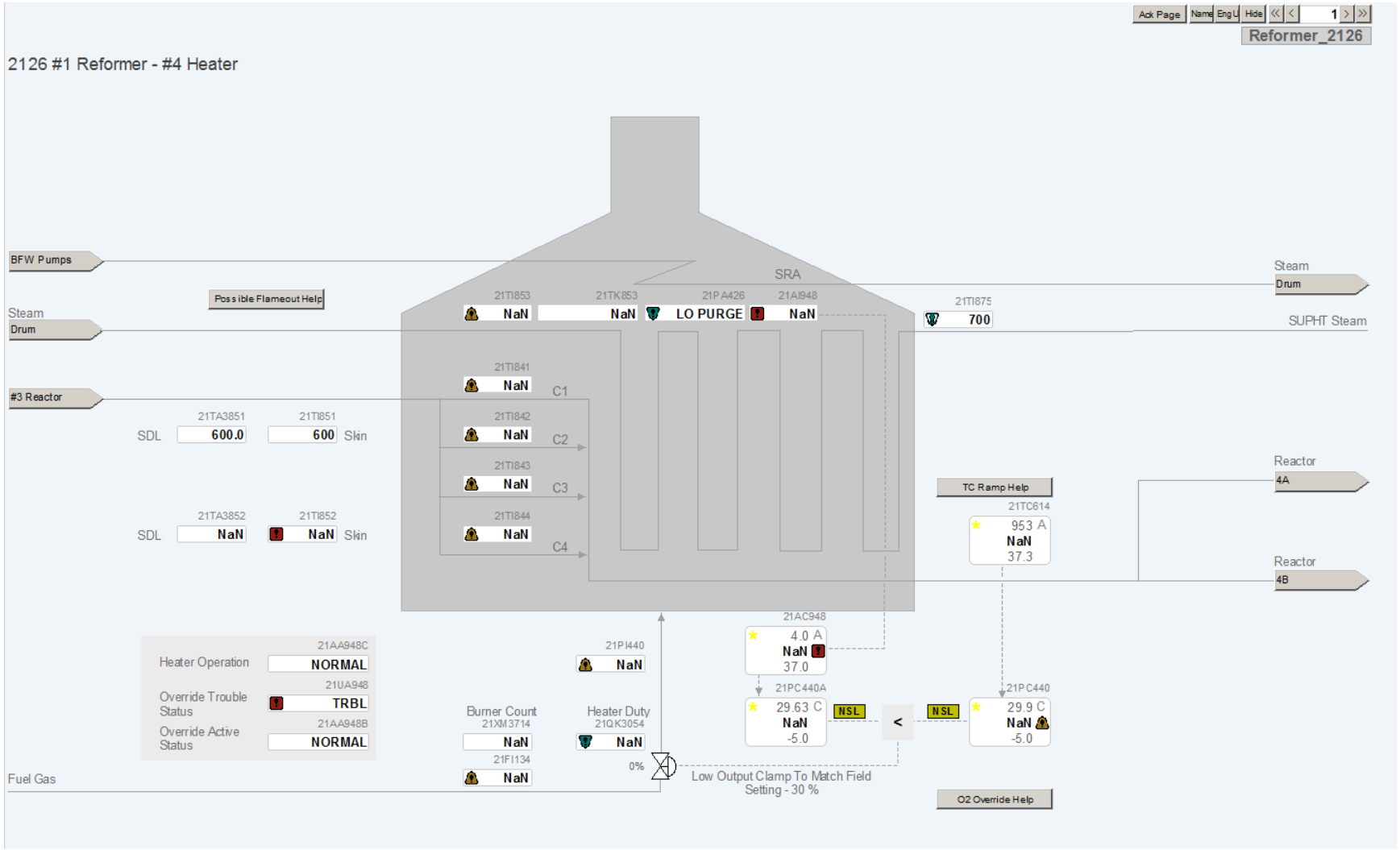
Station View



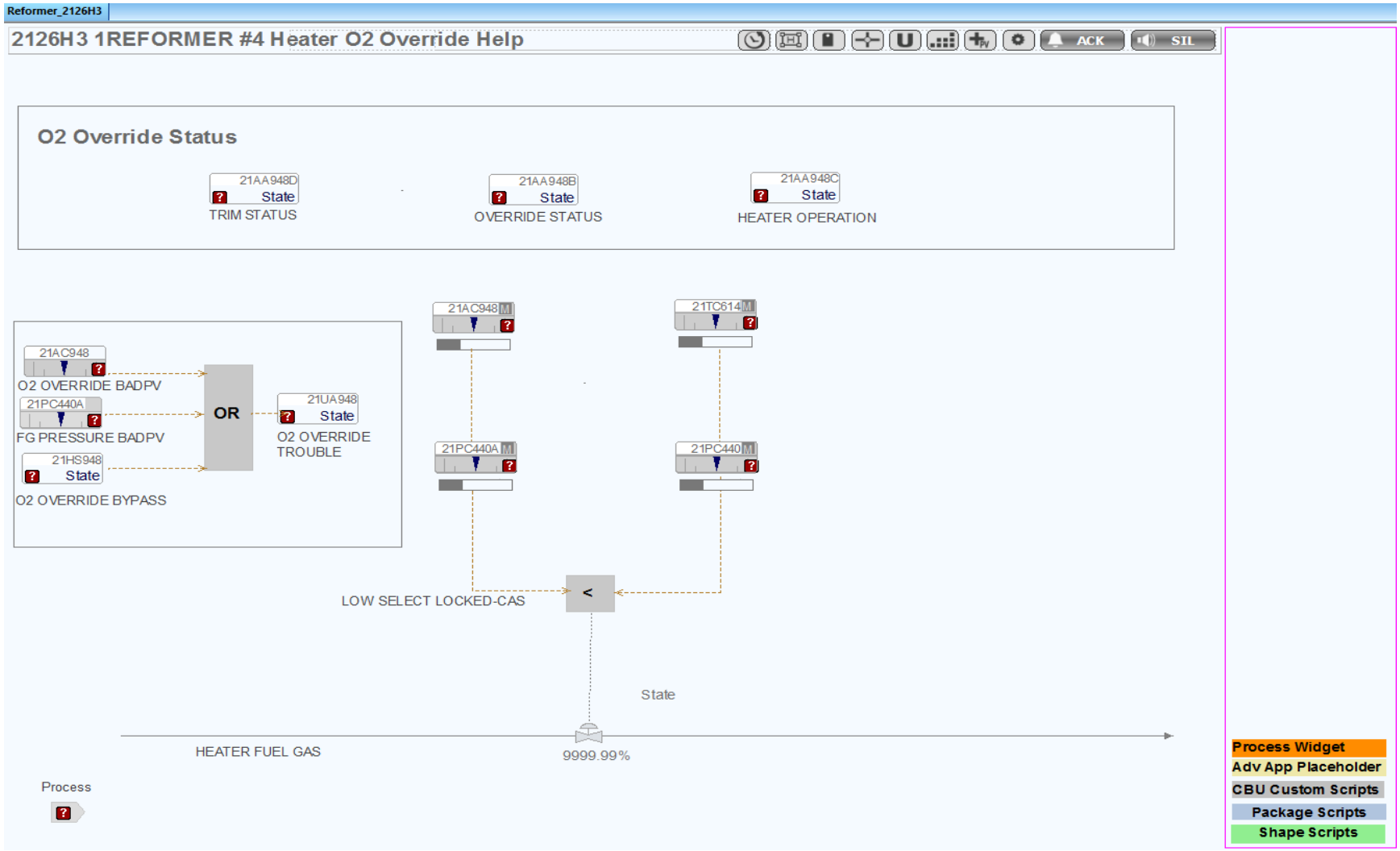
5.101 2126 #1 REFORMER - #4 HEATER (Reformer_2126.htm)



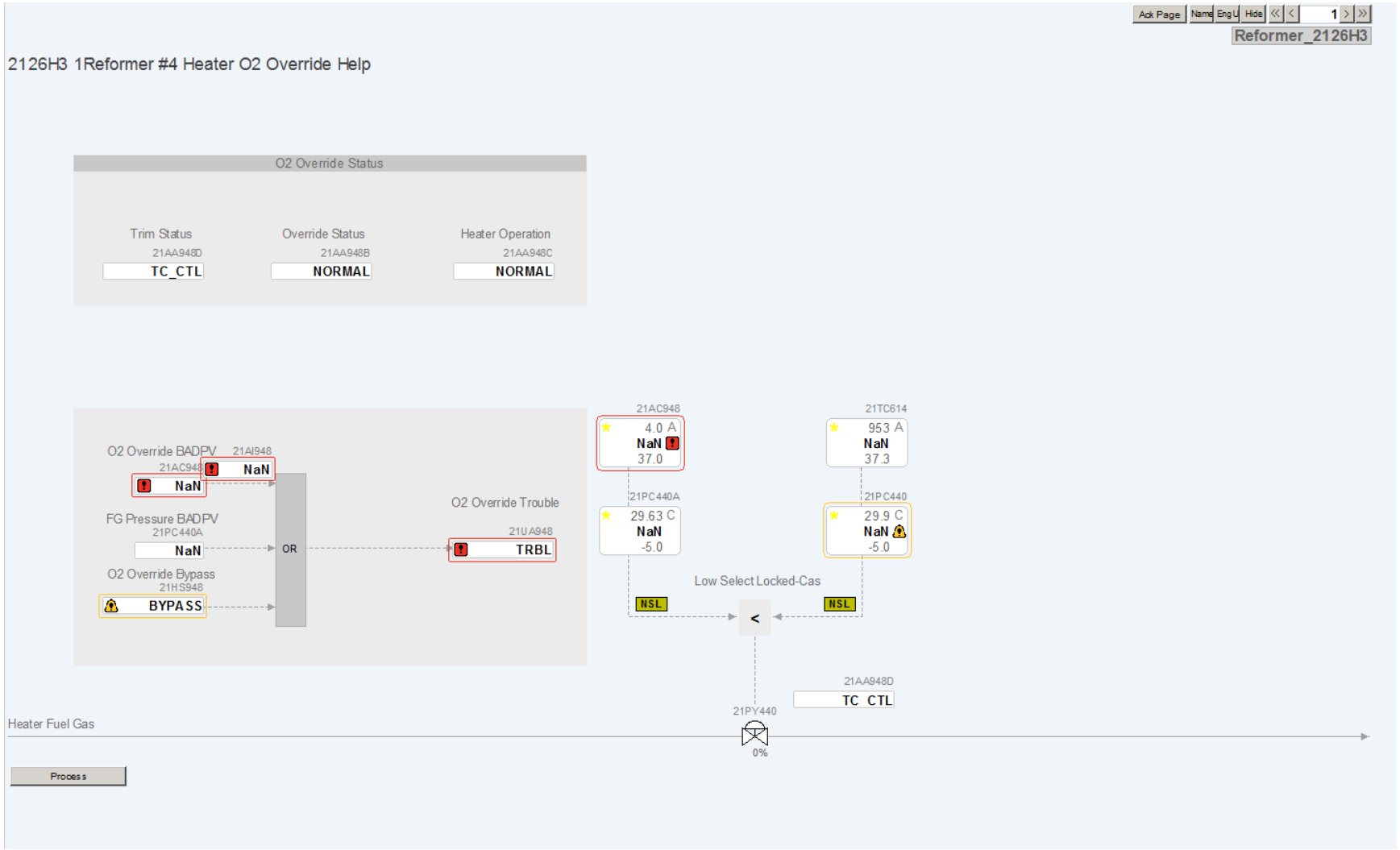
Station View



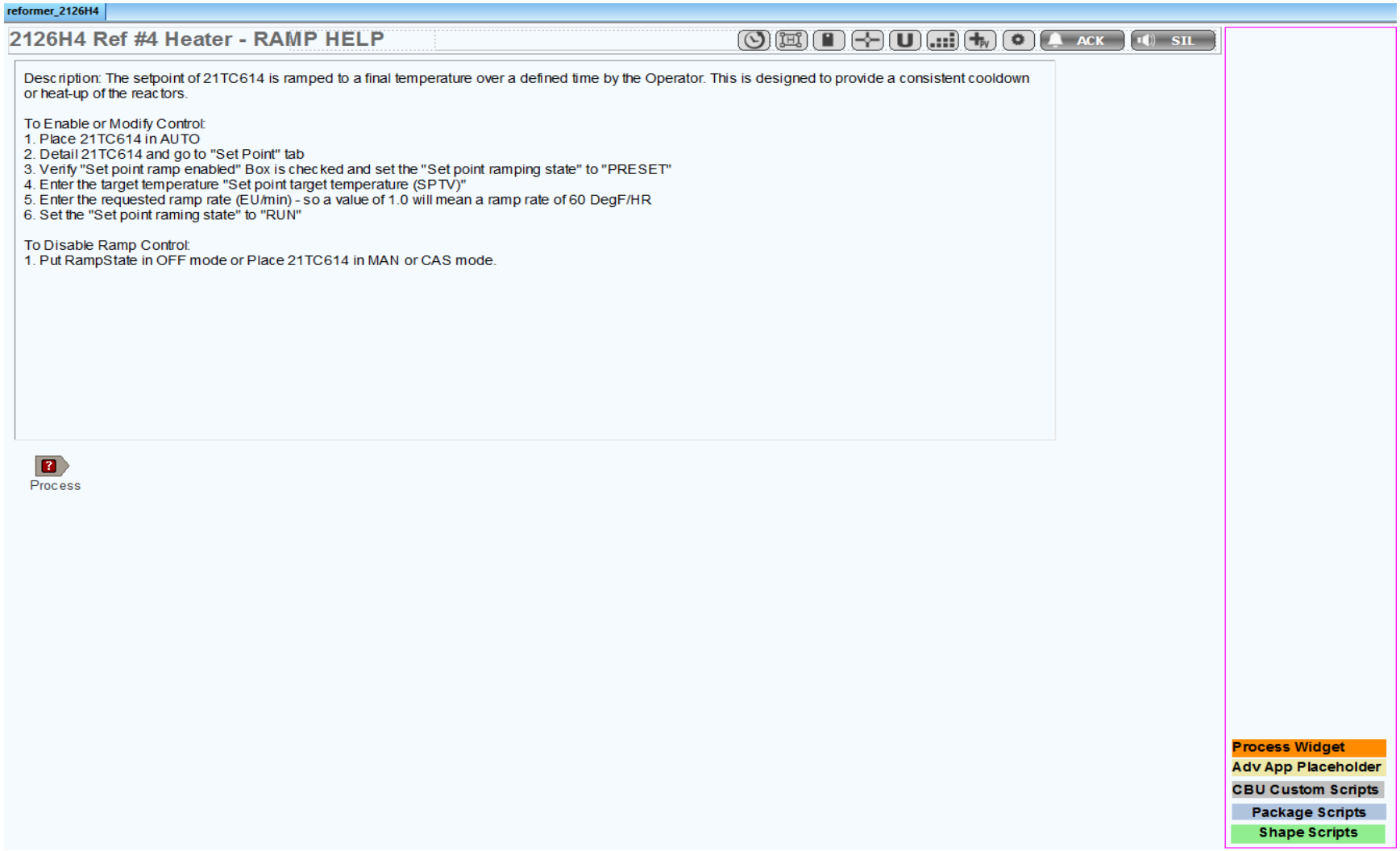
5.102 2126H3 1REFORMER #4 HEATER O2 OVERRIDE HELP (Reformer_2126H3.htm)



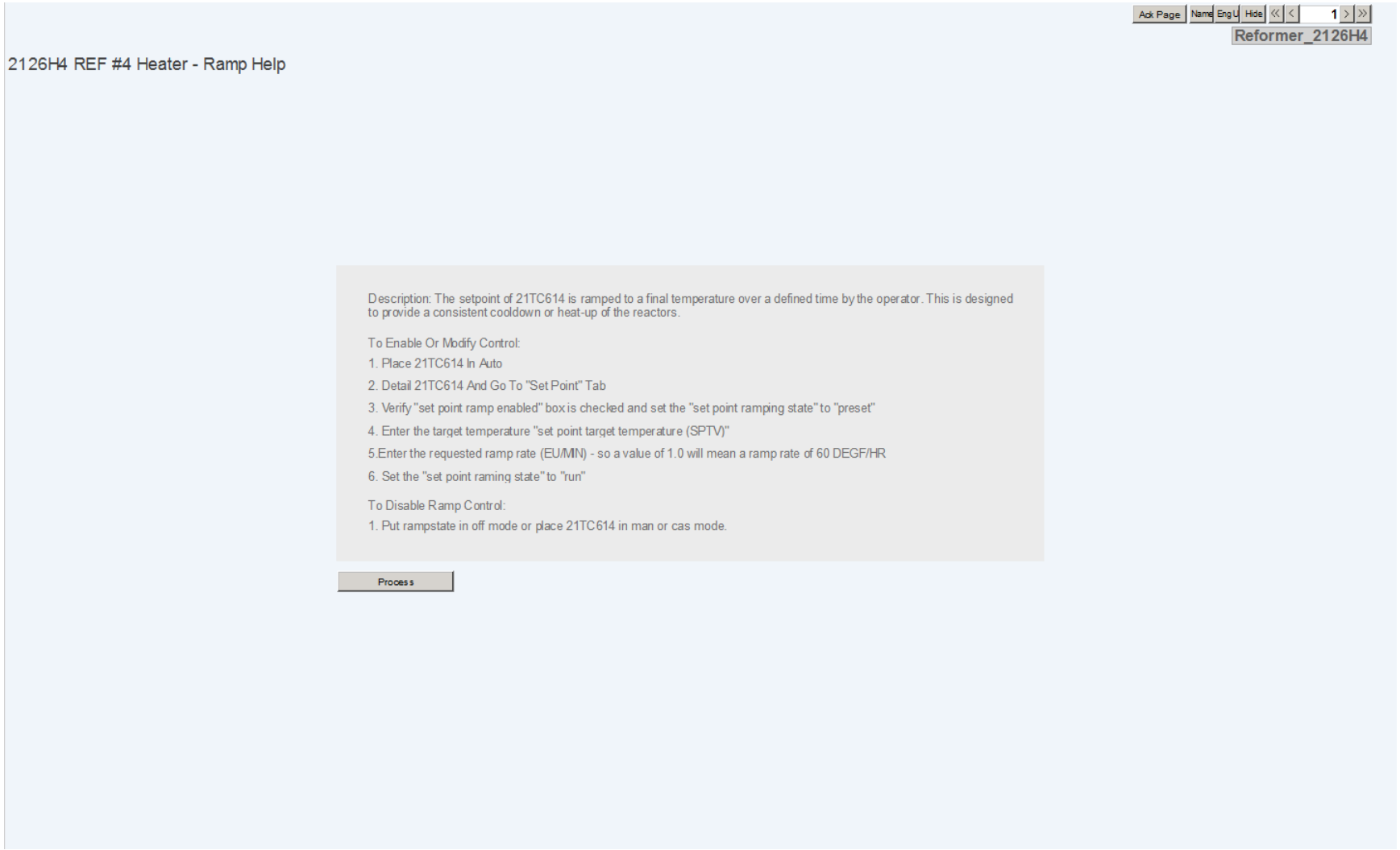
Station View



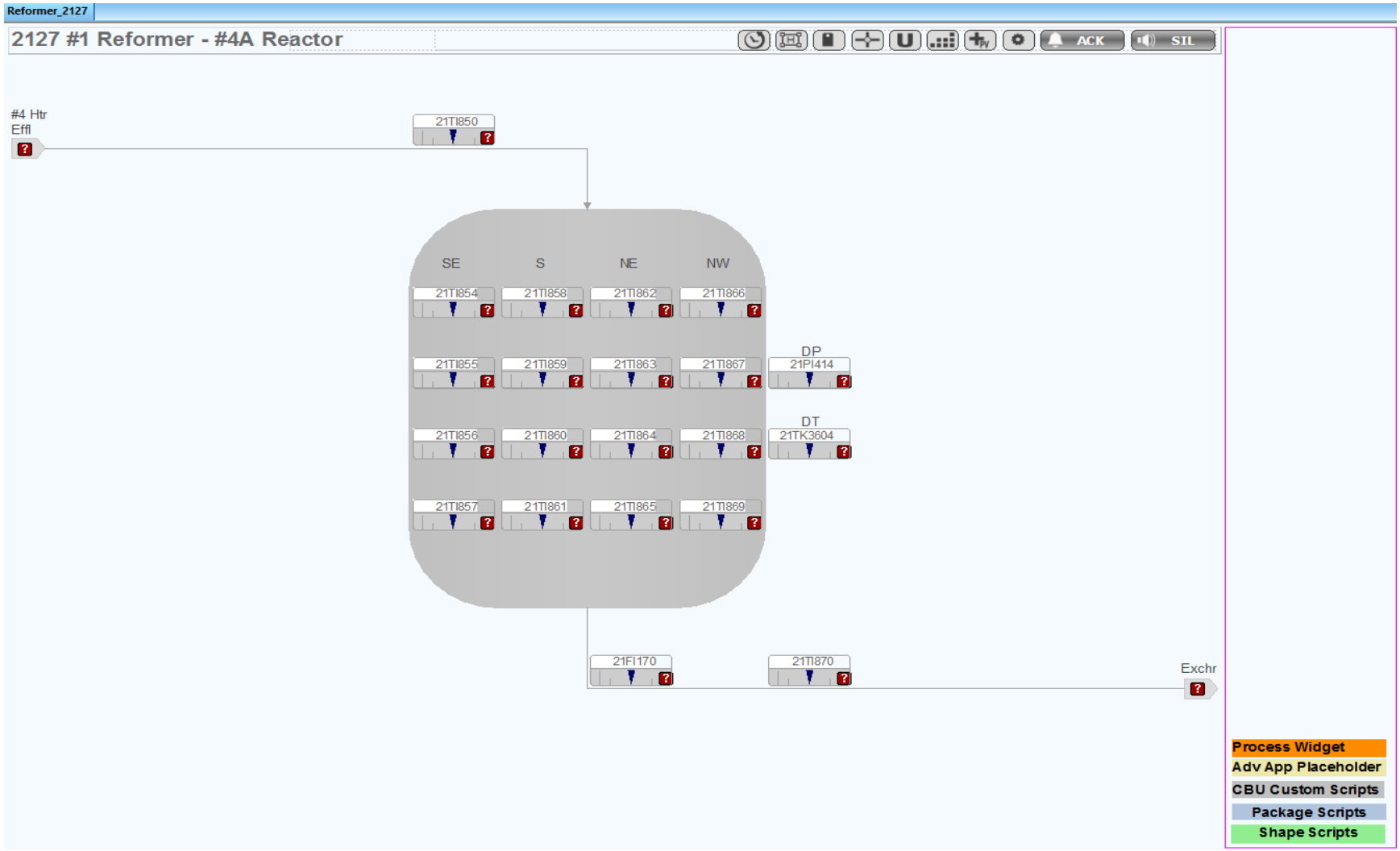
5.103 2126h4 Ref #4 Heater - Ramp Help (Reformer_2126H4.htm)



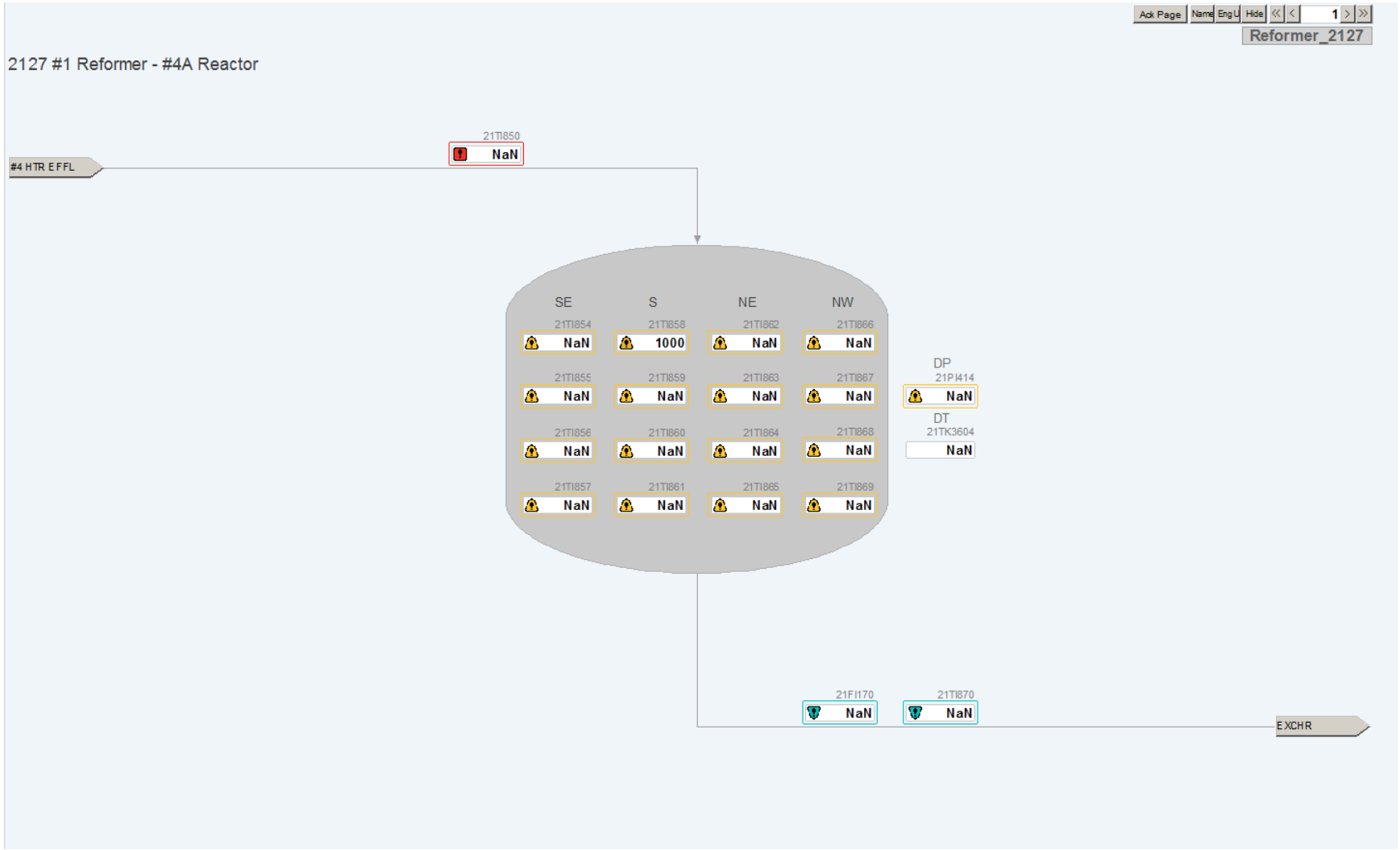
Station View



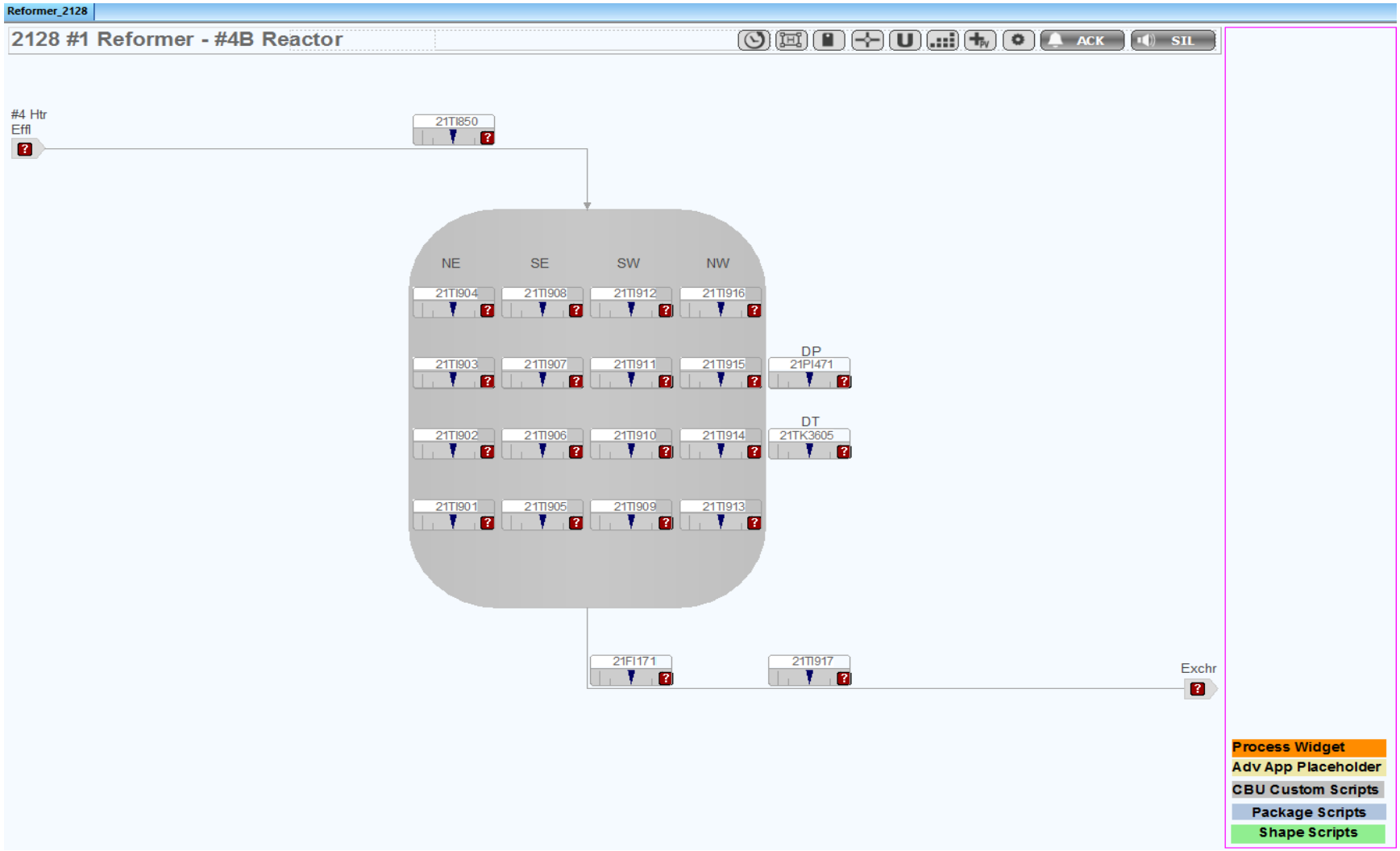
5.104 2127 #1 REFORMER - #4A REACTOR (Reformer_2127.htm)



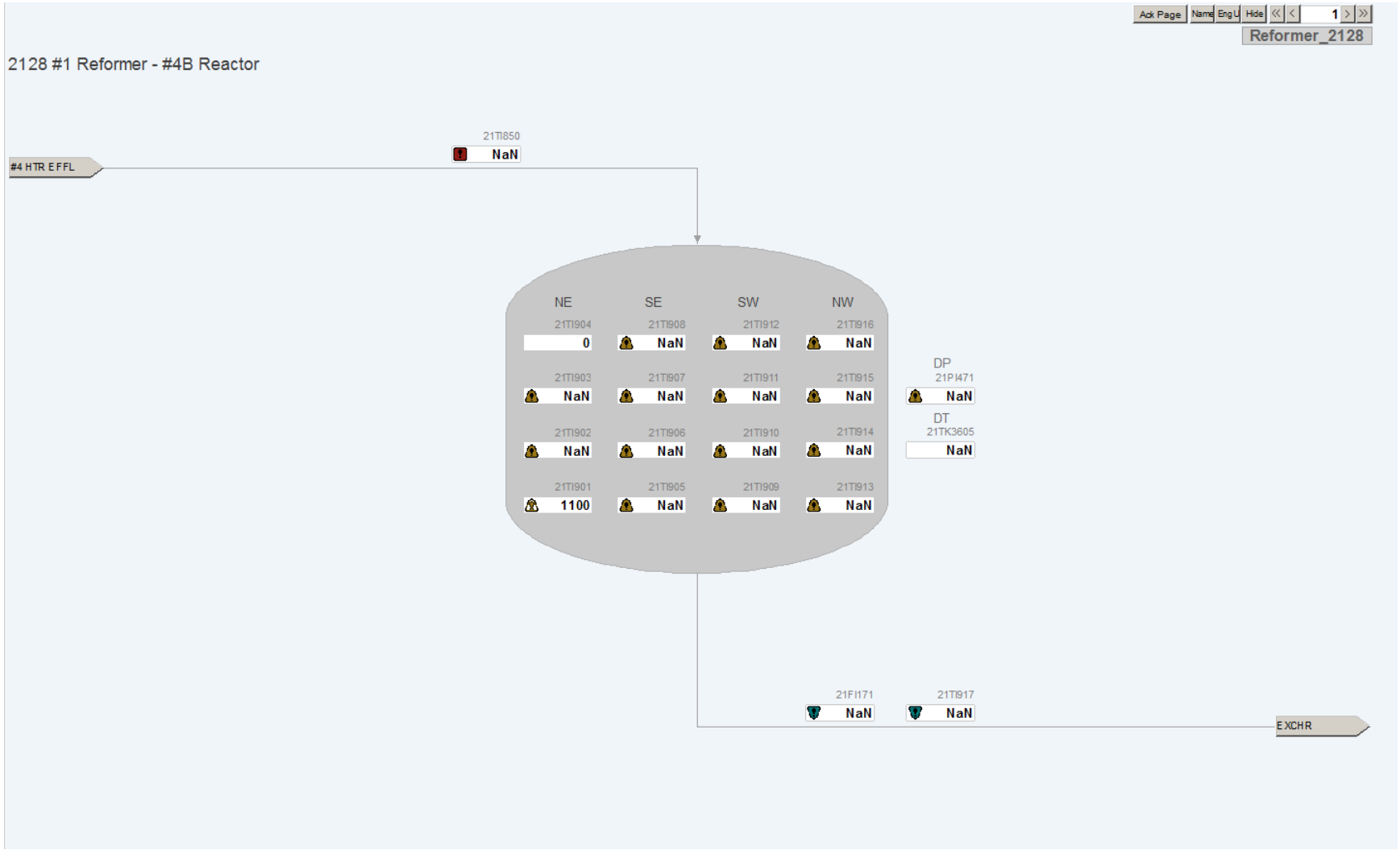
Station View



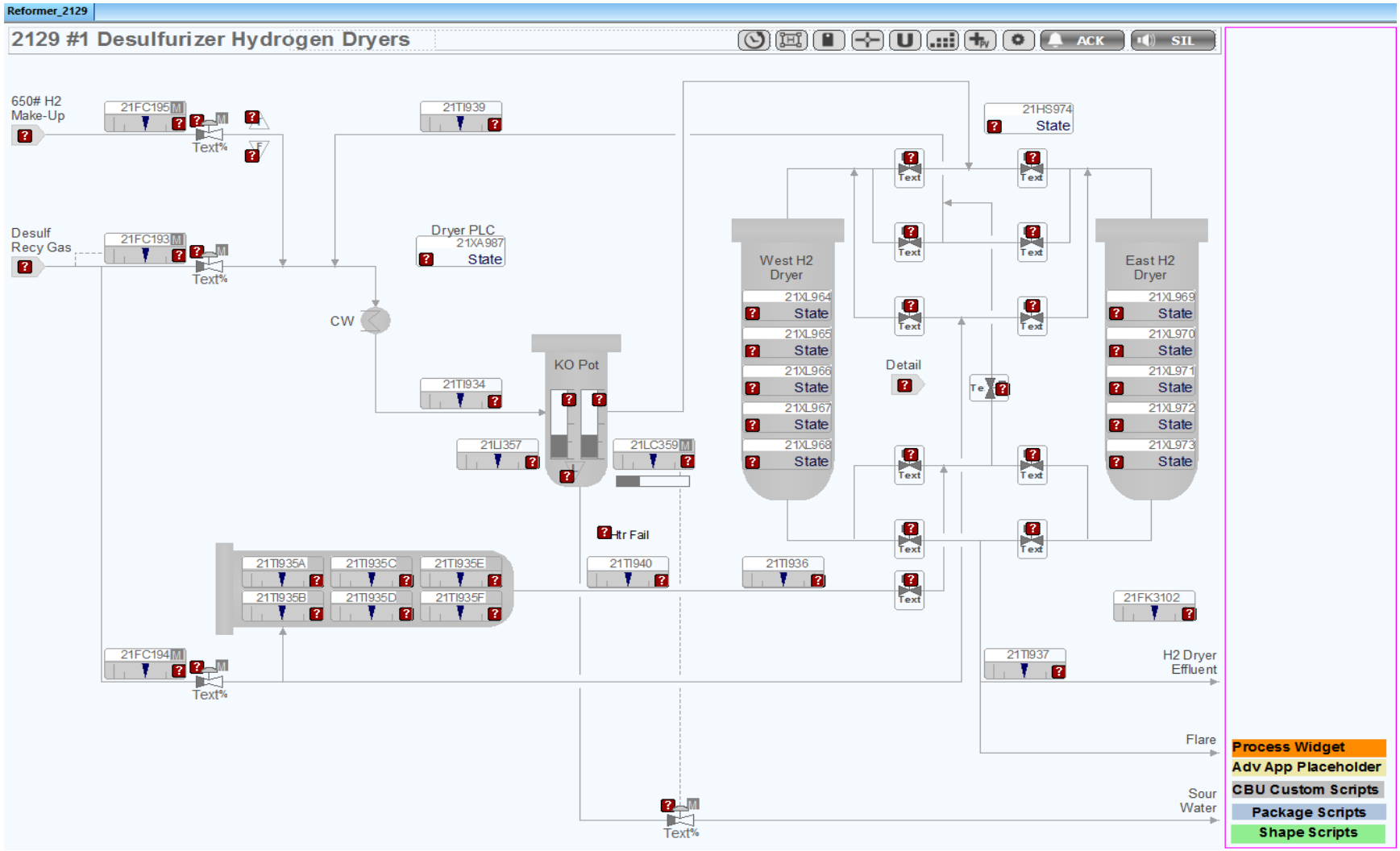
5.105 2128 #1 REFORMER - #4B REACTOR (Reformer_2128.htm)



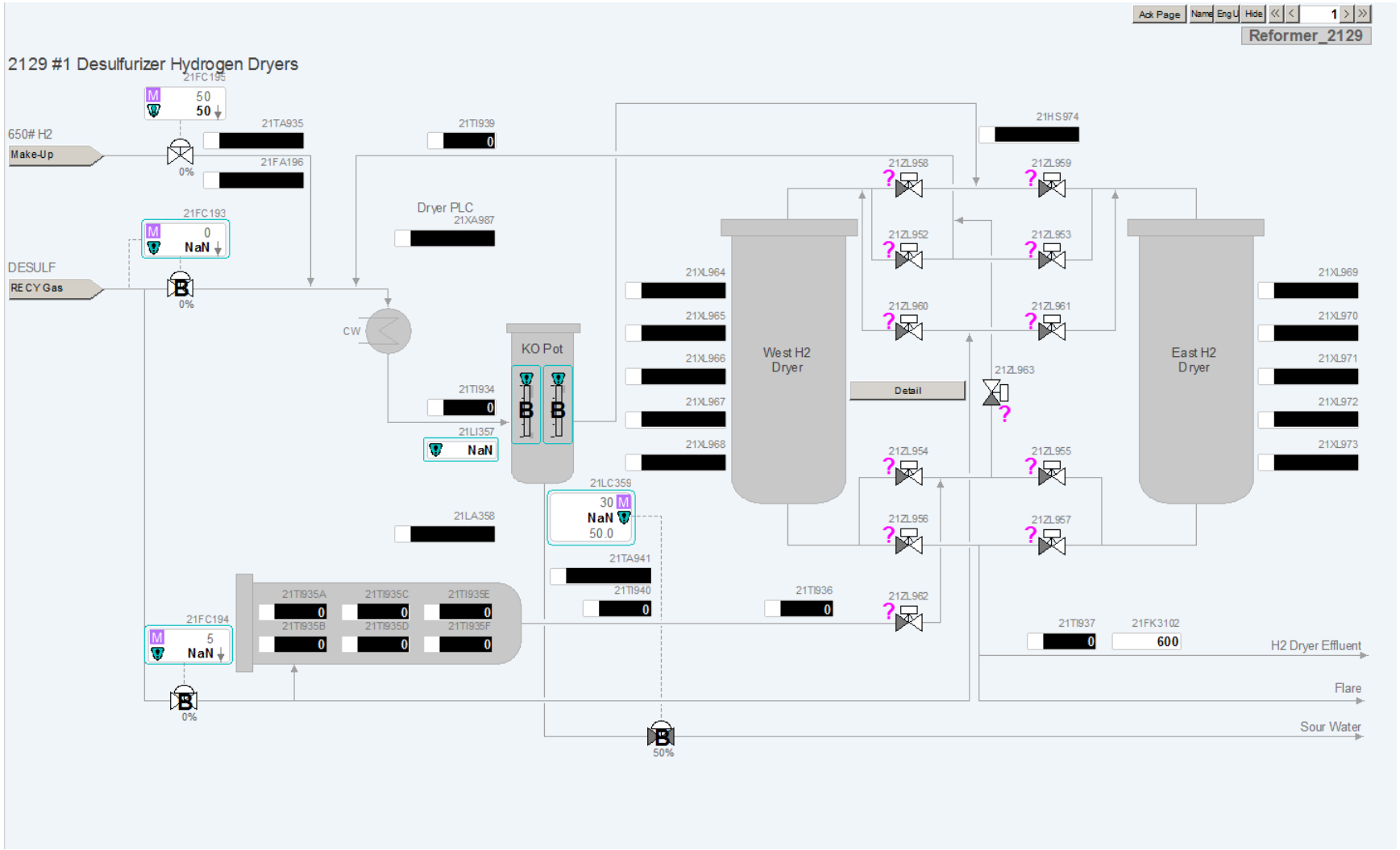
Station View



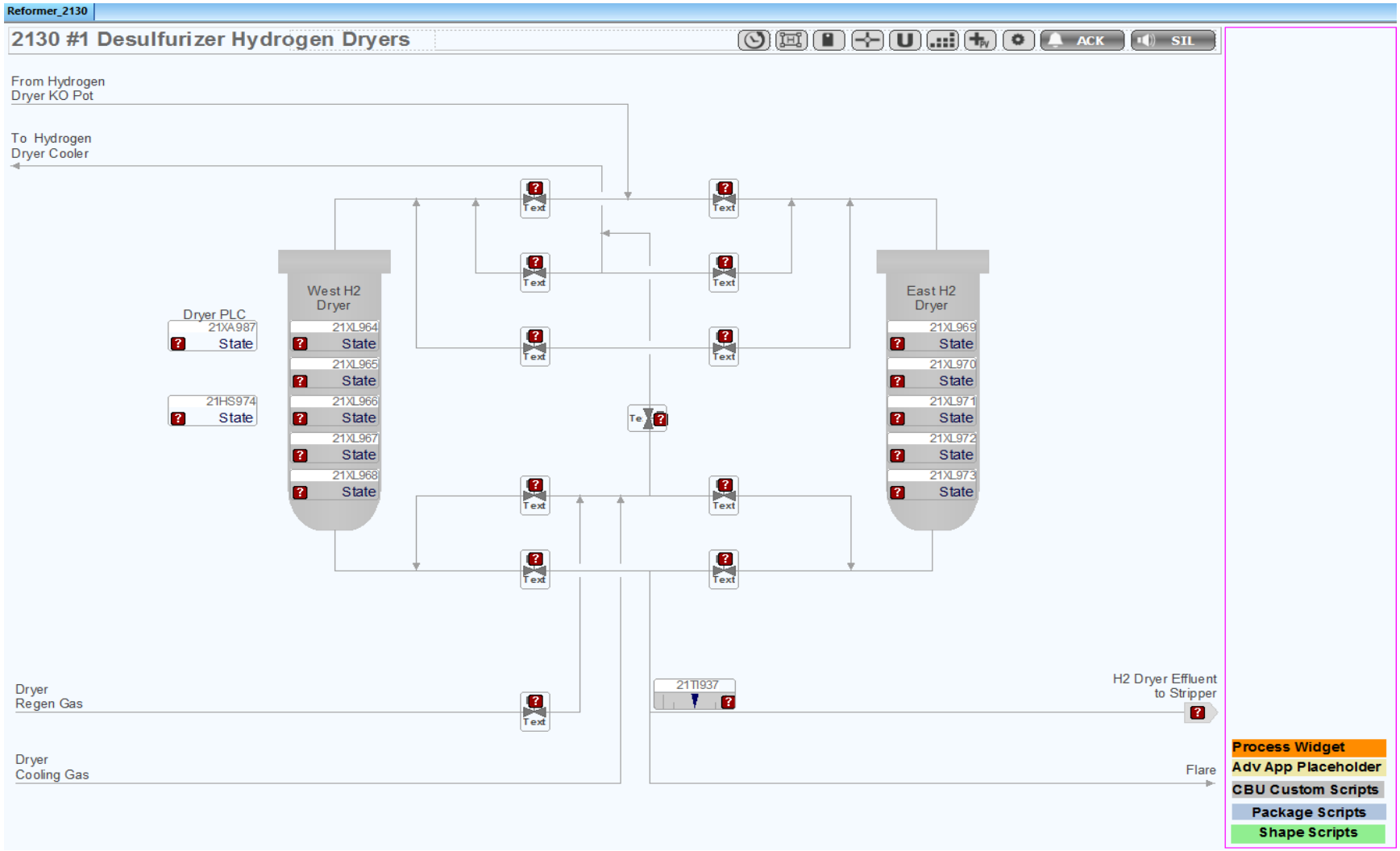
5.106 2129 #1 DESULFURIZER HYDROGEN DRYERS (Reformer_2129.htm)



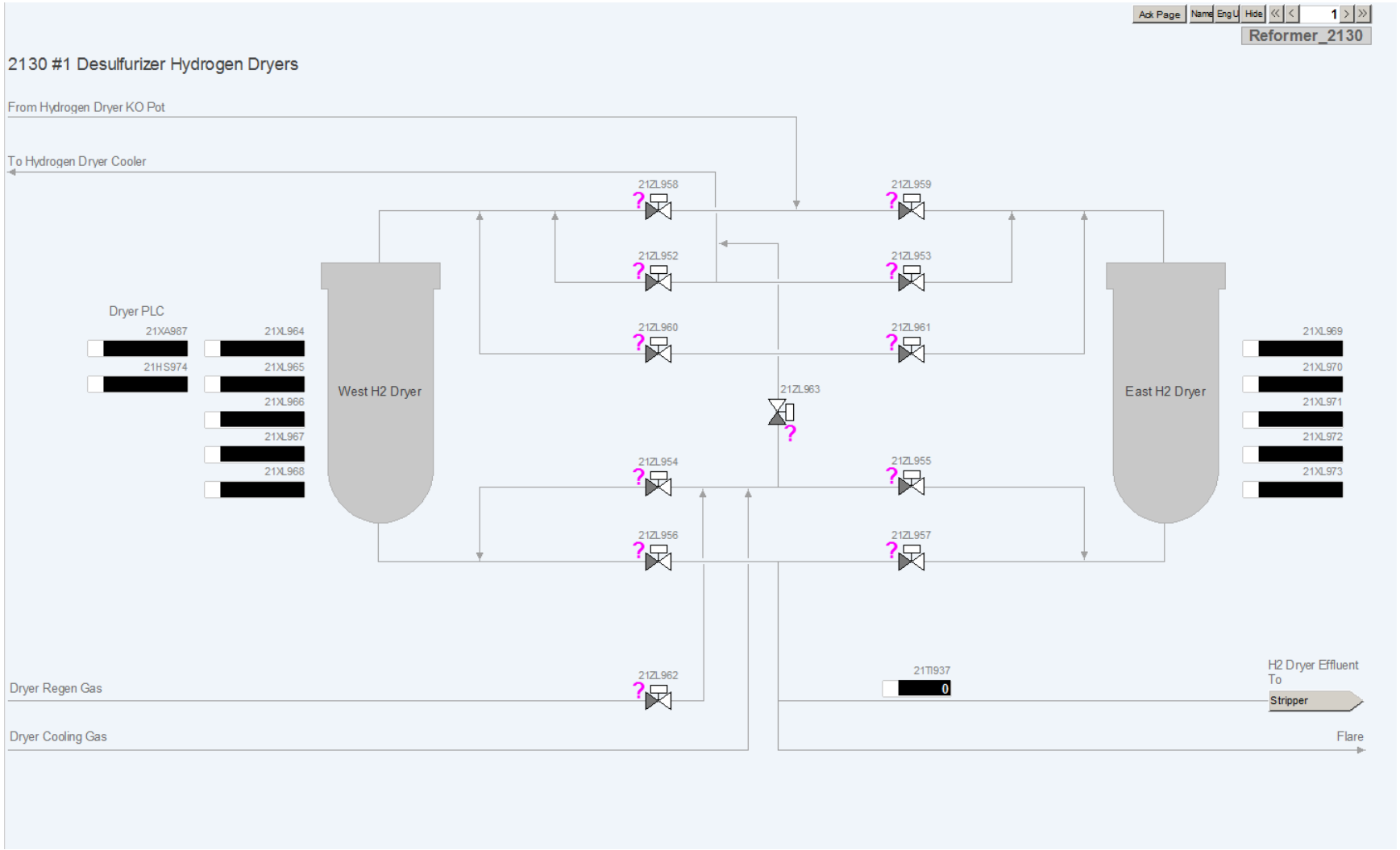
Station View



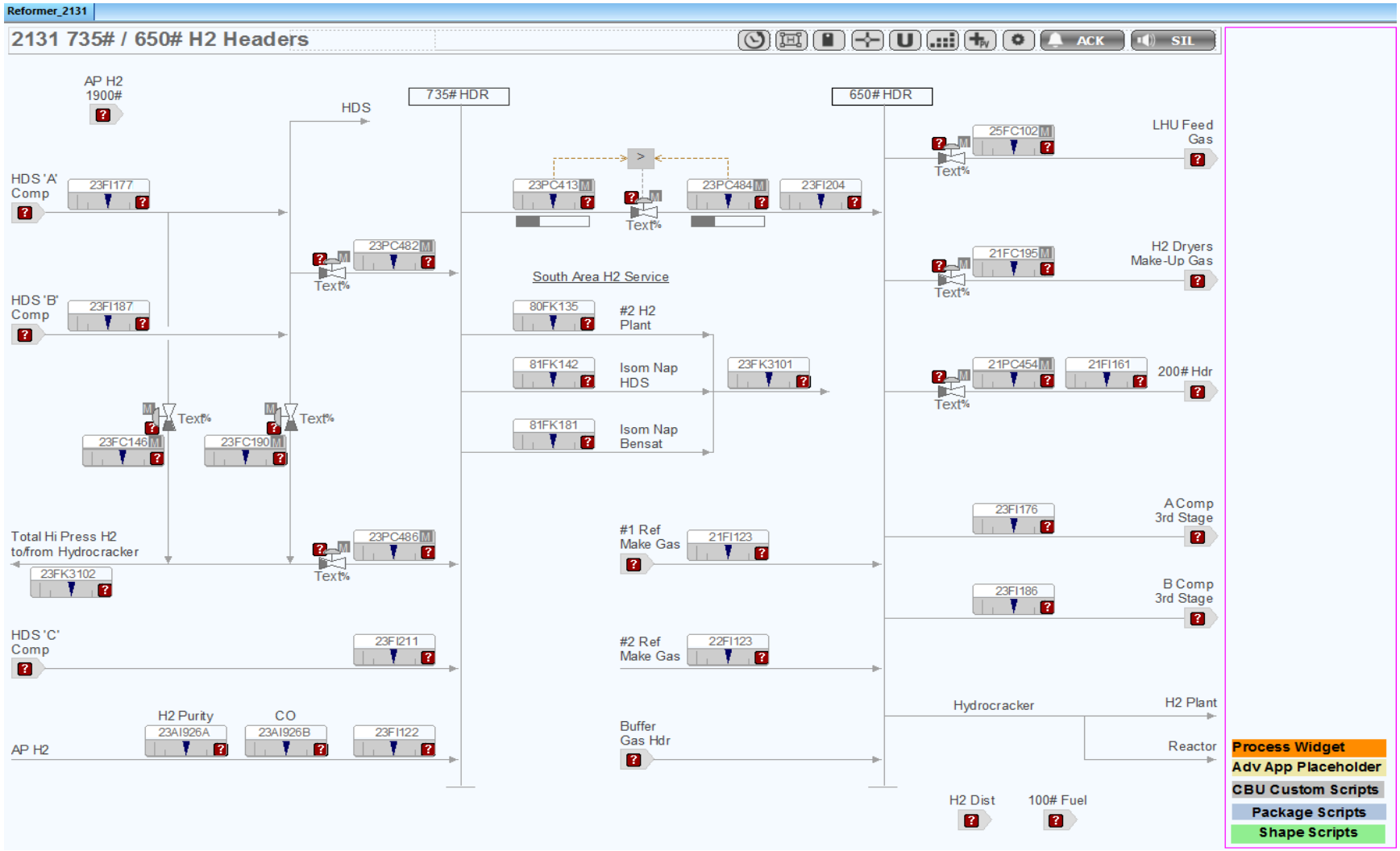
5.107 2130 #1 DESULFURIZER HYDROGEN DRYERS (Reformer_2130.htm)



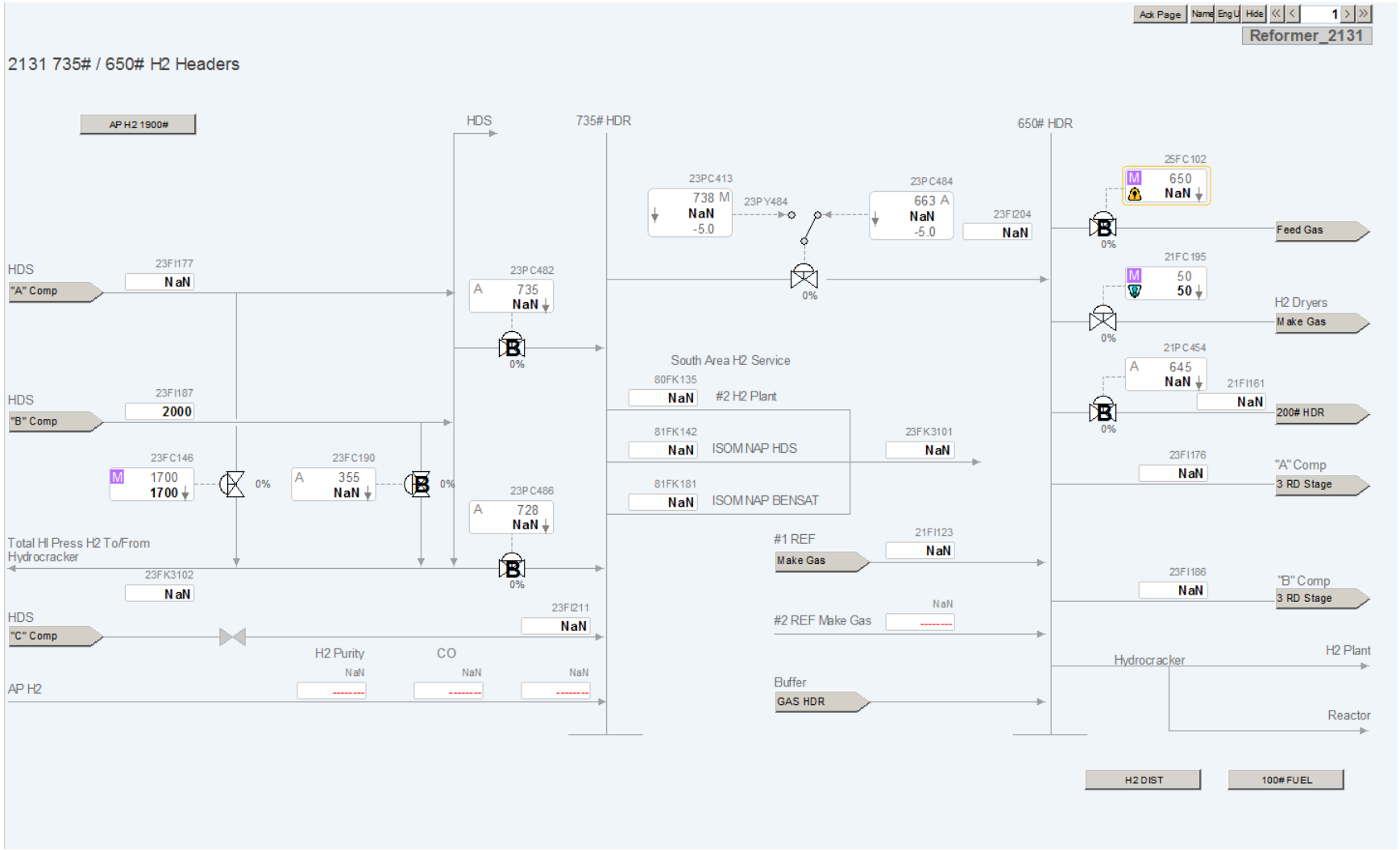
Station View



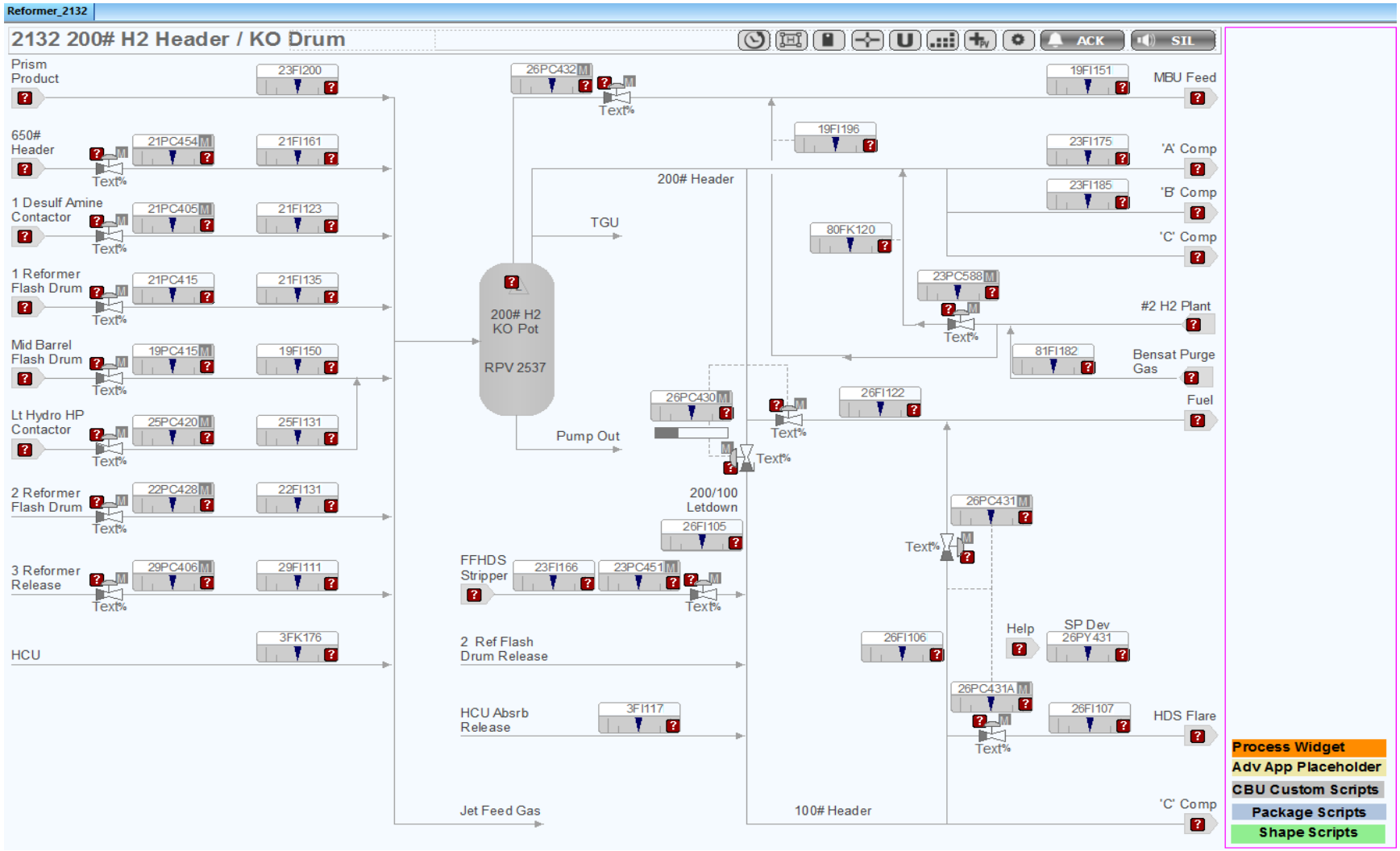
5.108 2131 735# / 650# H2 HEADERS (Reformer_2131.htm)



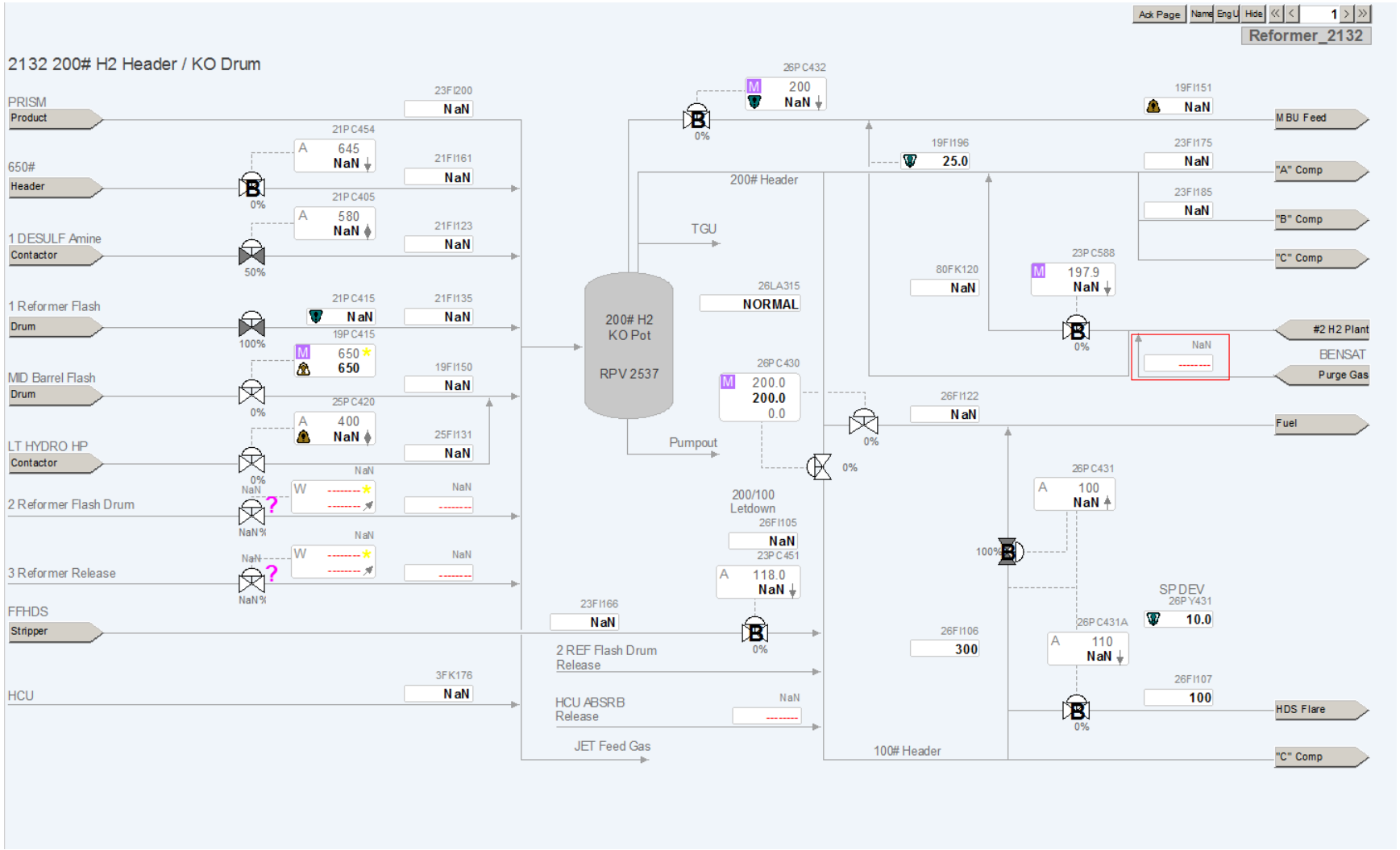
Station View



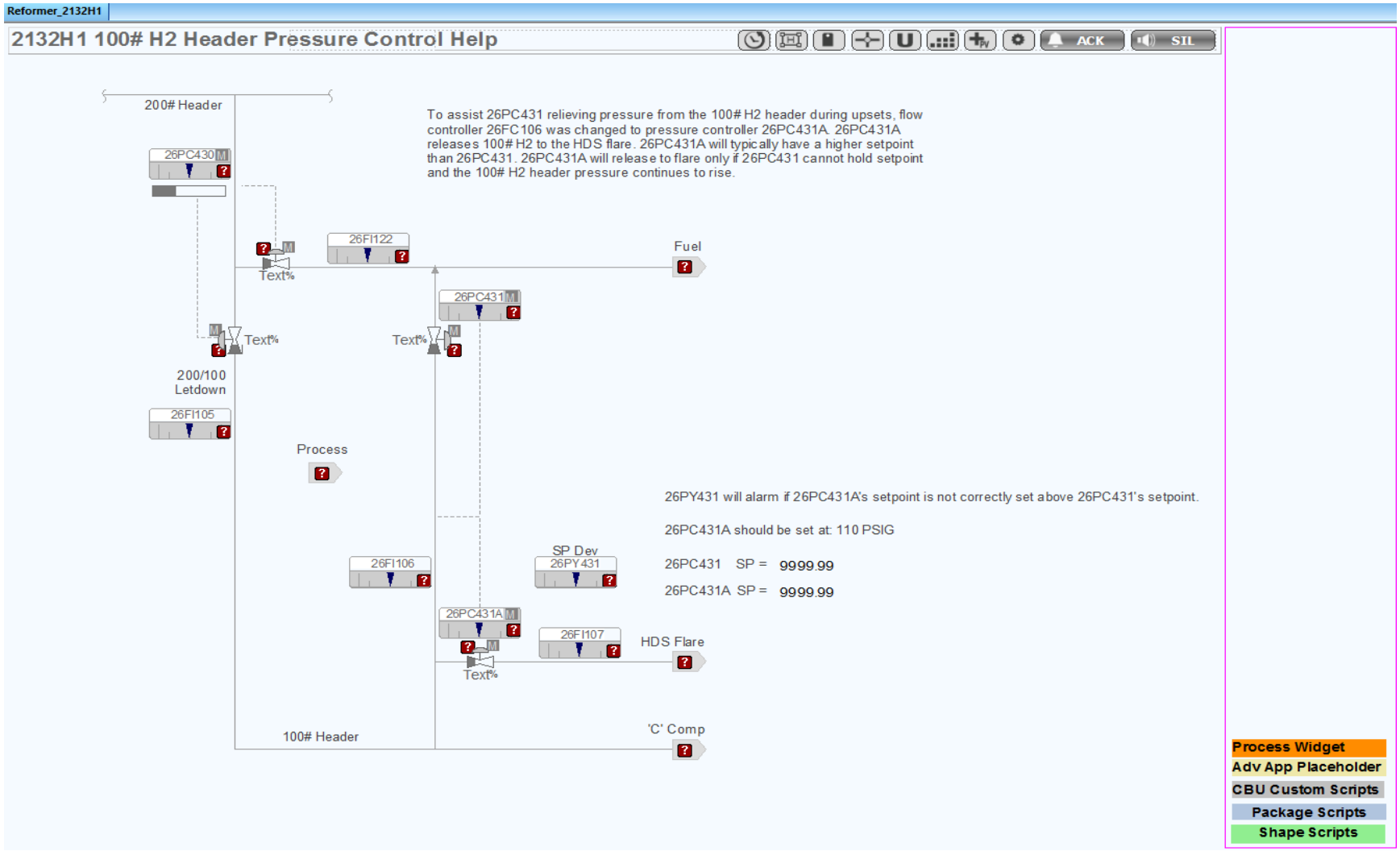
5.109 2132 200# H2 HEADER / KO DRUM (Reformer_2132.htm)



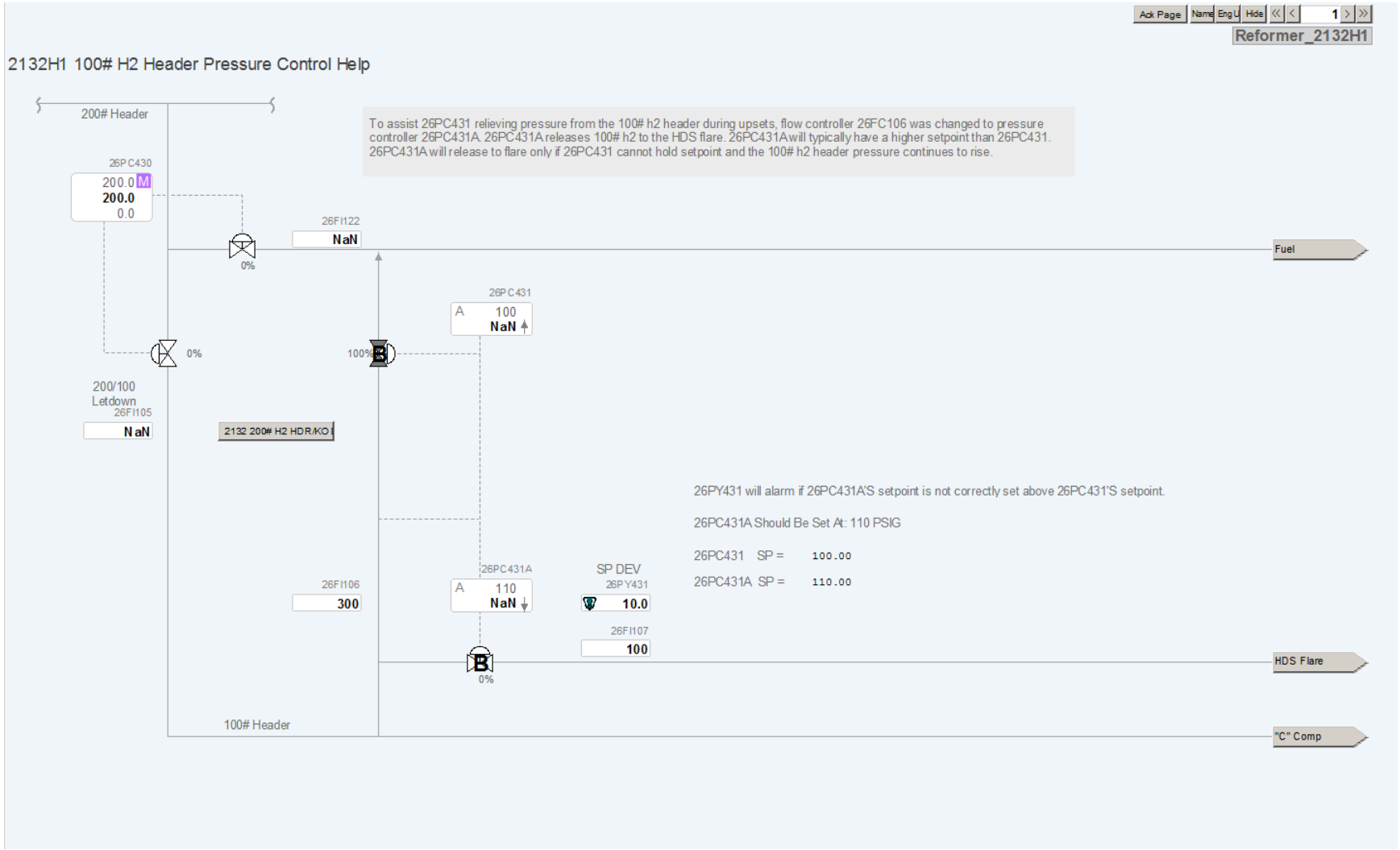
Station View



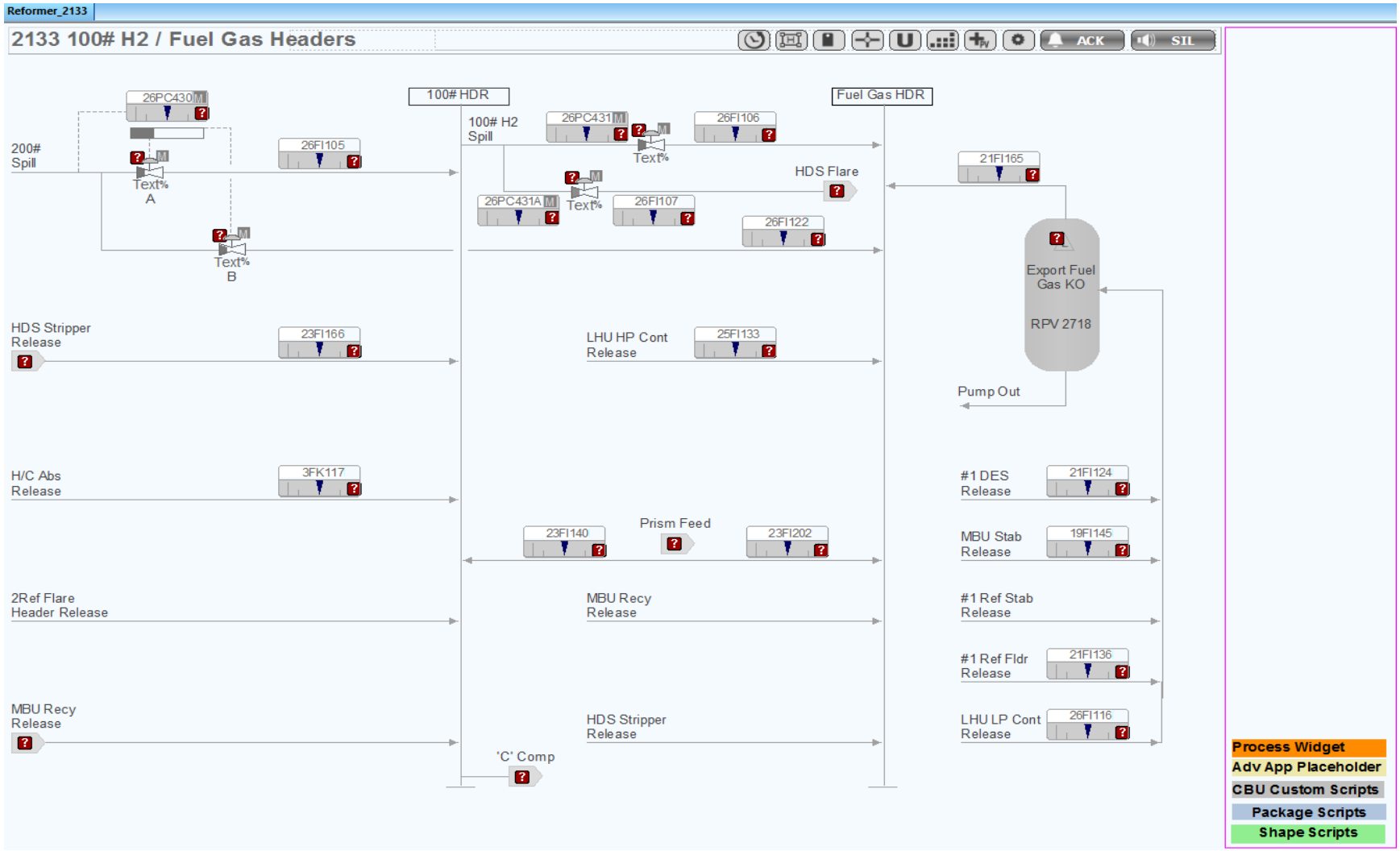
5.110 2132H1 100# H2 HEADER PRESSURE CONTROL HELP (Reformer_2132H1.htm)



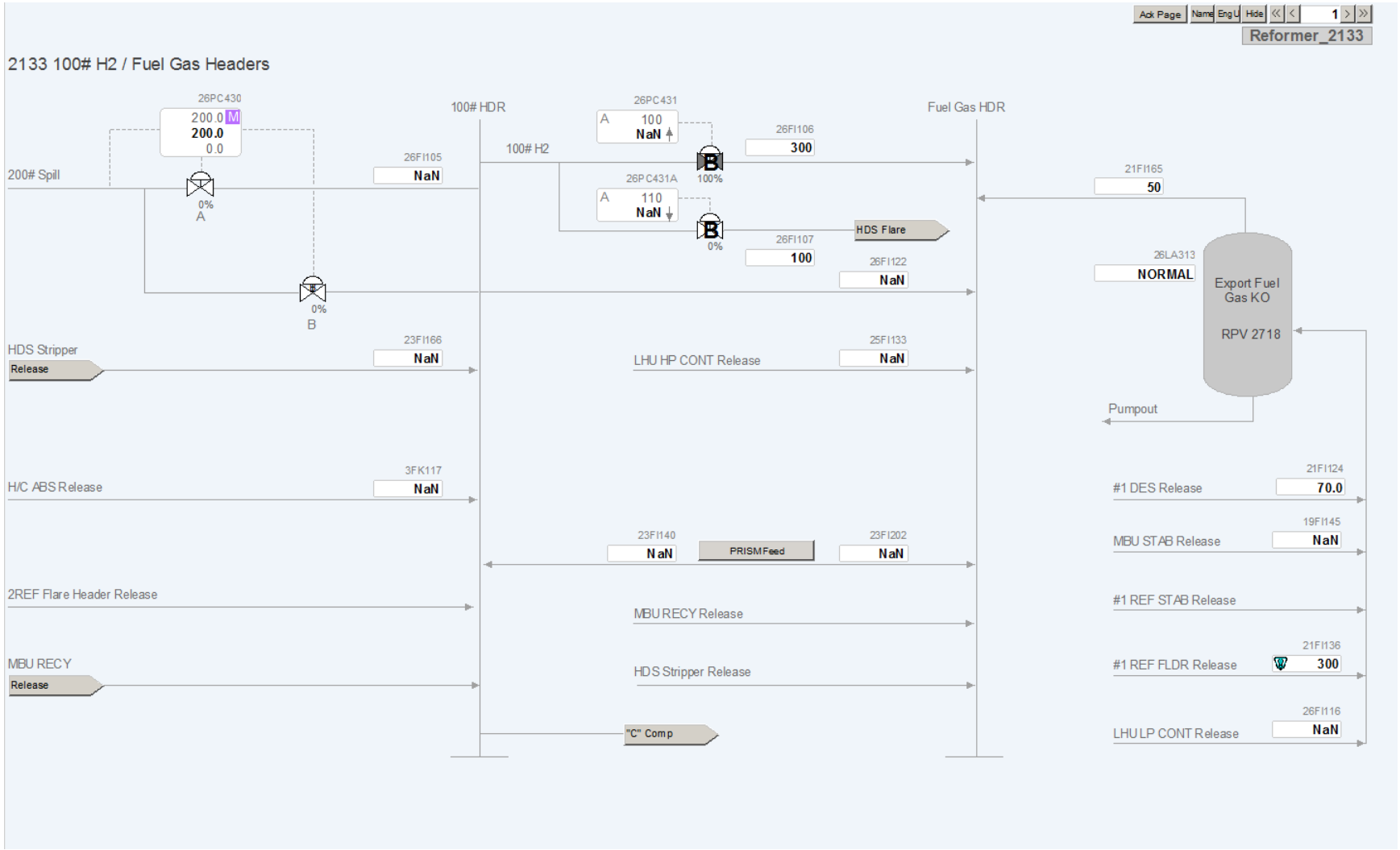
Station View



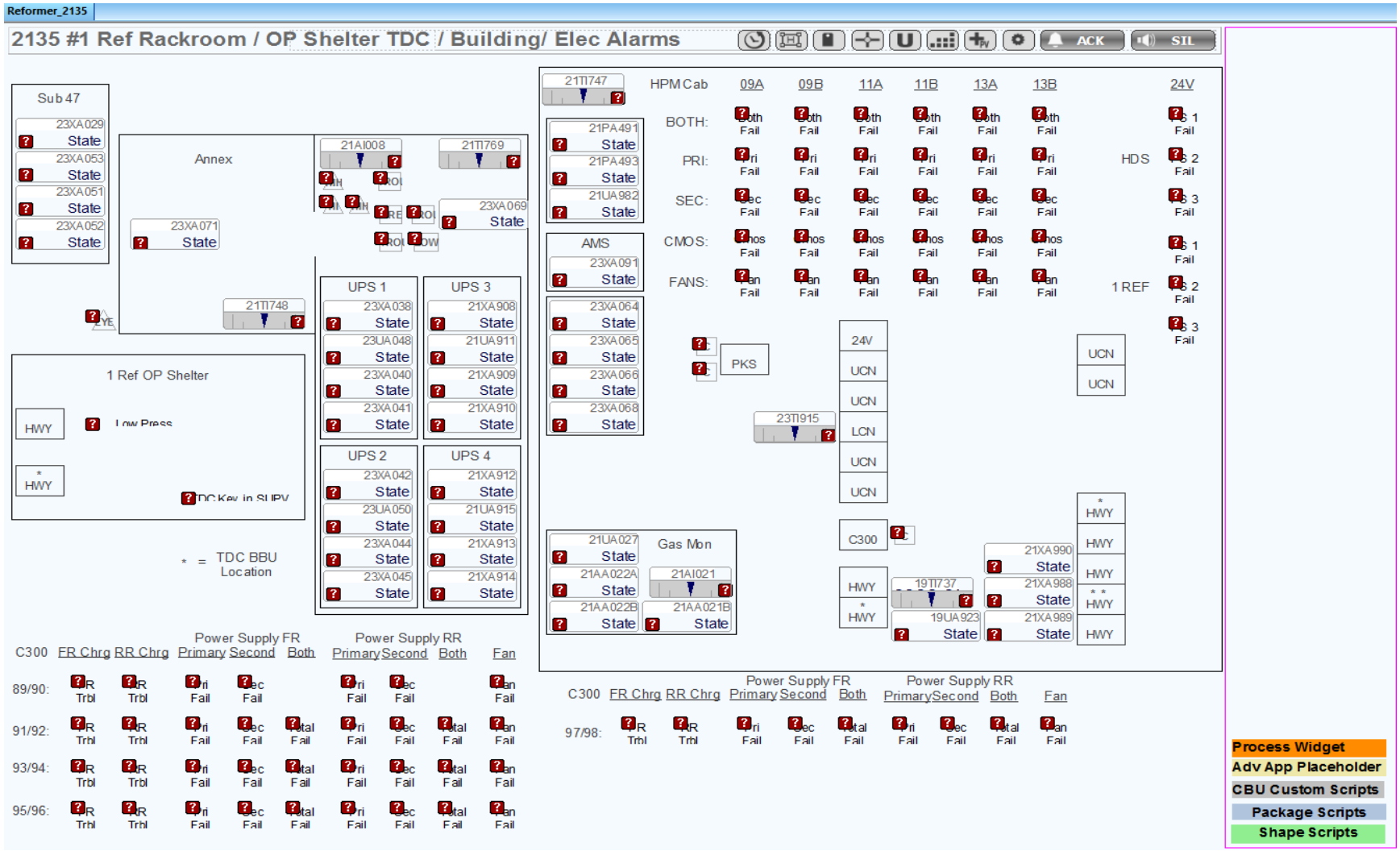
5.111 2133 100# H2 / FUEL GAS HEADERS (Reformer_2133.htm)



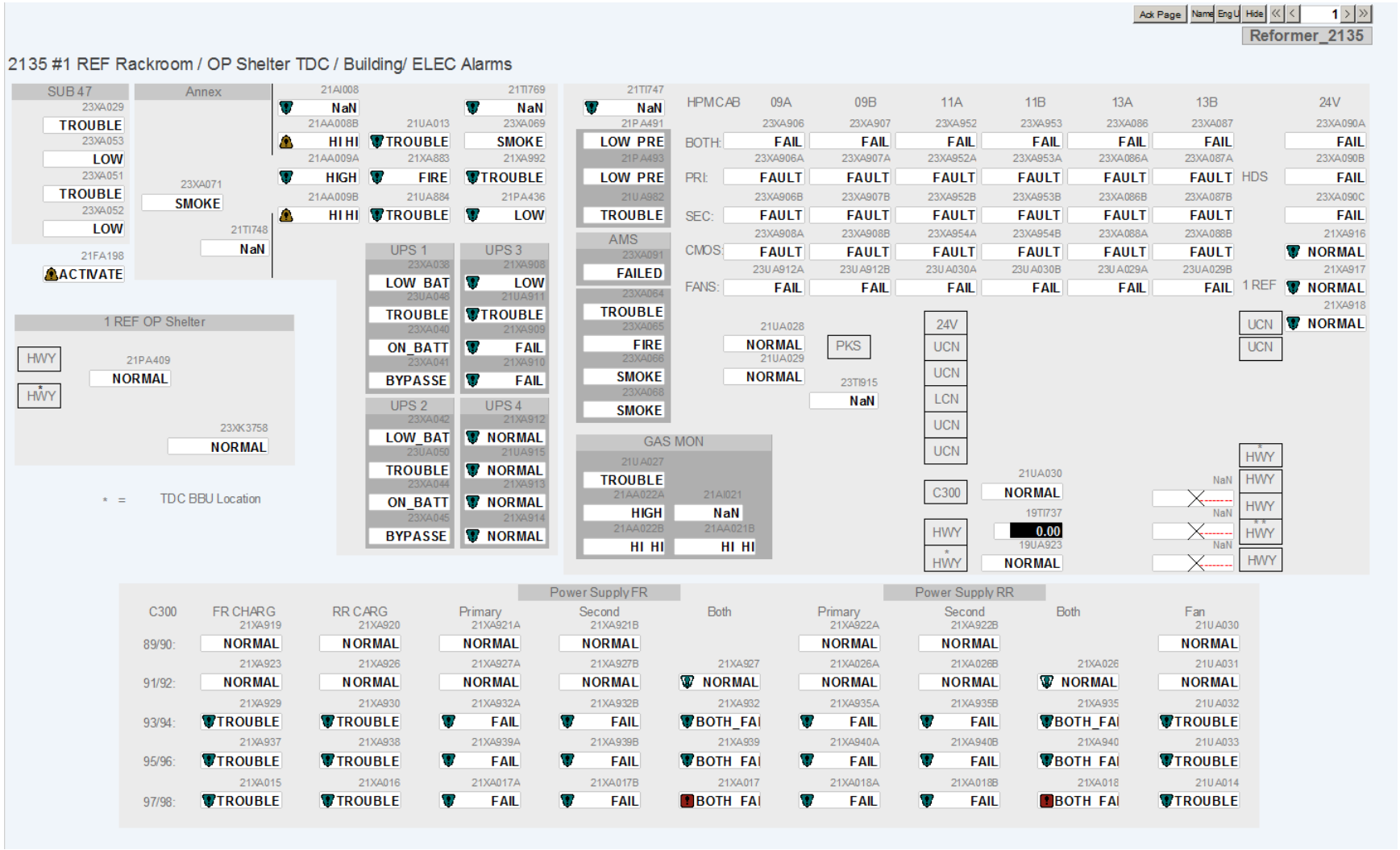
Station View



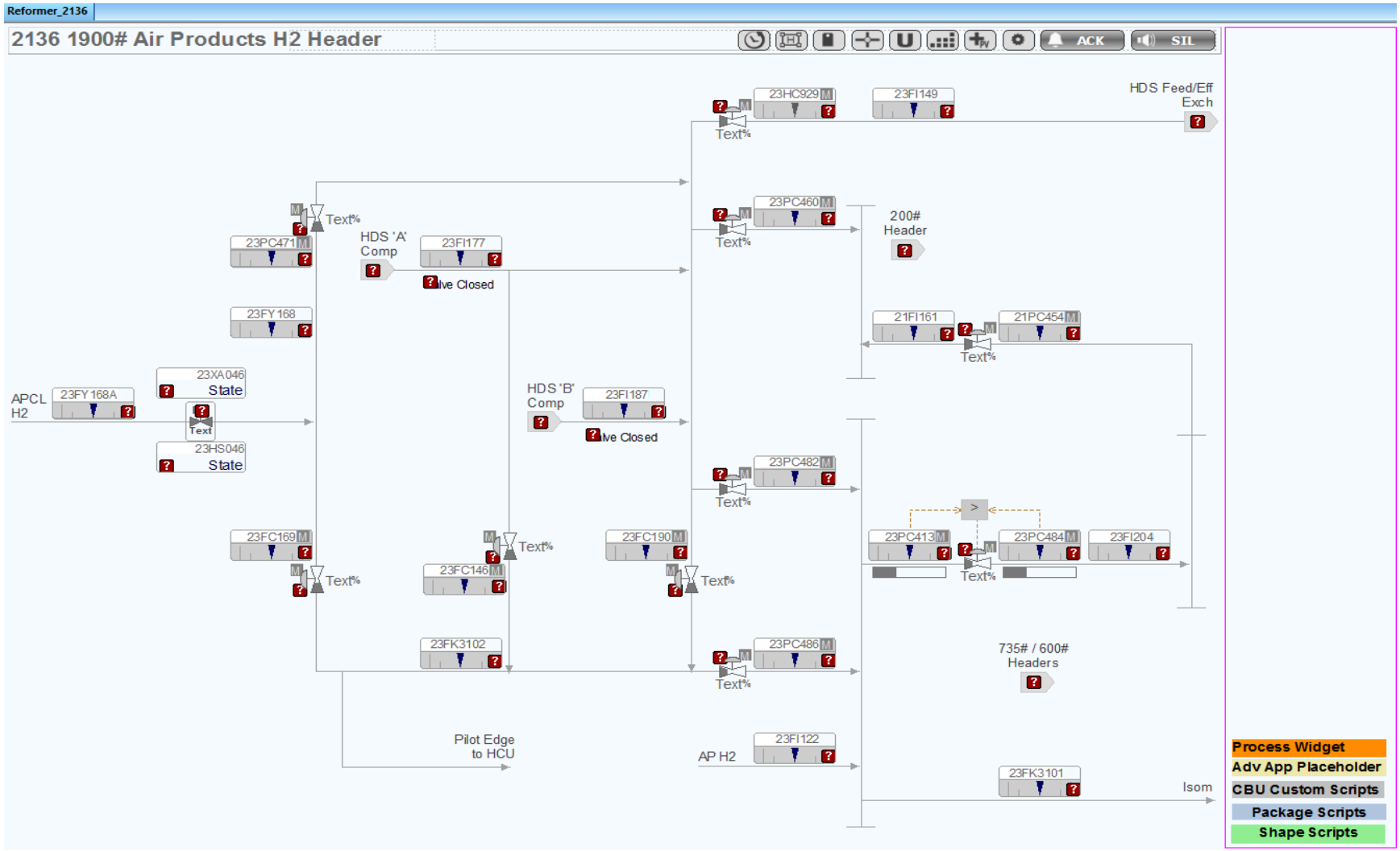
5.112 2135 #1 REF RACKROOM / OP SHELTER TDC / BUILDING/ ELEC ALARMS (Reformer_2135.htm)



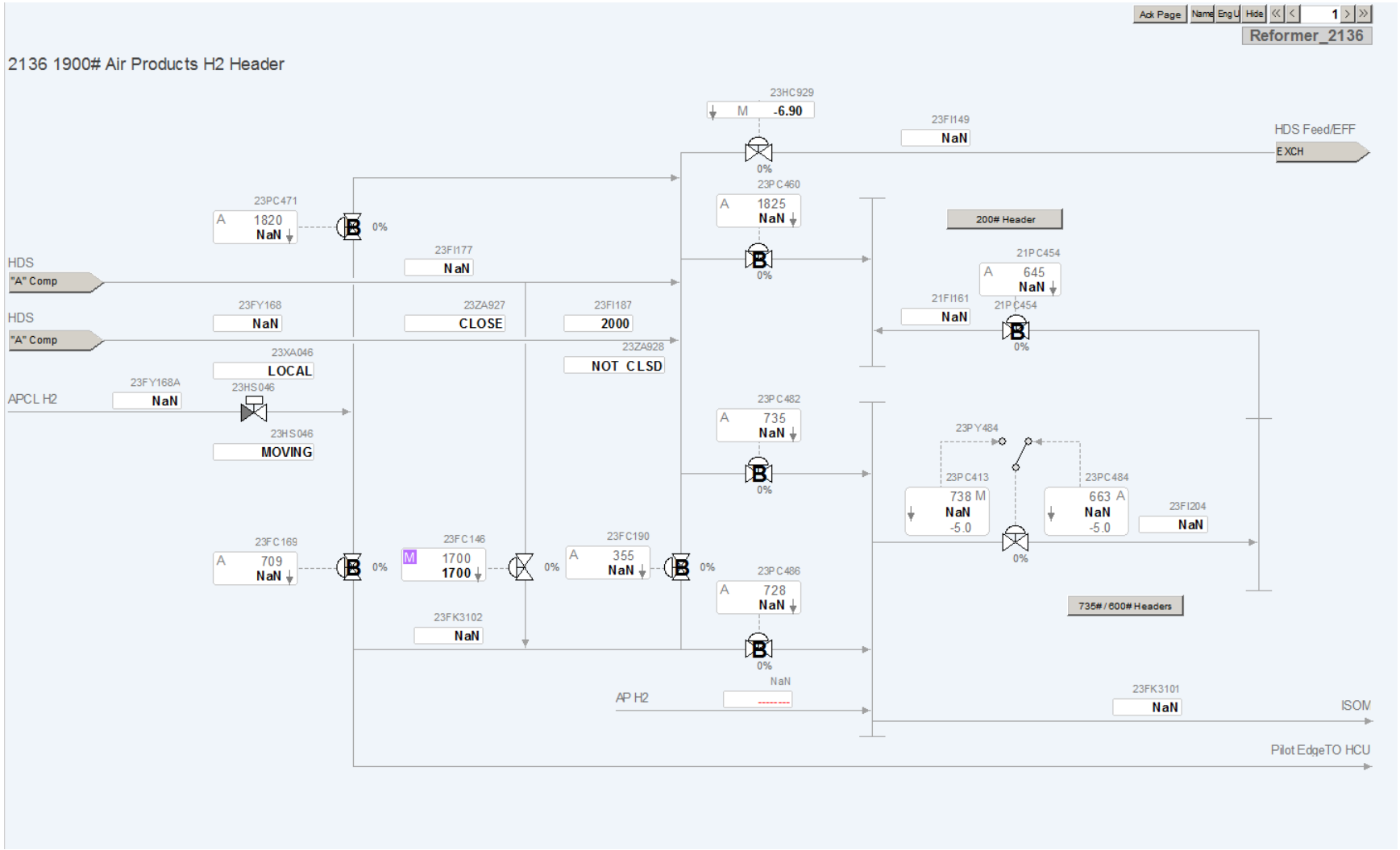
Station View



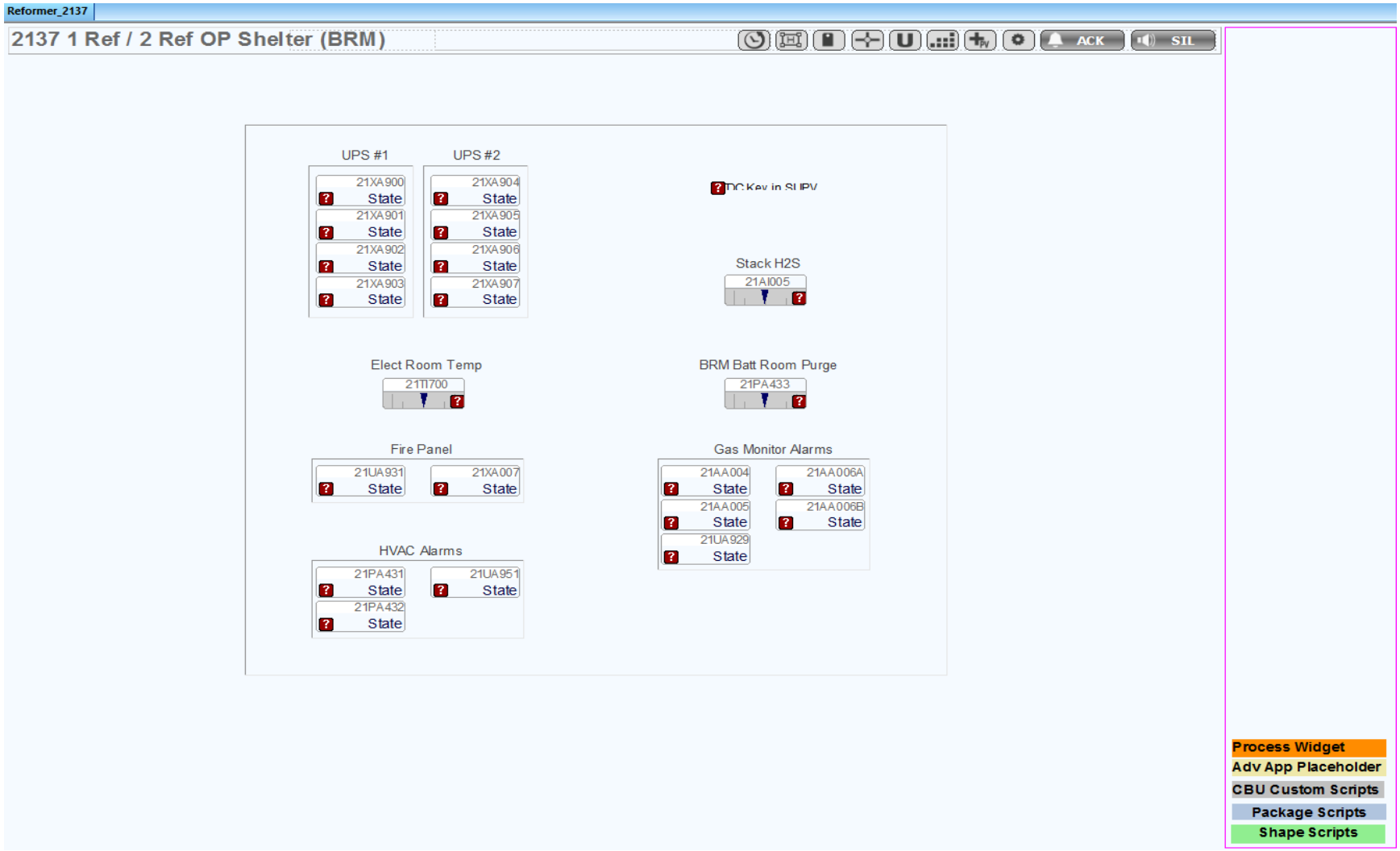
5.113 2136 1900# AIR PRODUCTS H2 HEADER (Reformer_2136.htm)



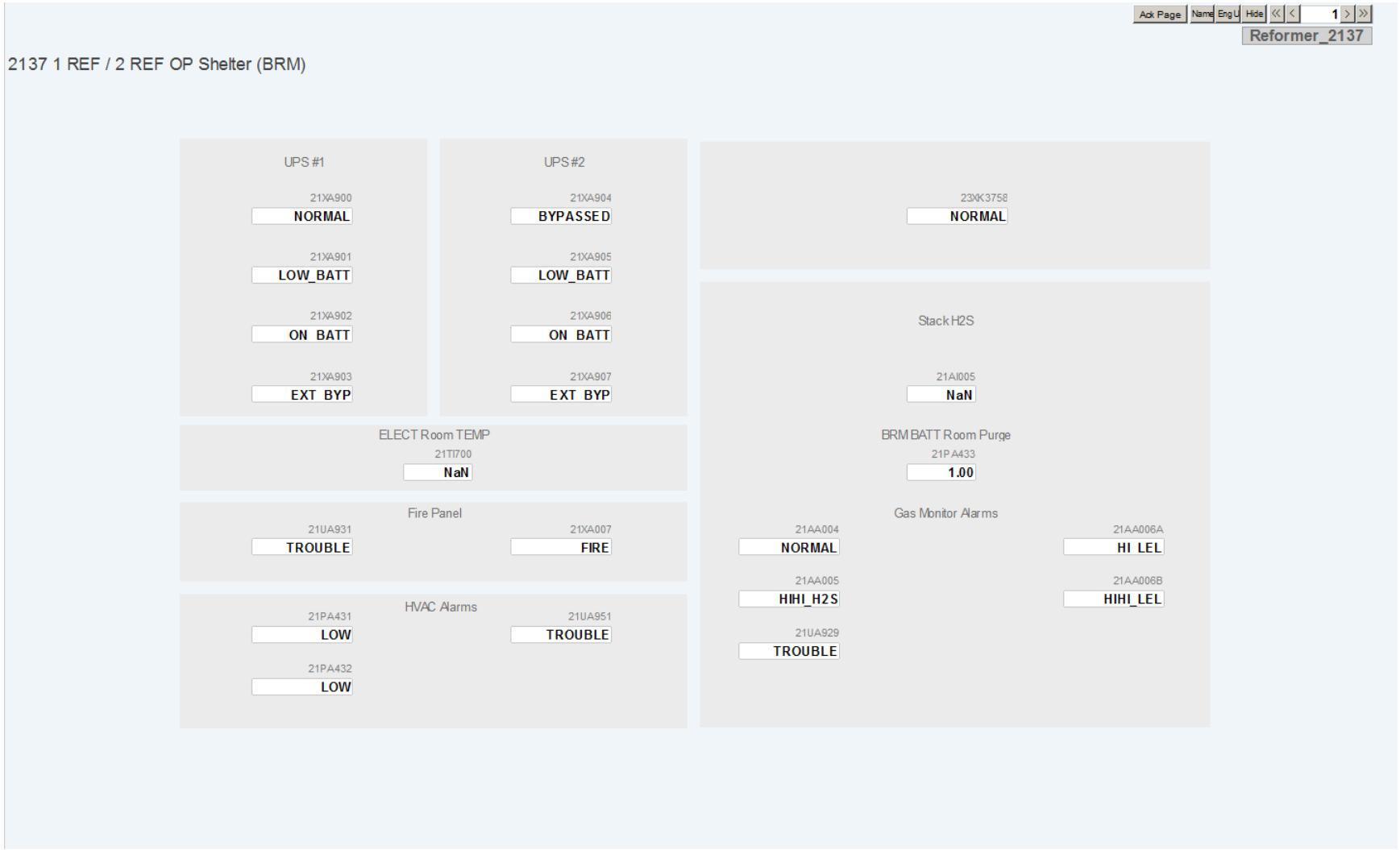
Station View



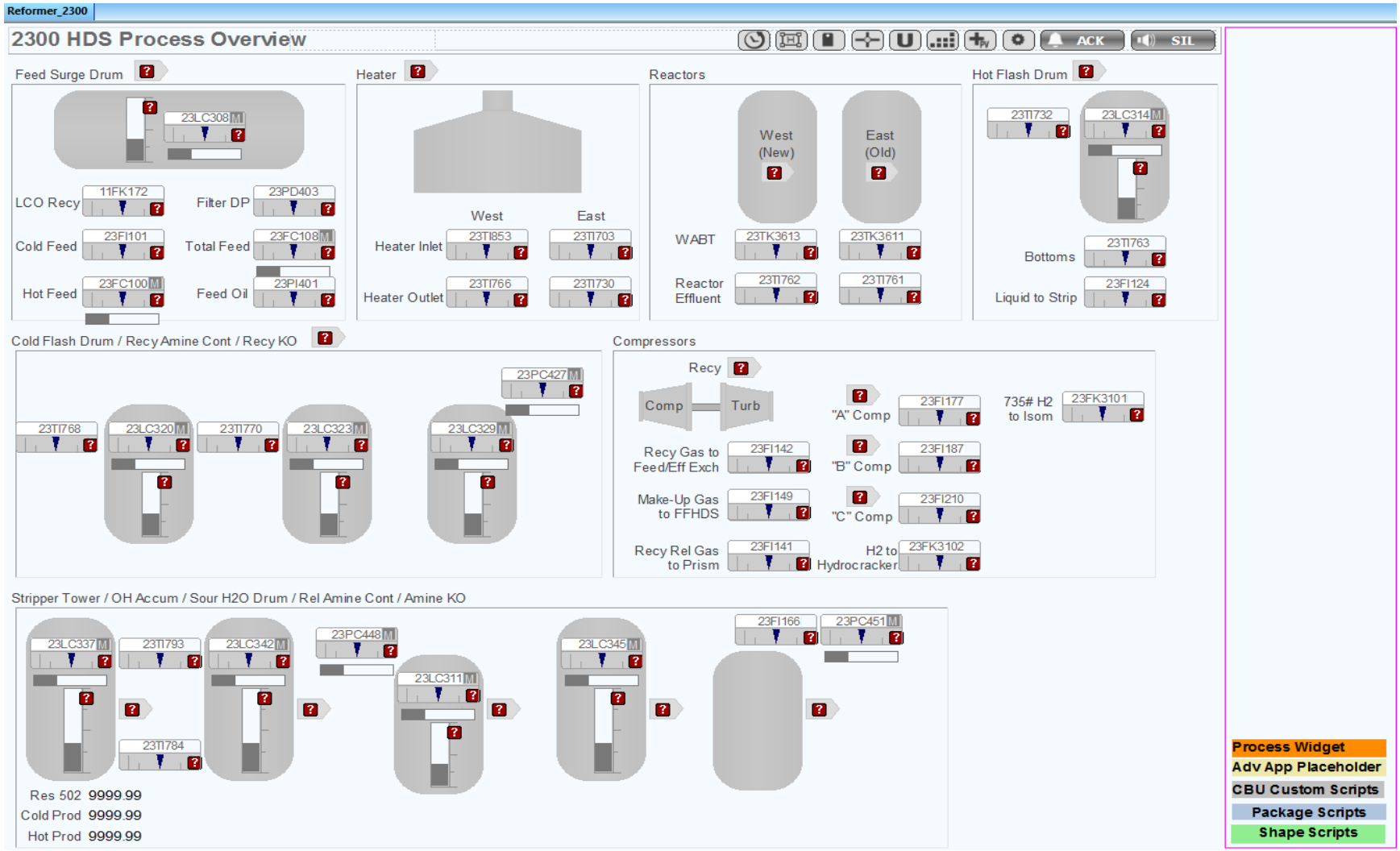
5.114 2137 1 REF / 2 REF OP SHELTER (BRM) (Reformer_2137.htm)



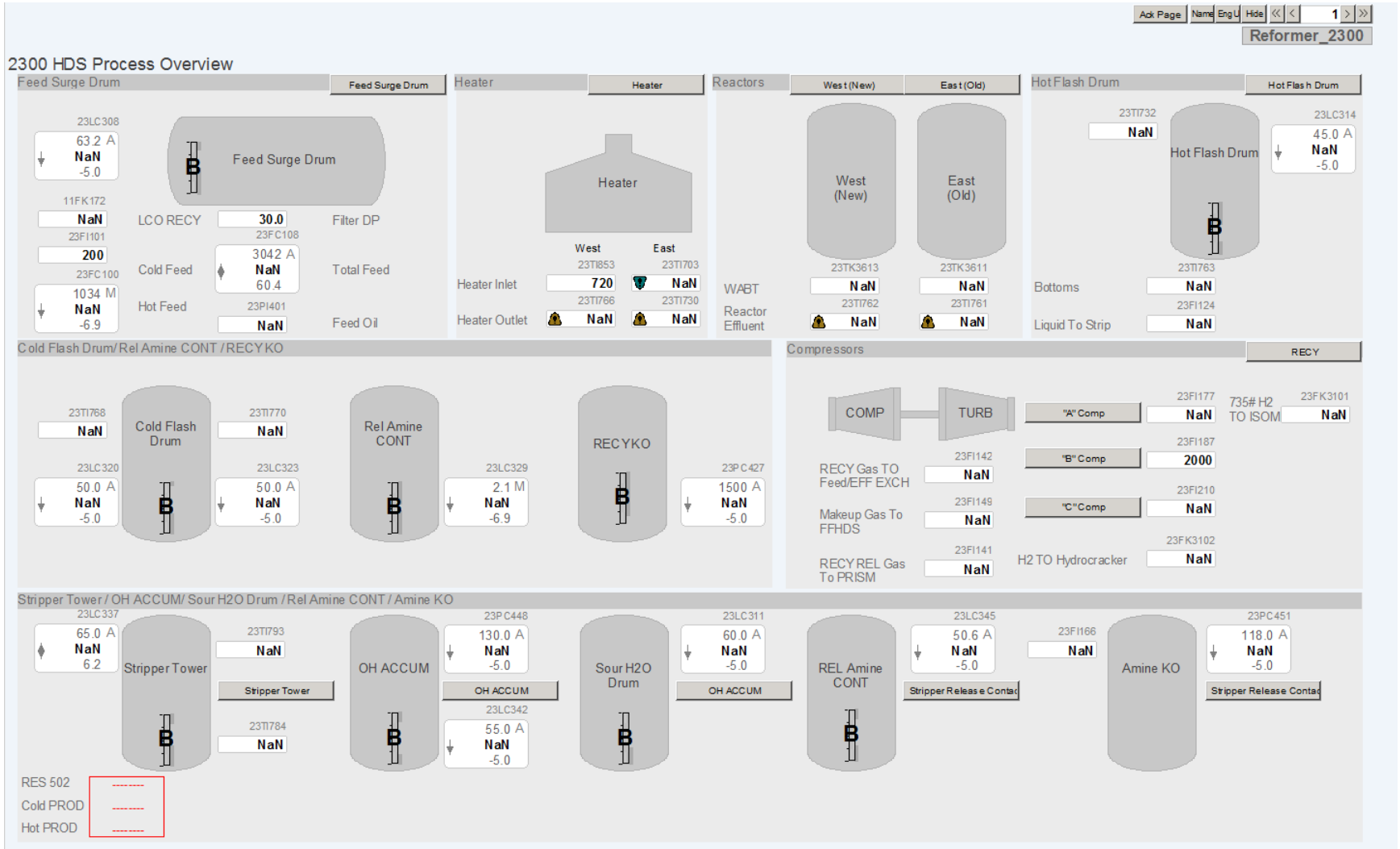
Station View



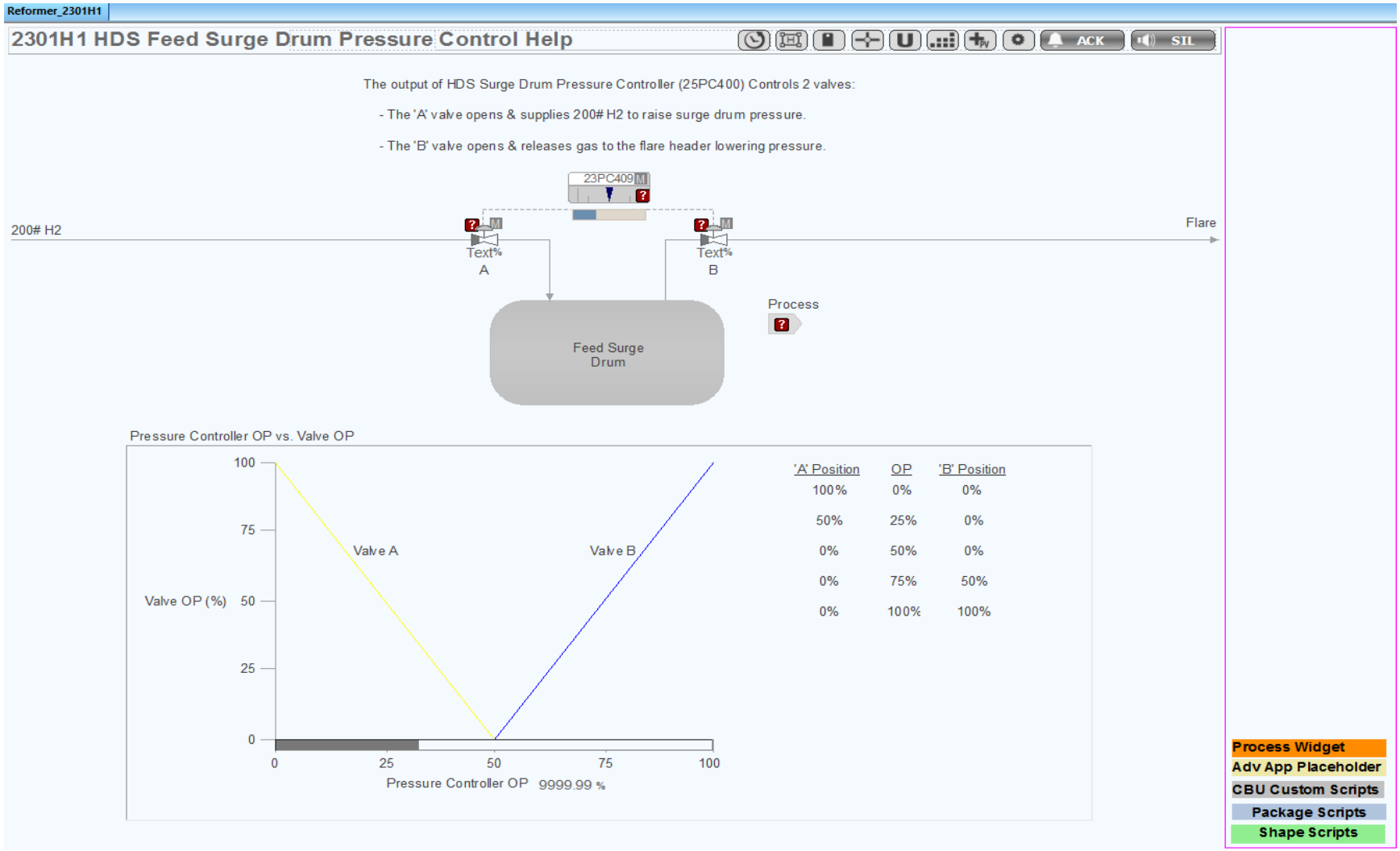
5.115 2300 HDS PROCESS OVERVIEW (Reformer_2300.htm)



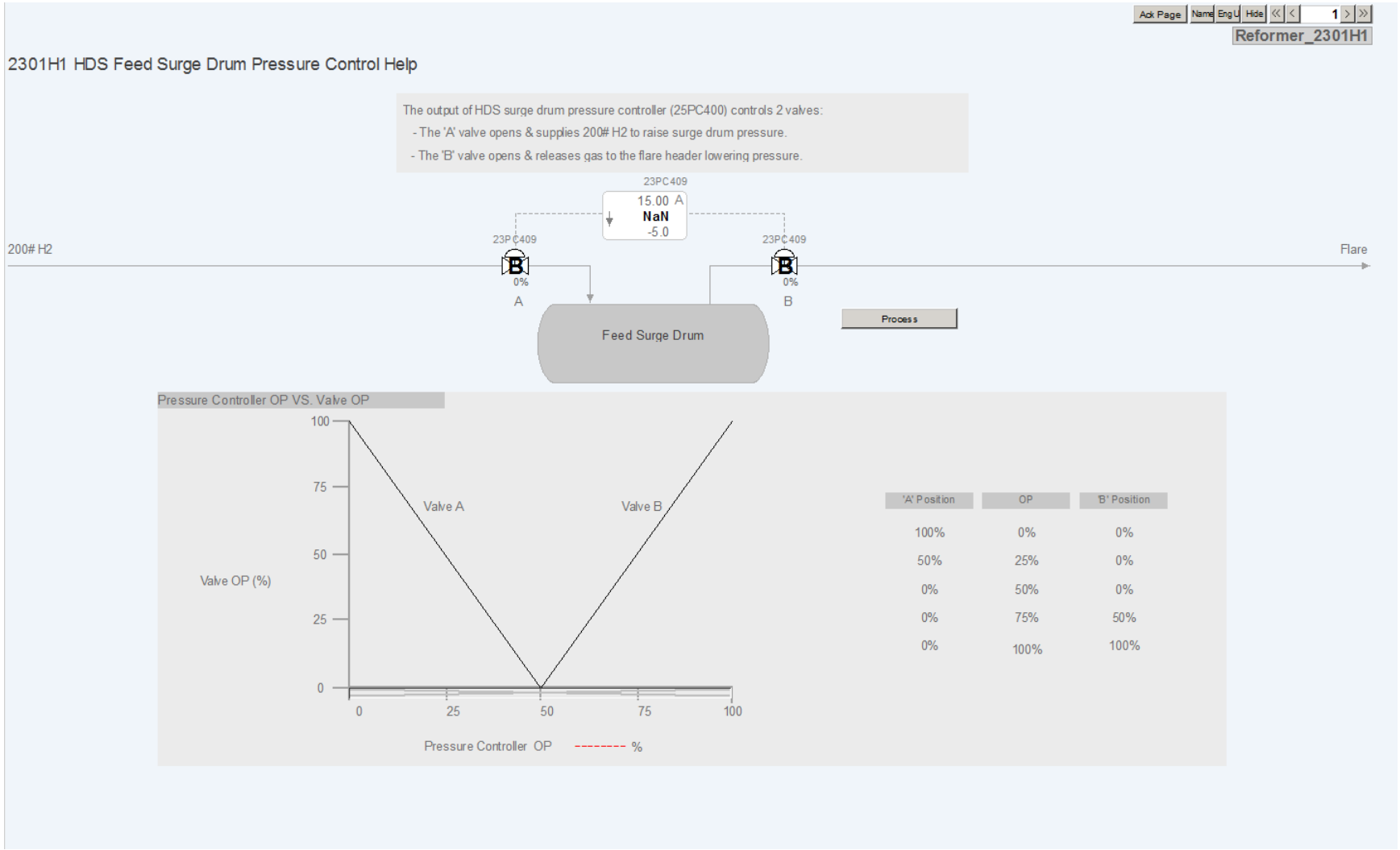
Station View



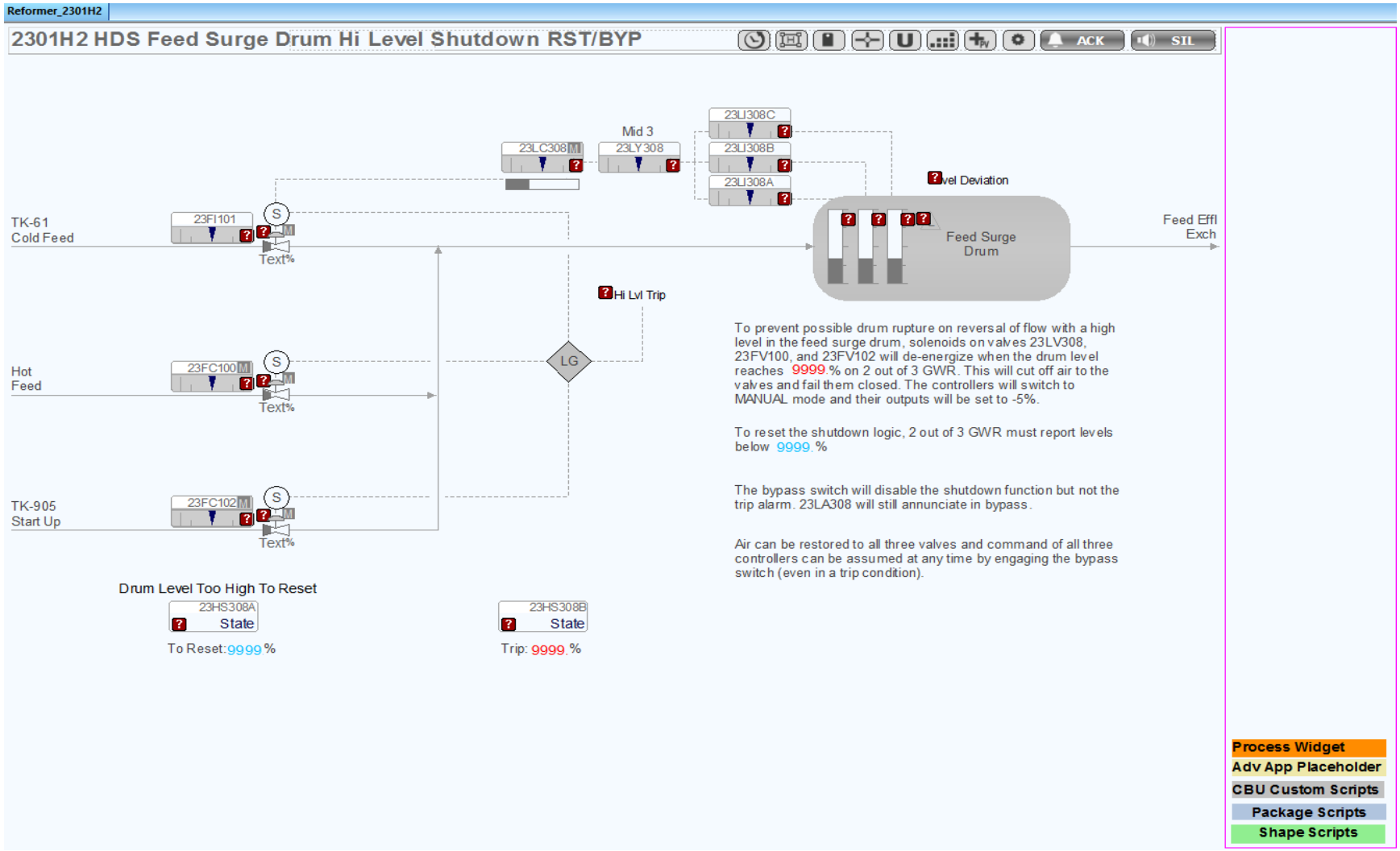
5.116 2301H1 HDS FEED SURGE DRUM PRESSURE CONTROL HELP (Reformer_2301H1.htm)



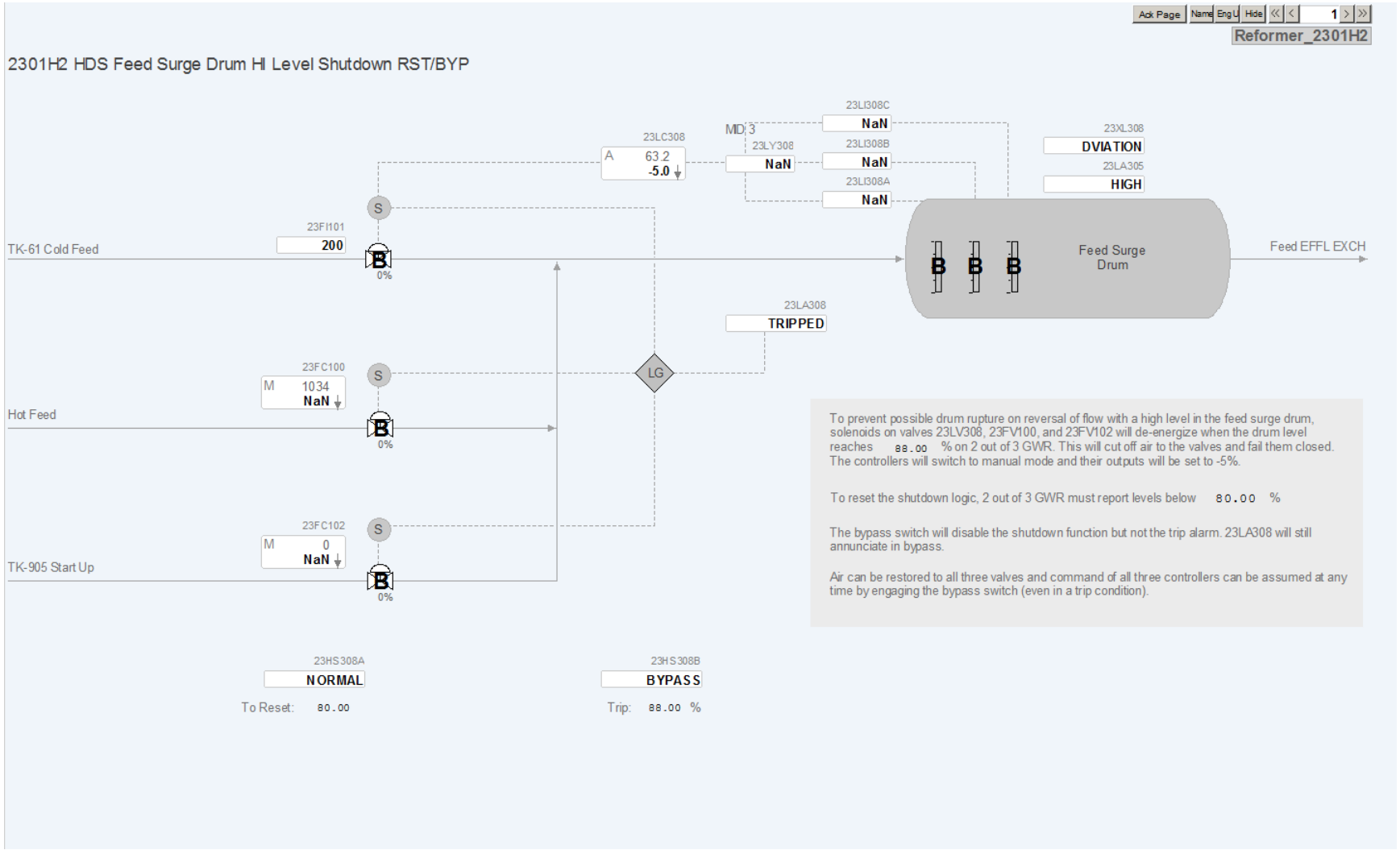
Station View



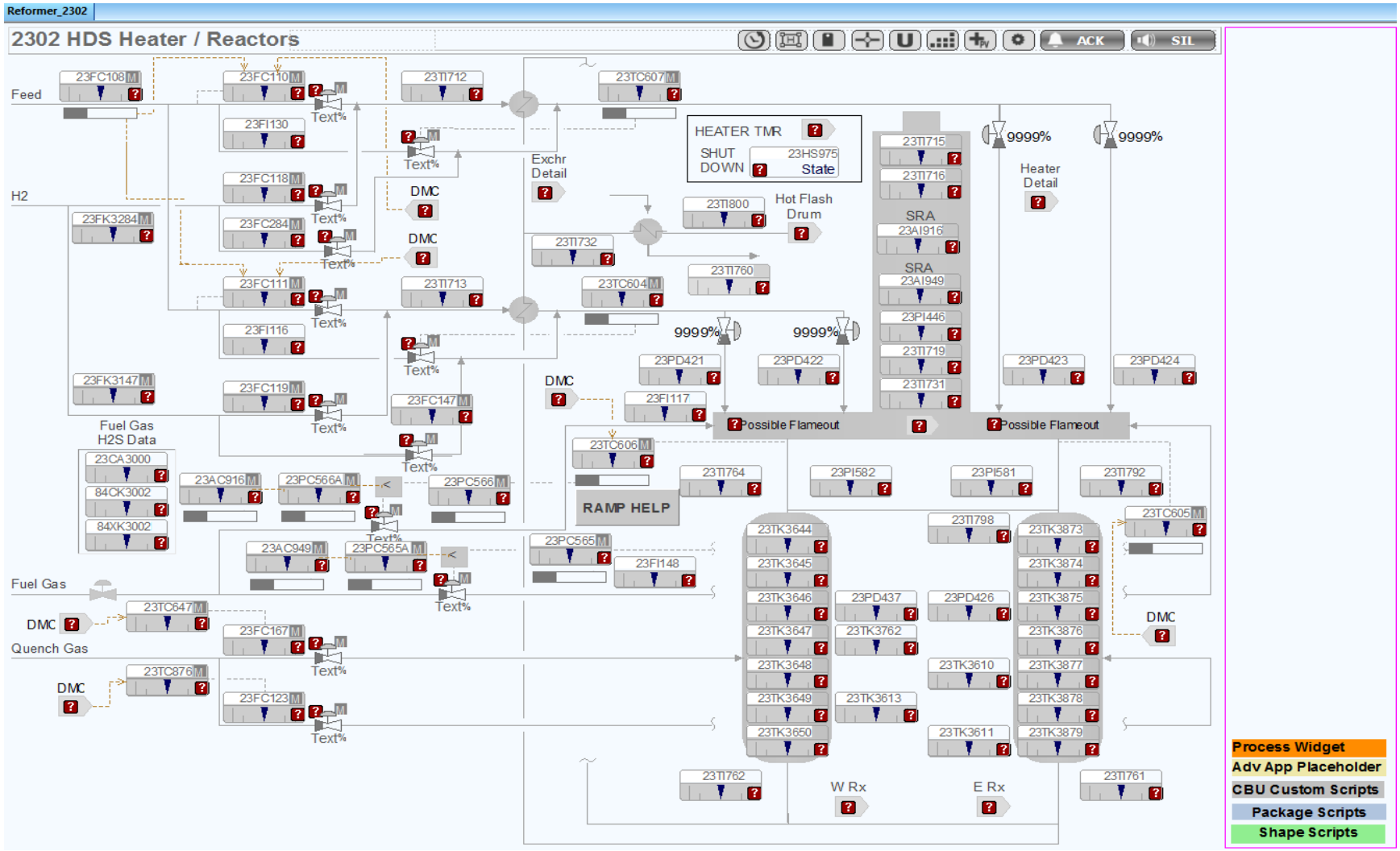
5.117 2301H2 HDS FEED SURGE DRUM HI LEVEL SHUTDOWN RST/BYP (Reformer_2301H2.htm)



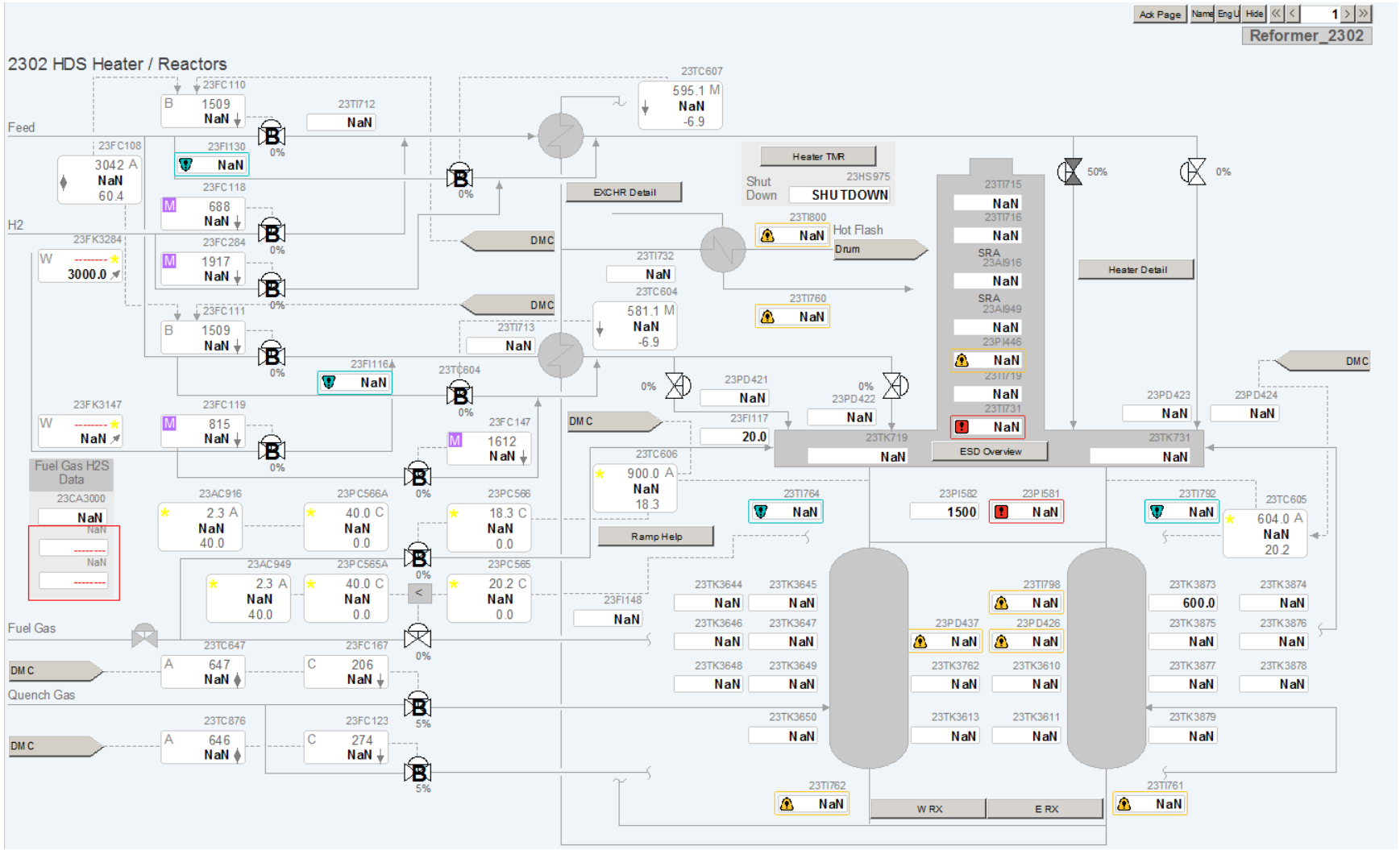
Station View



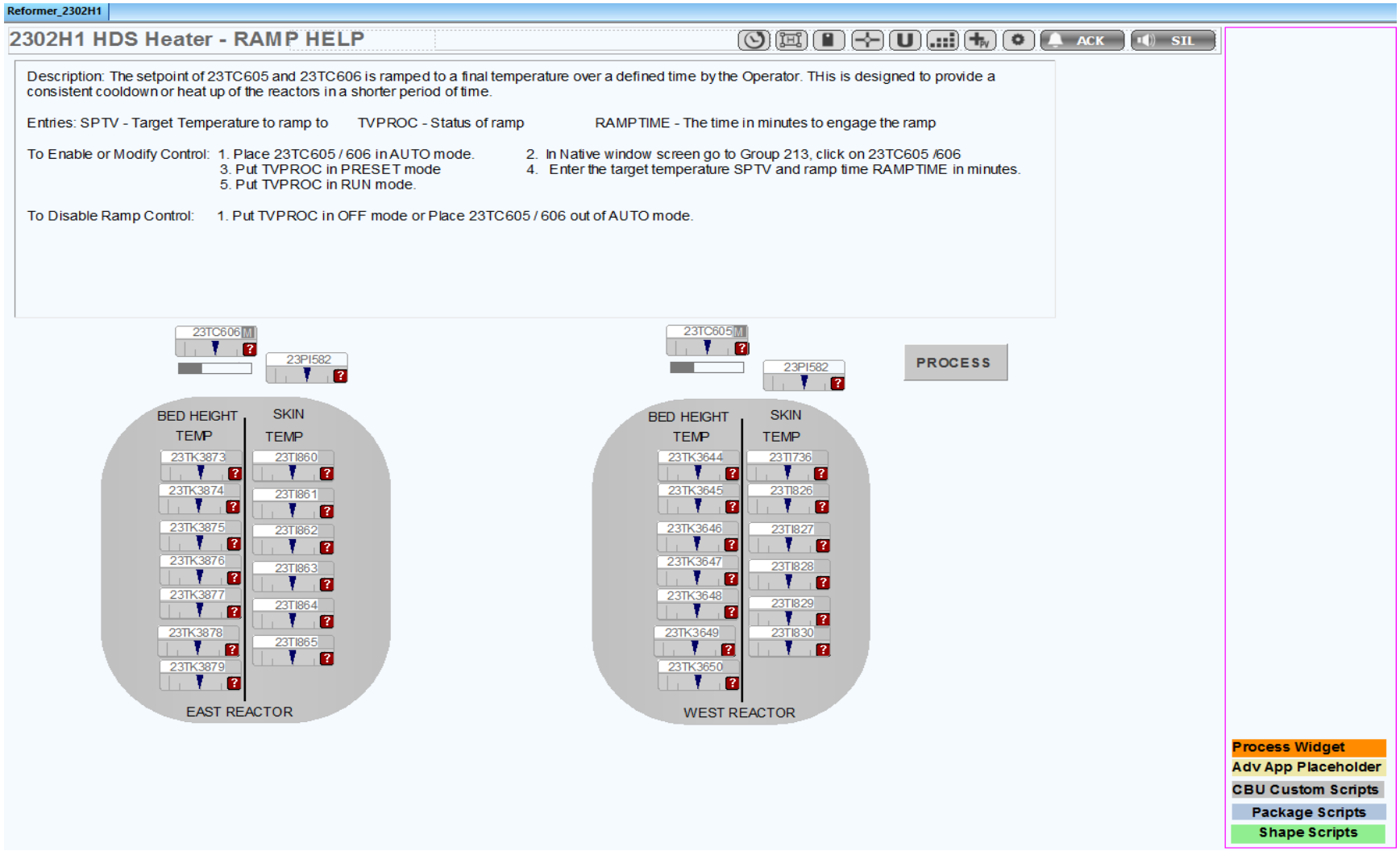
5.118 2302 HDS HEATER / REACTORS (Reformer_2302.htm)



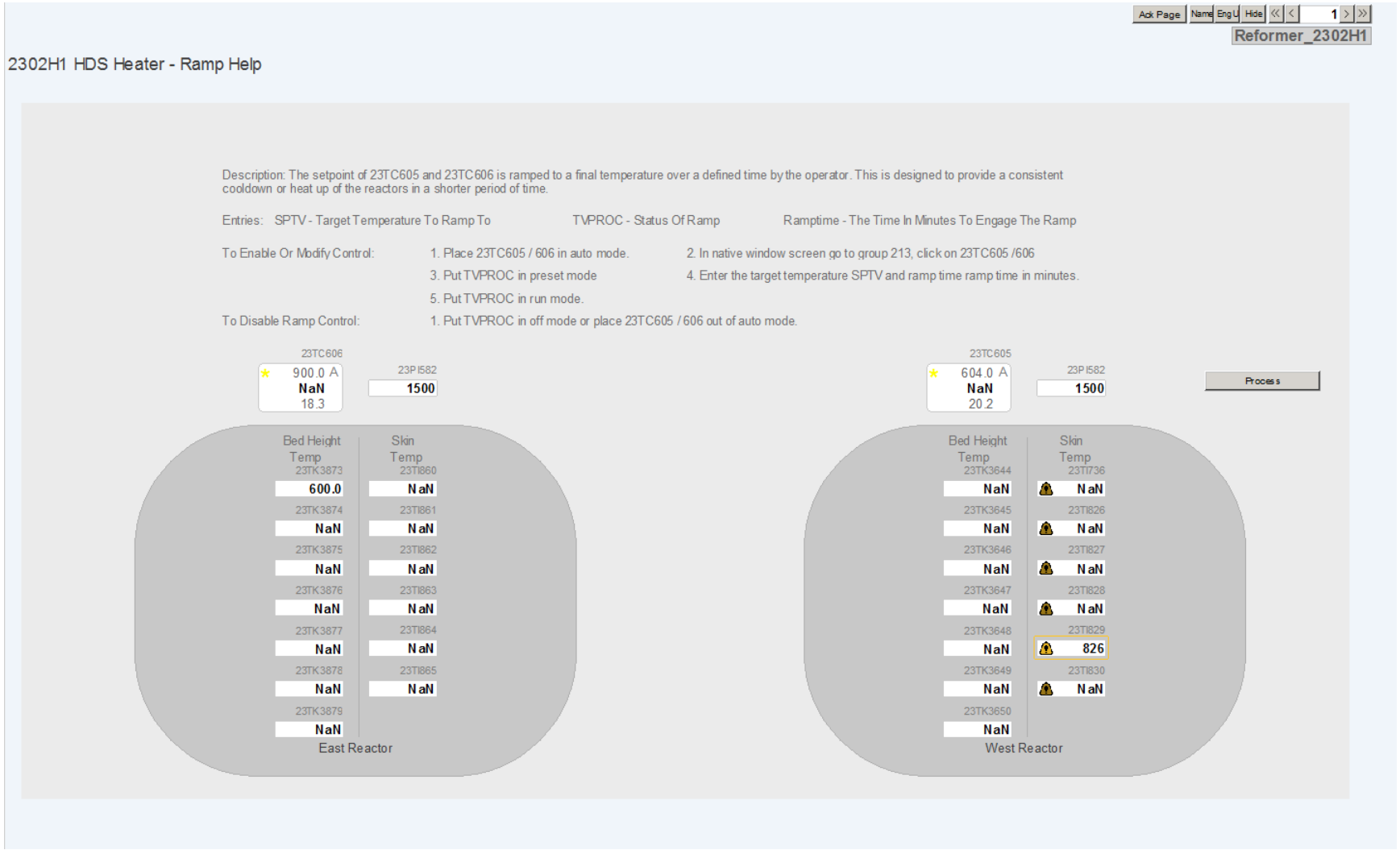
Station View



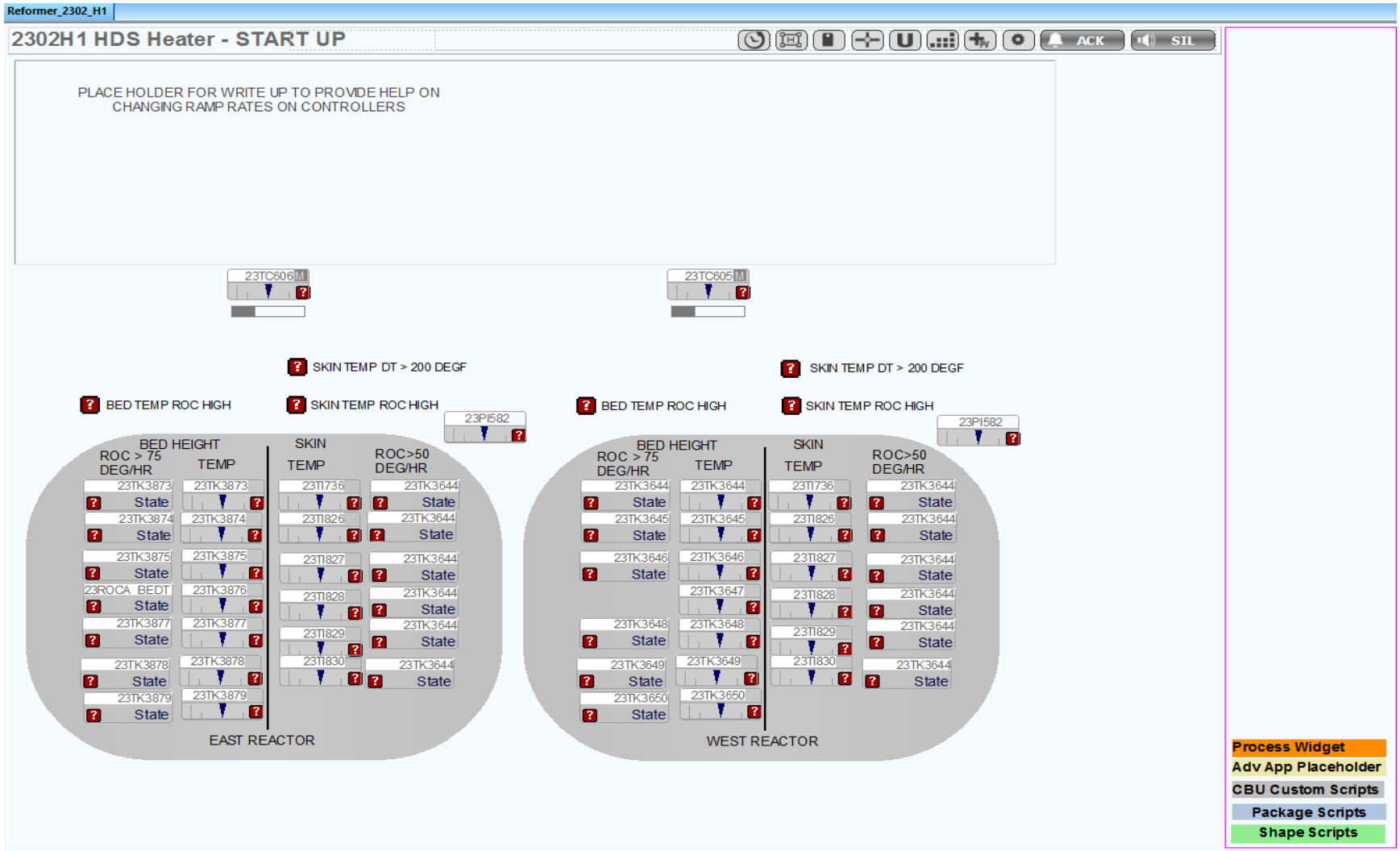
5.119 2302H1 HDS HEATER - RAMP HELP (Reformer_2302H1.htm)



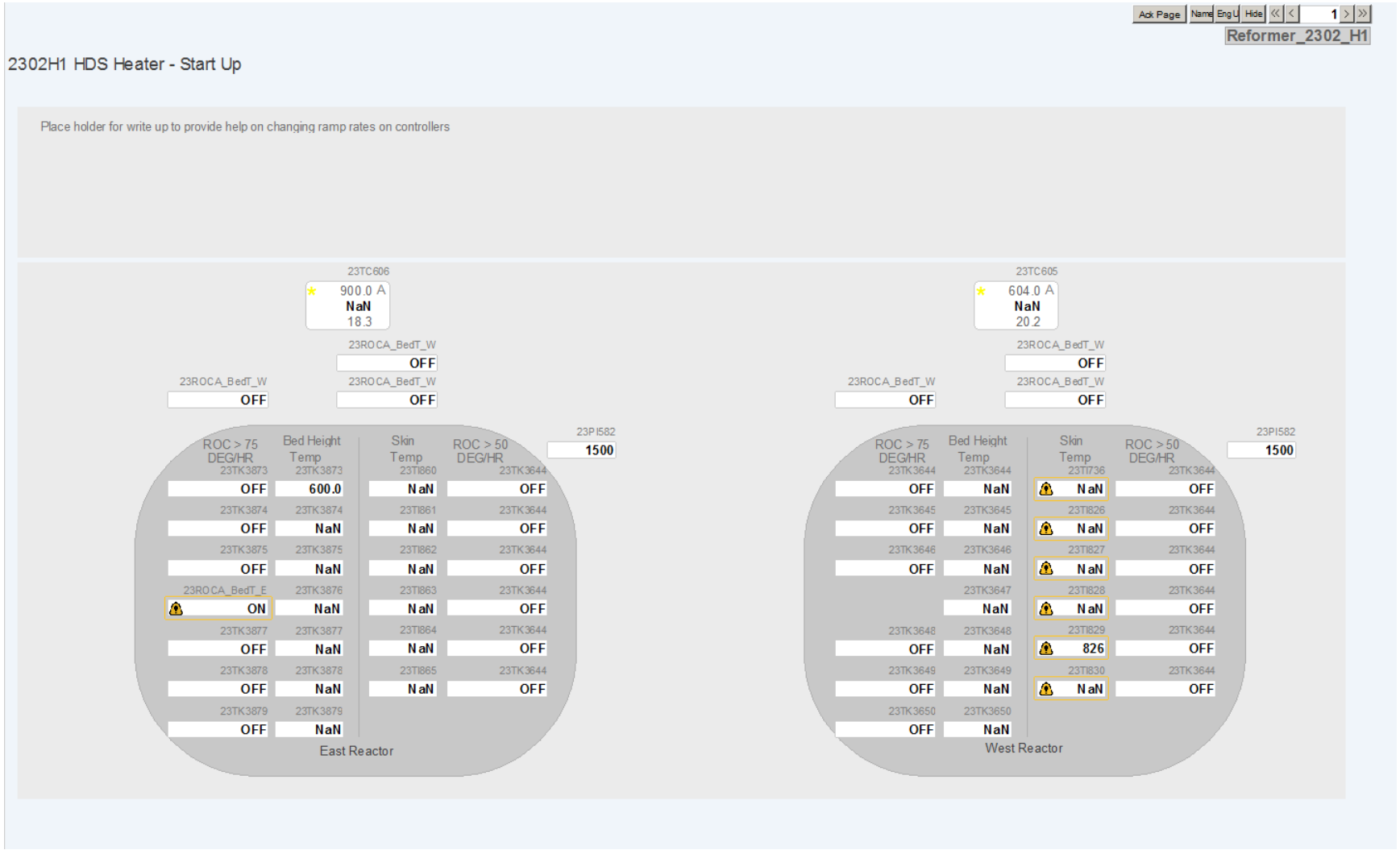
Station View



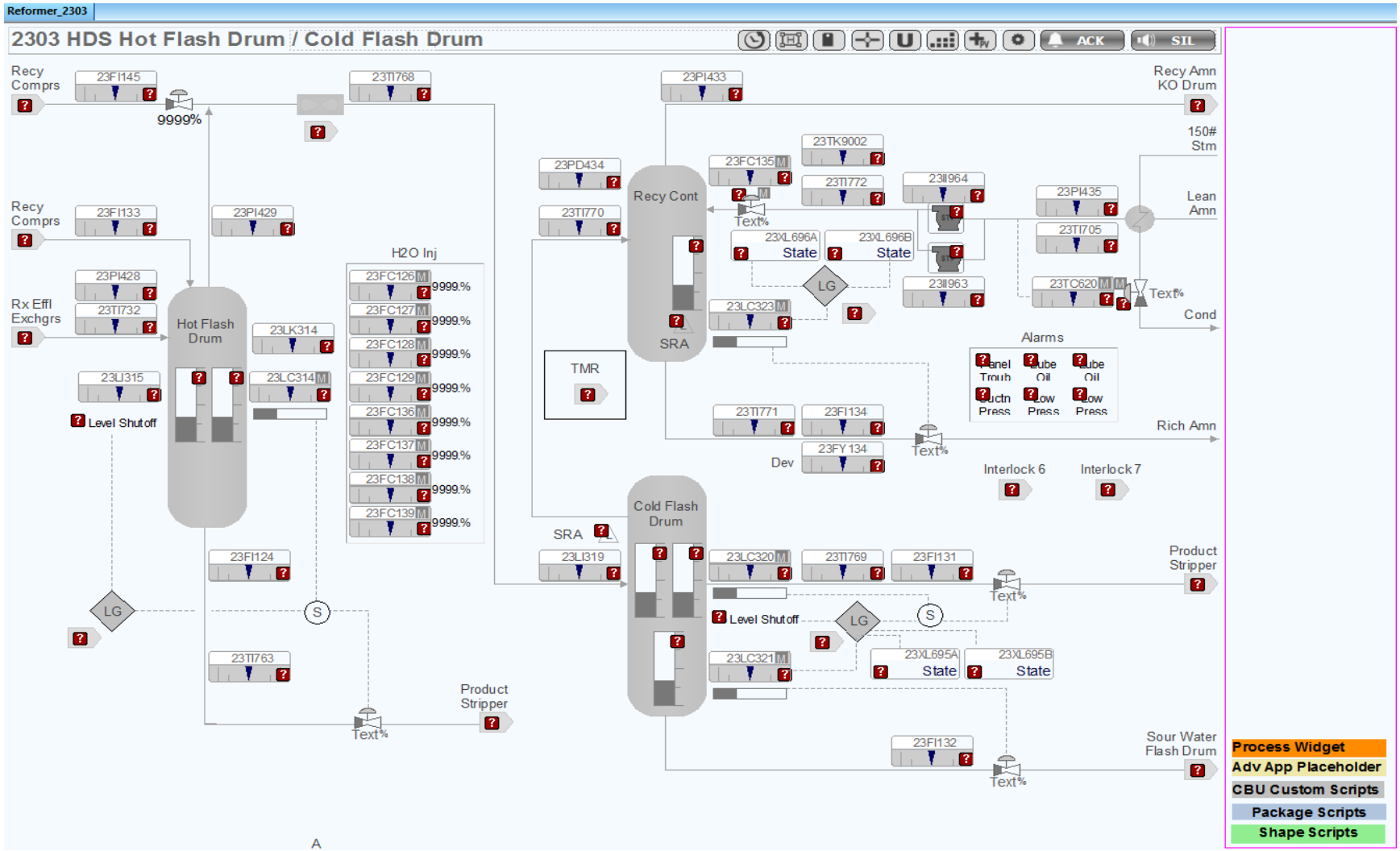
5.120 2302H1 HDS HEATER - START UP (Reformer_2302_H1.htm)



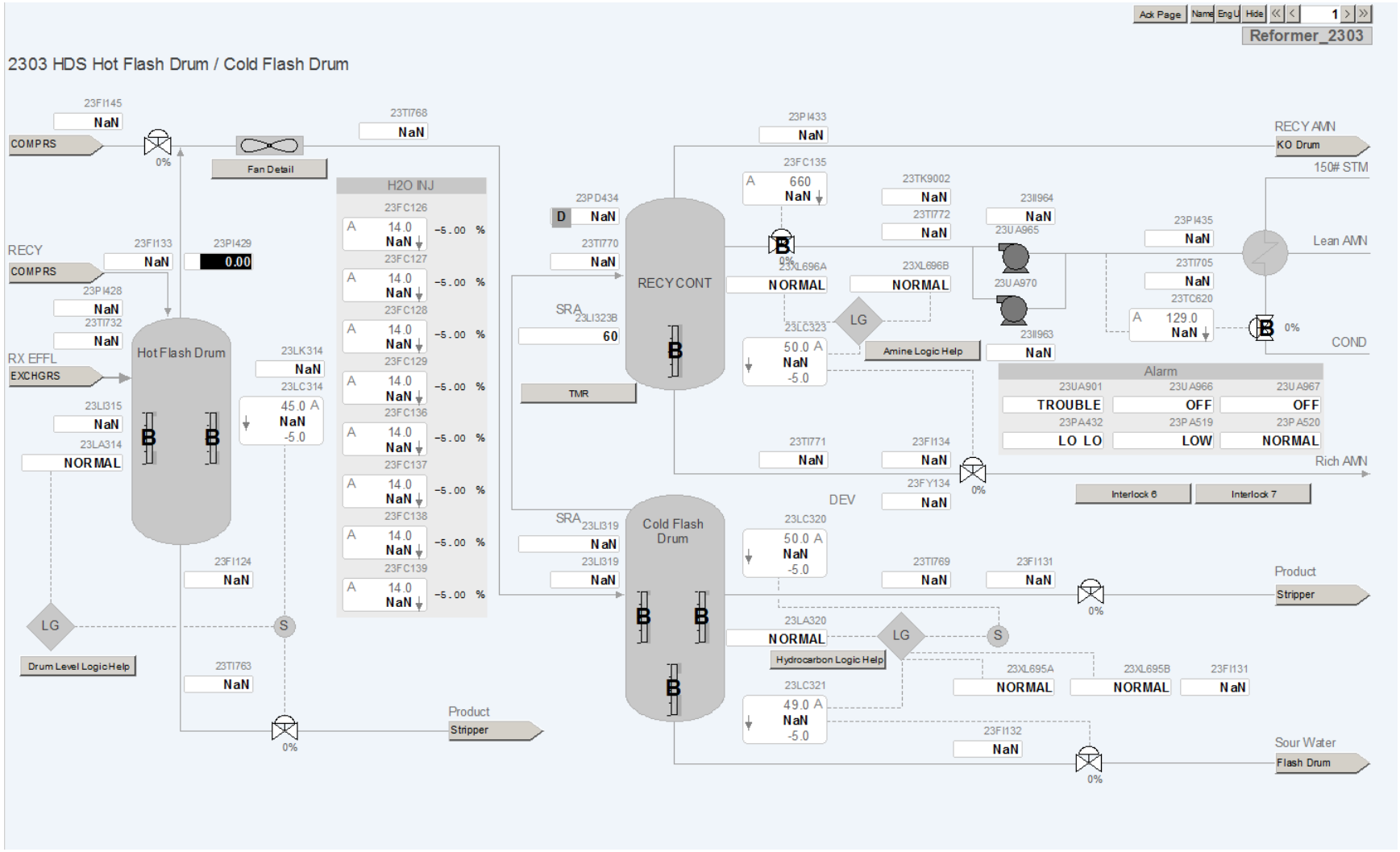
Station View



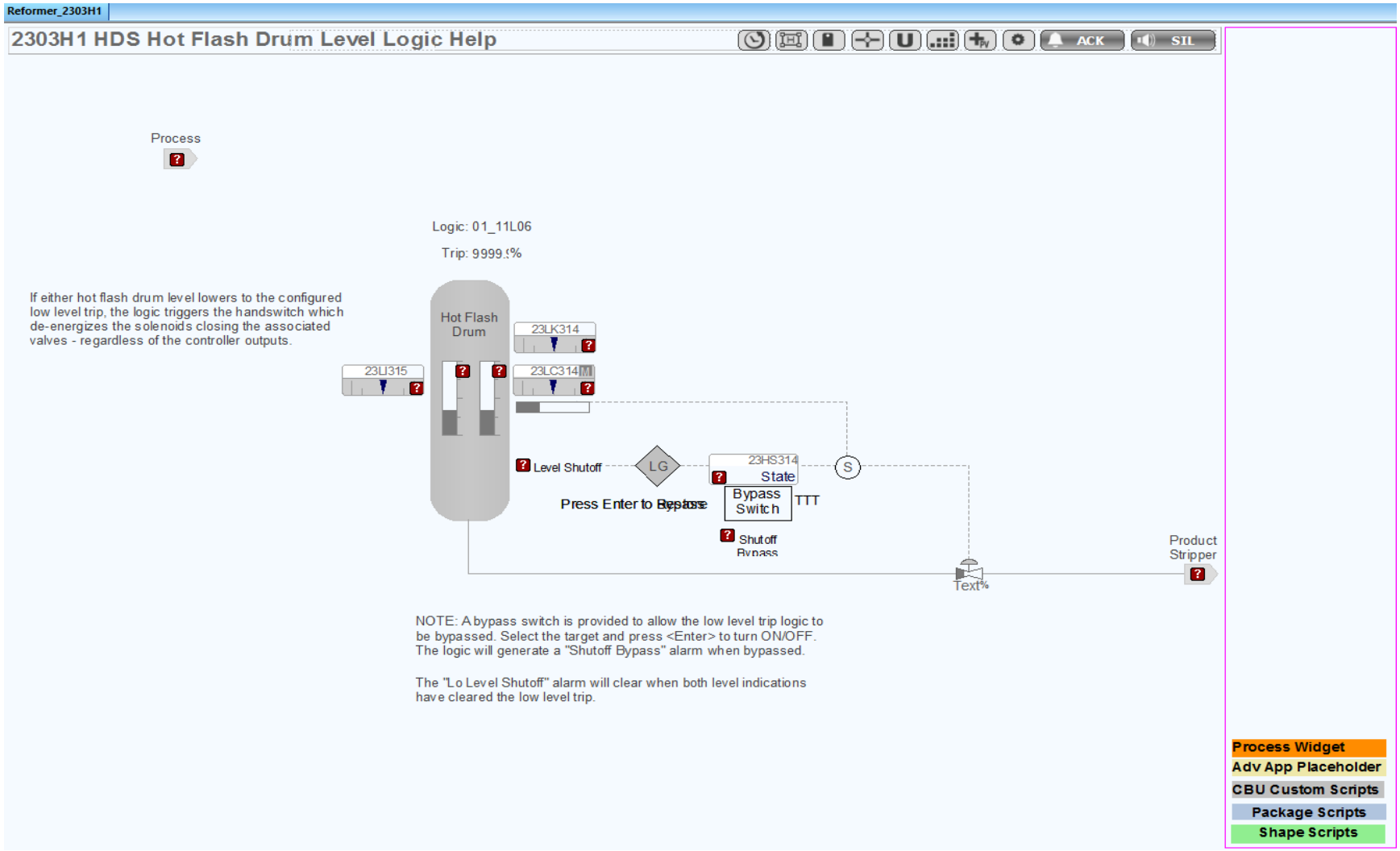
5.121 2303 HDS HOT FLASH DRUM / COLD FLASH DRUM (Reformer_2303.htm)



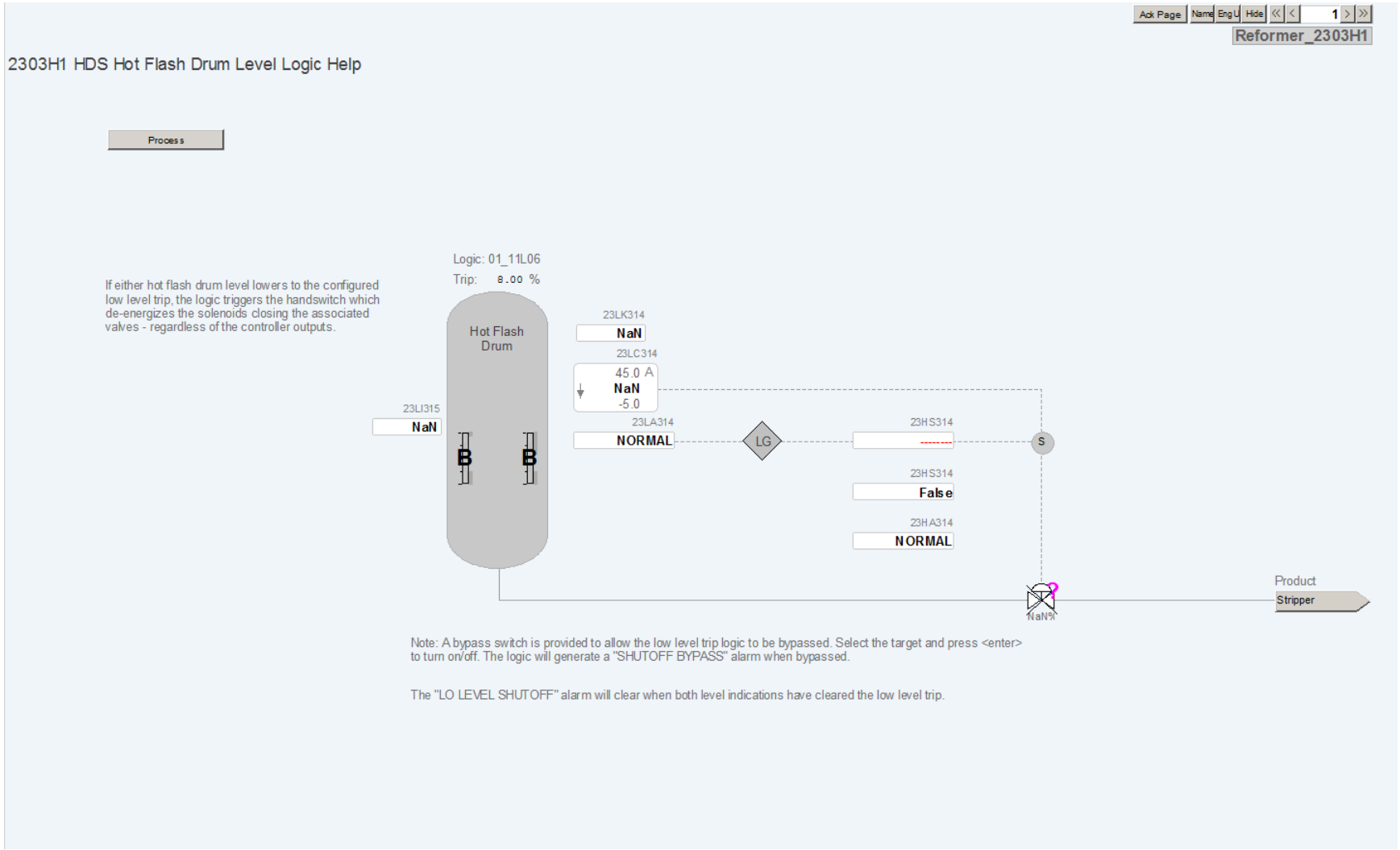
Station View



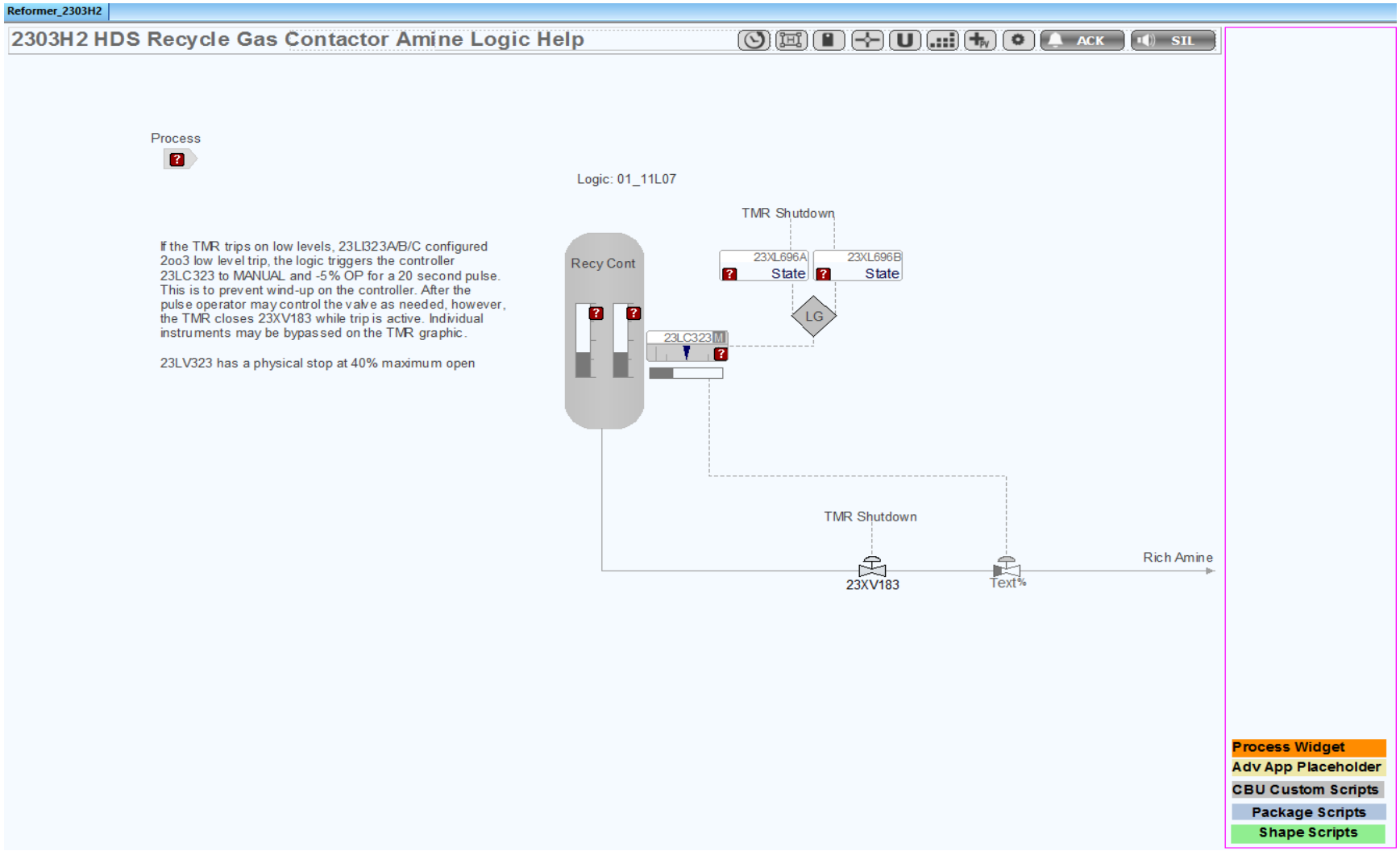
5.122 2303H1 HDS HOT FLASH DRUM LEVEL LOGIC HELP (Reformer_2303H1.htm)



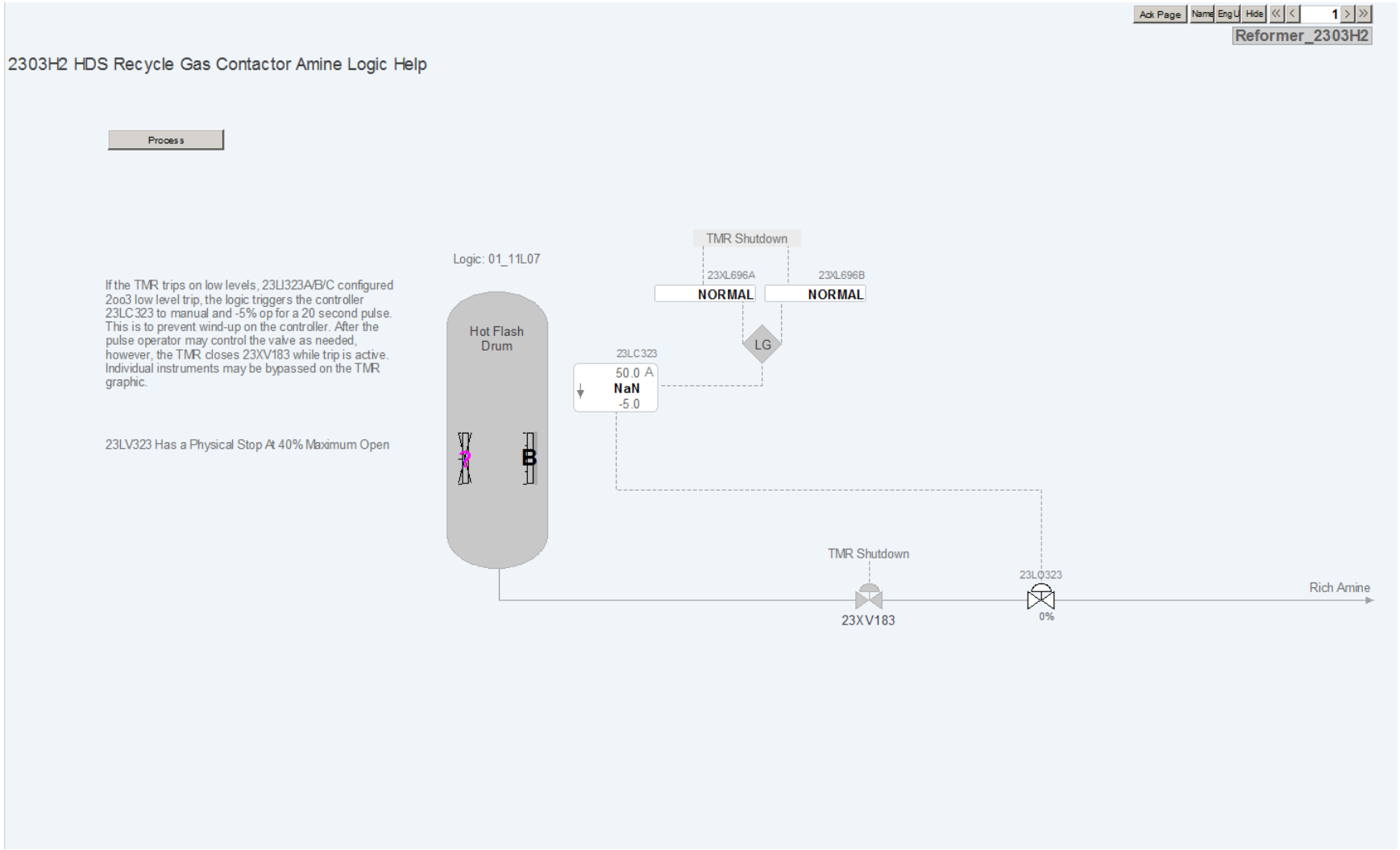
Station View



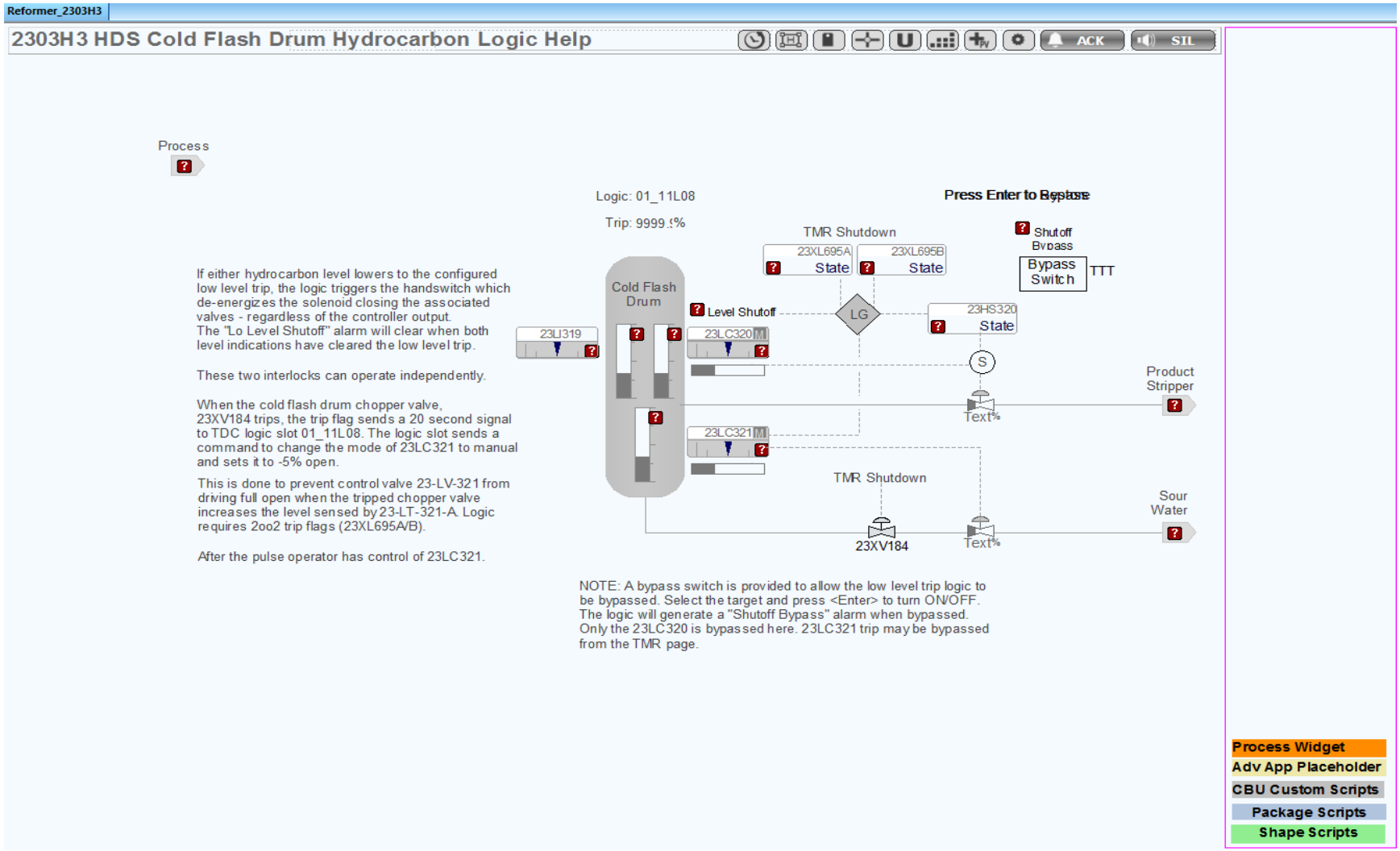
5.123 2303H2 HDS RECYCLE GAS CONTACTOR AMINE LOGIC HELP (Reformer_2303H2.htm)



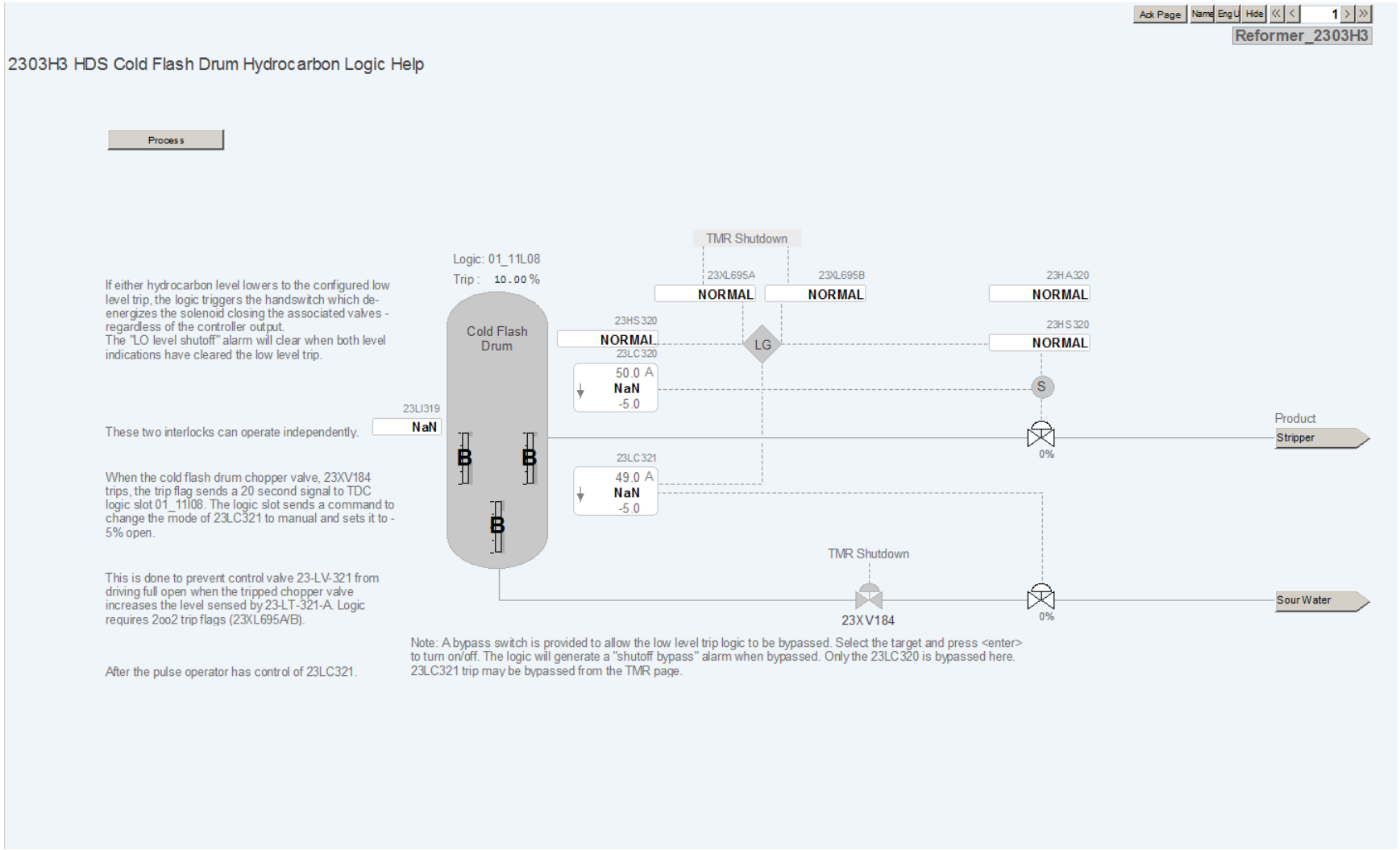
Station View



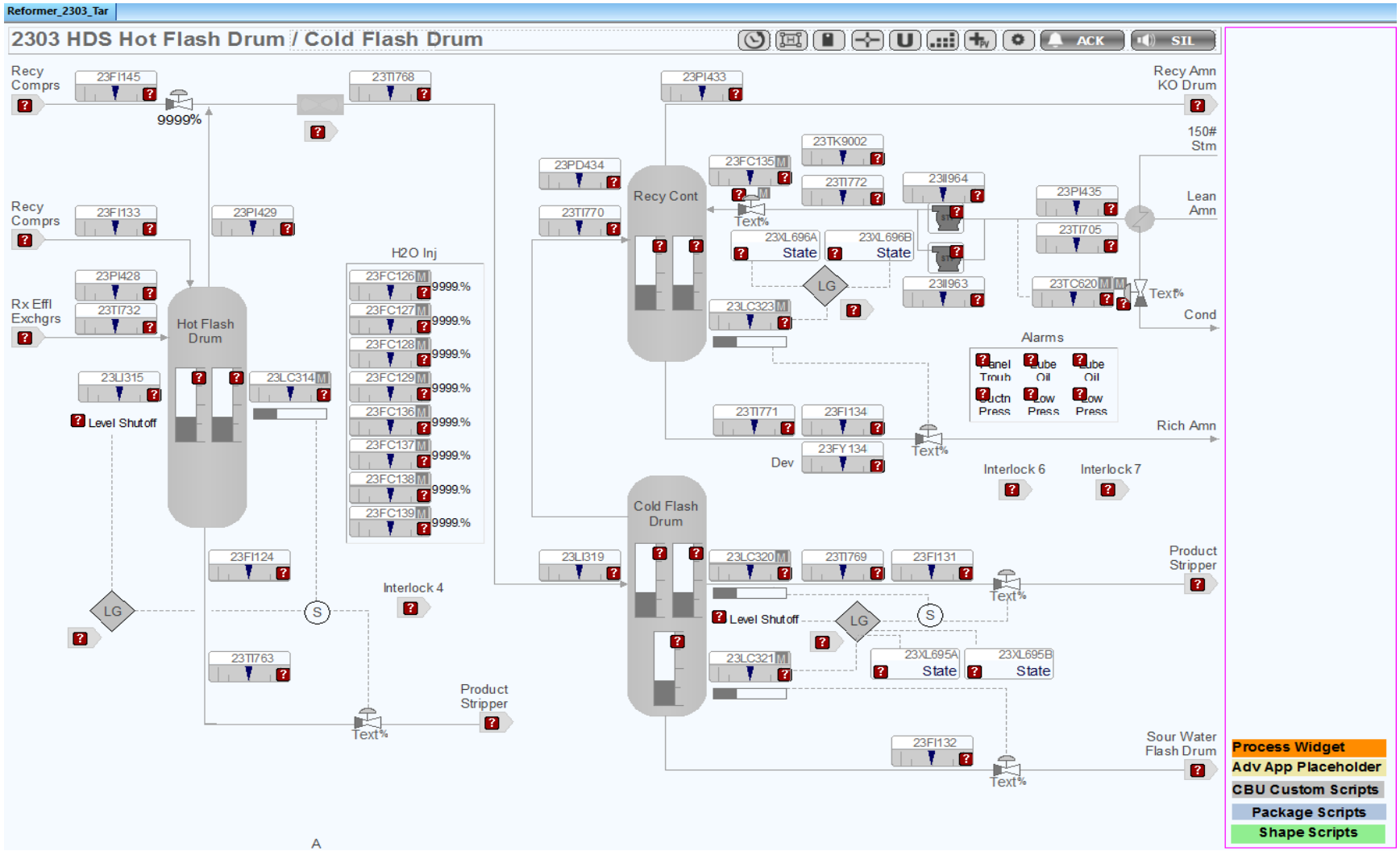
5.124 2303H3 HDS COLD FLASH DRUM HYDROCARBON LOGIC HELP (Reformer_2303H3.htm)



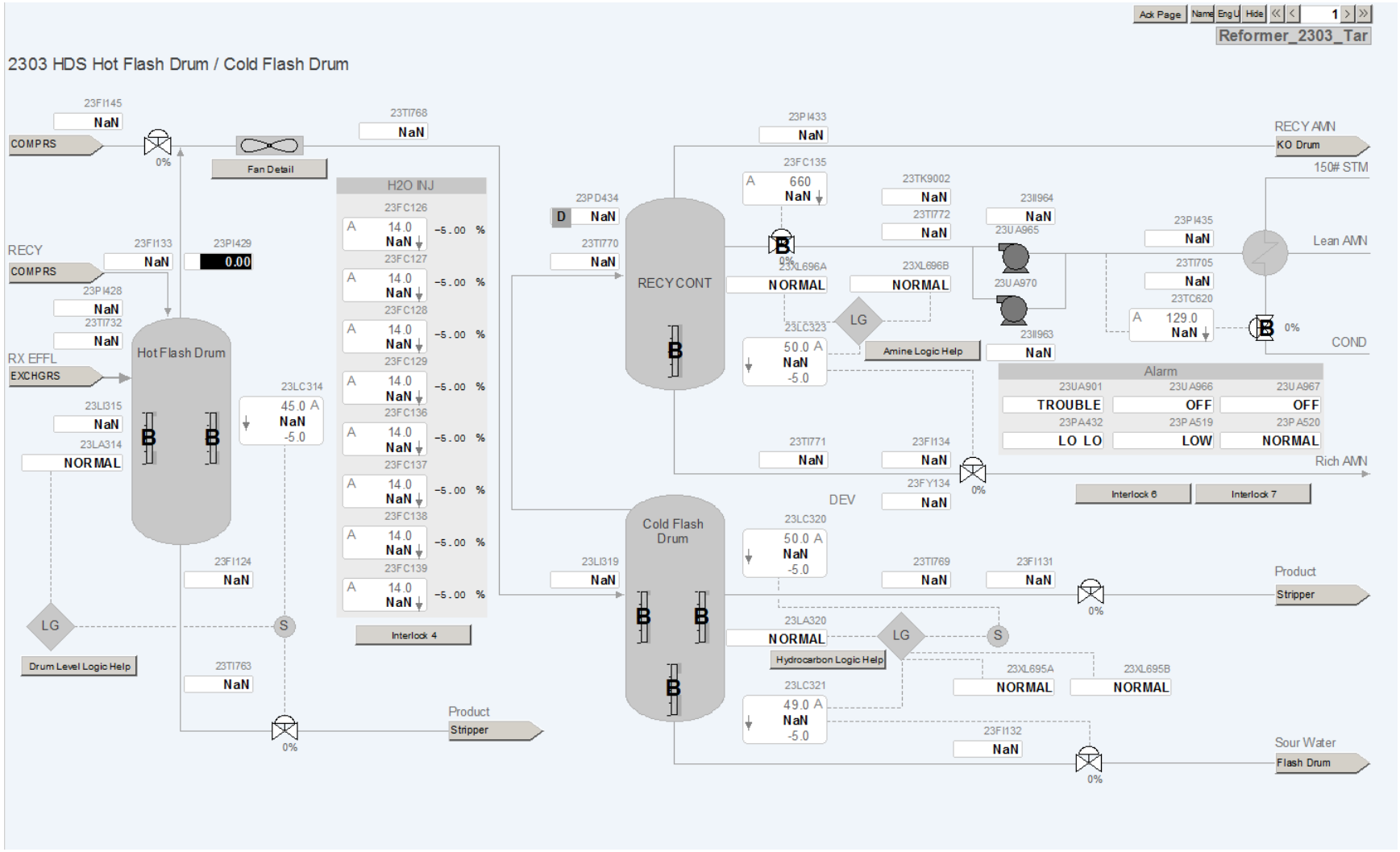
Station View



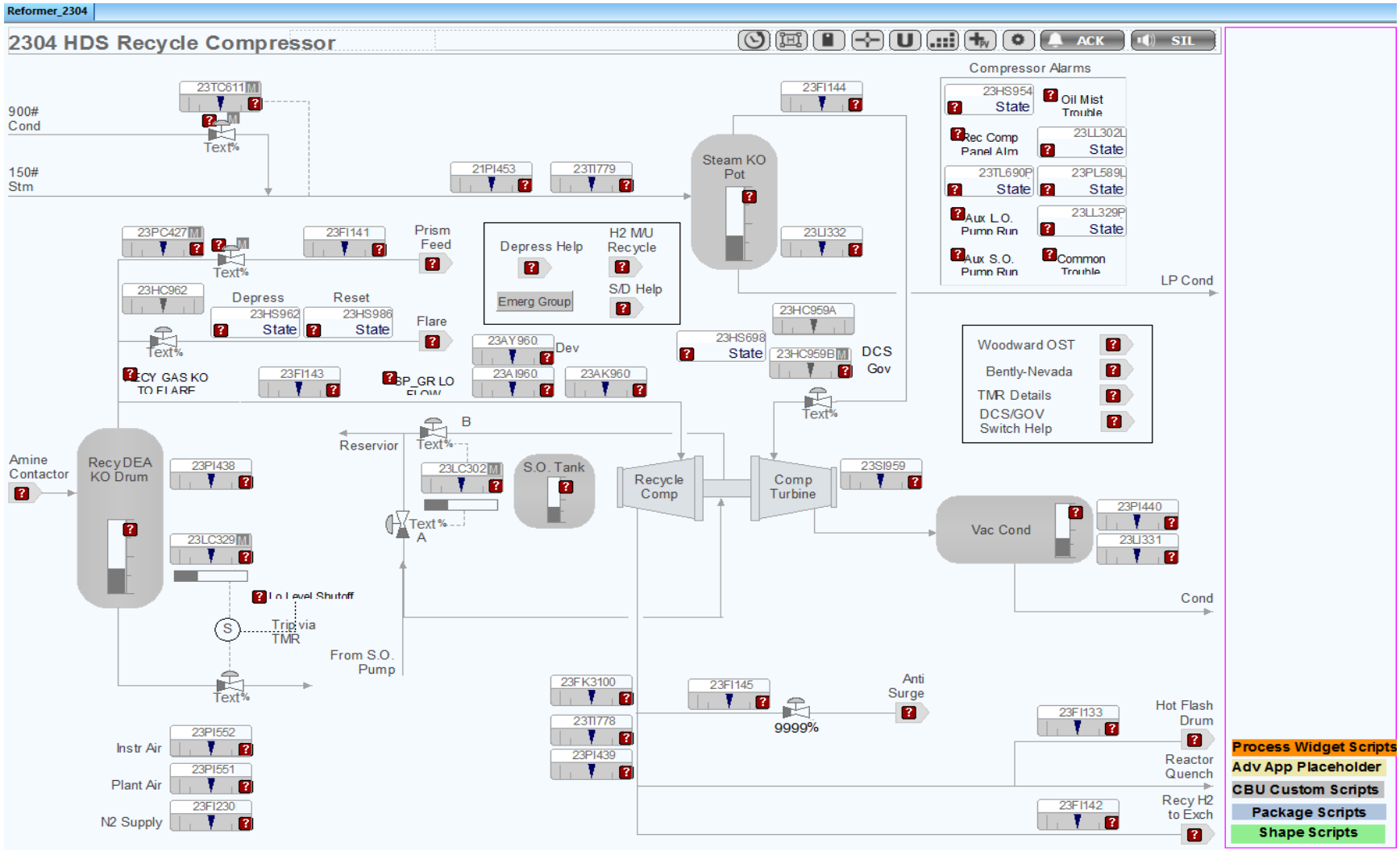
5.125 2303 HDS HOT FLASH DRUM / COLD FLASH DRUM (Reformer_2303_Tar.htm)



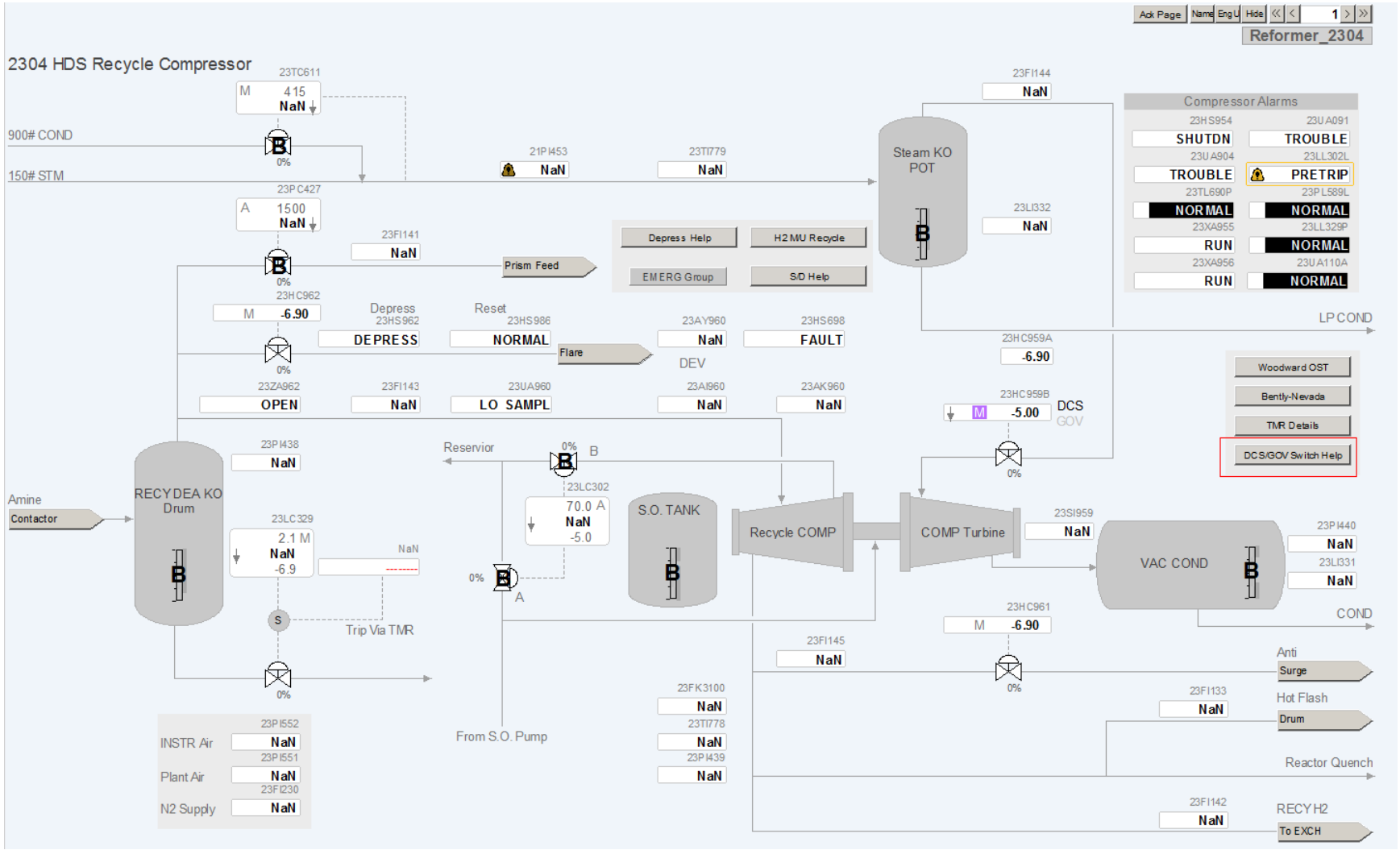
Station View



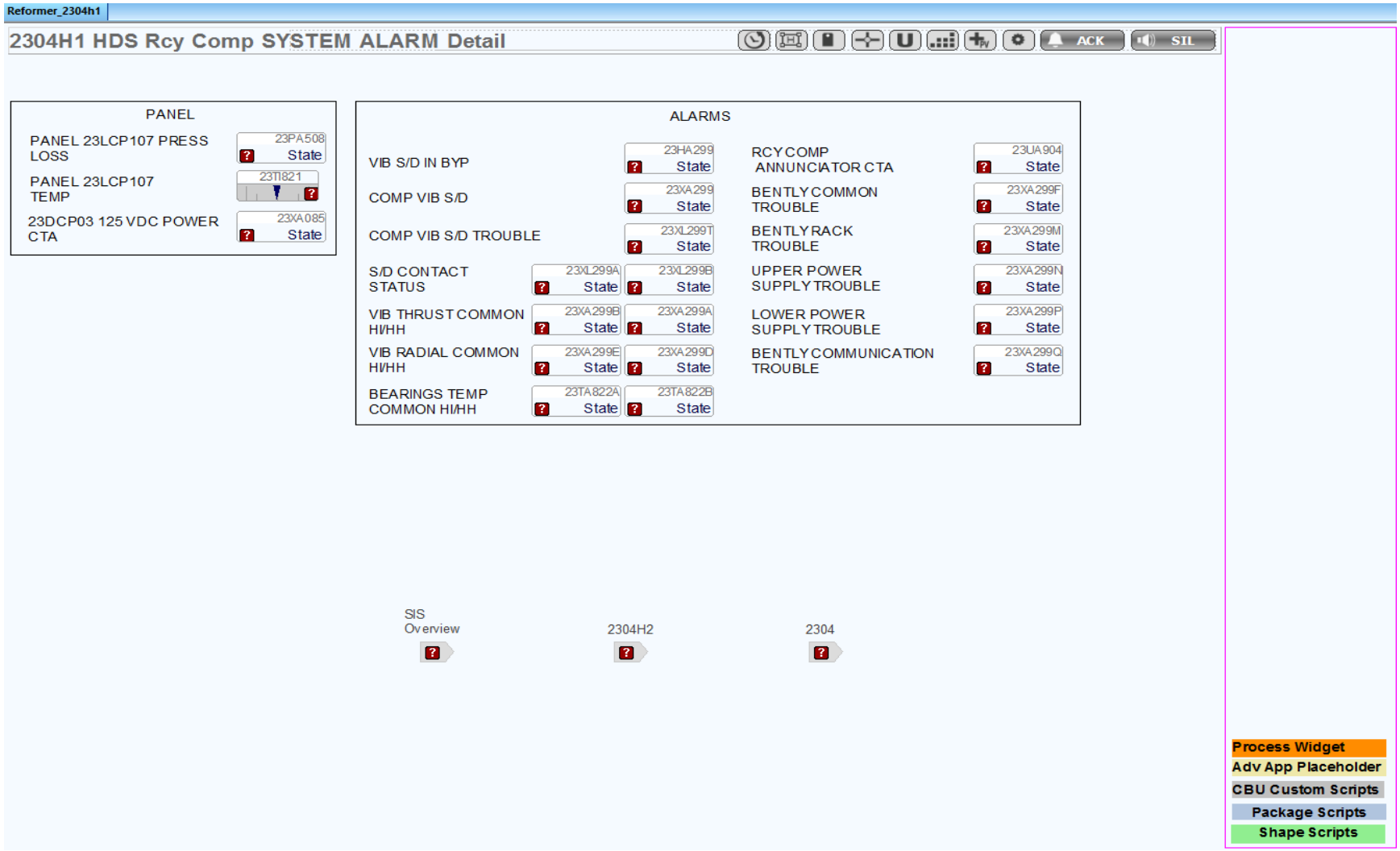
5.126 2304 HDS RECYCLE COMPRESSOR (Reformer_2304.htm)



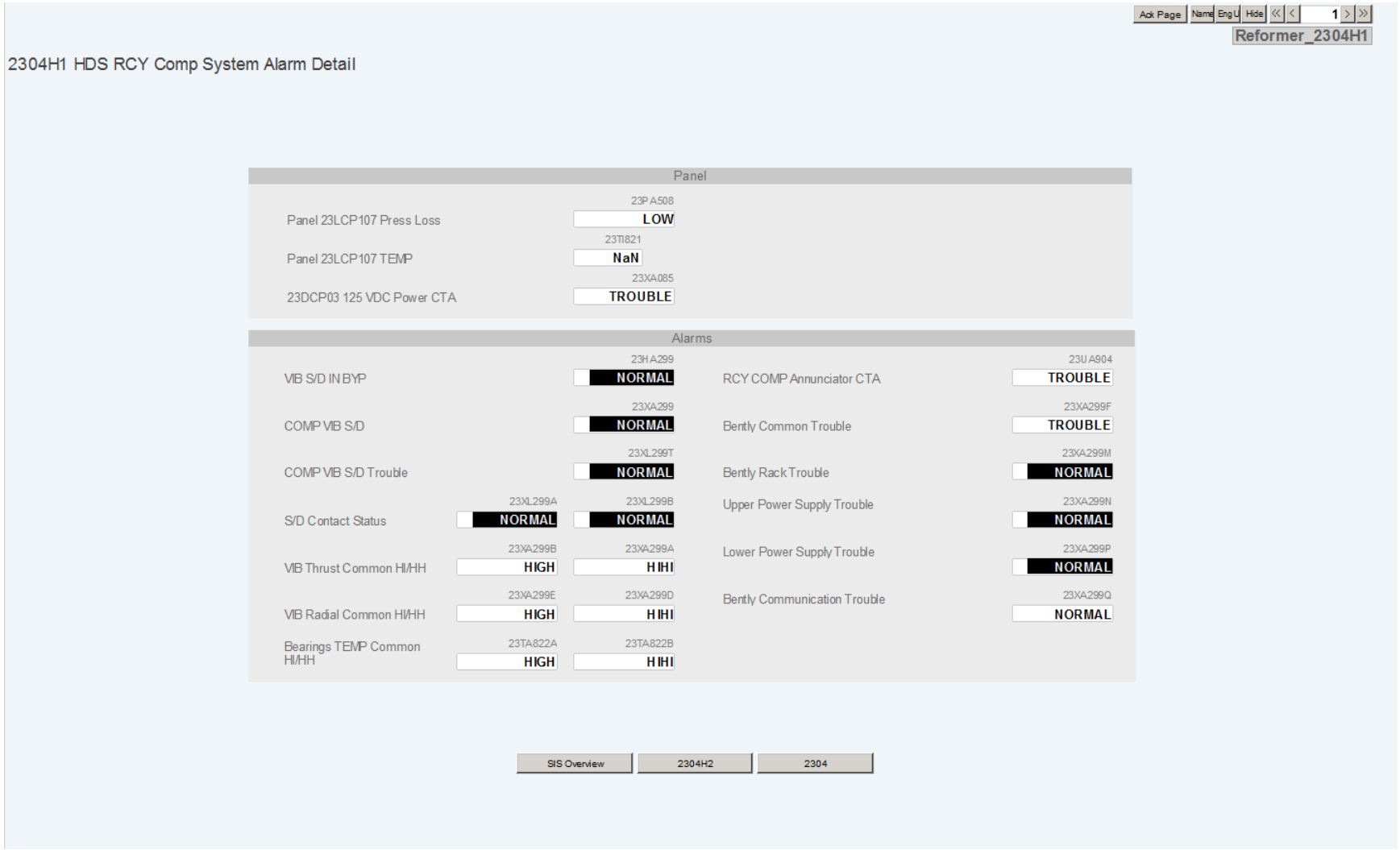
Station View



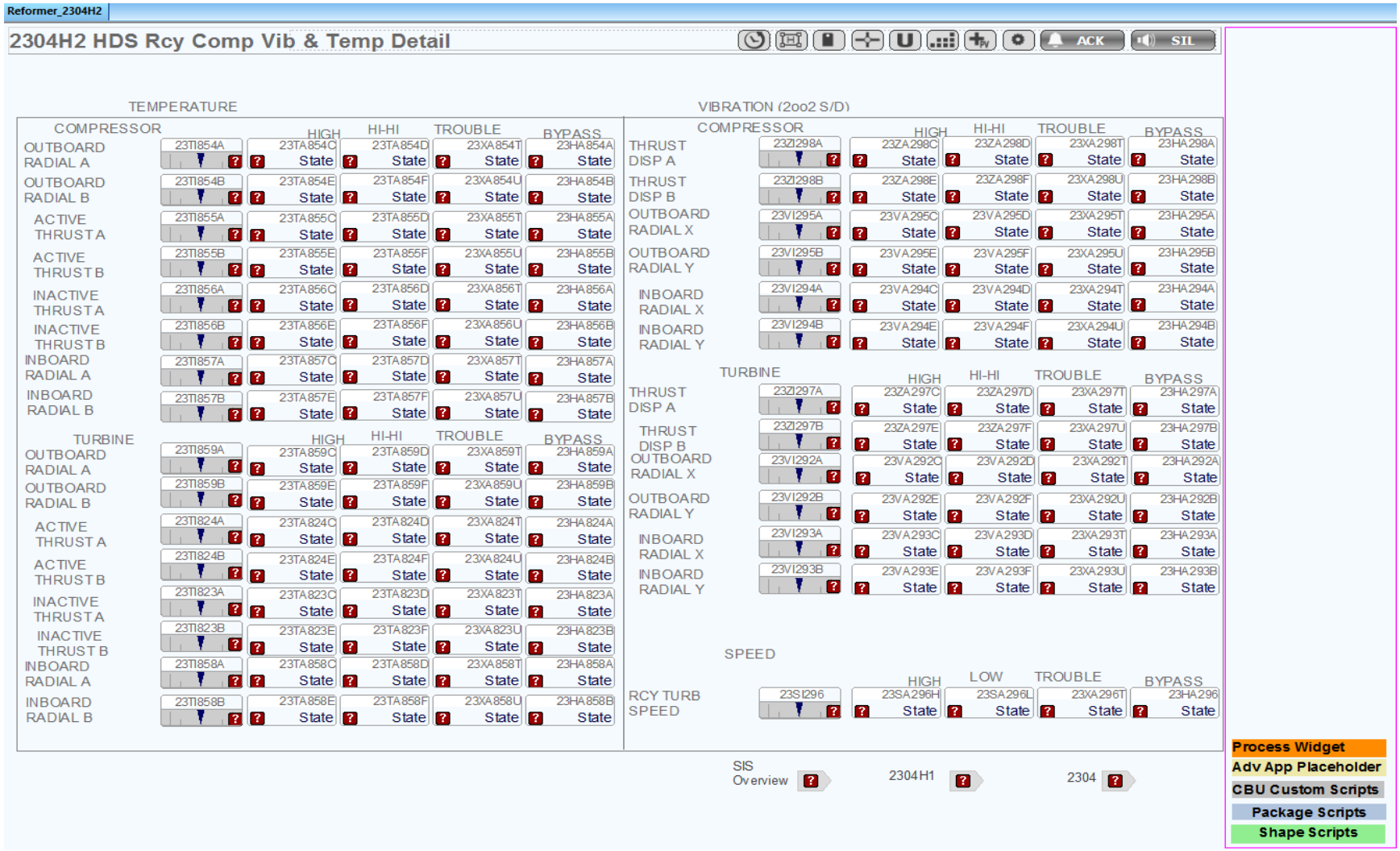
5.127 2304H1 HDS RCY COMP SYSTEM ALARM DETAIL (Reformer_2304H1.htm)



Station View

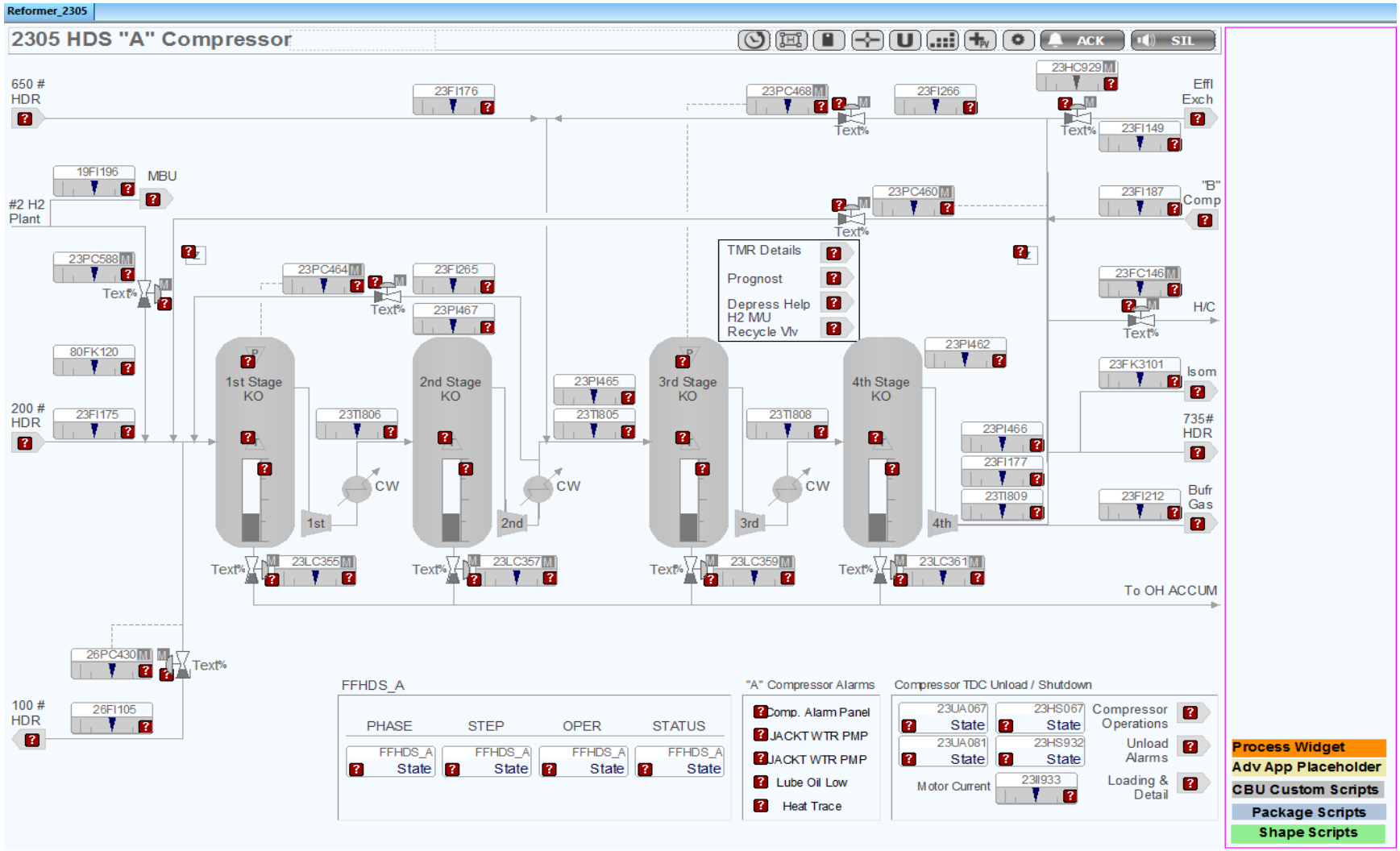


5.128 2304H2 HDS RCY COMP VIB & TEMP DETAIL (Reformer_2304H2.htm)

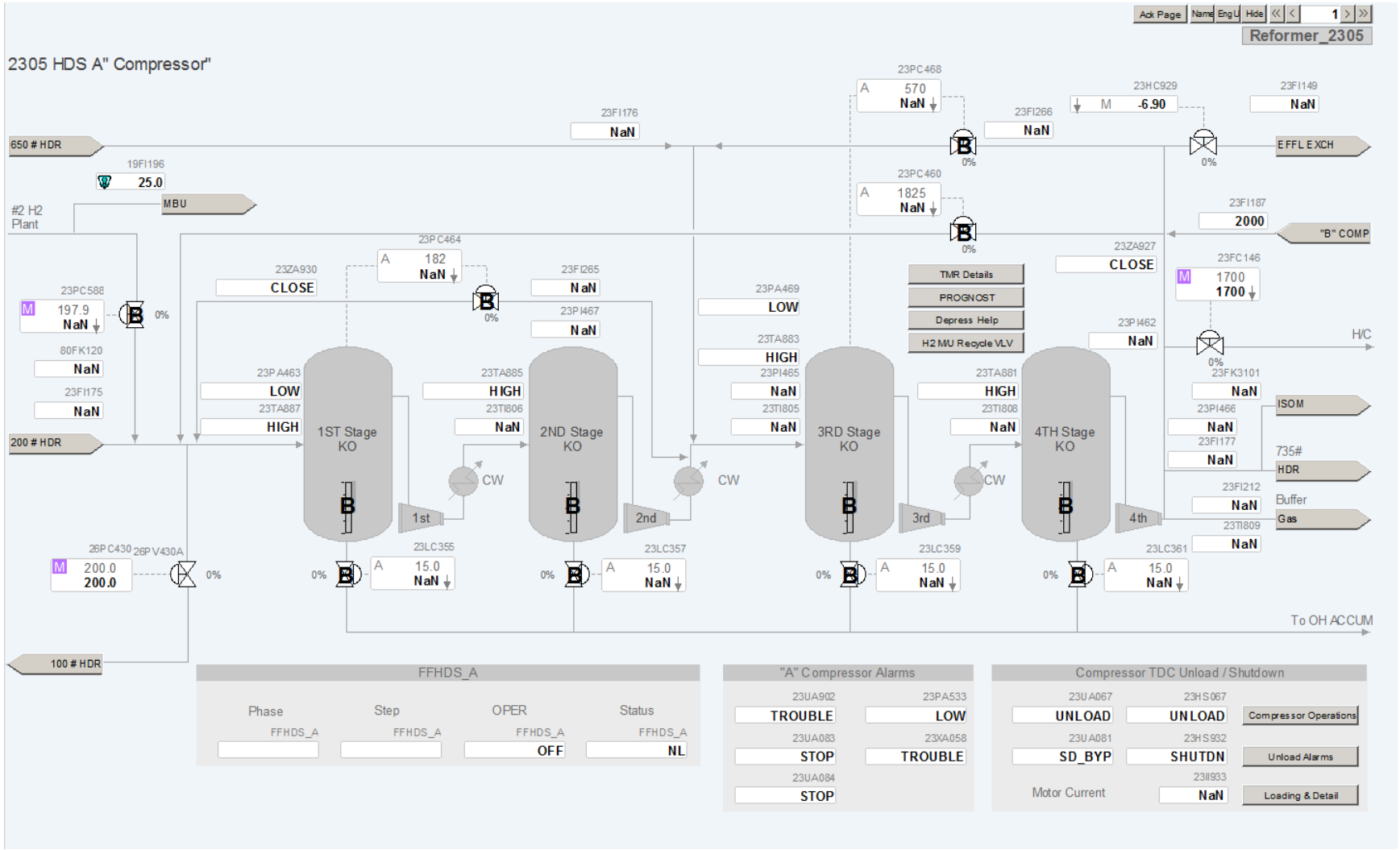


Station View

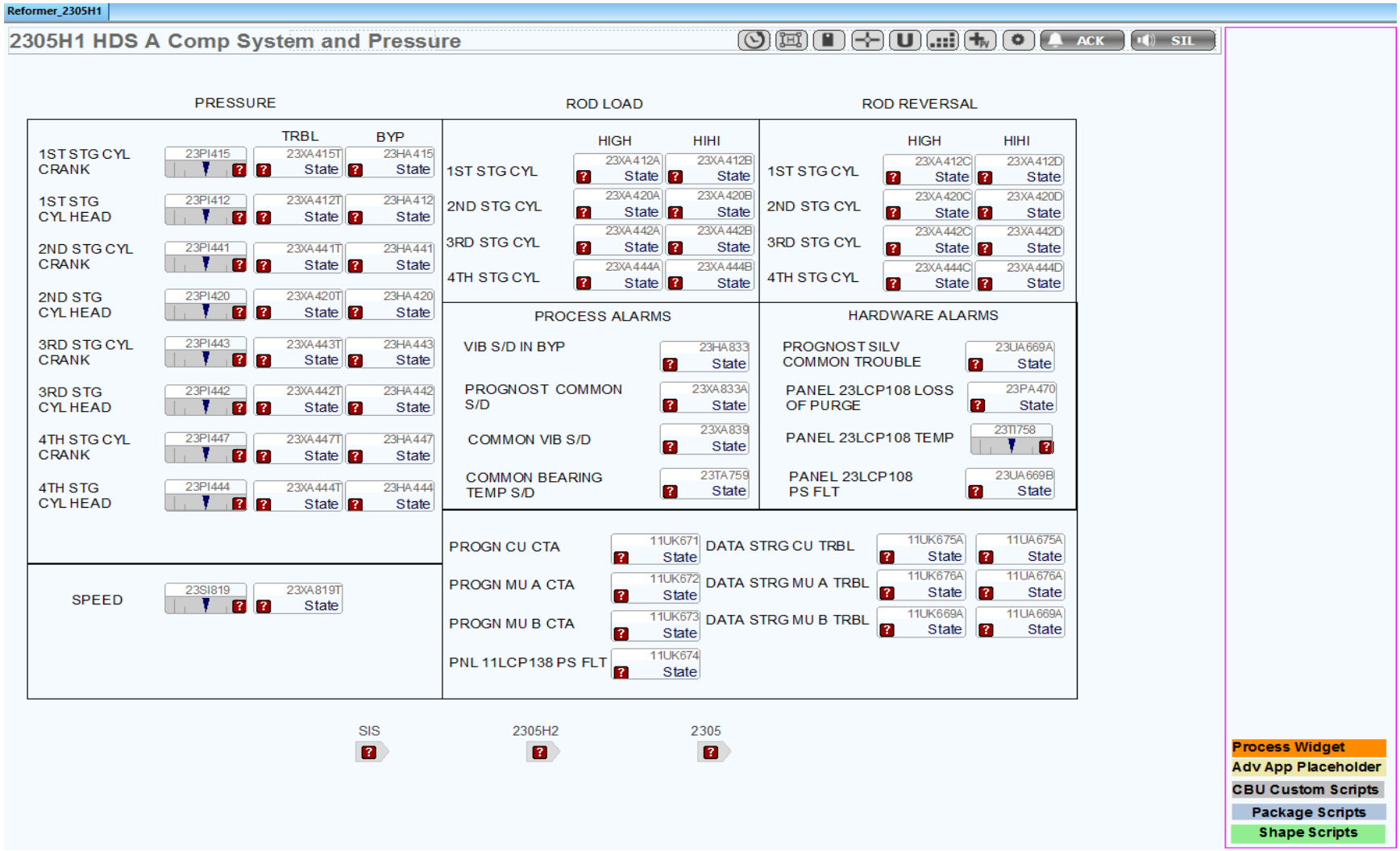
5.129 2305 HDS "A" COMPRESSOR (Reformer_2305.htm)



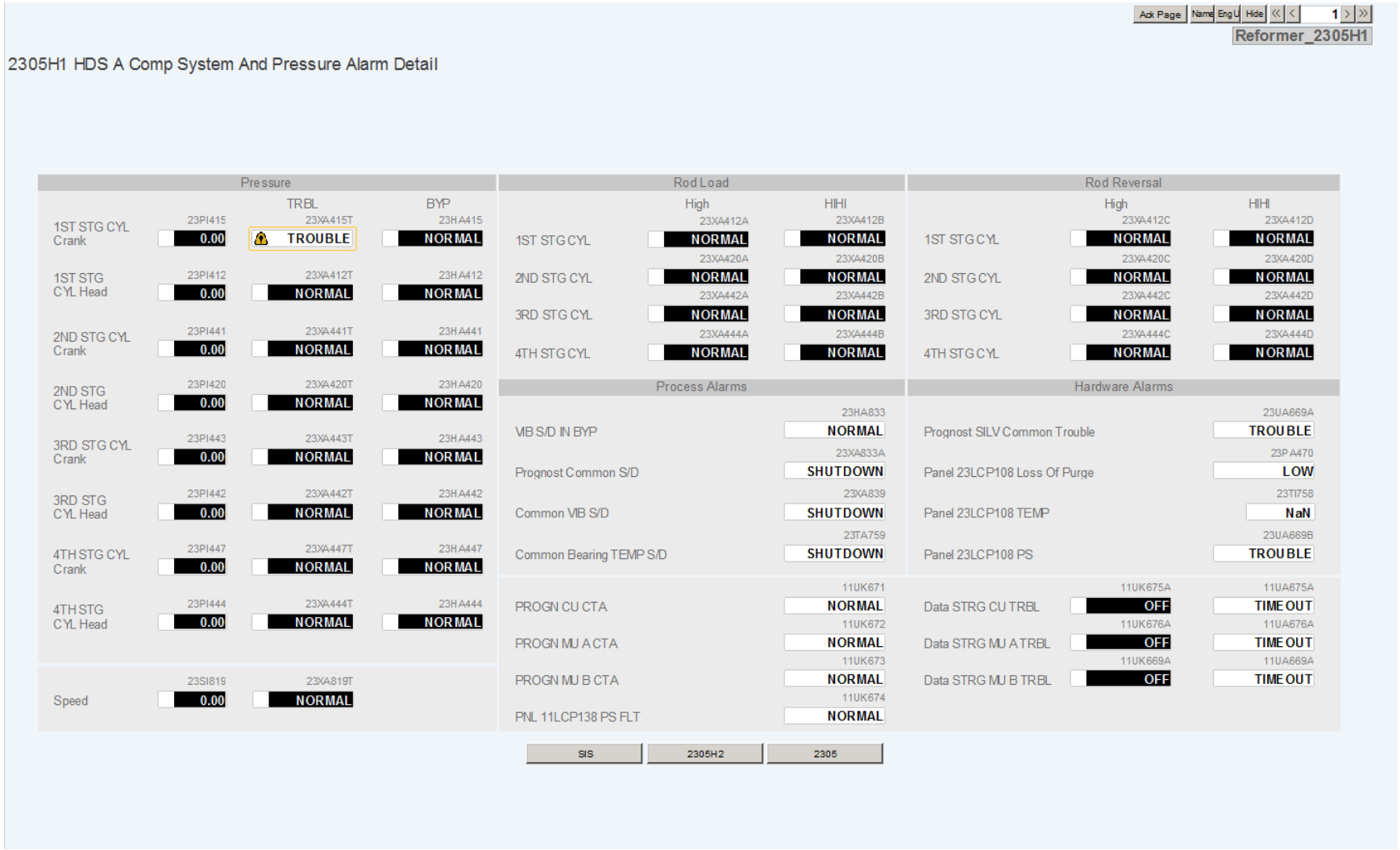
Station View



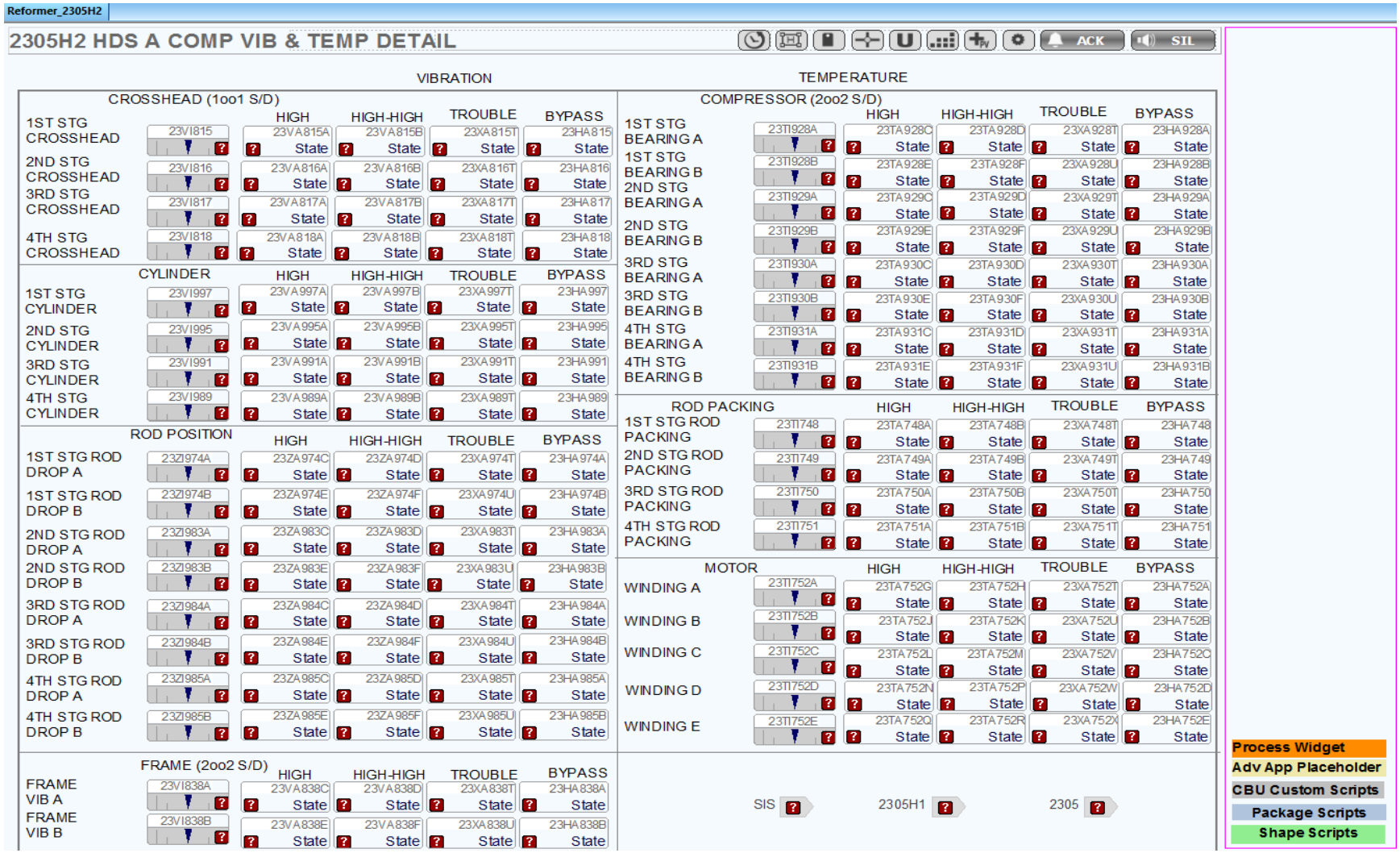
5.130 2305H1 HDS A COMP SYSTEM AND PRESSURE ALARM DETAIL (Reformer_2305H1.htm)



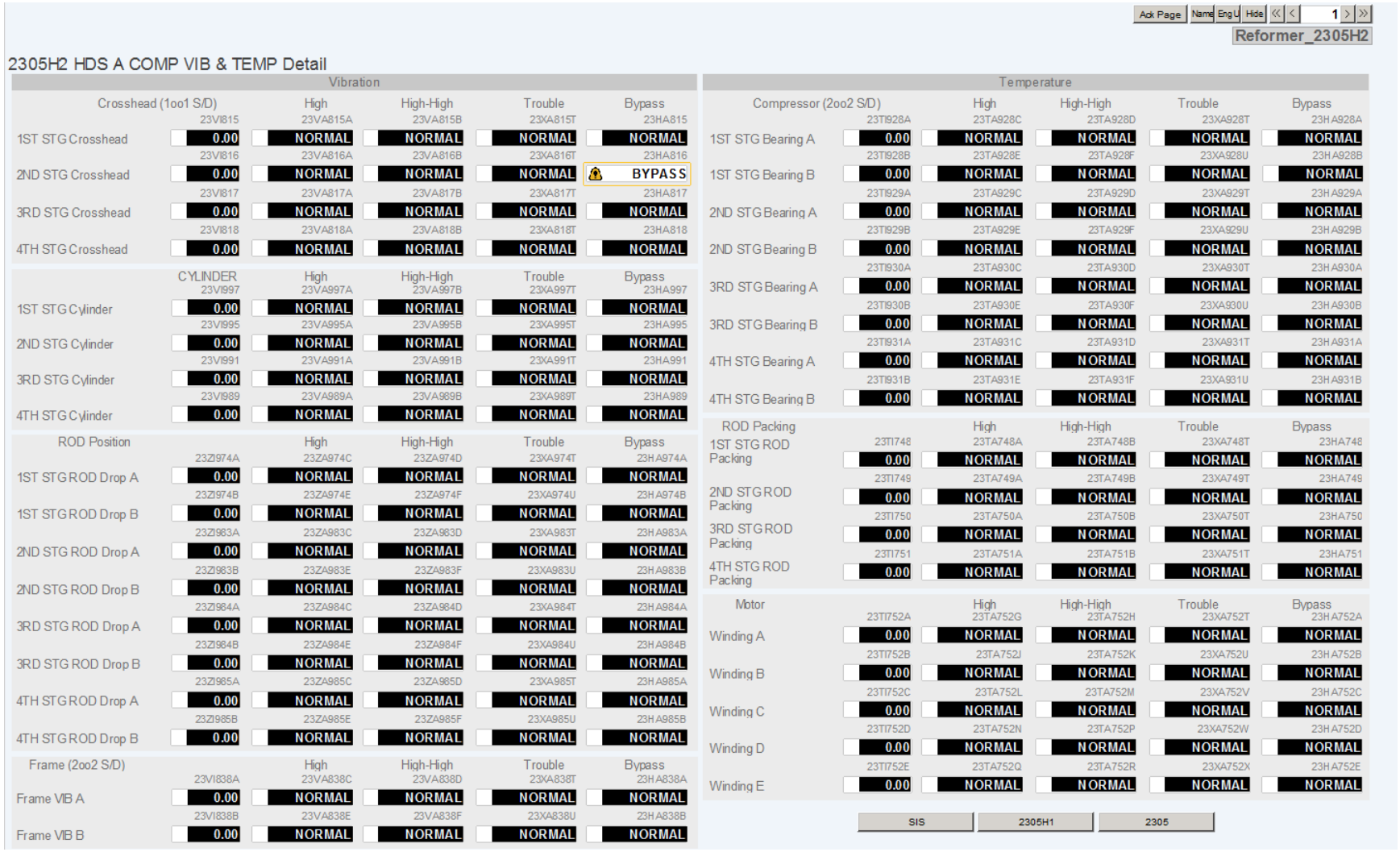
Station View



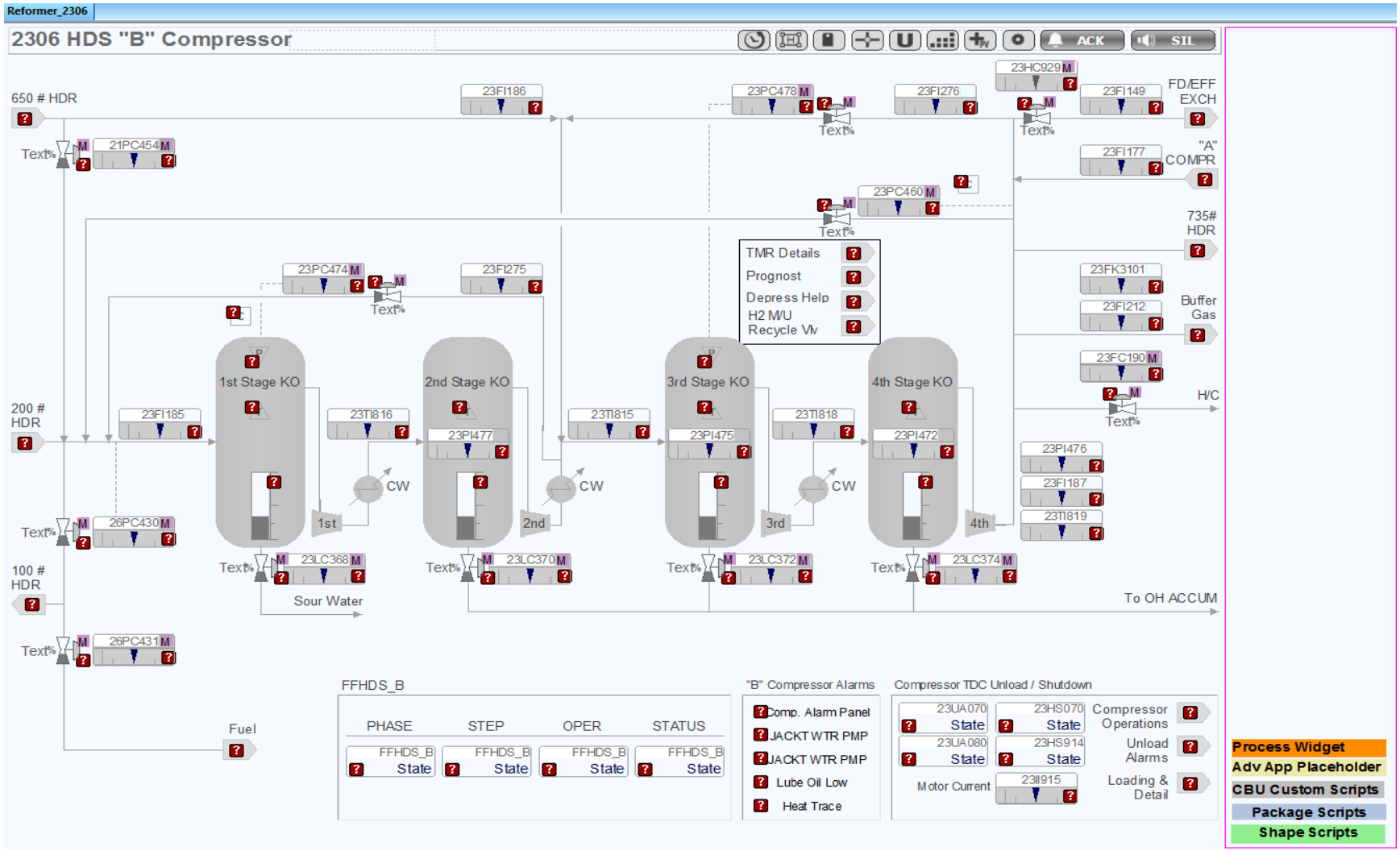
5.131 2305H2 HDS A COMP VIB & TEMP DETAIL (Reformer_2305H2.htm)



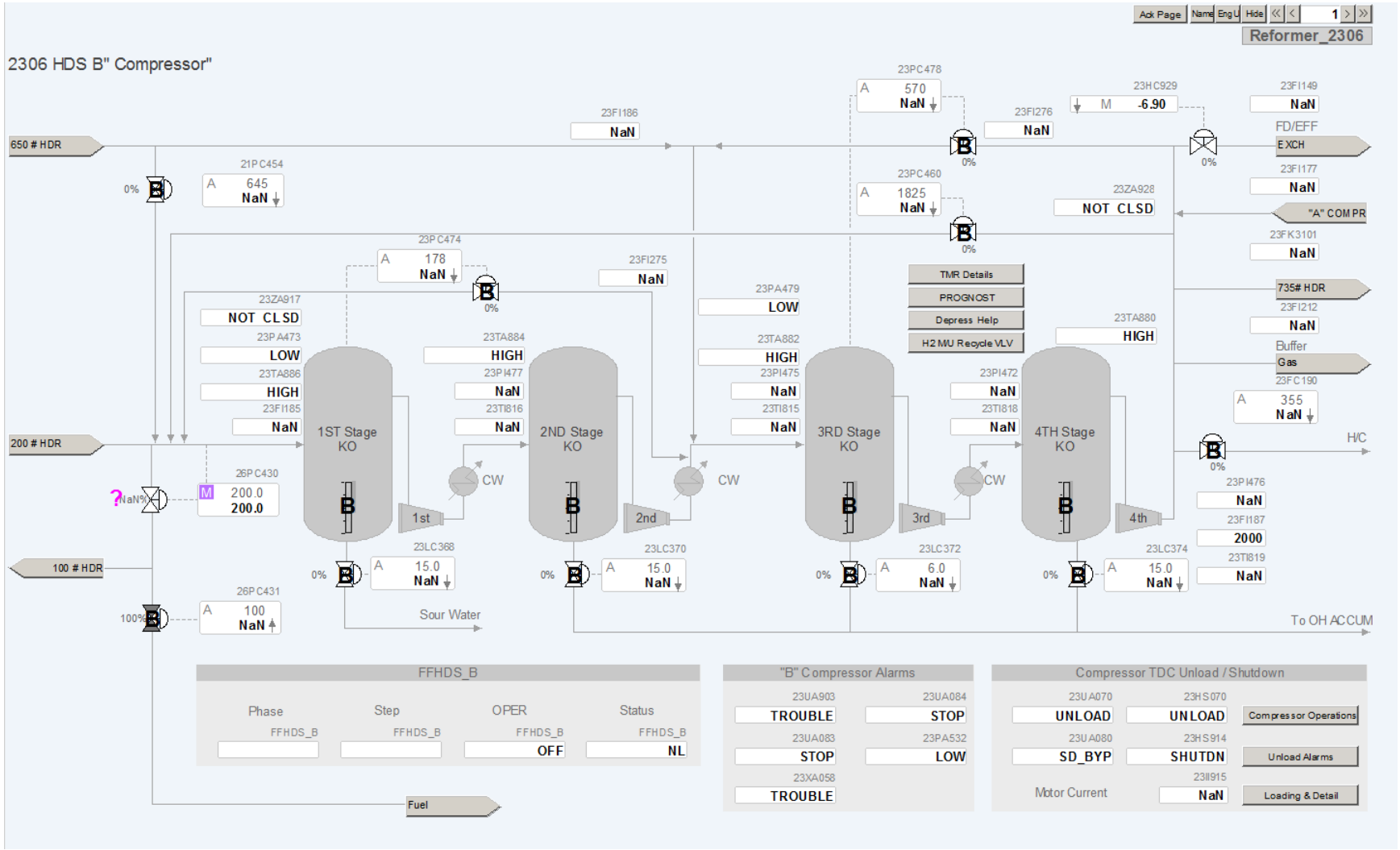
Station View



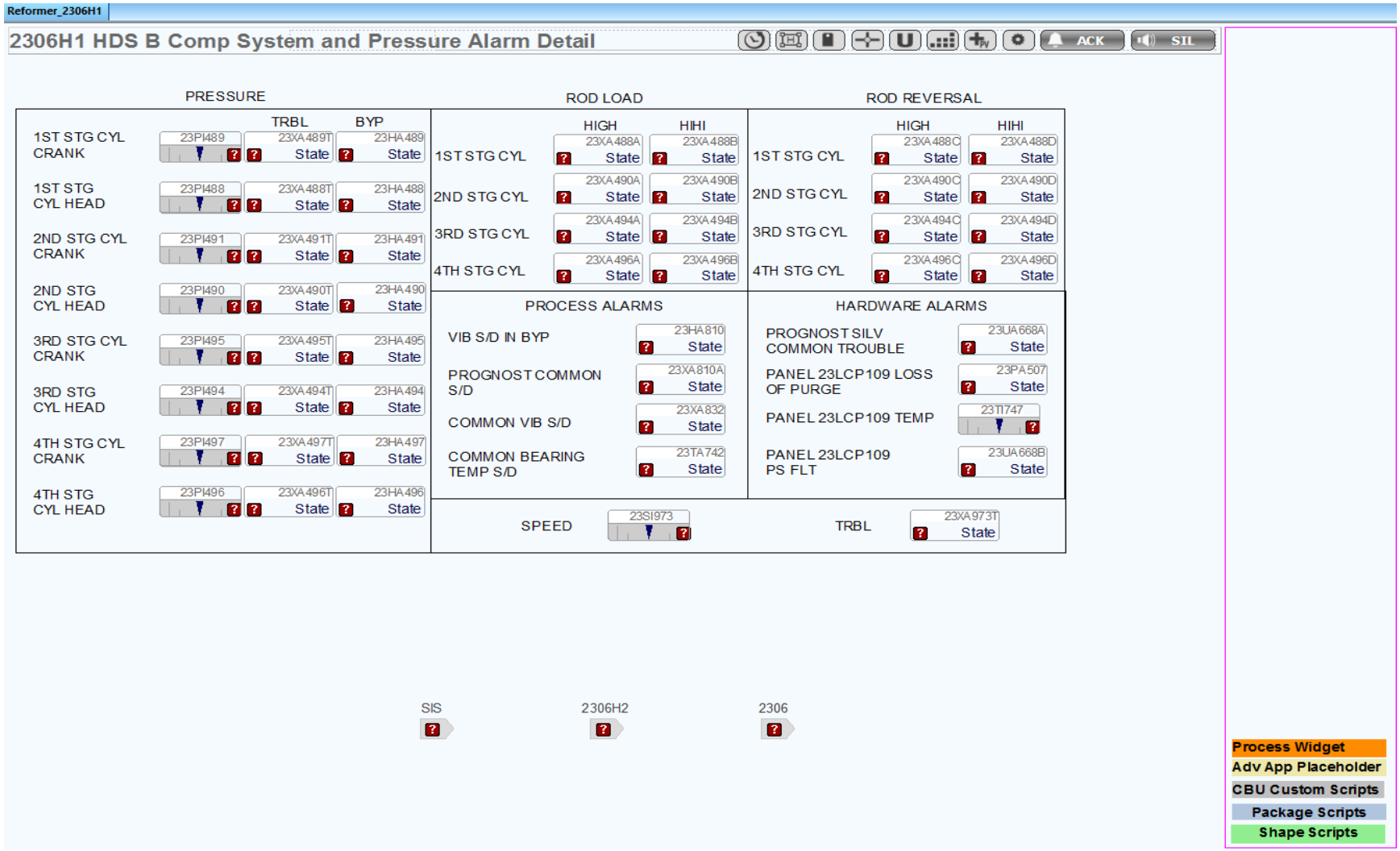
5.132 2306 HDS "B" COMPRESSOR (Reformer_2306.htm)



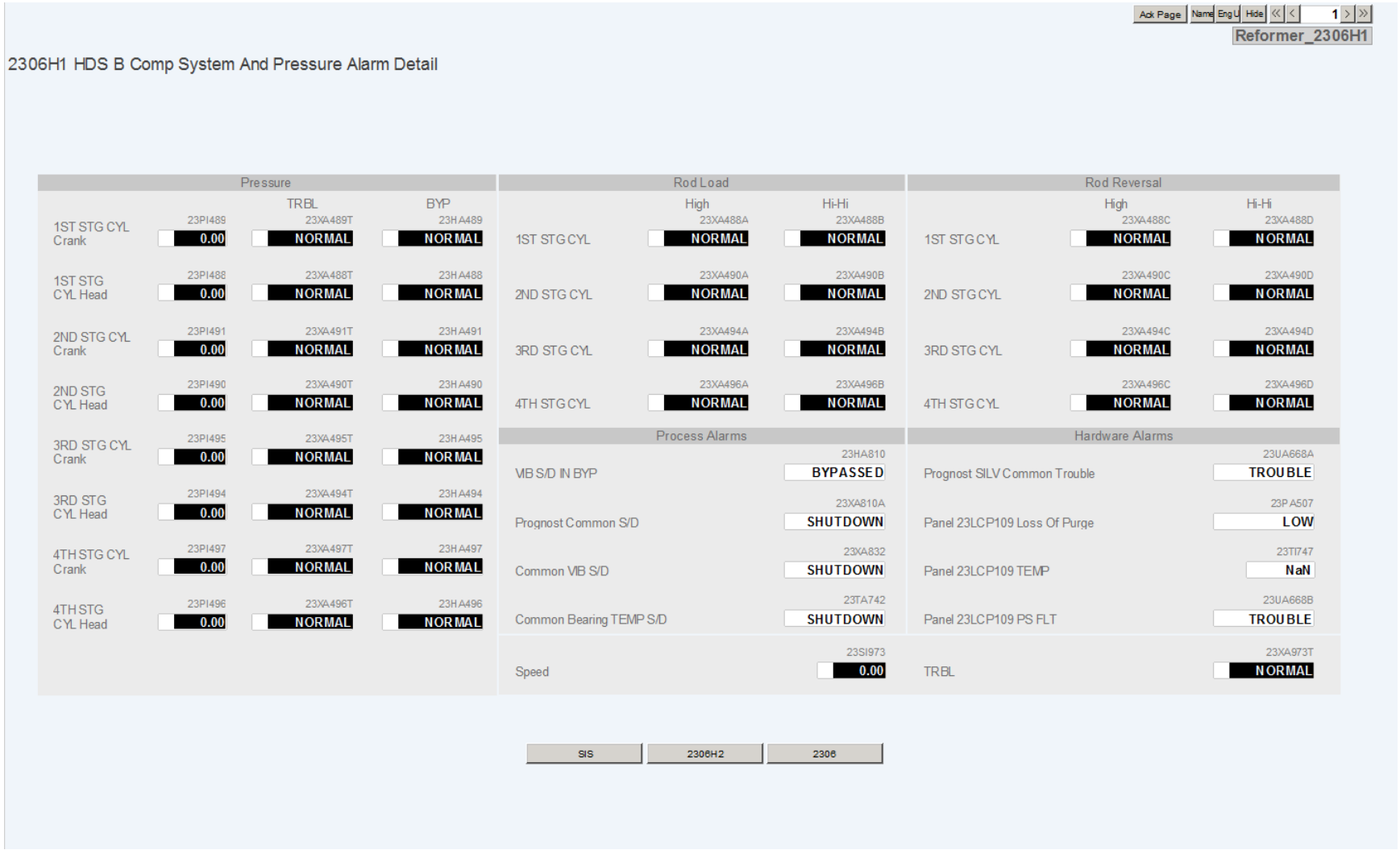
Station View



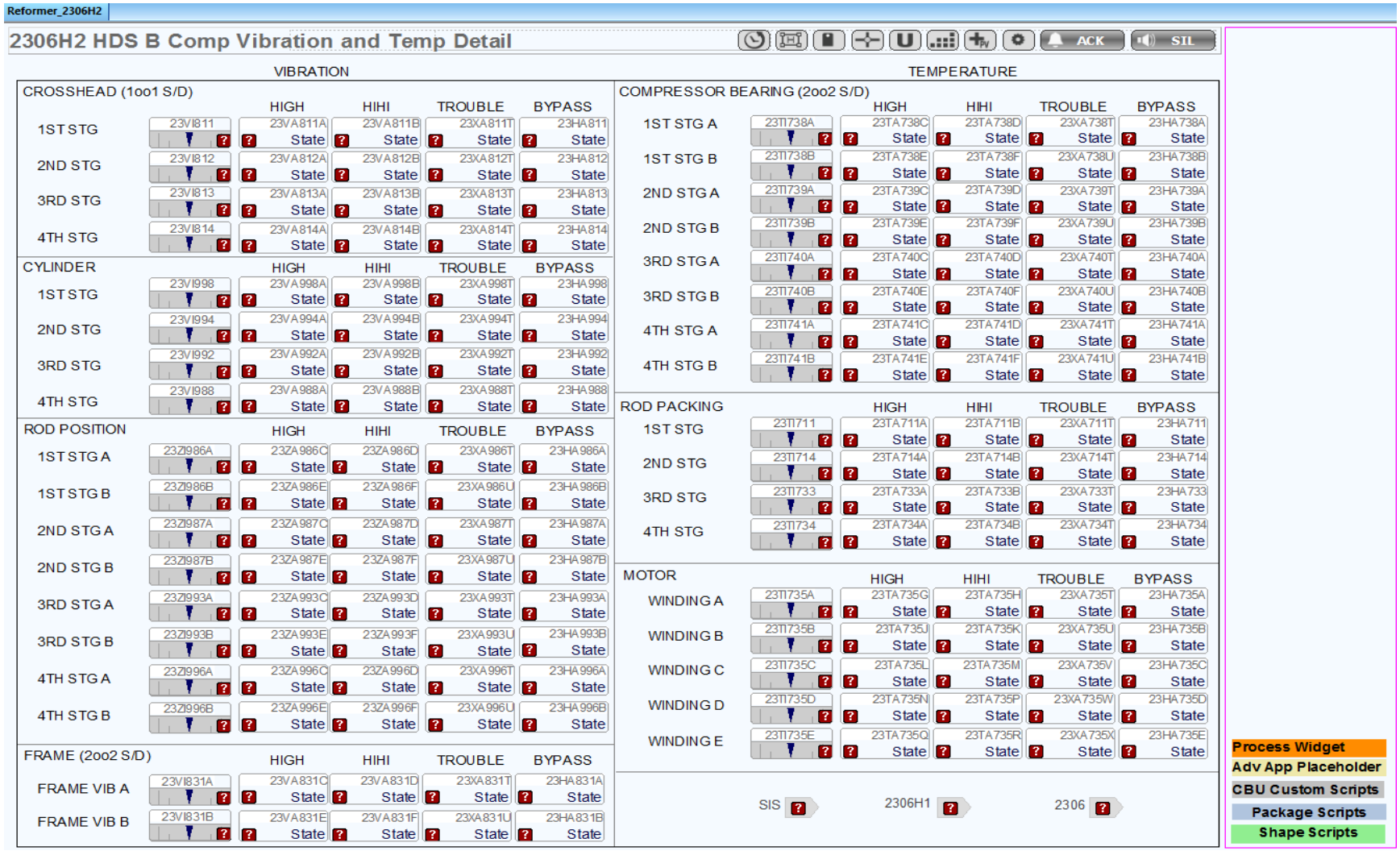
5.133 2306H1 HDS B COMP SYSTEM AND PRESSURE ALARM DETAIL (Reformer_2306H1.htm)



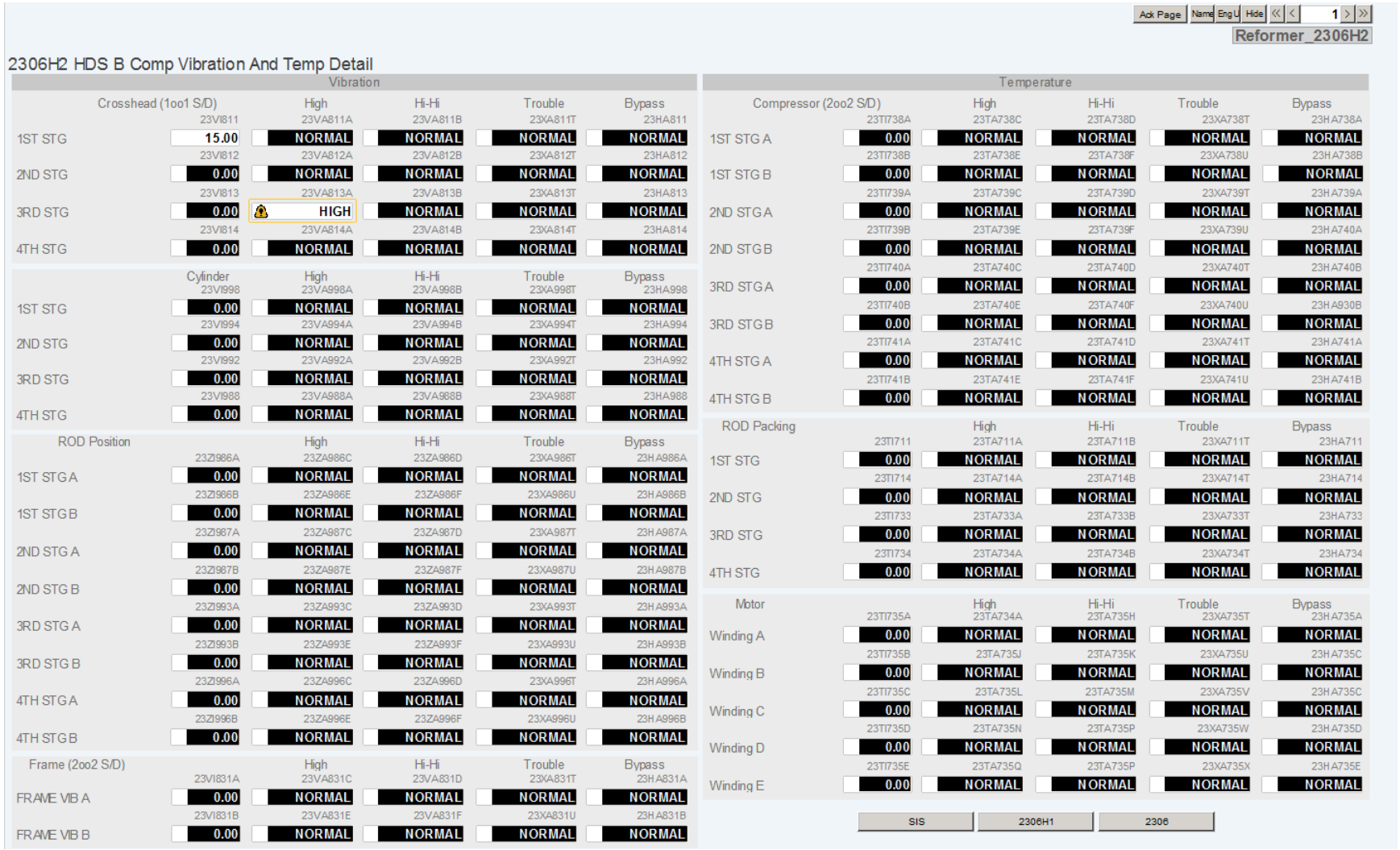
Station View



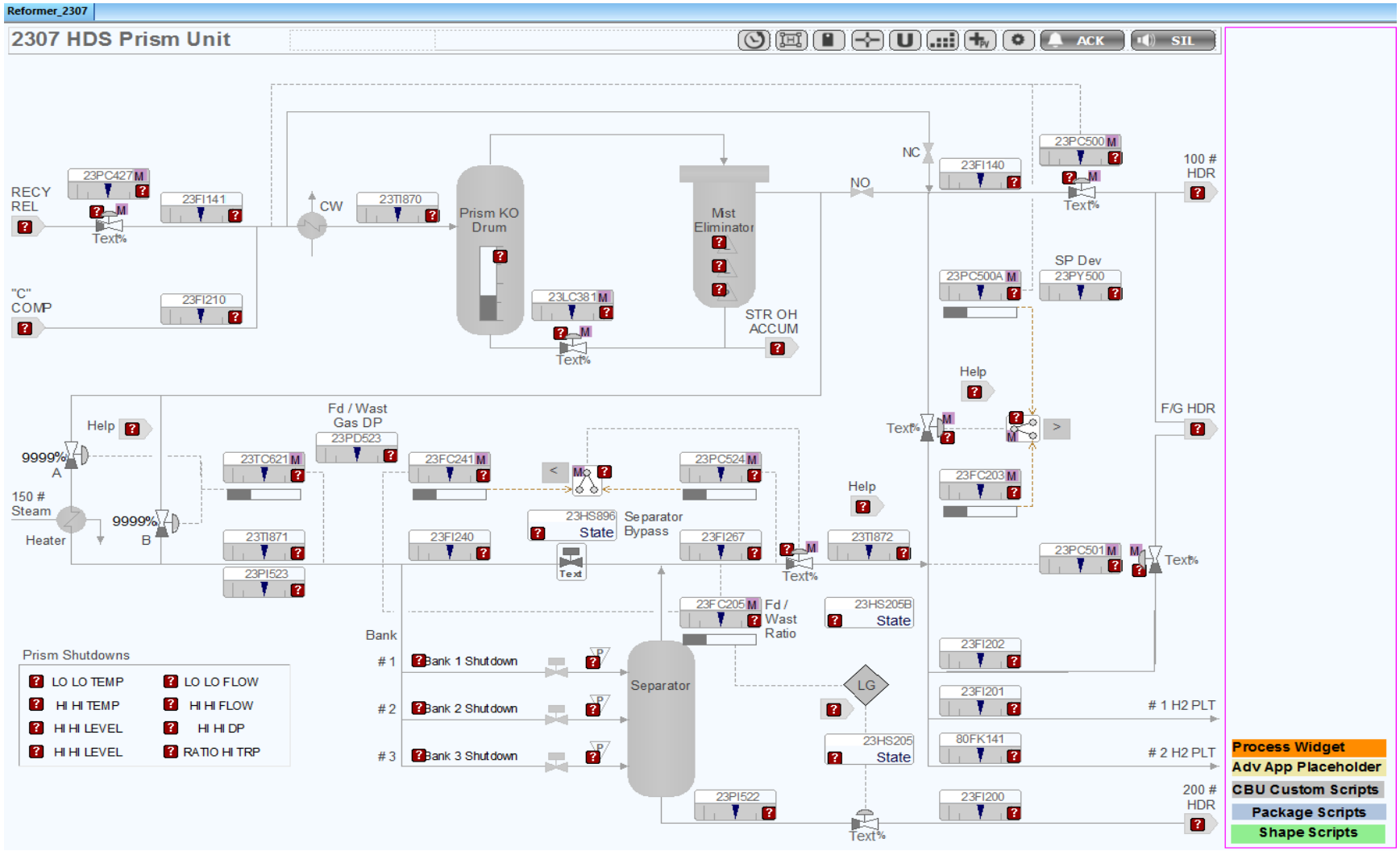
5.134 2306H2 HDS B COMP VIBRATION AND TEMP DETAIL (Reformer_2306H2.htm)



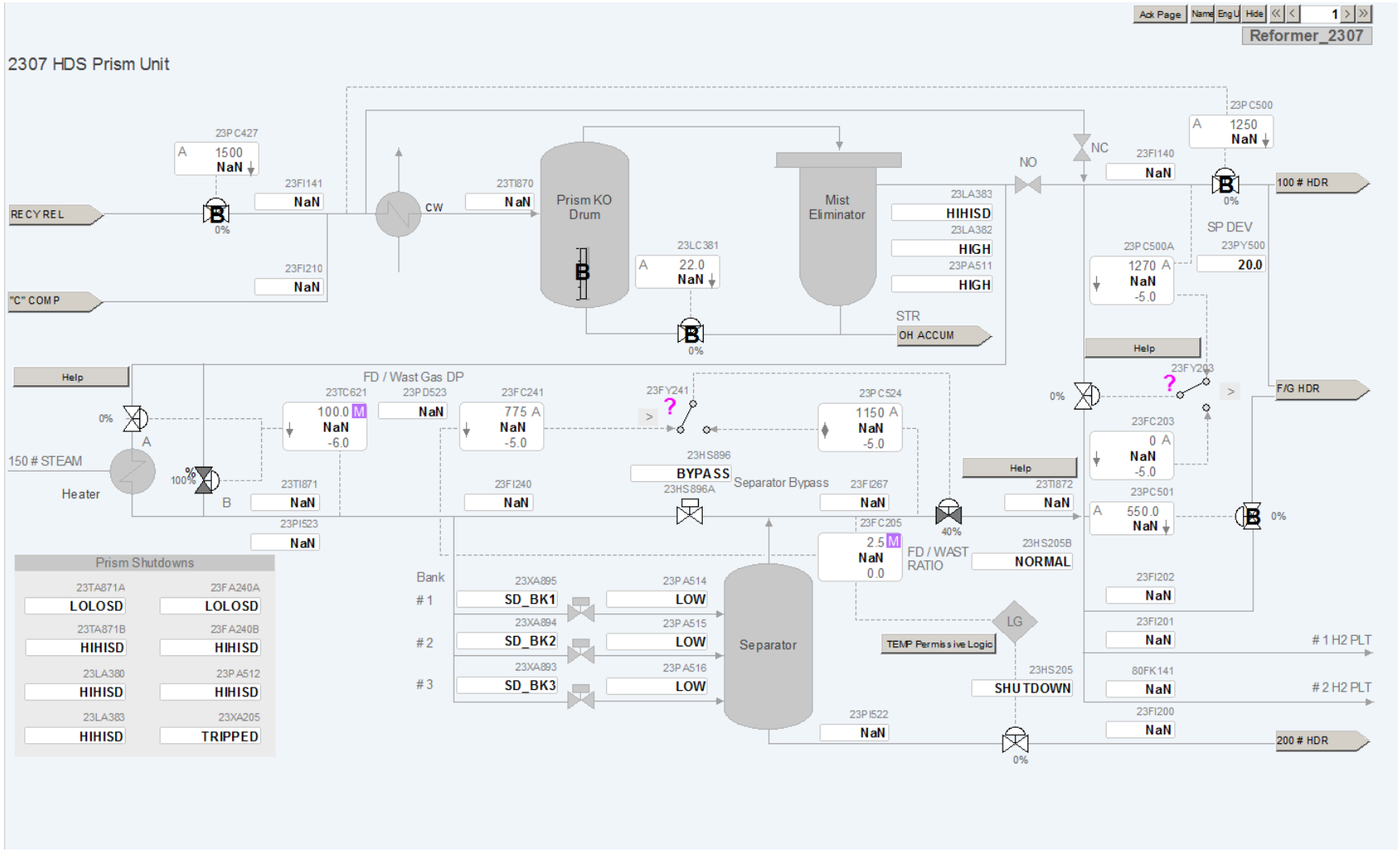
Station View



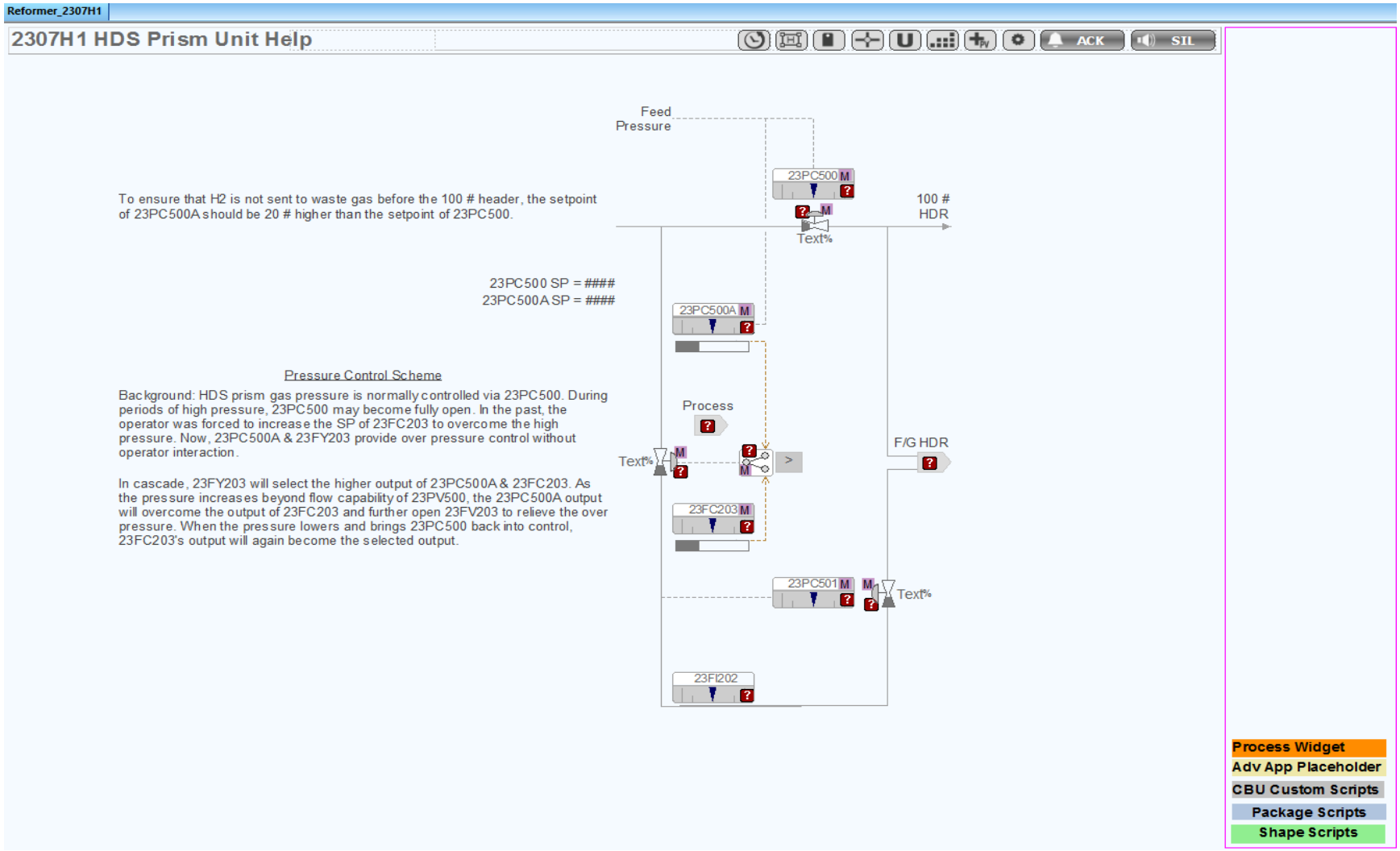
5.135 2307 HDS PRISM UNIT (Reformer_2307.htm)



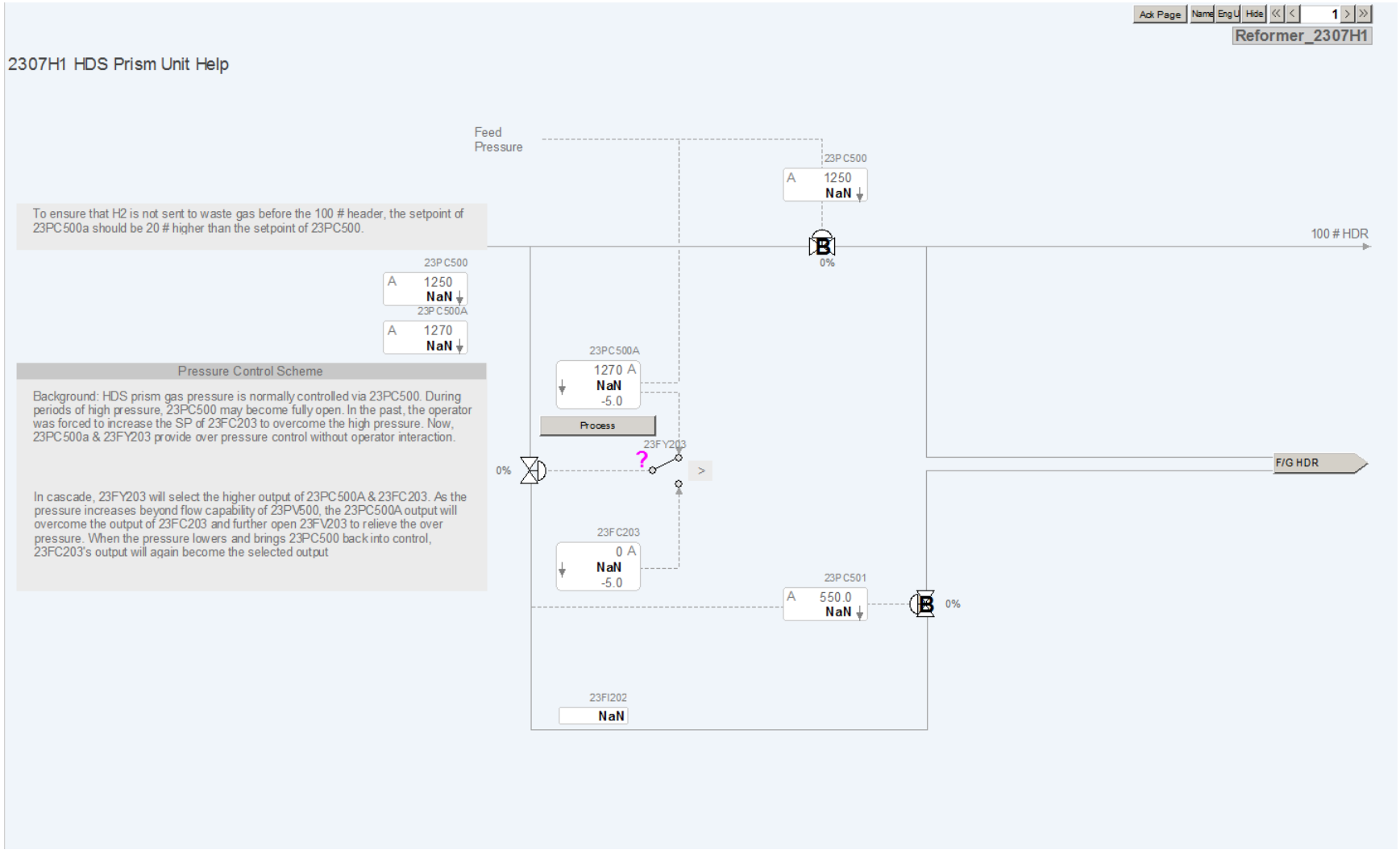
Station View



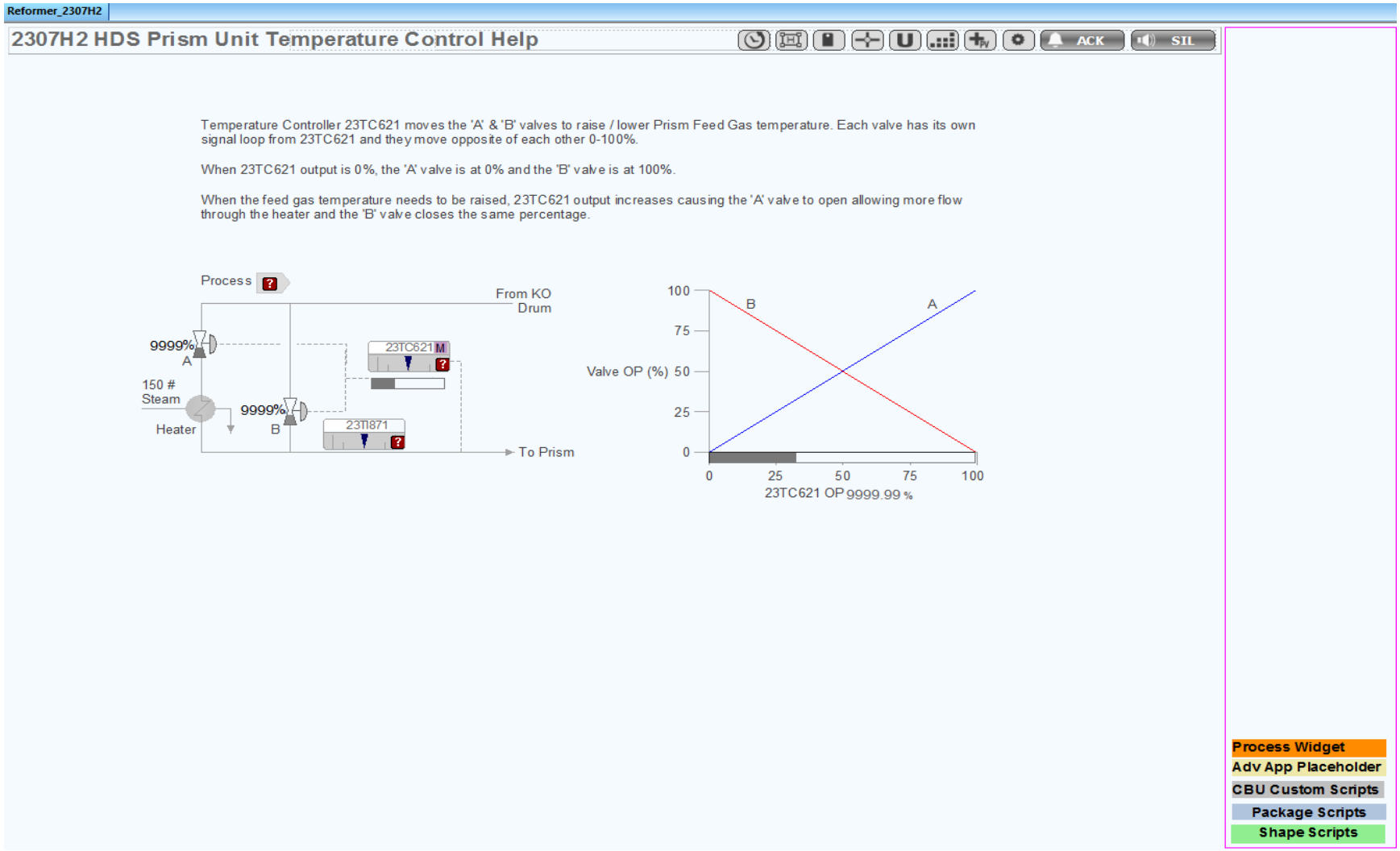
5.136 2307H1 HDS PRISM UNIT HELP (Reformer_2307H1.htm)



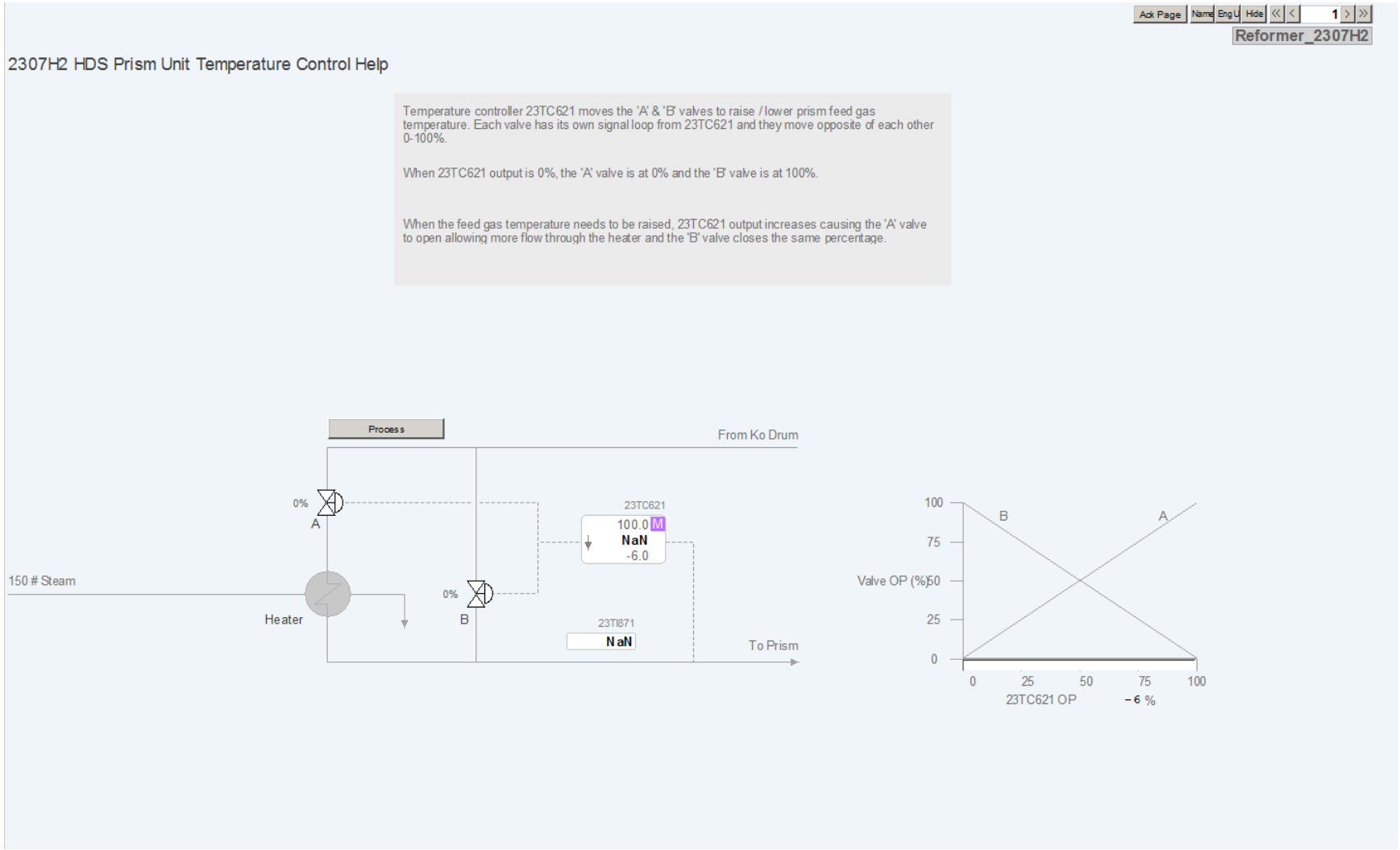
Station View



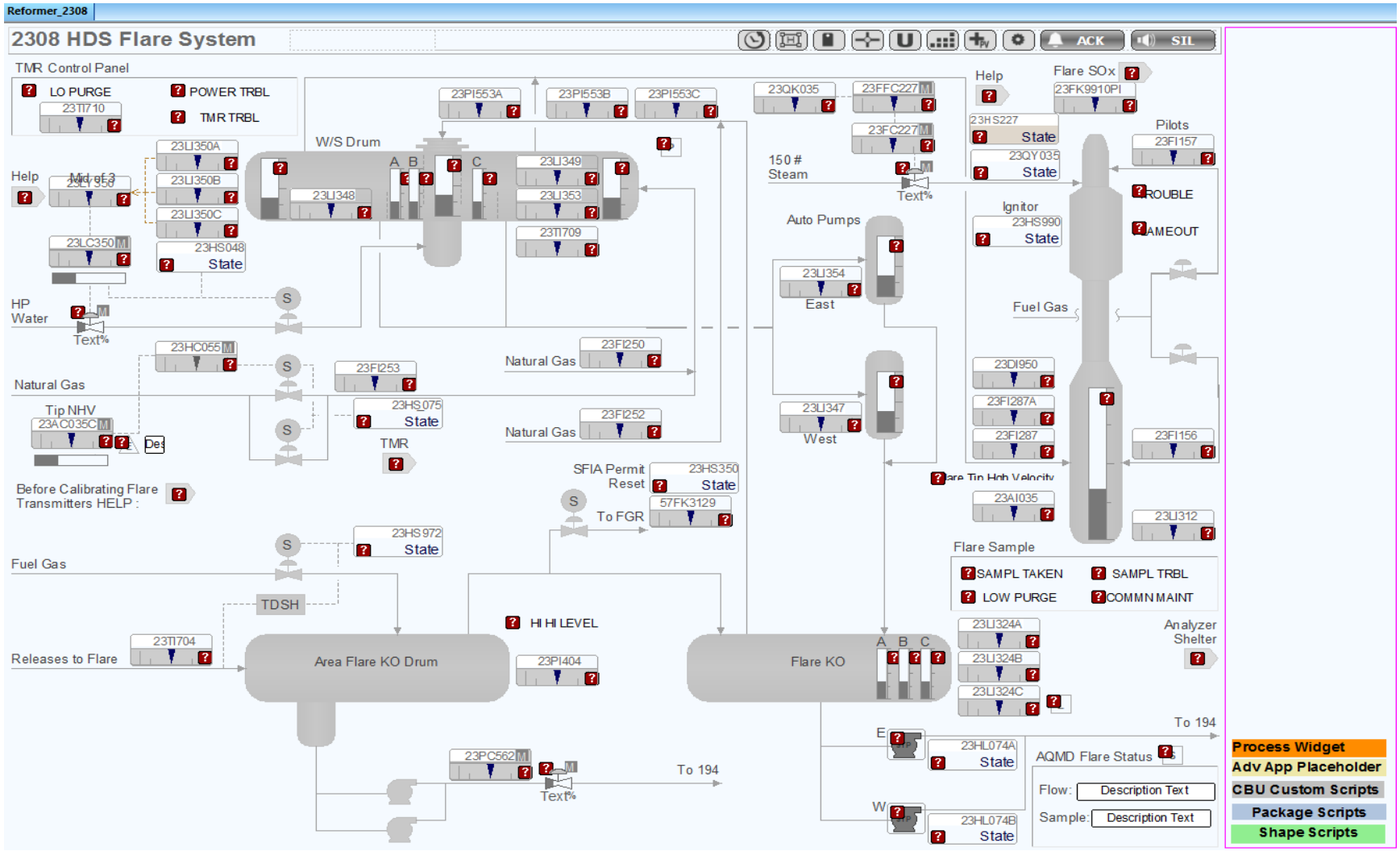
5.137 2307H2 HDS PRISM UNIT TEMPERATURE CONTROL HELP (Reformer_2307H2.htm)



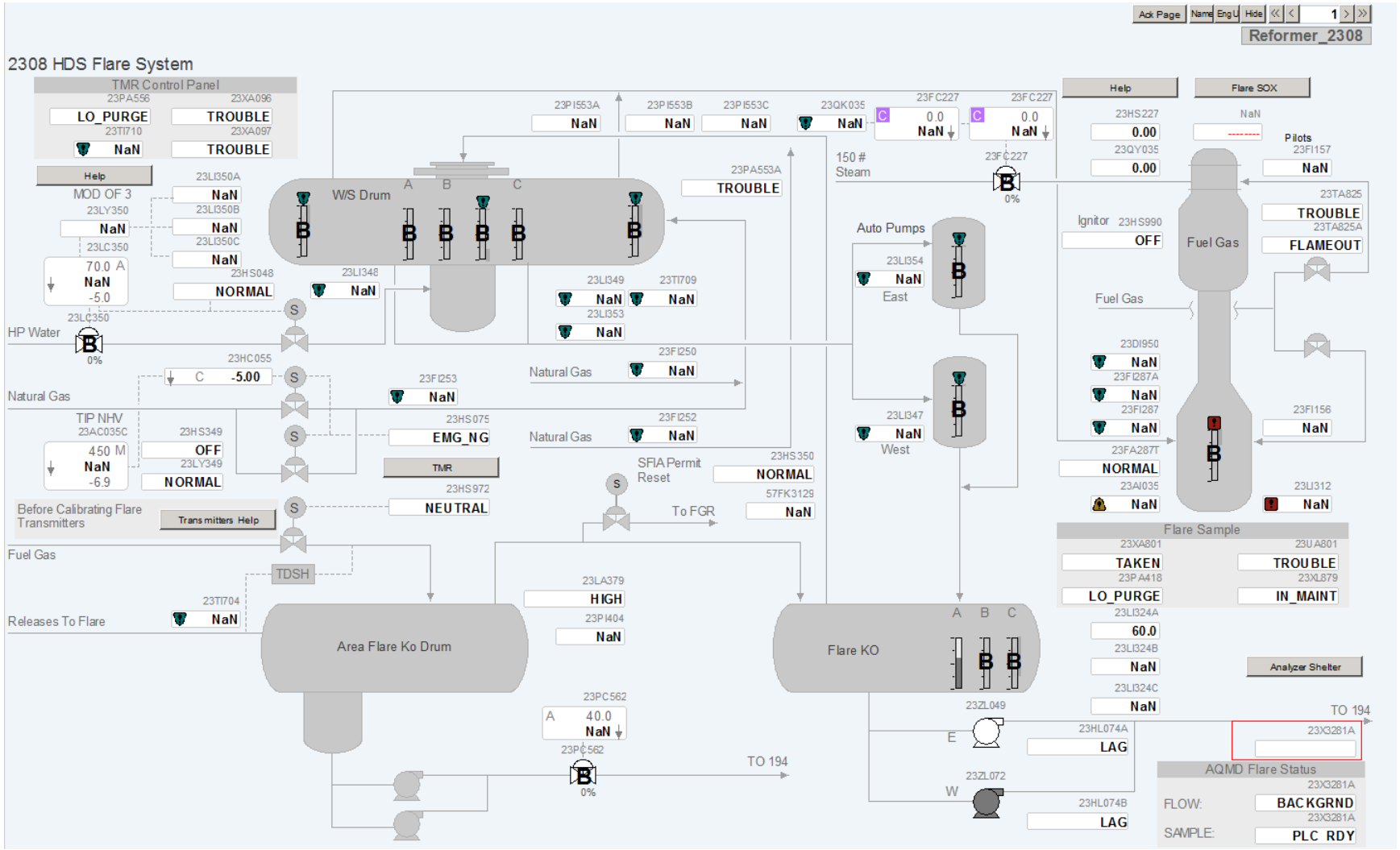
Station View



5.138 2308 HDS FLARE SYSTEM (Reformer_2308.htm)

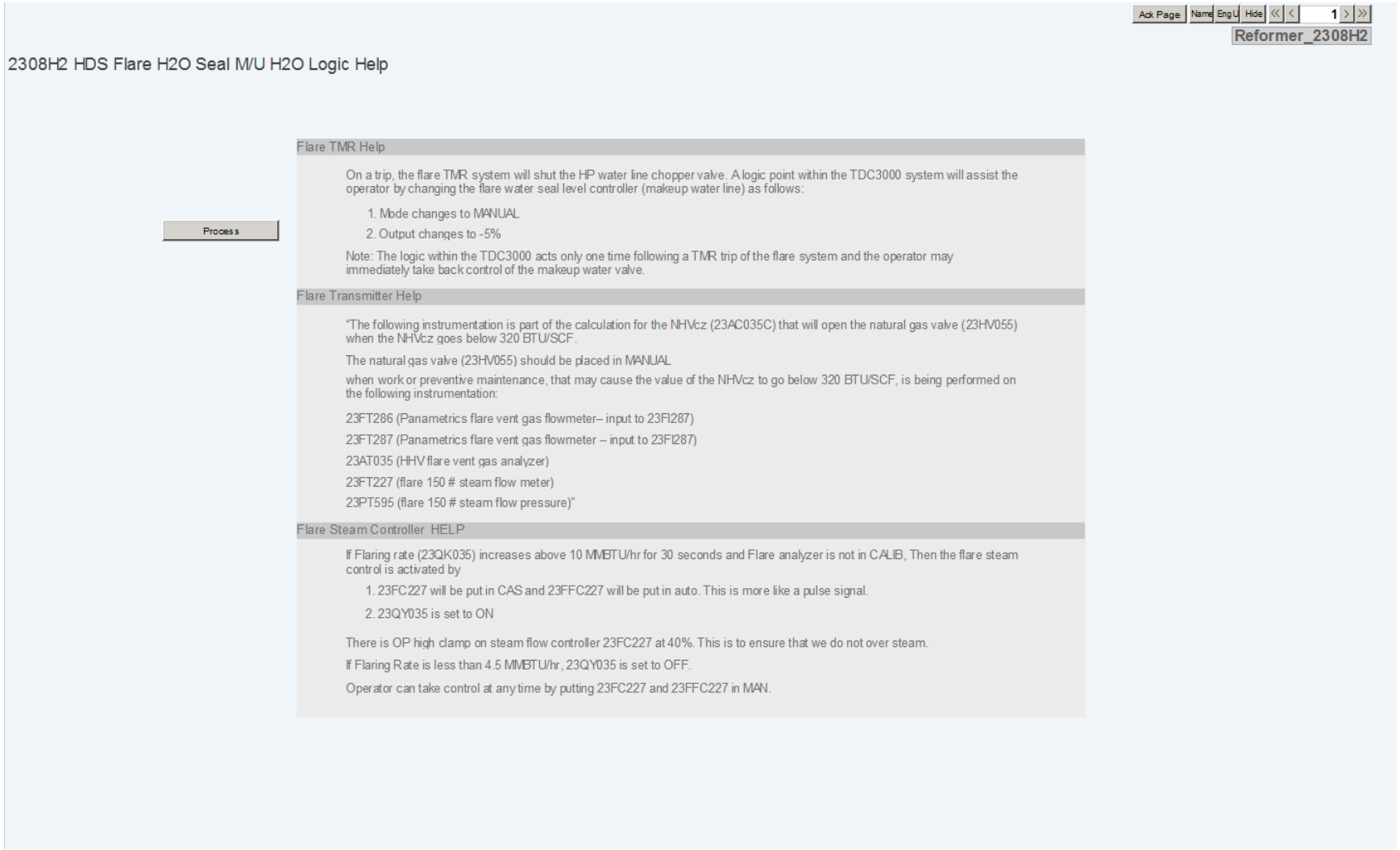


Station View

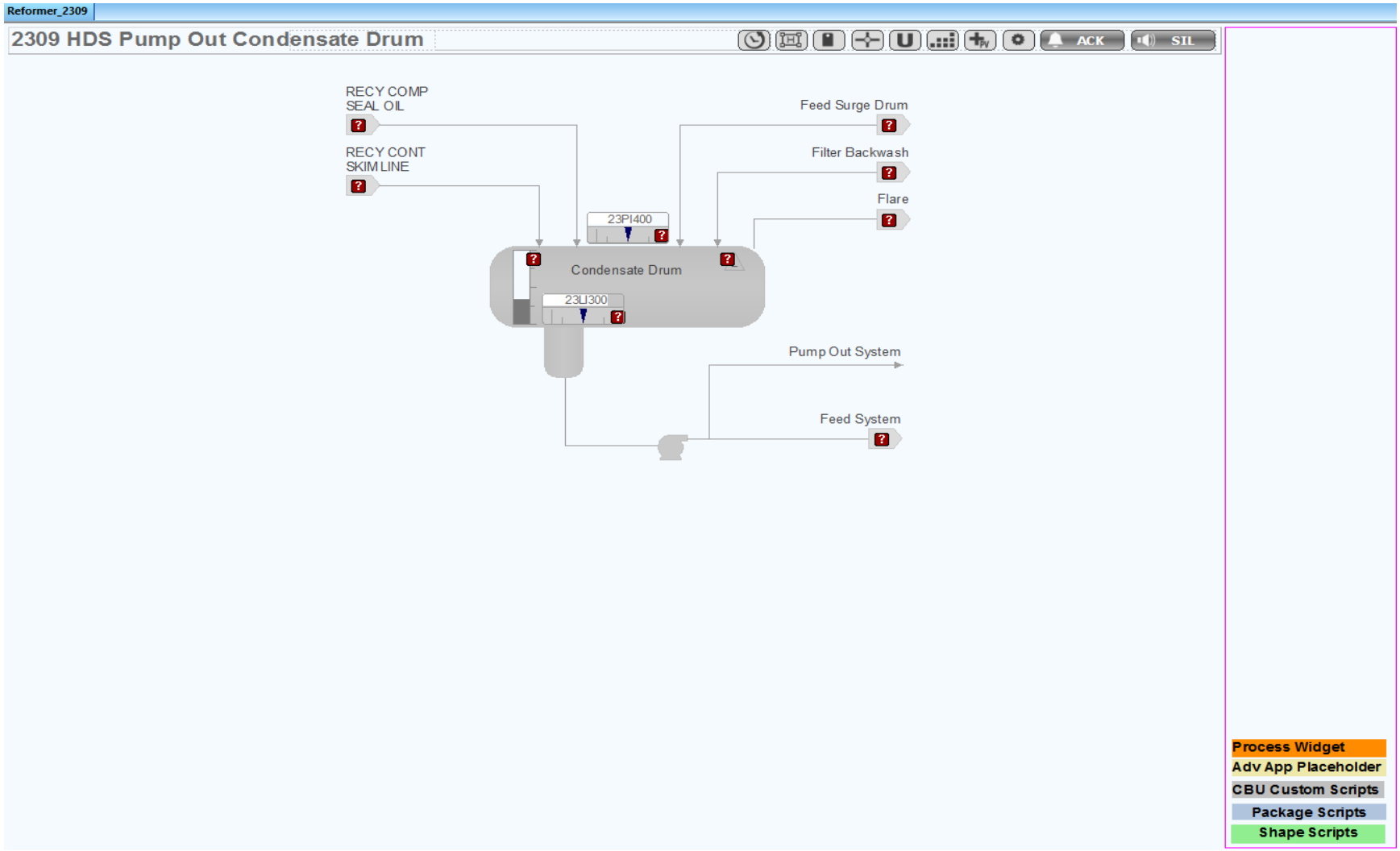


5.139 2308H2 HDS FLARE H2O SEAL M/U H2O LOGIC HELP (Reformer_2308H2.htm)

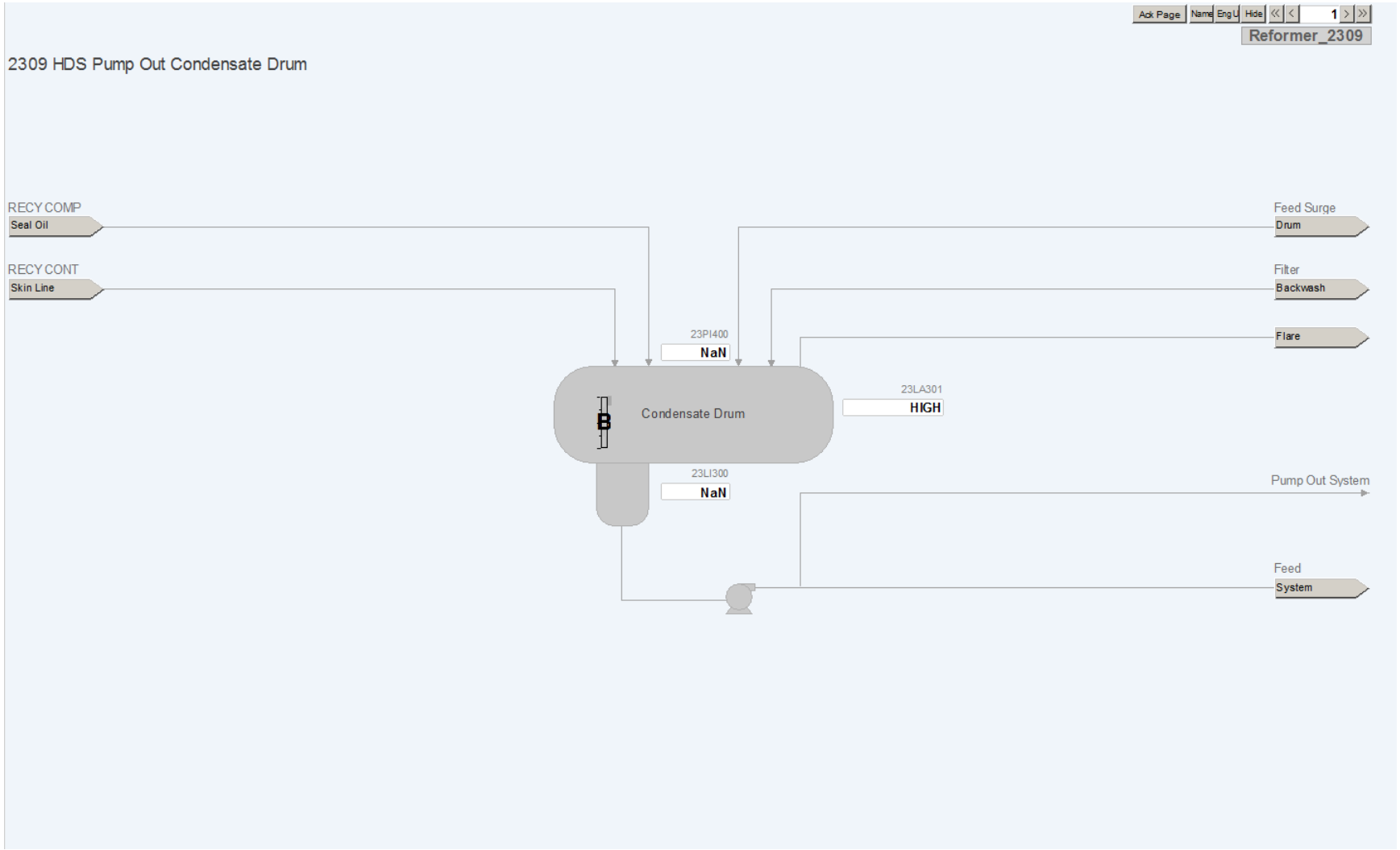
Station View



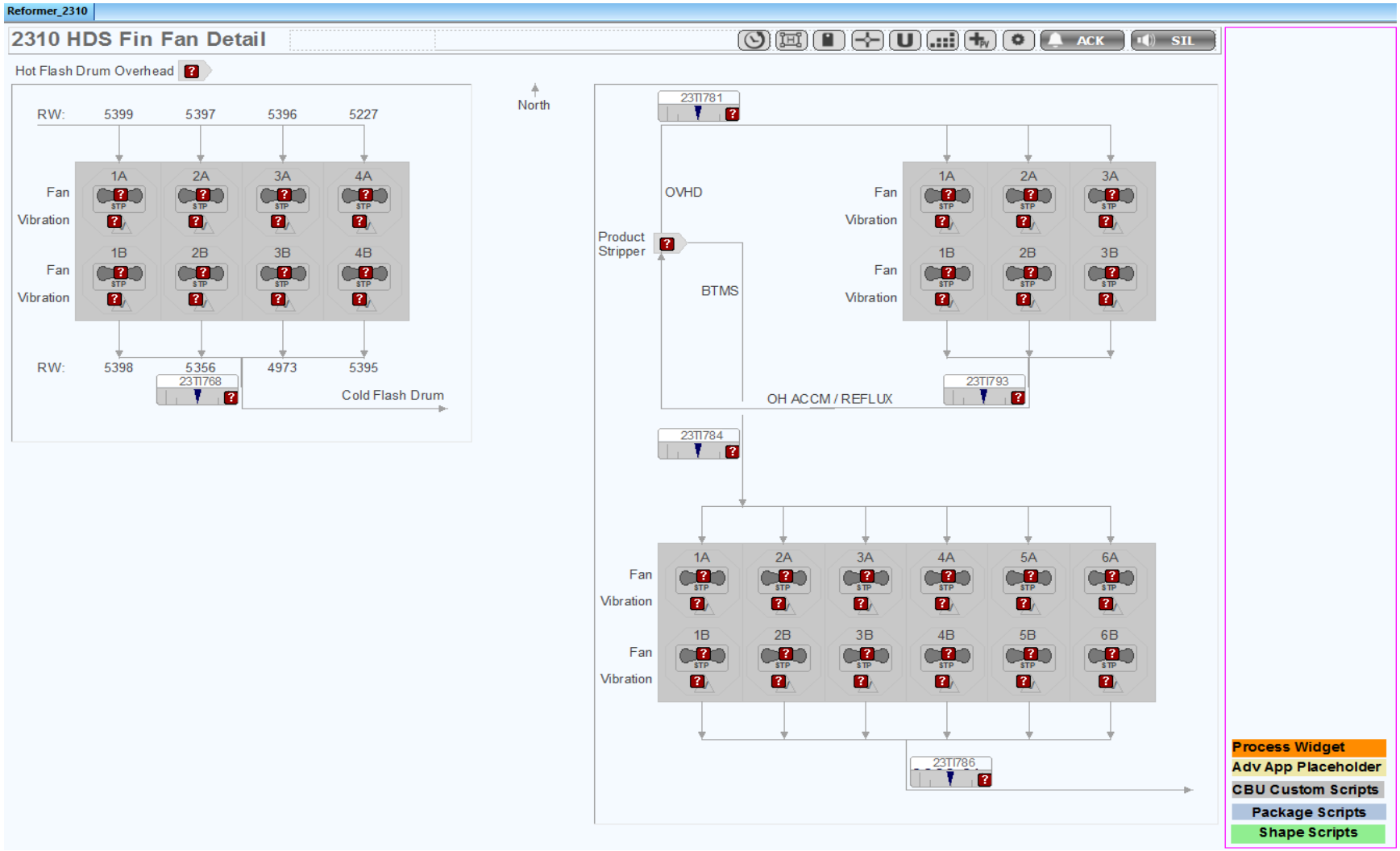
5.140 2309 HDS PUMP OUT CONDENSATE DRUM (Reformer_2309.htm)



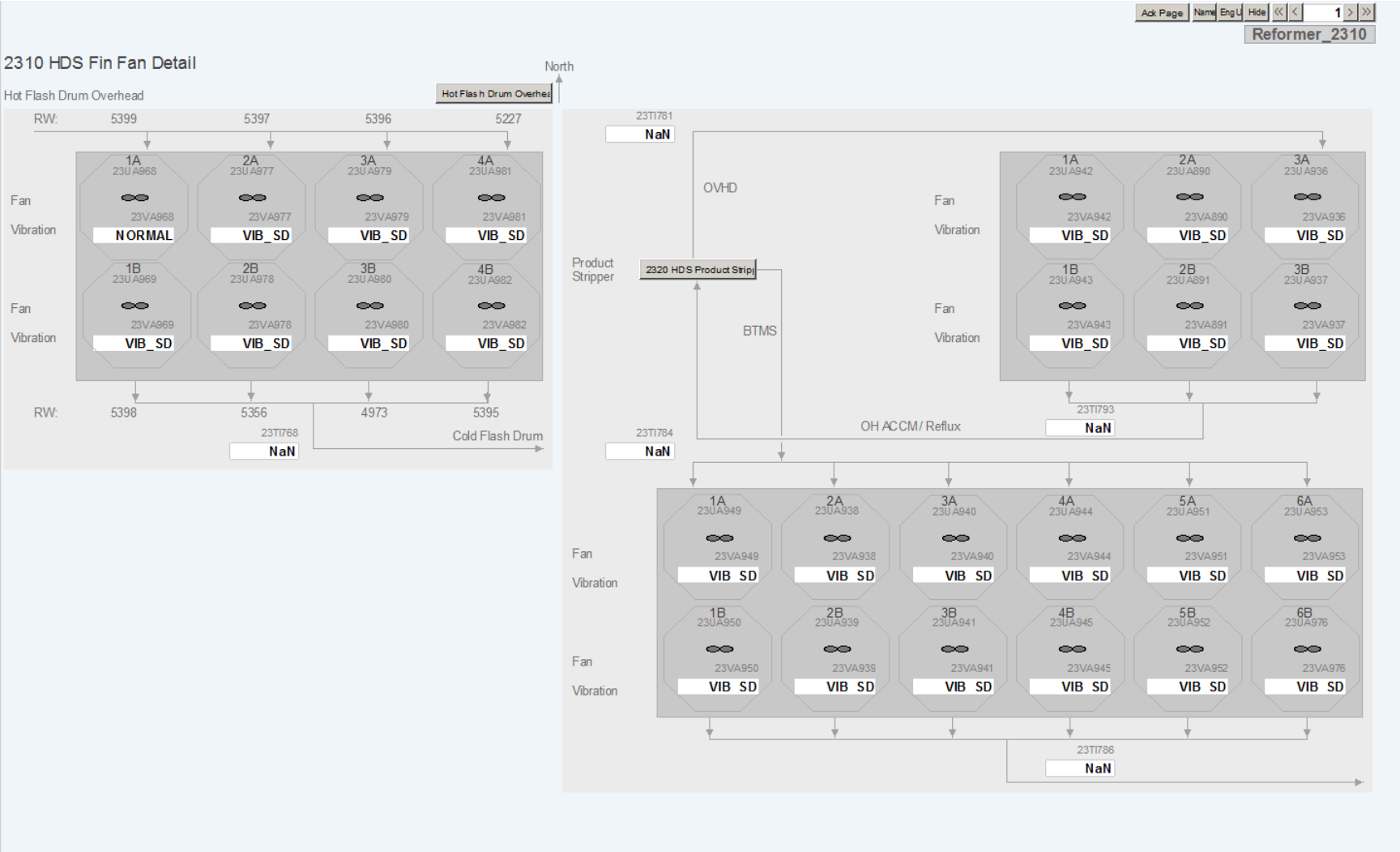
Station View



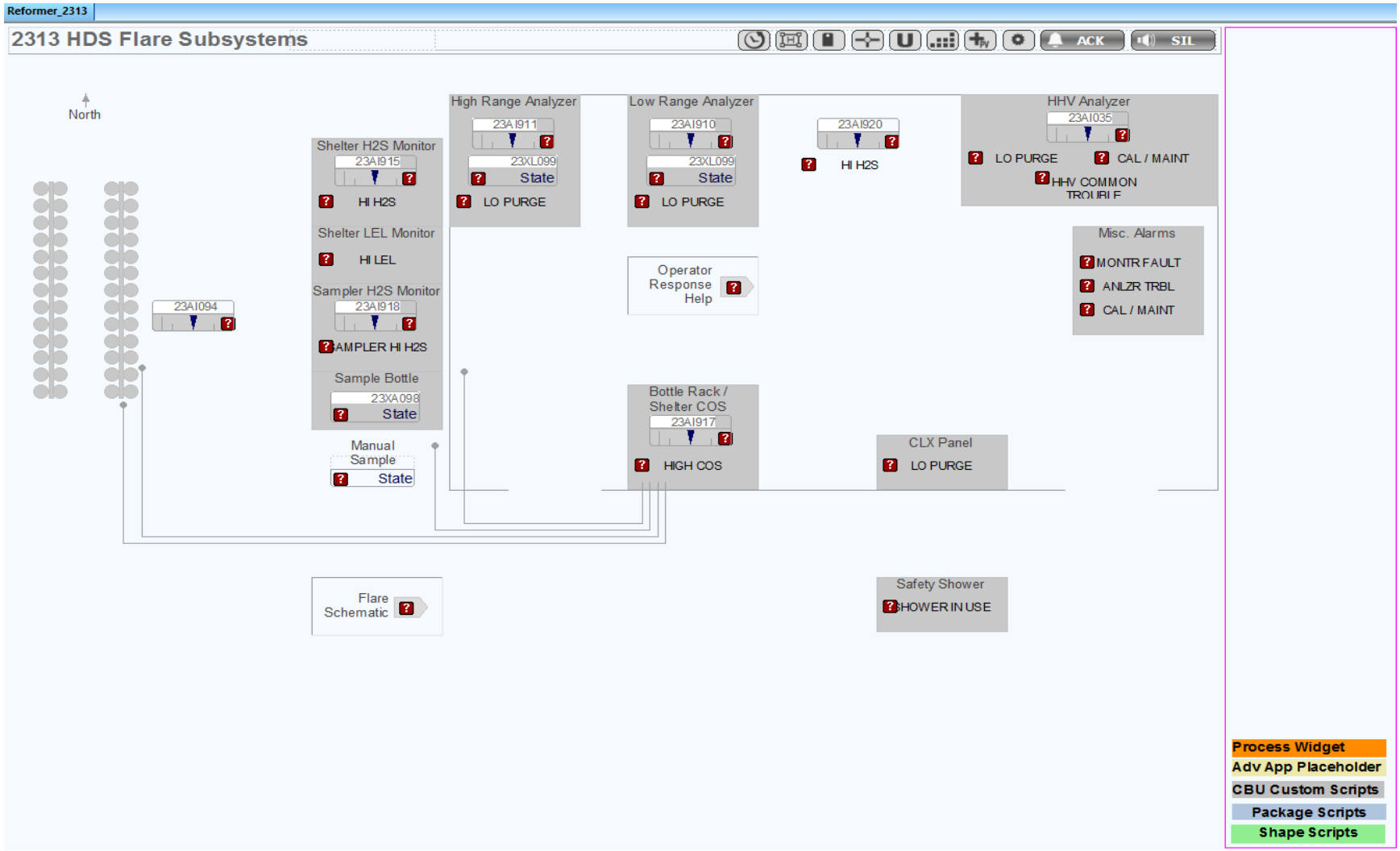
5.141 2310 HDS FIN FAN DETAIL (Reformer_2310.htm)



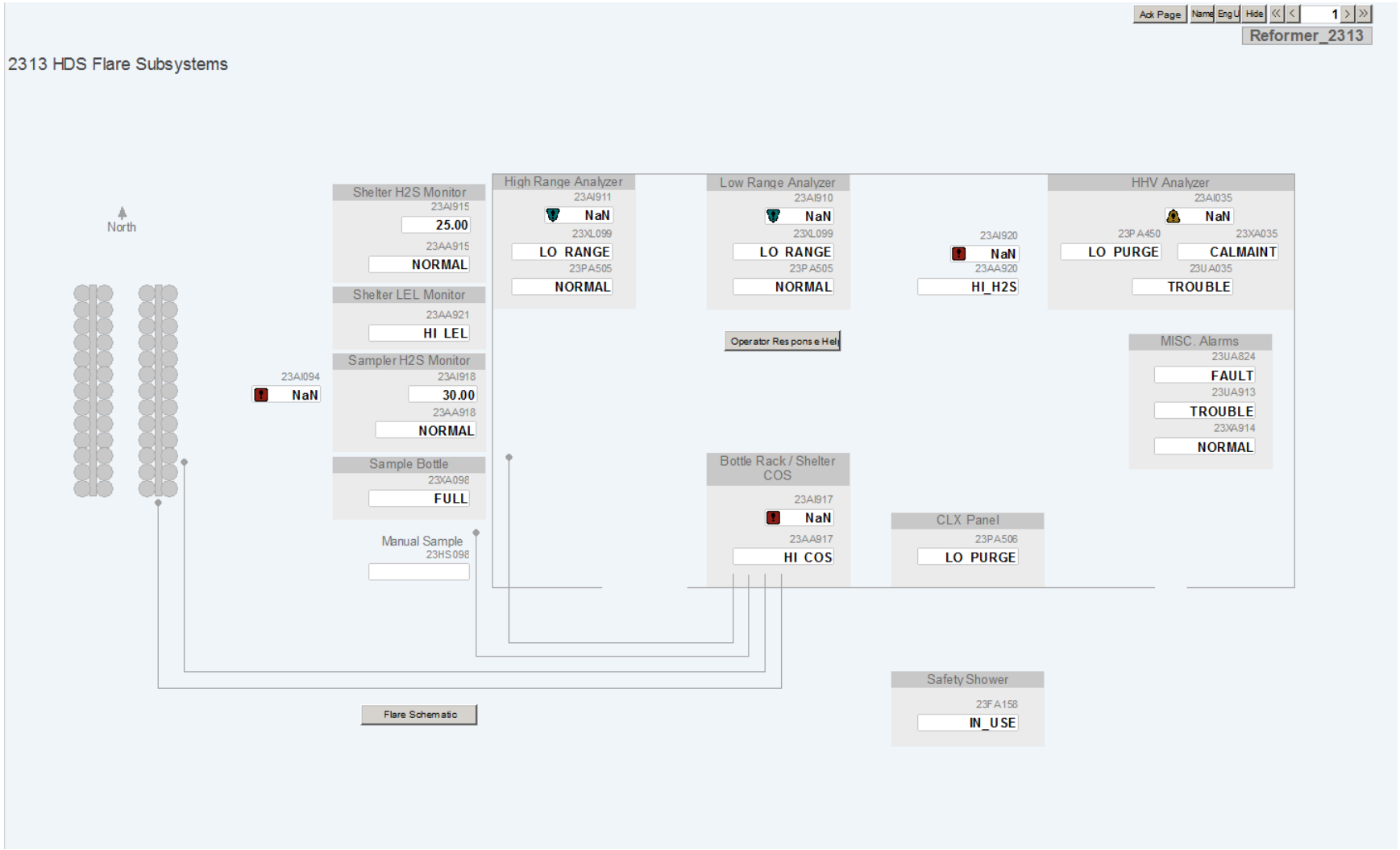
Station View



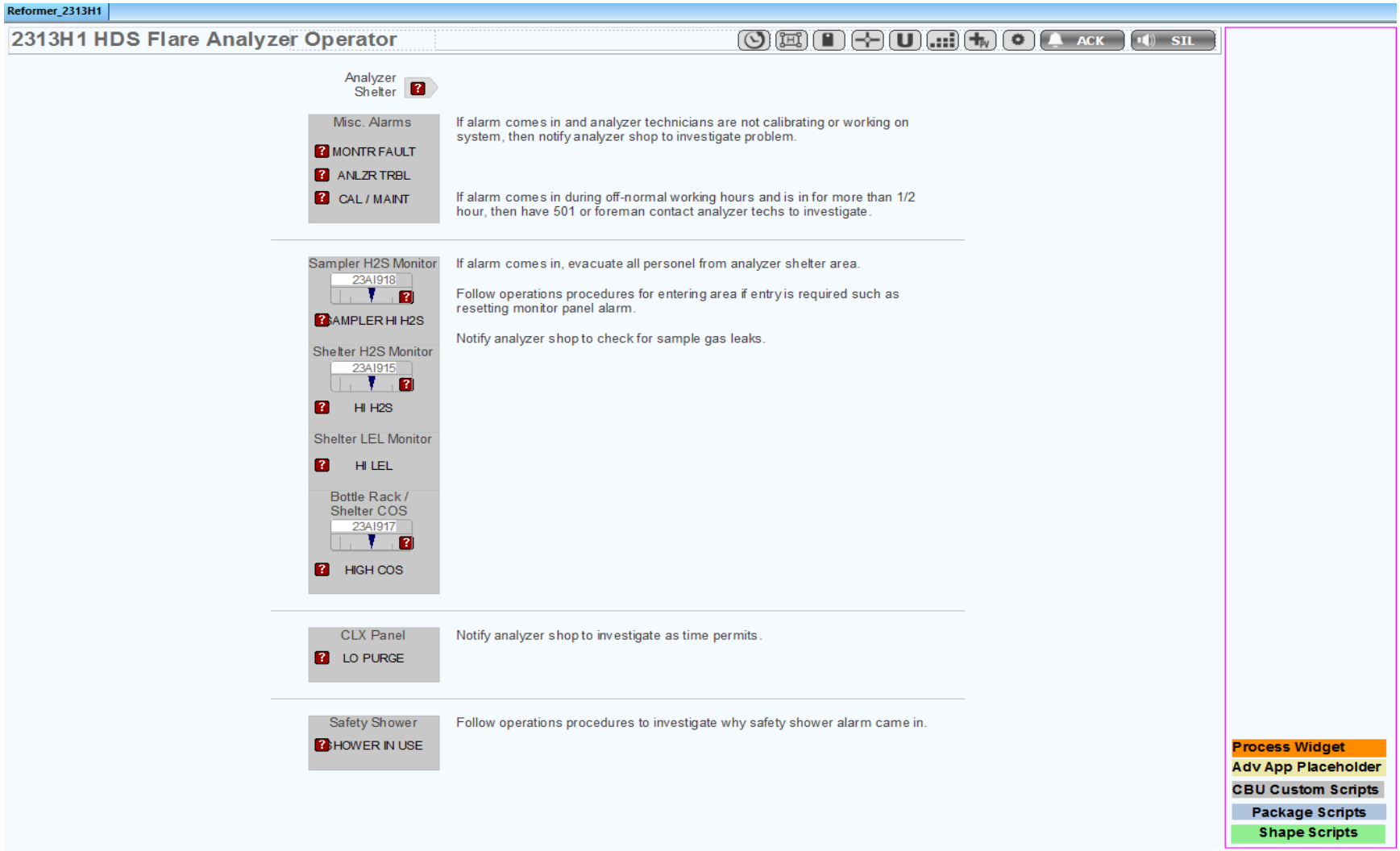
5.142 2313 HDS FLARE SUBSYSTEMS (Reformer_2313.htm)



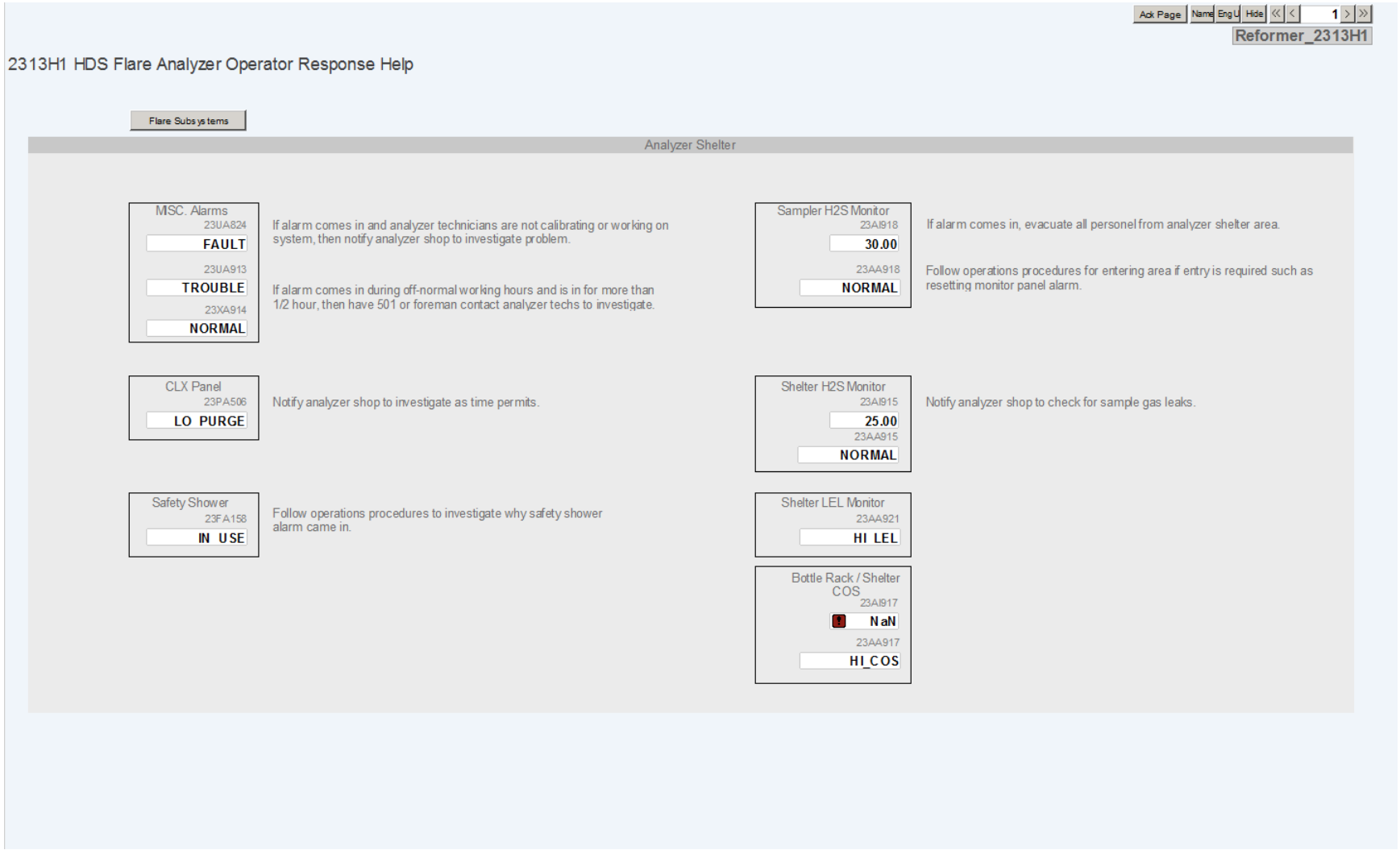
Station View



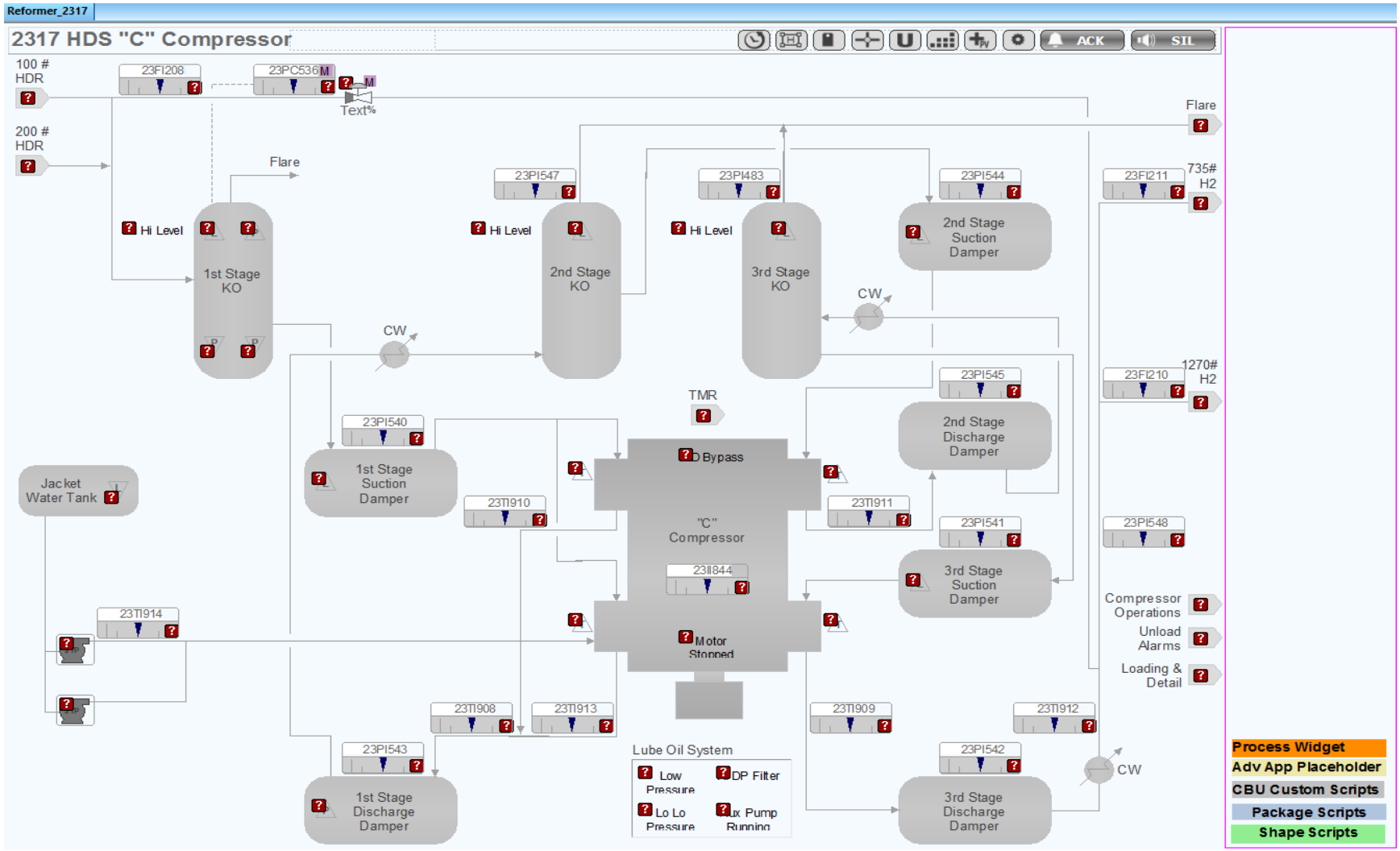
5.143 2313H1 HDS FLARE ANALYZER OPERATOR RESPONSE HELP (Reformer_2313H1.htm)



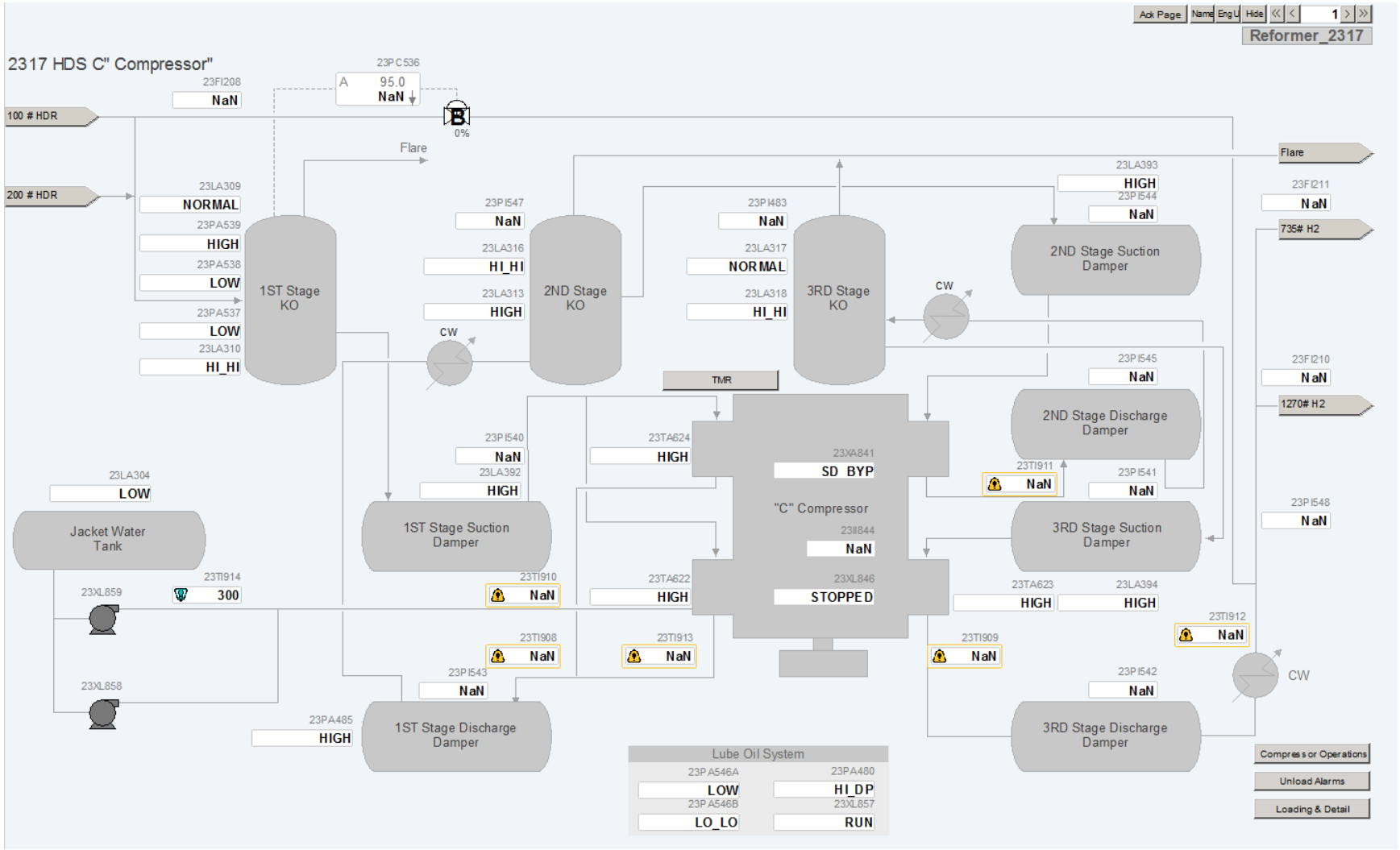
Station View



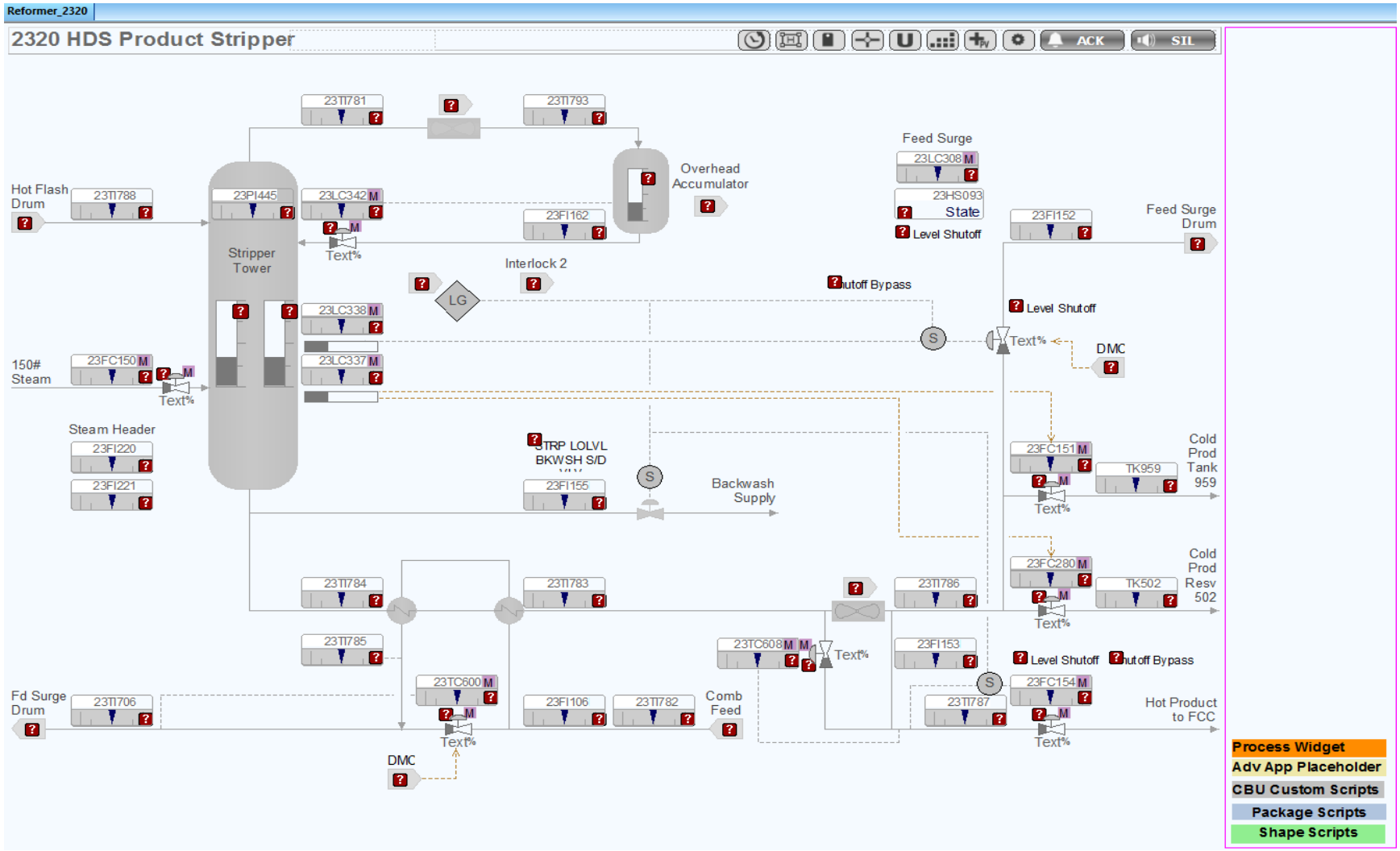
5.144 2317 HDS "C" COMPRESSOR (Reformer_2317.htm)



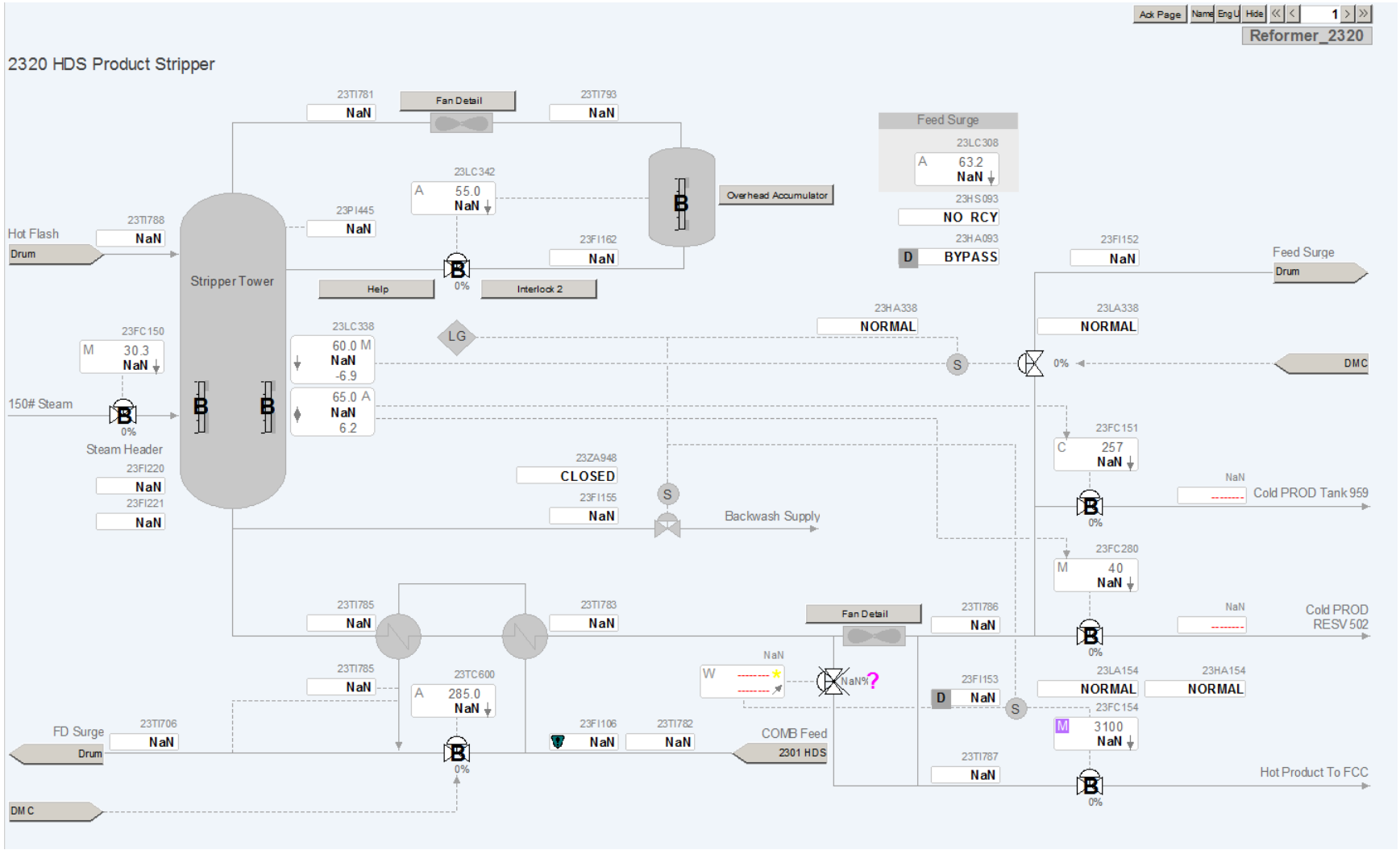
Station View



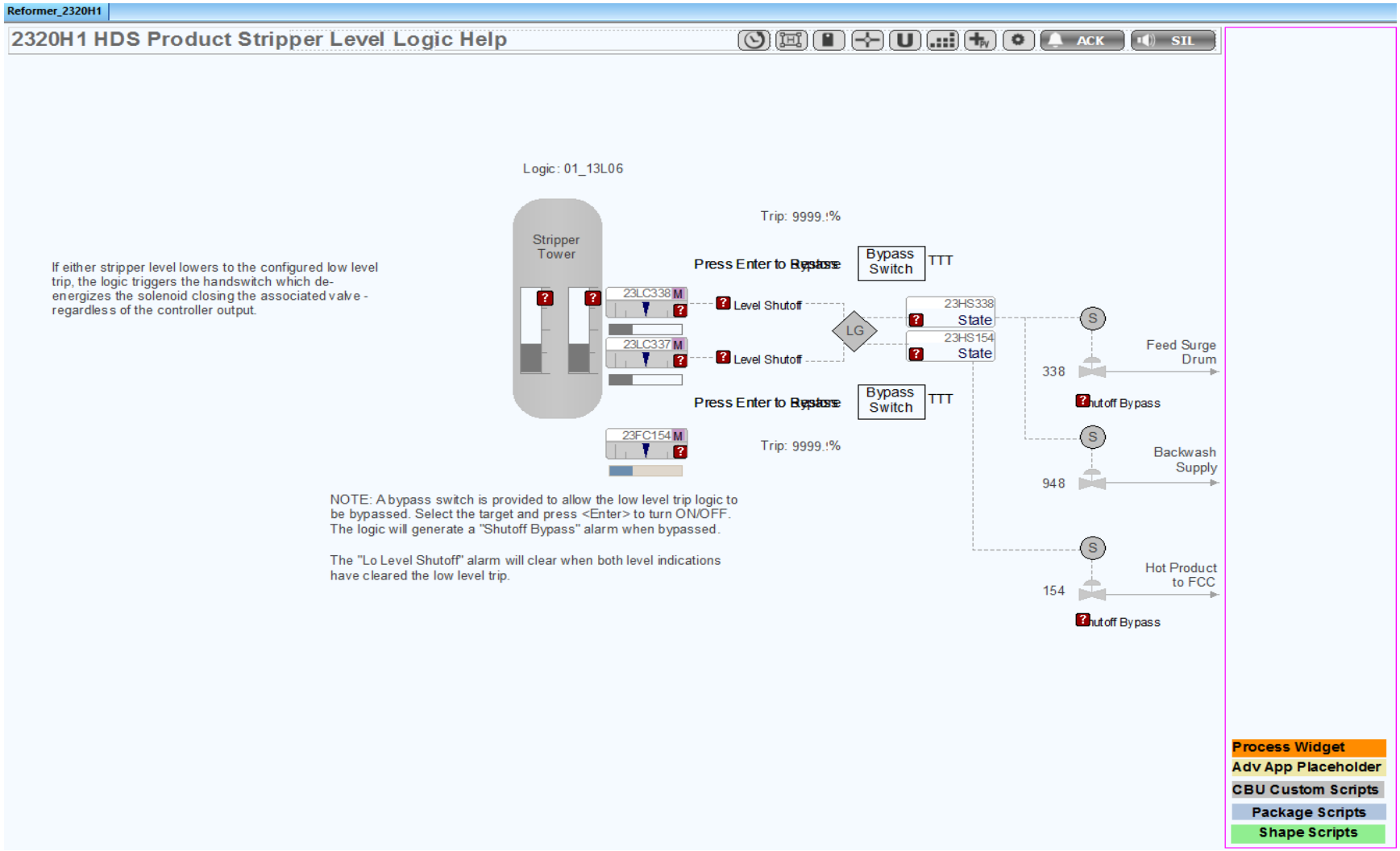
5.145 2320 HDS PRODUCT STRIPPER (Reformer_2320.htm)



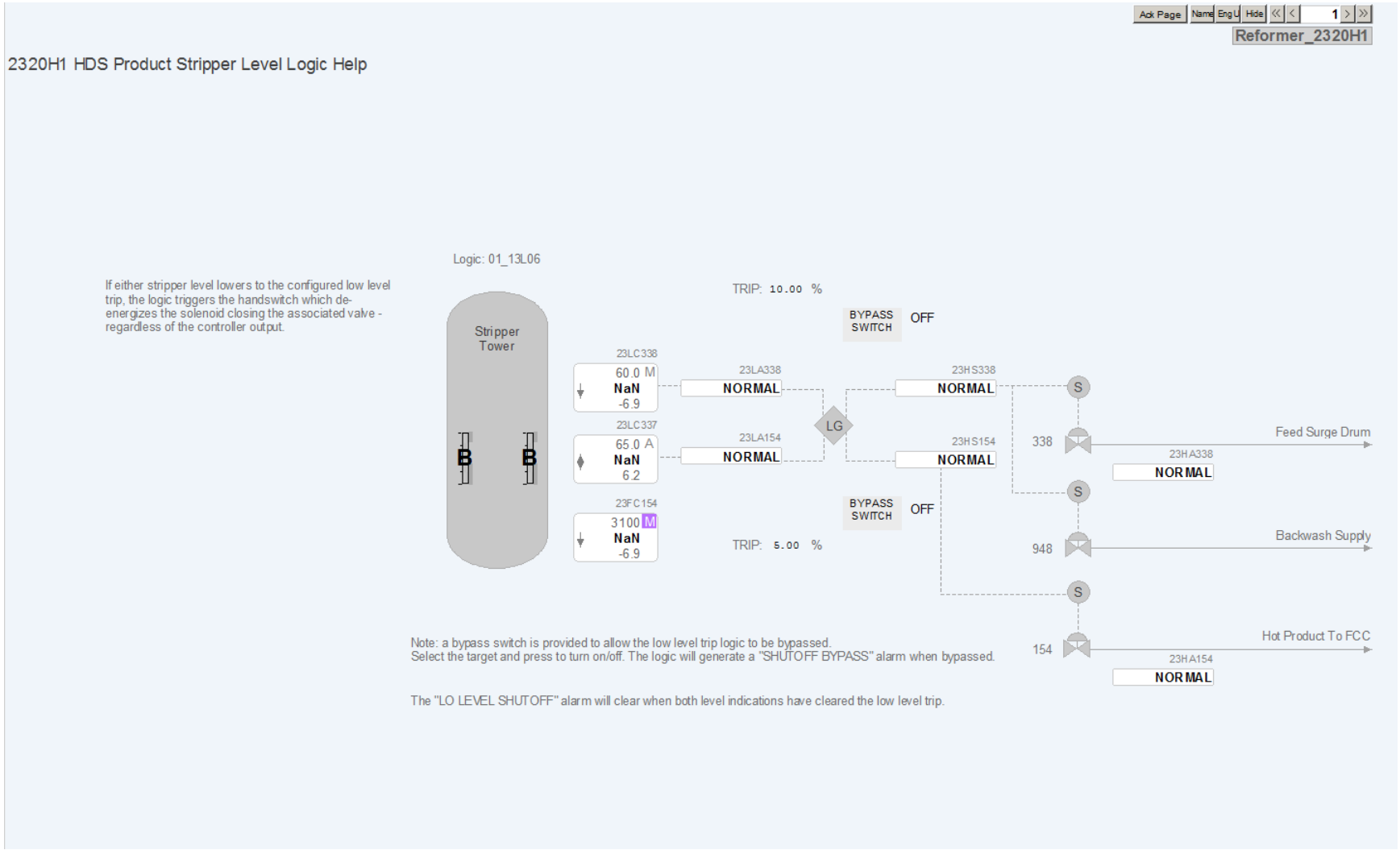
Station View



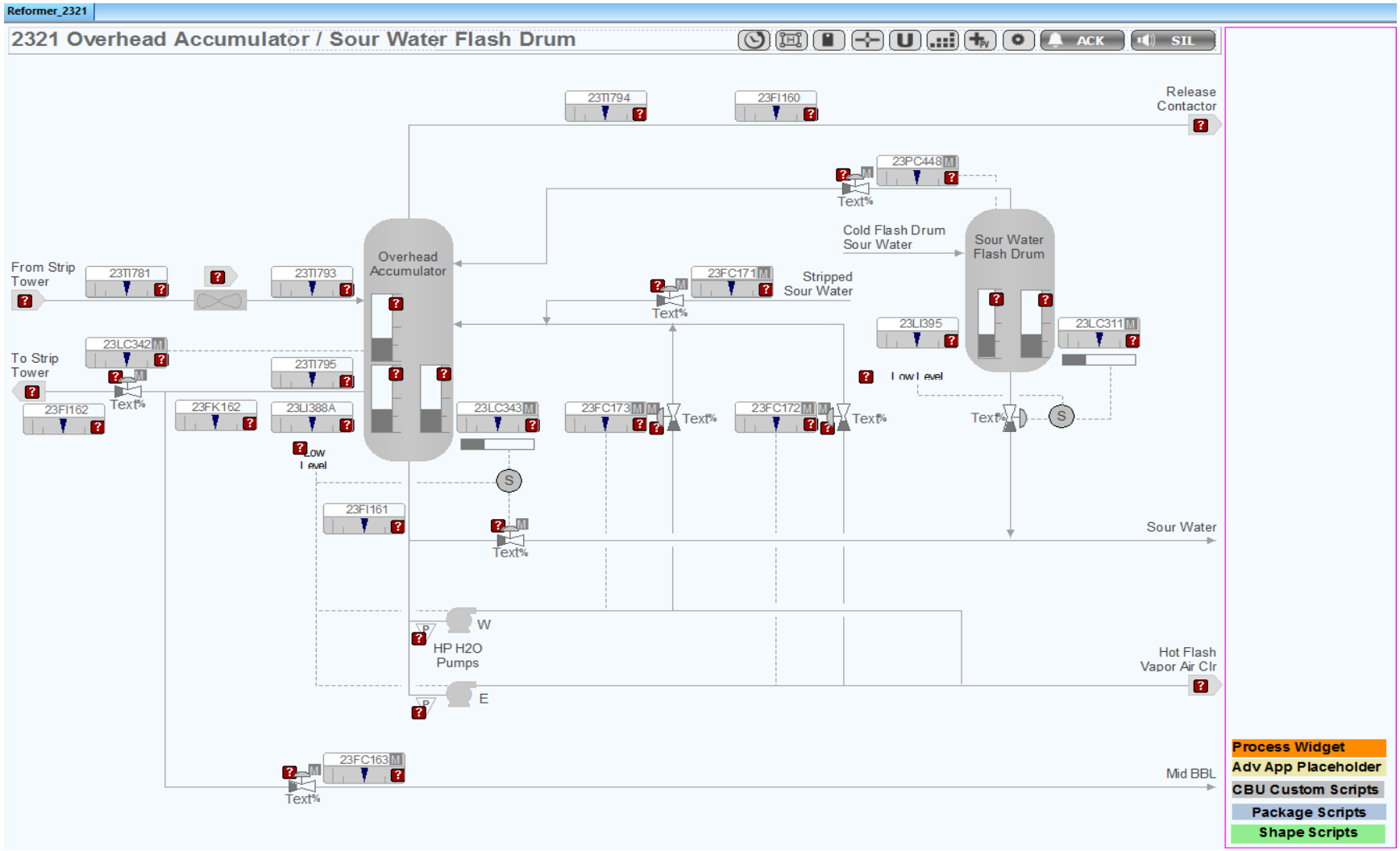
5.146 2320H1 HDS PRODUCT STRIPPER LEVEL LOGIC HELP (Reformer_2320H1.htm)



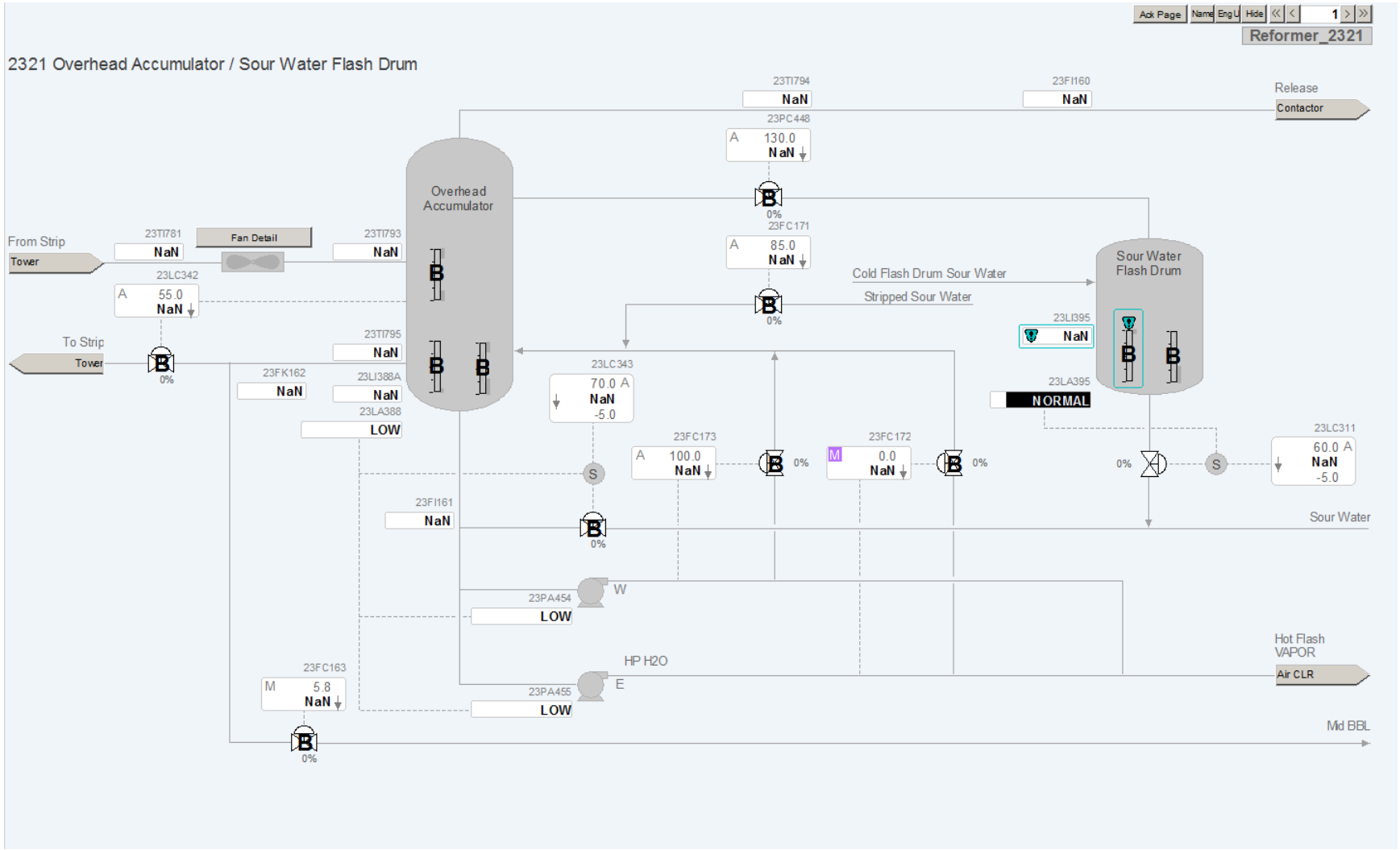
Station View



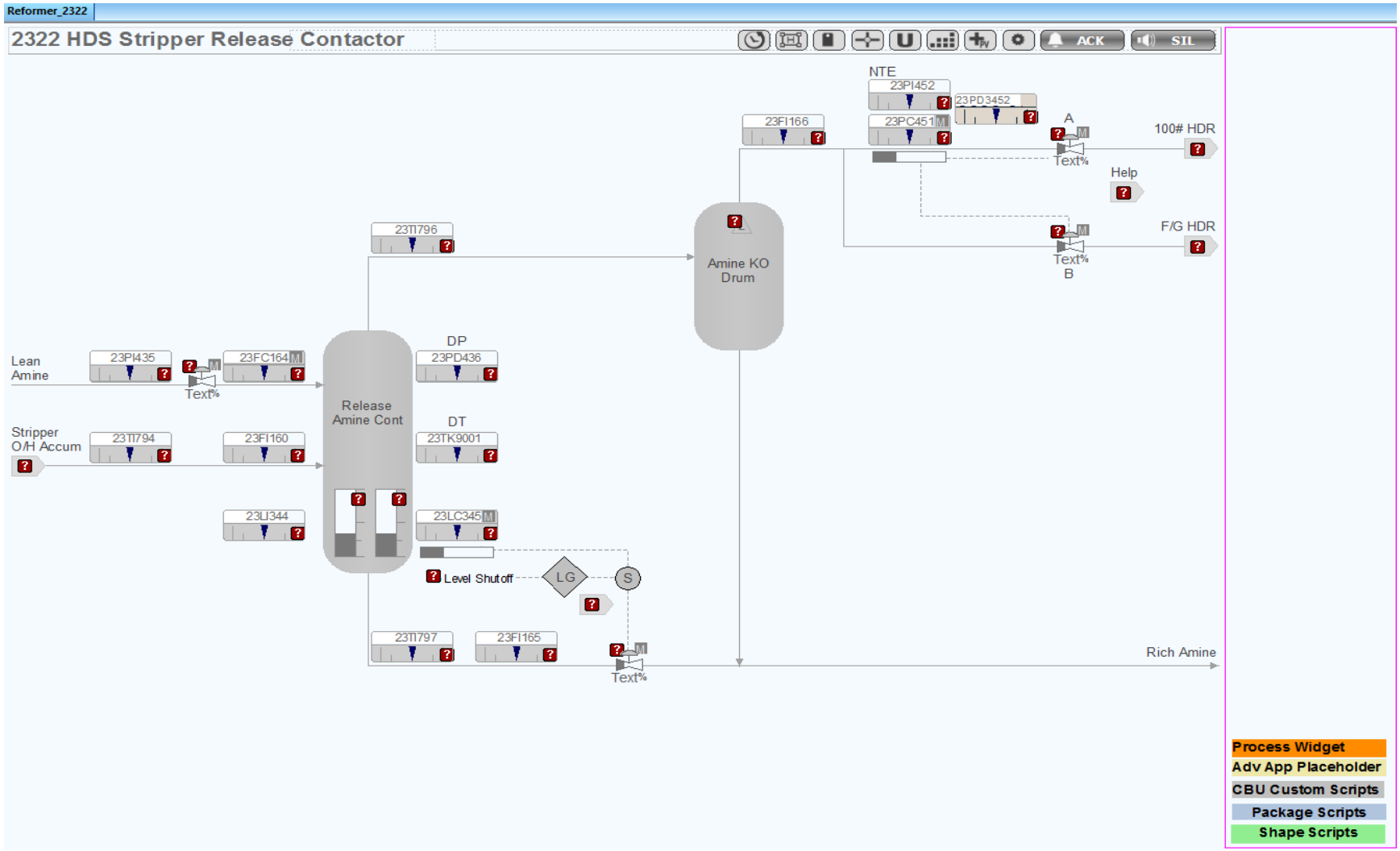
5.147 2321 OVERHEAD ACCUMULATOR / SOUR WATER FLASH DRUM (Reformer_2321.htm)



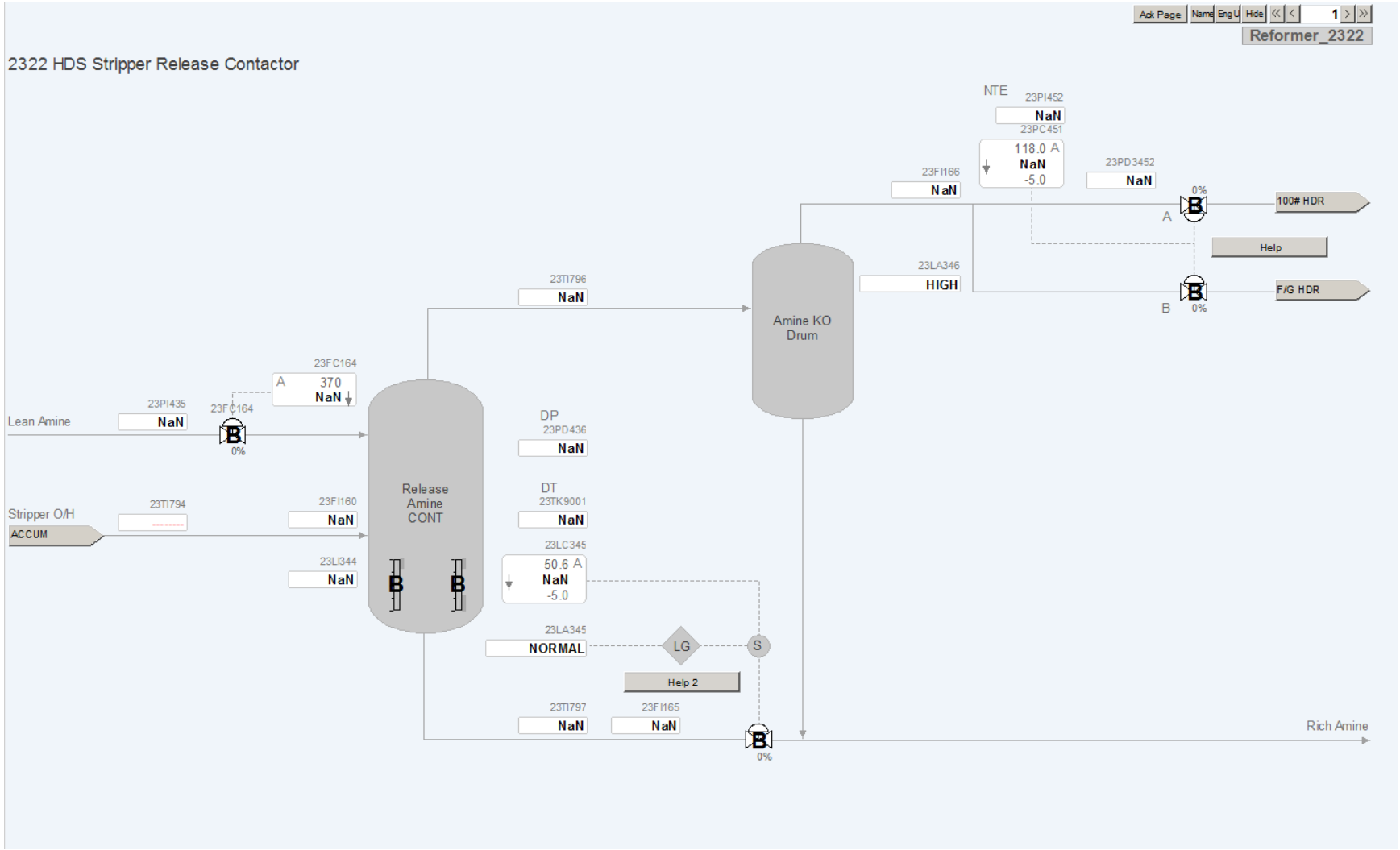
Station View



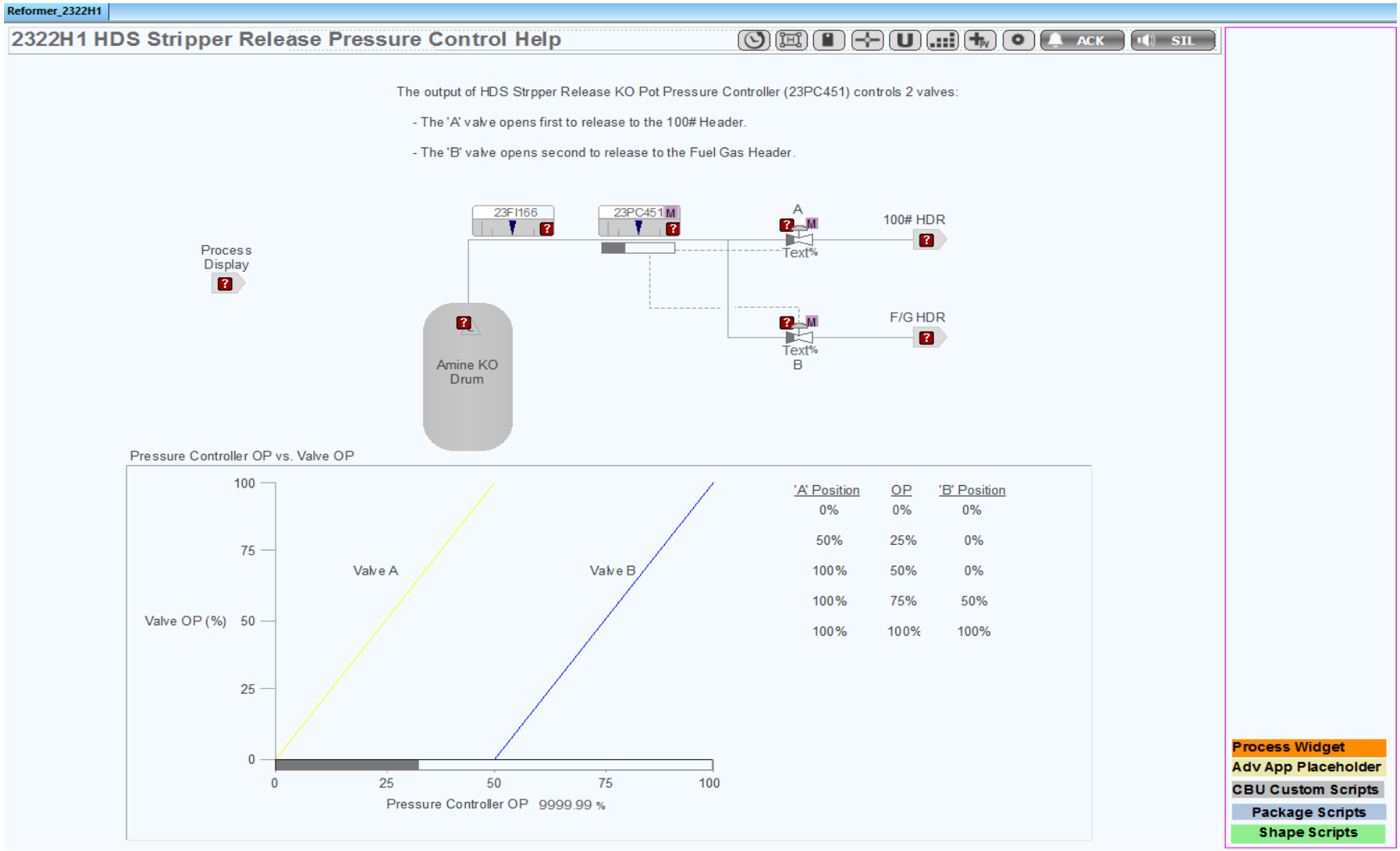
5.148 2322 HDS STRIPPER RELEASE CONTACTOR (Reformer_2322.htm)



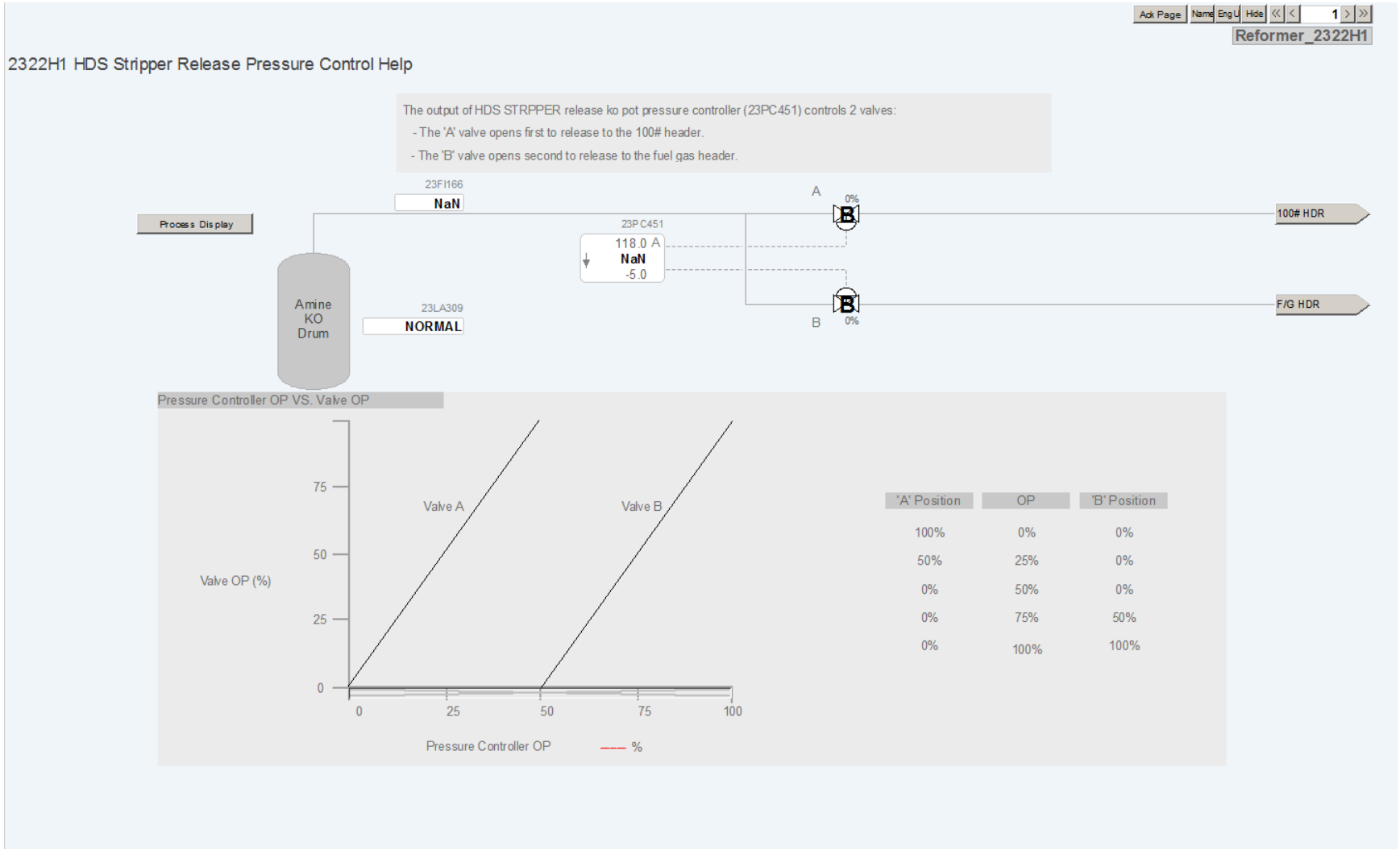
Station View



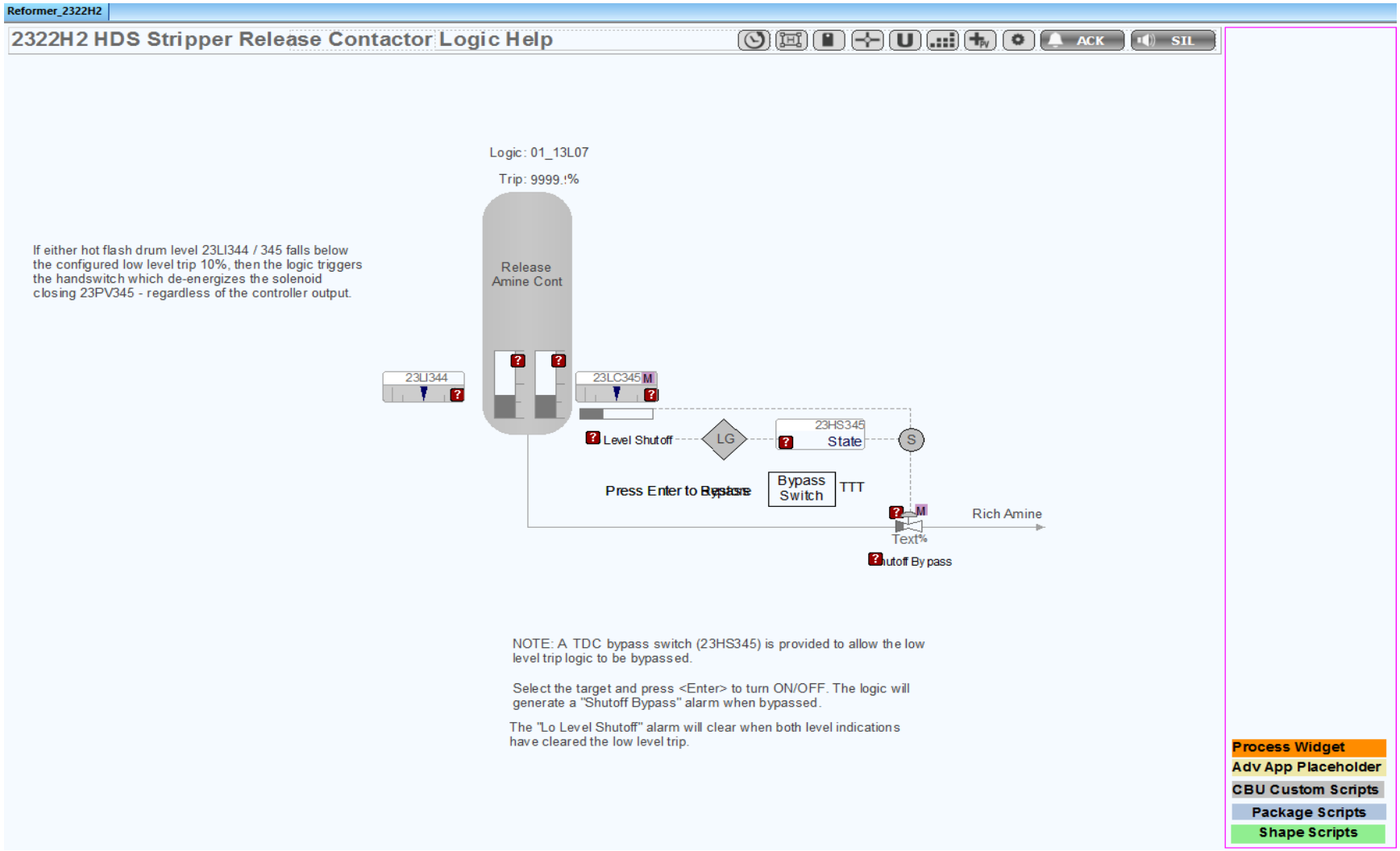
5.149 2322H1 HDS STRIPPER RELEASE PRESSURE CONTROL HELP (Reformer_2322H1.htm)



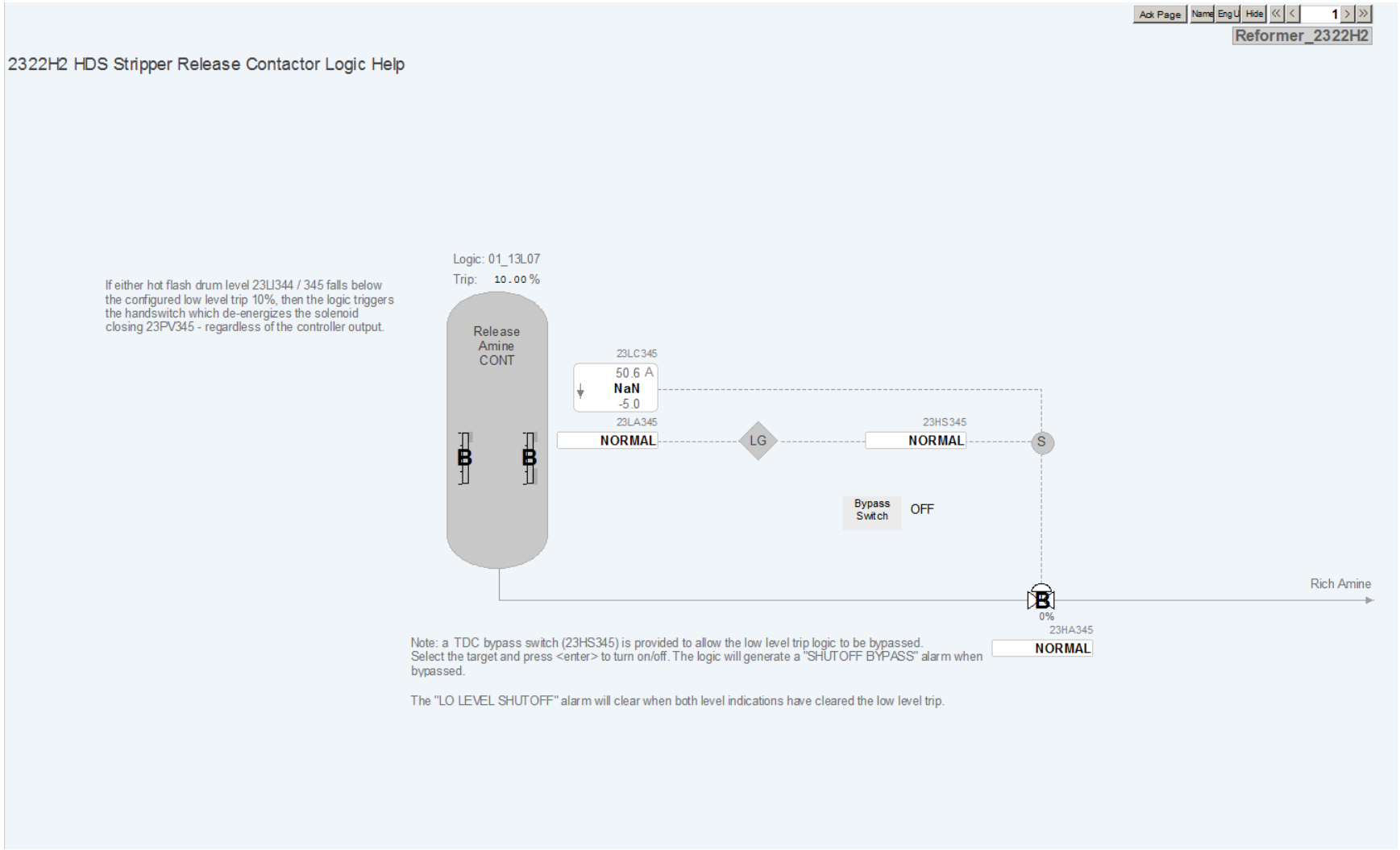
Station View



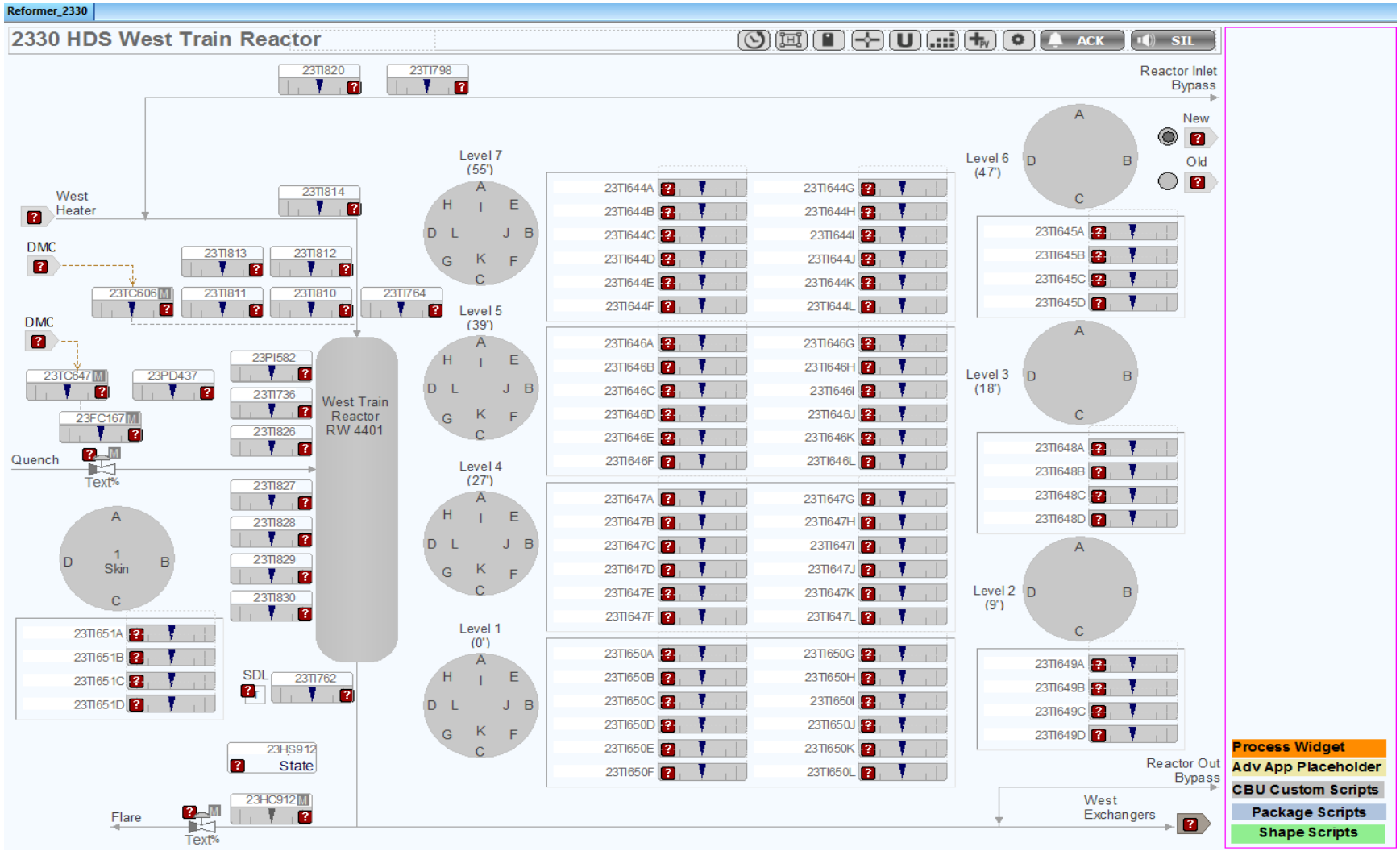
5.150 2322H2 HDS STRIPPER RELEASE CONTACTOR LOGIC HELP (Reformer_2322H2.htm)



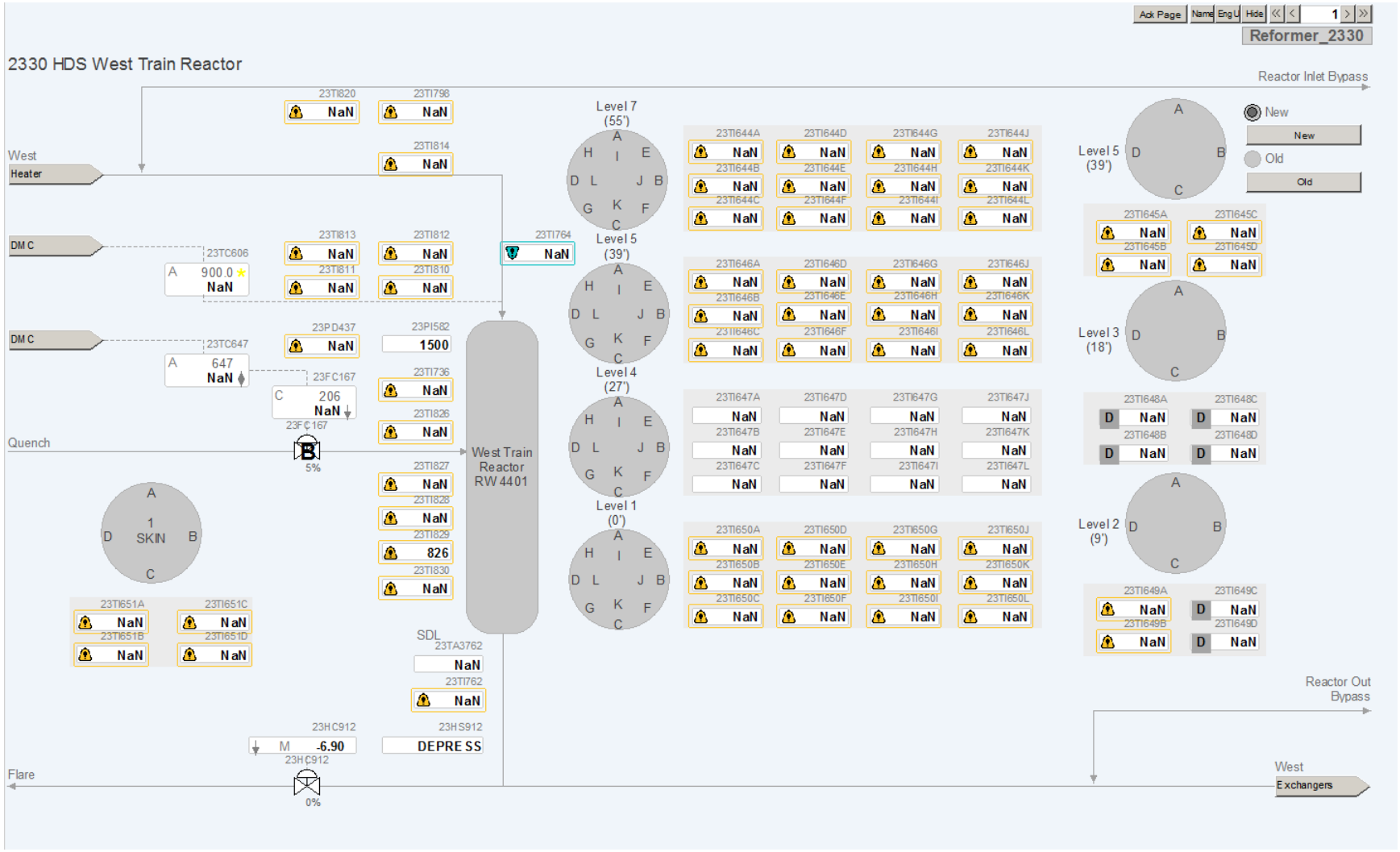
Station View



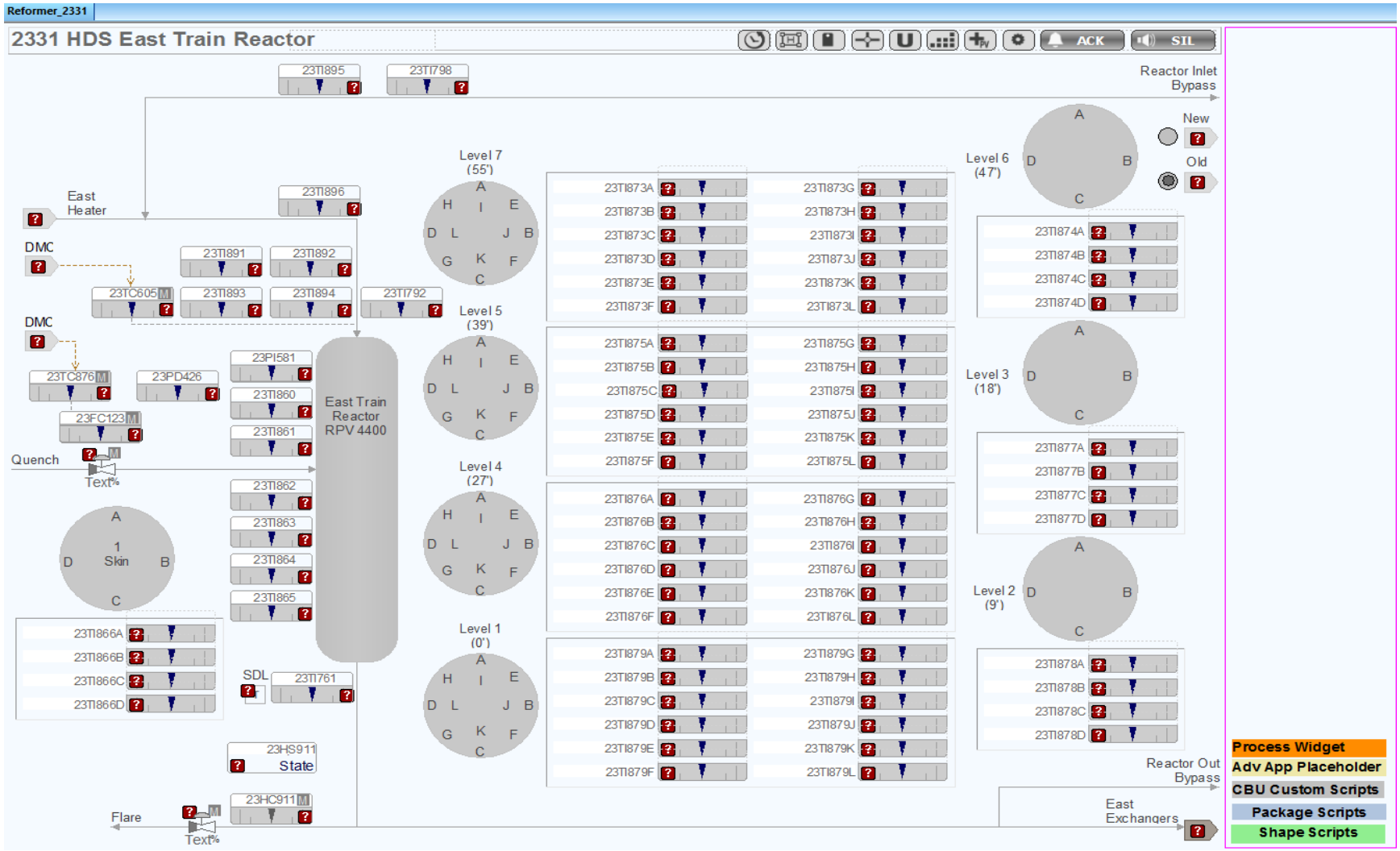
5.151 2330 HDS WEST TRAIN REACTOR (Reformer_2330.htm)



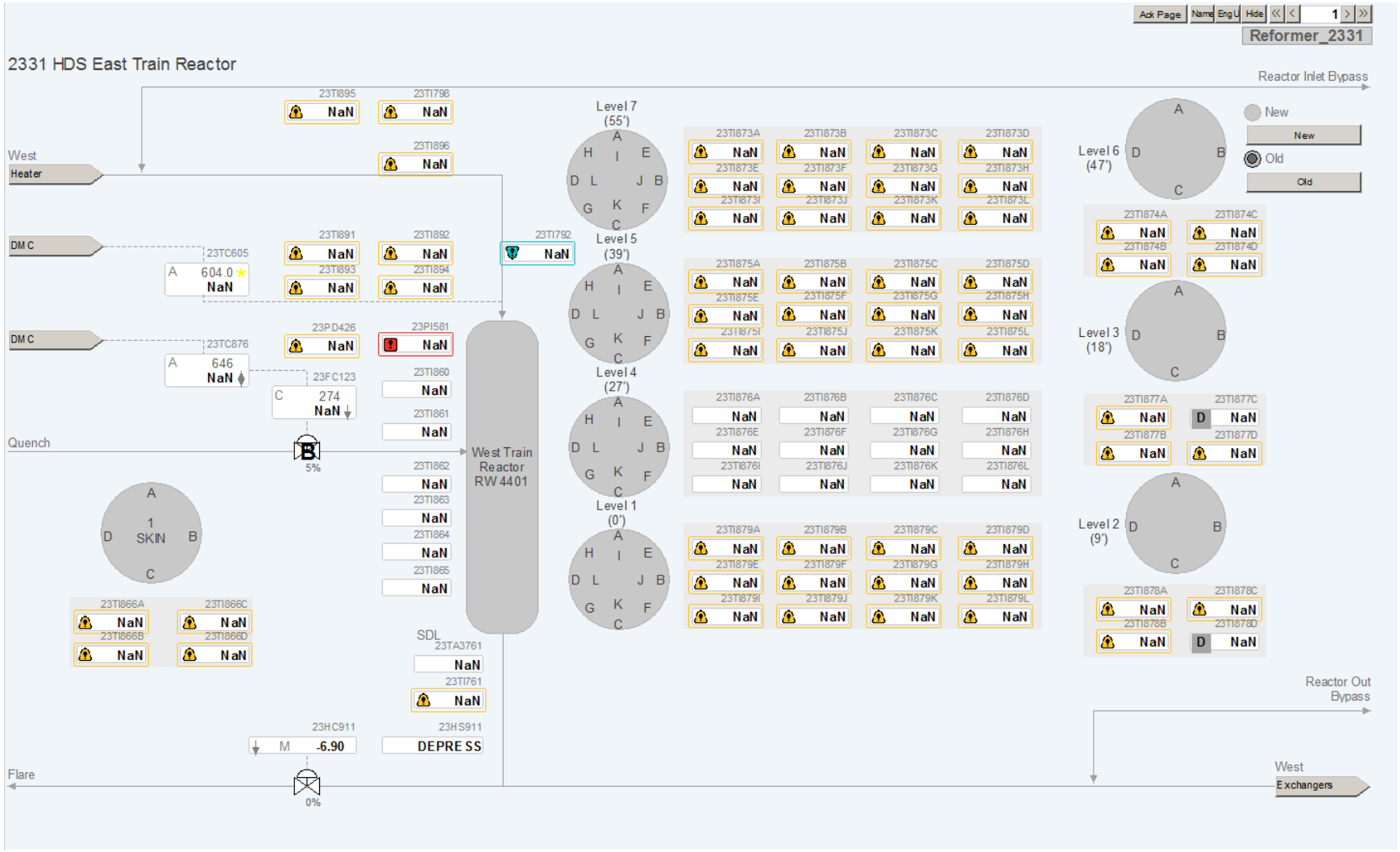
Station View



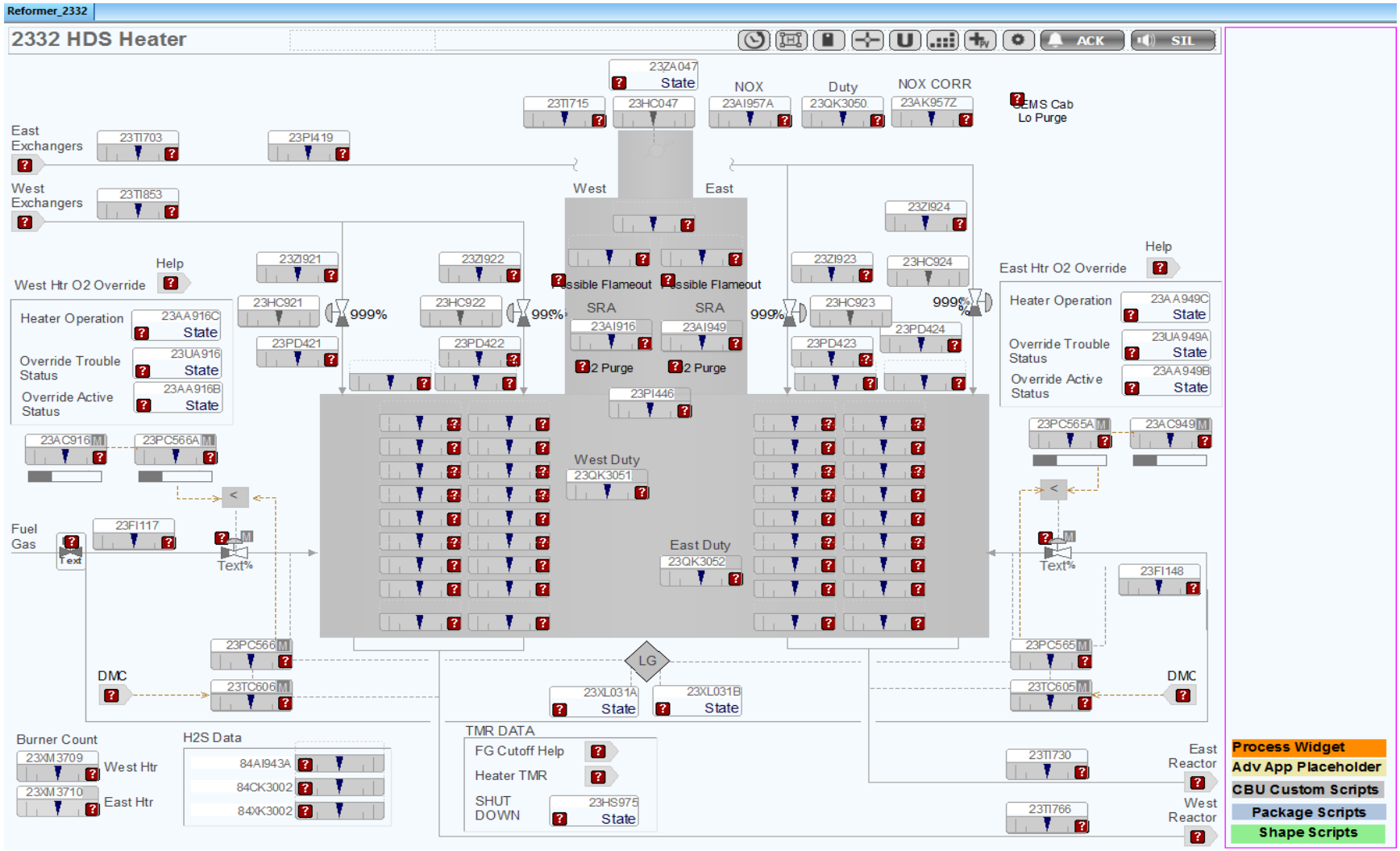
5.152 2331 HDS EAST TRAIN REACTOR (Reformer_2331.htm)



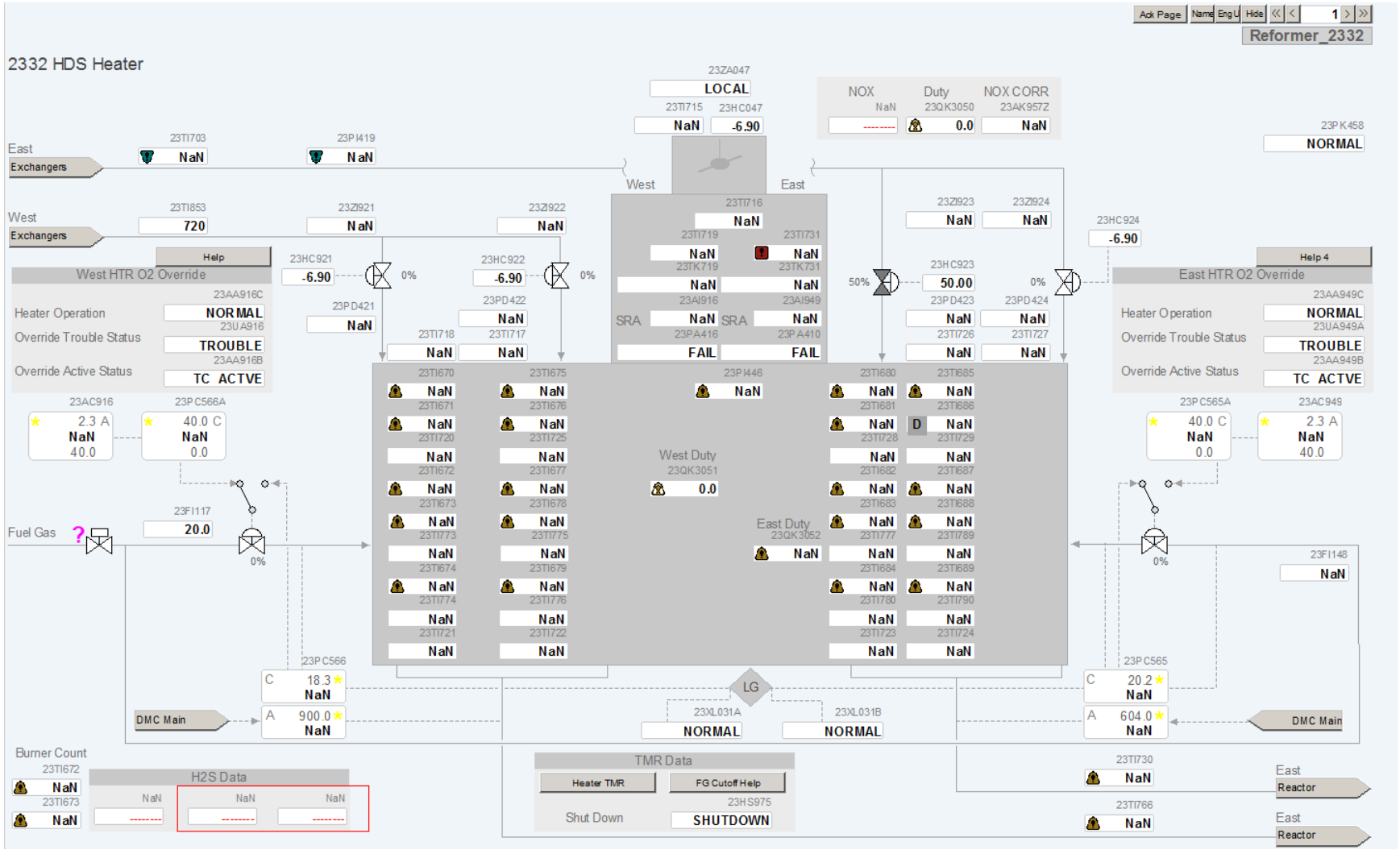
Station View



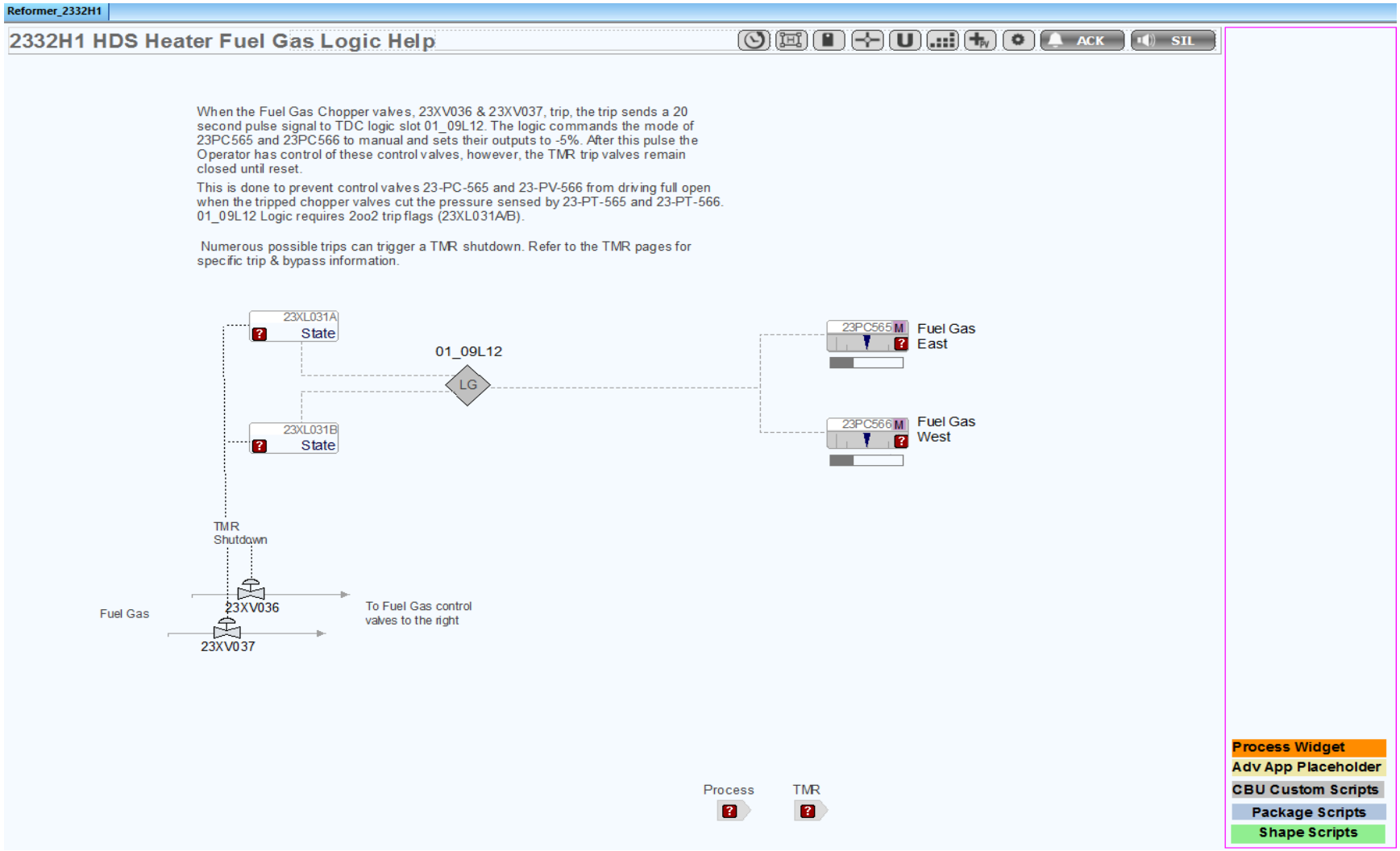
5.153 2332 HDS HEATER (Reformer_2332.htm)



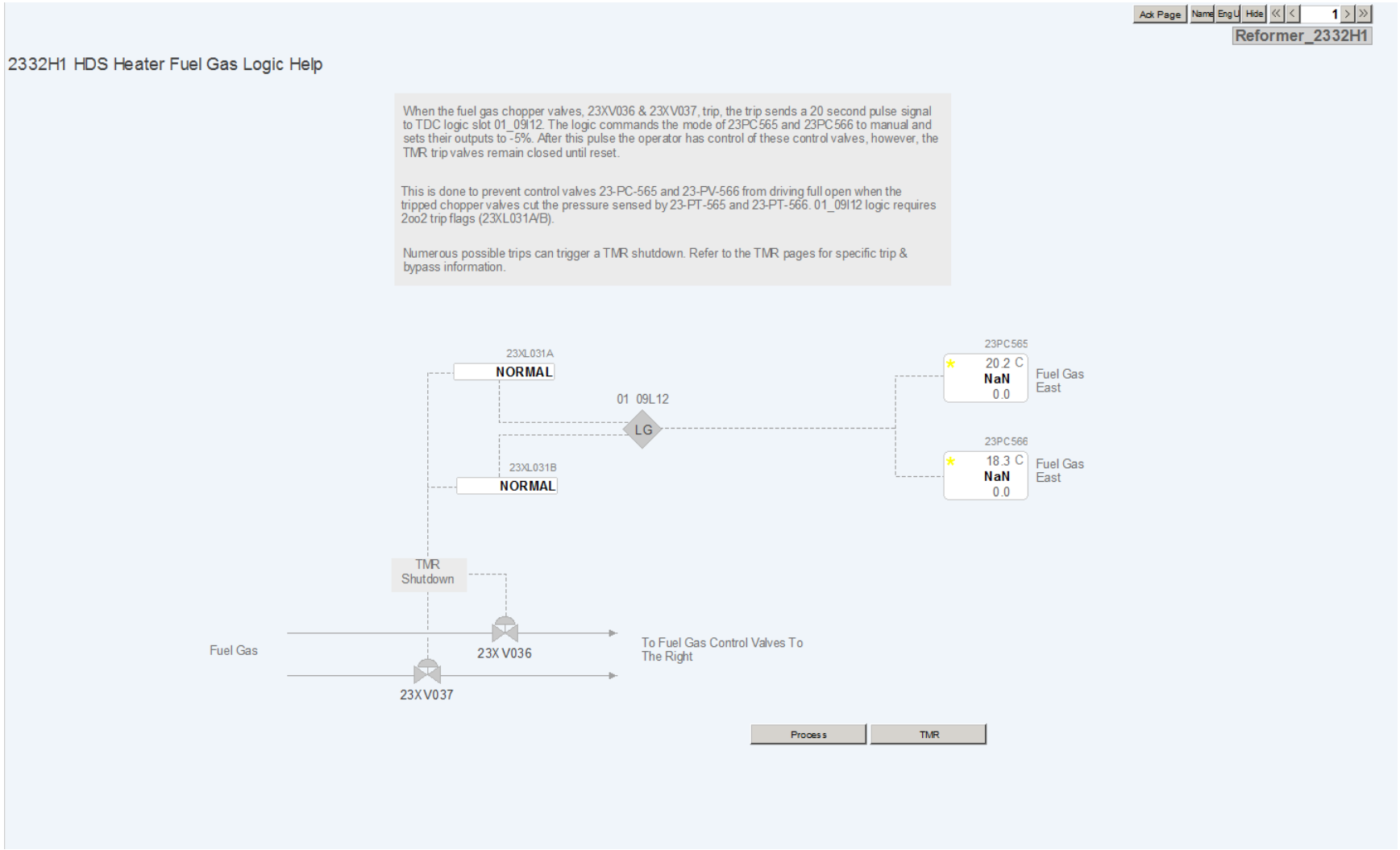
Station View



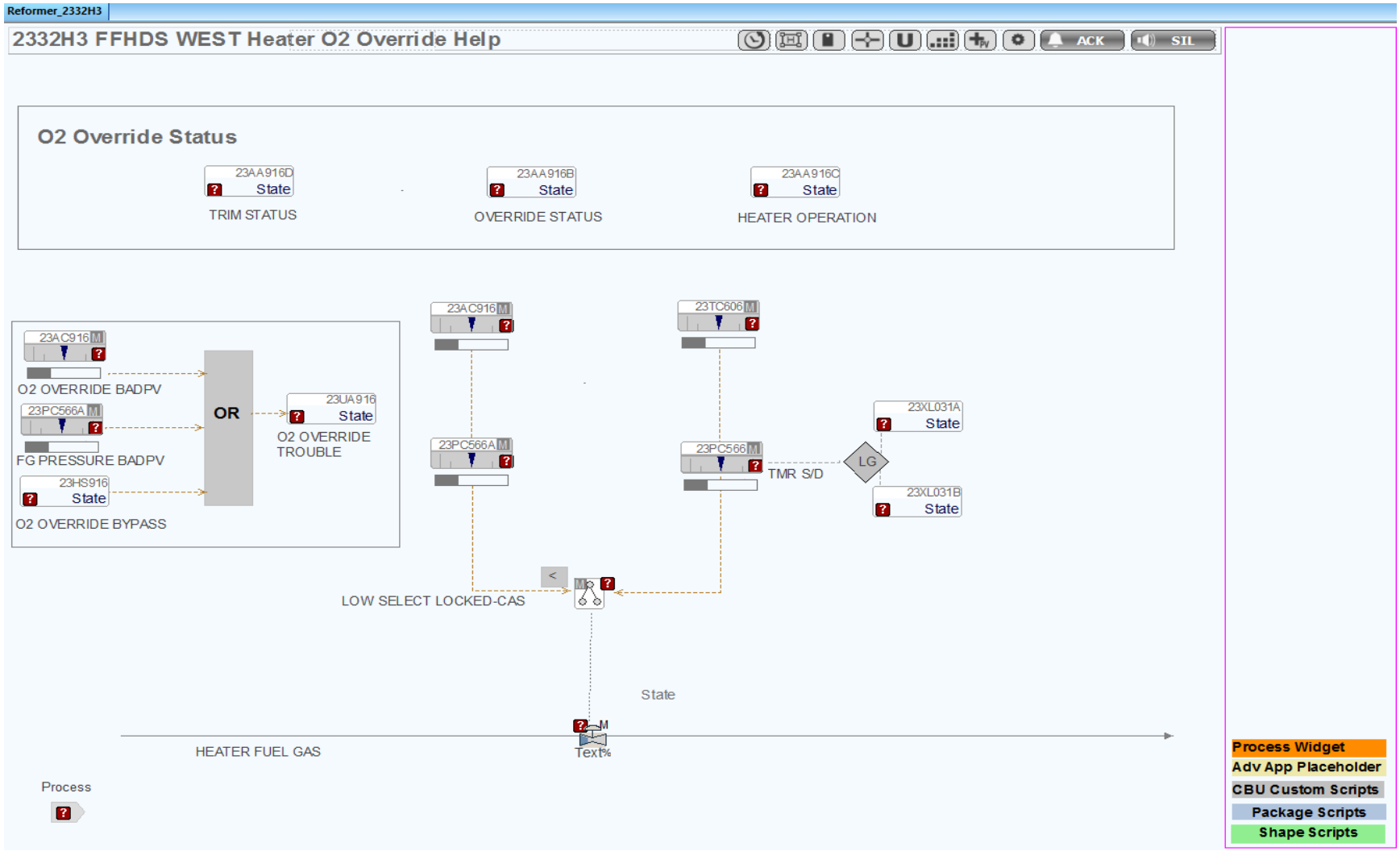
5.154 2332H1 HDS HEATER FUEL GAS LOGIC HELP (Reformer_2332H1.htm)



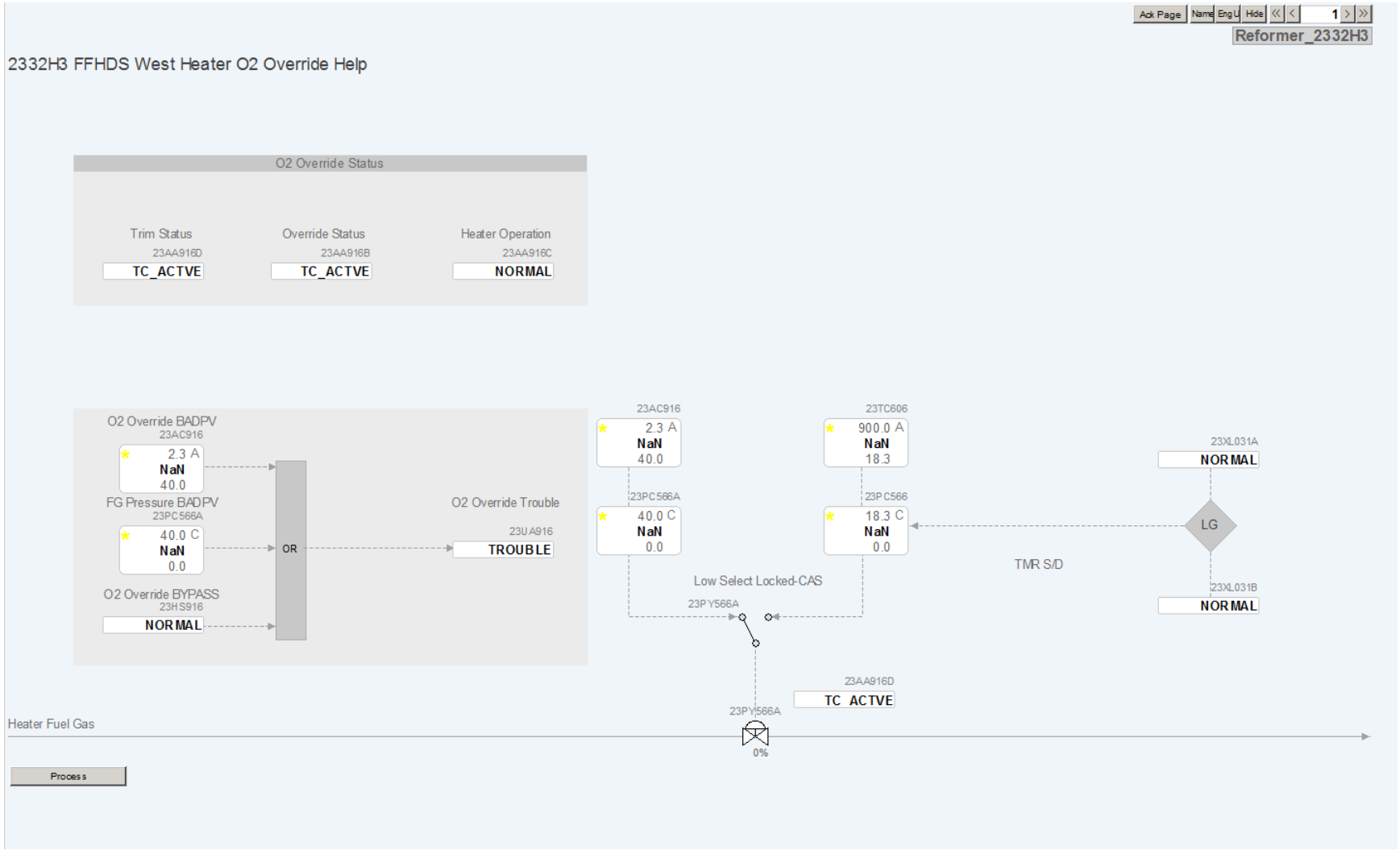
Station View



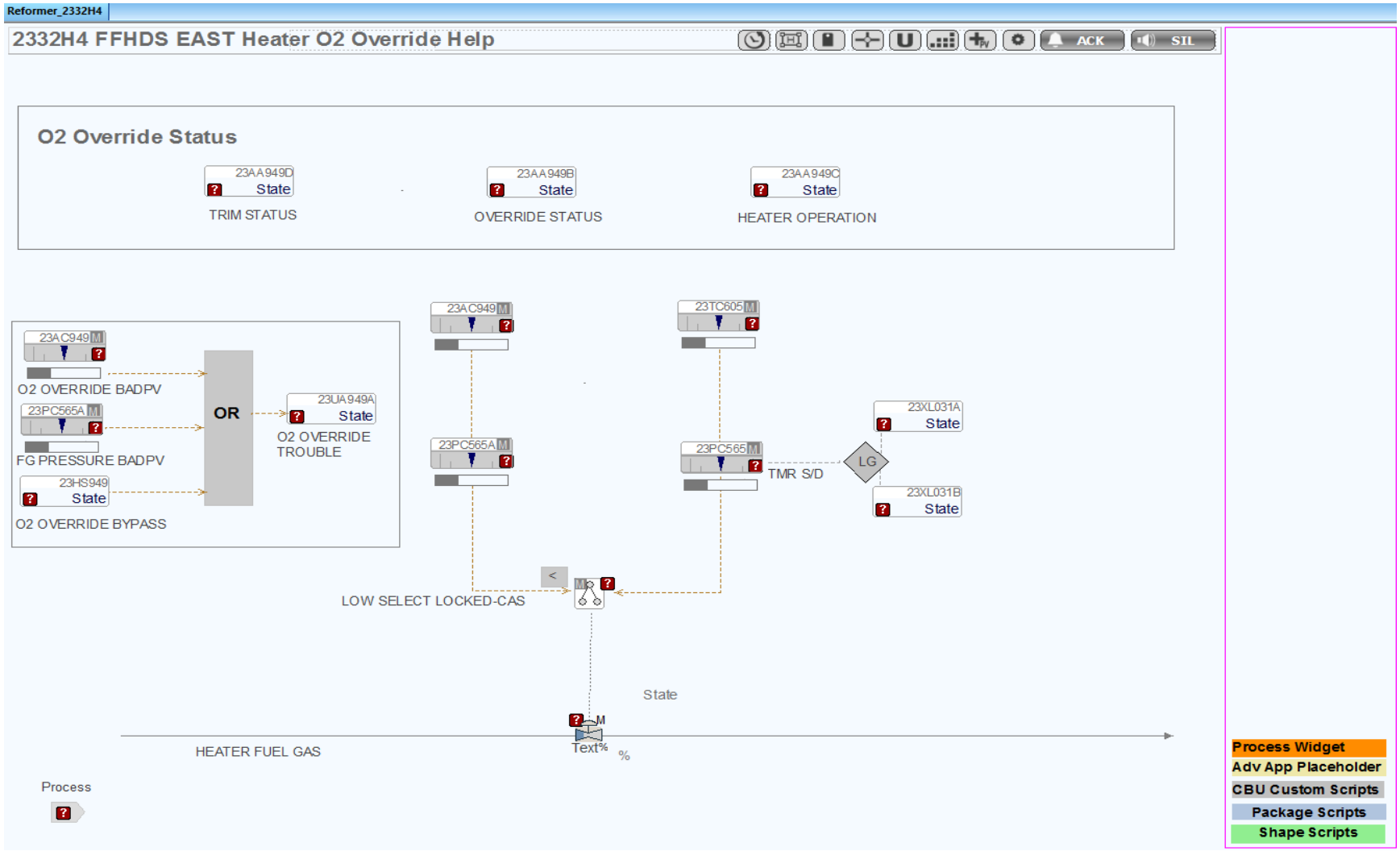
5.155 2332H3 FFHDS WEST HEATER O2 OVERRIDE HELP (Reformer_2332H3.htm)



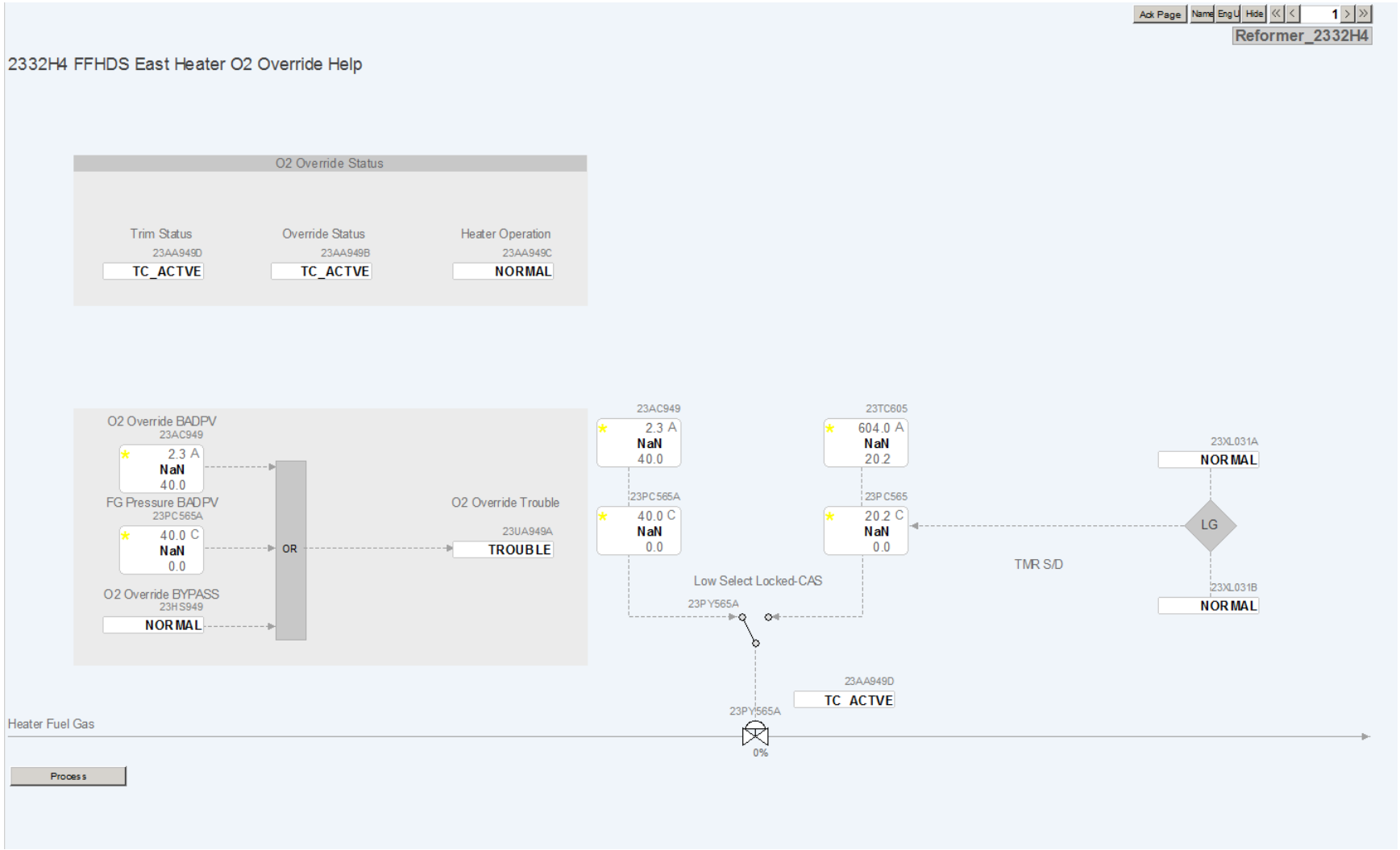
Station View



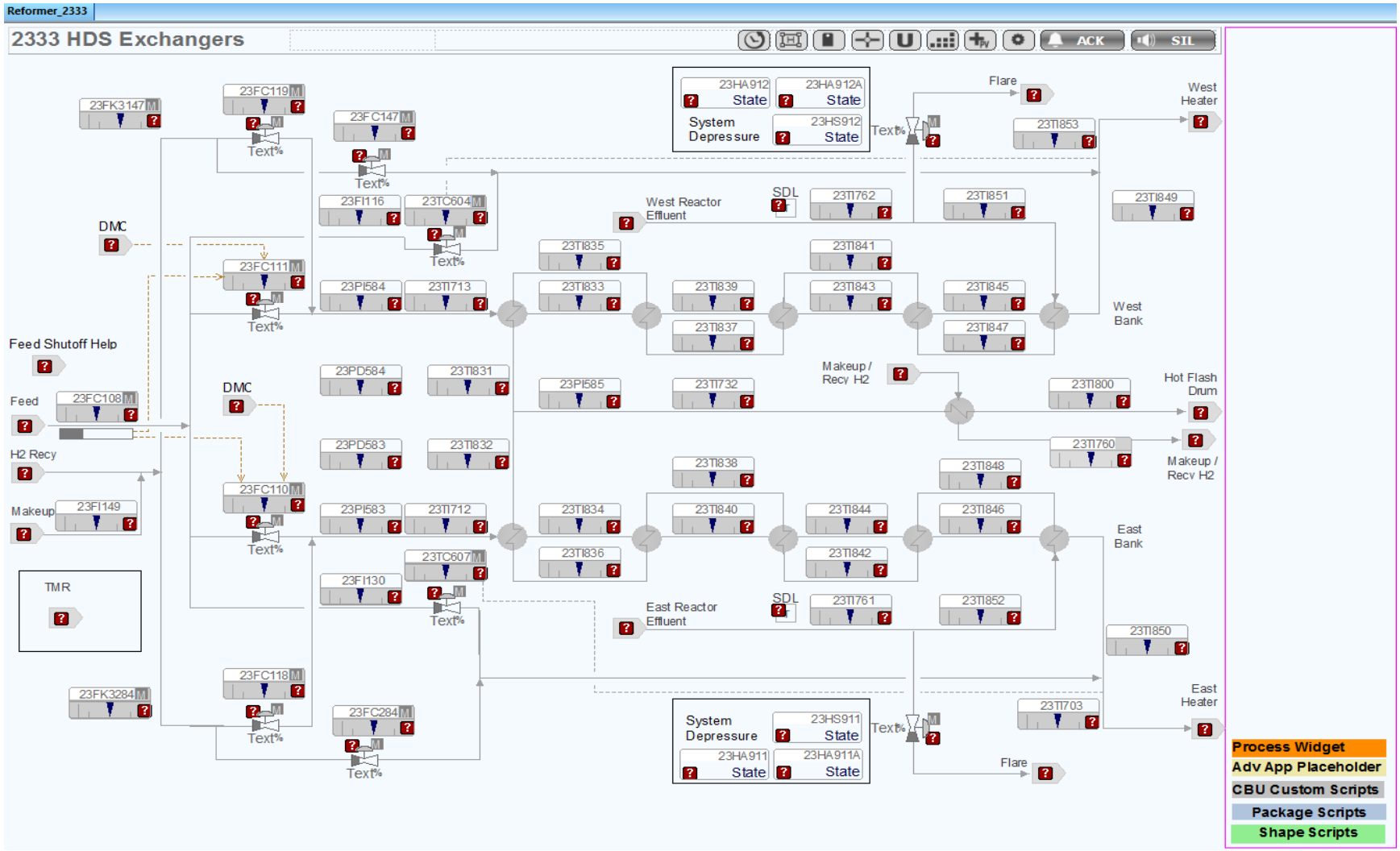
5.156 2332H4 FFHDS EAST HEATER O2 OVERRIDE HELP (Reformer_2332H4.htm)



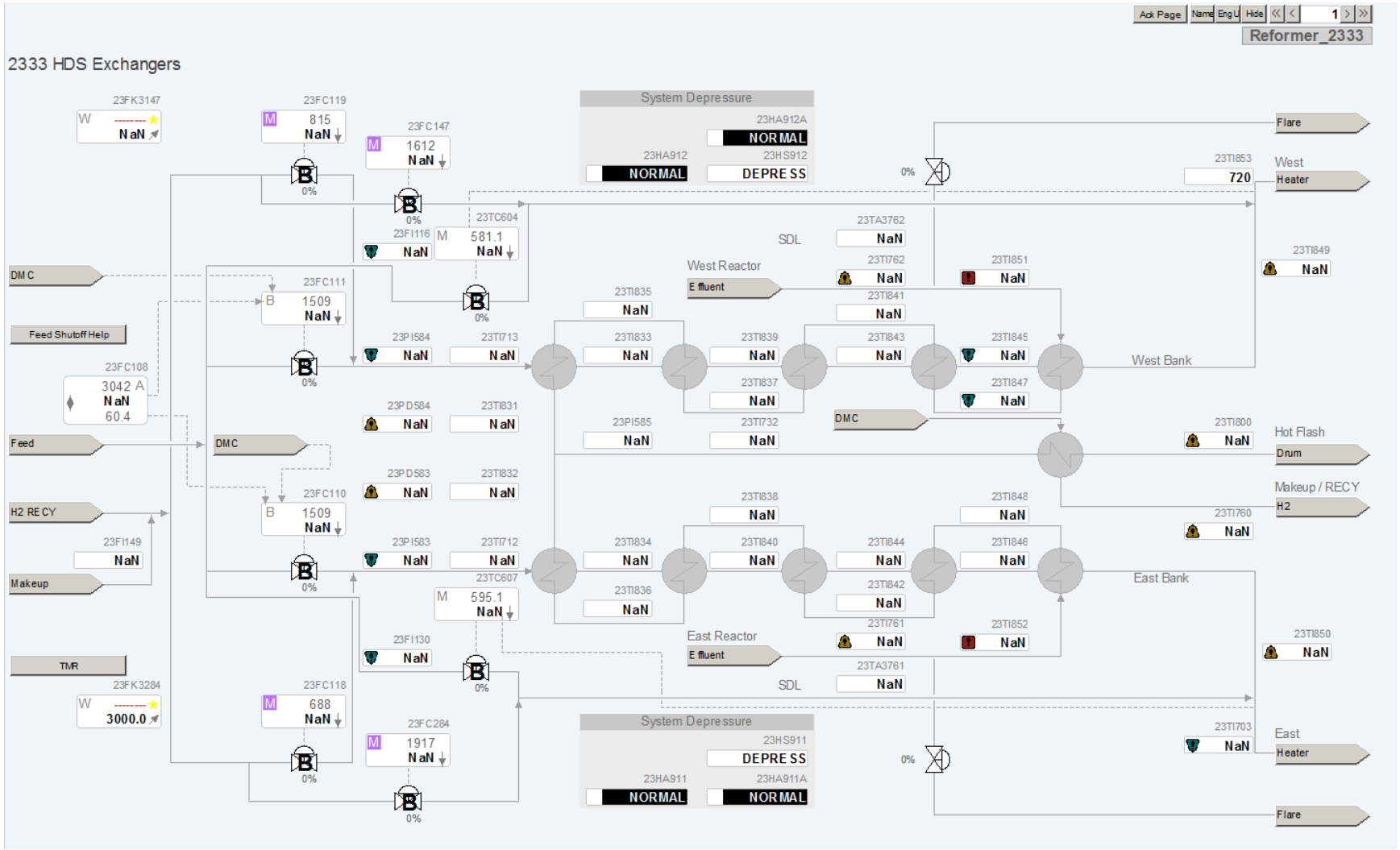
Station View



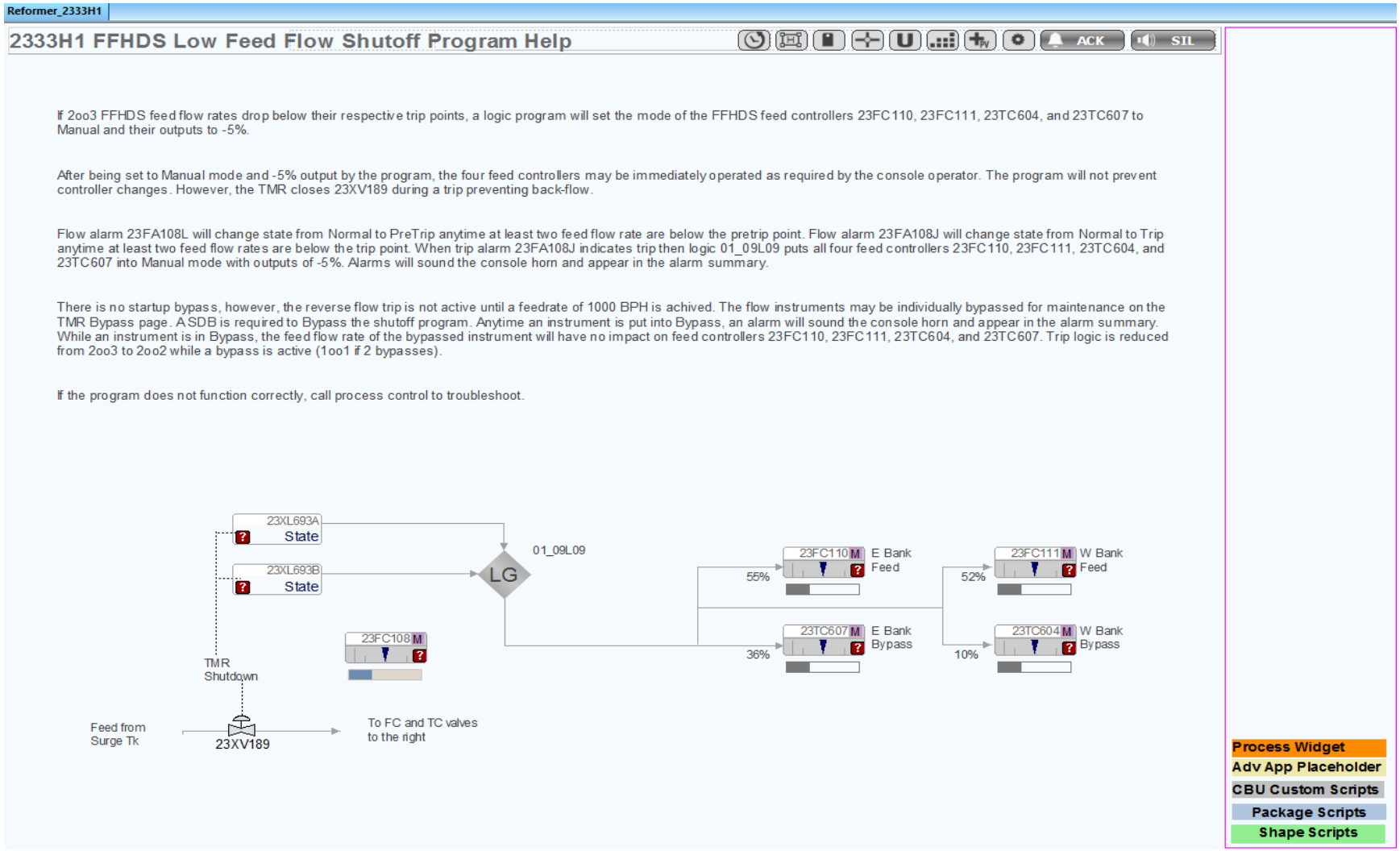
5.157 2333 HDS EXCHANGERS (Reformer_2333.htm)



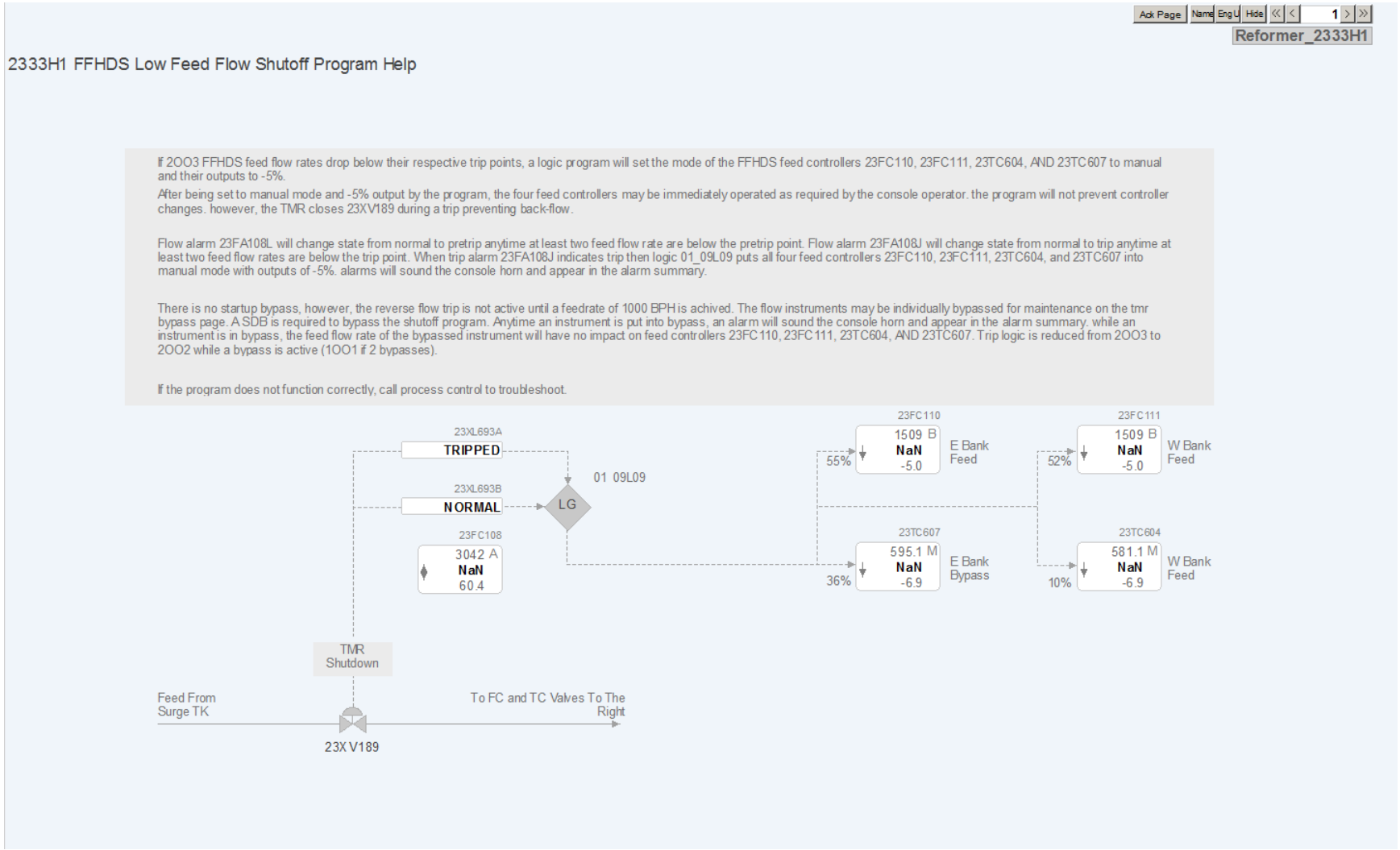
Station View



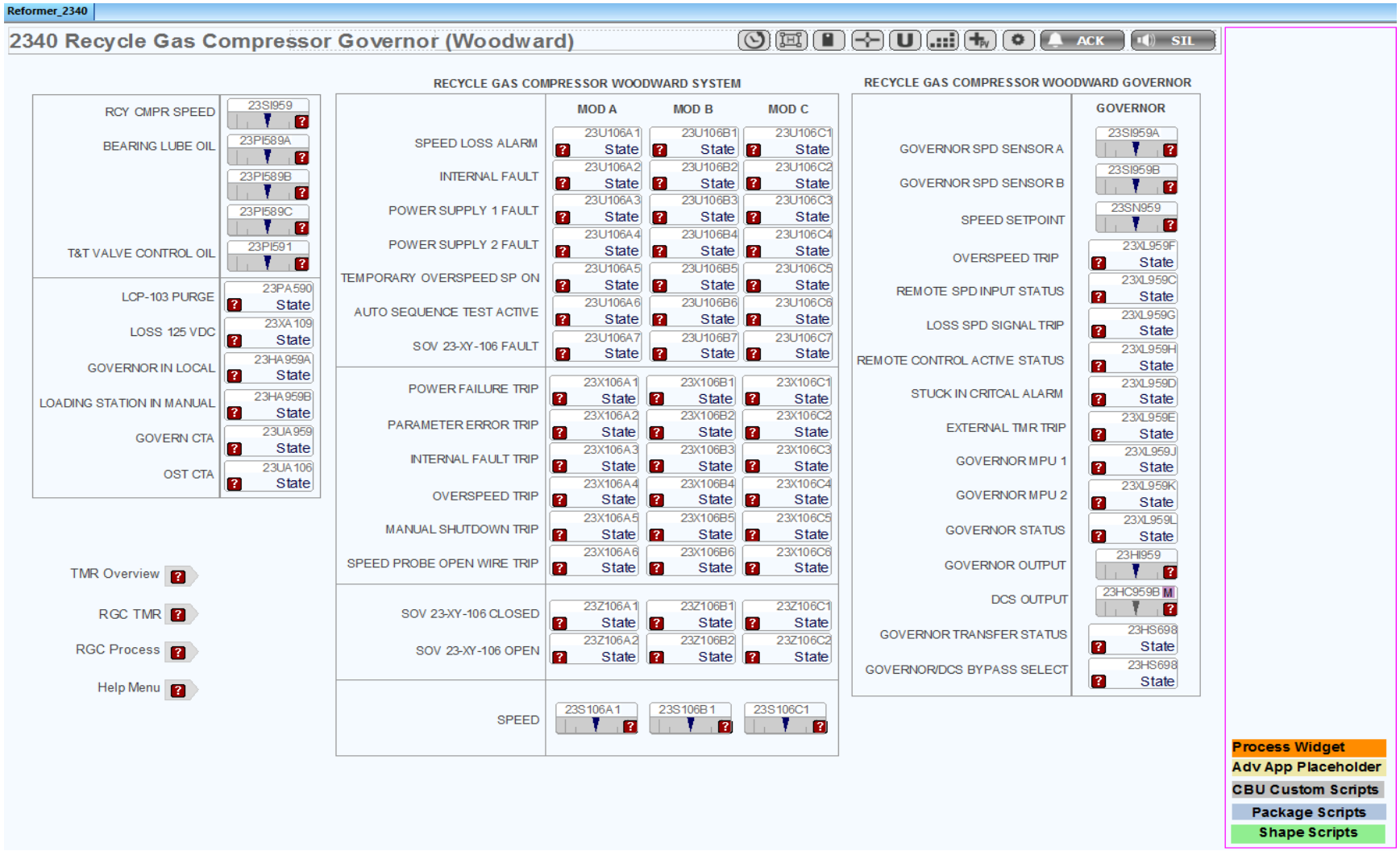
5.158 2333H1 FFHDS LOW FEED FLOW SHUTOFF PROGRAM HELP (Reformer_2333H1.htm)



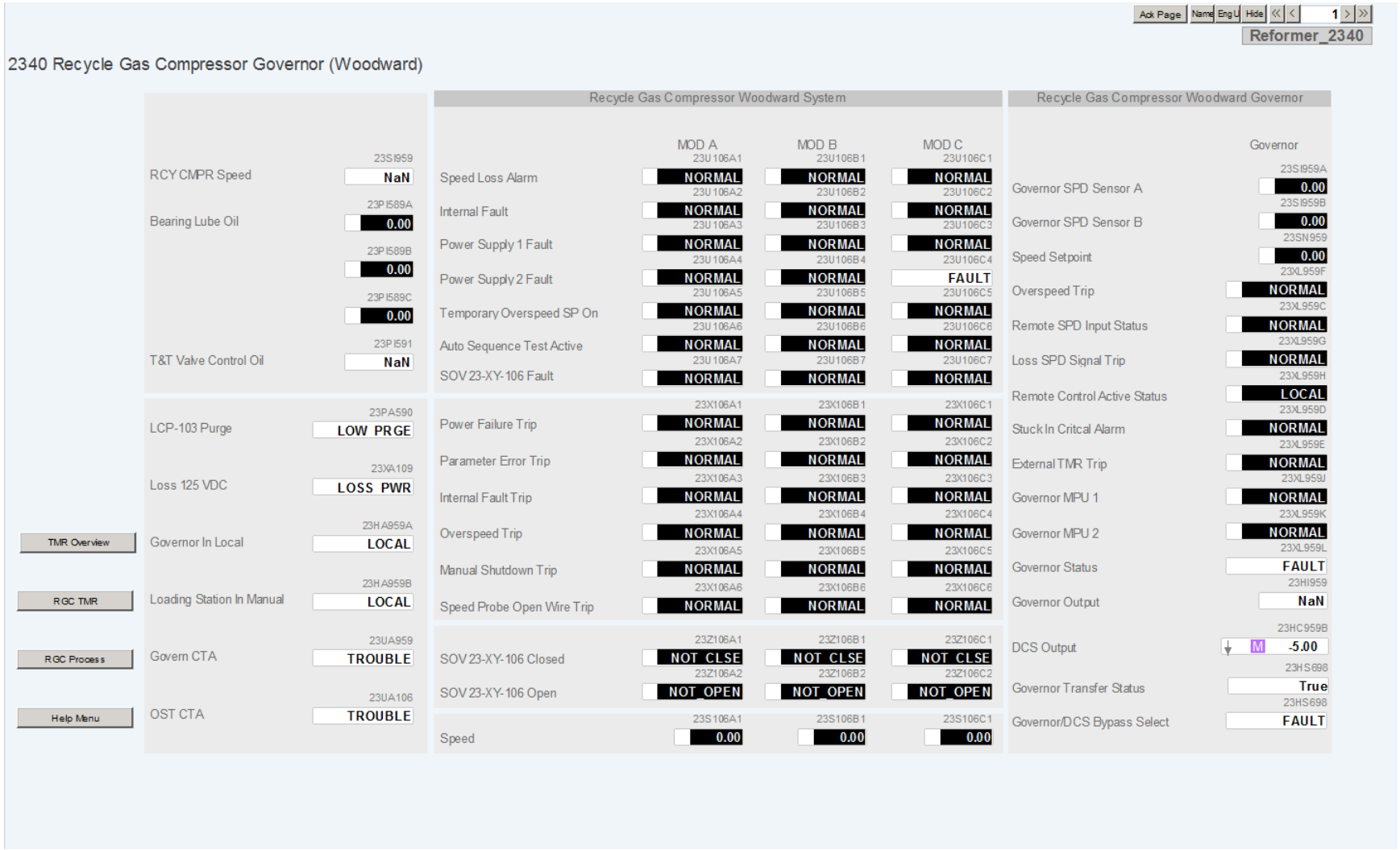
Station View



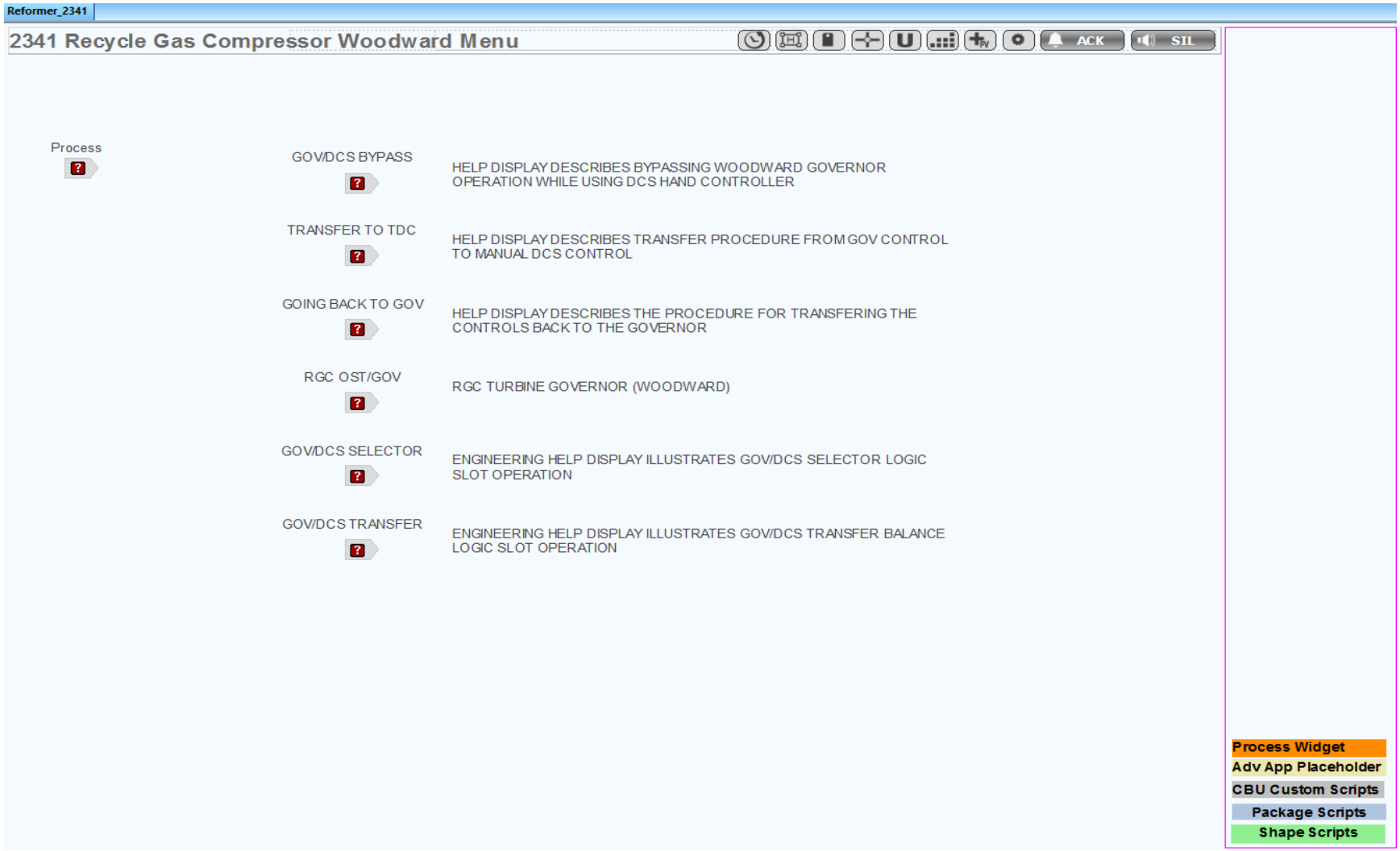
5.159 2340 RECYCLE GAS COMPRESSOR GOVERNOR (WOODWARD) (Reformer_2340.htm)



Station View

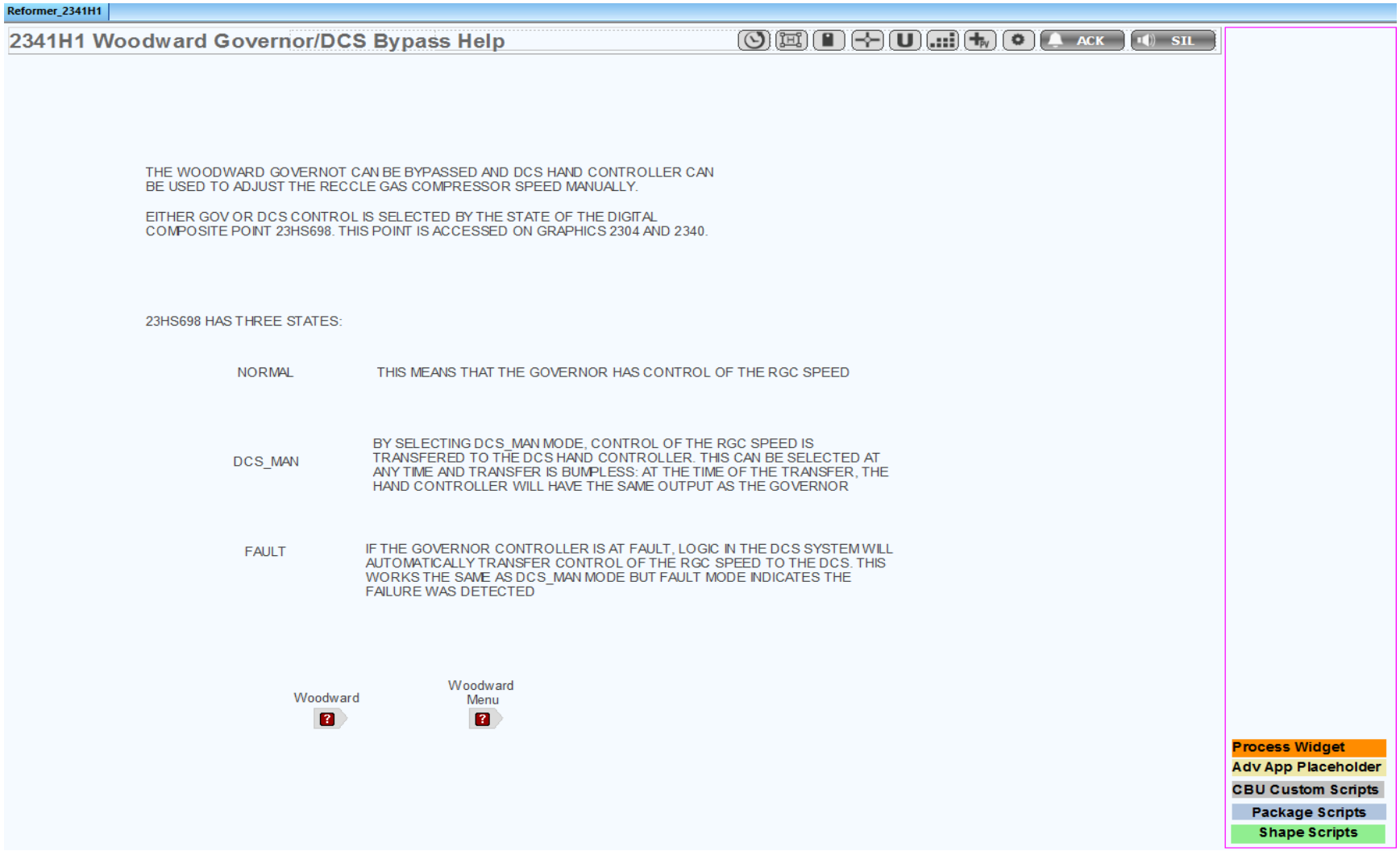


5.160 2341 RECYCLE GAS COMPRESSOR WOODWARD MENU (Reformer_2341.htm)



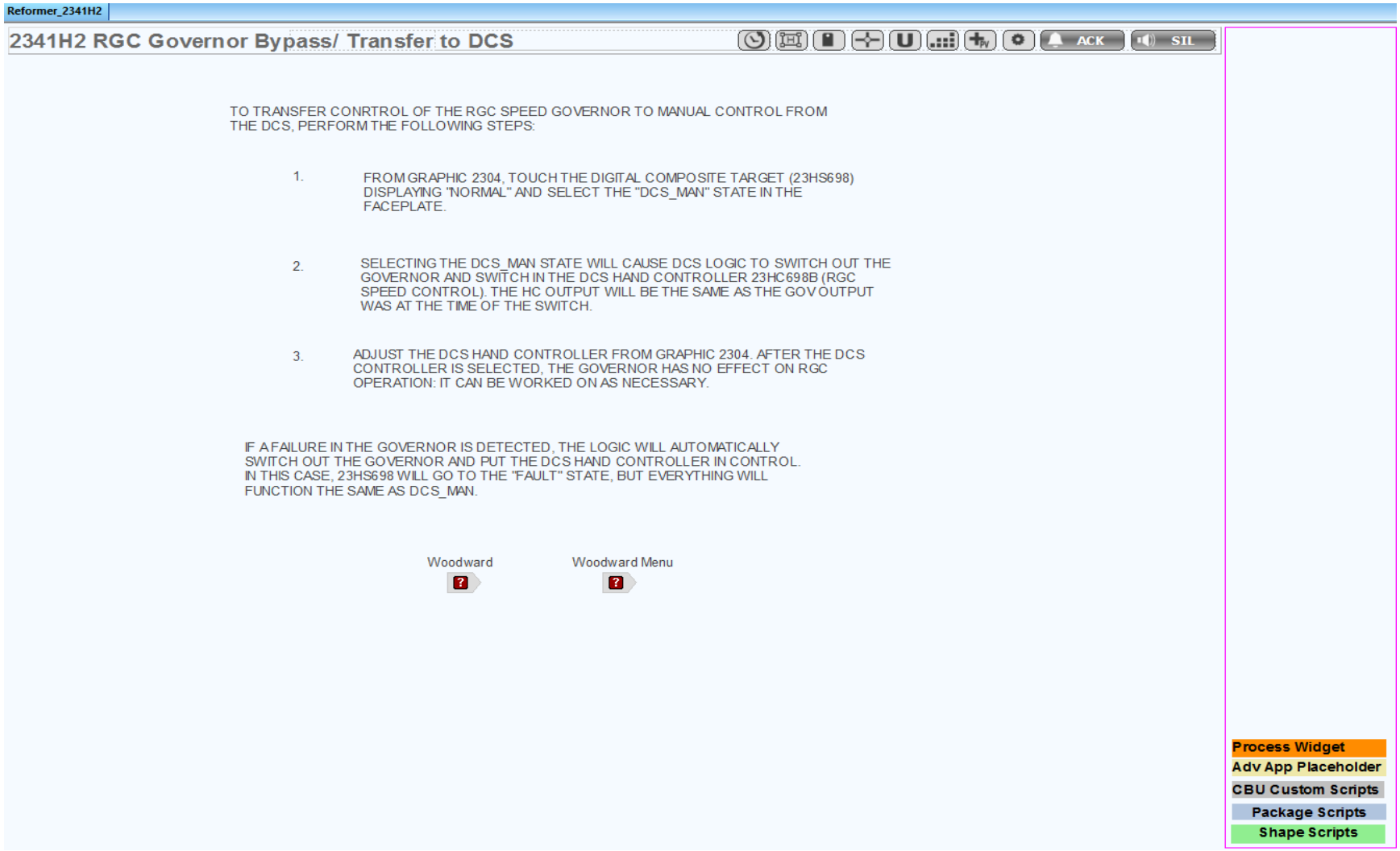
Station View

5.161 2341H1 WOODWARD GOVERNOR/DCS BYPASS HELP (Reformer_2341H1.htm)



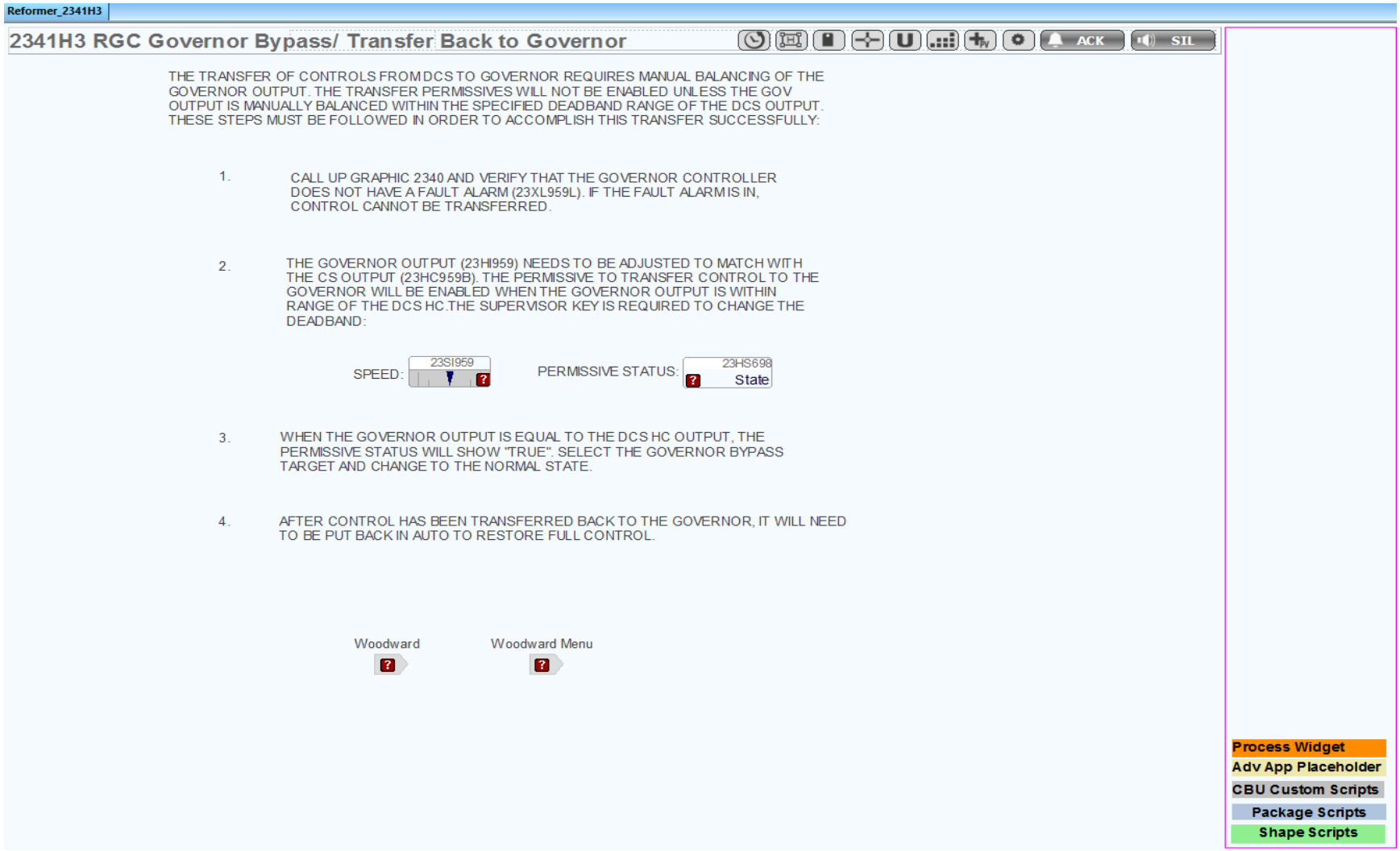
Station View

5.162 2341H2 RGC GOVERNOR BYPASS/ TRANSFER TO DCS (Reformer_2341H2.htm)

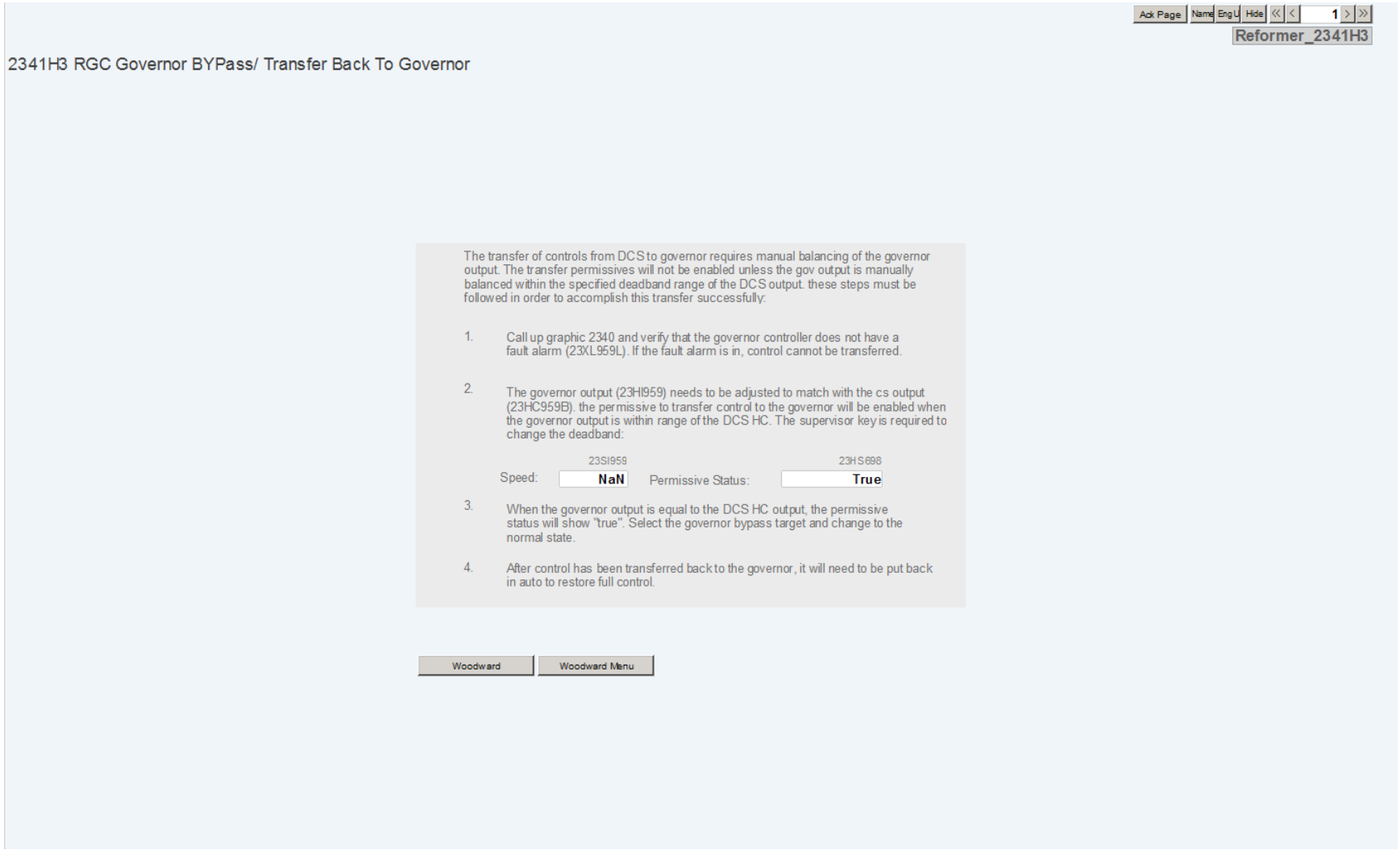


Station View

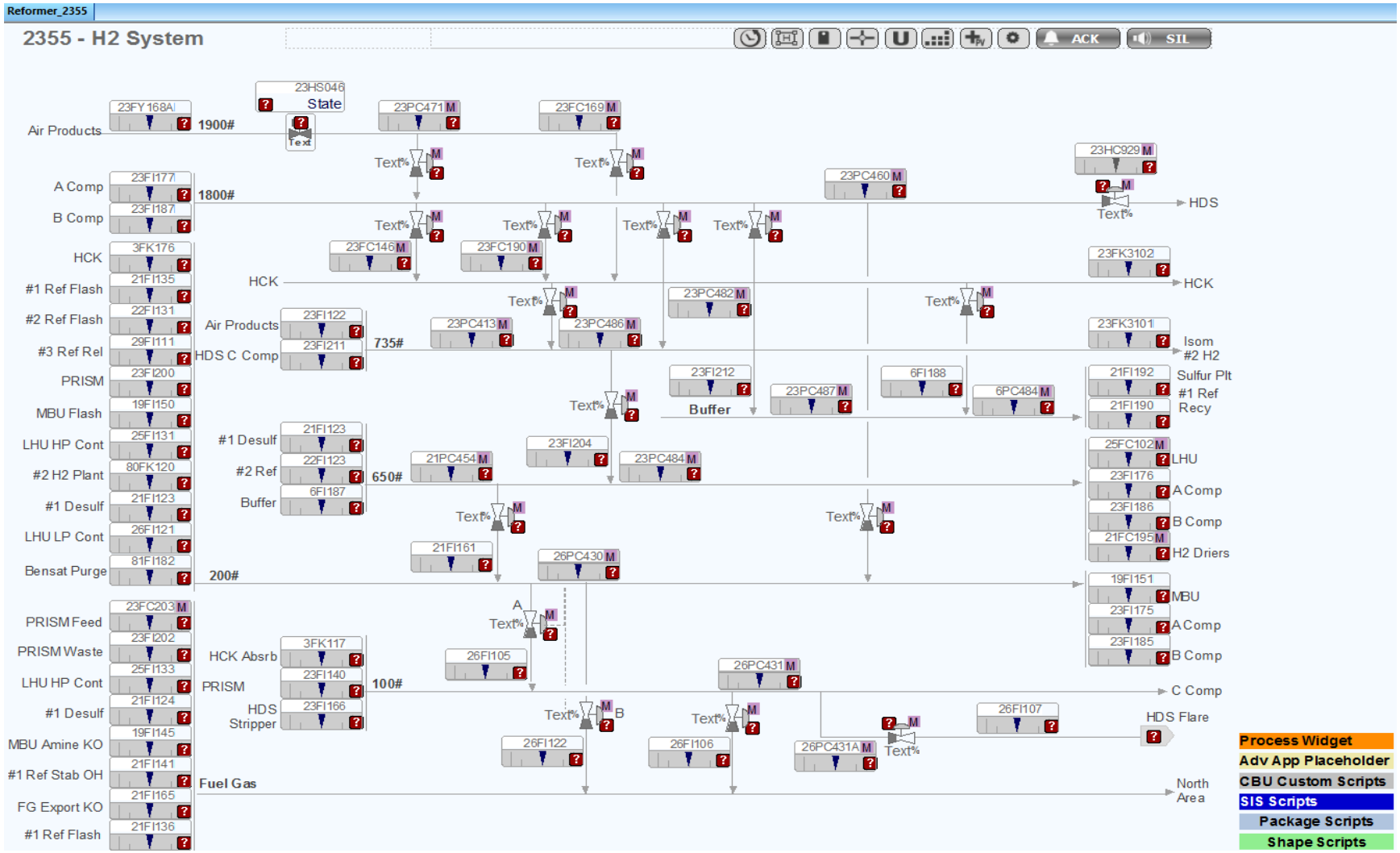
5.163 2341H3 RGC GOVERNOR BYPASS/ TRANSFER BACK TO GOVERNOR (Reformer_2341H3.htm)



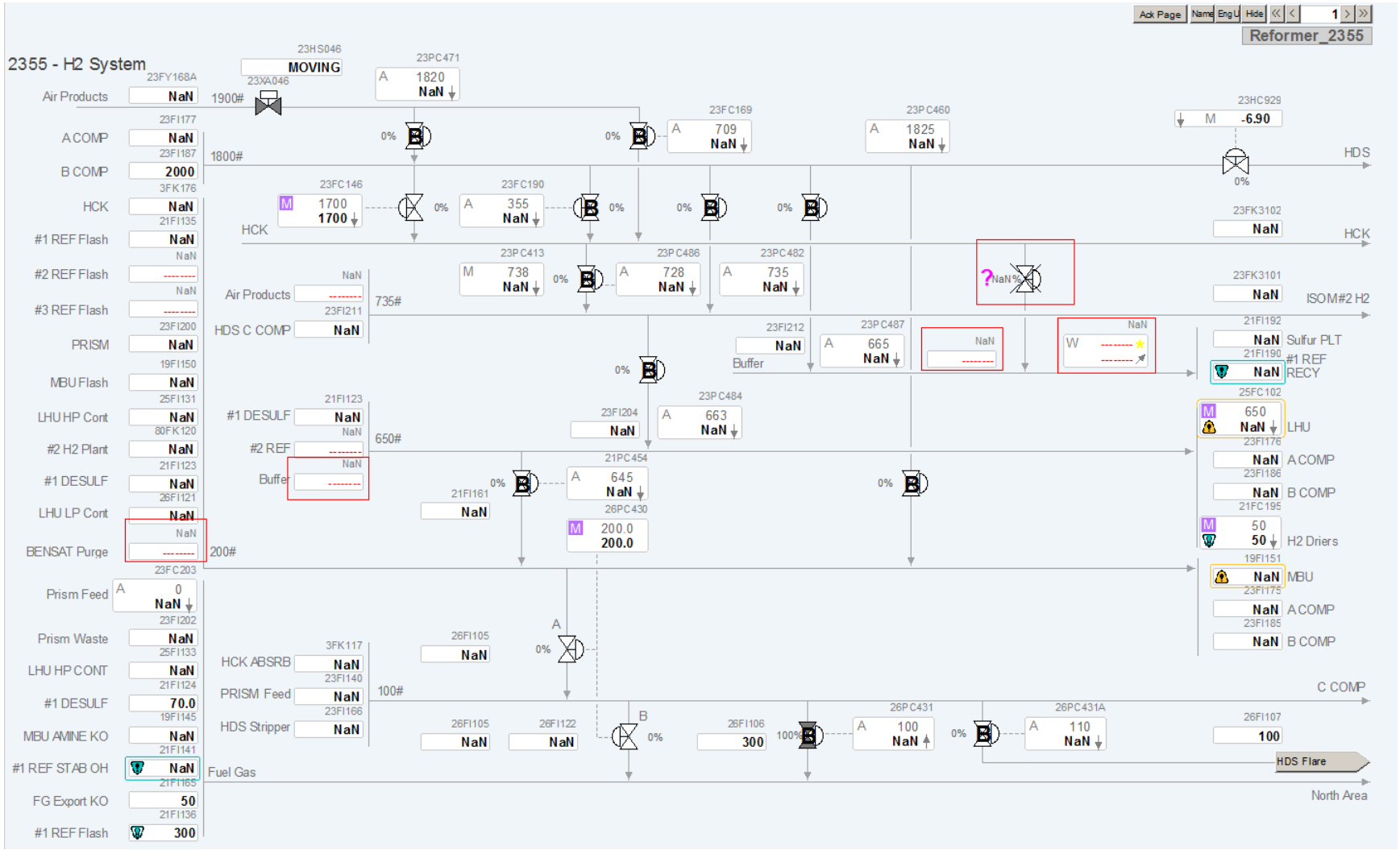
Station View



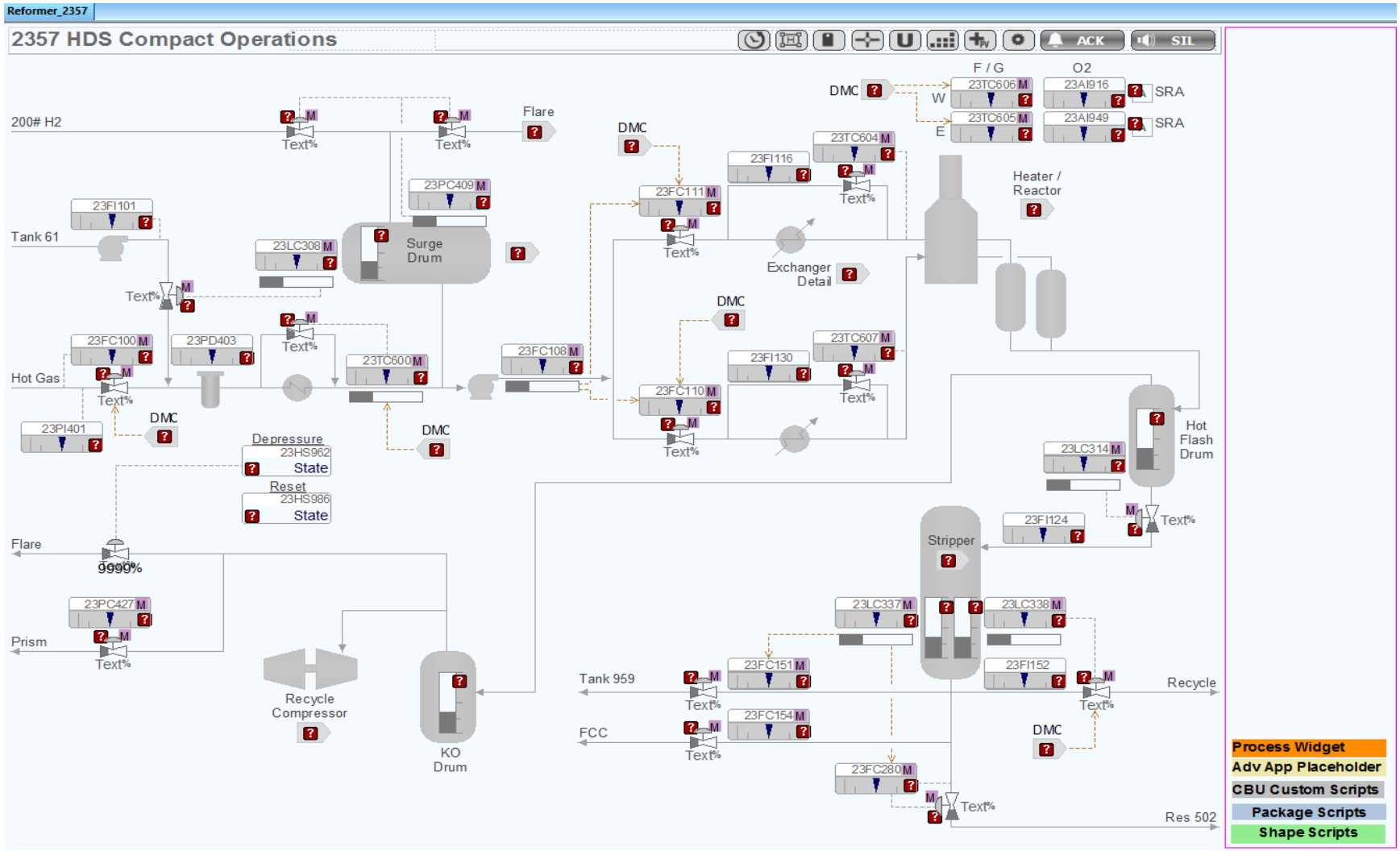
5.164 2355 - H2 SYSTEM (Reformer_2355.htm)



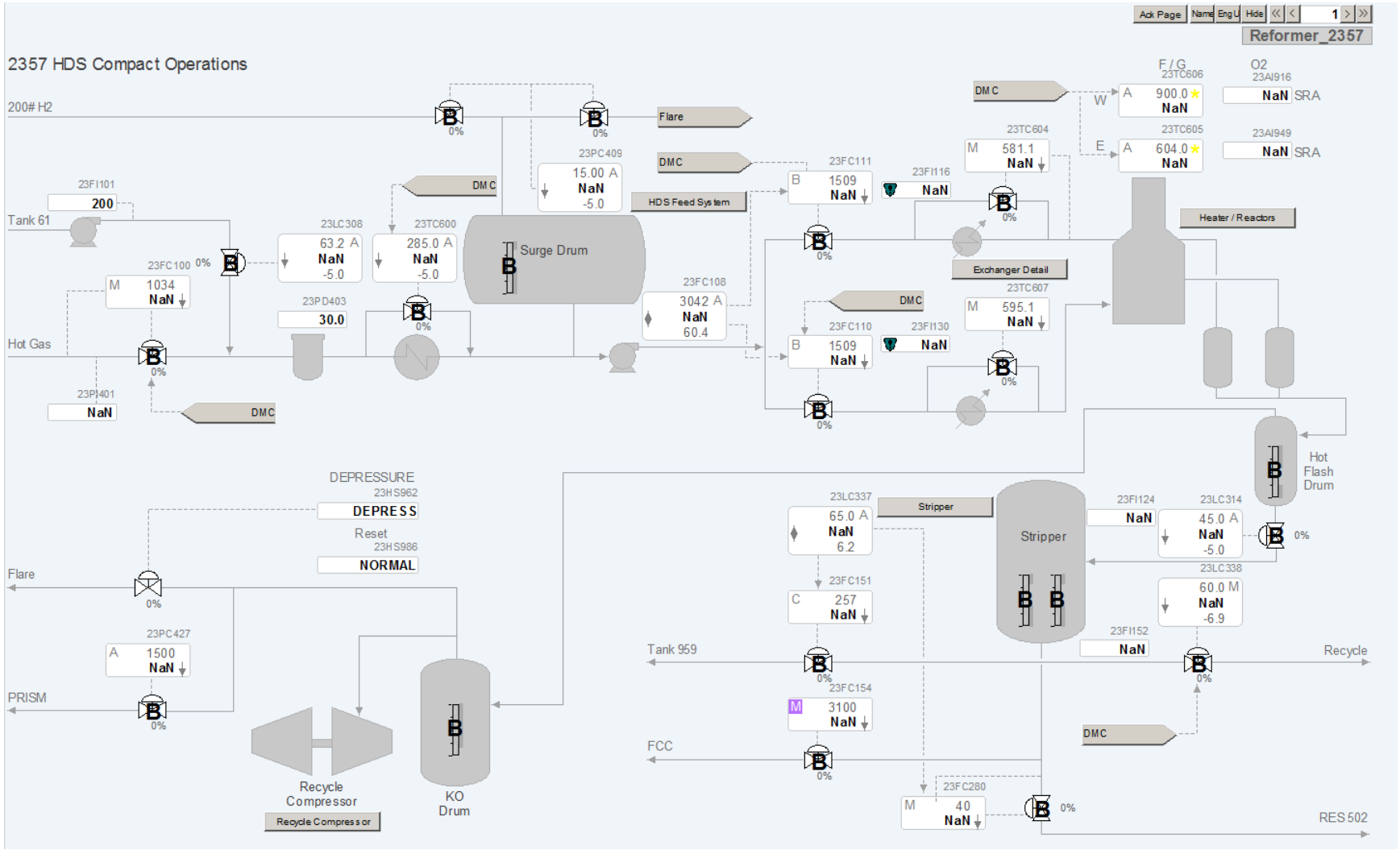
Station View



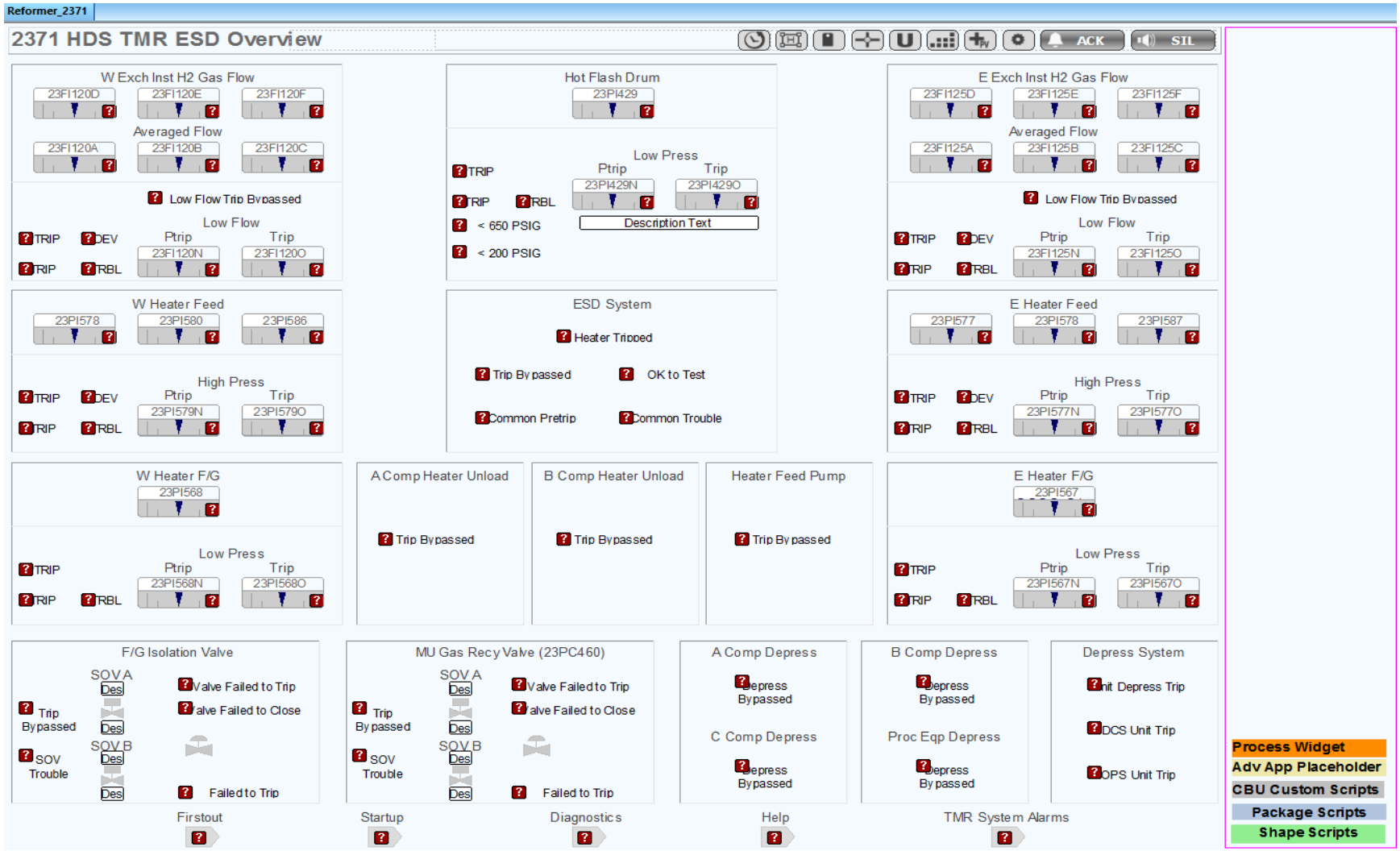
5.165 2357 HDS COMPACT OPERATIONS (Reformer_2357.htm)



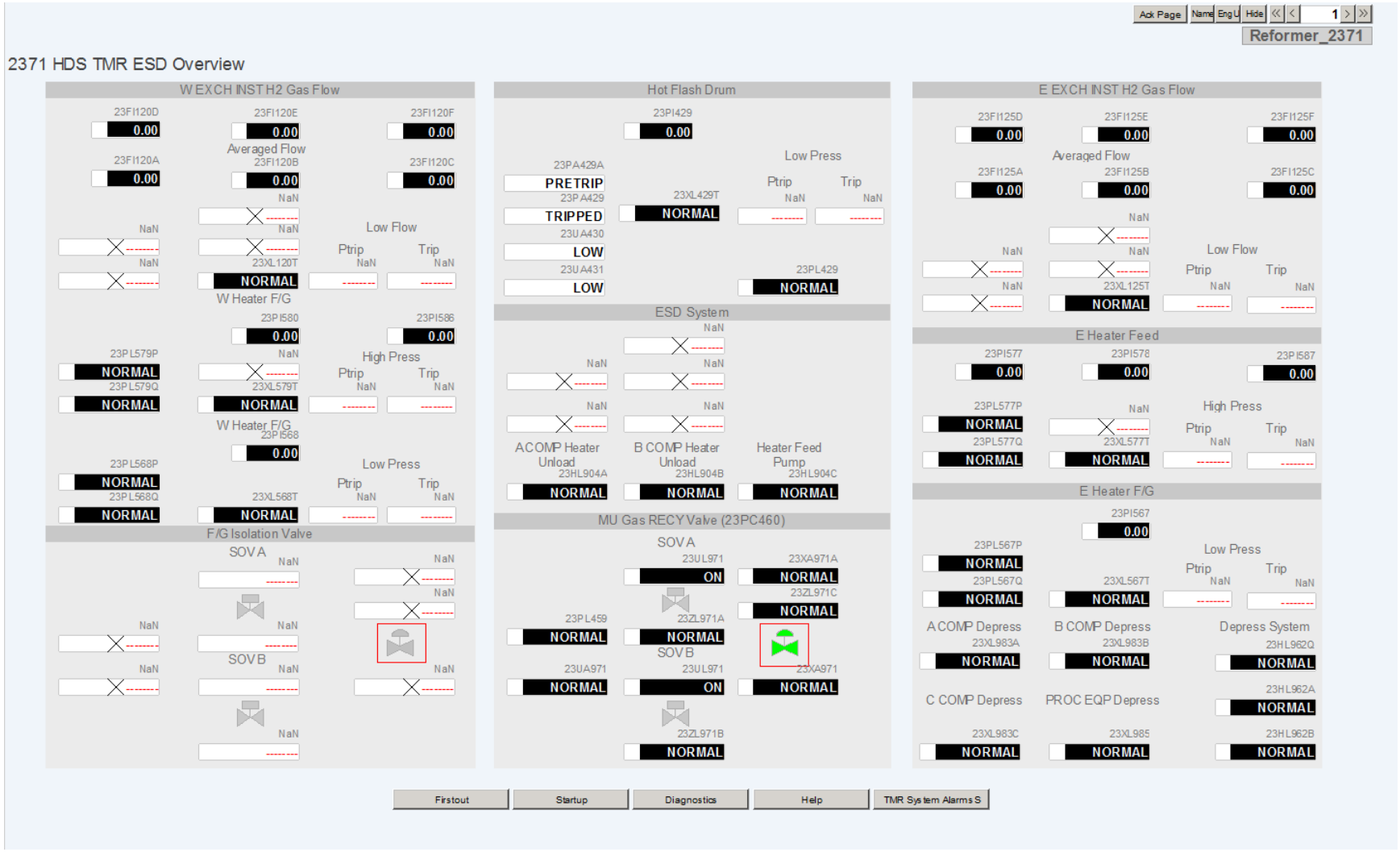
Station View



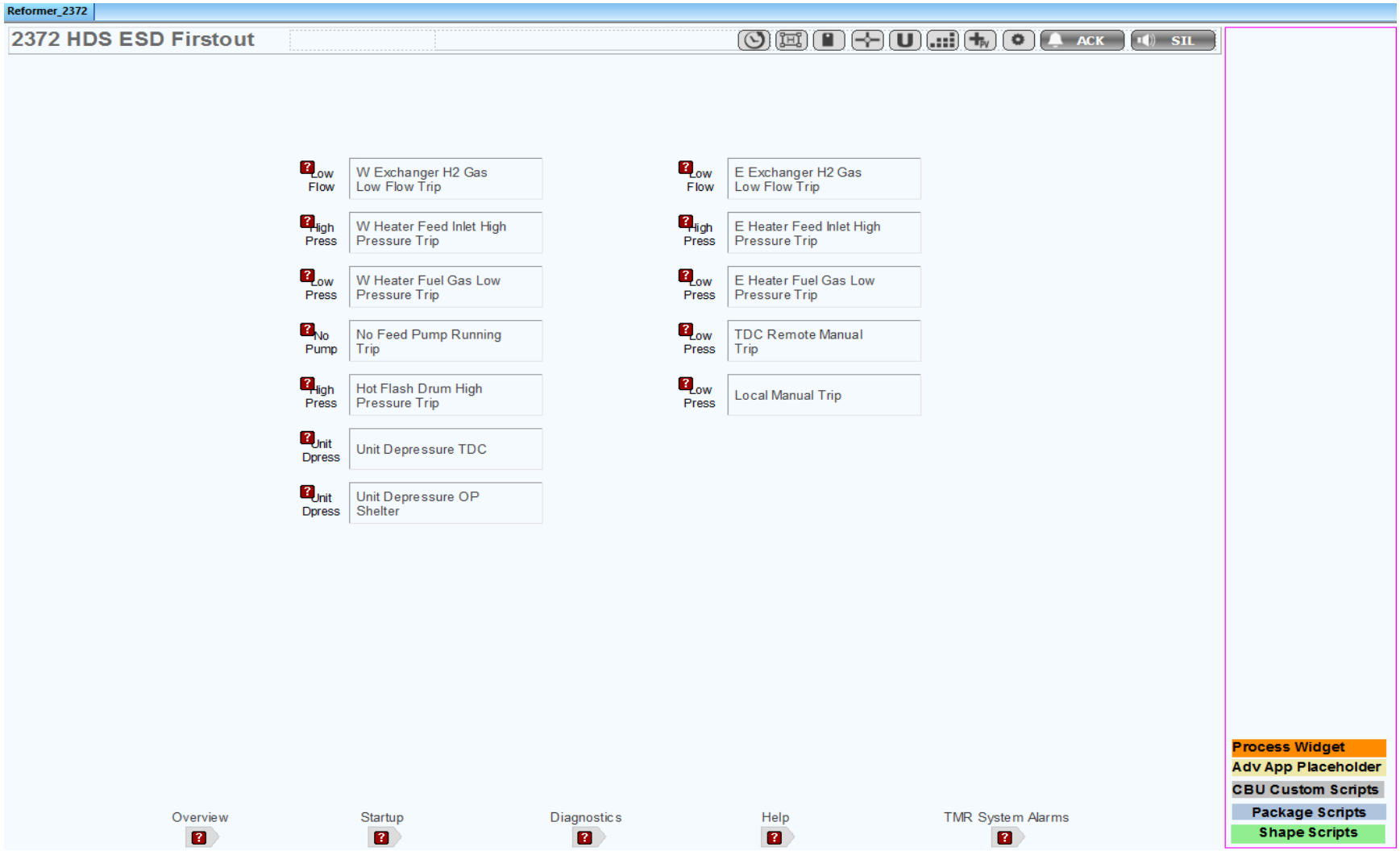
5.166 2371 HDS TMR ESD OVERVIEW (Reformer_2371.htm)



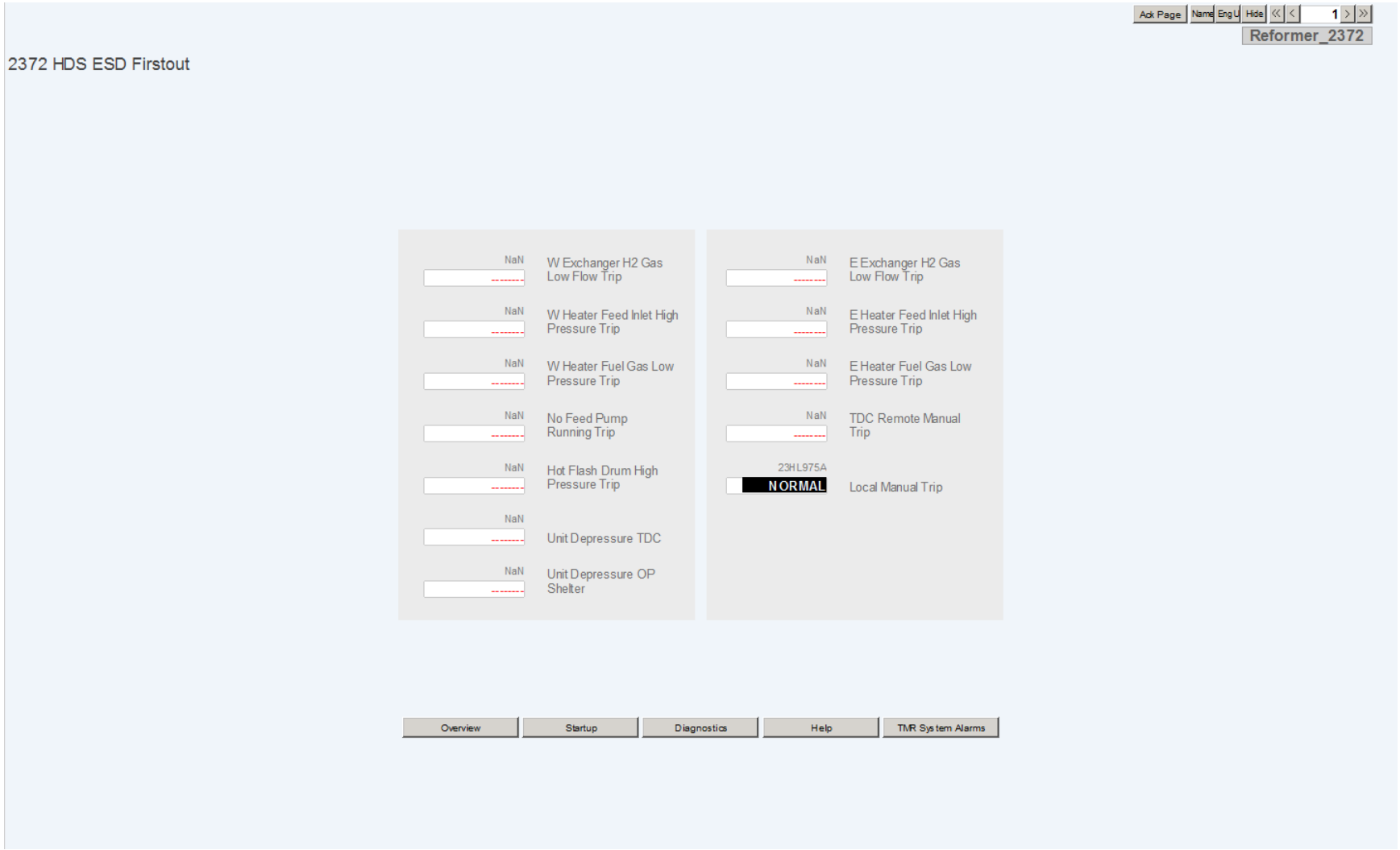
Station View



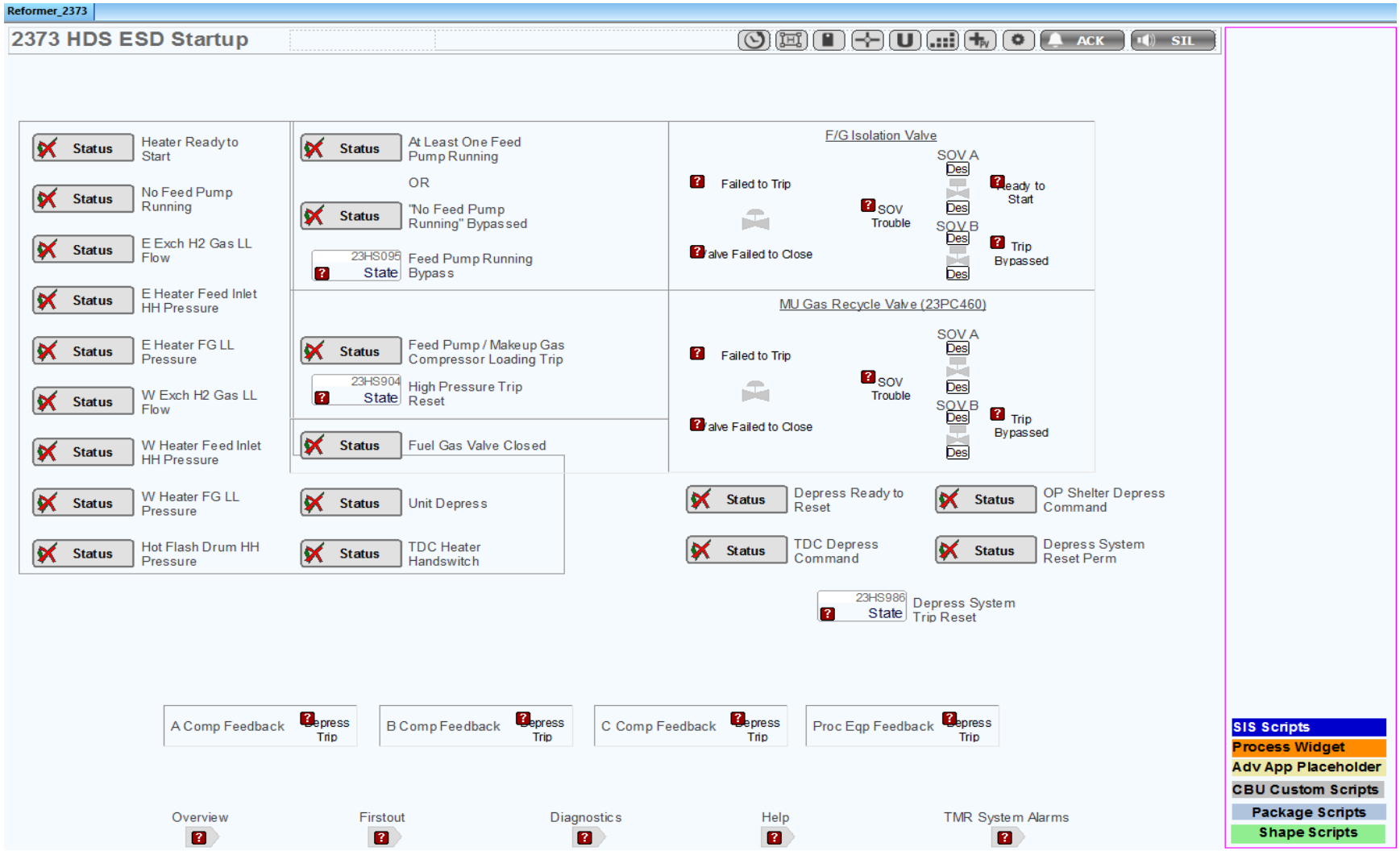
5.167 2372 HDS ESD FIRSTOUT (Reformer_2372.htm)



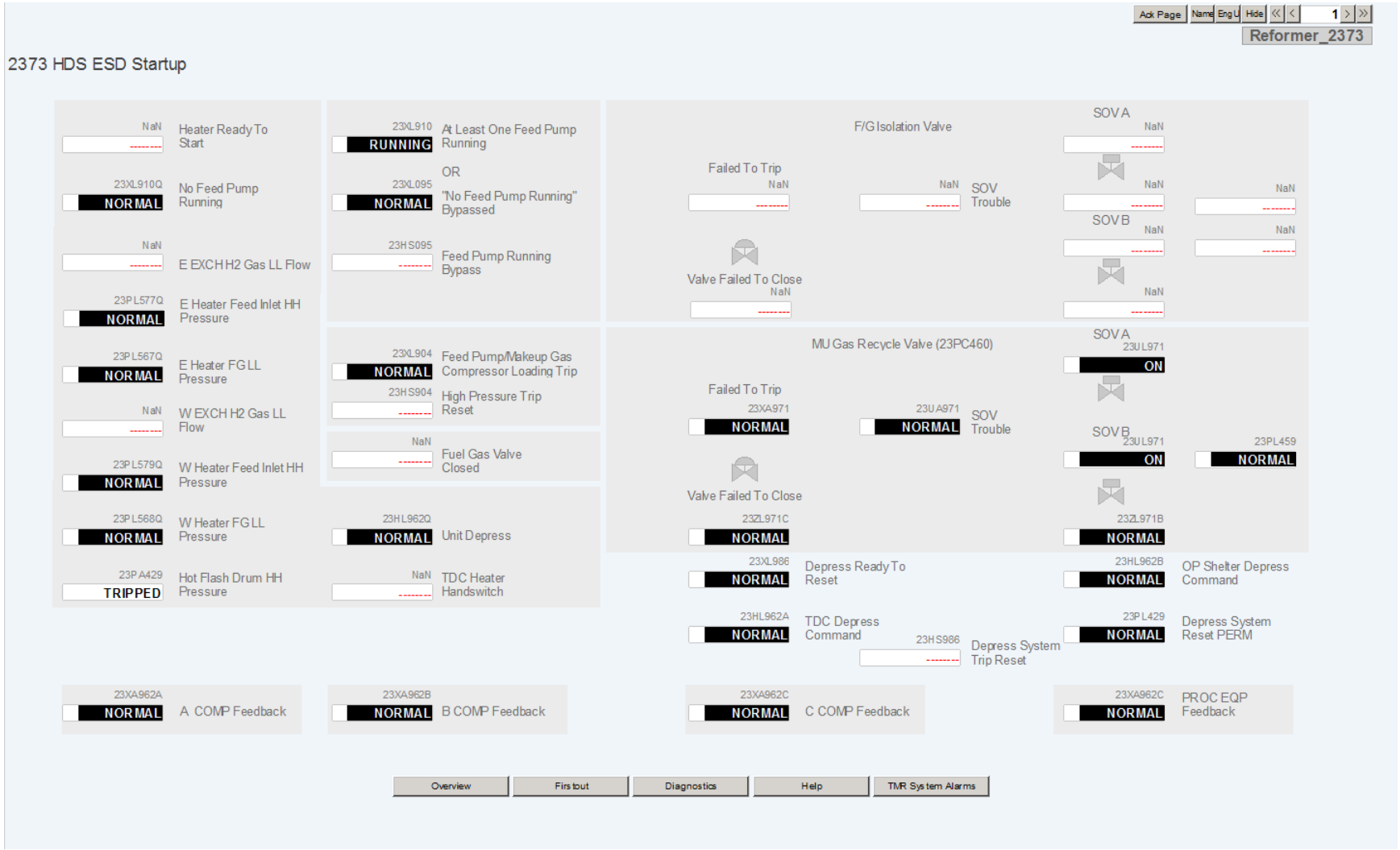
Station View



5.168 2373 HDS ESD STARTUP (Reformer_2373.htm)

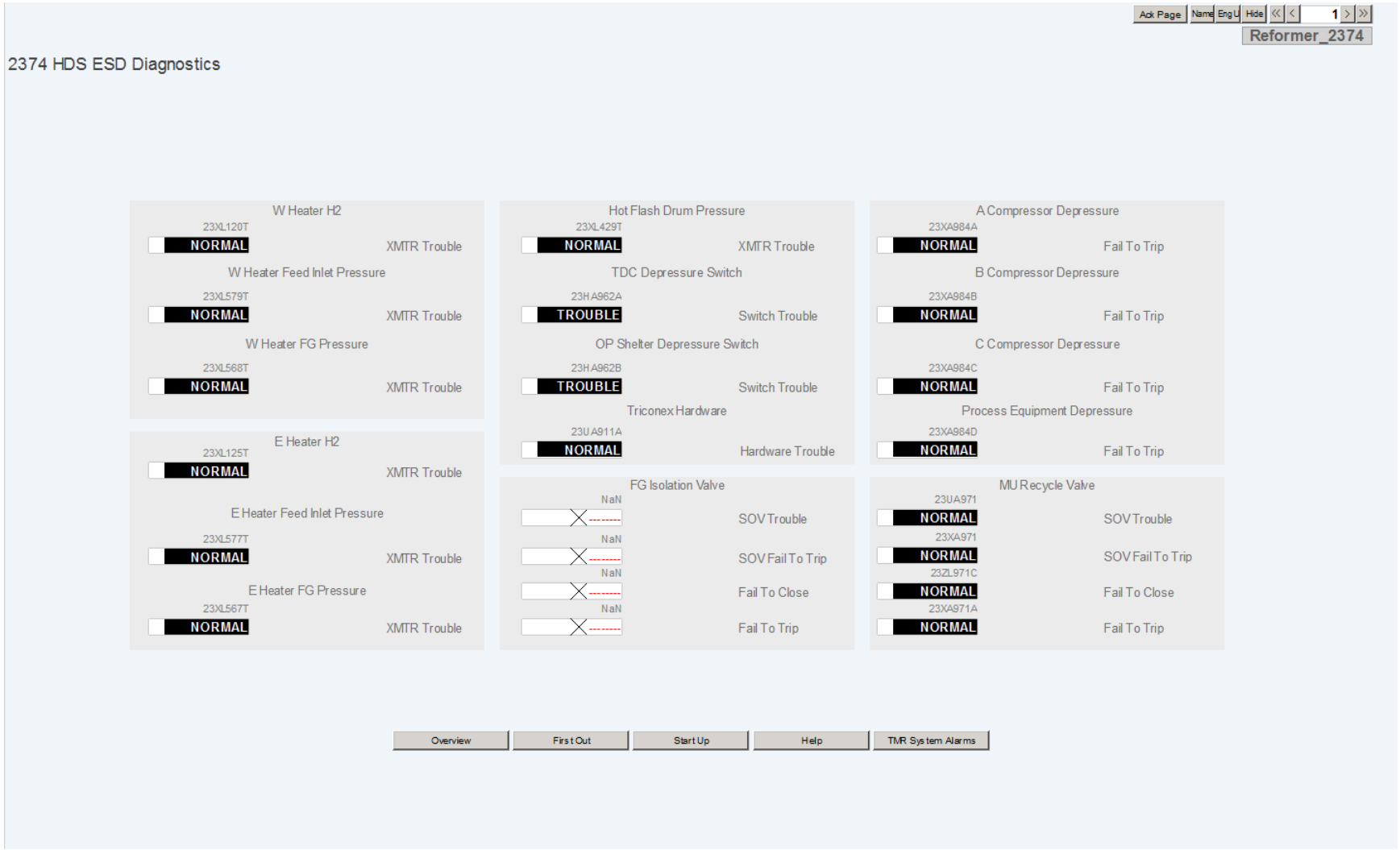


Station View

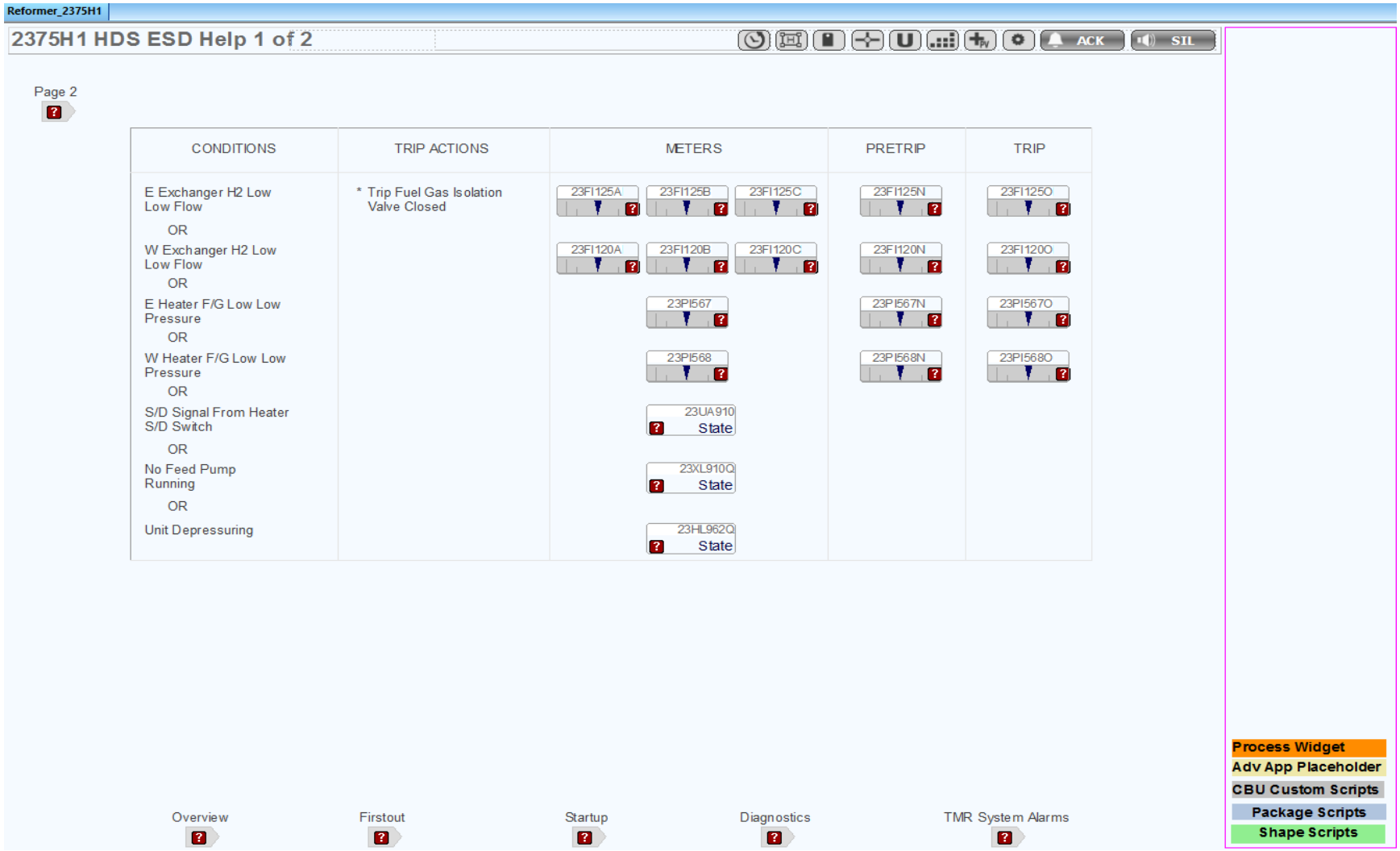


5.169 2374 HDS ESD DIAGNOSTICS (Reformer_2374.htm)

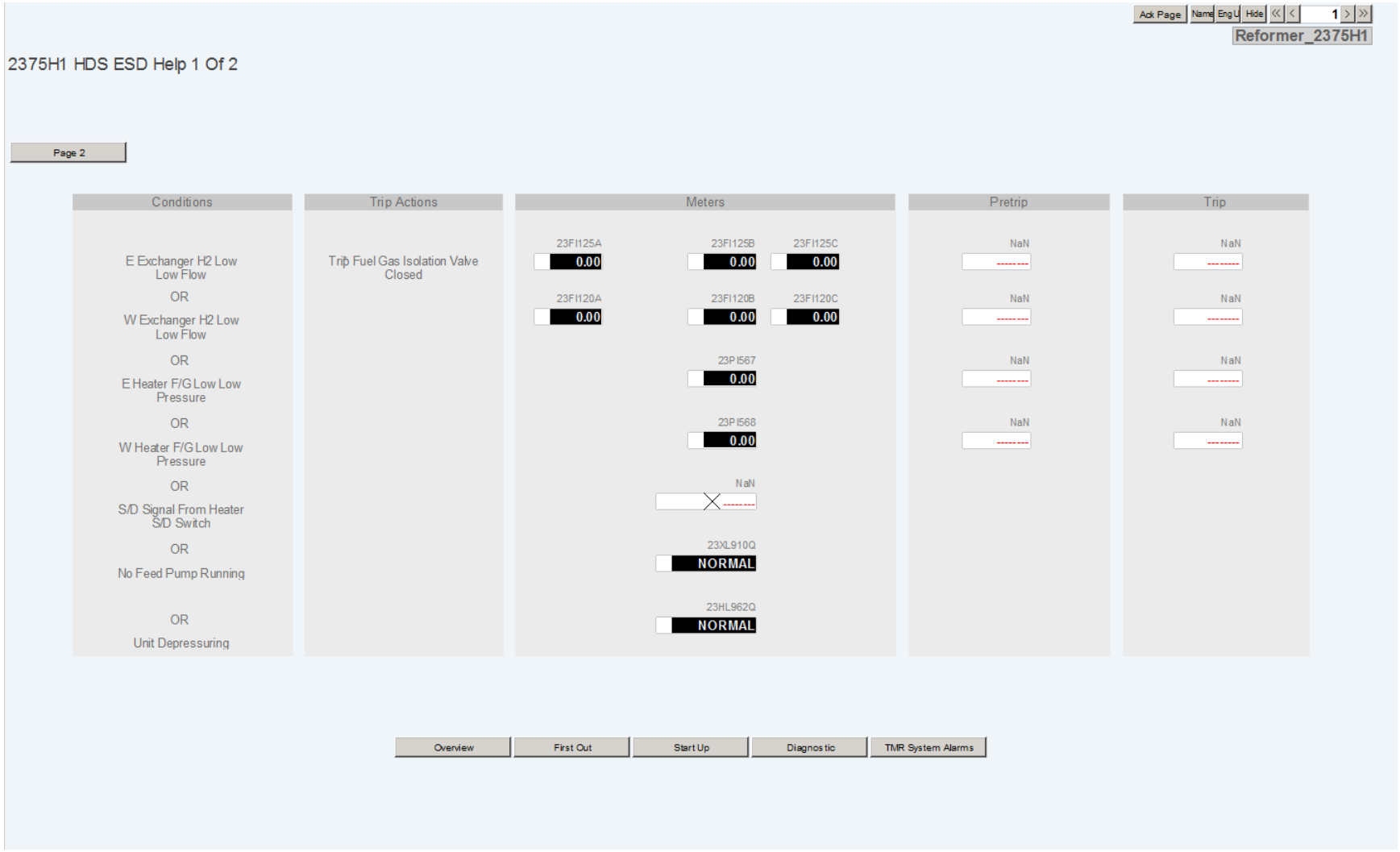
Station View



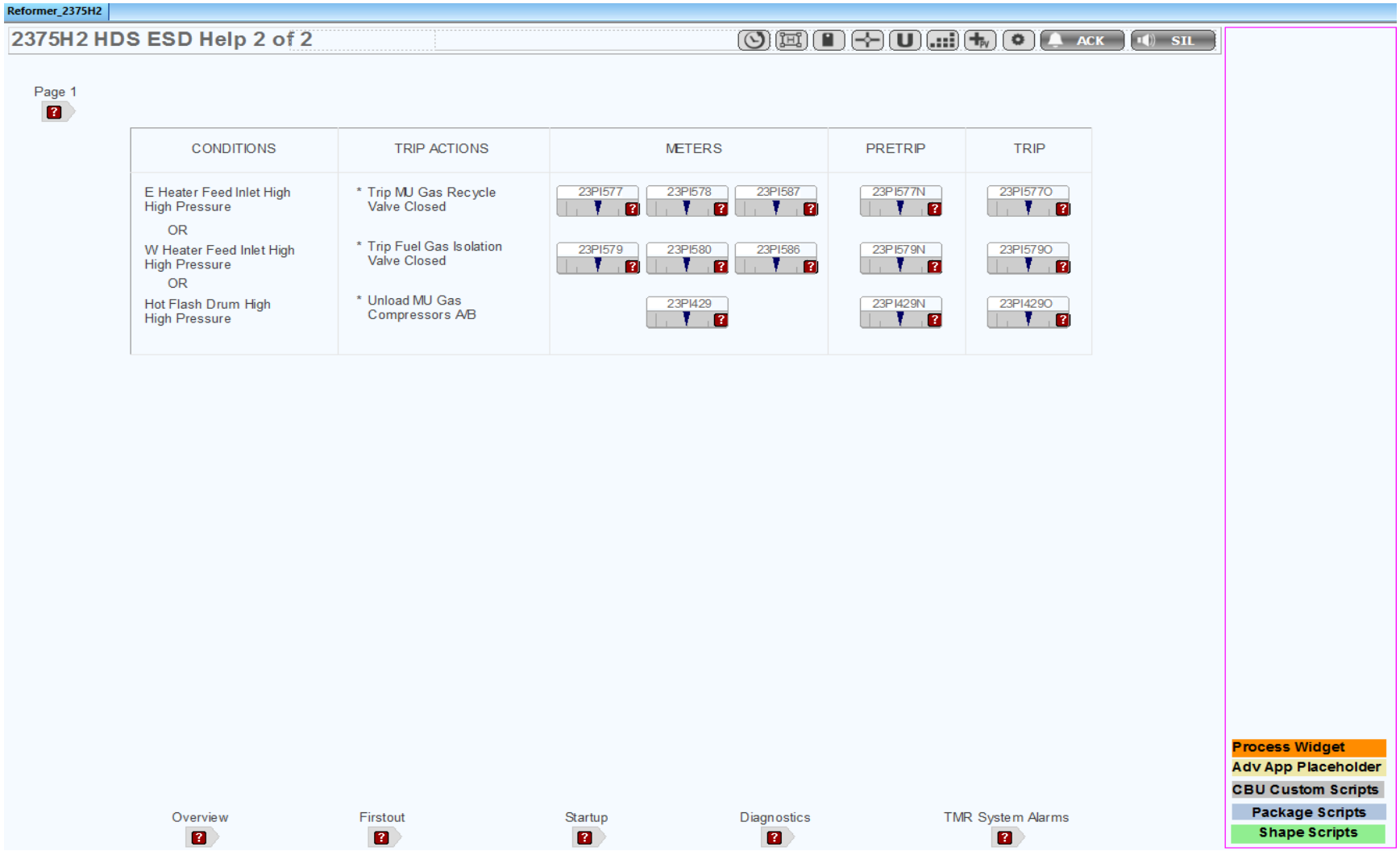
5.1702375H1 HDS ESD HELP 1 OF 2 (Reformer_2375H1.htm)



Station View

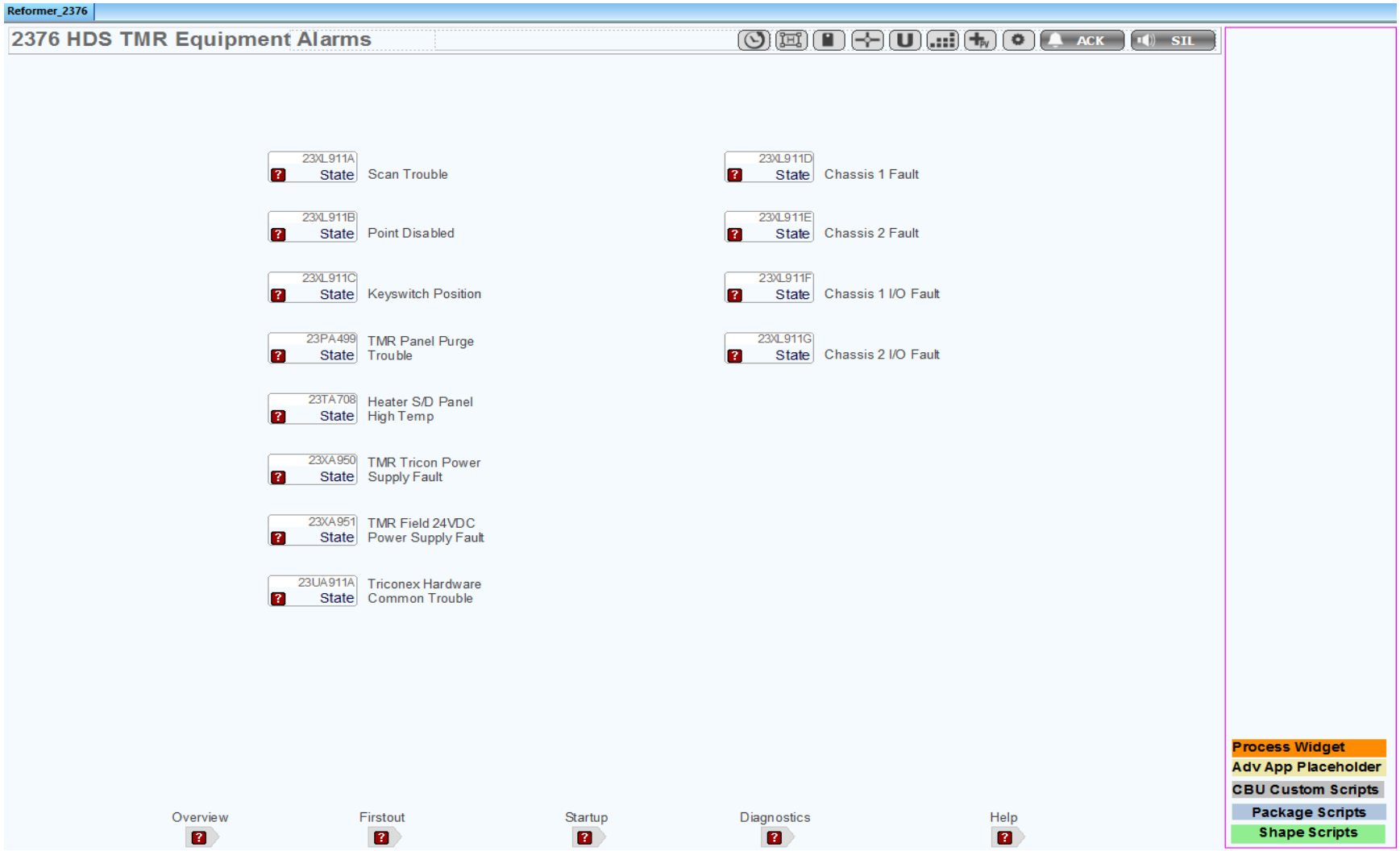


5.171 2375H2 HDS ESD HELP 2 OF 2 (Reformer_2375H2.htm)

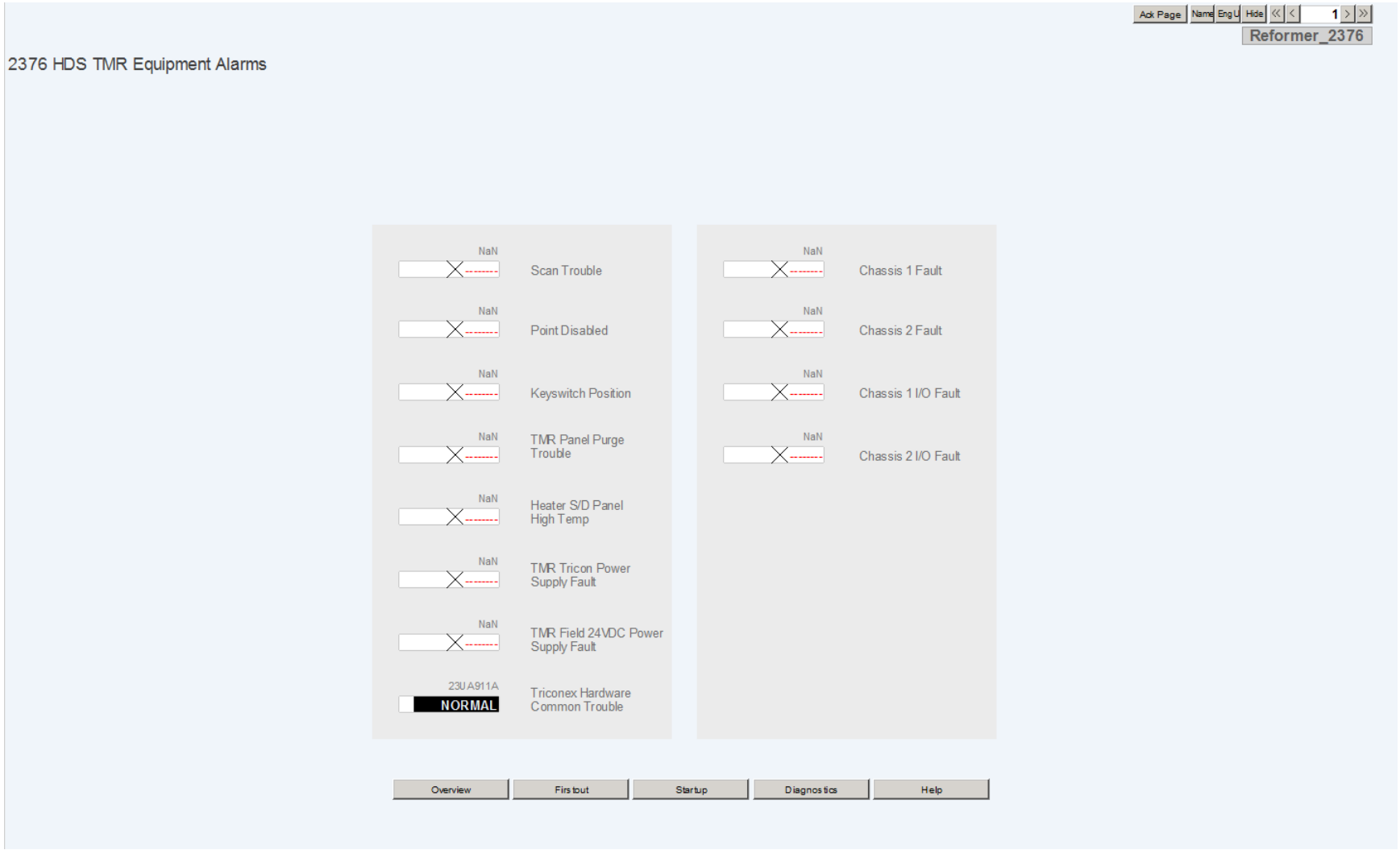


Station View

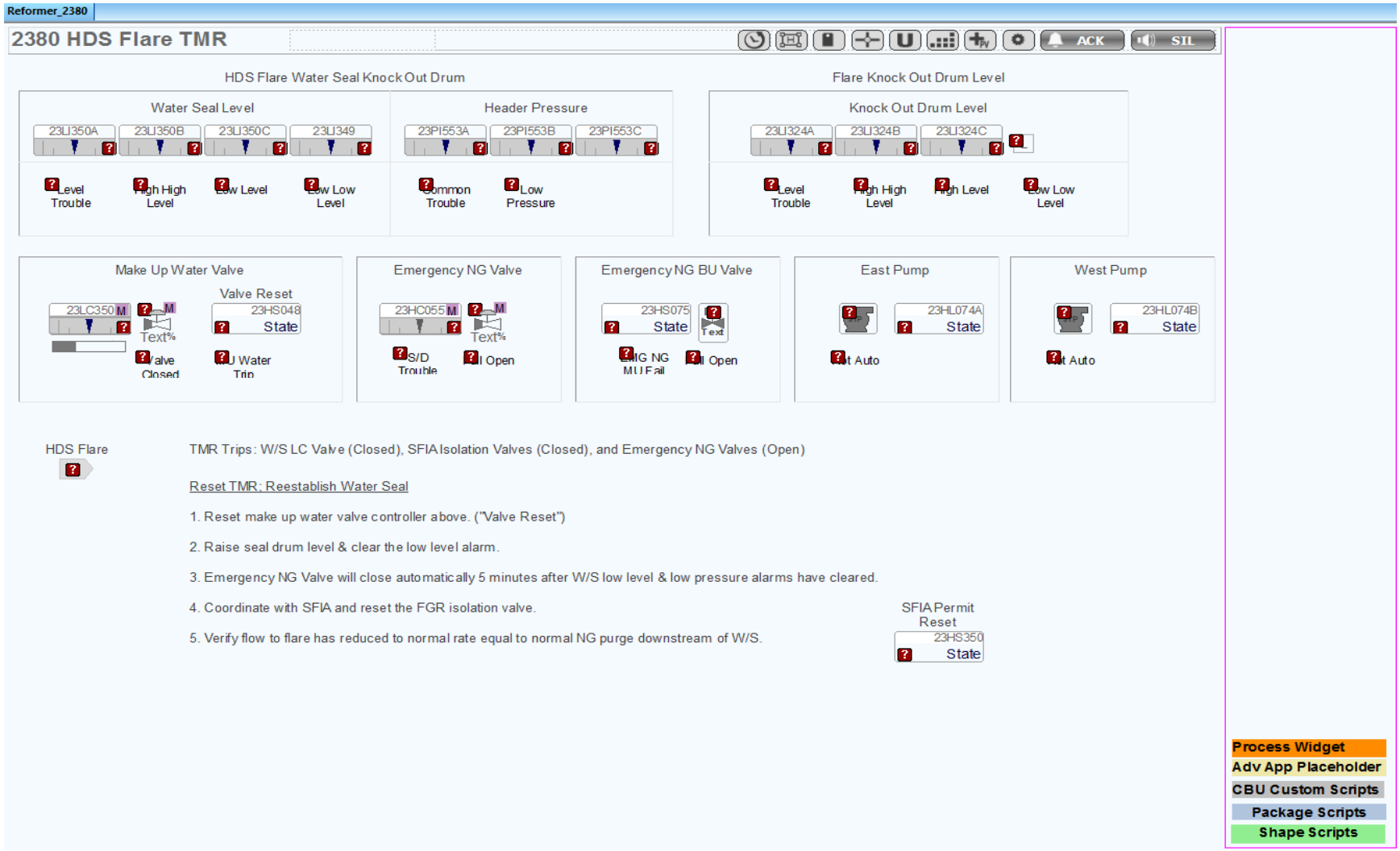
5.172 2376 HDS TMR EQUIPMENT ALARMS (Reformer_2376.htm)



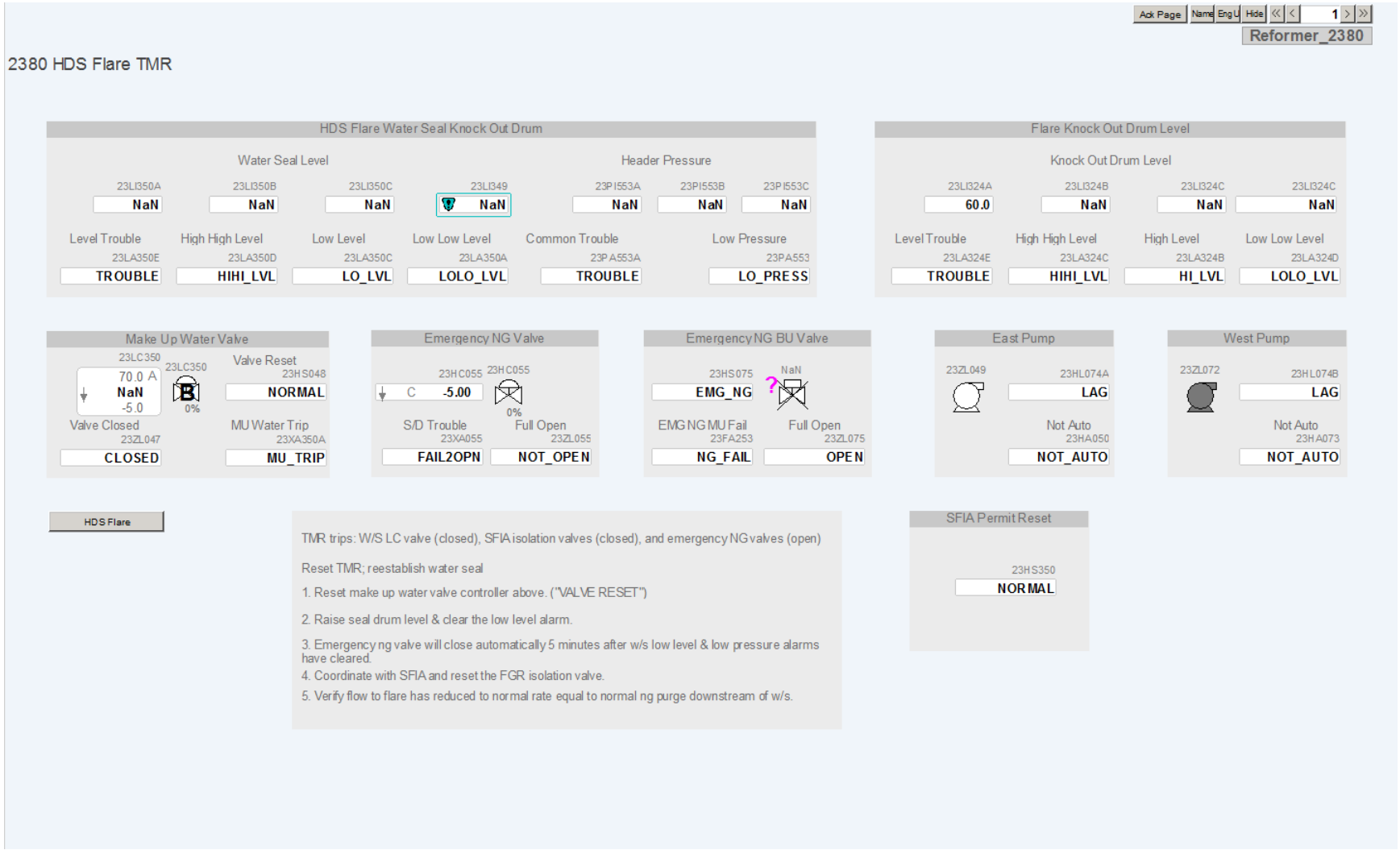
Station View



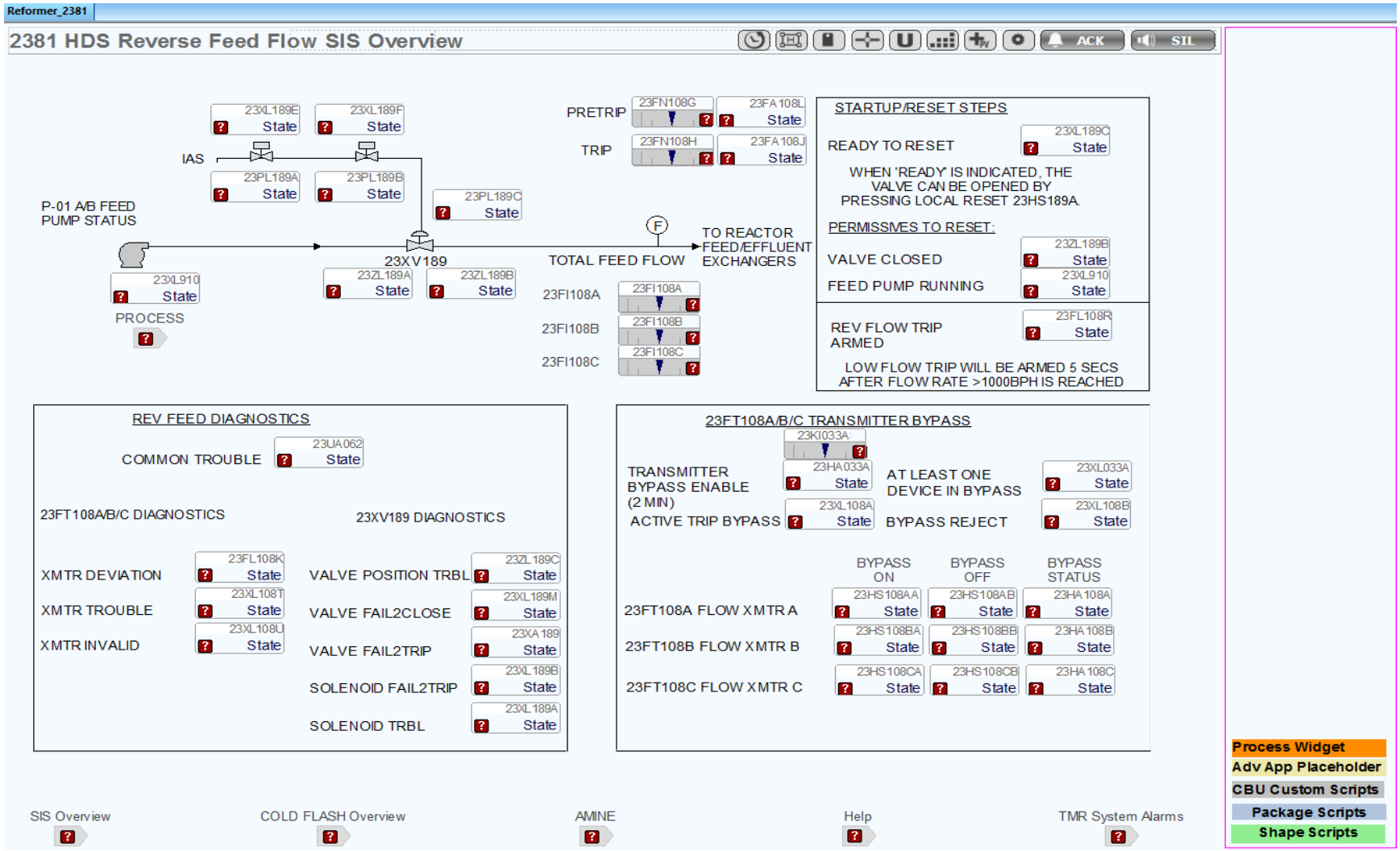
5.173 2380 HDS FLARE TMR (Reformer_2380.htm)



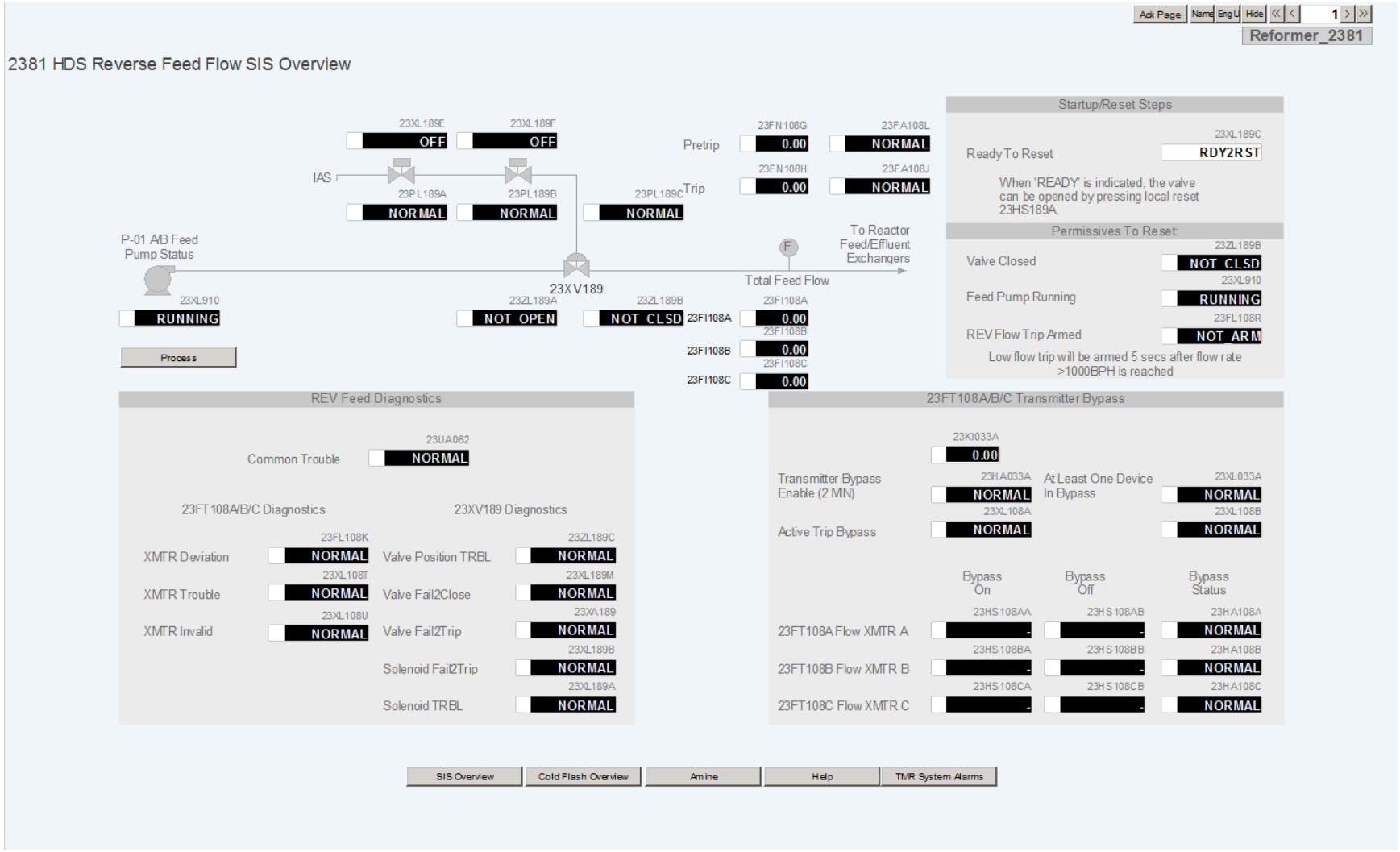
Station View



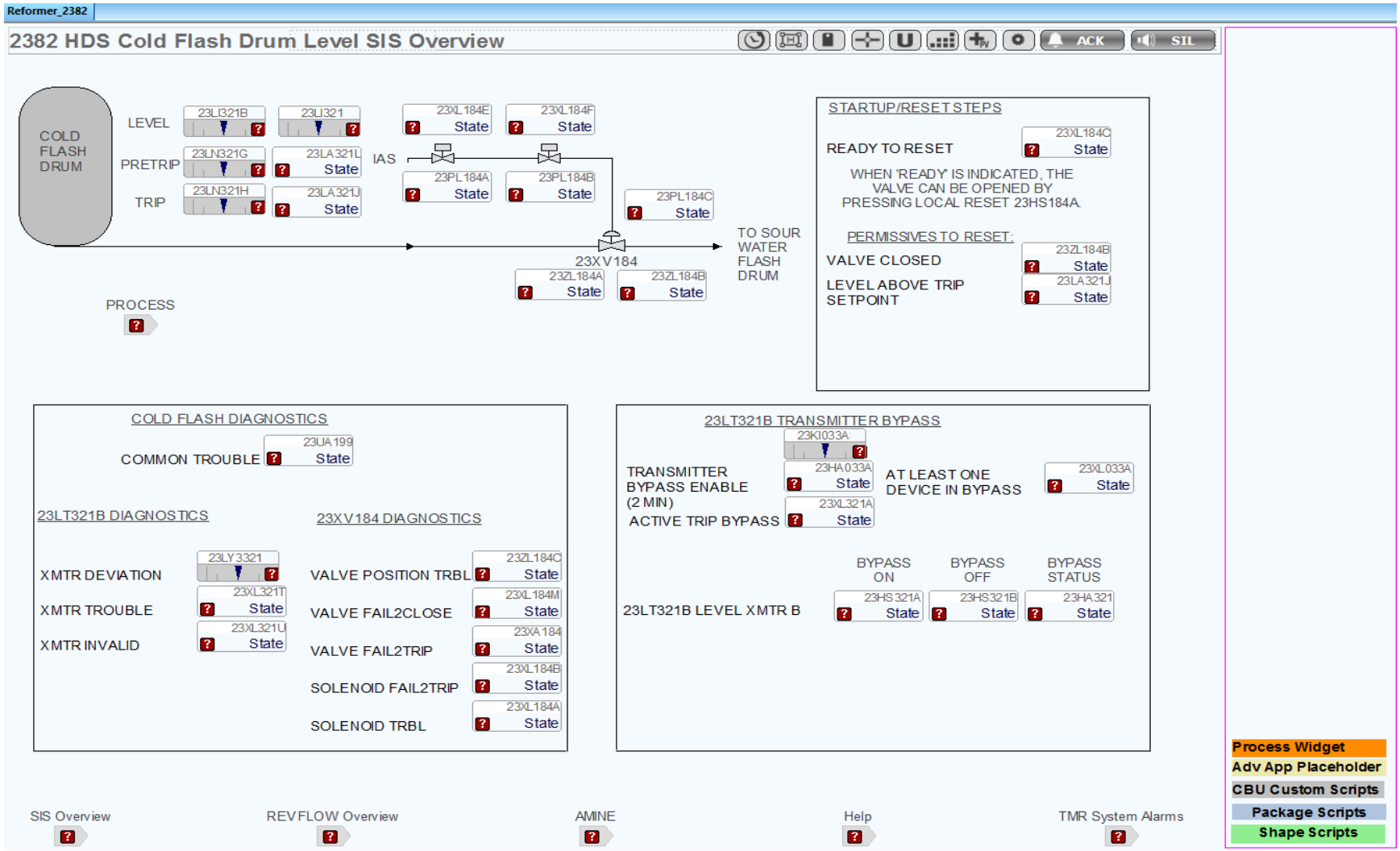
5.174 2381 HDS REVERSE FEED FLOW SIS OVERVIEW (Reformer_2381.htm)



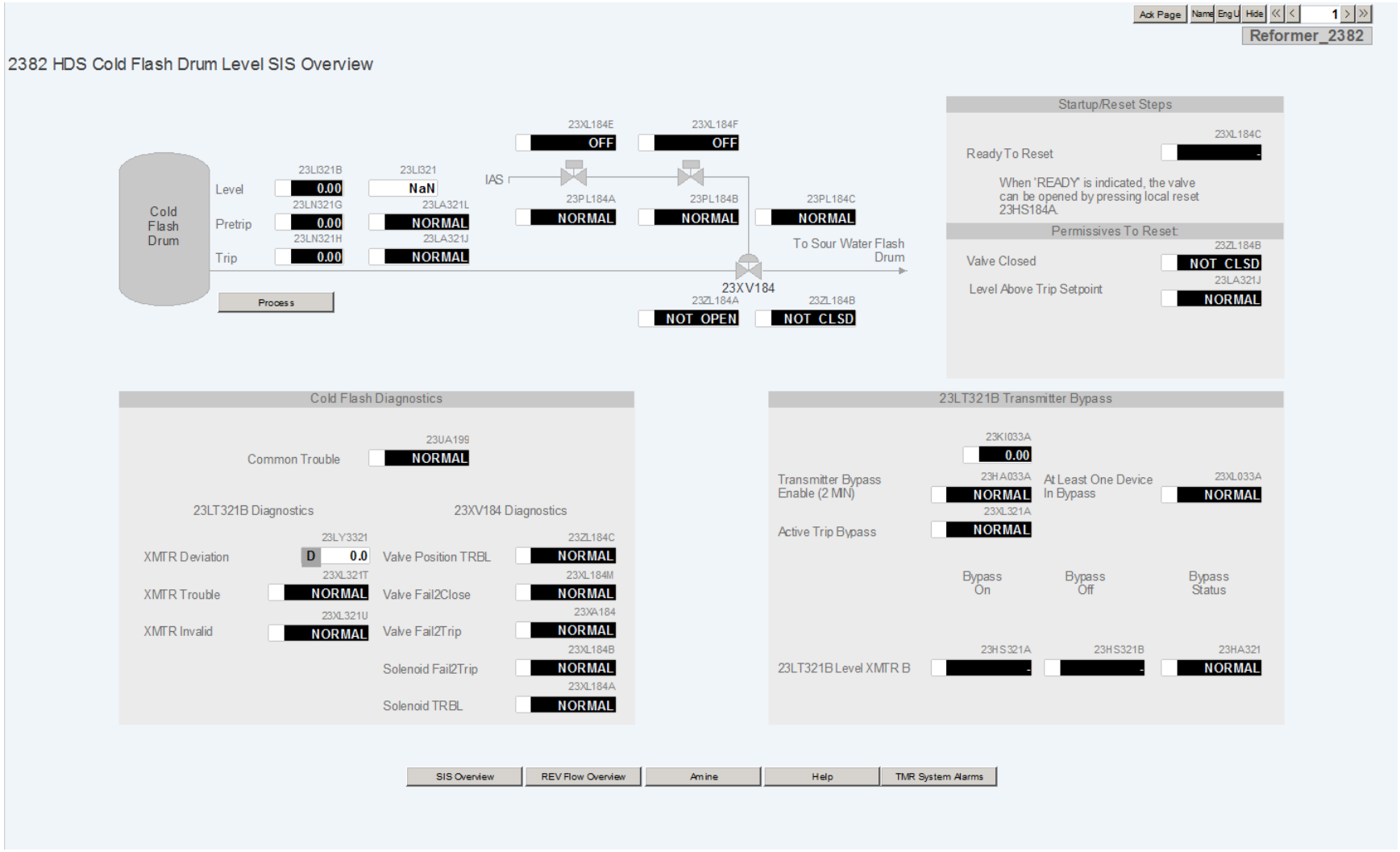
Station View



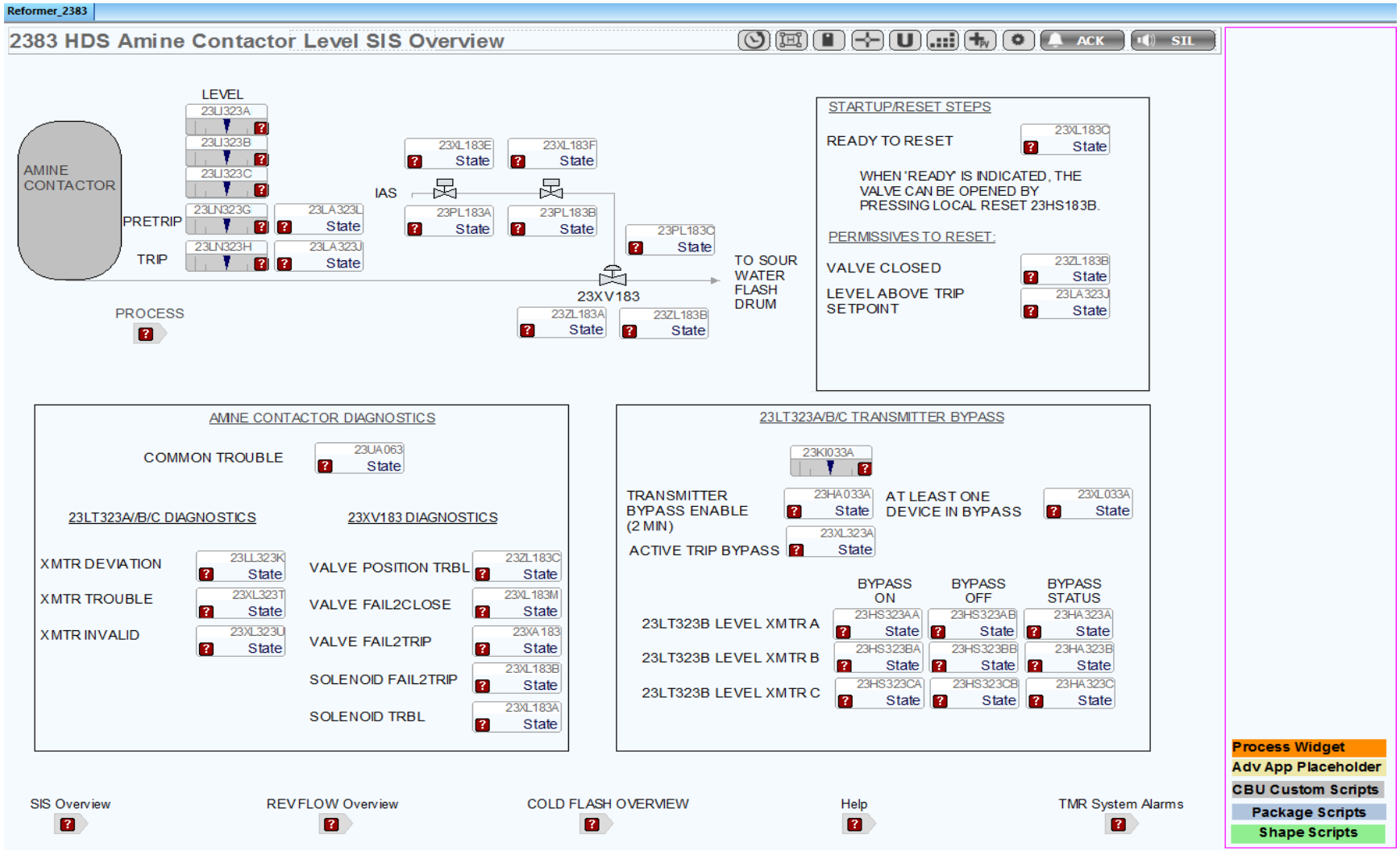
5.175 2382 HDS COLD FLASH DRUM LEVEL SIS OVERVIEW (Reformer_2382.htm)



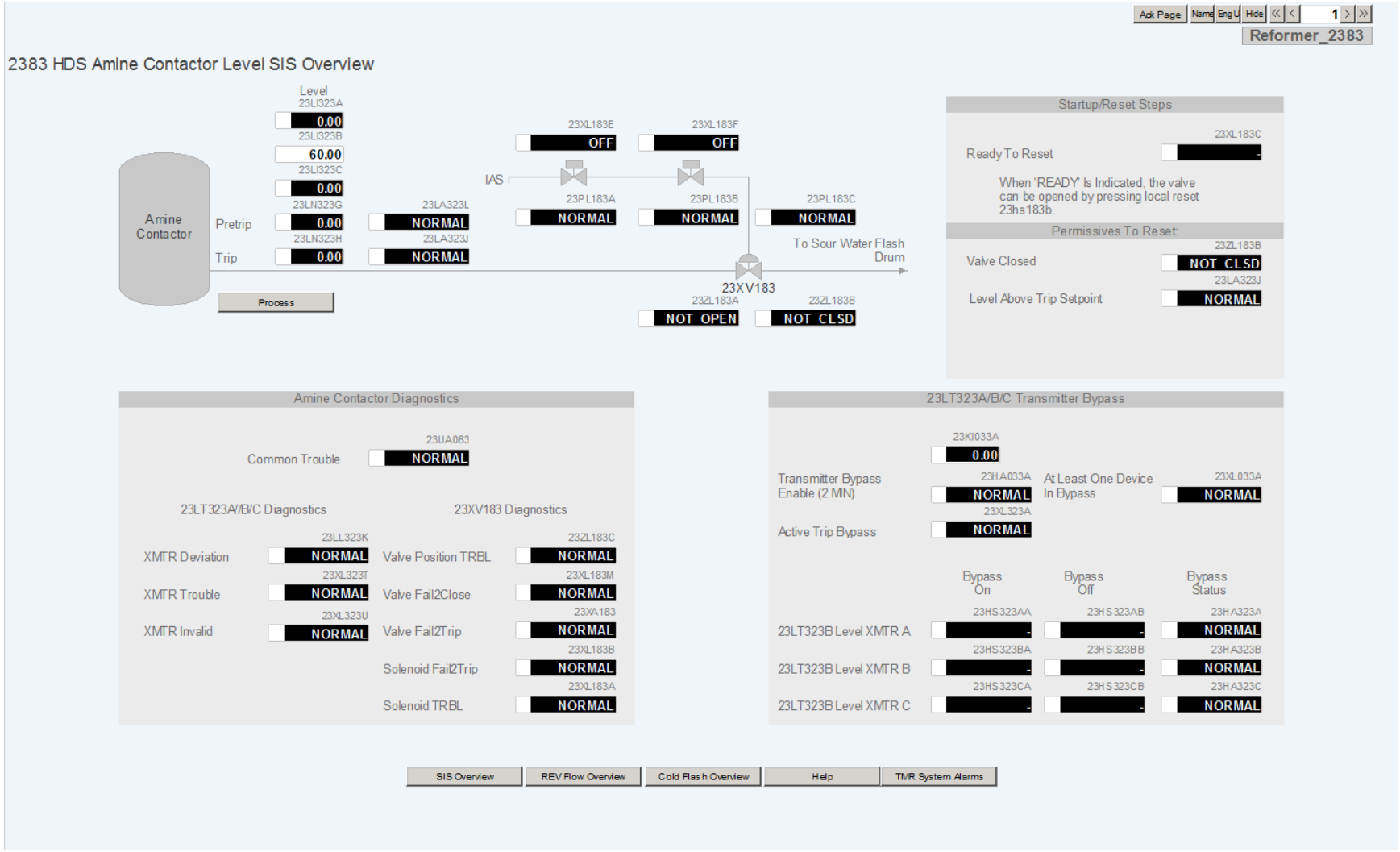
Station View



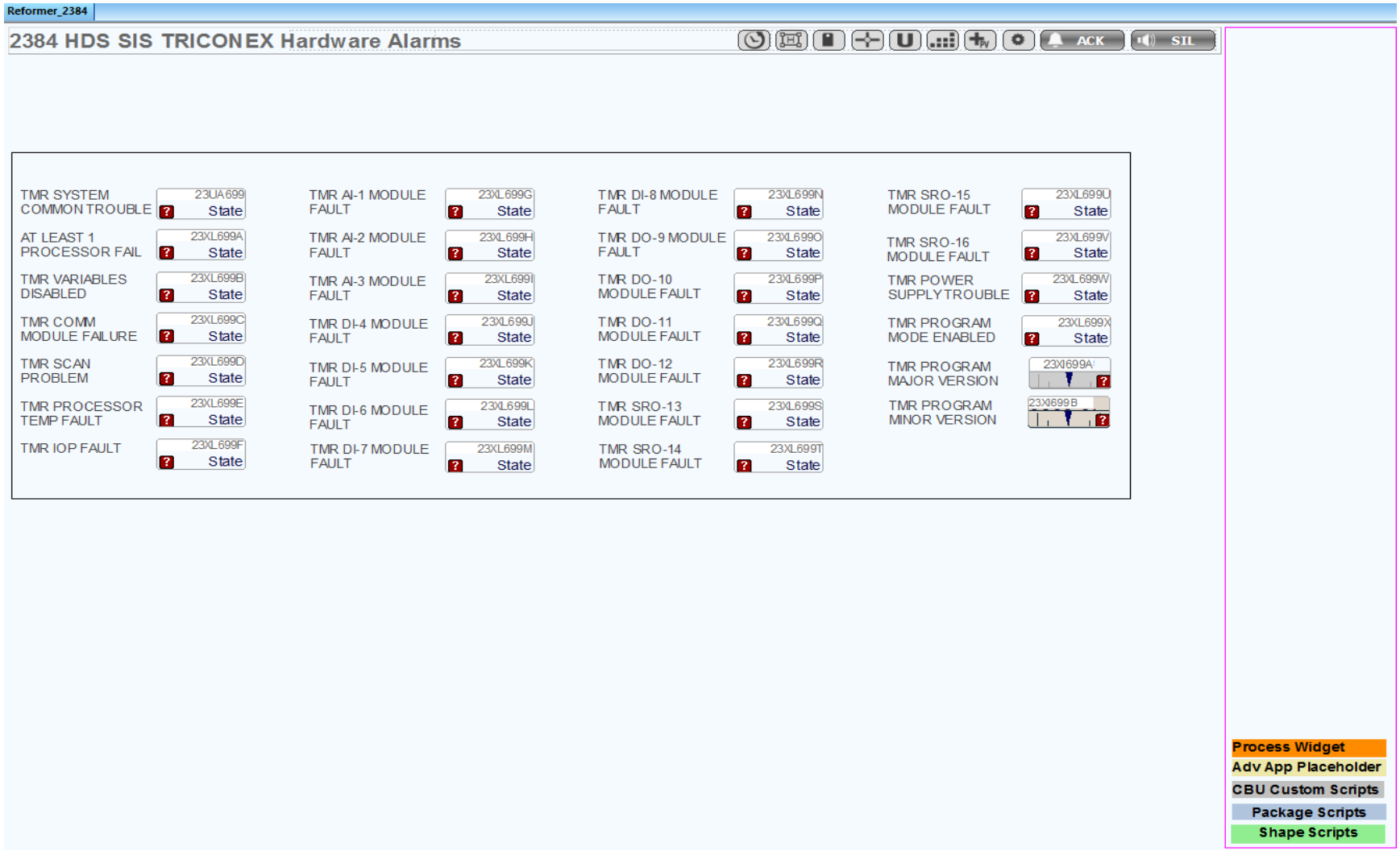
5.176 2383 HDS AMINE CONTACTOR LEVEL SIS OVERVIEW (Reformer_2383.htm)



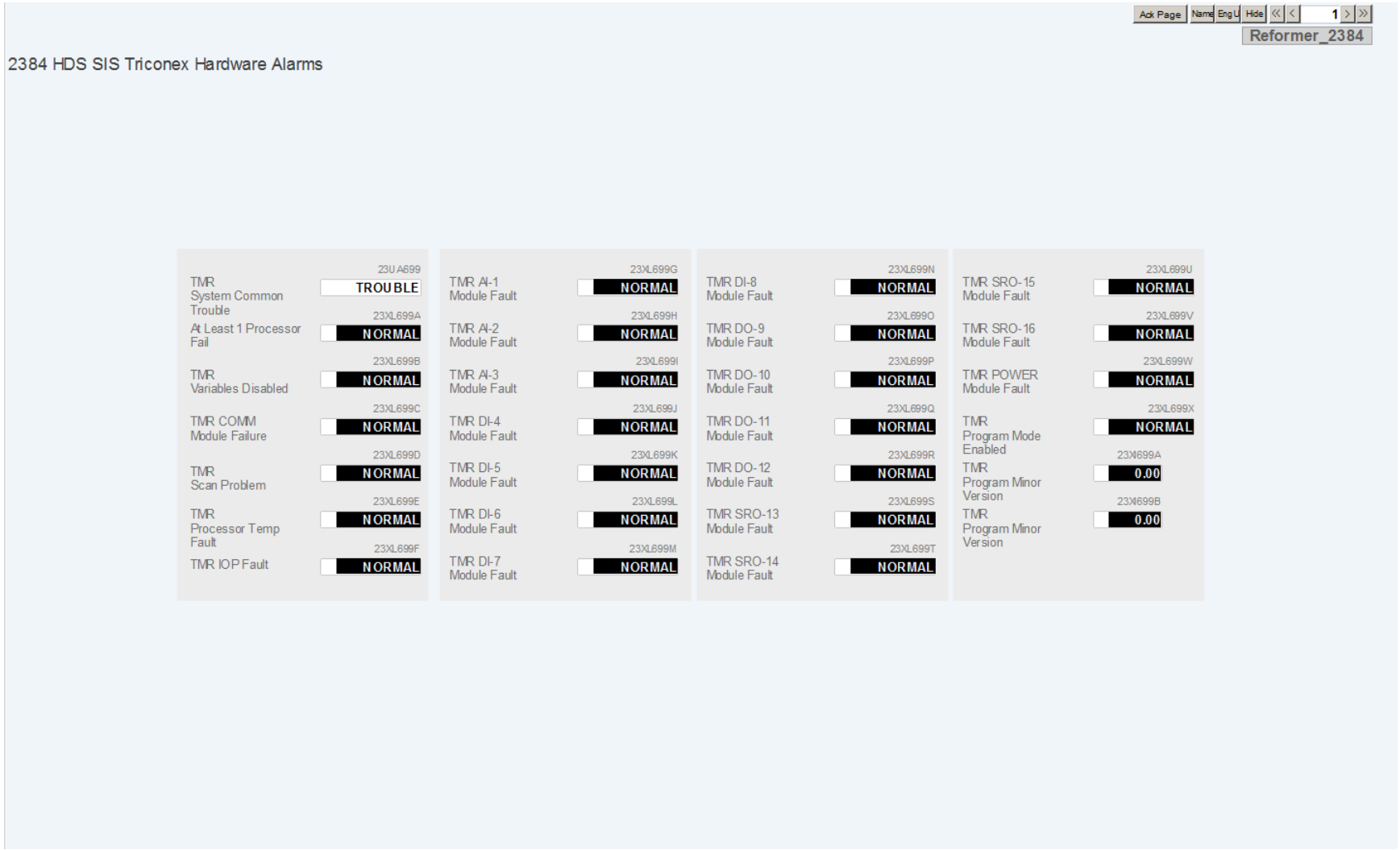
Station View



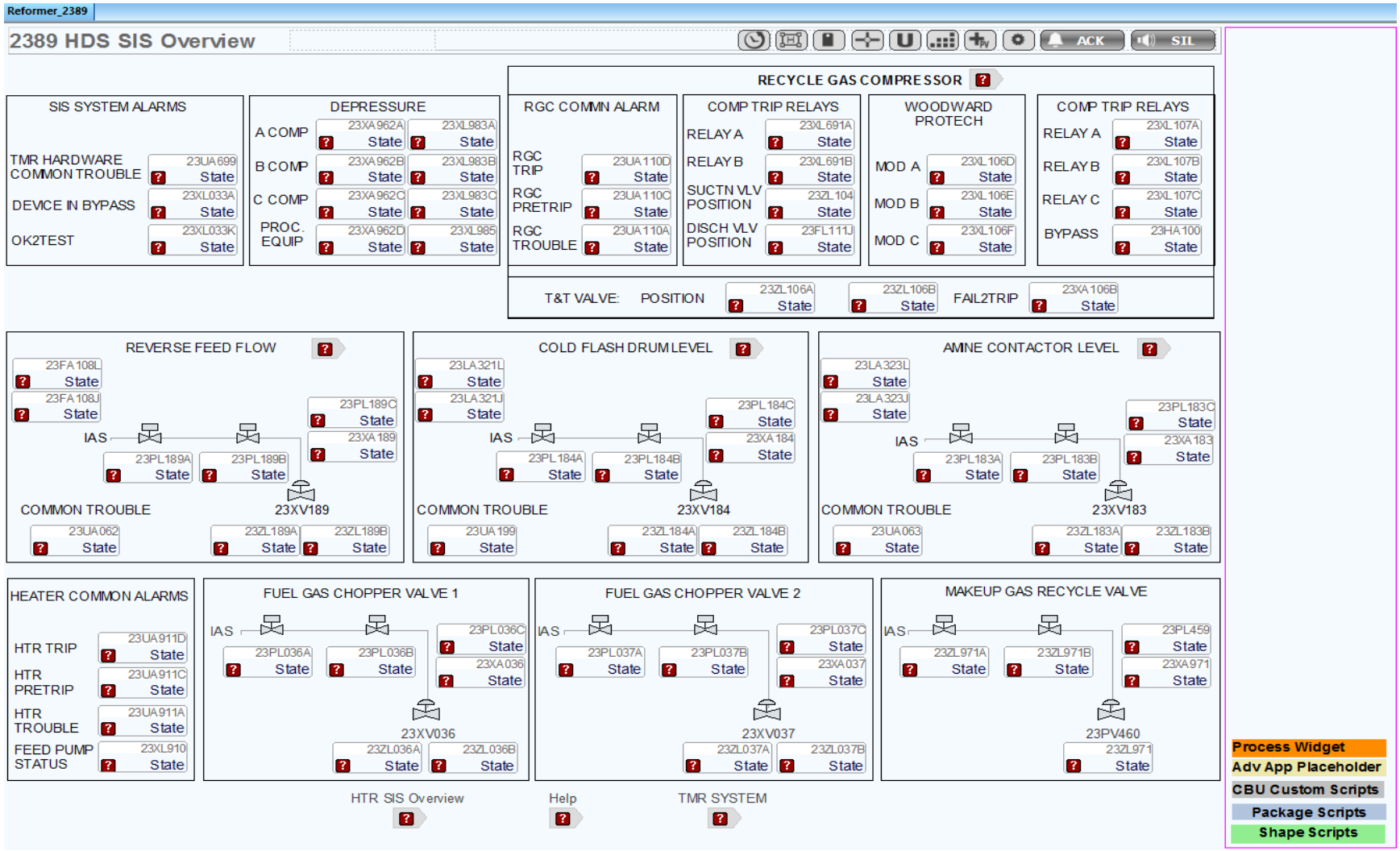
5.177 2384 HDS SIS TRICONEX HARDWARE ALARMS (Reformer_2384.htm)



Station View

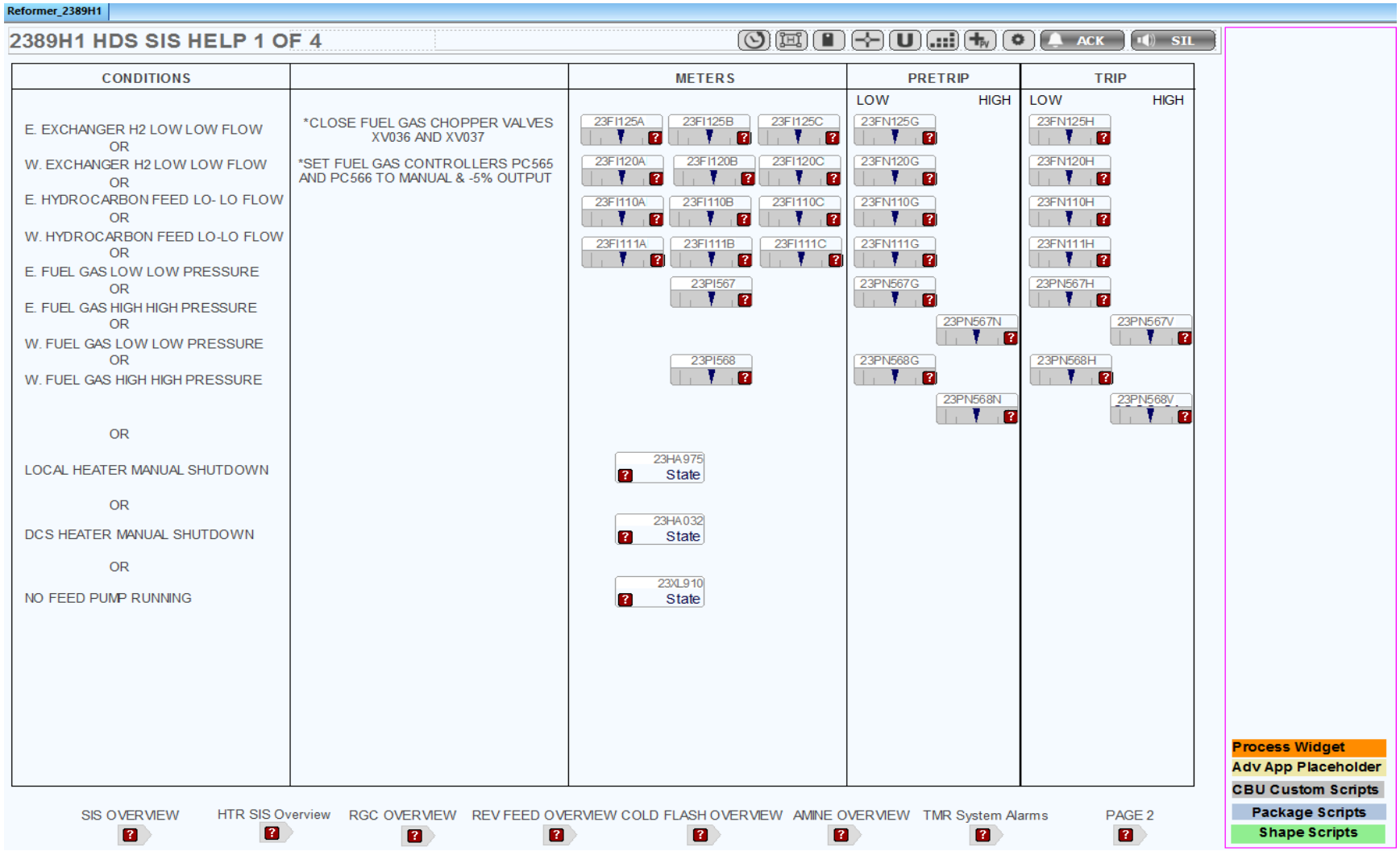


5.178 2384 HDS SIS TRICONEX HARDWARE ALARMS (Reformer_2389.htm)

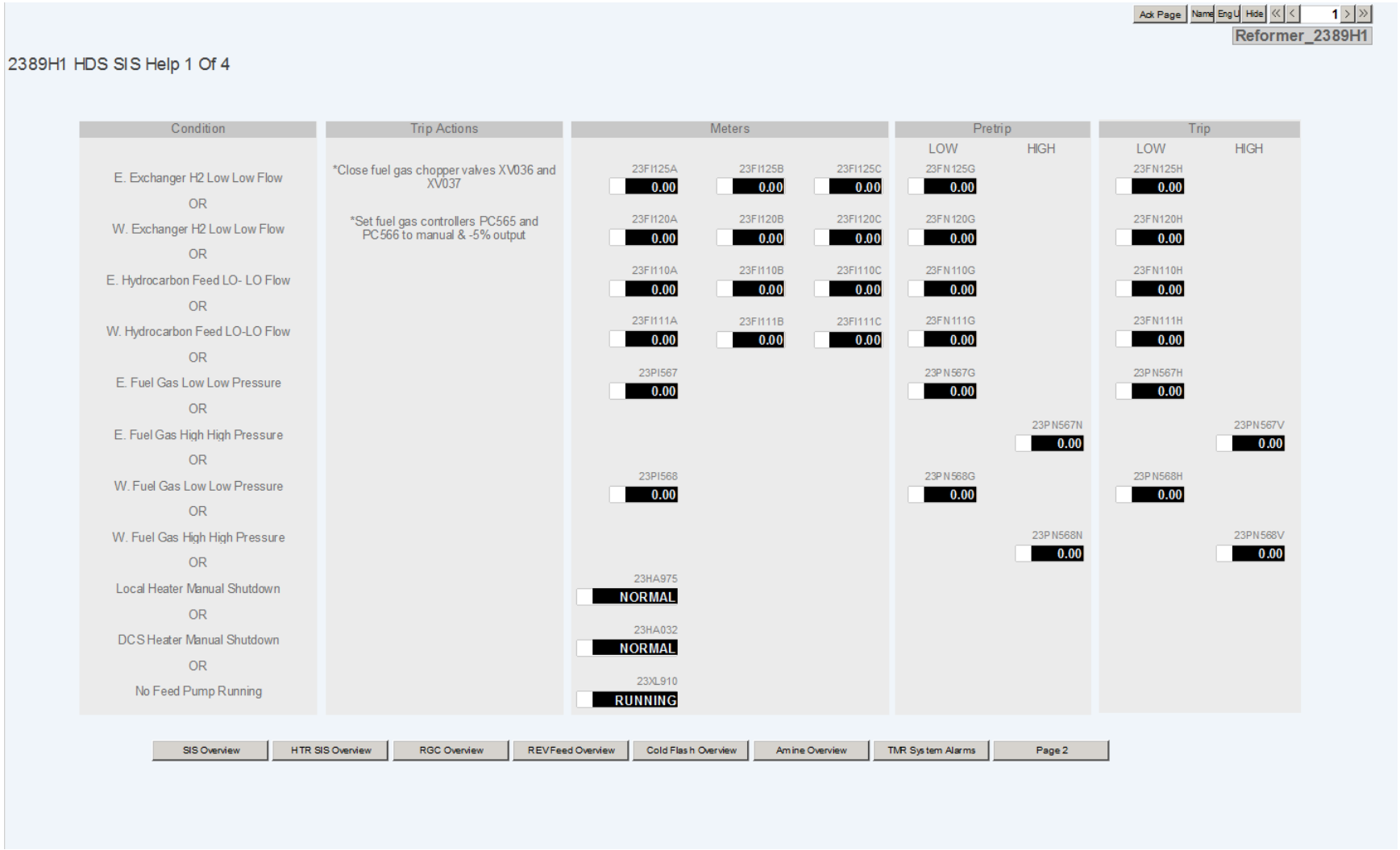


Station View

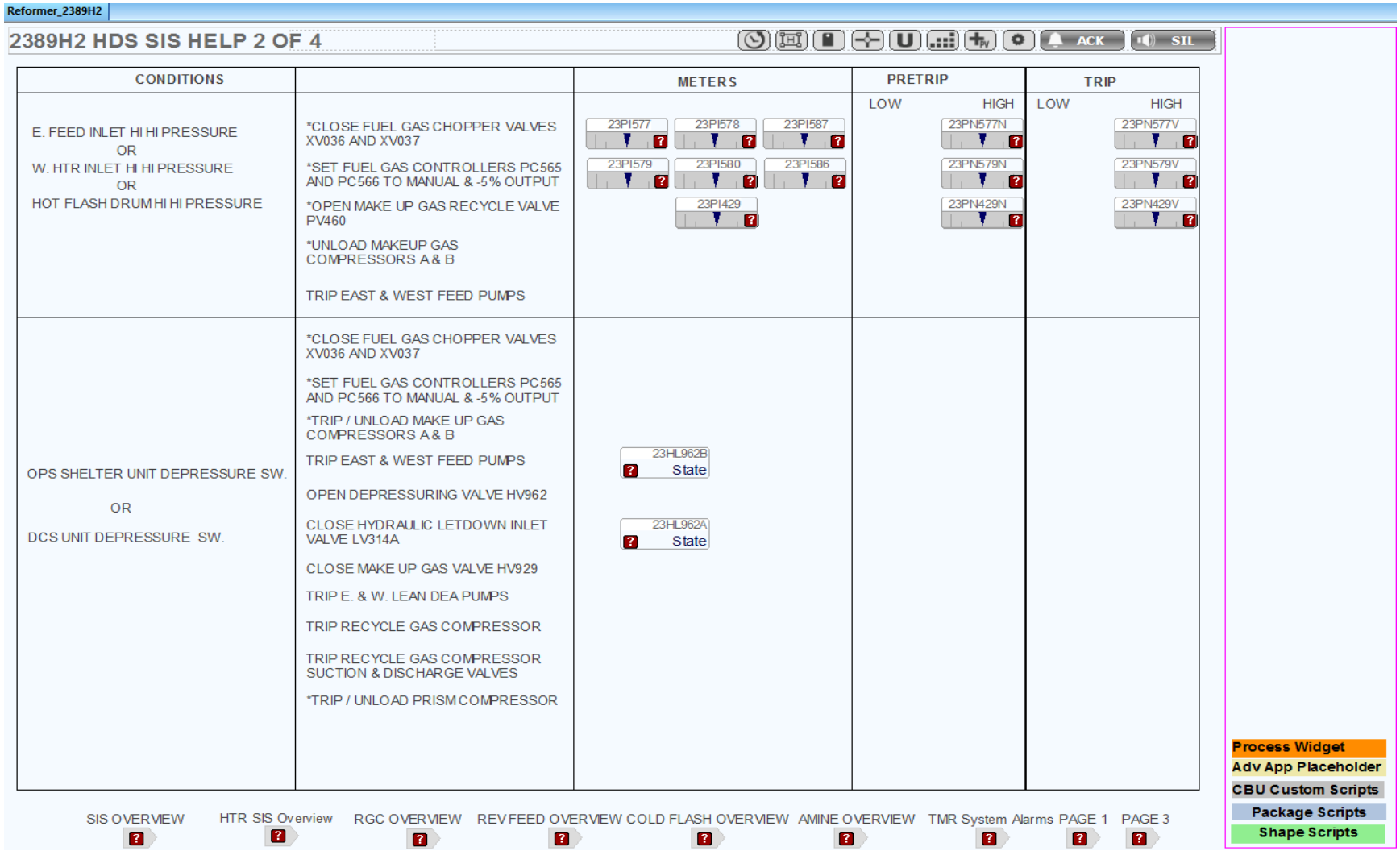
5.179 2389H1 HDS SIS HELP 1 OF 4 (Reformer_2389H1.htm)



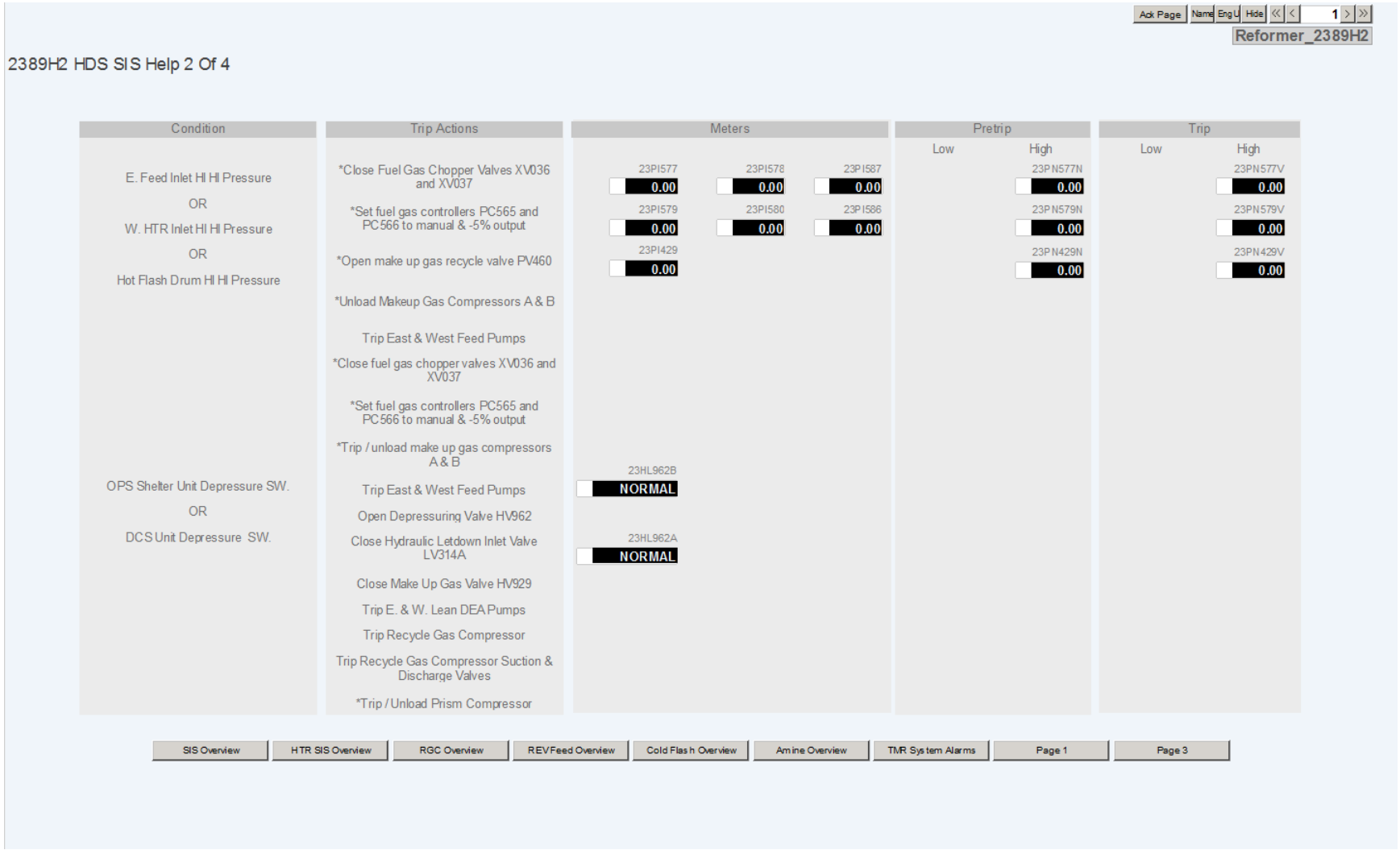
Station View



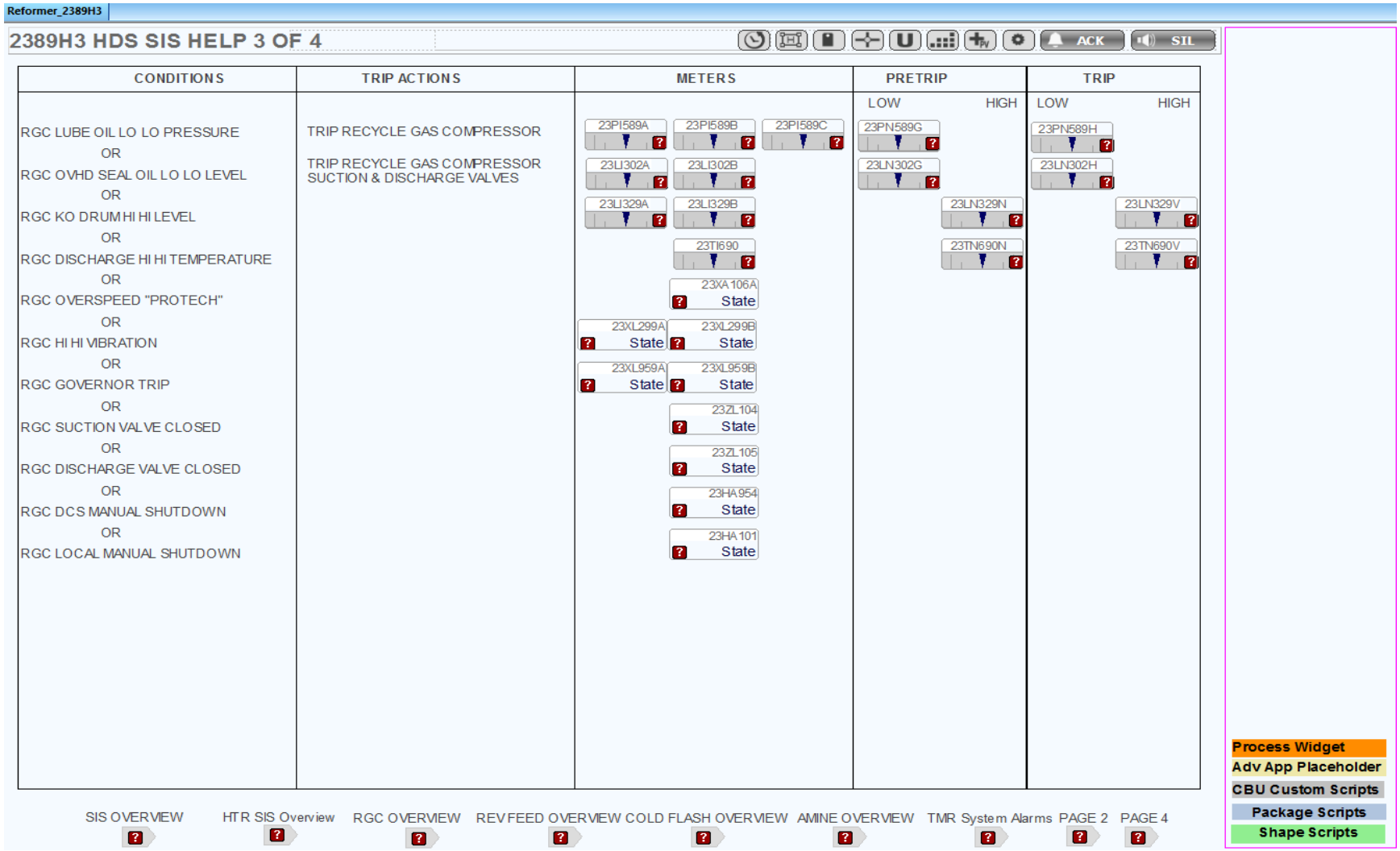
5.180 2389H2 HDS SIS HELP 2 OF 4 (Reformer_2389H2.htm)



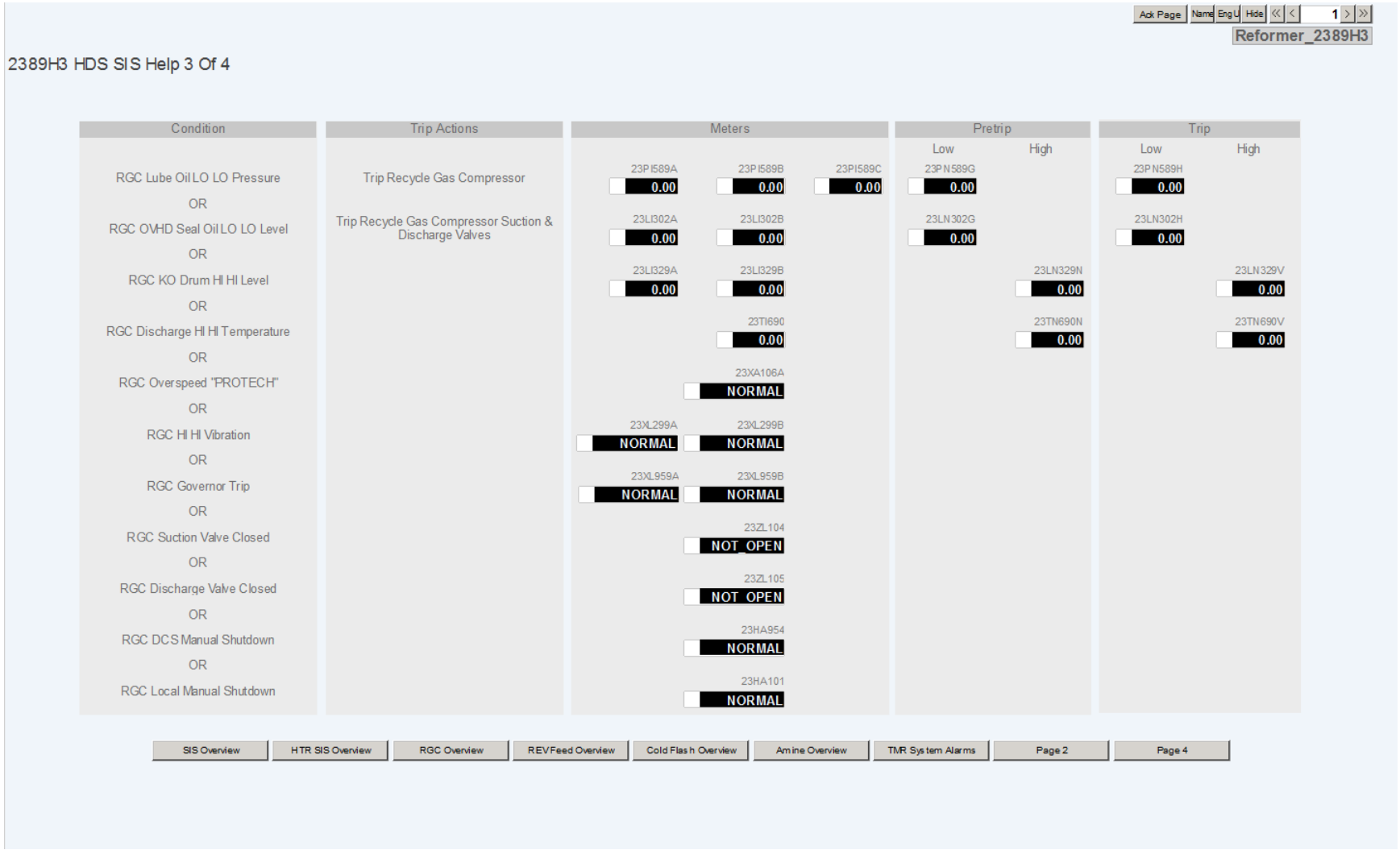
Station View



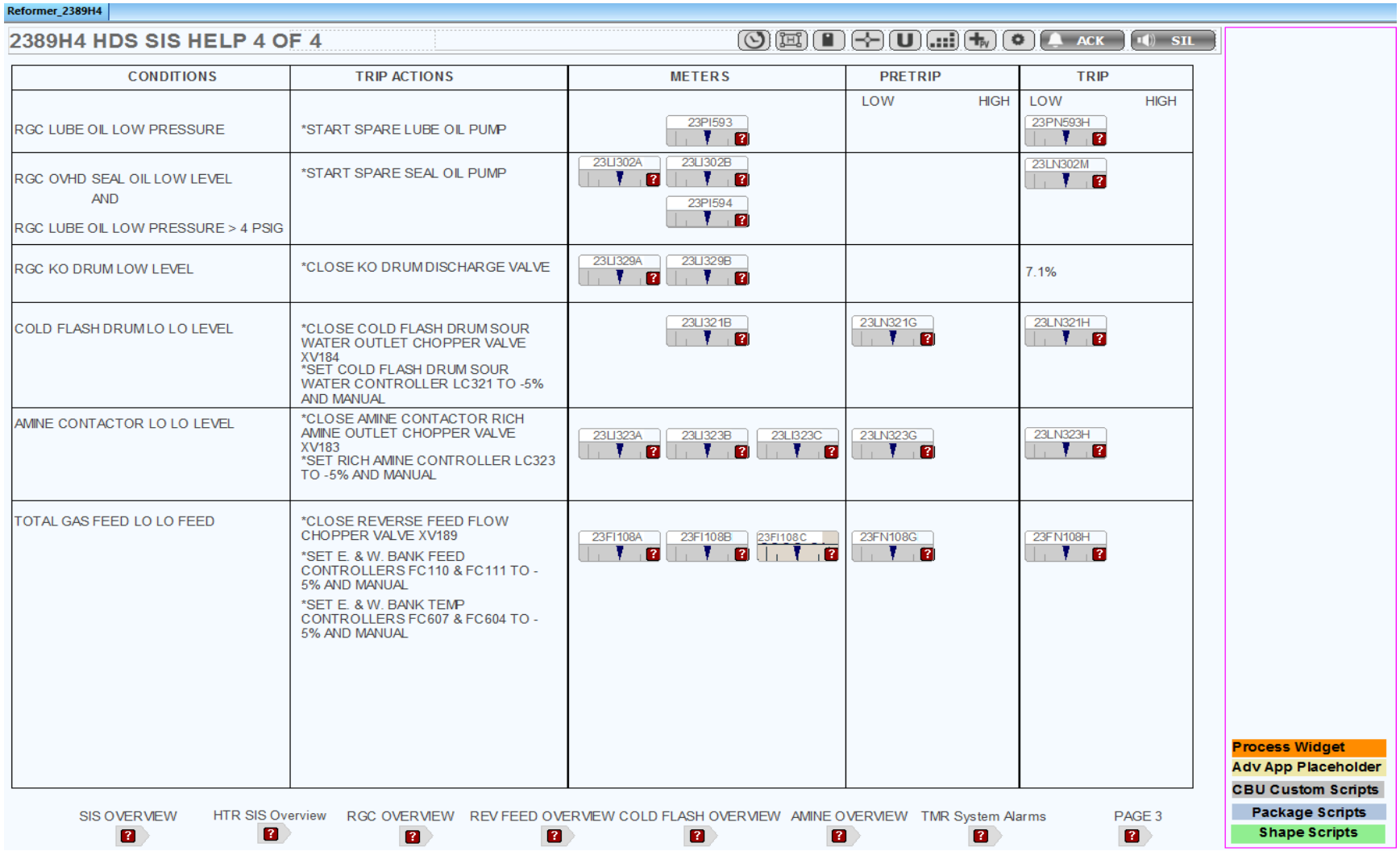
5.181 2389H3 HDS SIS HELP 3 OF 4 (Reformer_2389H3.htm)



Station View

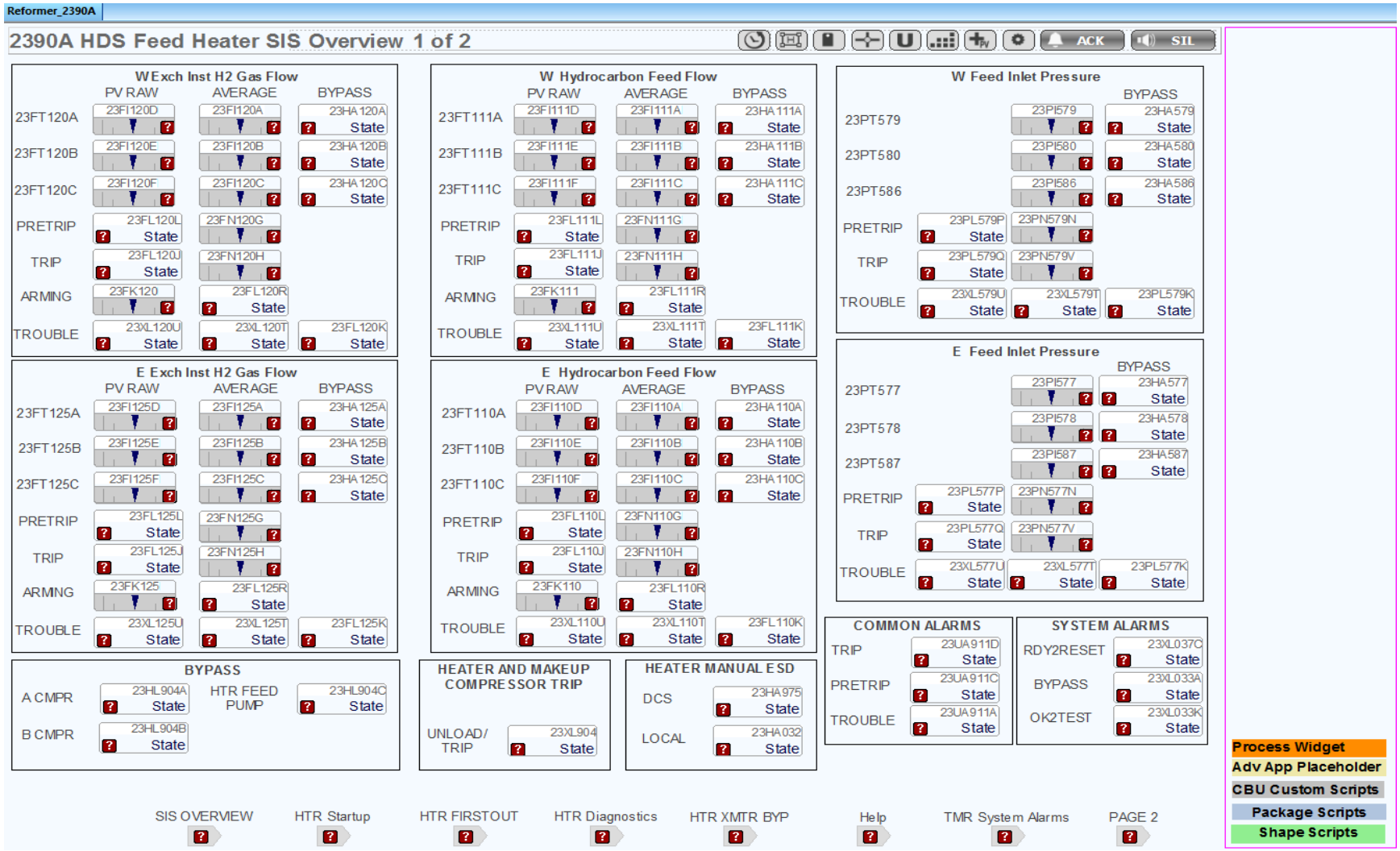


5.182 2389H4 HDS SIS HELP 4 OF 4 (Reformer_2389H4.htm)

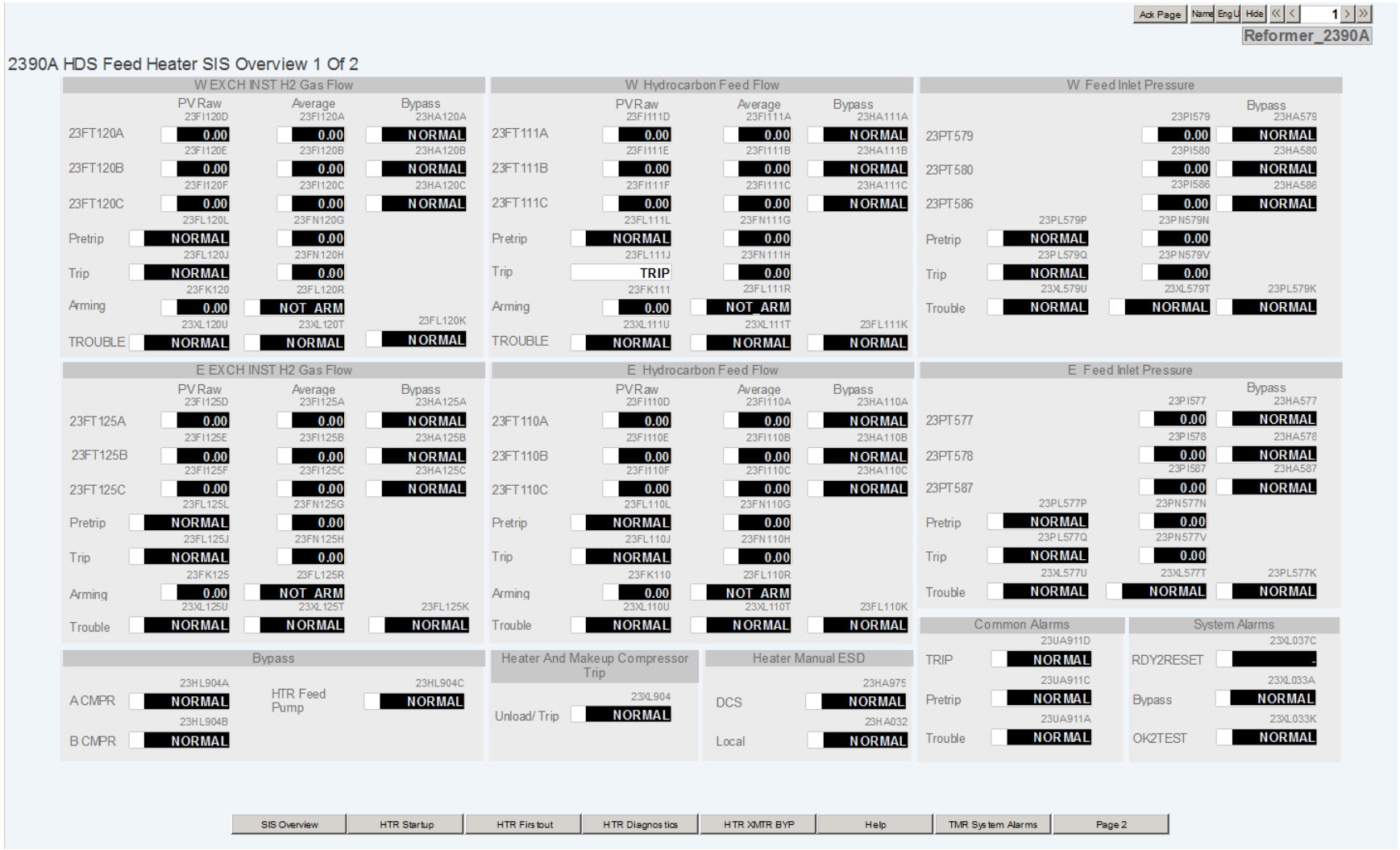


Station View

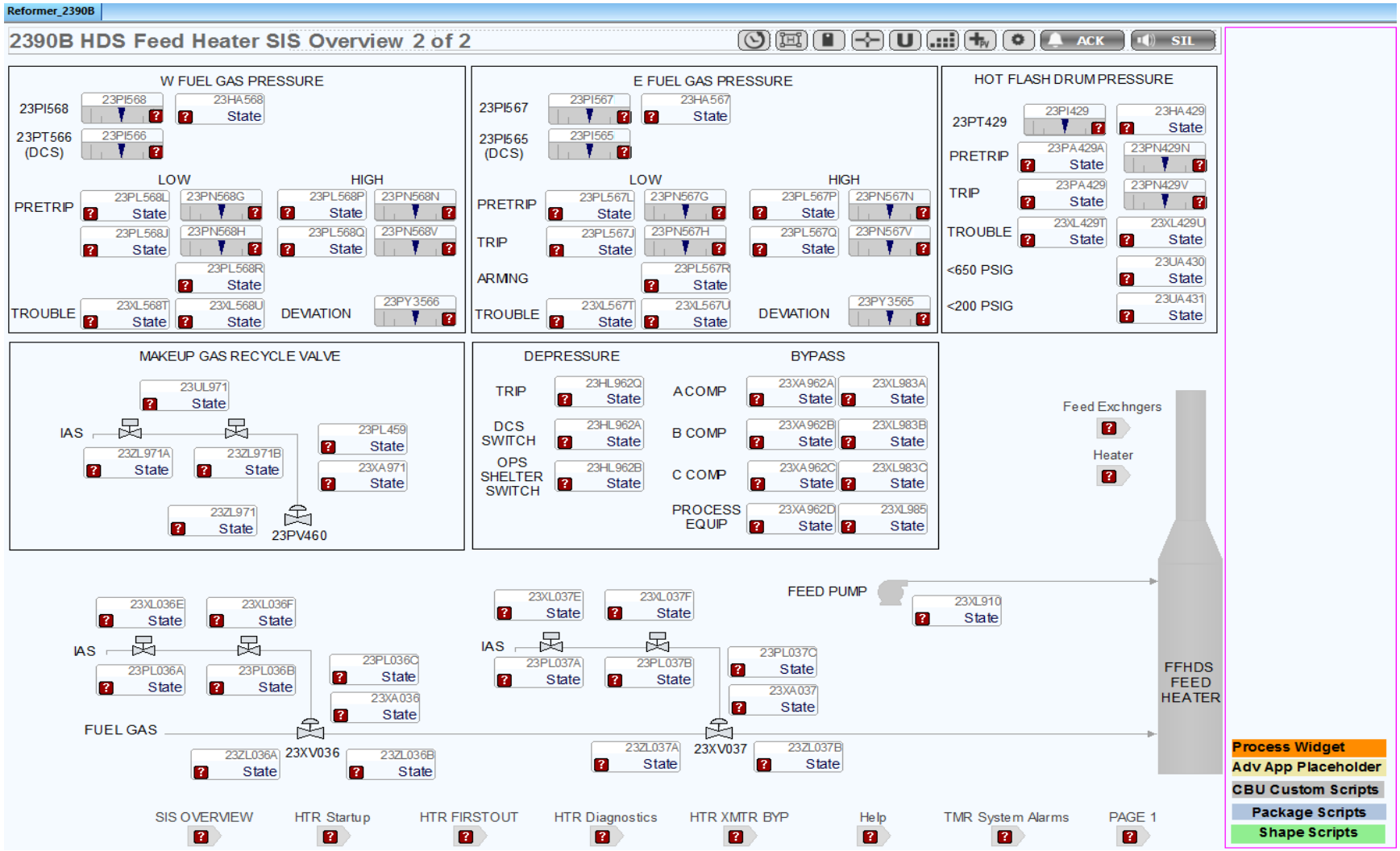
5.183 2390A HDS FEED HEATER SIS OVERVIEW 1 OF 2 (Reformer_2390A.htm)



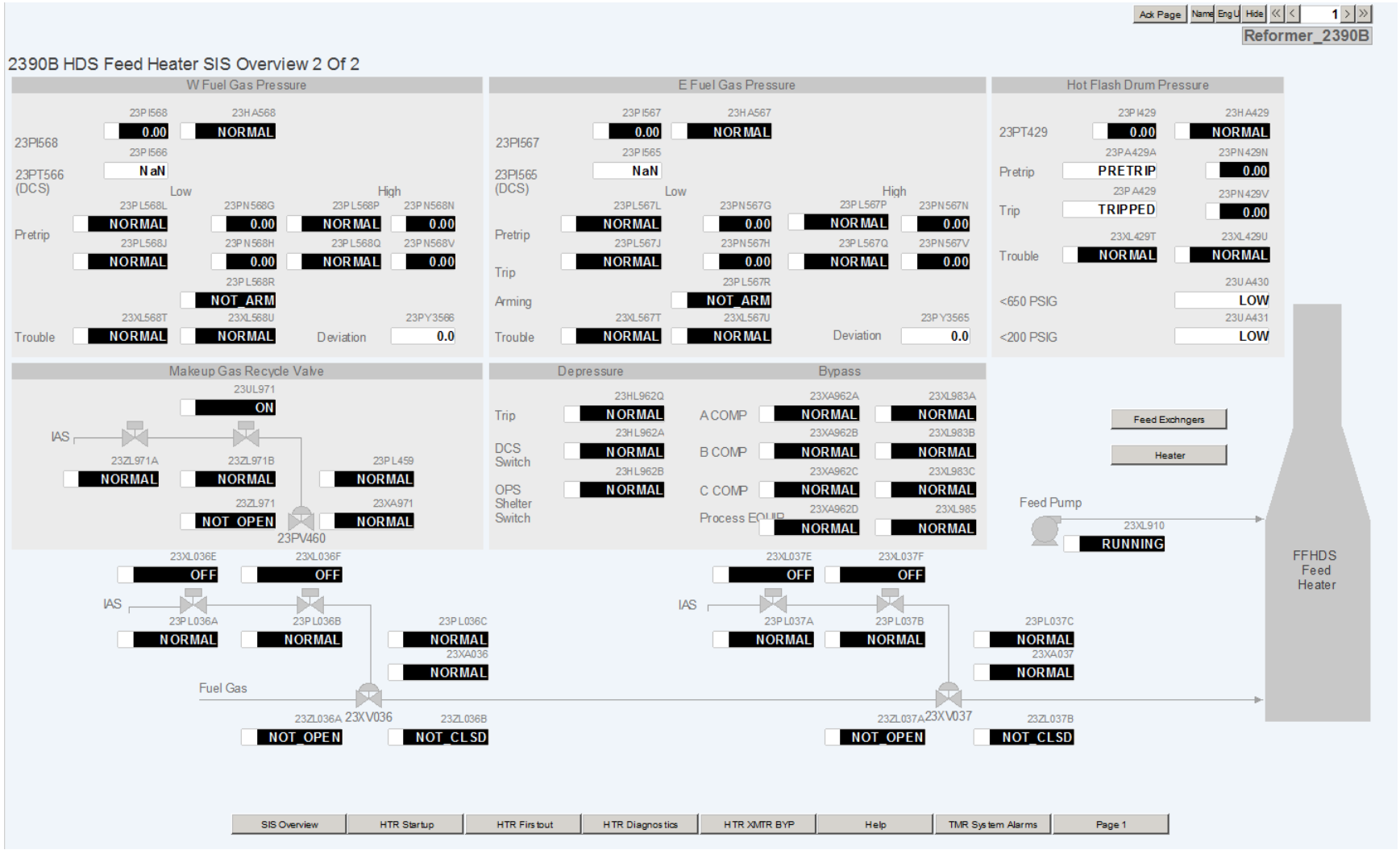
Station View



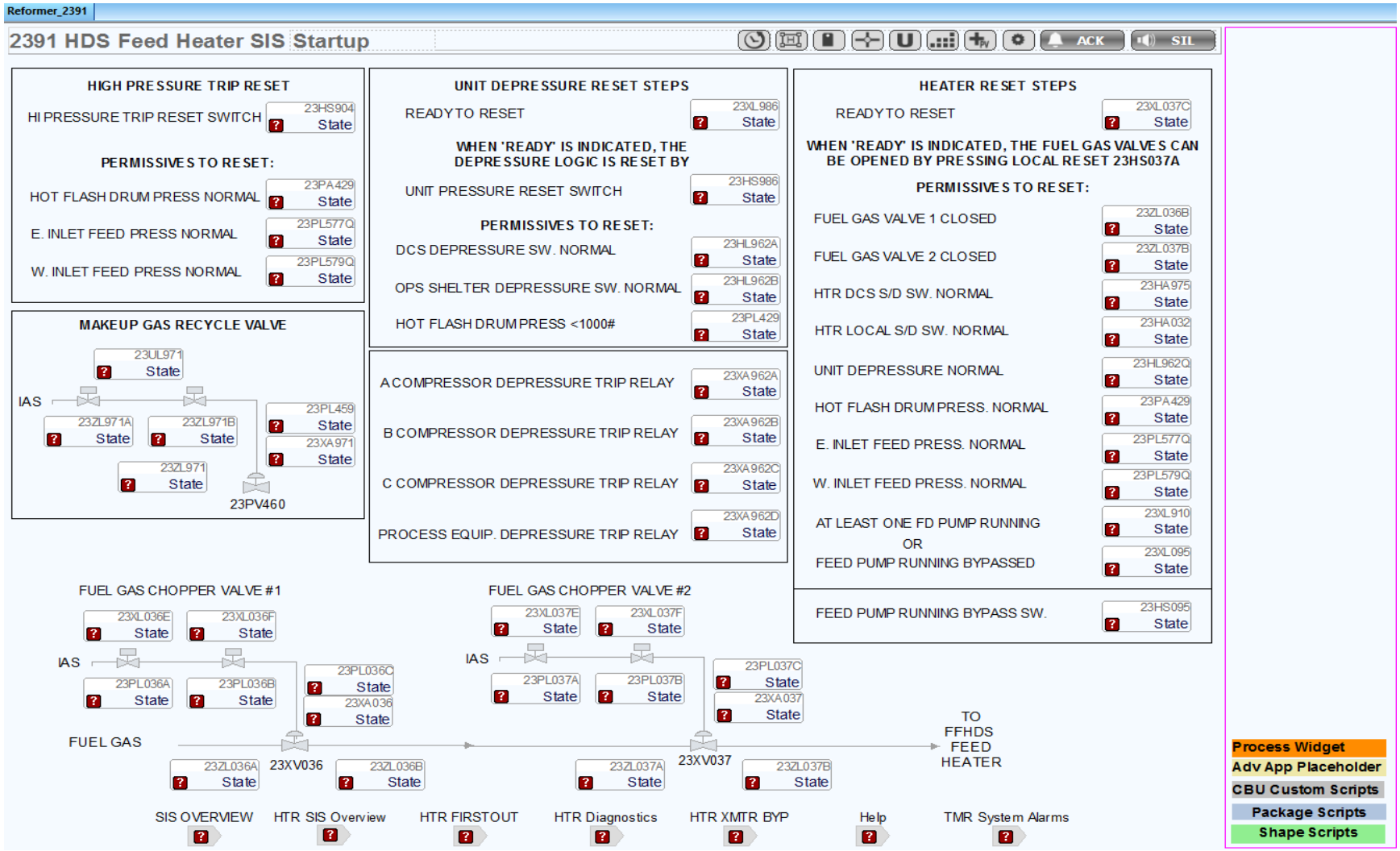
5.184 2390B HDS FEED HEATER SIS OVERVIEW 2 OF 2 (Reformer_2390B.htm)



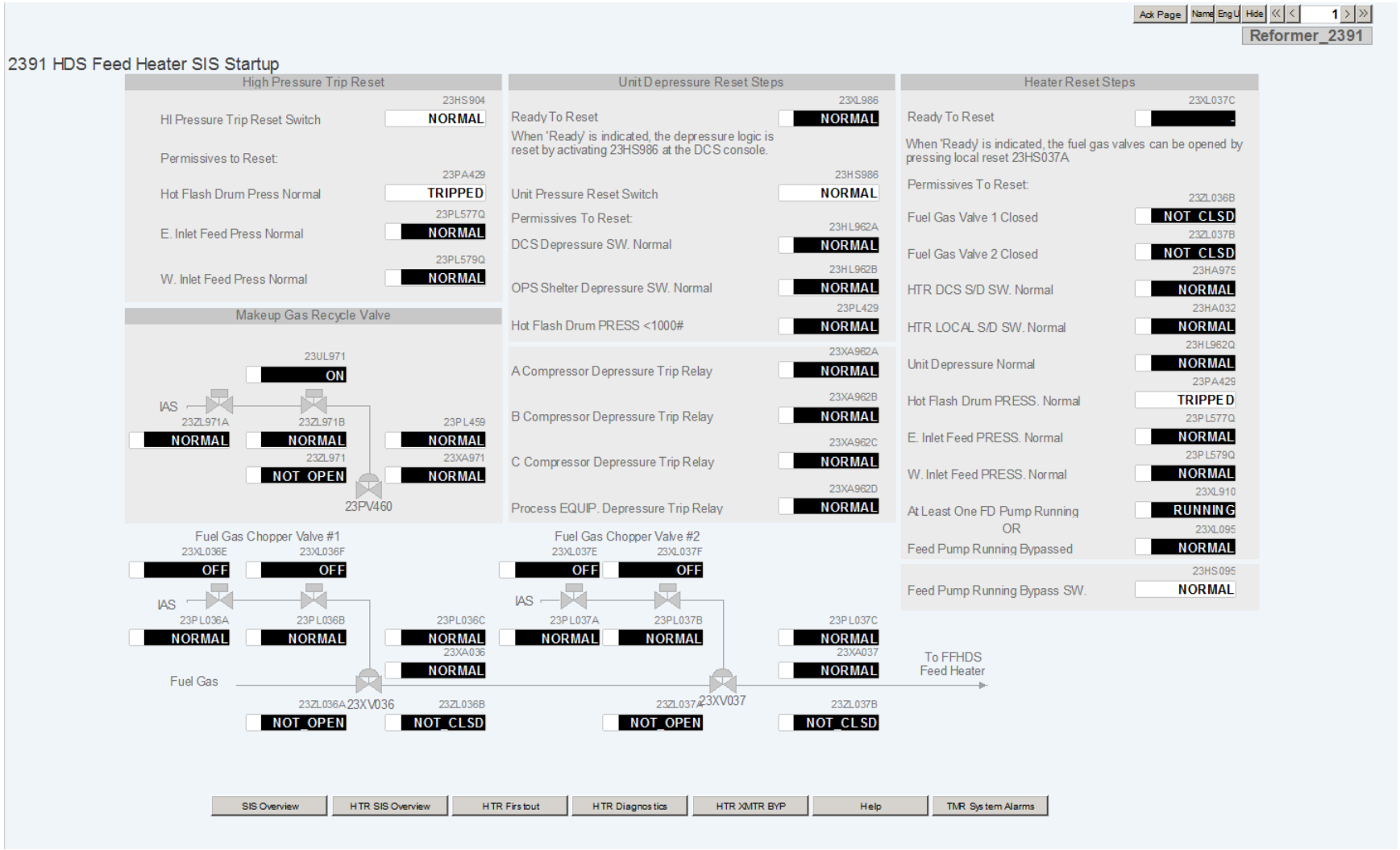
Station View



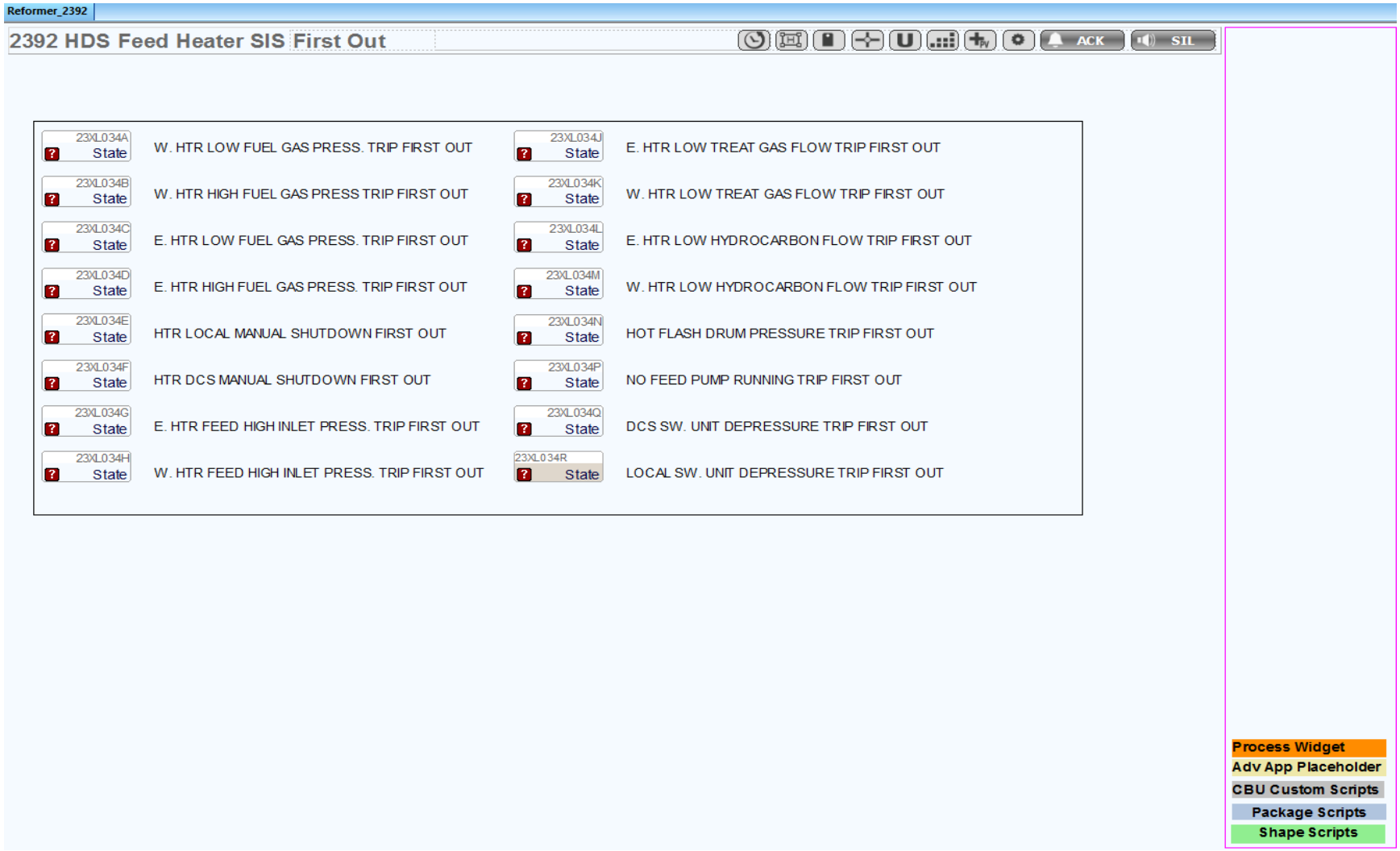
5.185 2391 HDS FEED HEATER SIS STARTUP (Reformer_2391.htm)



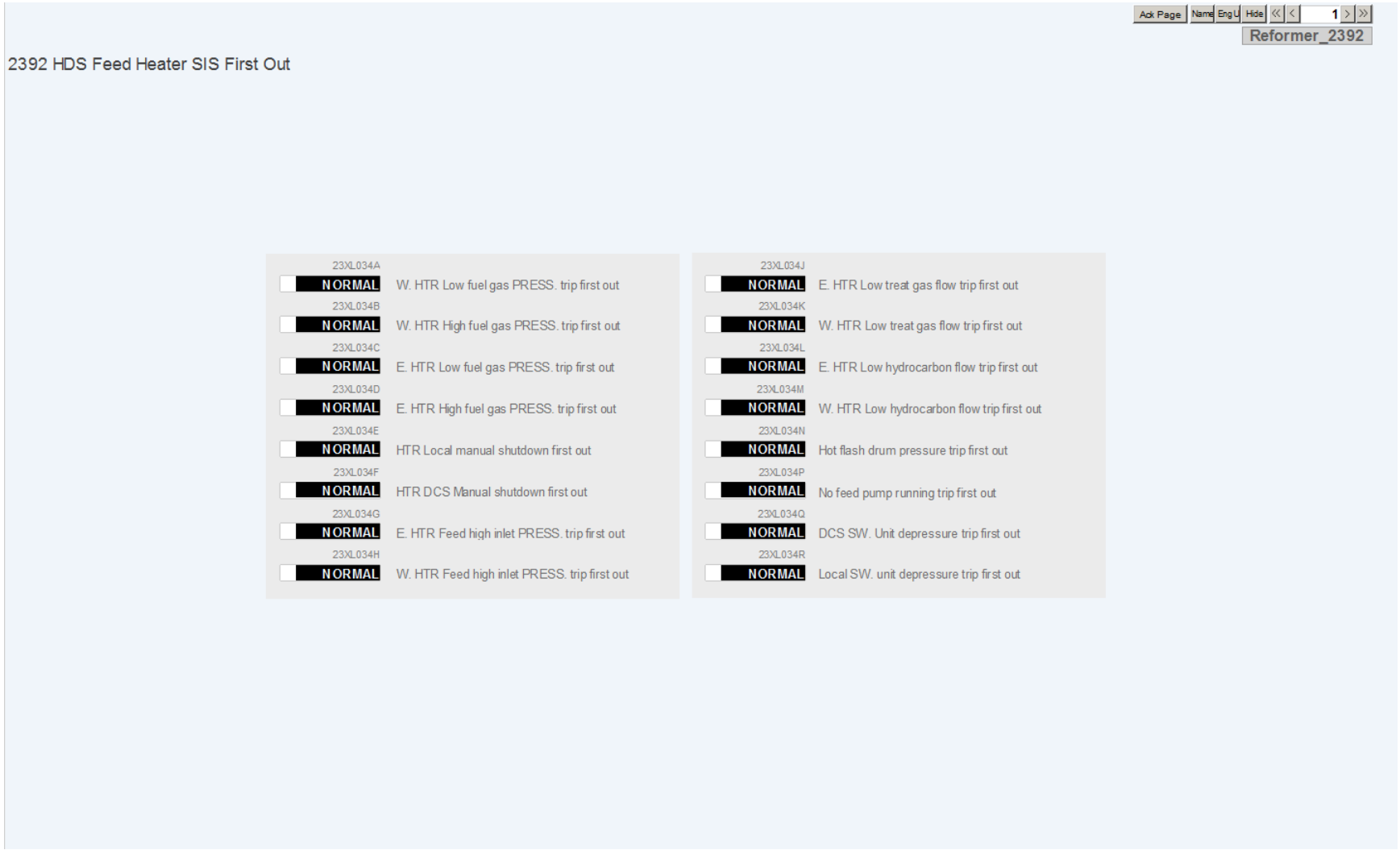
Station View



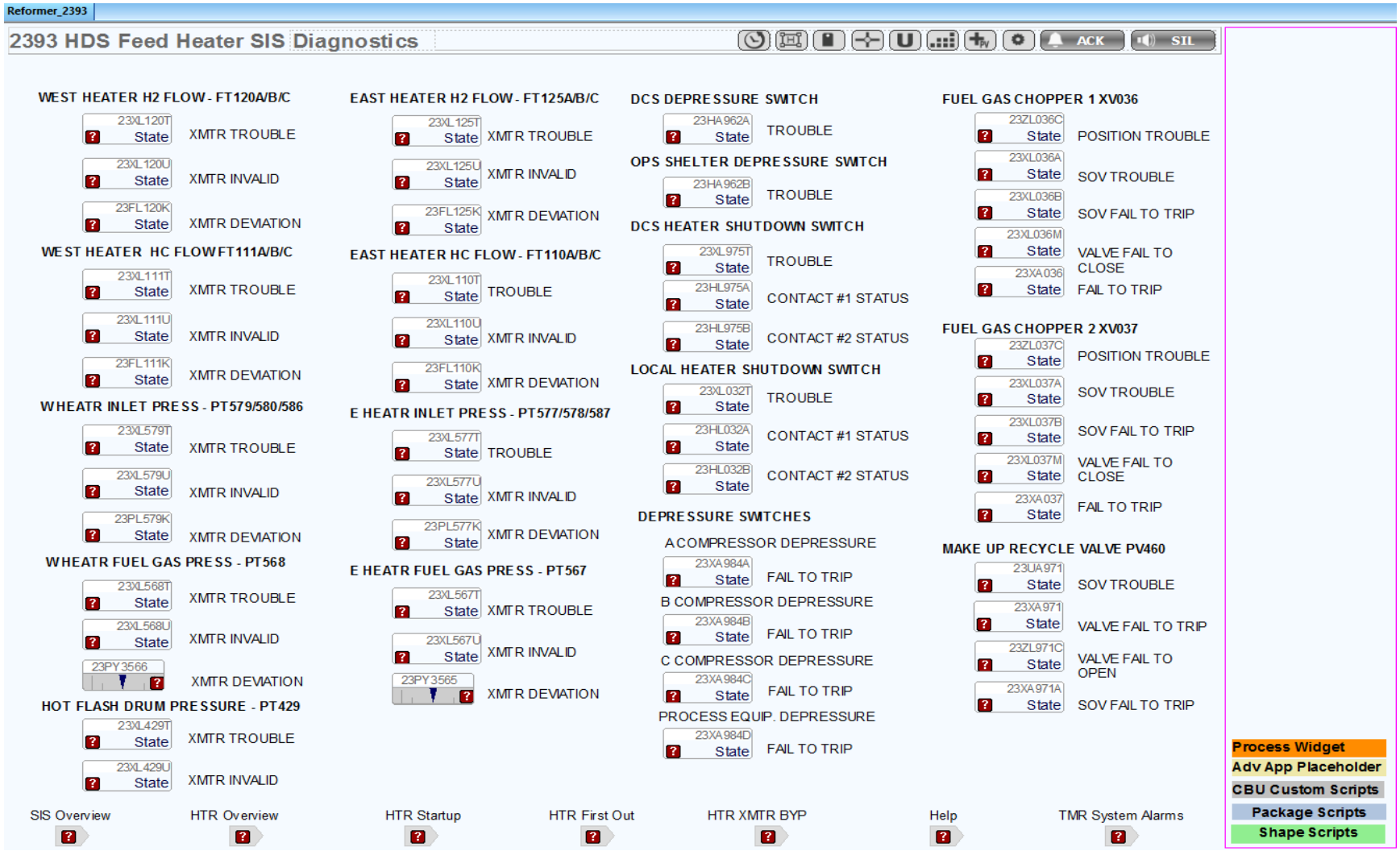
5.186 2392 HDS FEED HEATER SIS FIRST OUT (Reformer_2392.htm)



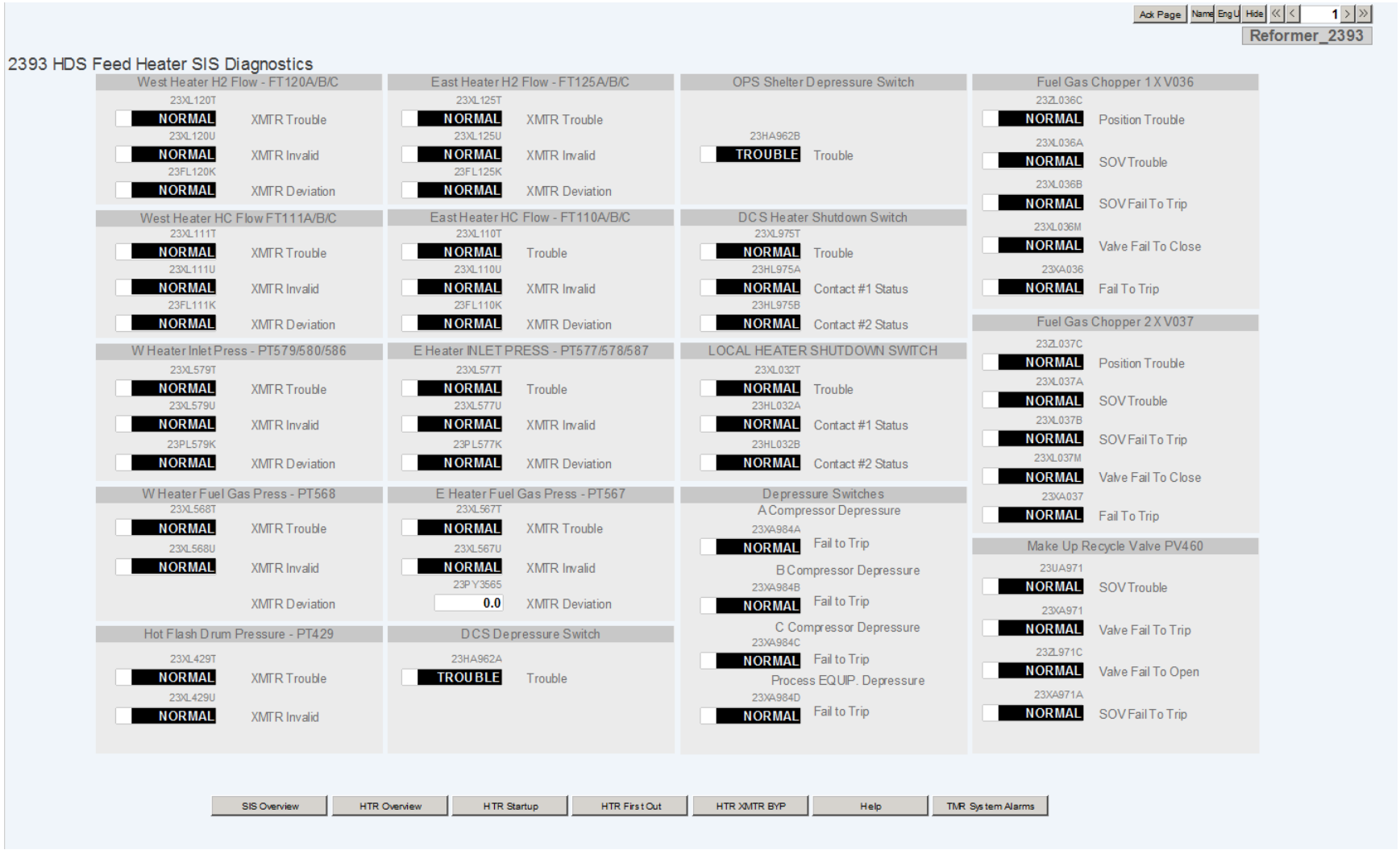
Station View



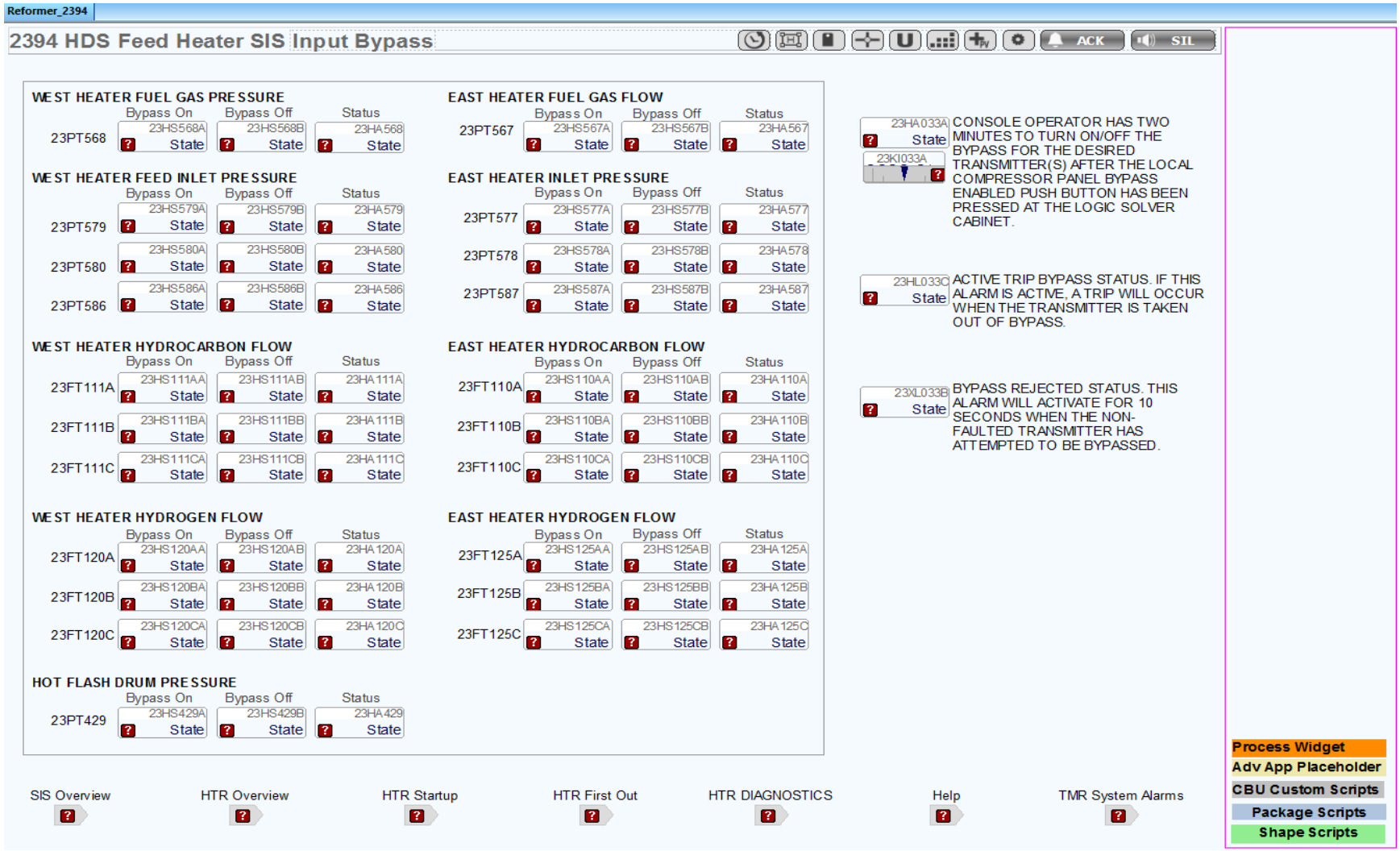
5.187 2393 HDS FEED HEATER SIS DIAGNOSTICS (Reformer_2393.htm)



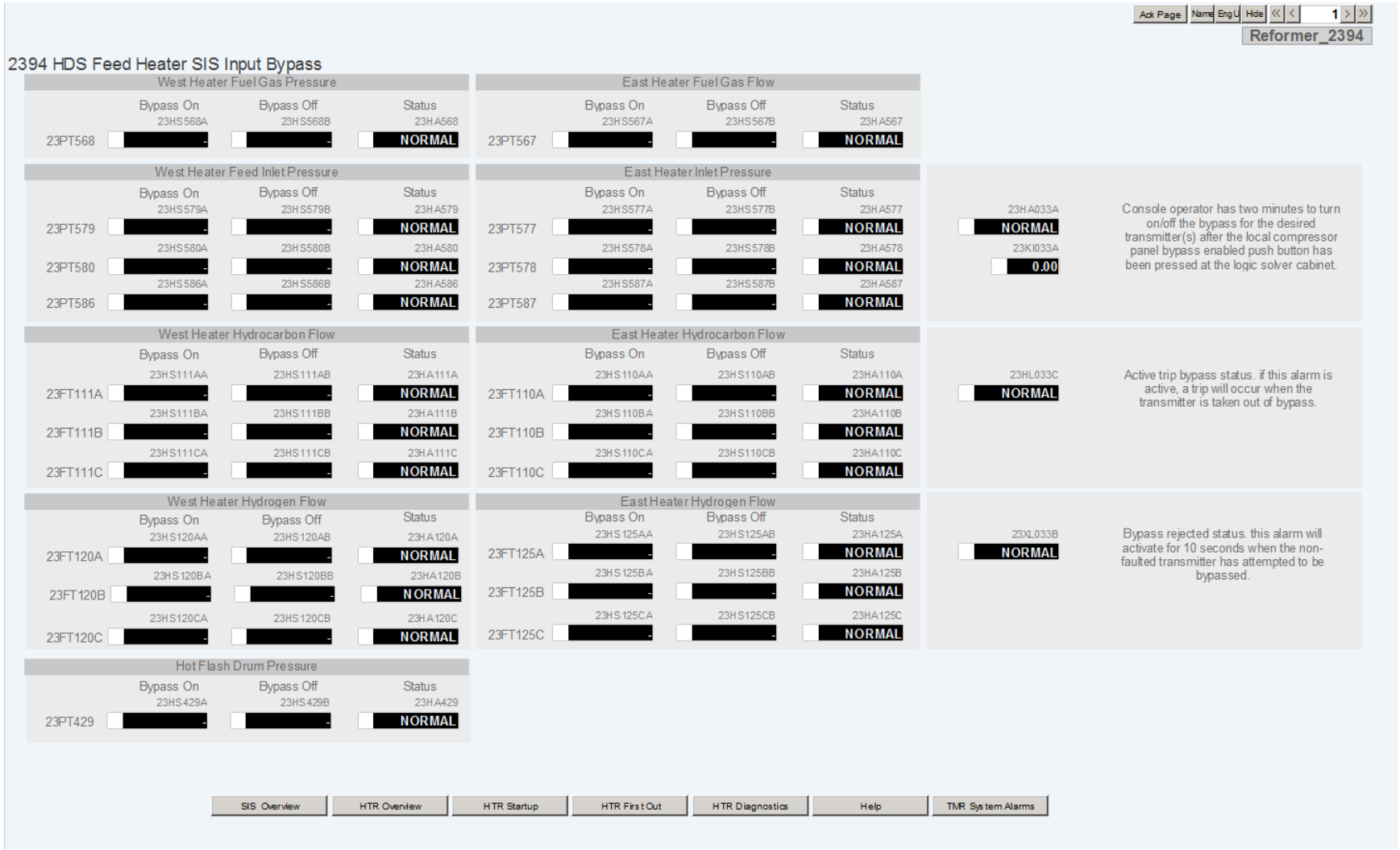
Station View



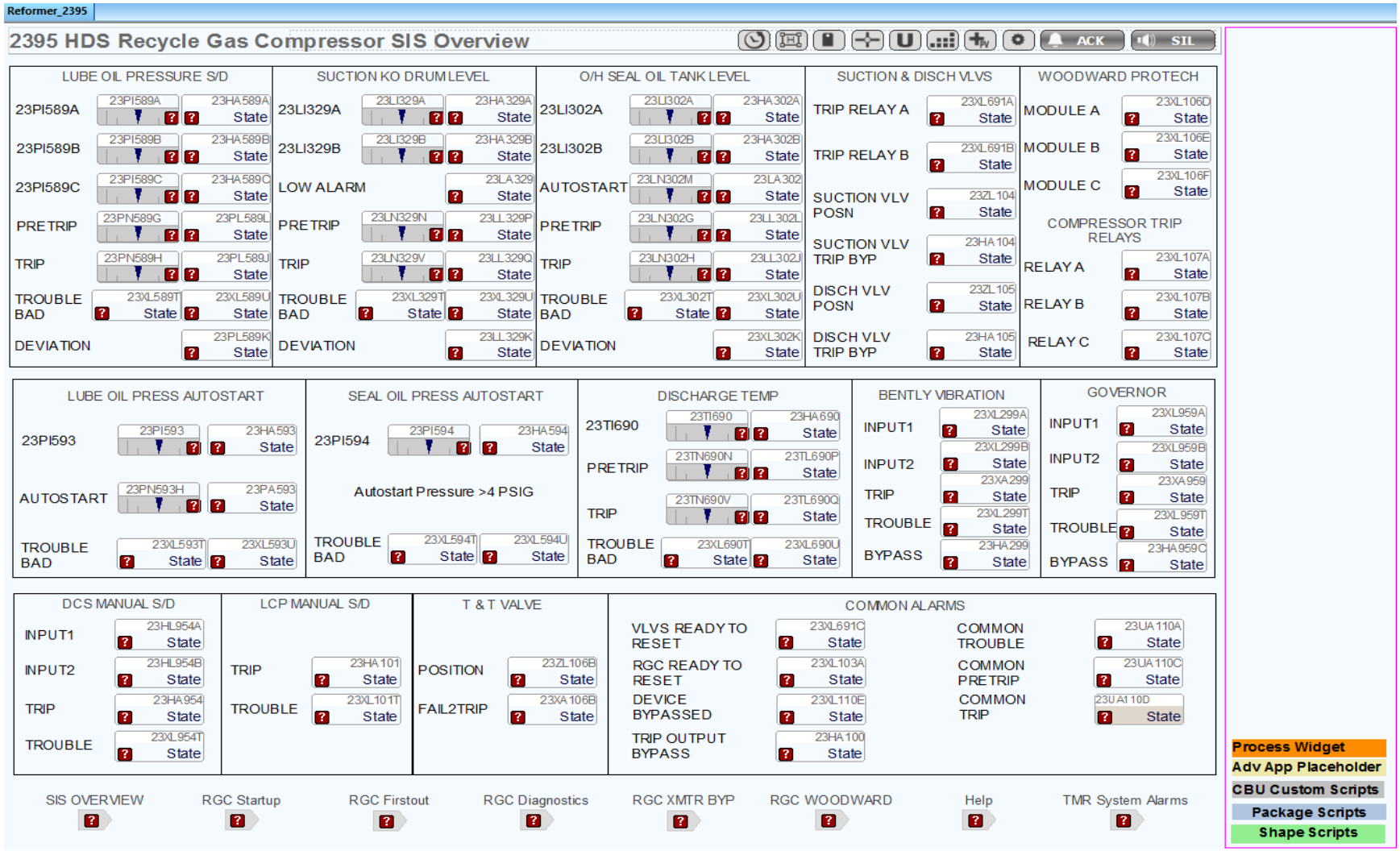
5.188 2394 HDS FEED HEATER SIS INPUT BYPASS (Reformer_2394.htm)



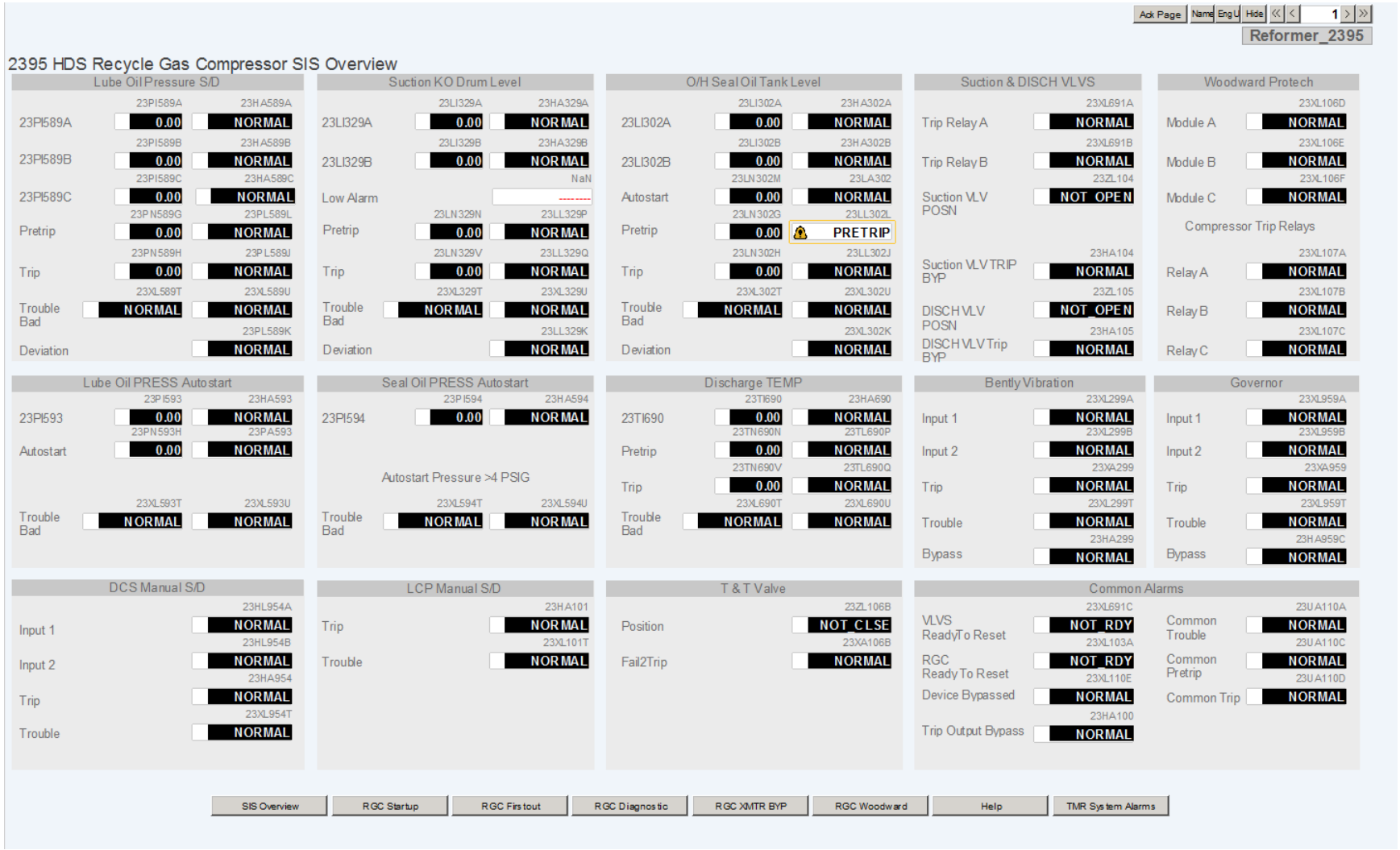
Station View



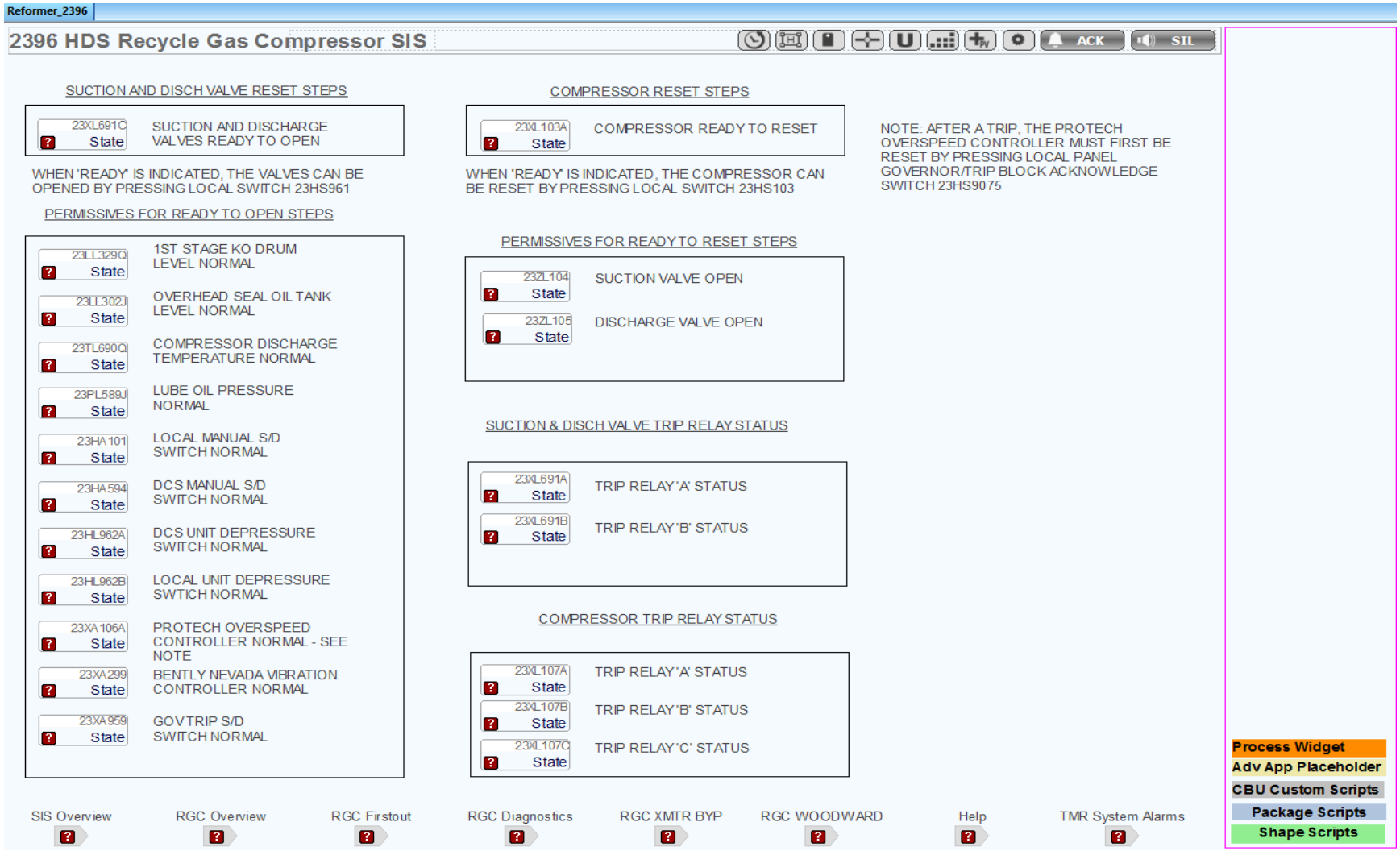
5.189 2395 HDS RECYCLE GAS COMPRESSOR SIS OVERVIEW (Reformer_2395.htm)



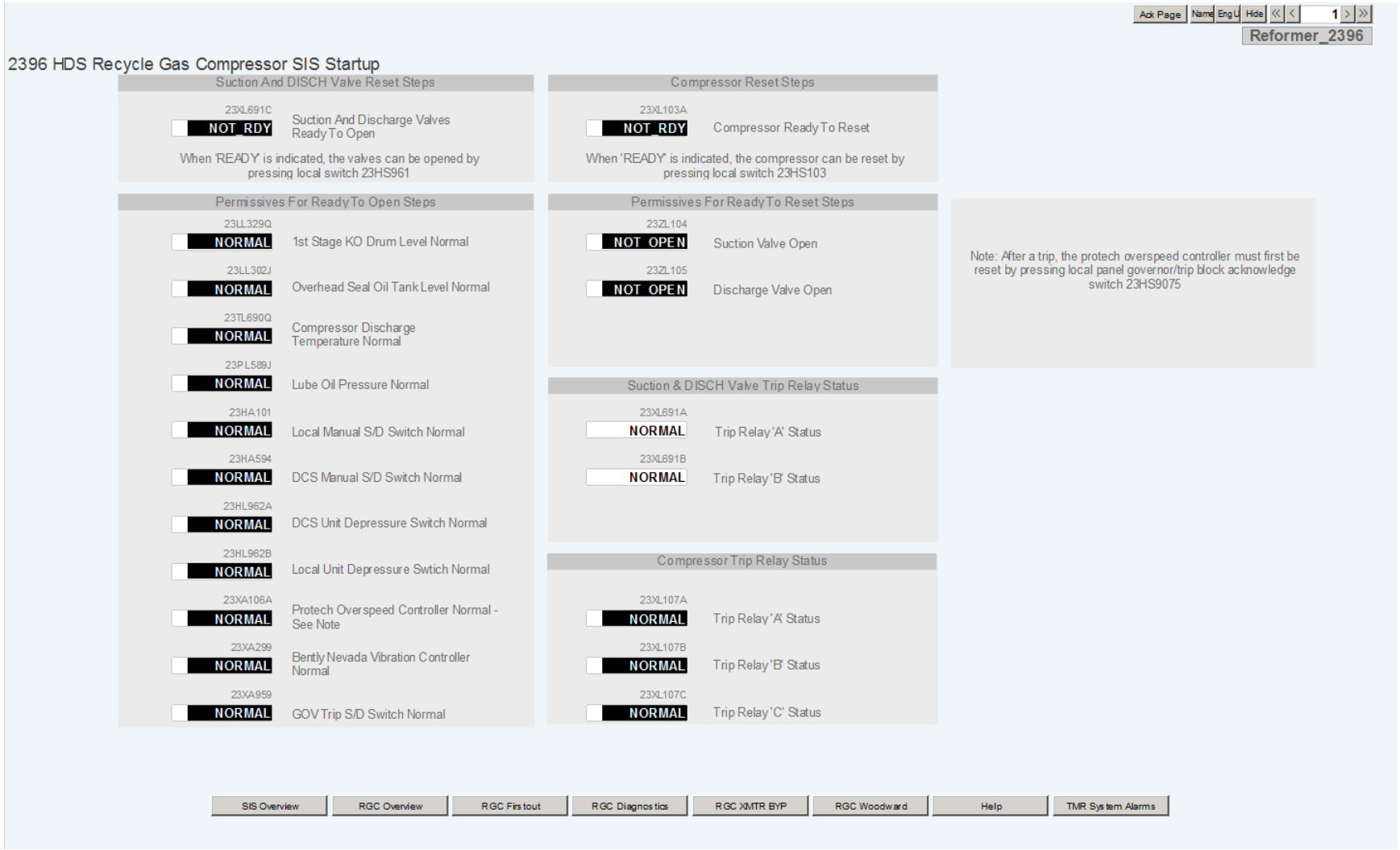
Station View



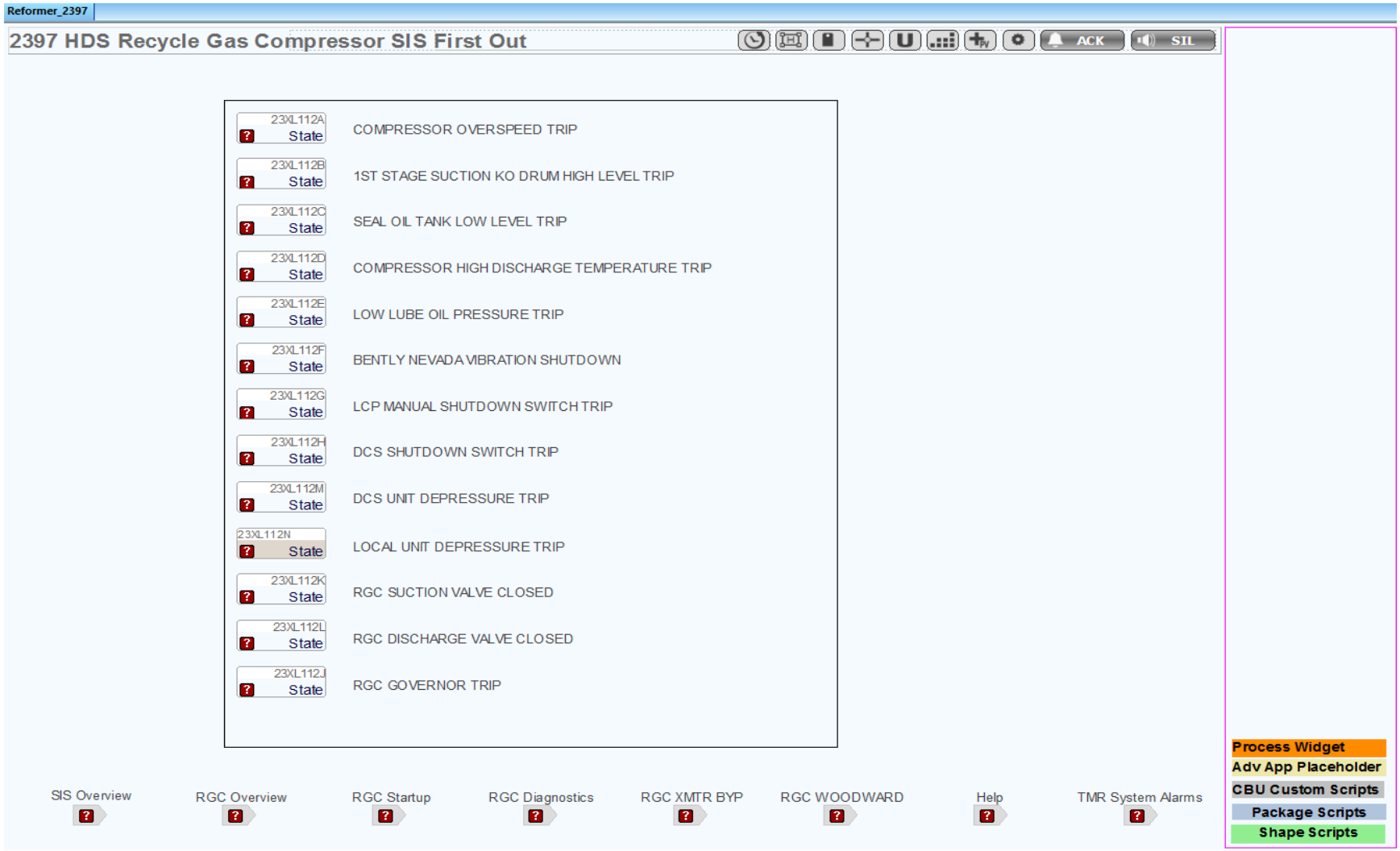
5.190 2396 HDS RECYCLE GAS COMPRESSOR SIS STARTUP (Reformer_2396.htm)



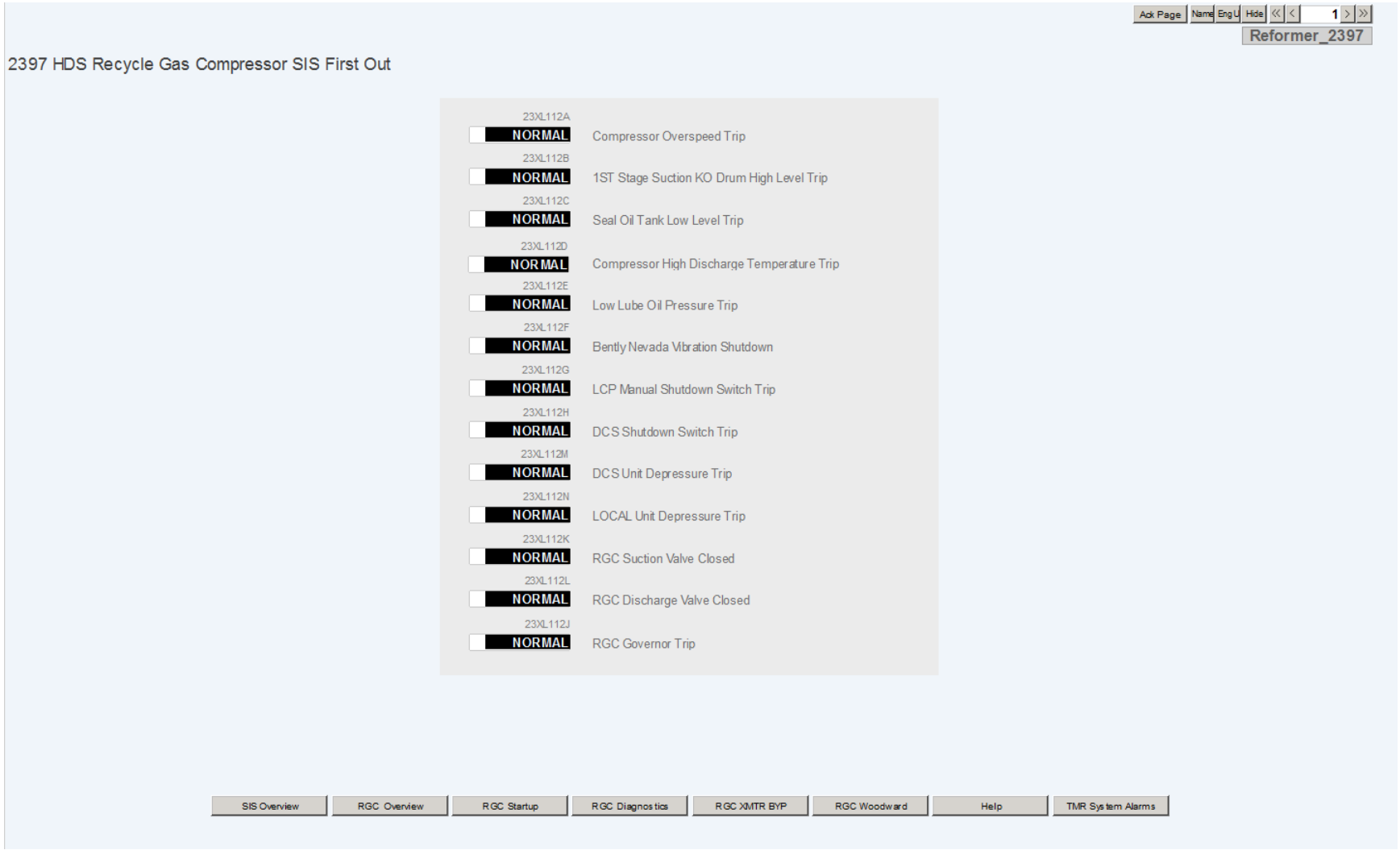
Station View



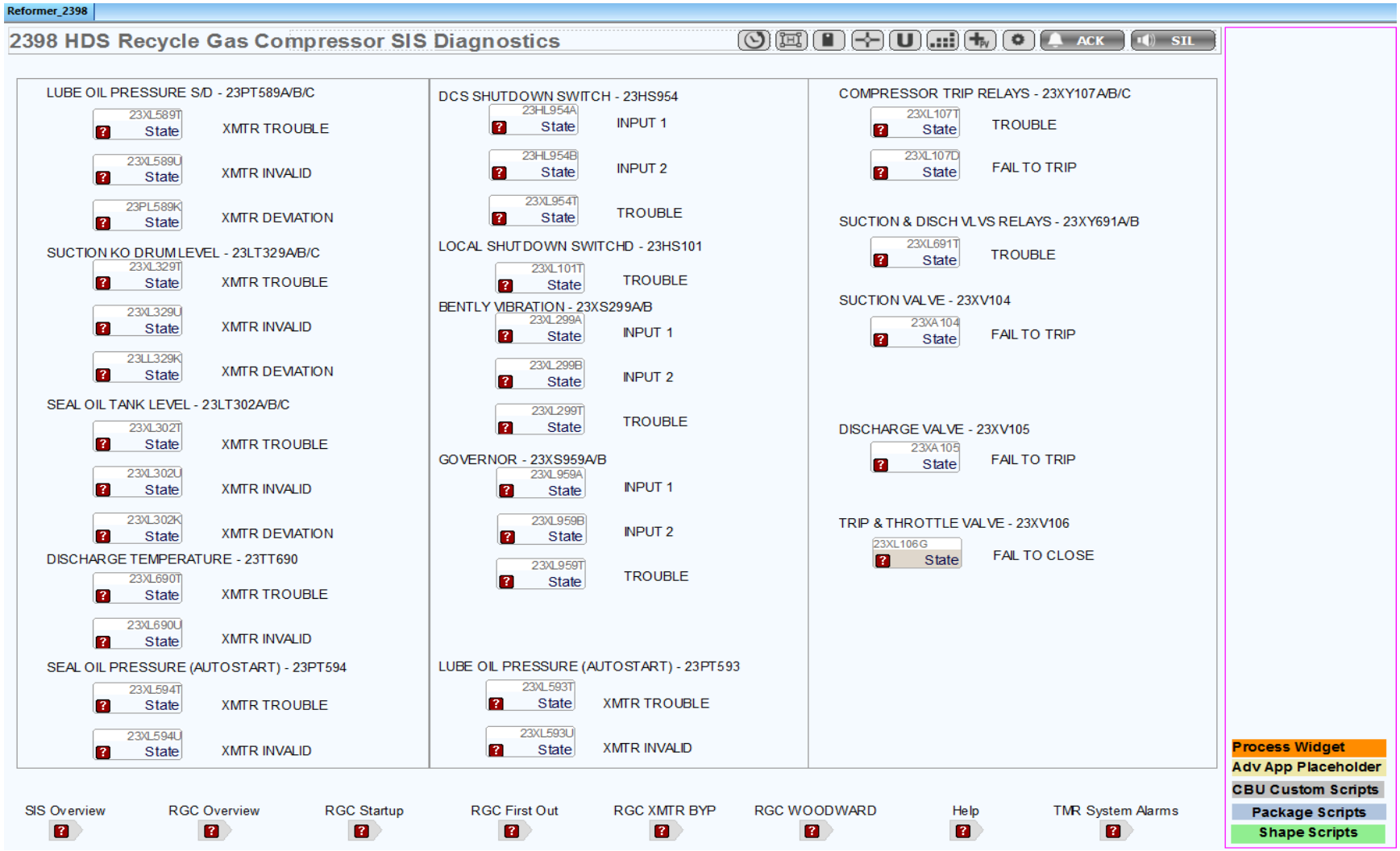
5.191 2397 HDS RECYCLE GAS COMPRESSOR SIS FIRST OUT (Reformer_2397.htm)



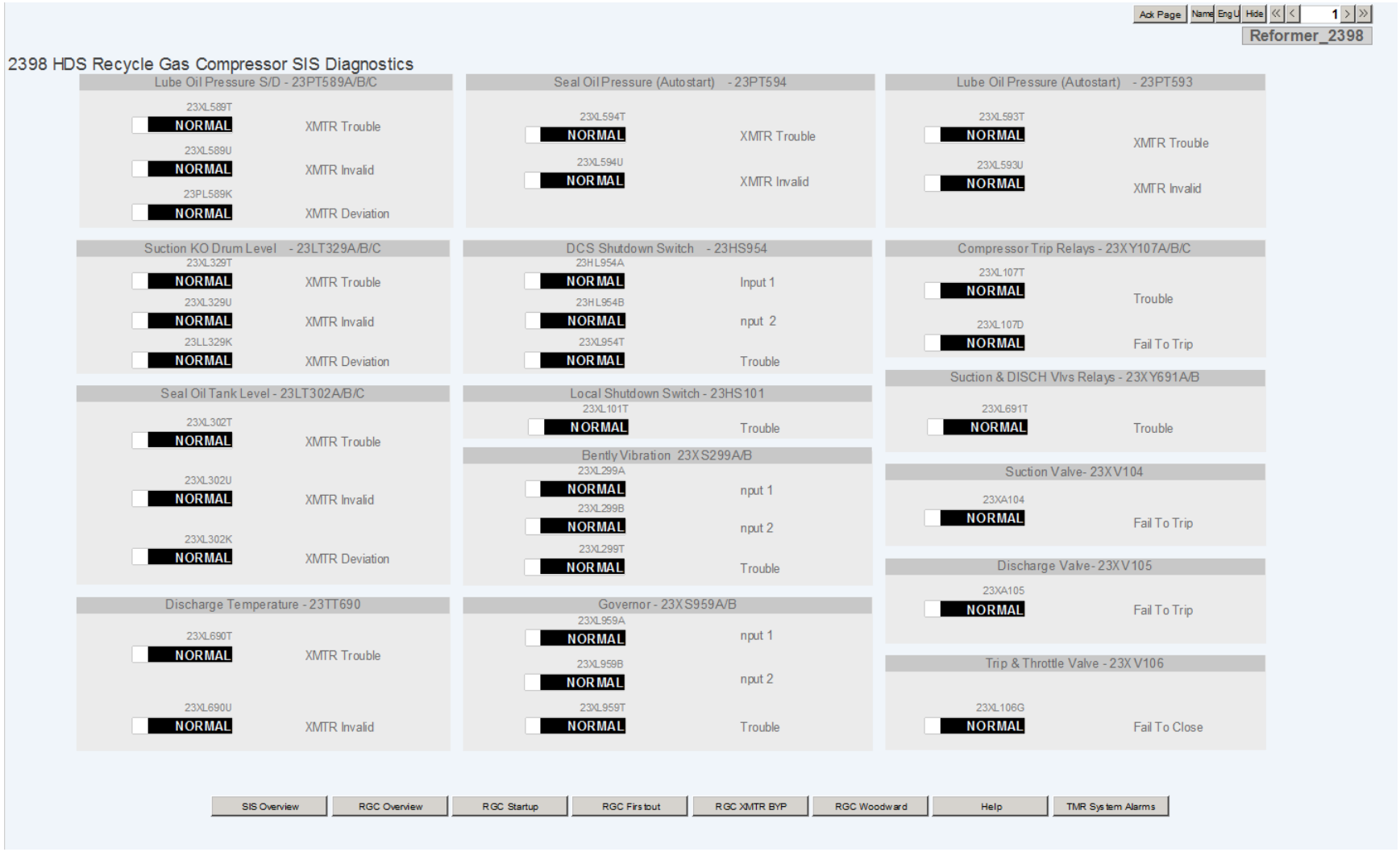
Station View



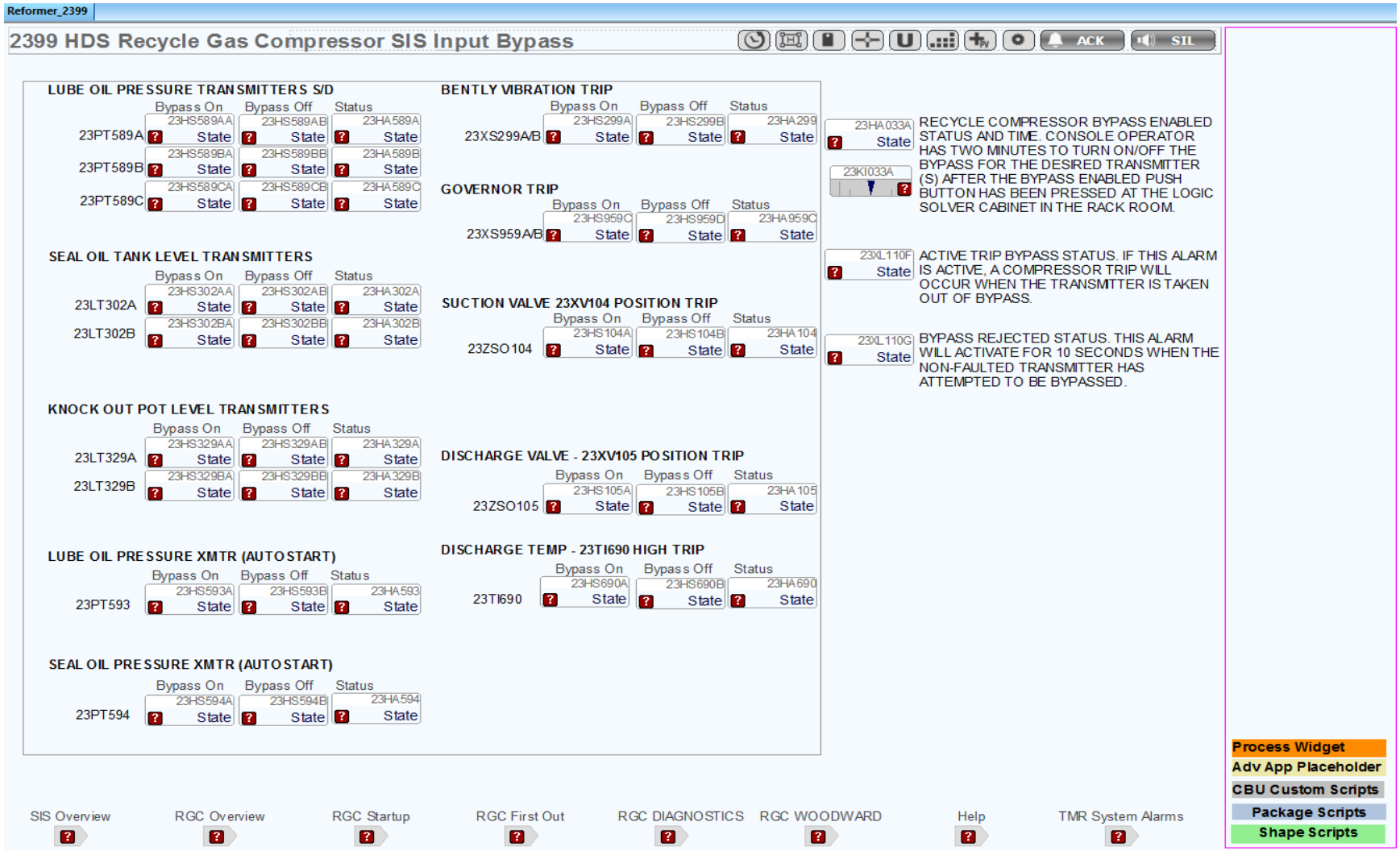
5.192 2398 HDS RECYCLE GAS COMPRESSOR SIS DIAGNOSTICS (Reformer_2398.htm)



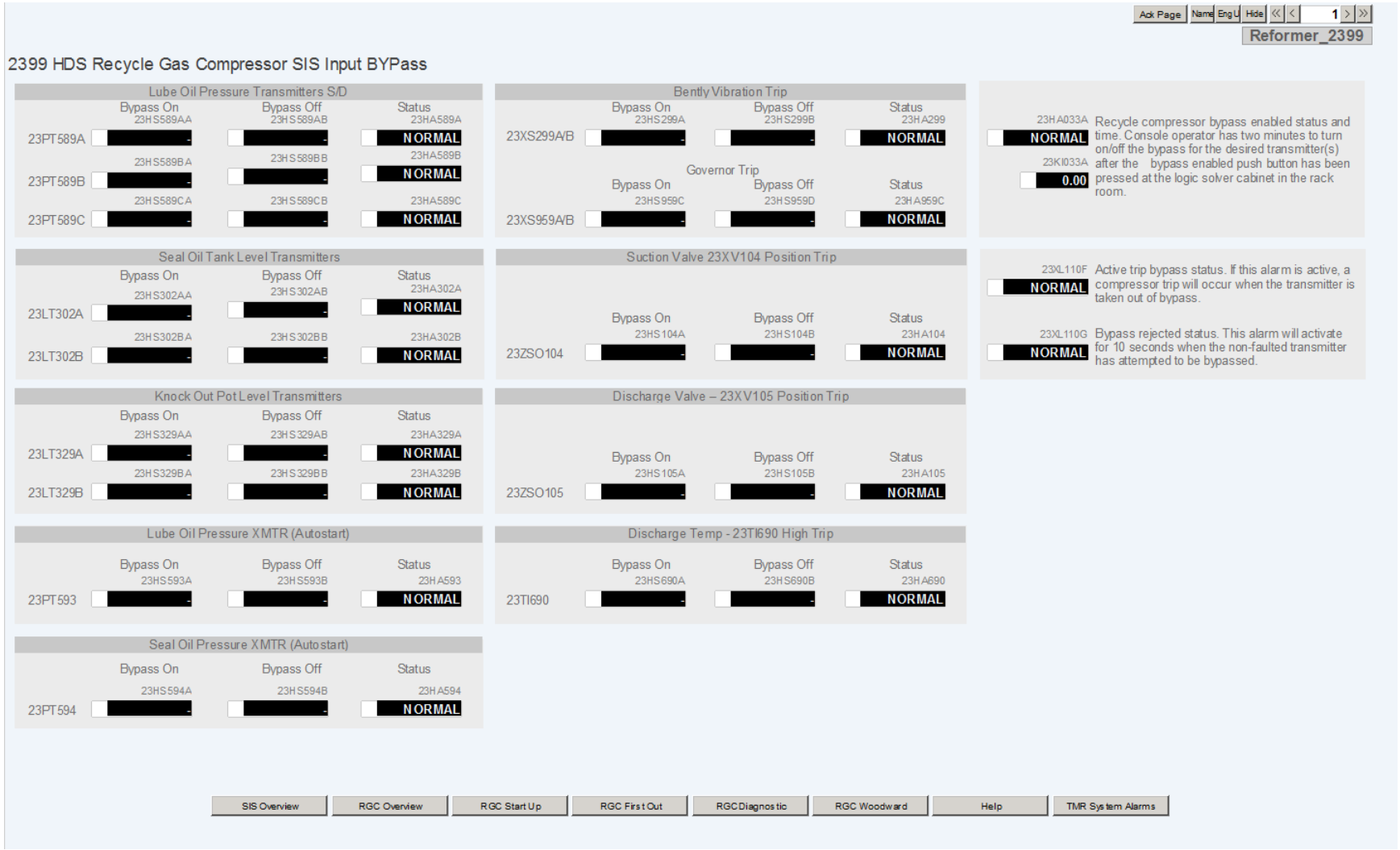
Station View



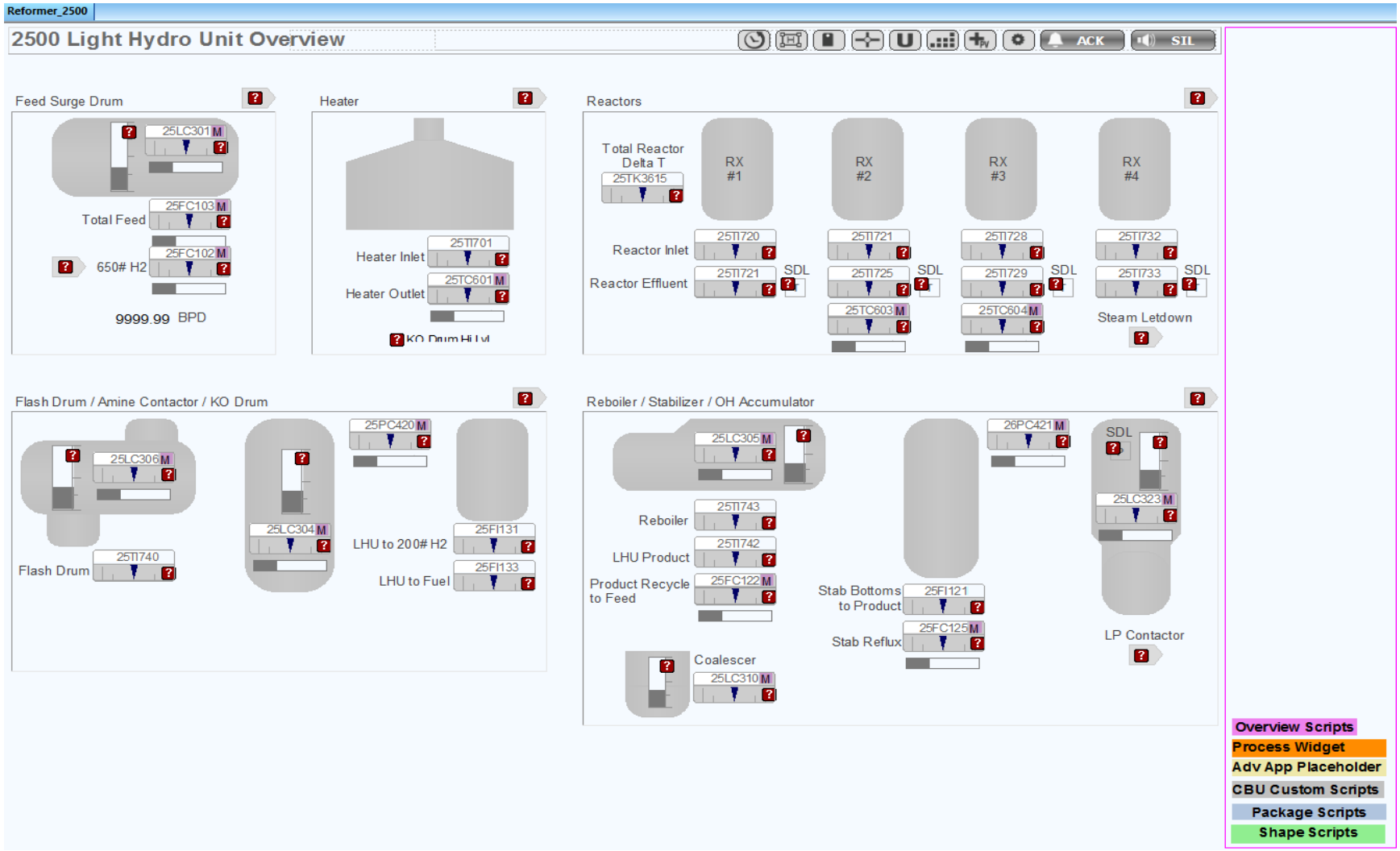
5.193 2399 HDS RECYCLE GAS COMPRESSOR SIS INPUT BYPASS (Reformer_2399.htm)



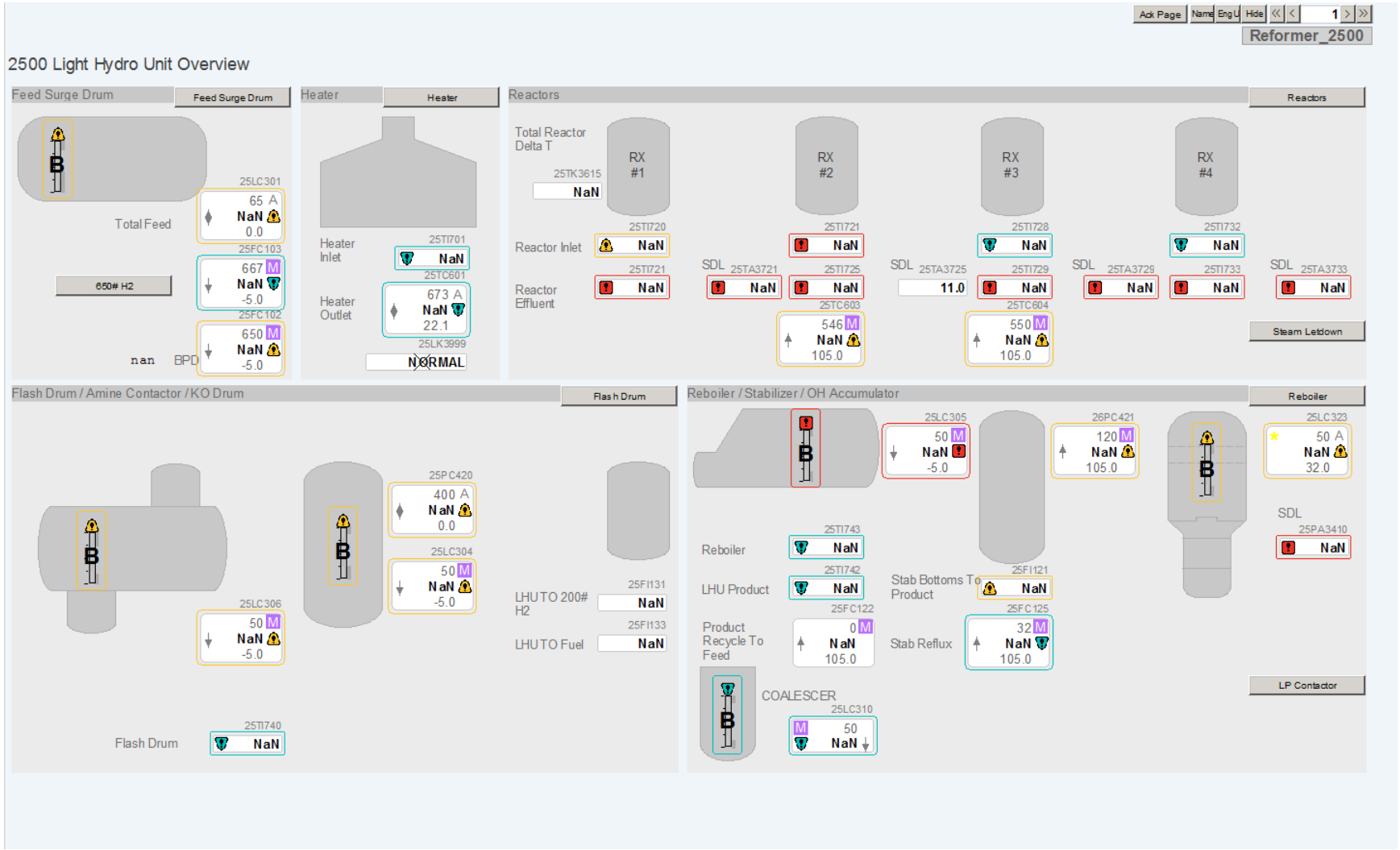
Station View



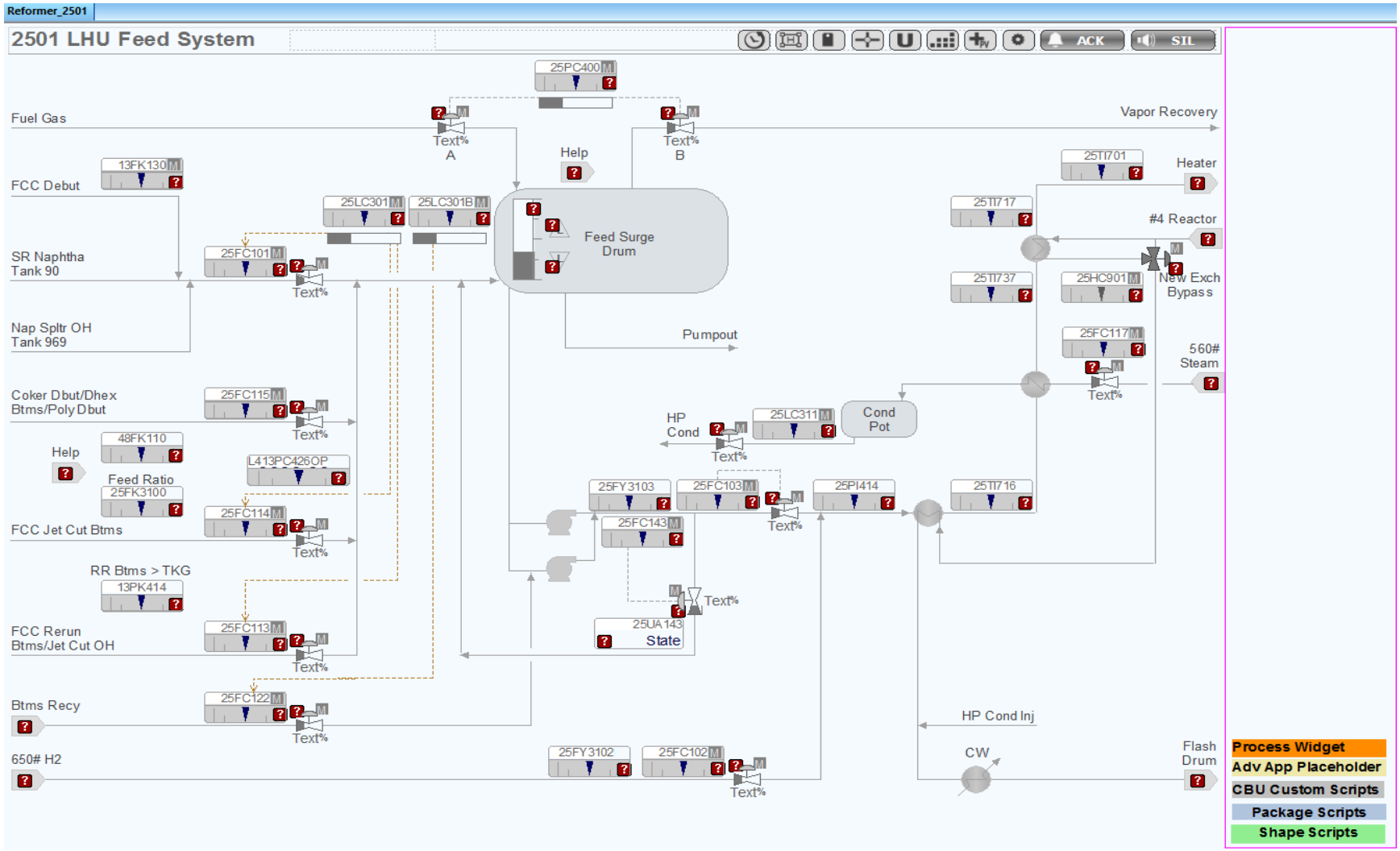
5.194 2500 LIGHT HYDRO UNIT OVERVIEW (Reformer_2500.htm)



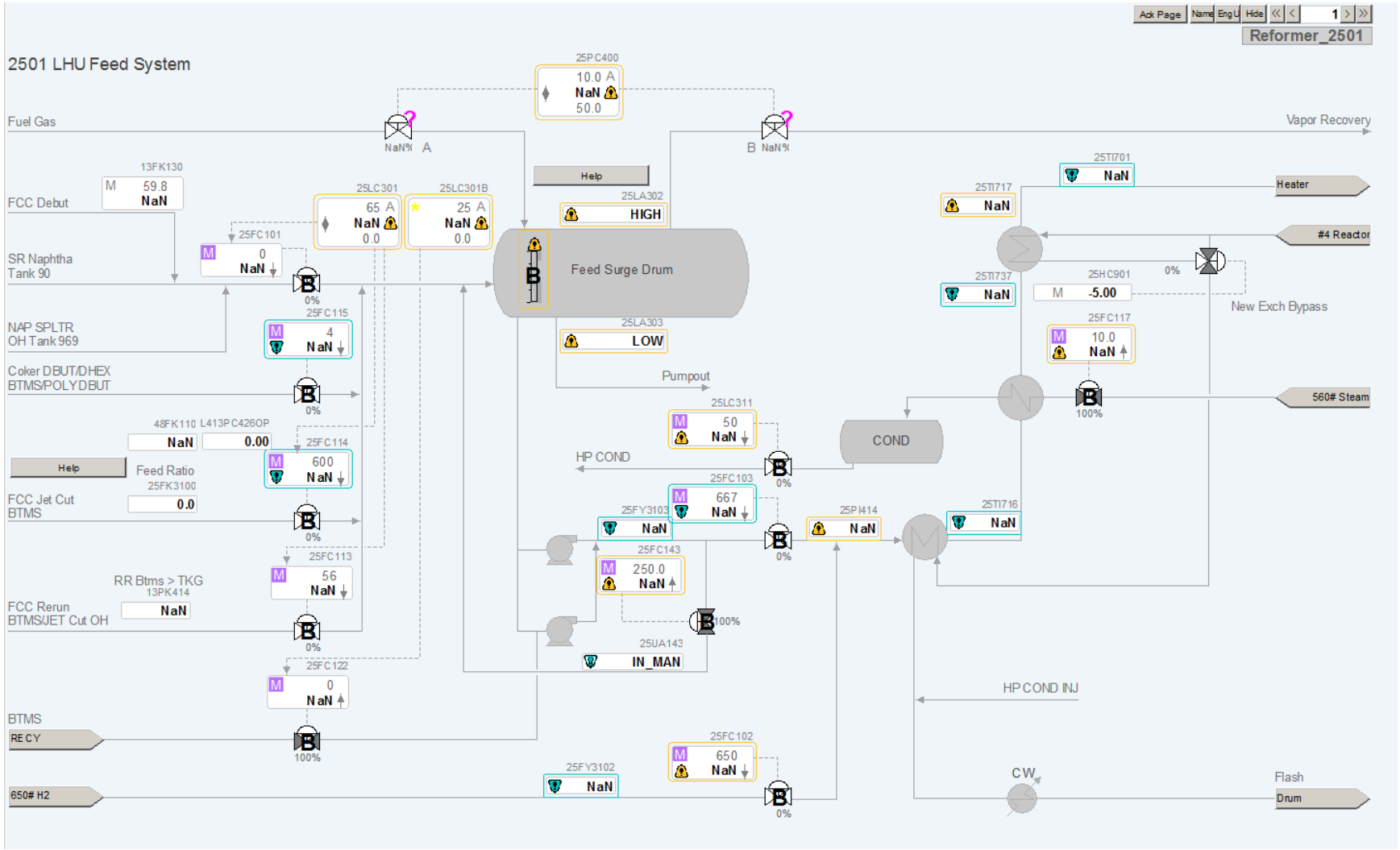
Station View



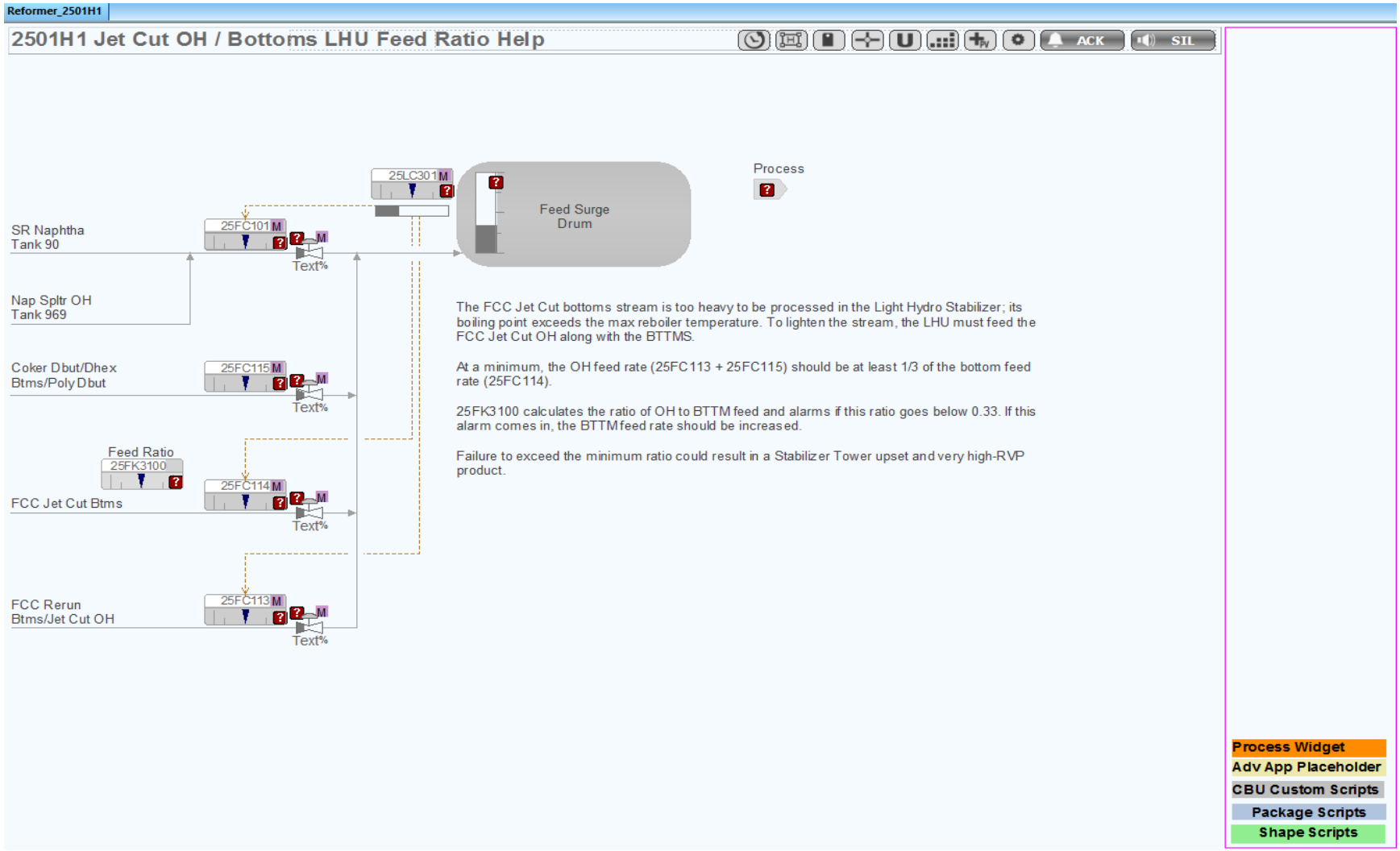
5.195 2501 LHU FEED SYSTEM (Reformer_2501.htm)



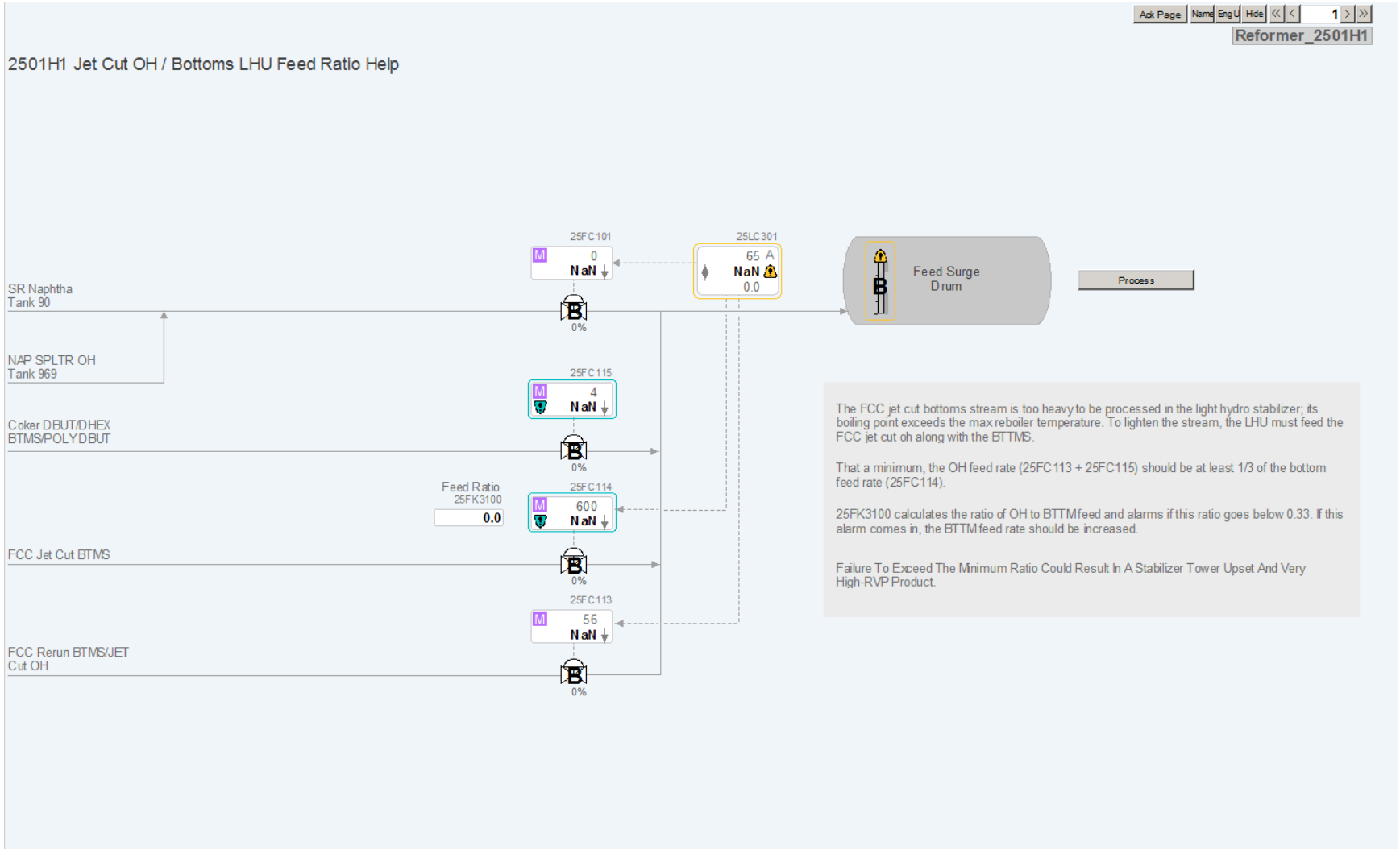
Station View



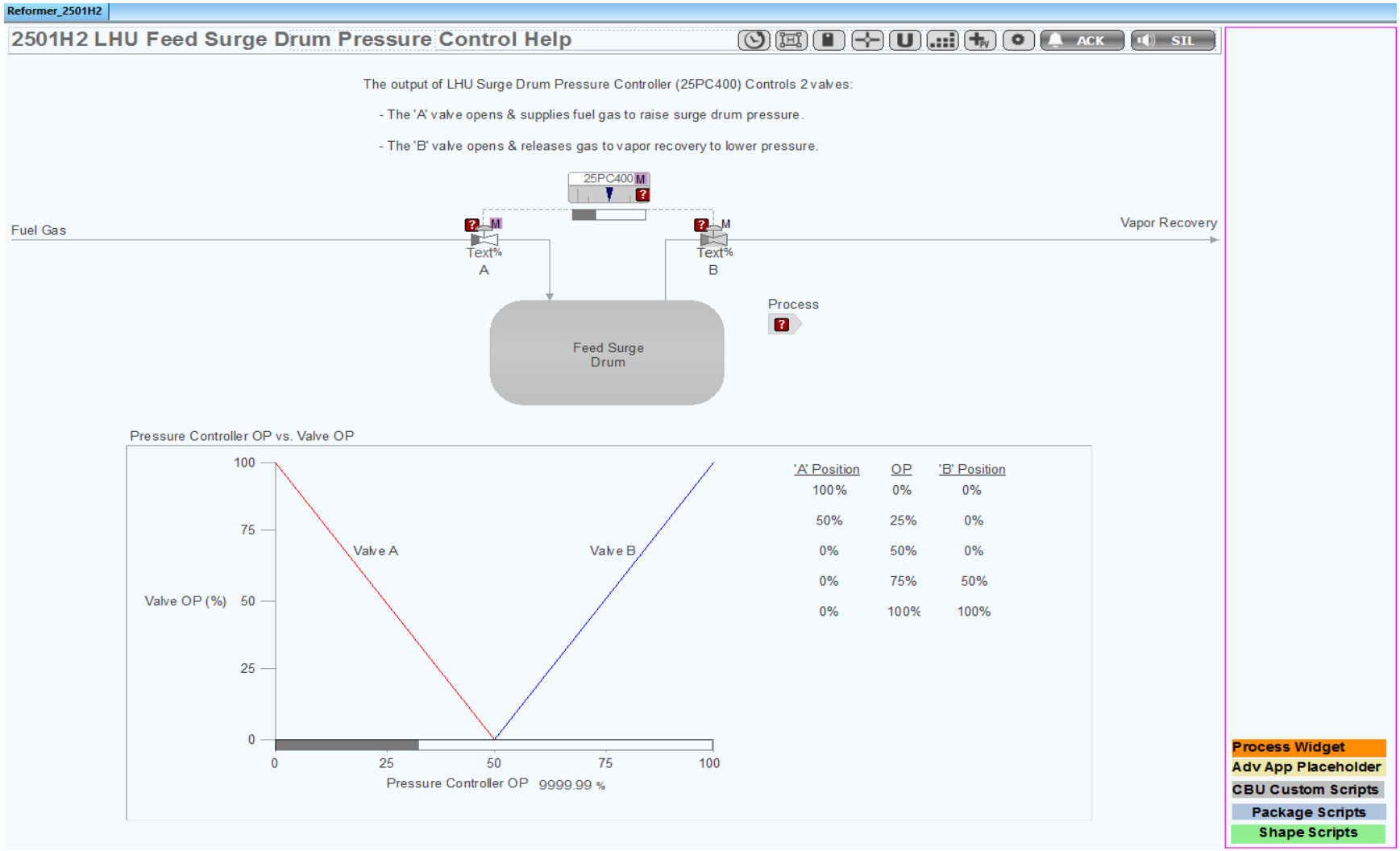
5.196 2501H1 JET CUT OH / BOTTOMS LHU FEED RATIO HELP (Reformer_2501H1.htm)



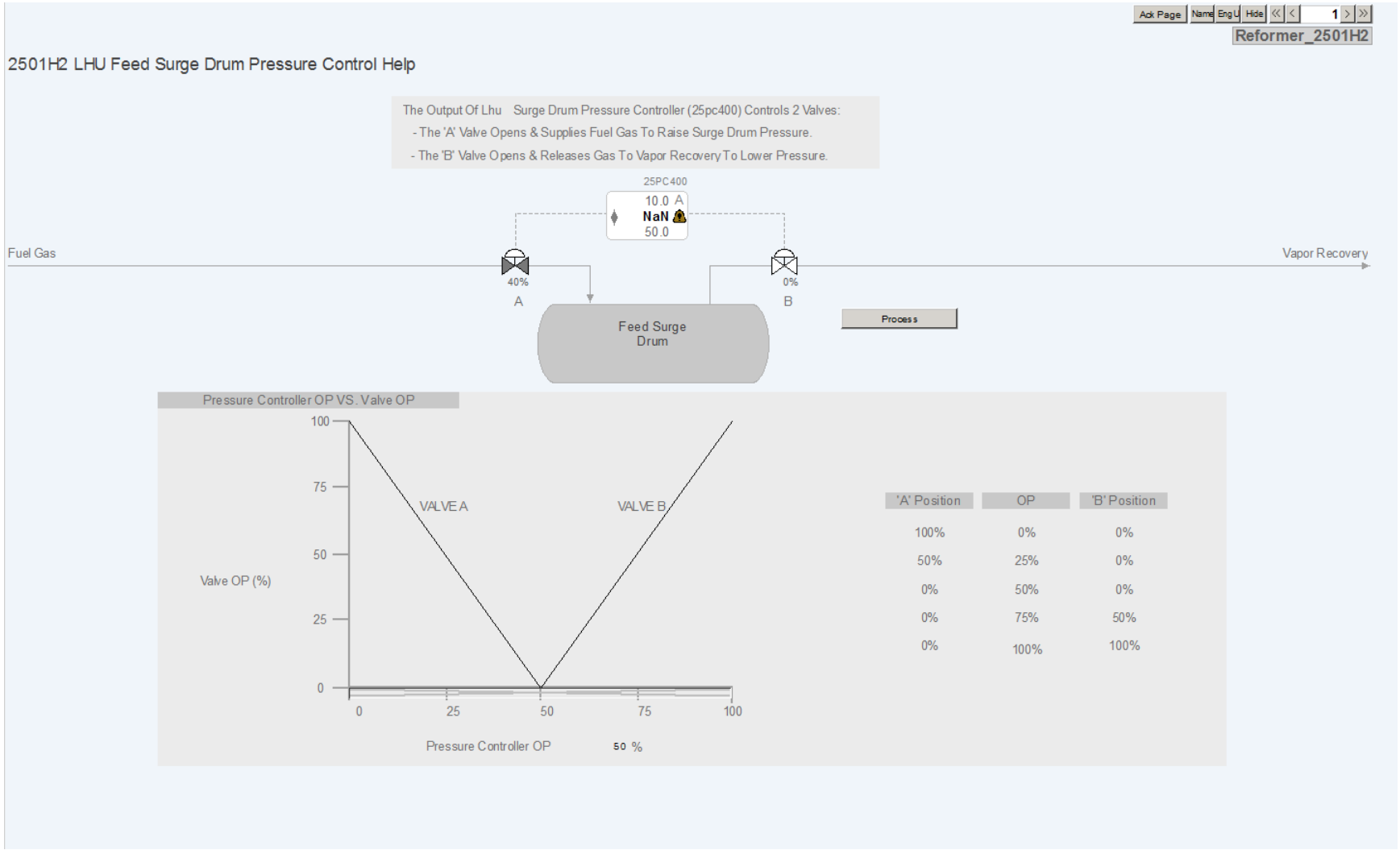
Station View



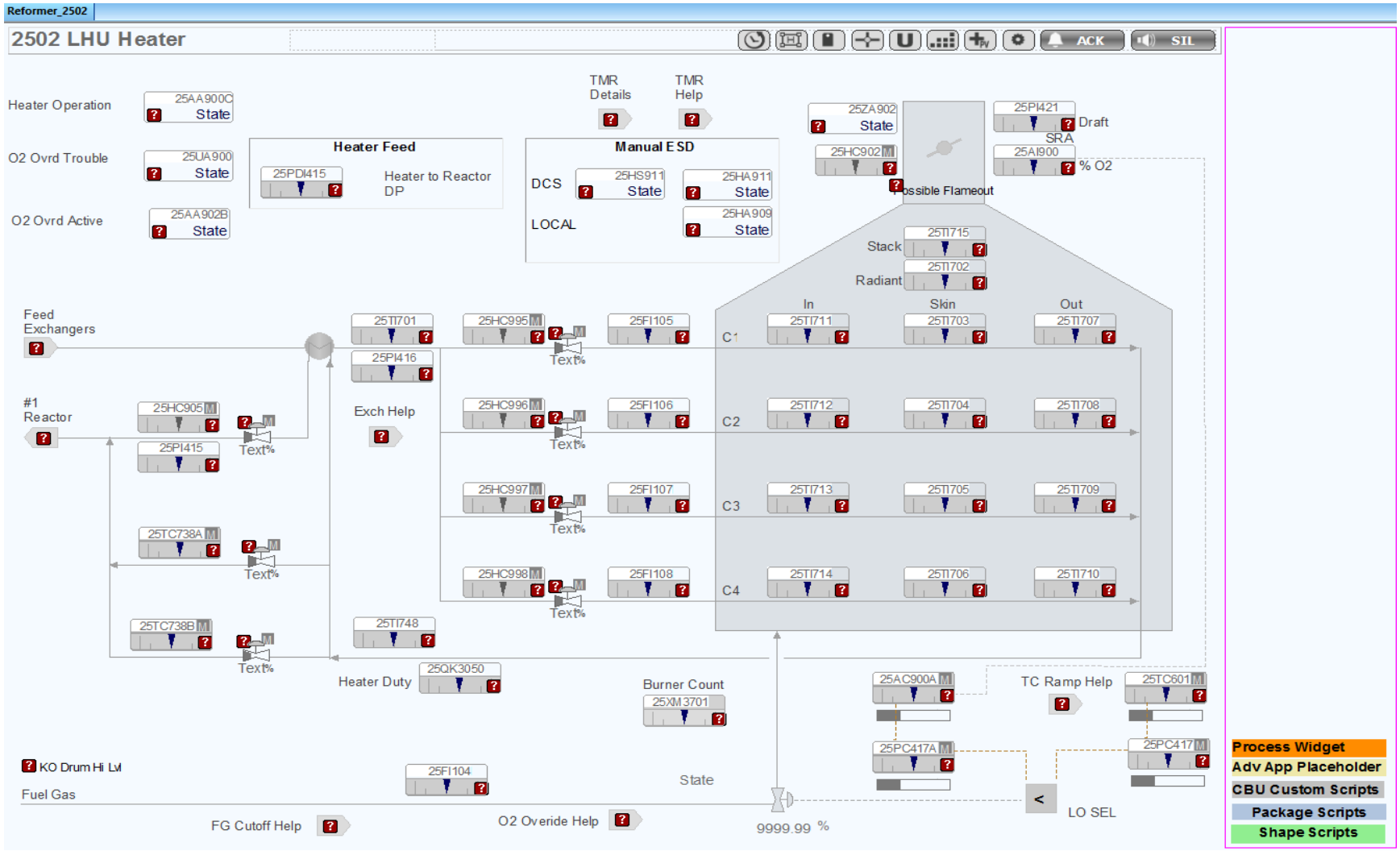
5.197 2501H2 LHU FEED SURGE DRUM PRESSURE CONTROL HELP (Reformer_2501H2.htm)



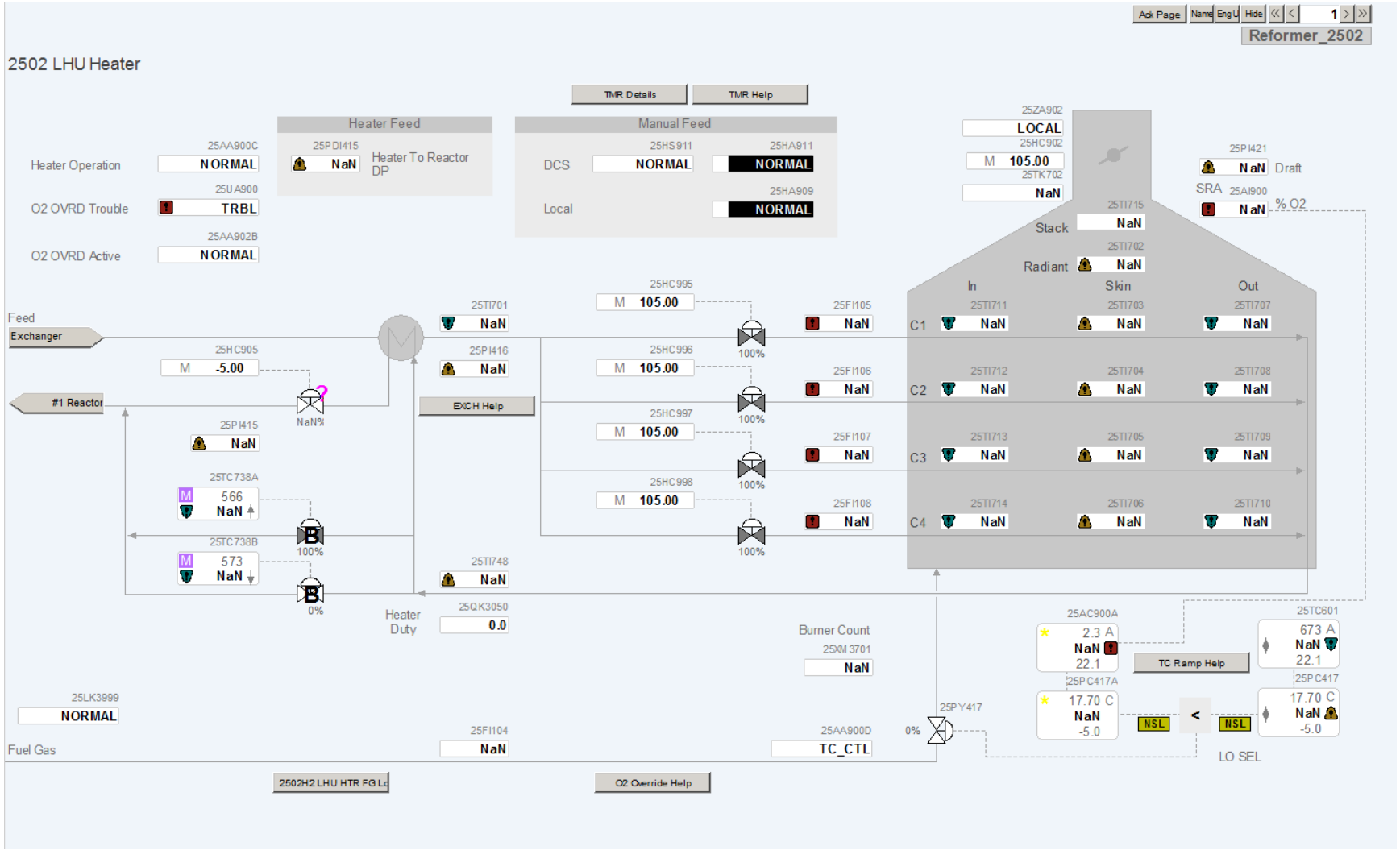
Station View



5.198 2502 LHU HEATER (Reformer_2502.htm)



Station View



5.199 2502H1 LHU HEATER FEED/OUTLET EXCHANGER BYPASS HELP (Reformer_2502H1.htm)

Reformer_2502H1

2502H1 LHU Heater Feed/Outlet Exchanger Bypass Help

ACK SIL

The LHU Heater Feed/Outlet Exchanger Bypass is controlled by 25TC738A and 25TC738B:

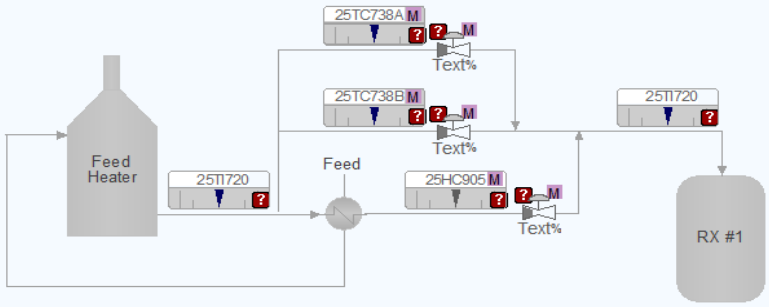
- The 'A' and 'B' valve open to increase the rate of hot naphtha bypass to increase the temperature going to the reactor.
- The 'A' valve is a 4" line and the 'B' valve is a 10" line.

At start-of-run conditions, the 'B' valve should be closed in manual, while the 'A' valve is in auto controlling the temperature to the reactor

Once the 'A' valve is running most of the way open, ops should transition from the 'A' valve to the 'B' valve, so the 'A' valve will be closed in manual while the 'B' valve is in auto controlling the temperature.

Once the 'B' valve is most of the way open, place the 'B' valve open in manual and the 'A' valve in auto. Set the OP of 'B' so that 'A' can be used as a throttle valve.

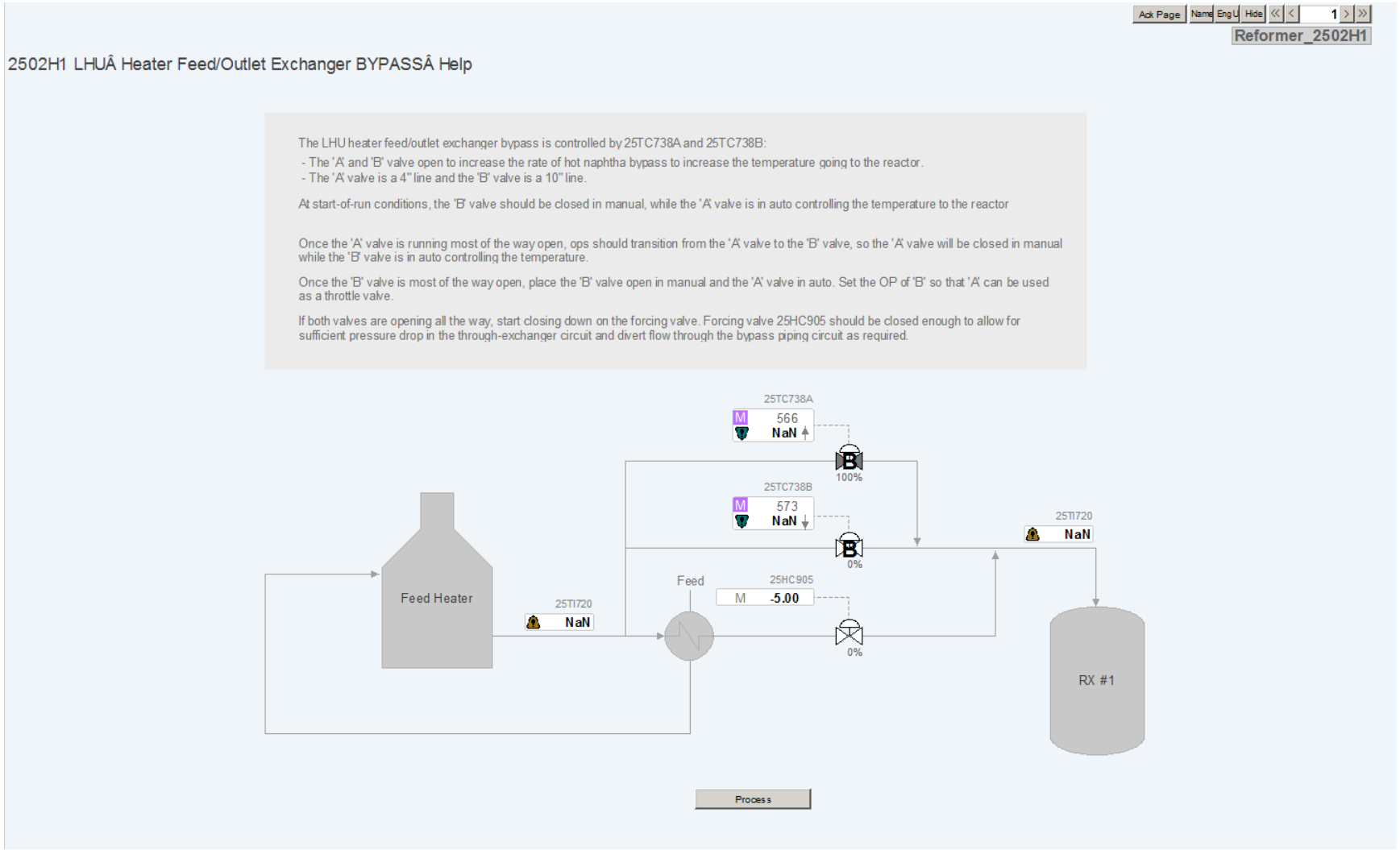
If both valves are opening all the way, start closing down on the forcing valve. Forcing valve 25HC905 should be closed enough to allow for sufficient pressure drop in the through-exchanger circuit and divert flow through the bypass piping circuit as required.



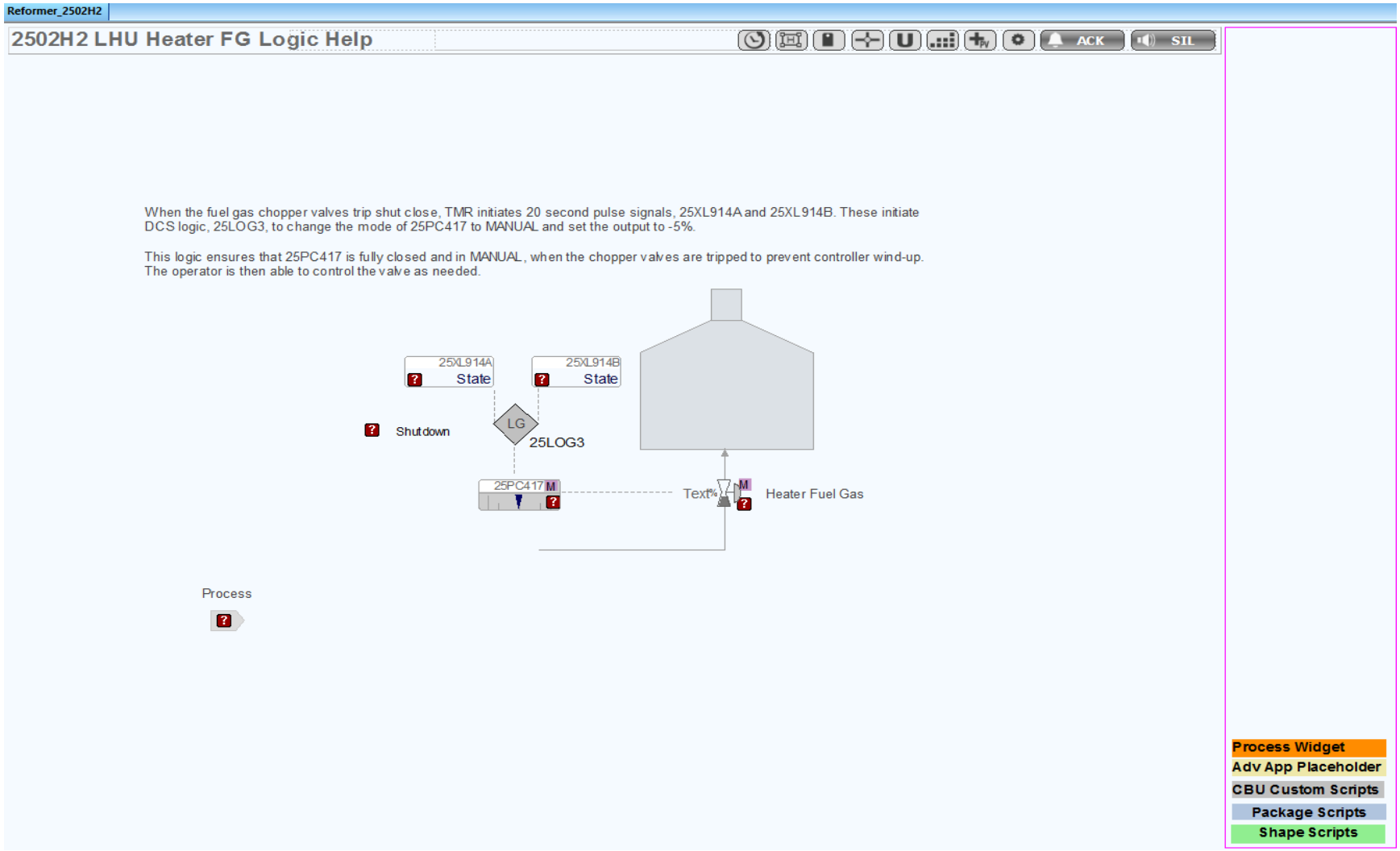
Process

Process Widget
Adv App Placeholder
CBU Custom Scripts
Package Scripts
Shape Scripts

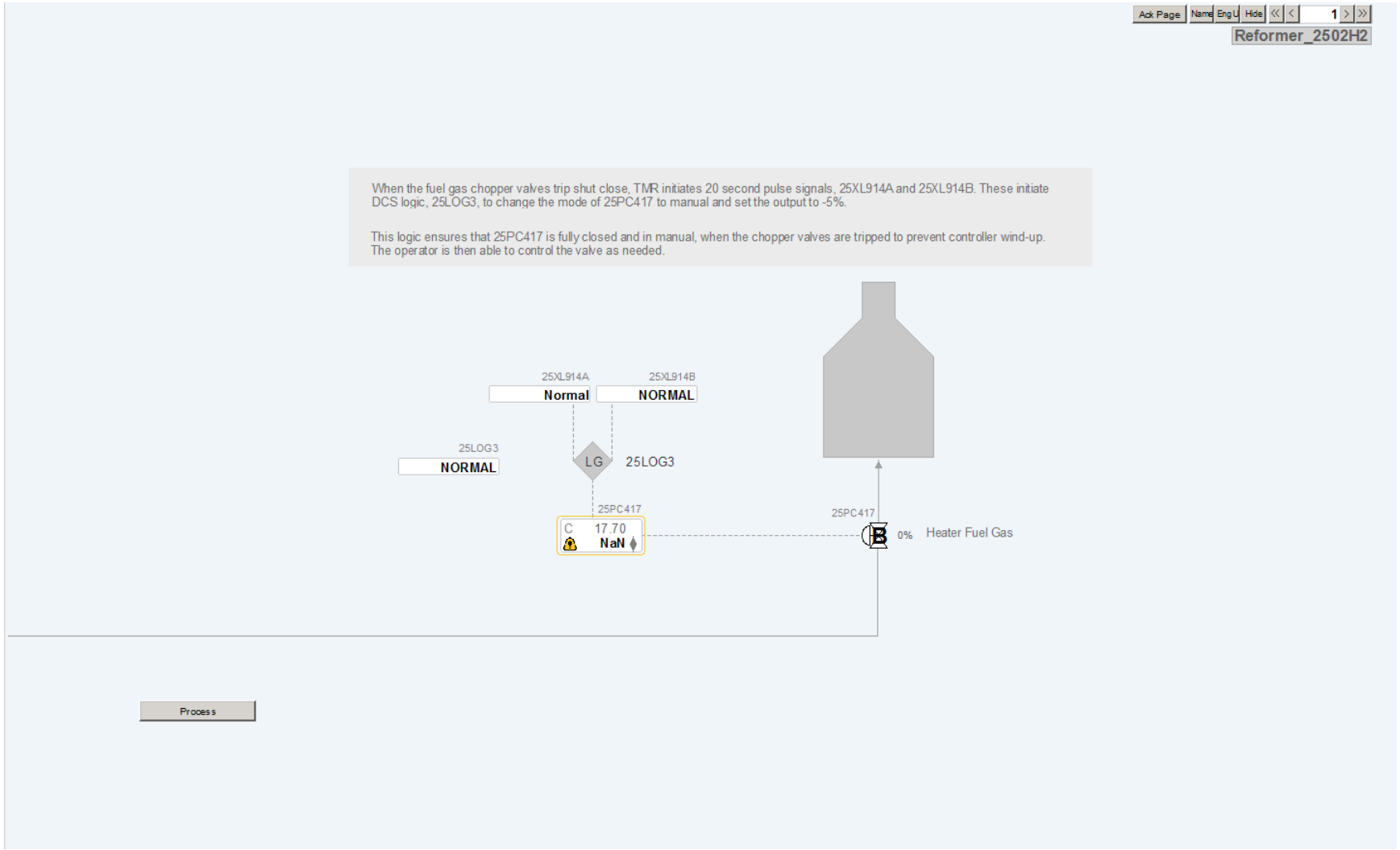
Station View



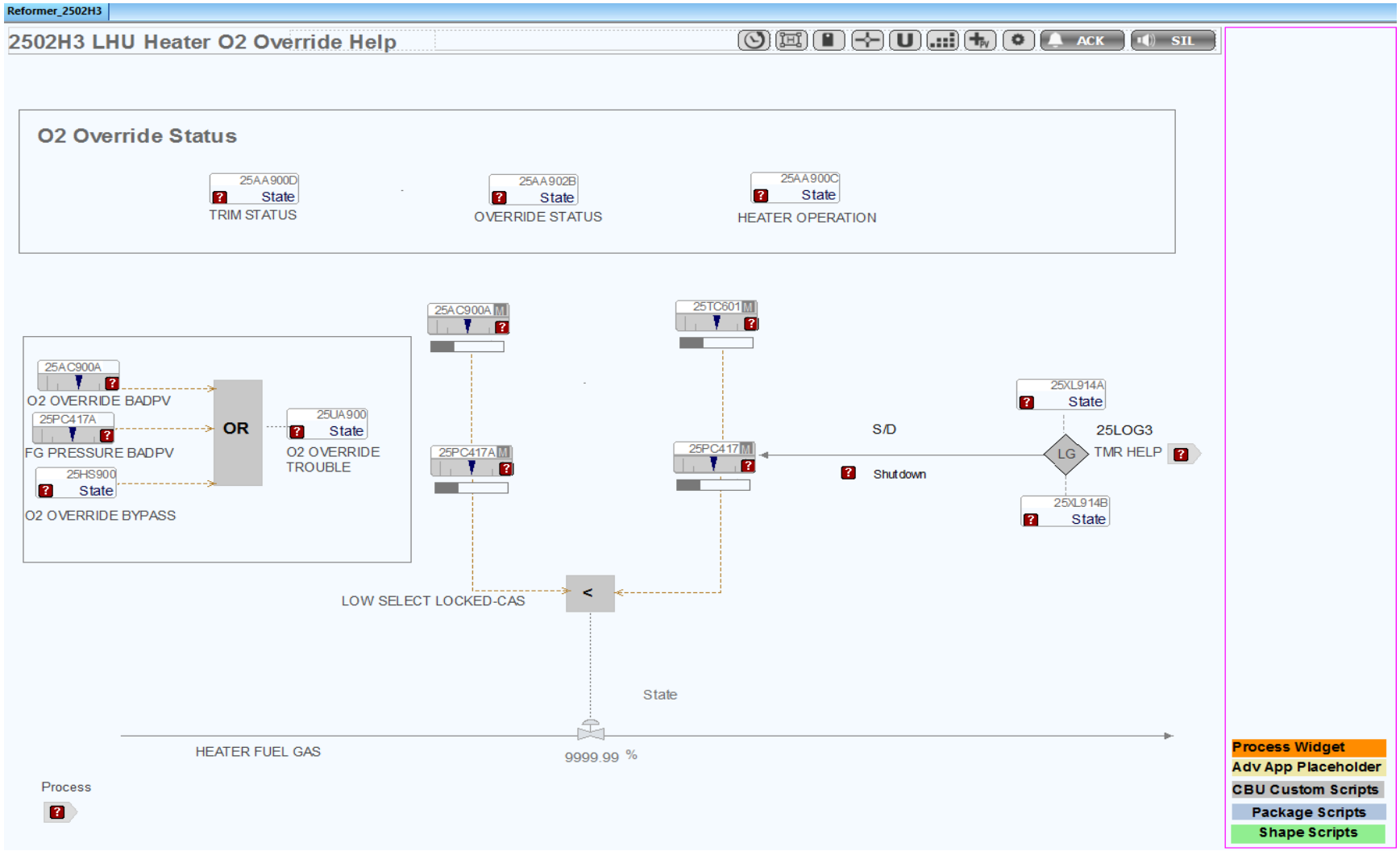
5.200 2502H2 LHU HEATER FG LOGIC HELP (Reformer_2502H2.htm)



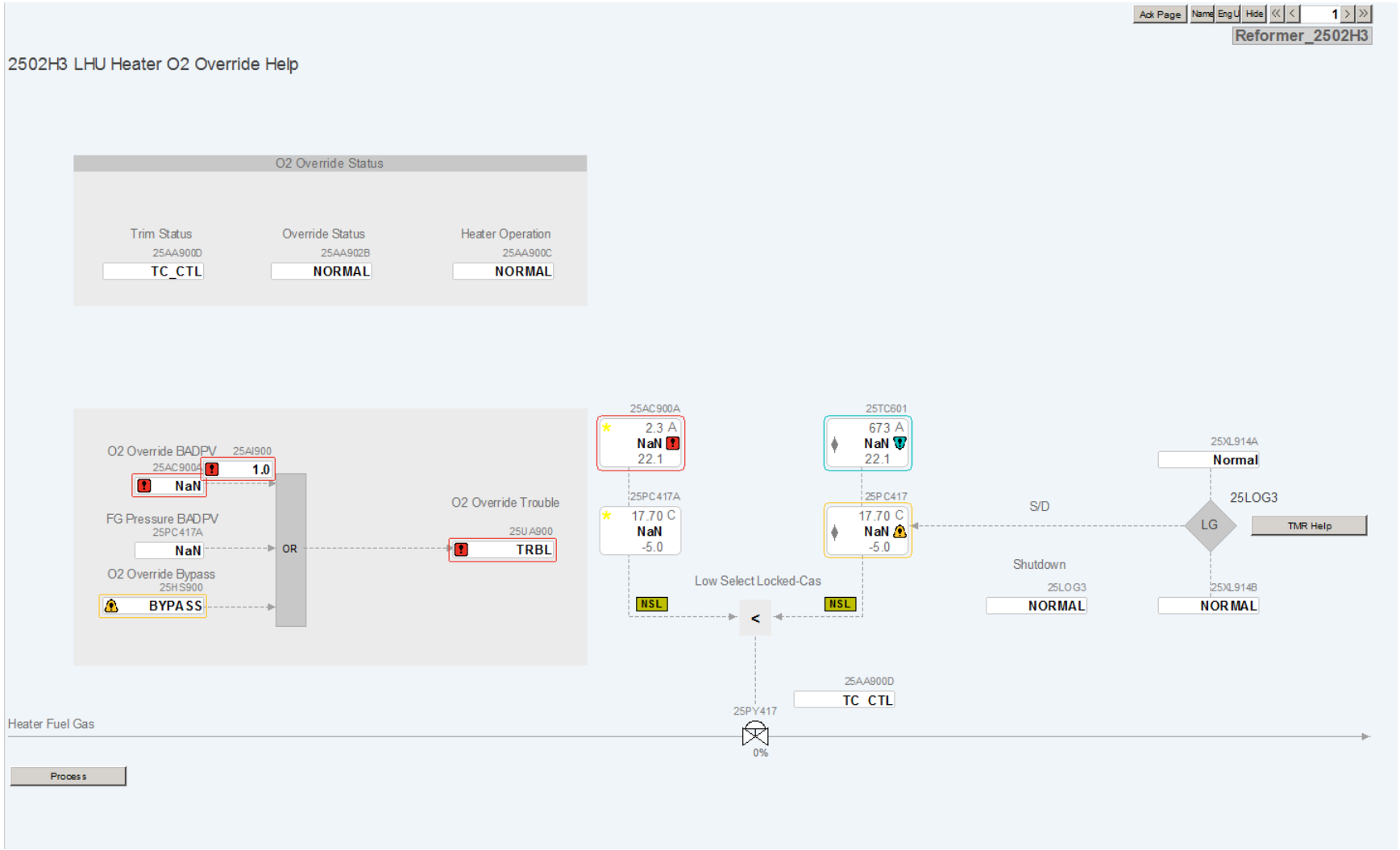
Station View



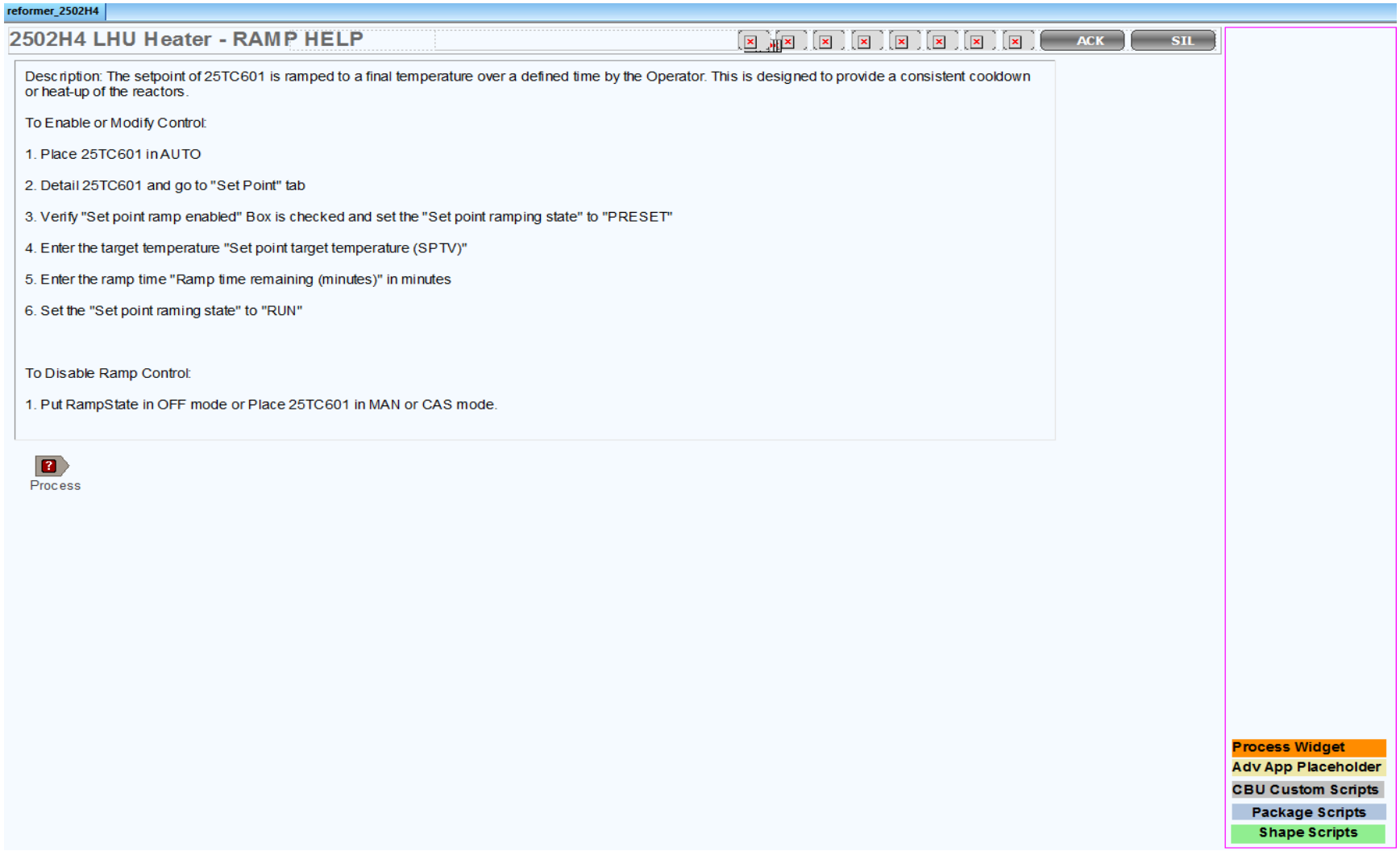
5.201 2502H3 LHU HEATER O2 OVERRIDE HELP (Reformer_2502H3.htm)



Station View

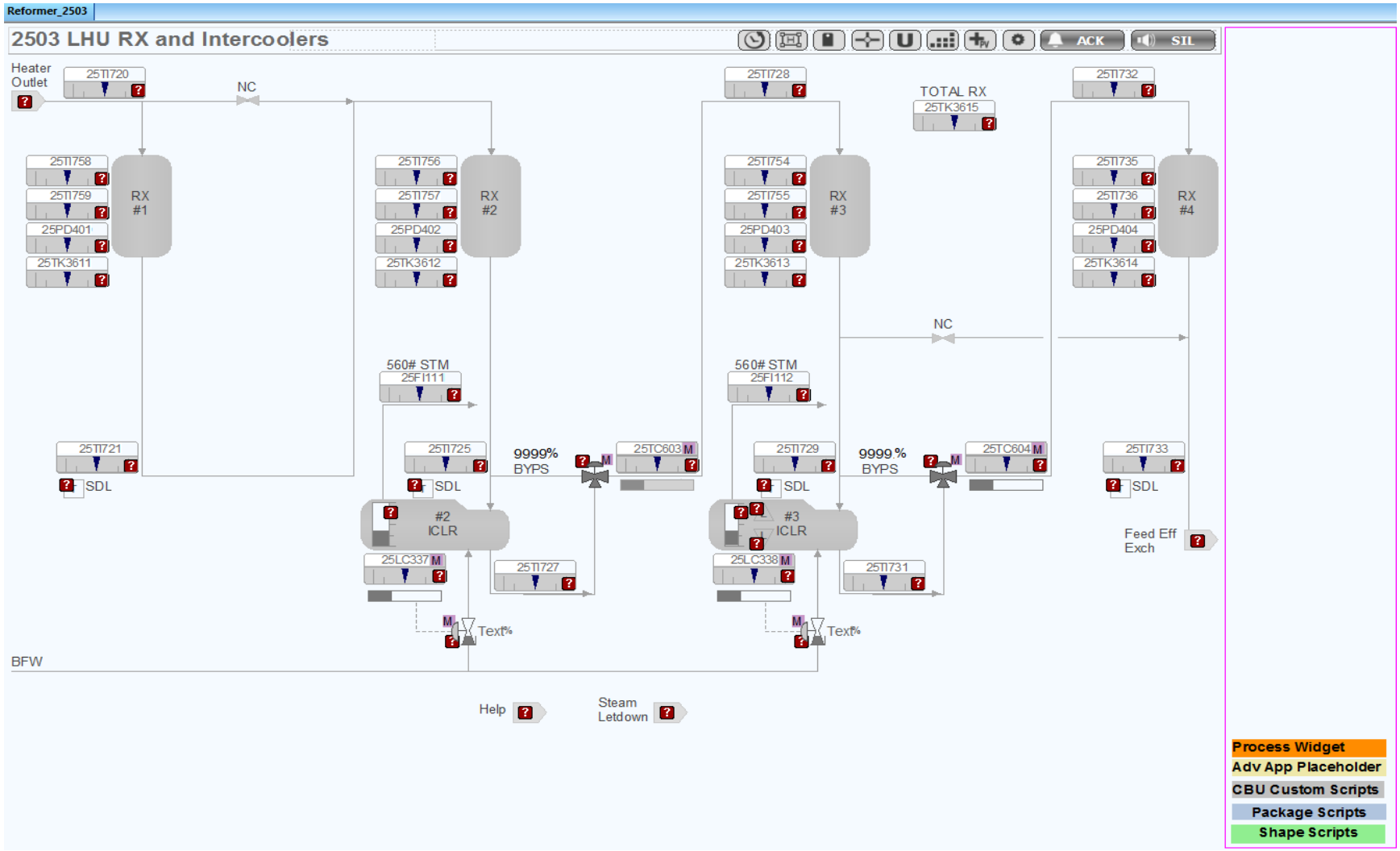


5.202 2502H4 LHU HEATER - RAMP HELP (reformer_2502H4.htm)

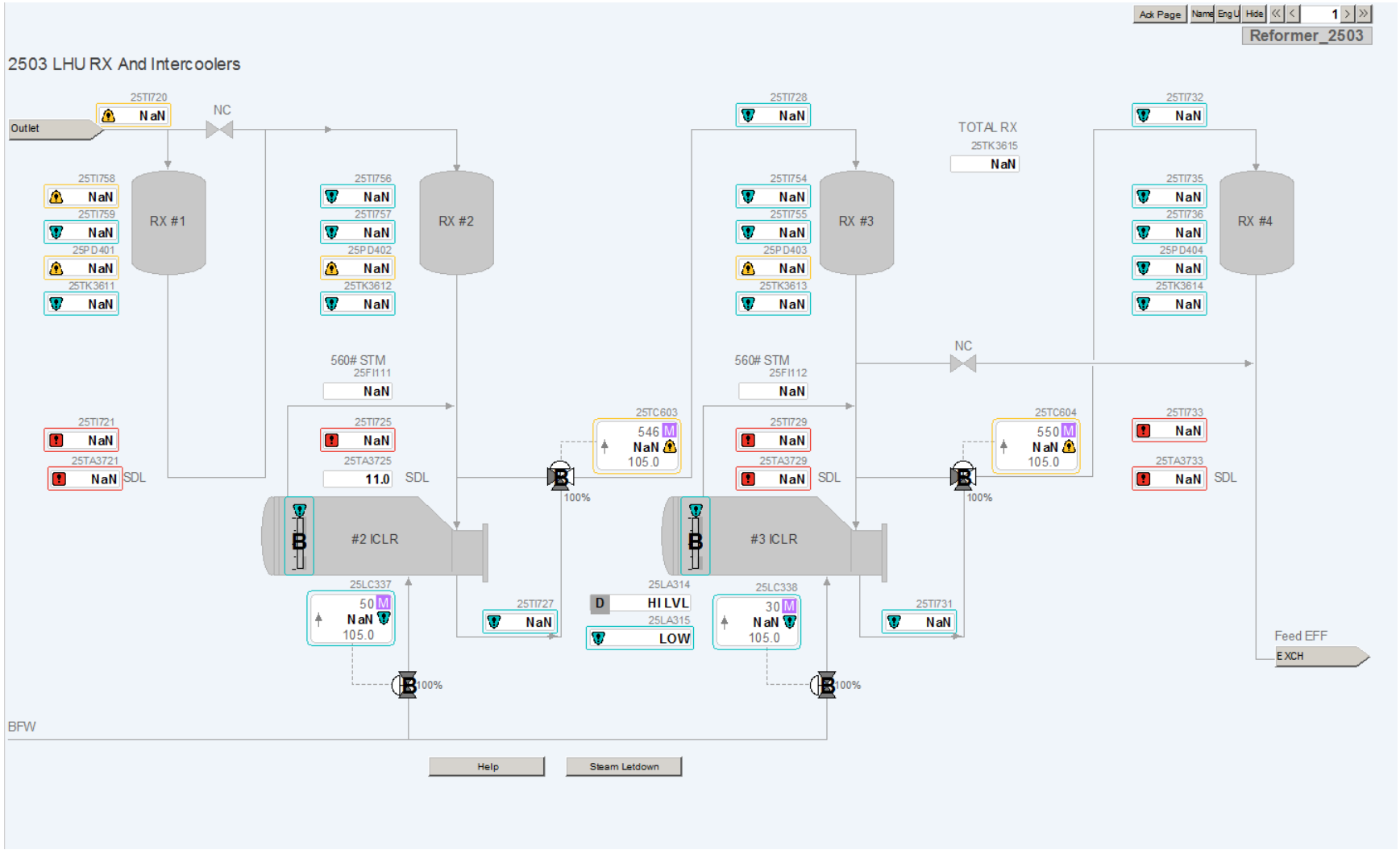


Station View

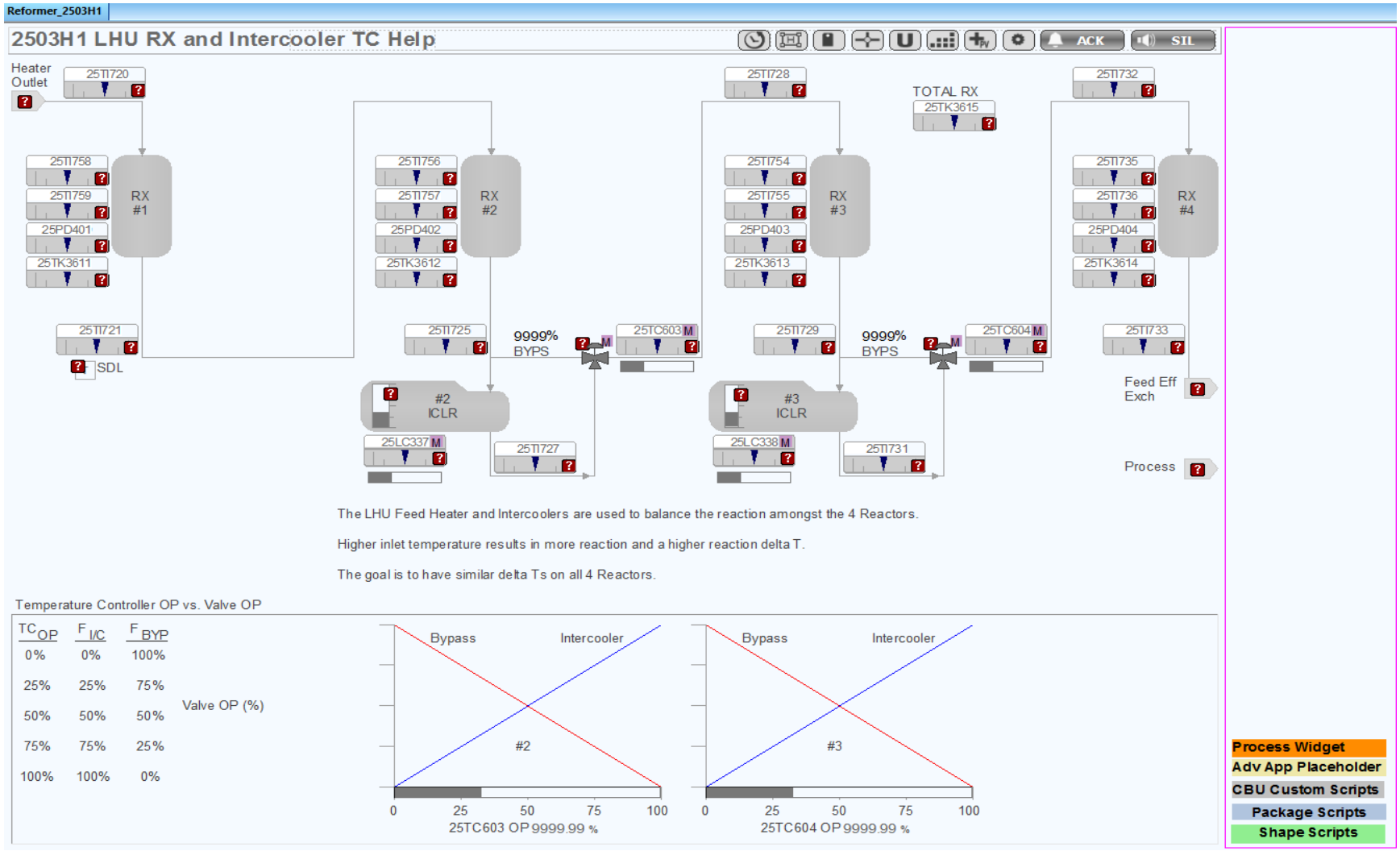
5.203 2503 LHU RX AND INTERCOOLERS (Reformer_2503.htm)



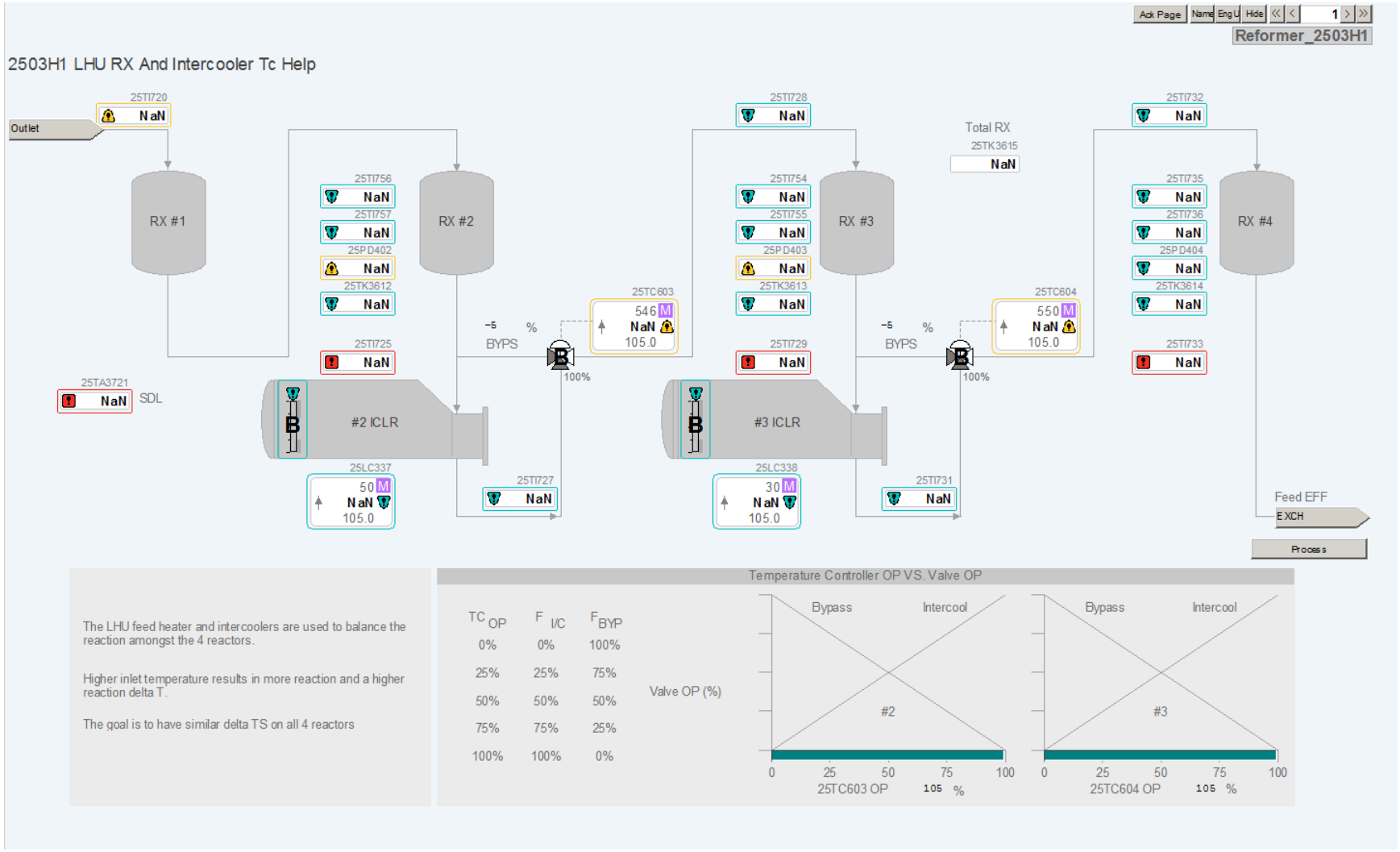
Station View



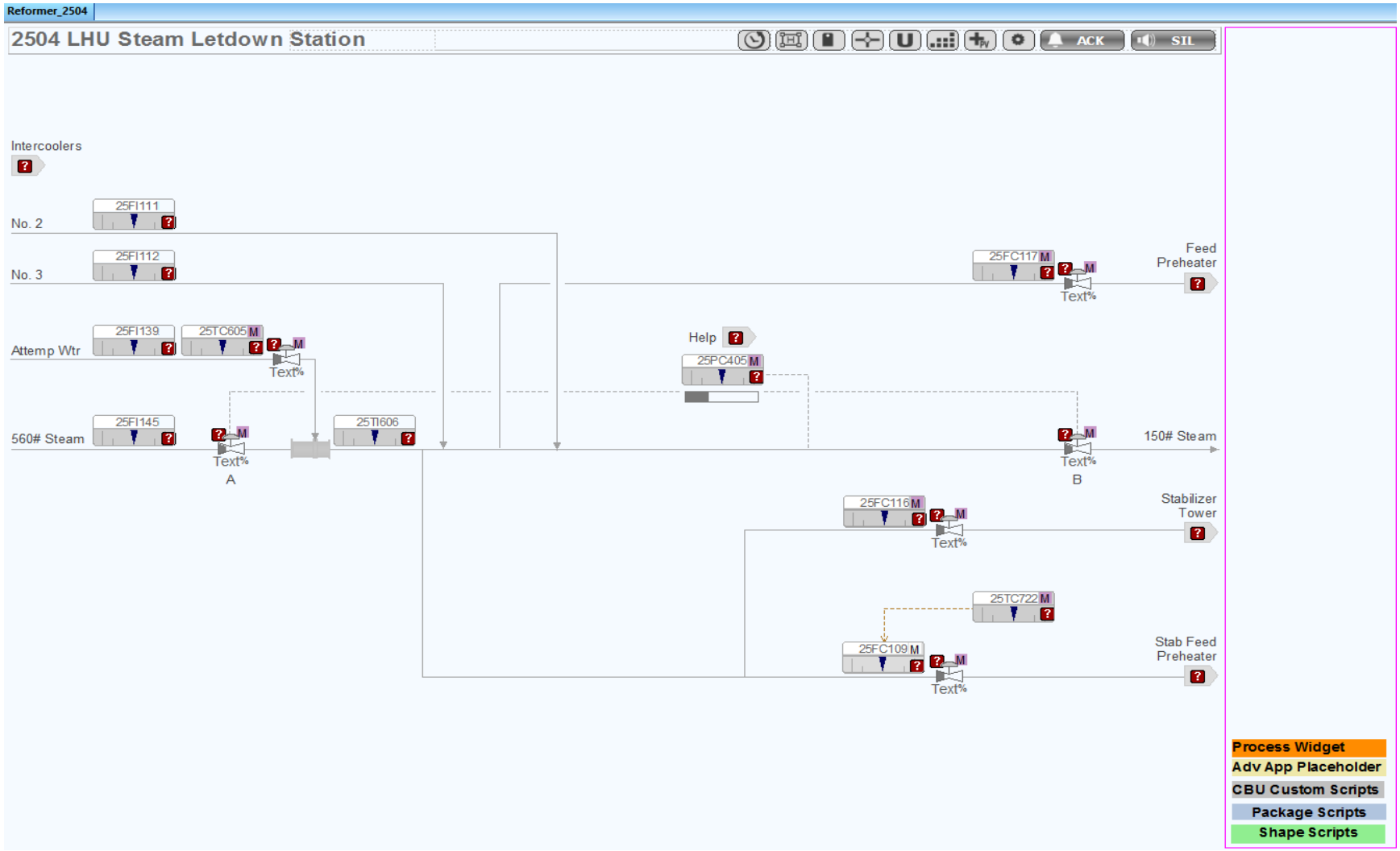
5.204 2503H1 LHU RX AND INTERCOOLER TC HELP (Reformer_2503H1.htm)



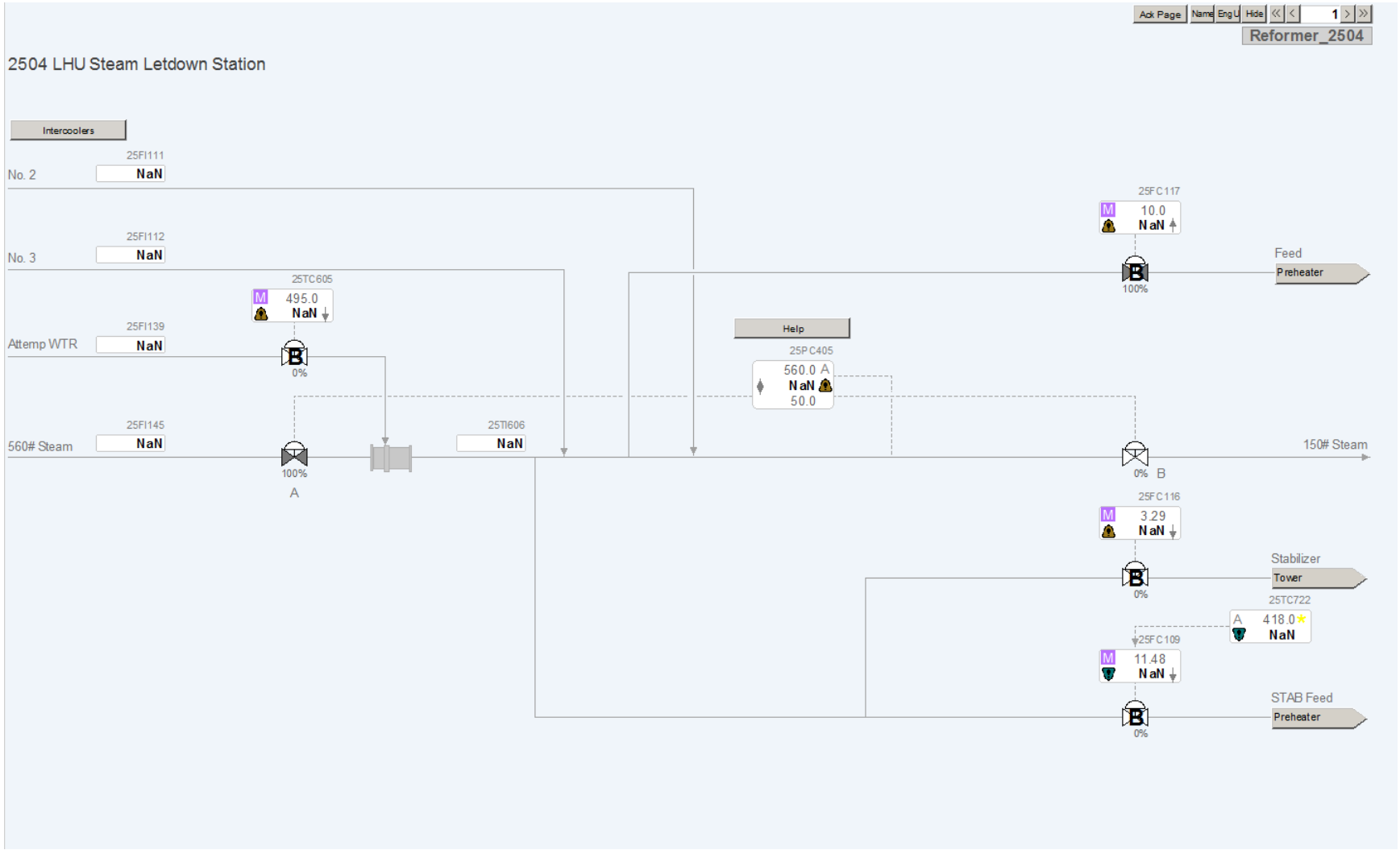
Station View



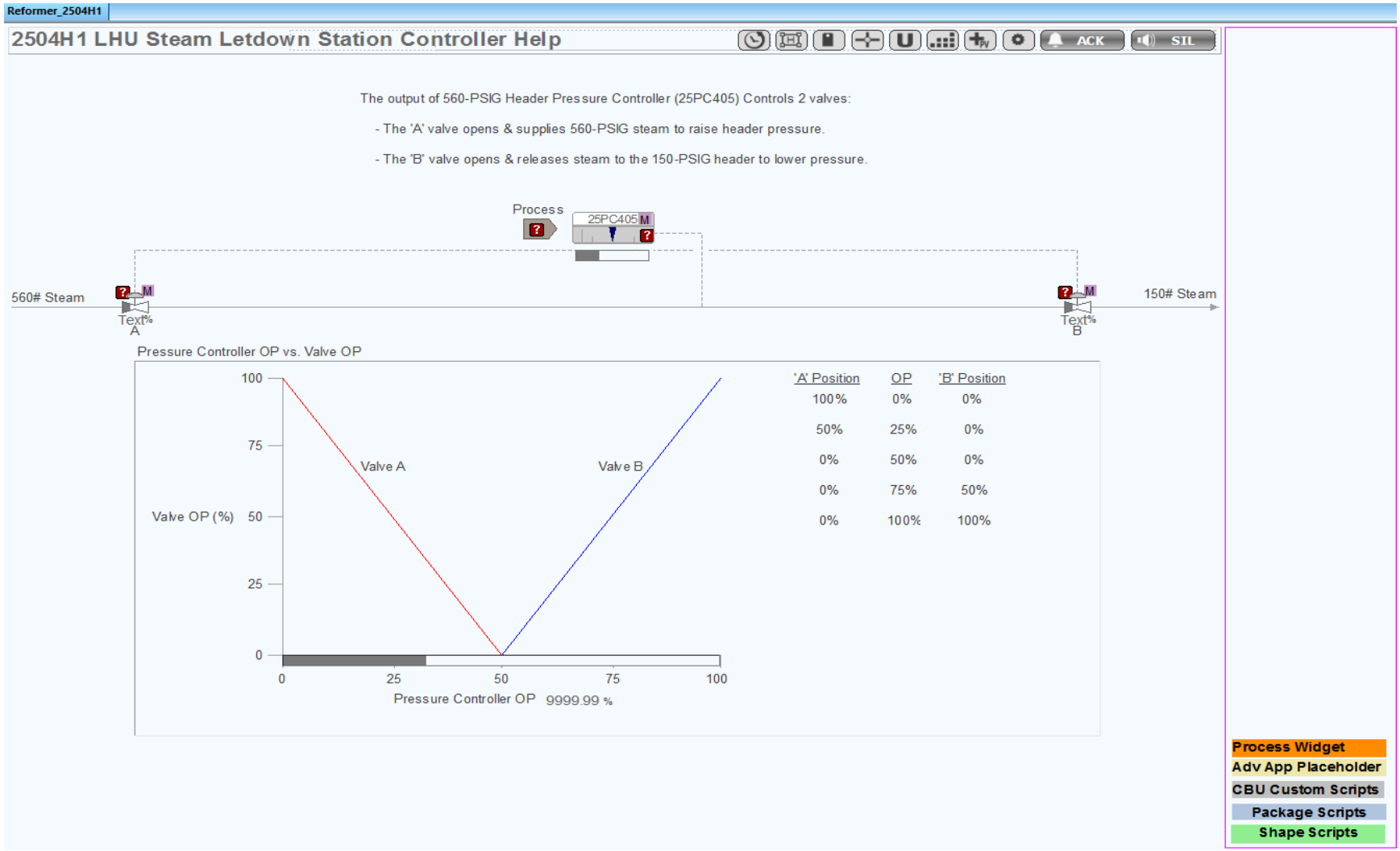
5.205 2504 LHU STEAM LETDOWN STATION (Reformer_2504.htm)



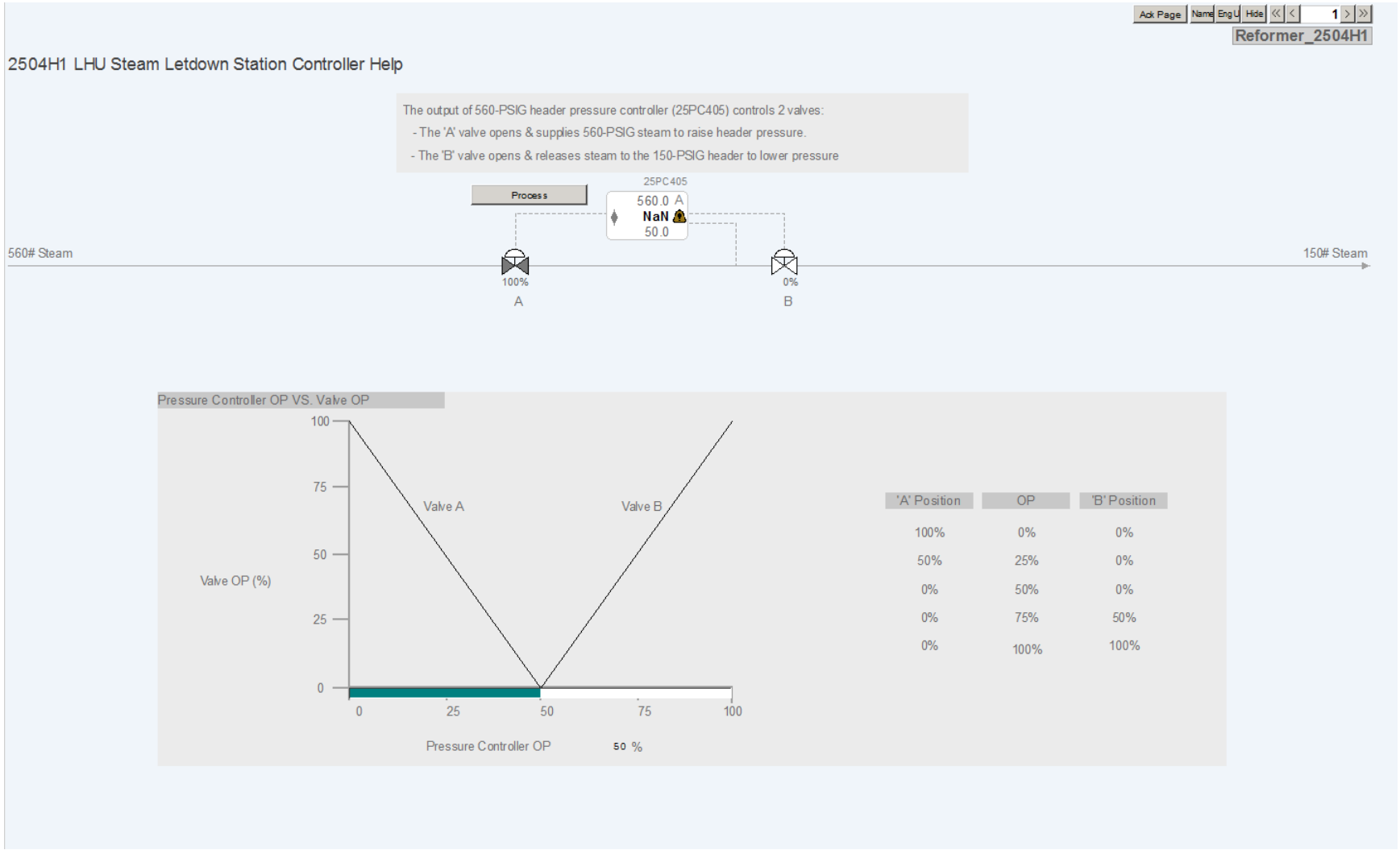
Station View



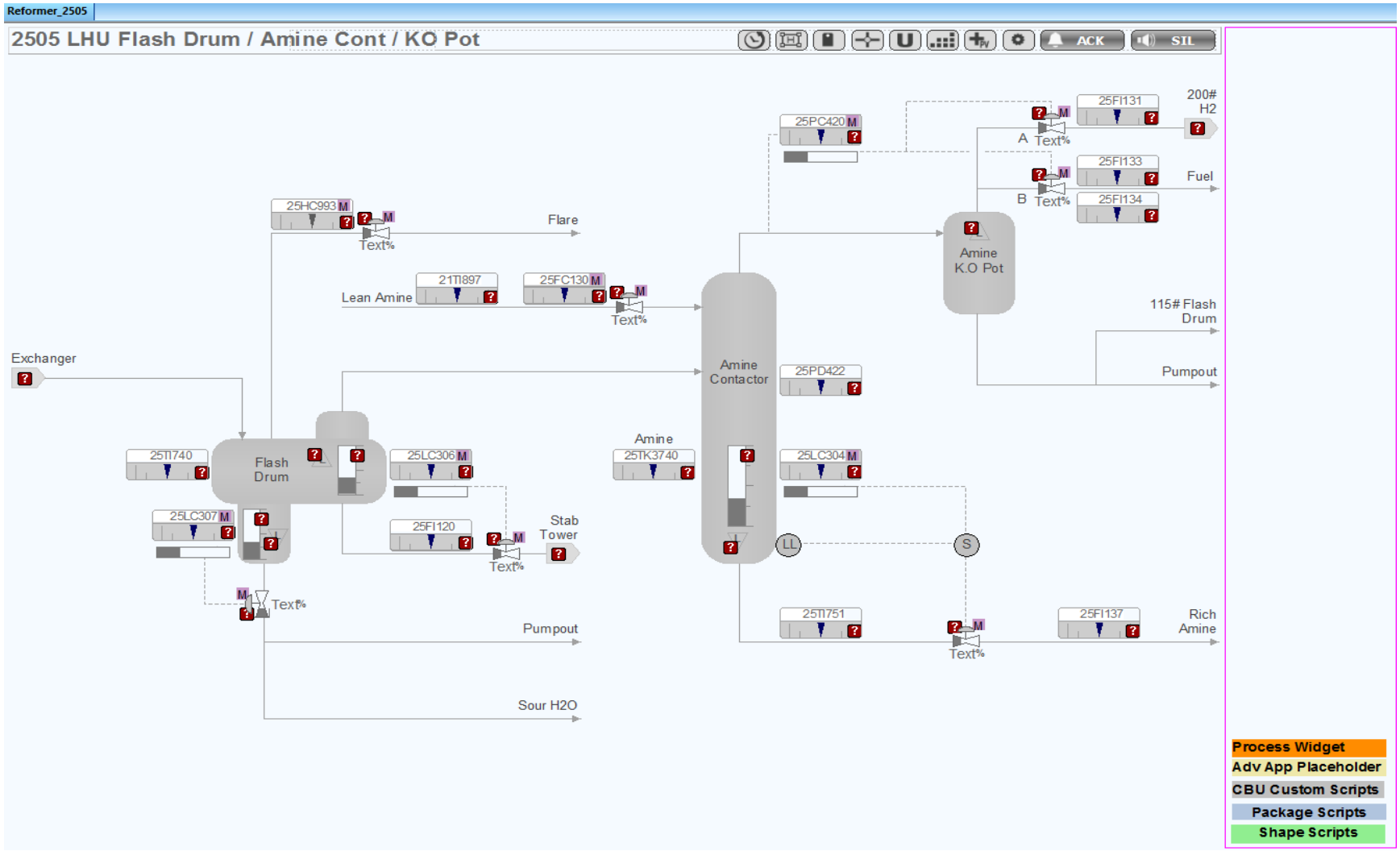
5.206 2504H1 LHU STEAM LETDOWN STATION CONTROLLER HELP (Reformer_2504H1.htm)



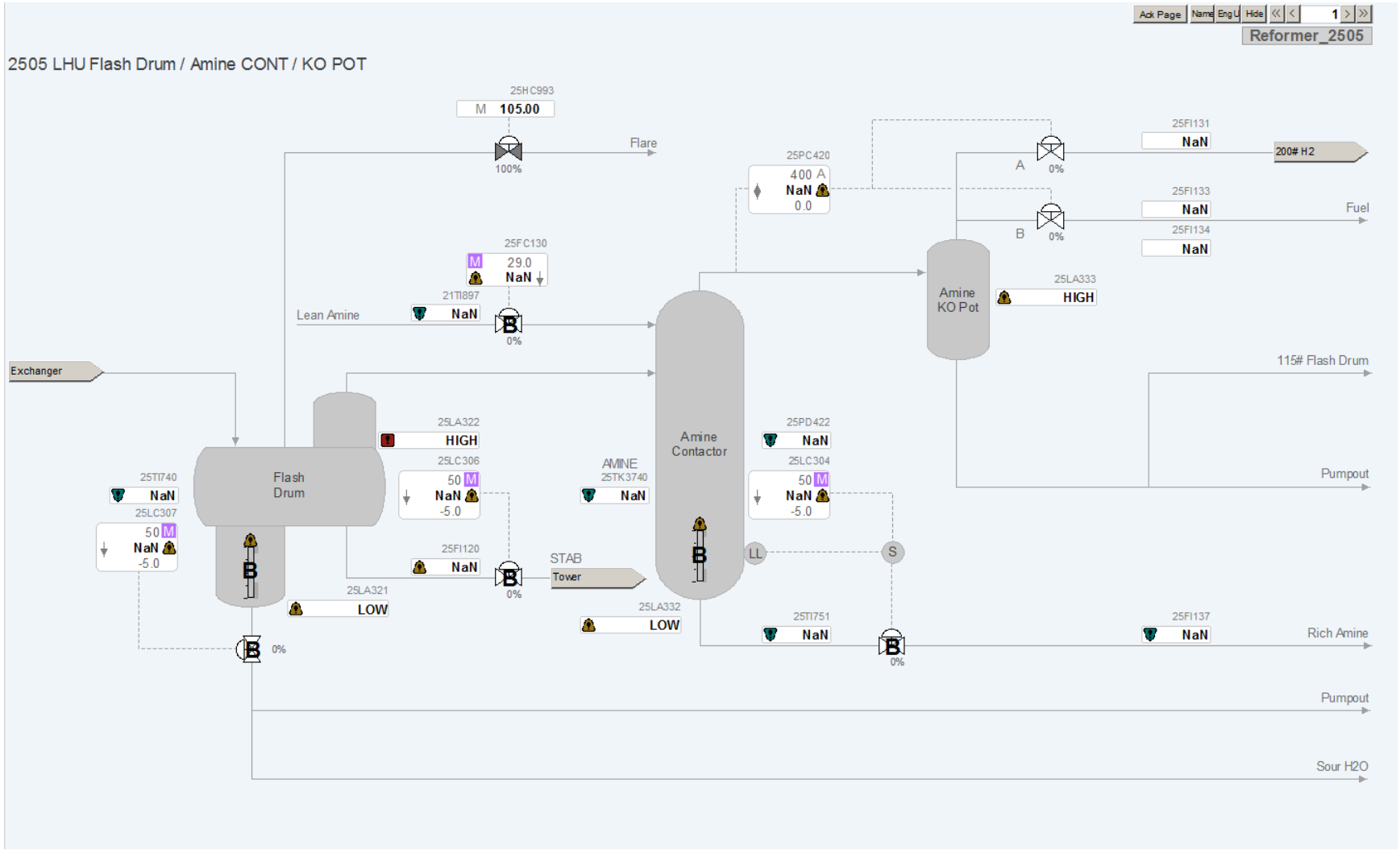
Station View



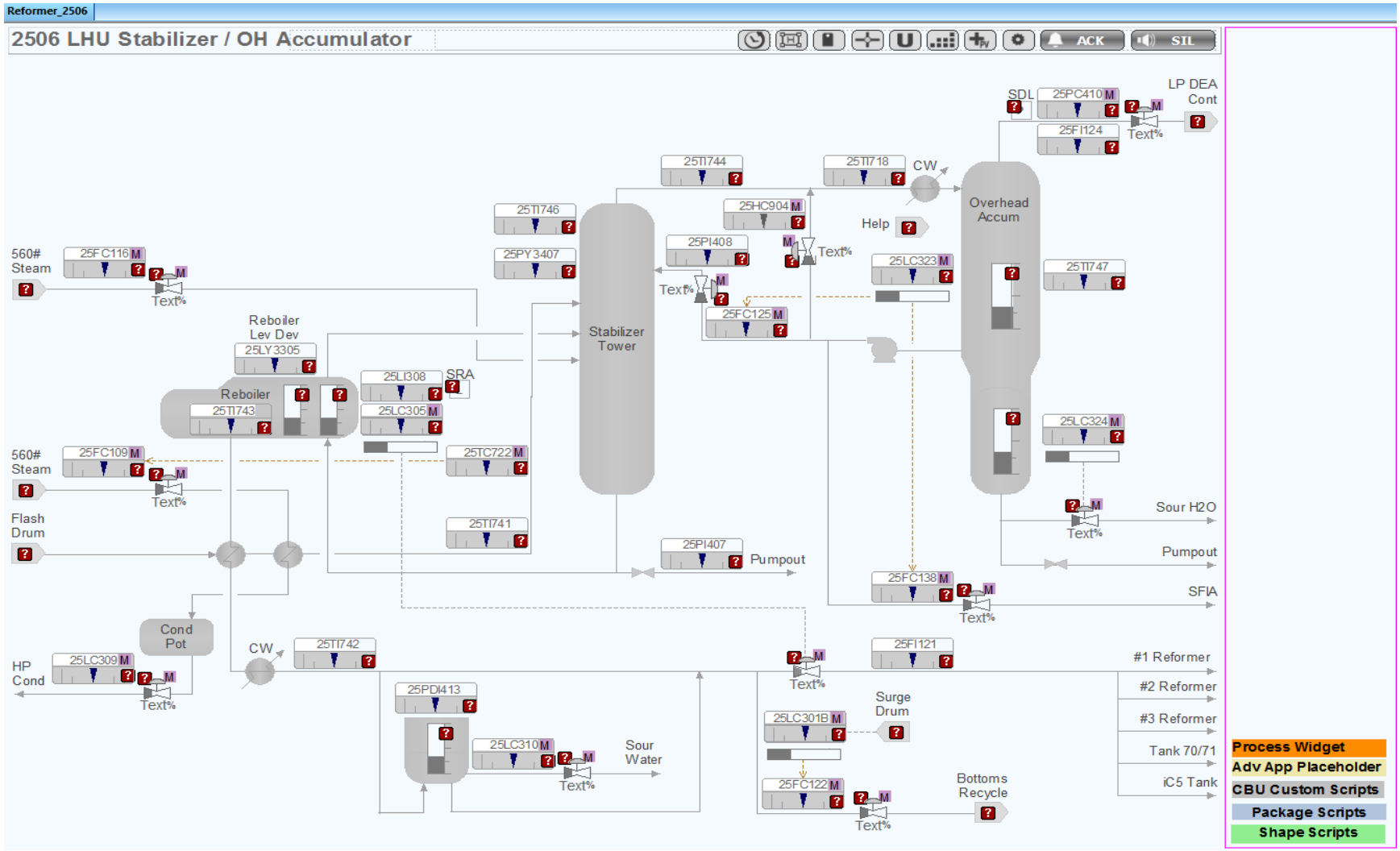
5.207 2505 LHU FLASH DRUM / AMINE CONT / KO POT (Reformer_2505.htm)



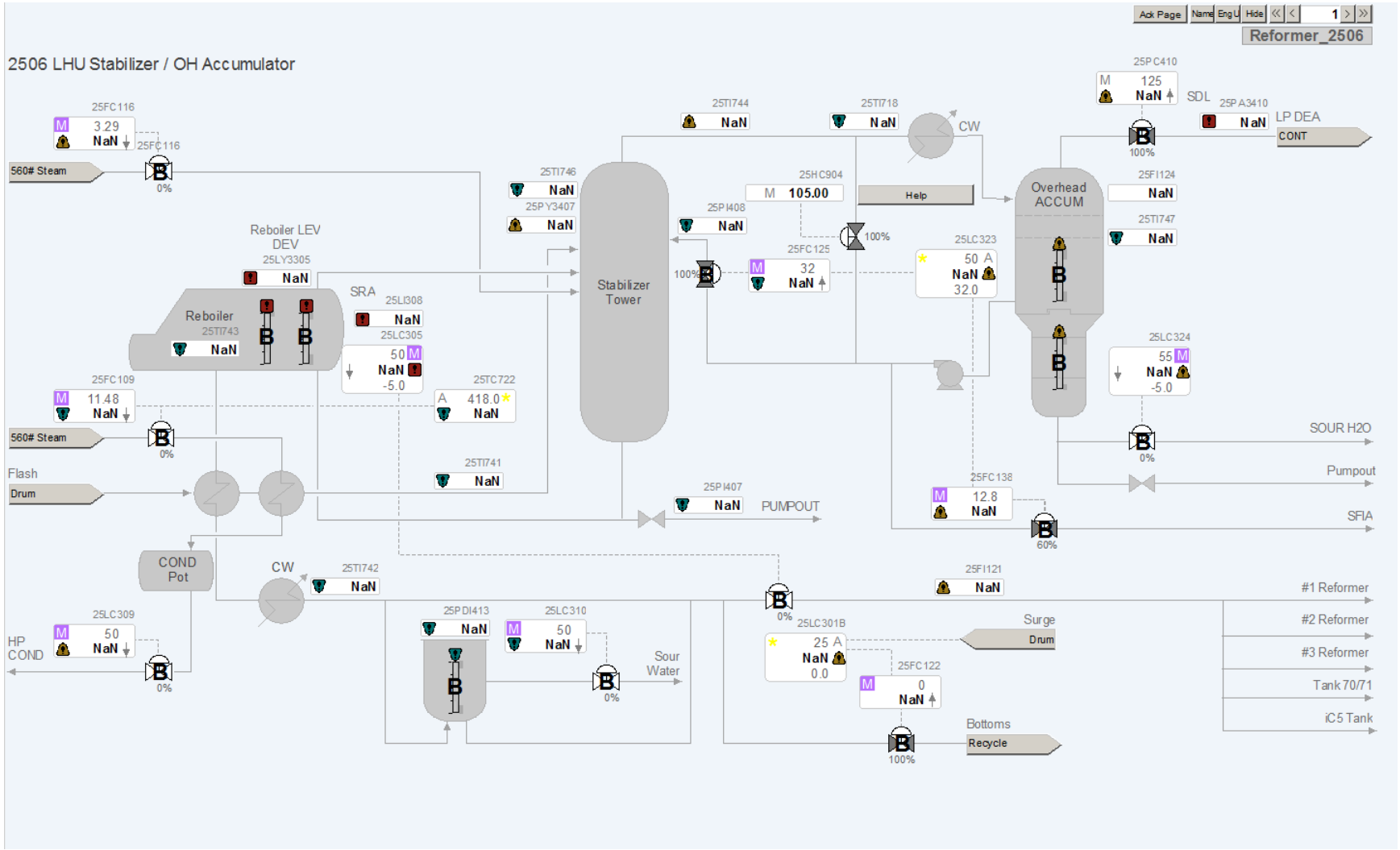
Station View



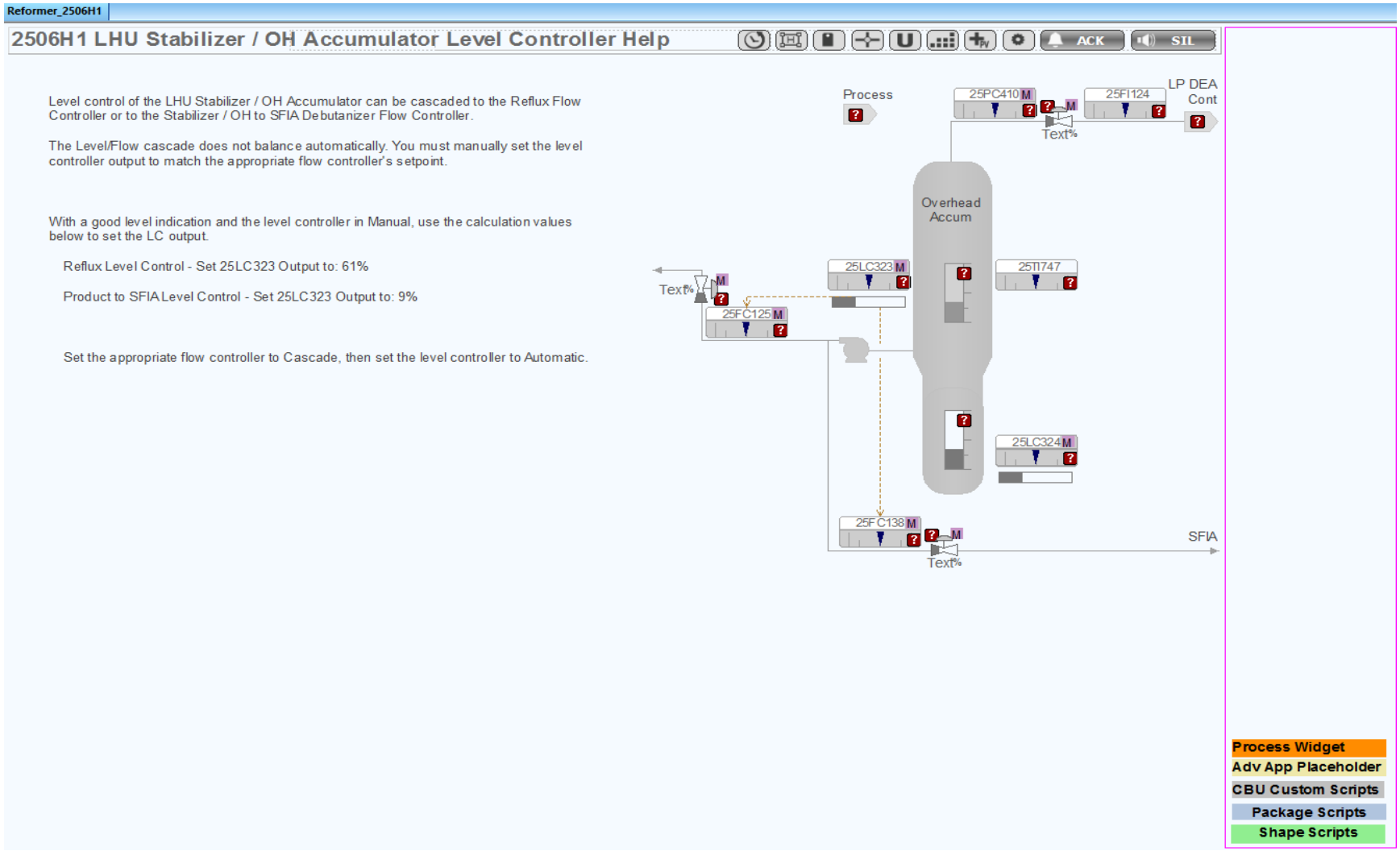
5.208 2506 LHU STABILIZER / OH ACCUMULATOR (Reformer_2506.htm)



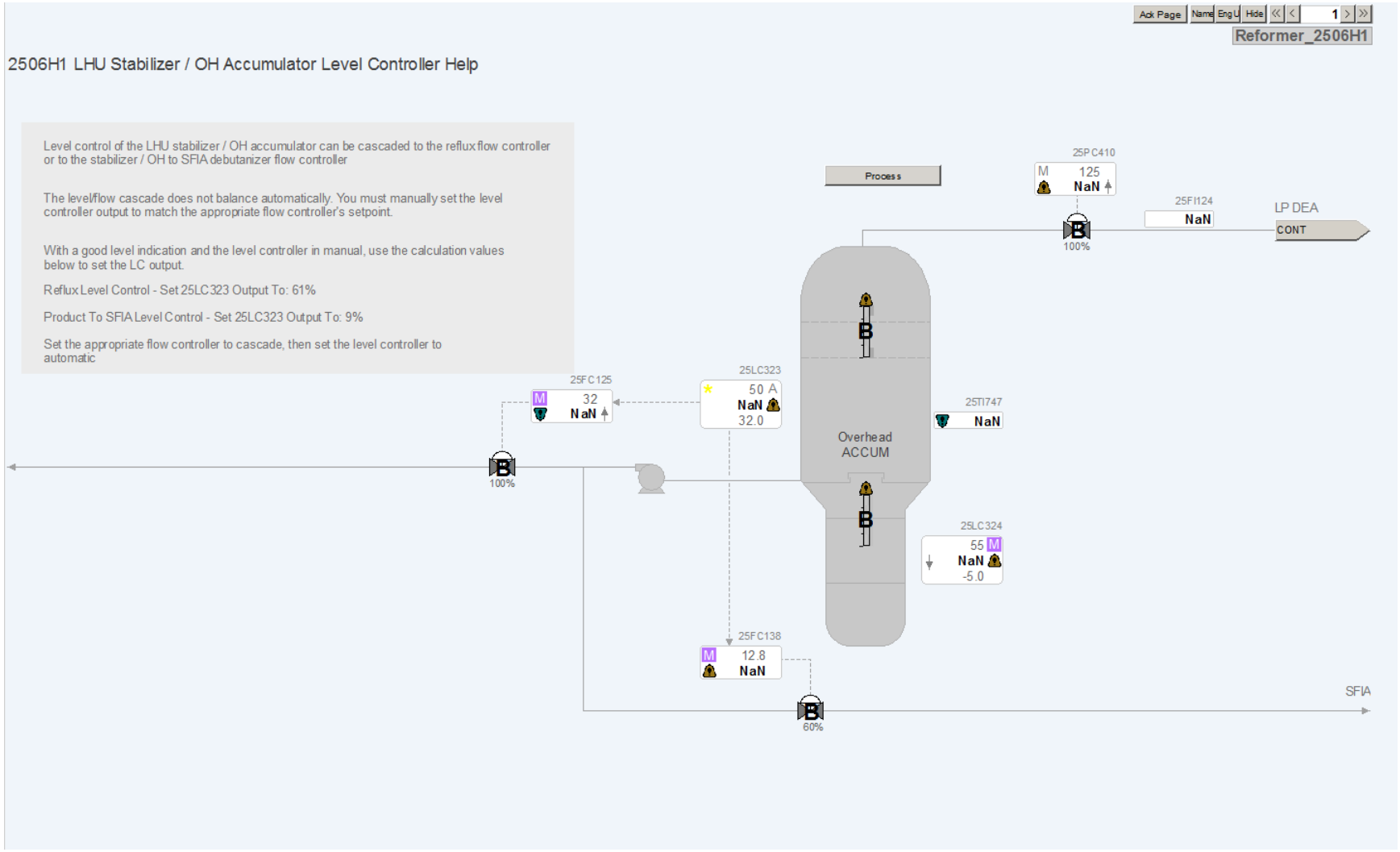
Station View



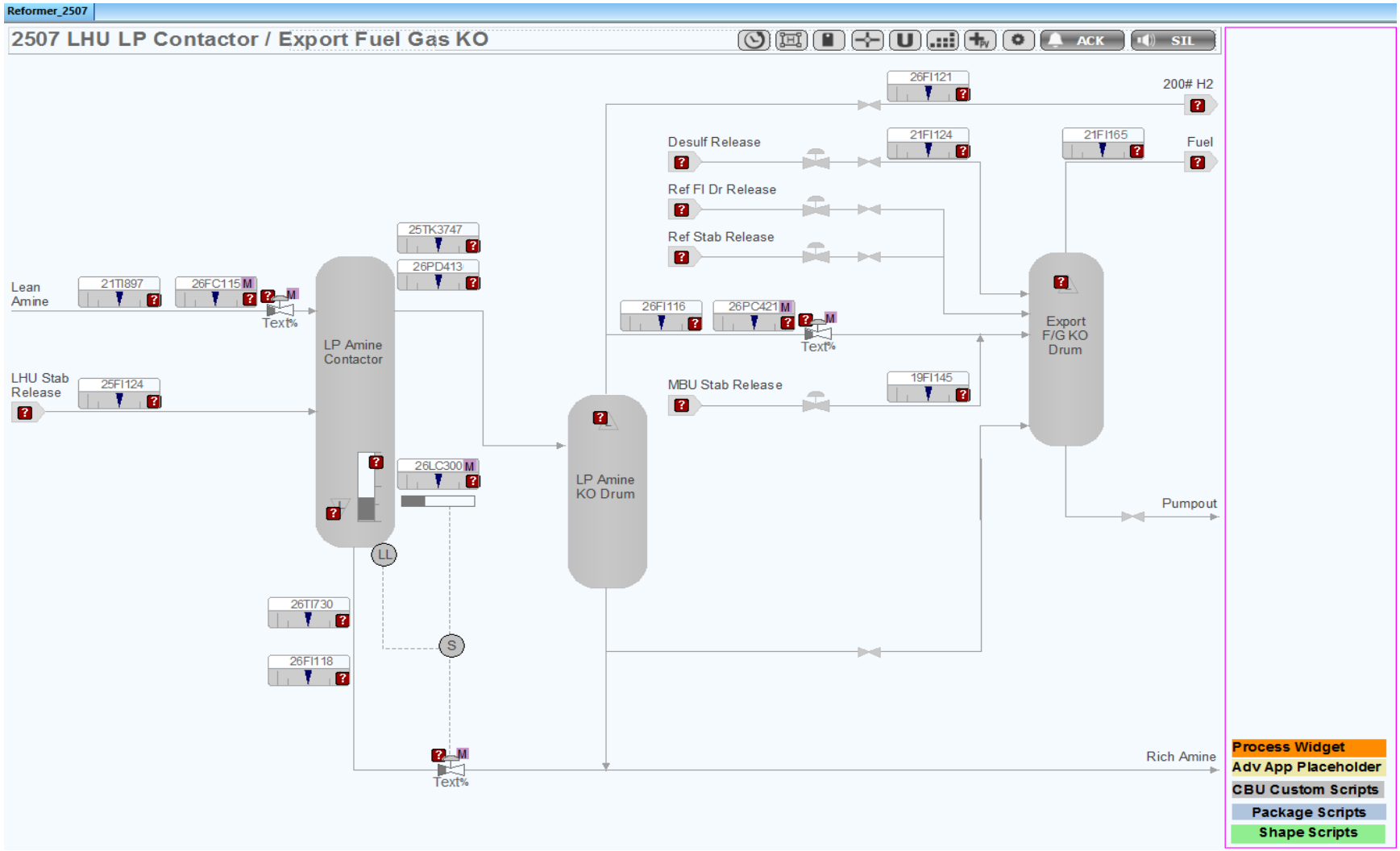
5.209 2506H1 LHU STABILIZER / OH ACCUMULATOR LEVEL CONTROLLER HELP (Reformer_2506H1.htm)



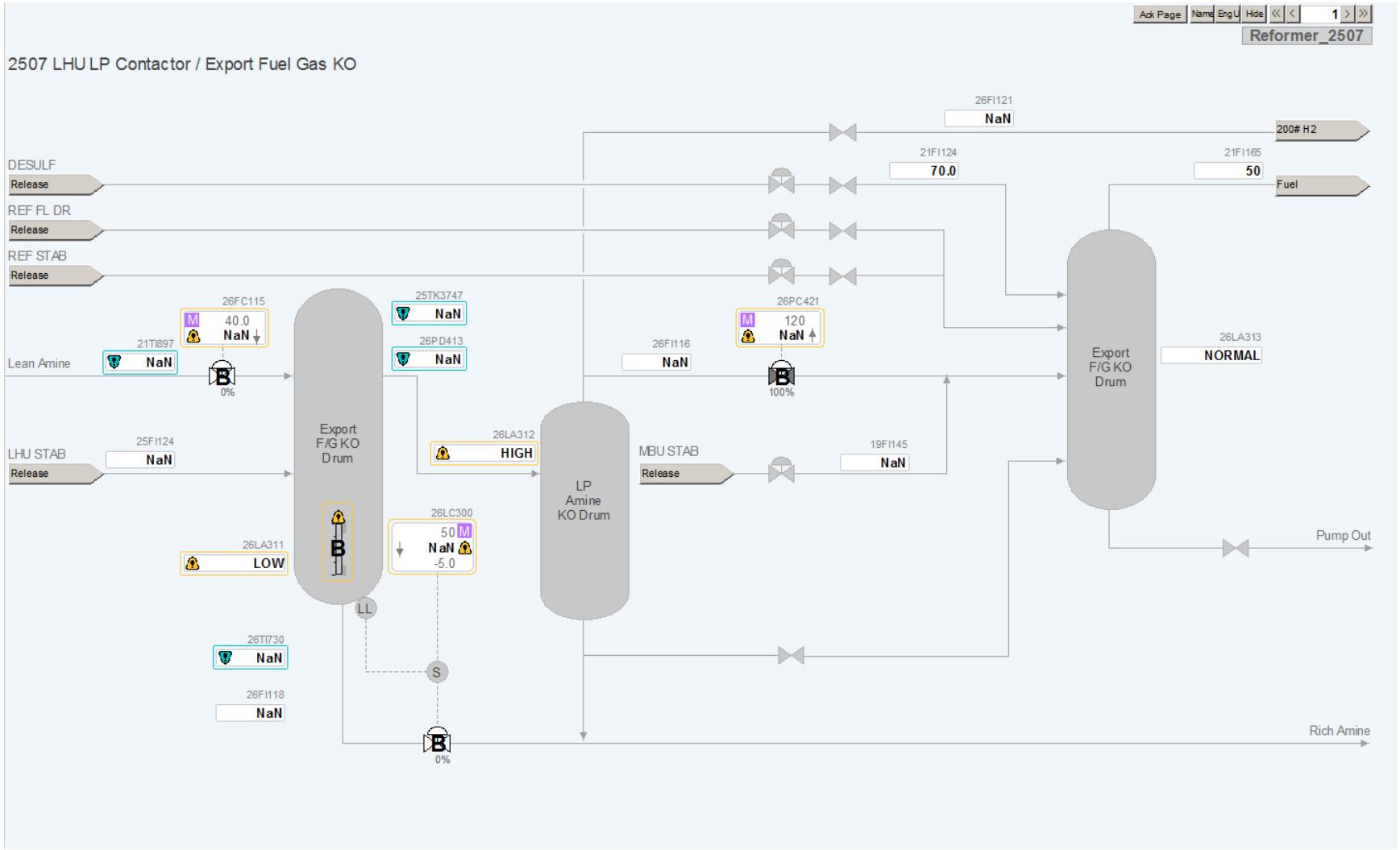
Station View



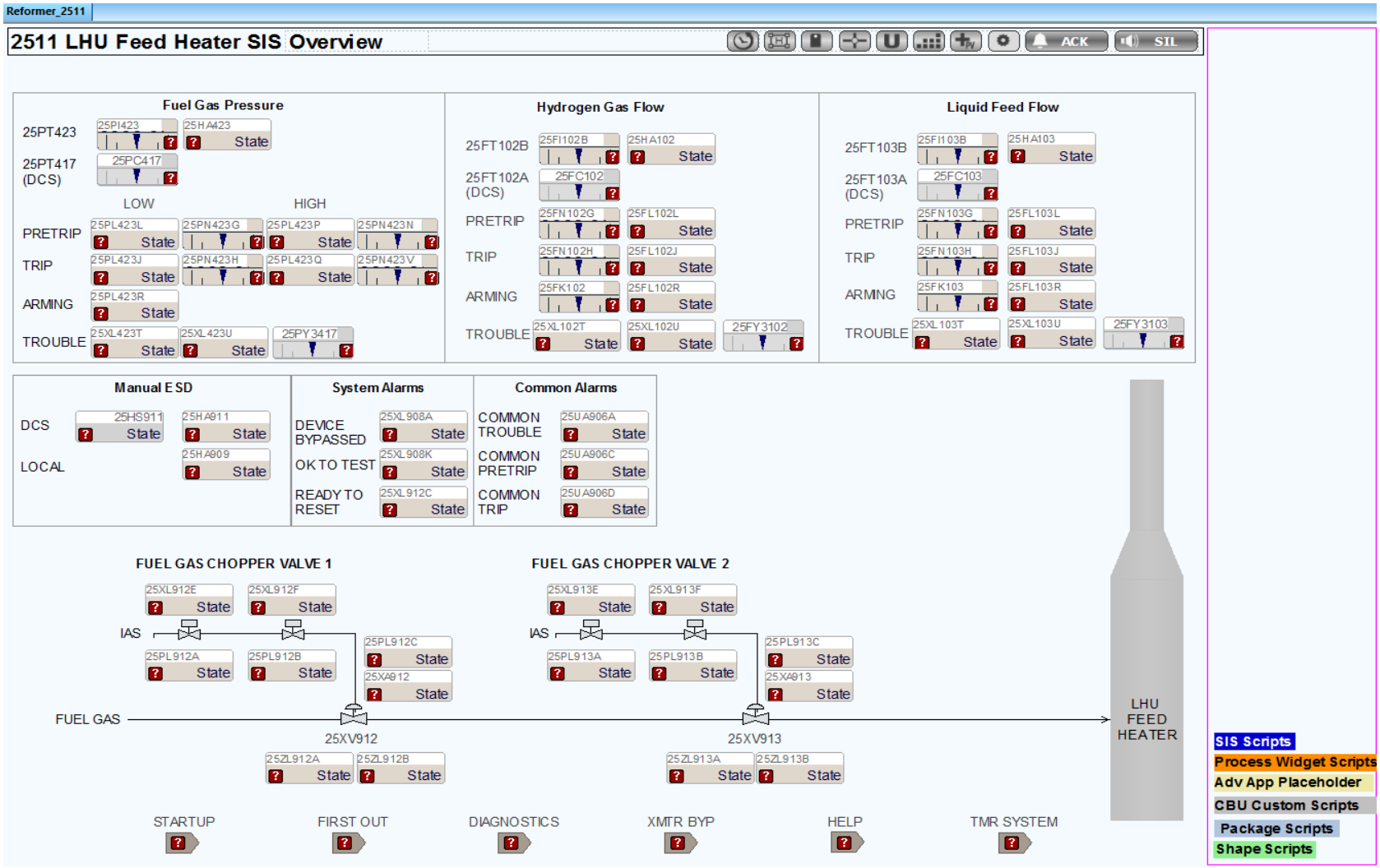
5.2102507 LHU LP CONTACTOR / EXPORT FUEL GAS KO (Reformer_2507.htm)



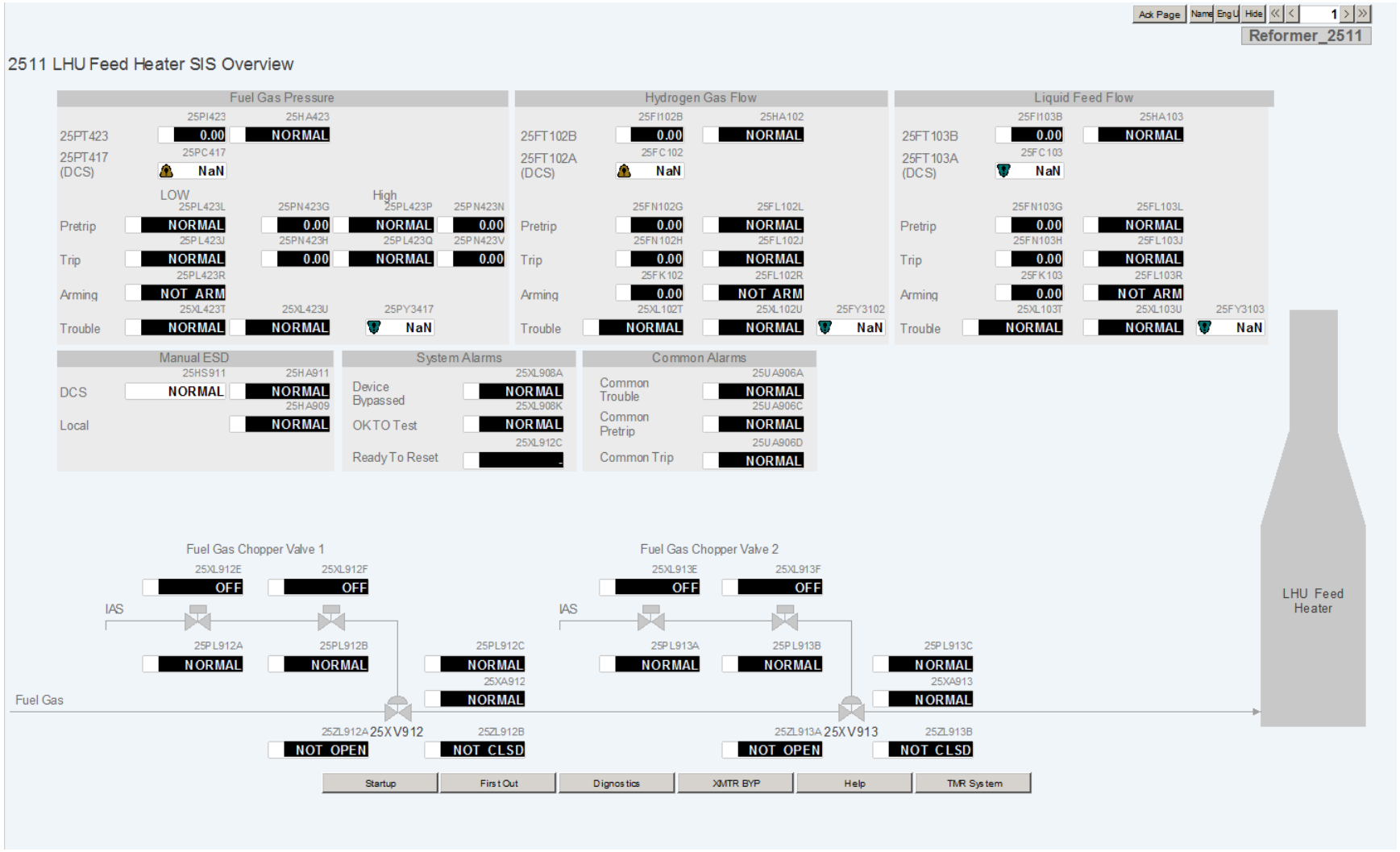
Station View



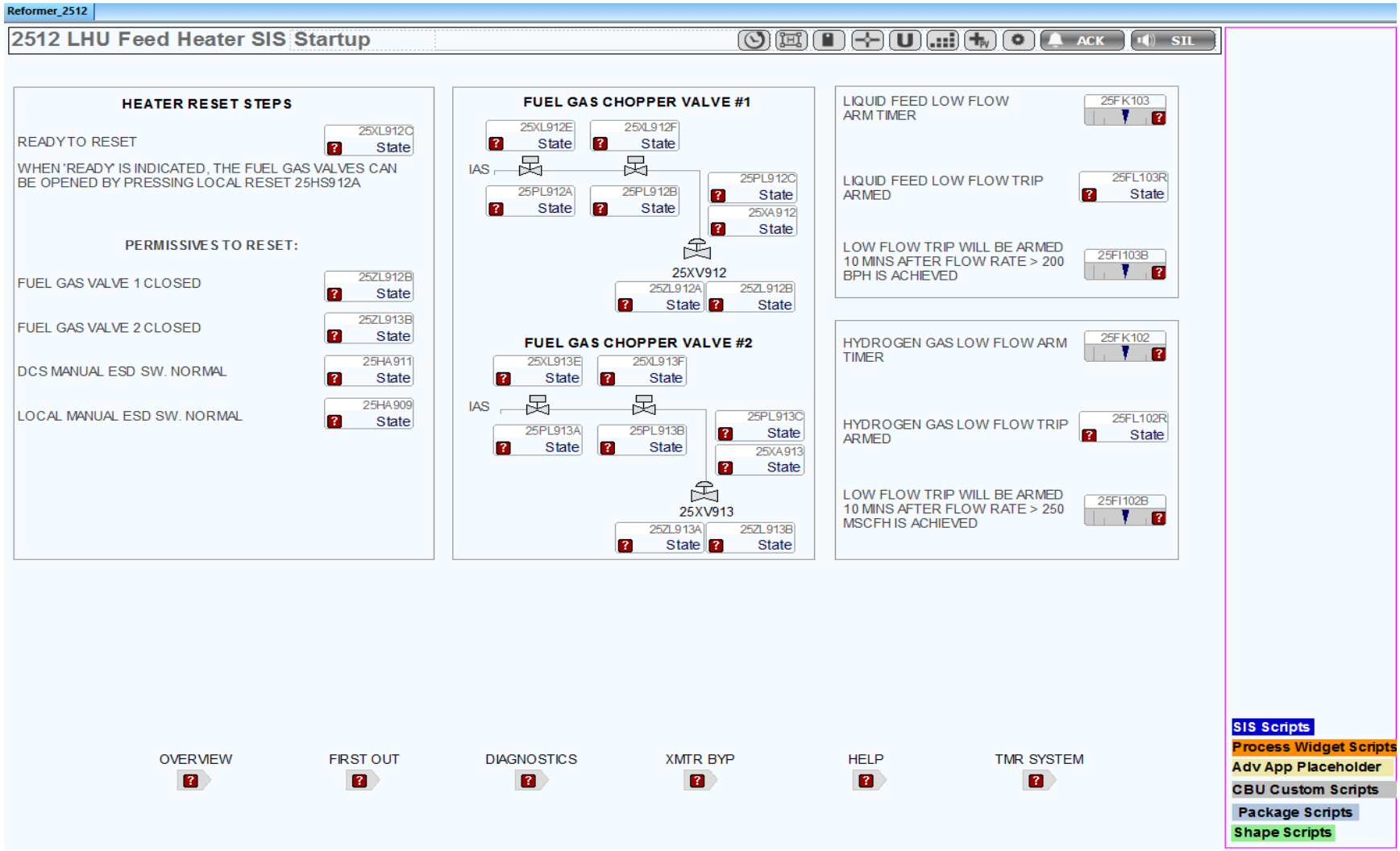
5.211 2511 LHU FEED HEATER SIS OVERVIEW (Reformer_2511.htm)



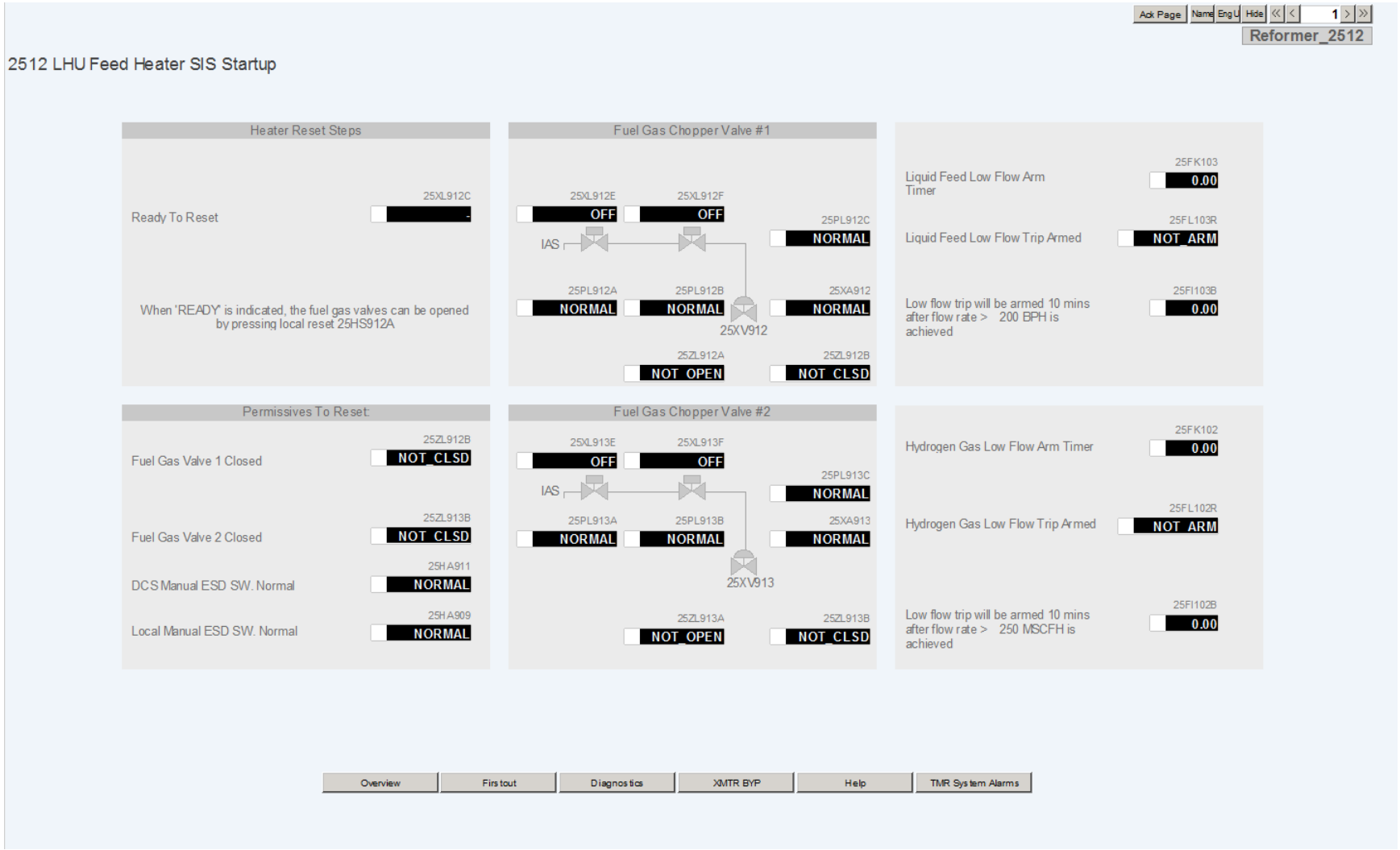
Station View



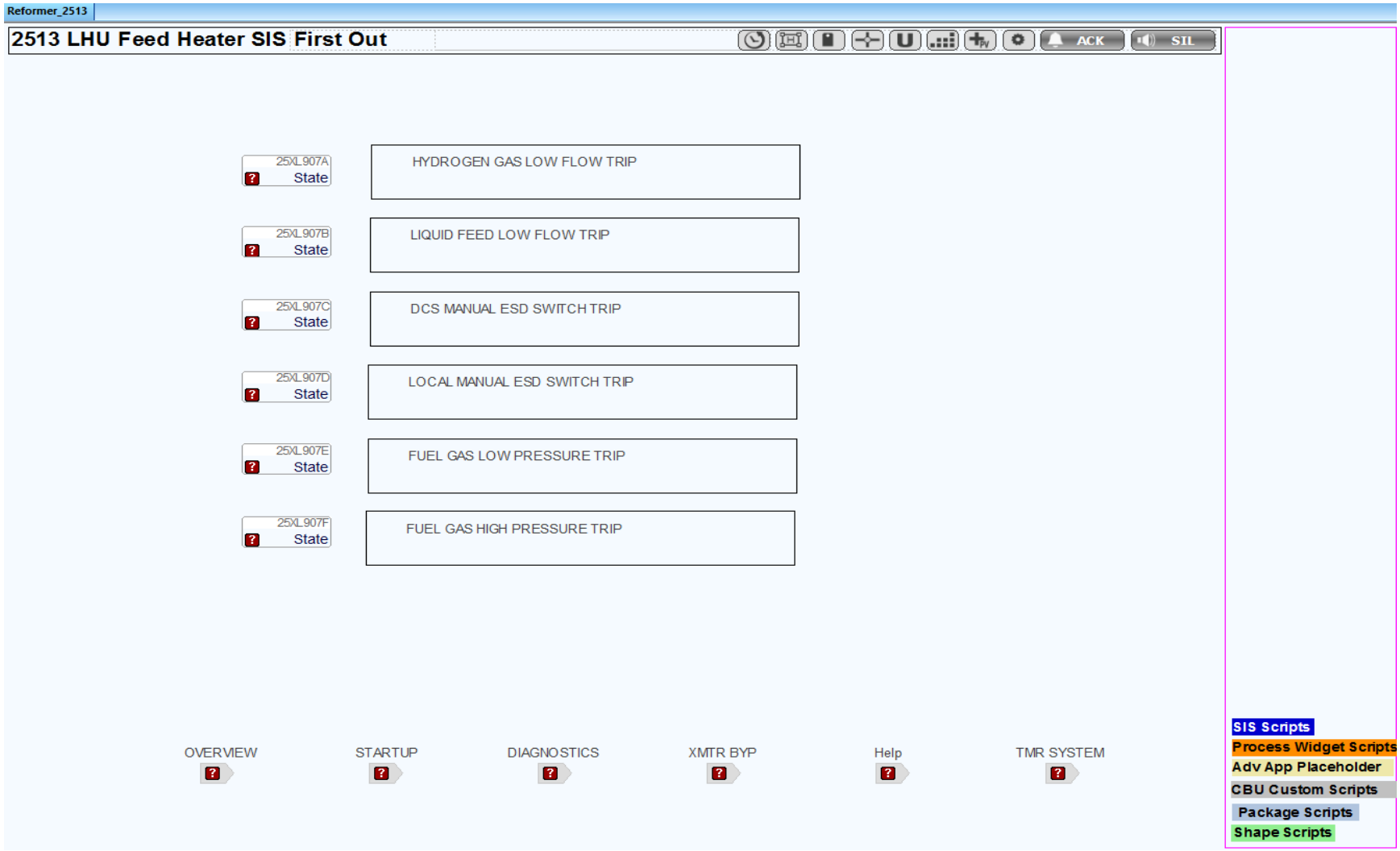
5.212 2512 LHU FEED HEATER SIS STARTUP (Reformer_2512.htm)



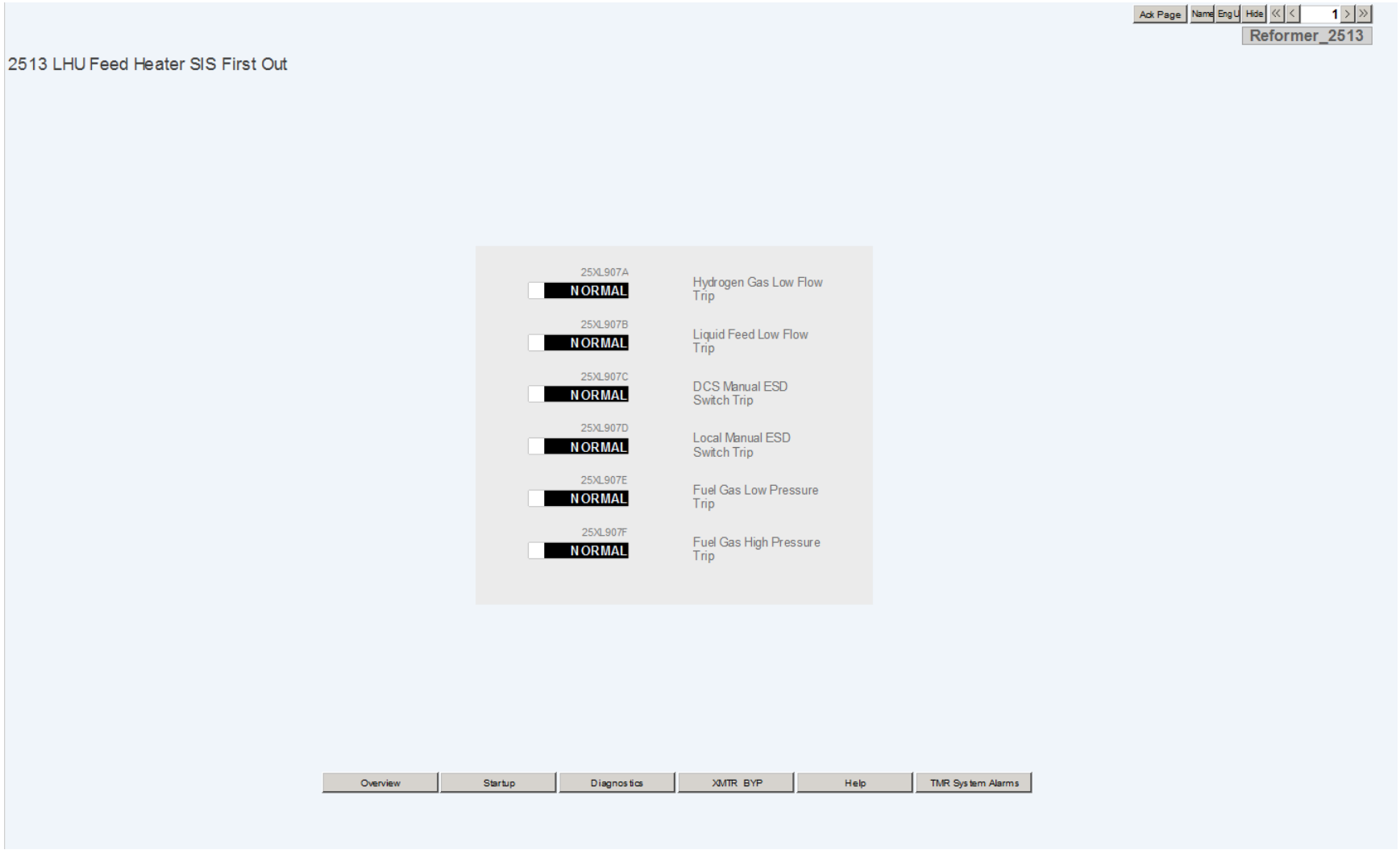
Station View



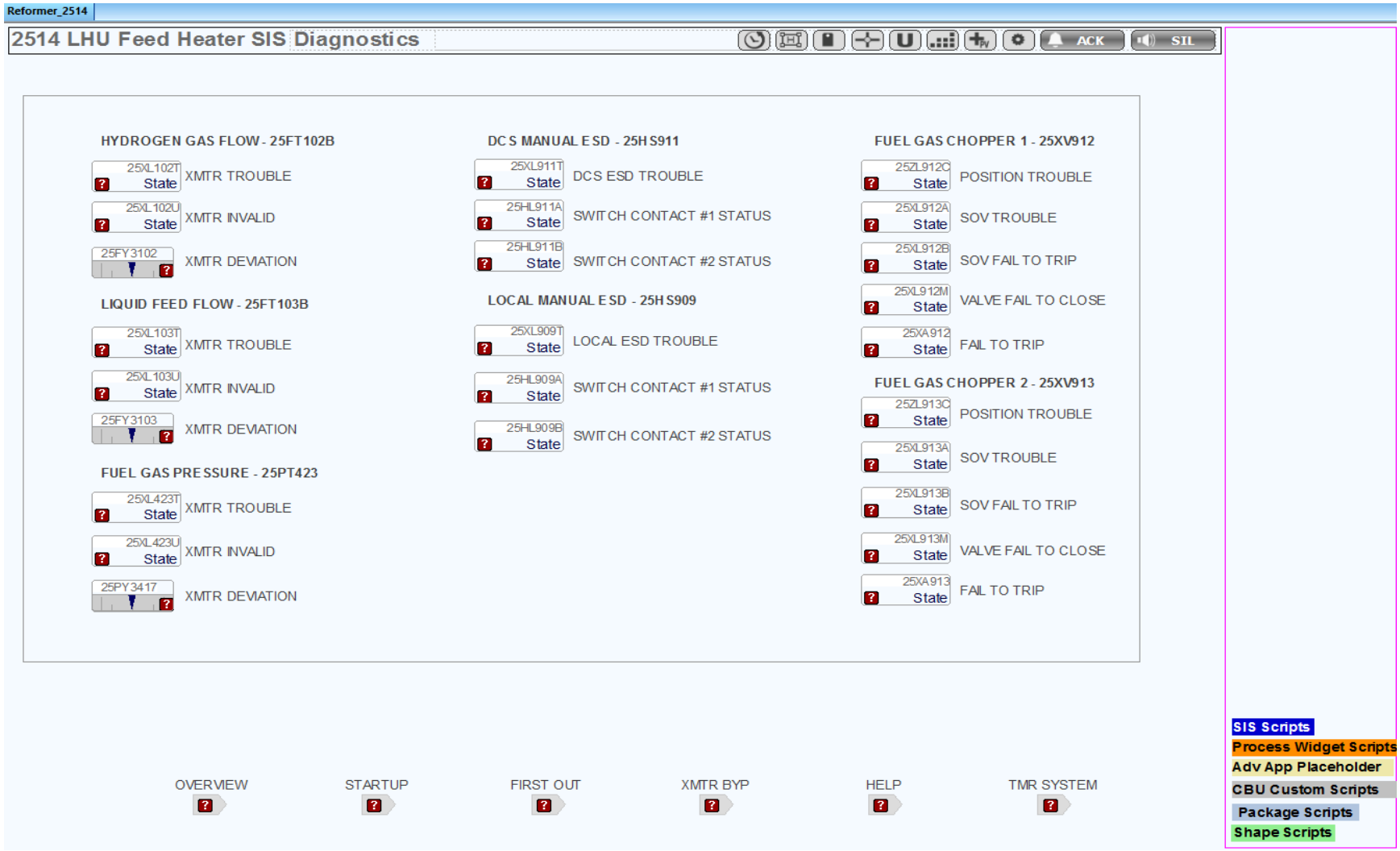
5.213 2513 LHU FEED HEATER SIS FIRST OUT (Reformer_2513.htm)



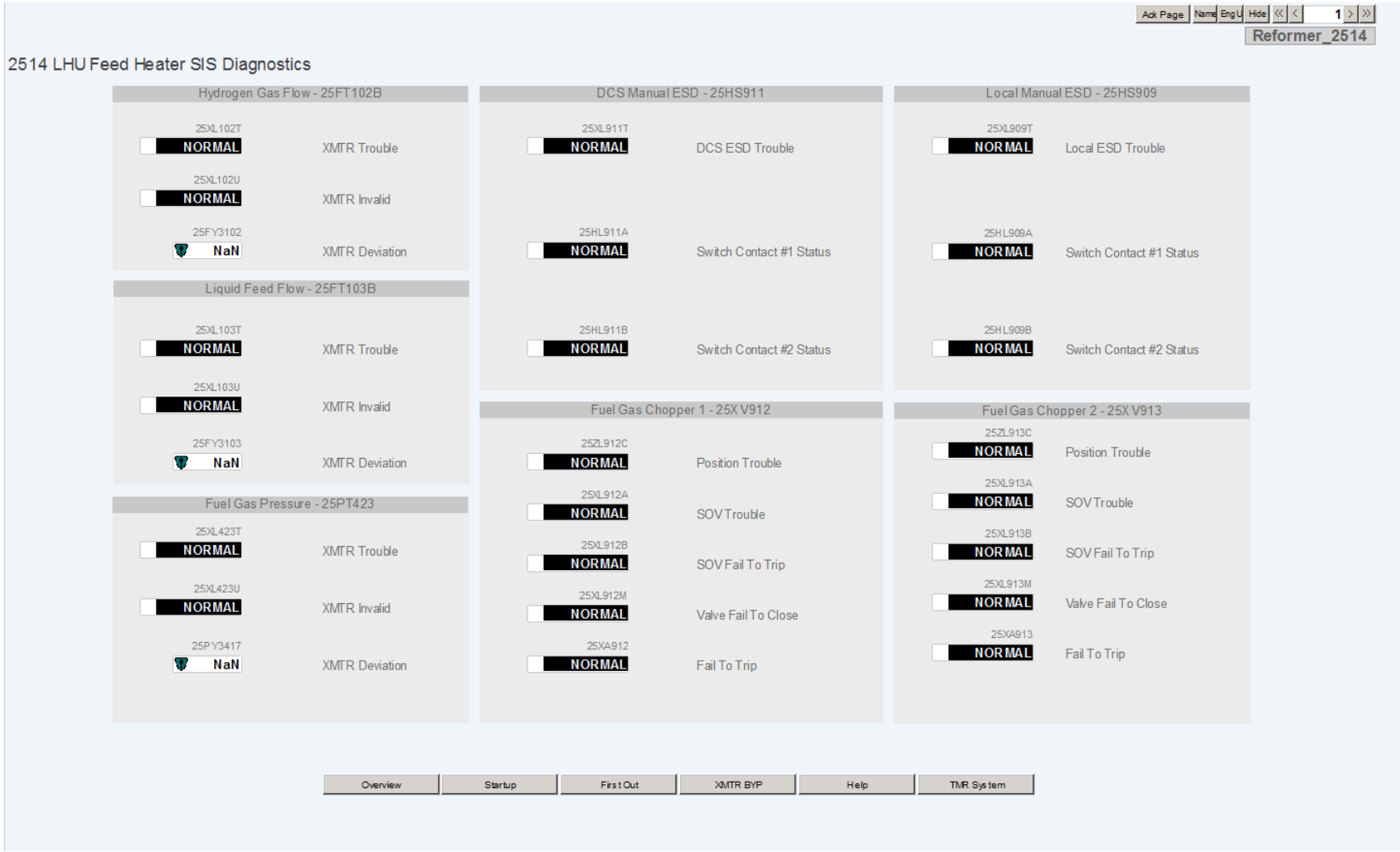
Station View



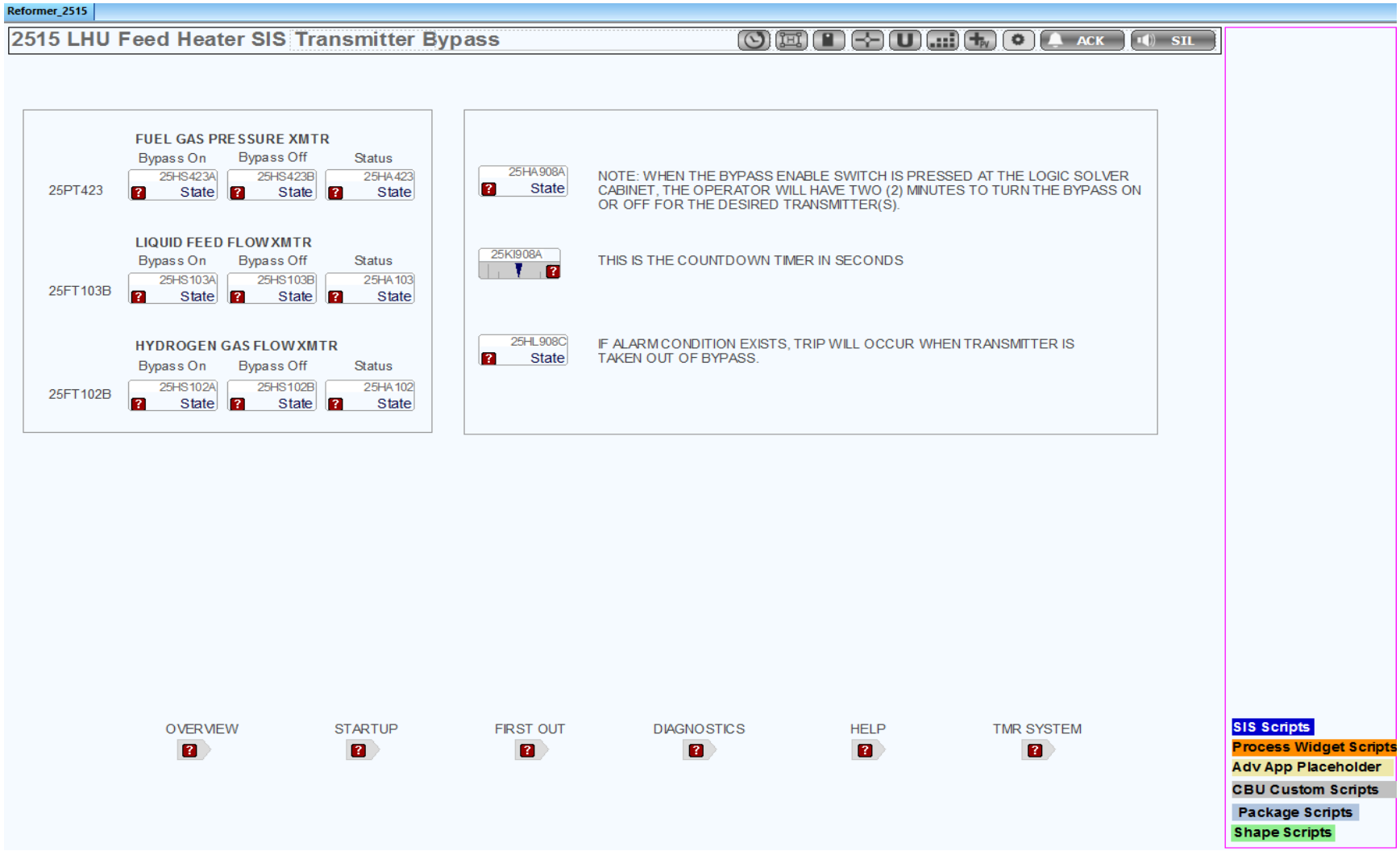
5.214 2514 LHU FEED HEATER SIS DIAGNOSTICS (Reformer_2514.htm)



Station View

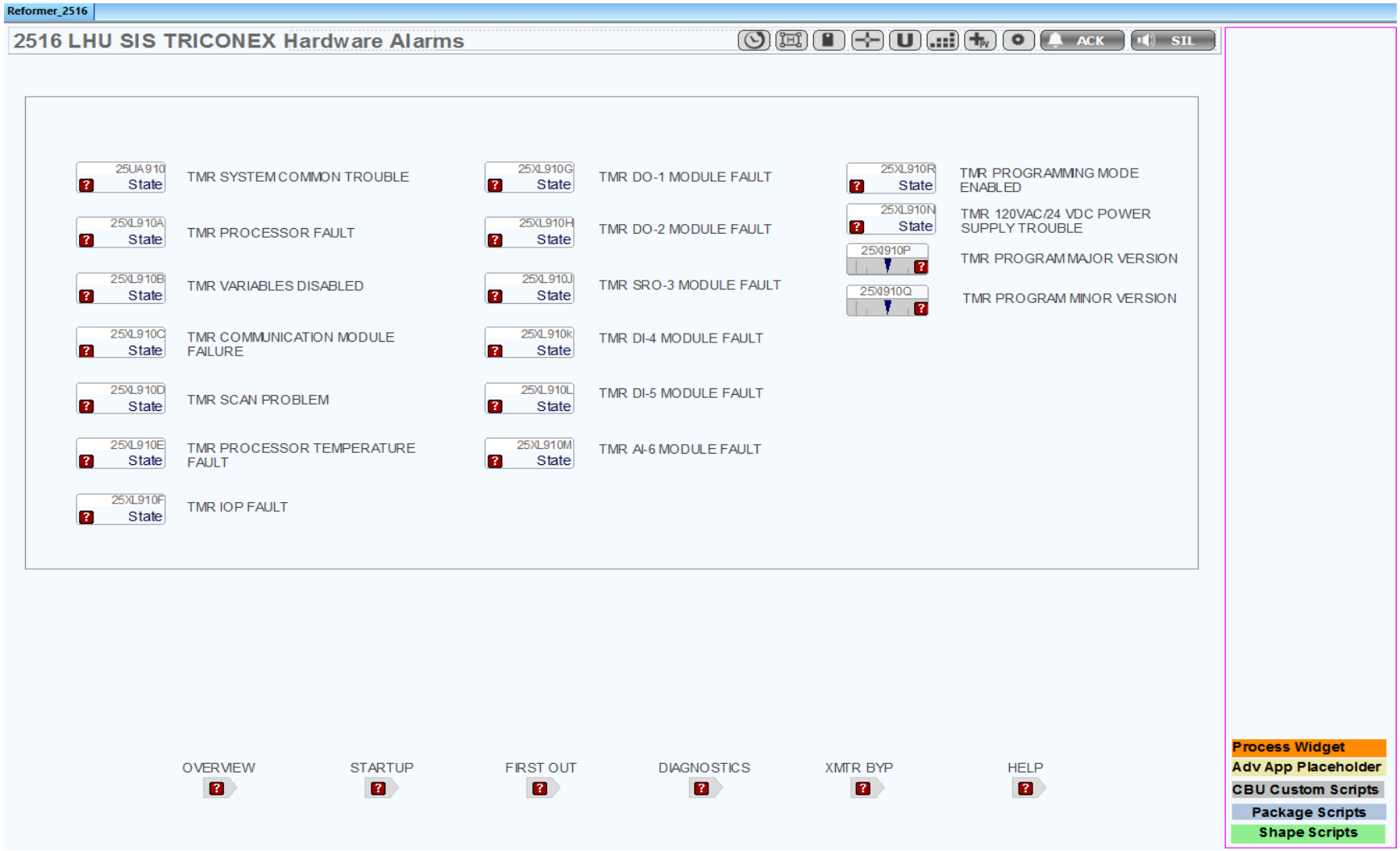


5.215 2515 LHU FEED HEATER SIS TRANSMITTER BYPASS (Reformer_2515.htm)

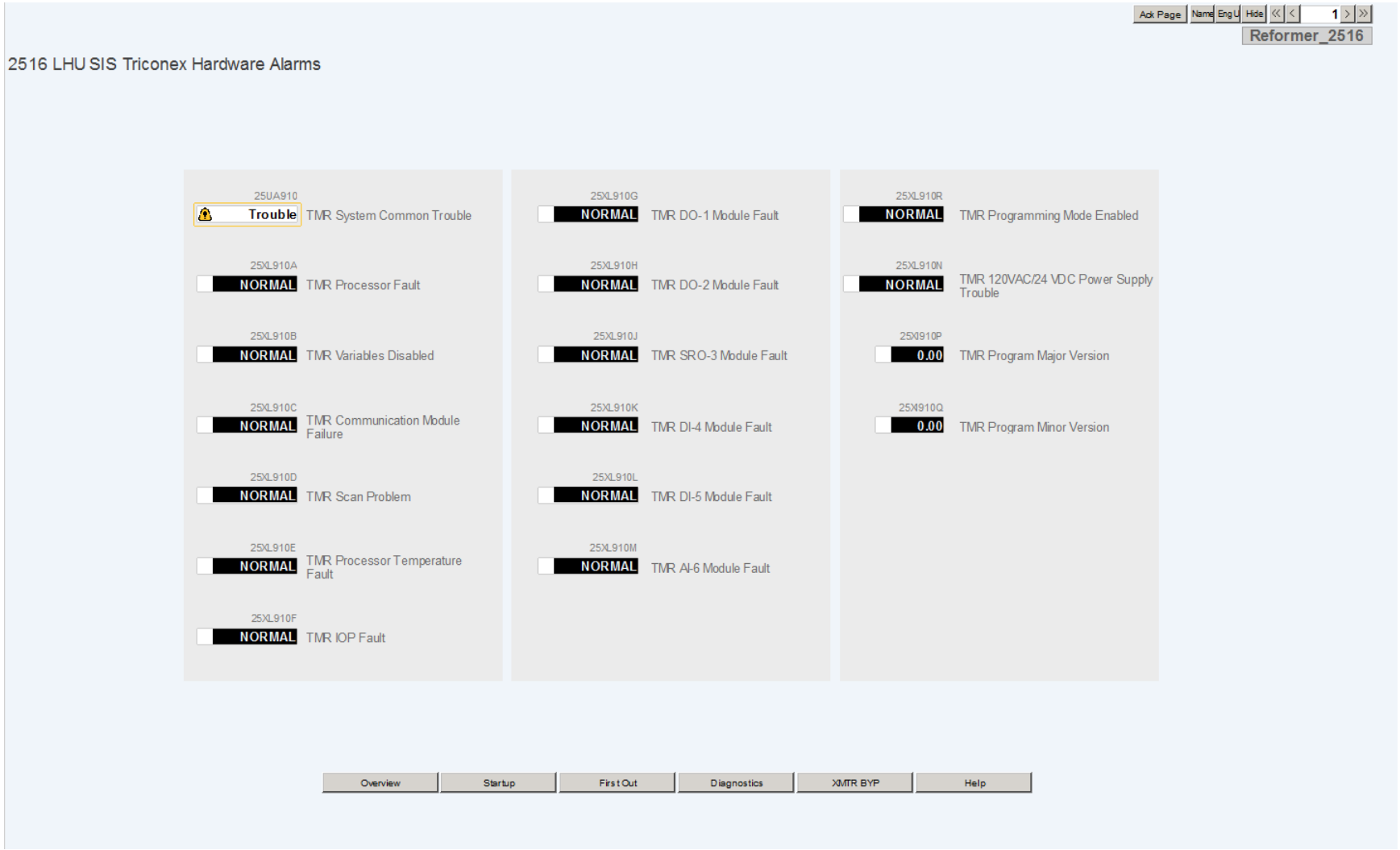


Station View

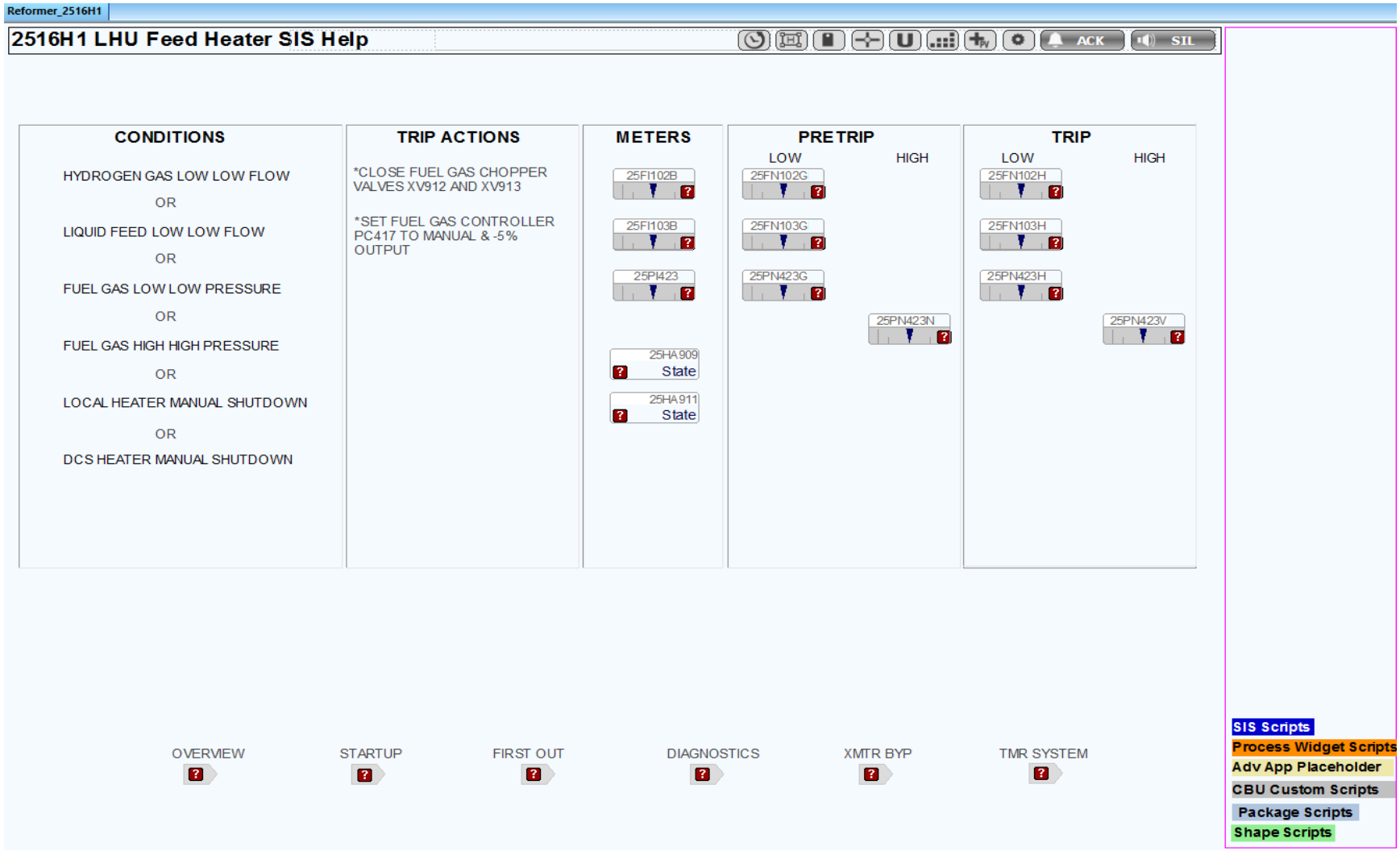
5.216 2516 LHU SIS TRICONEX HARDWARE ALARMS (Reformer_2516.htm)



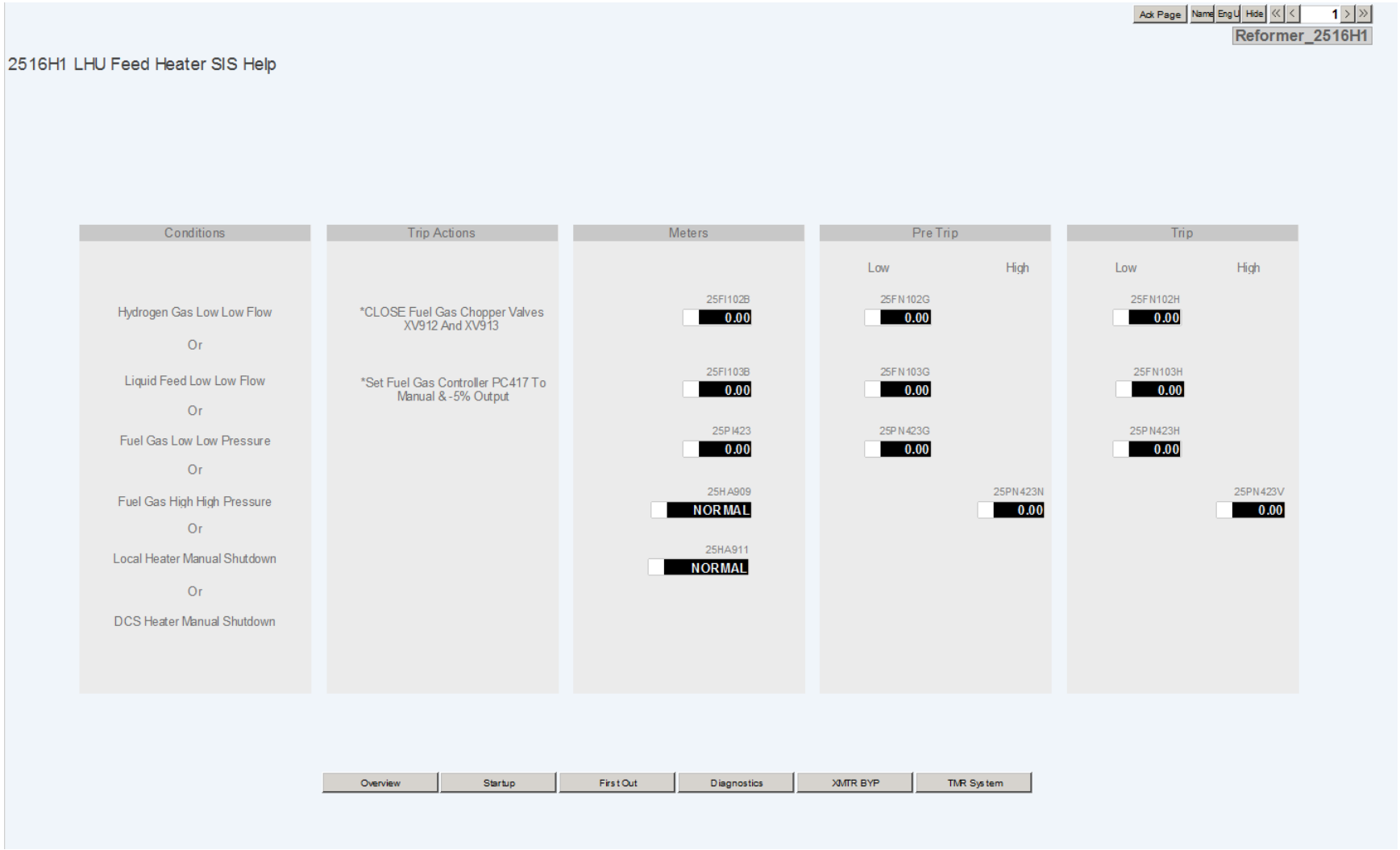
Station View



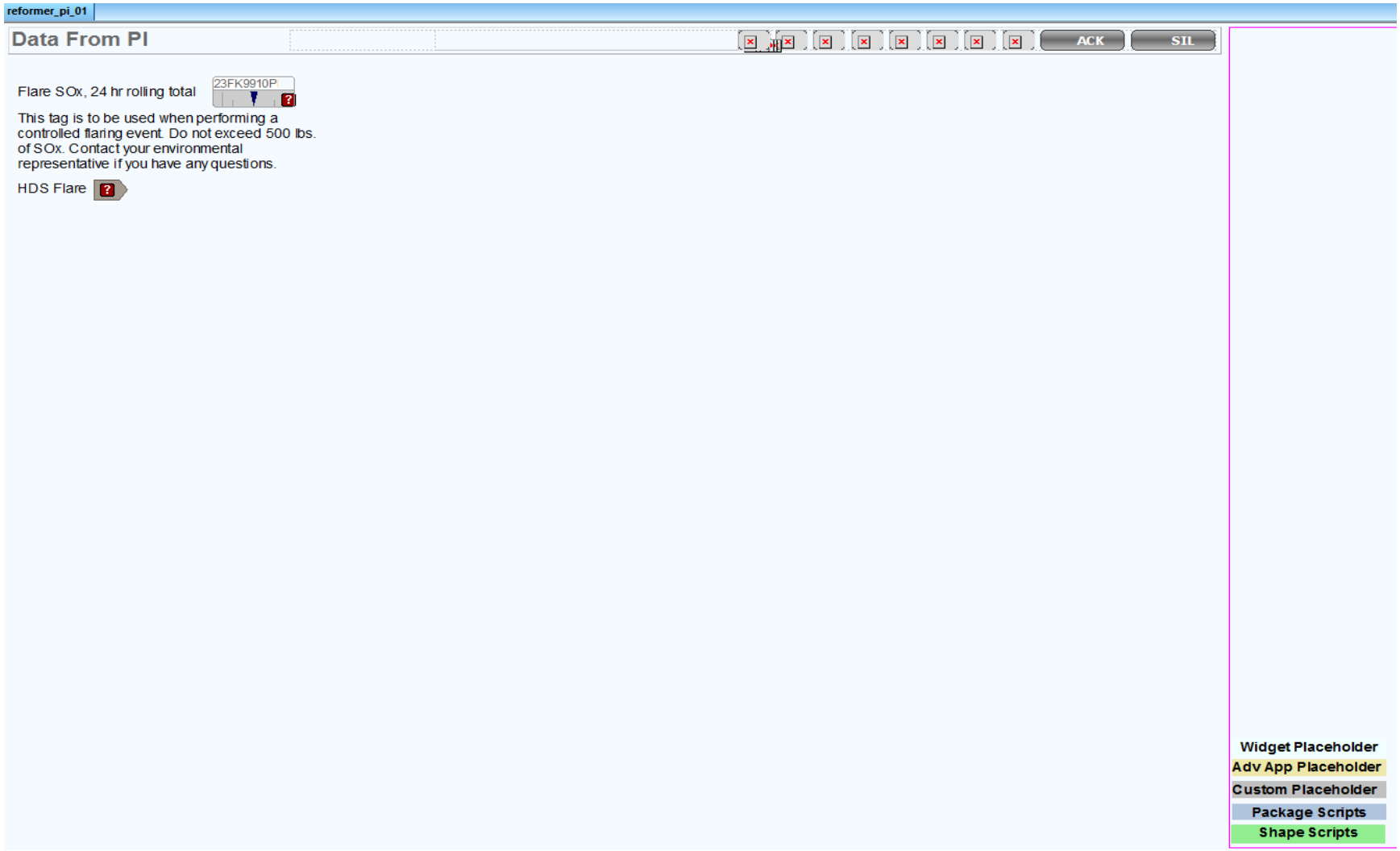
5.217 2516H1 LHU FEED HEATER SIS HELP (Reformer_2516H1.htm)



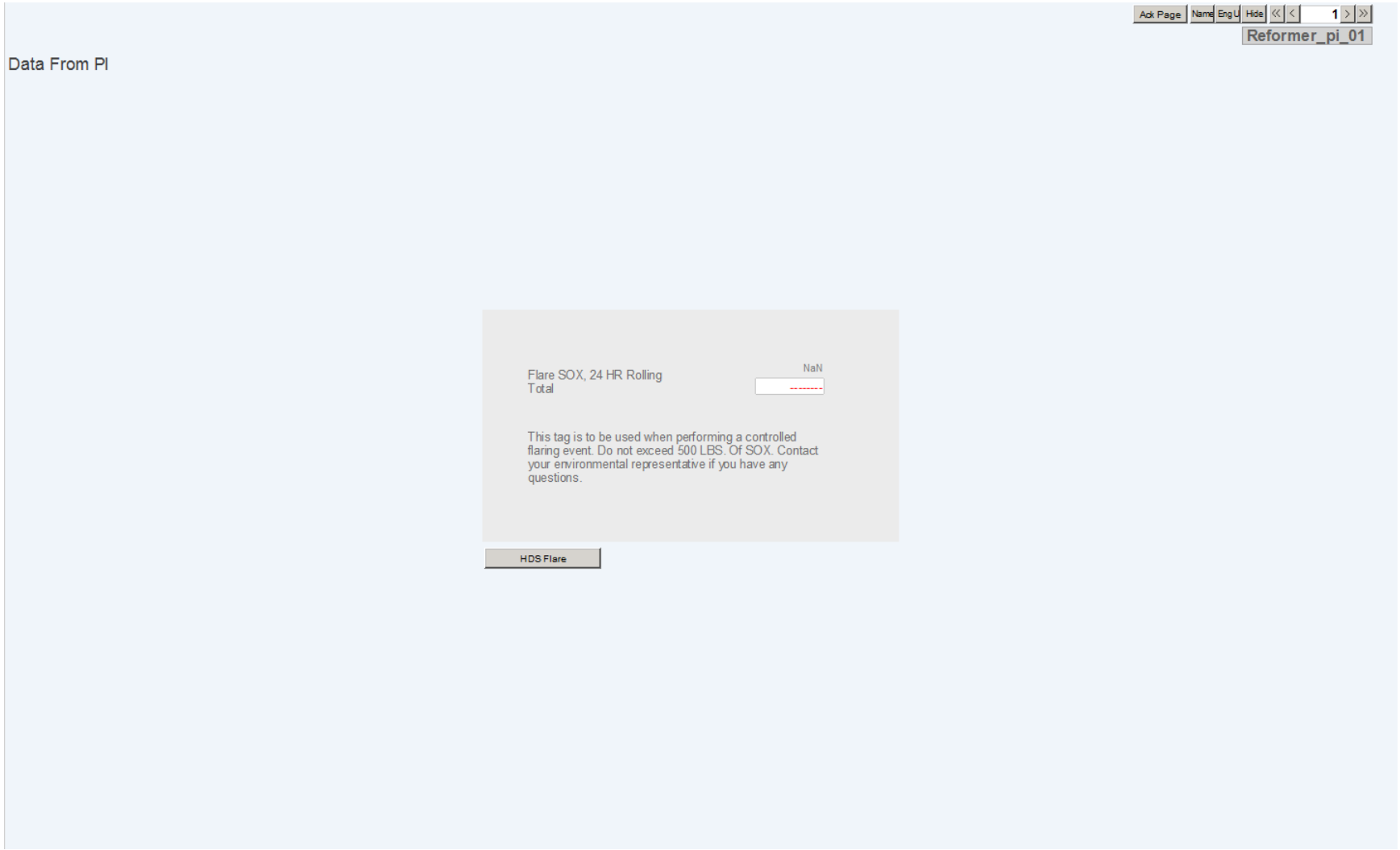
Station View



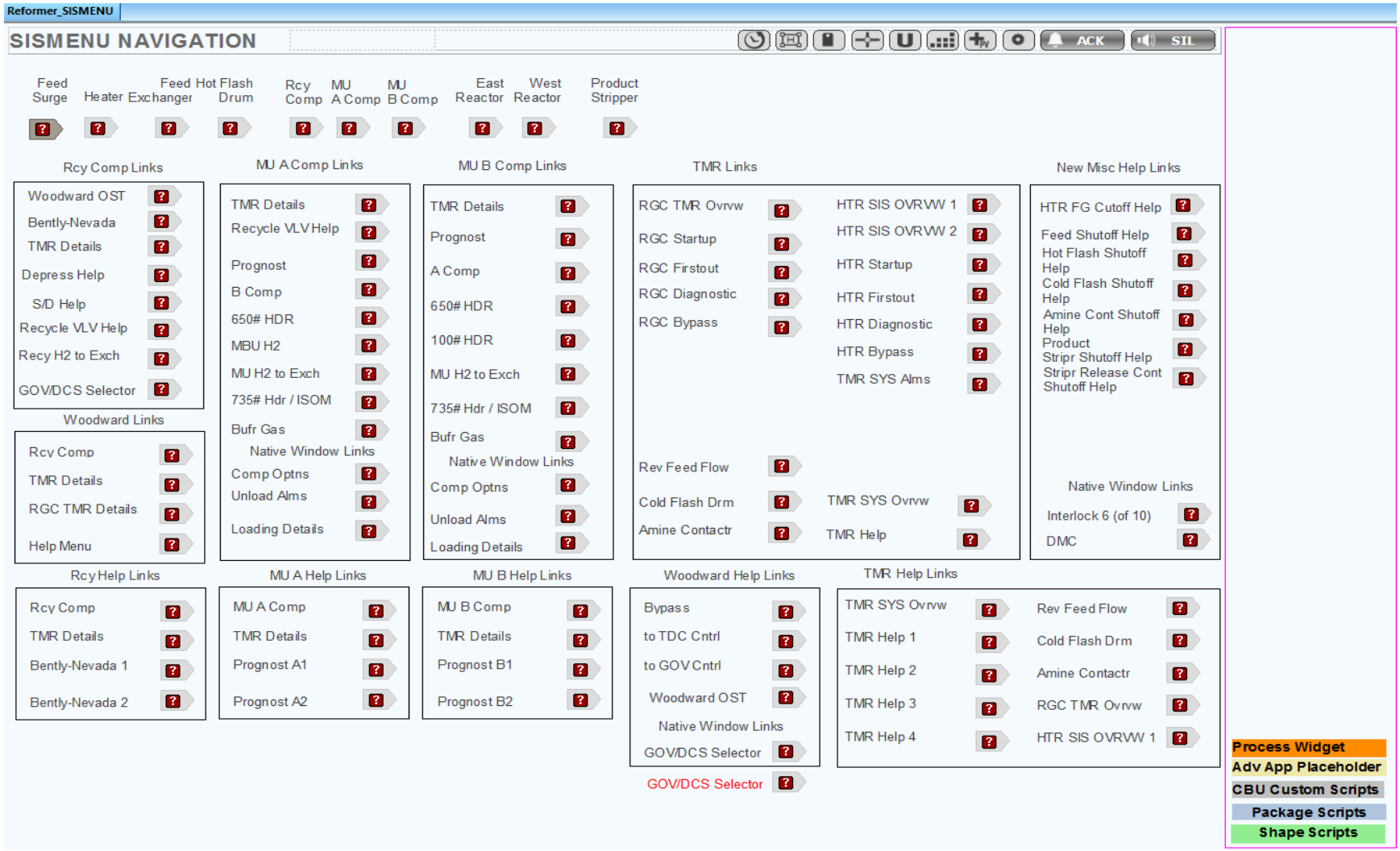
5.218 DATA FROM PI (Reformer_pi_01.htm)



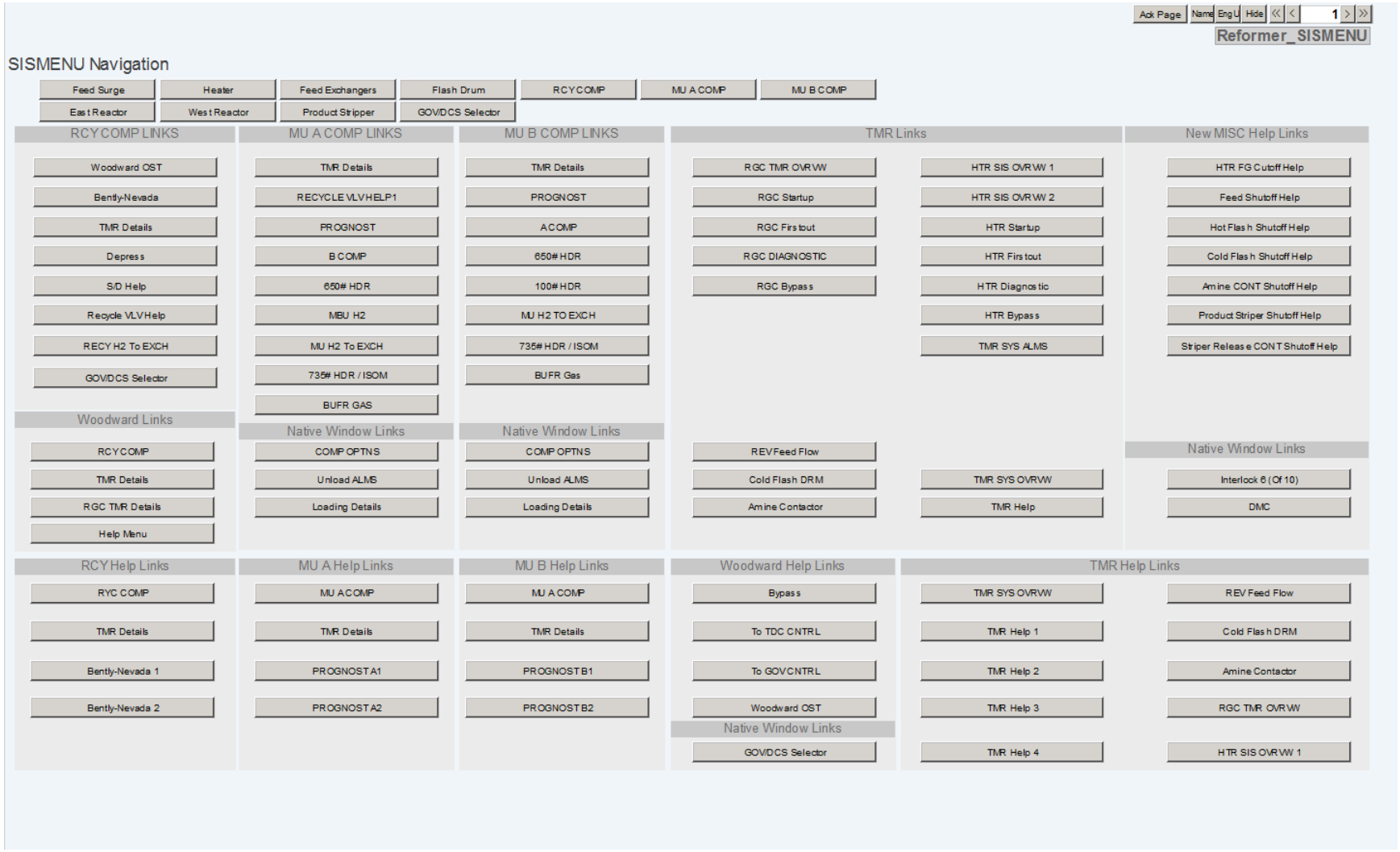
Station View



5.219 SISMENU NAVIGATION (Reformer_SISMENU.htm)



Station View

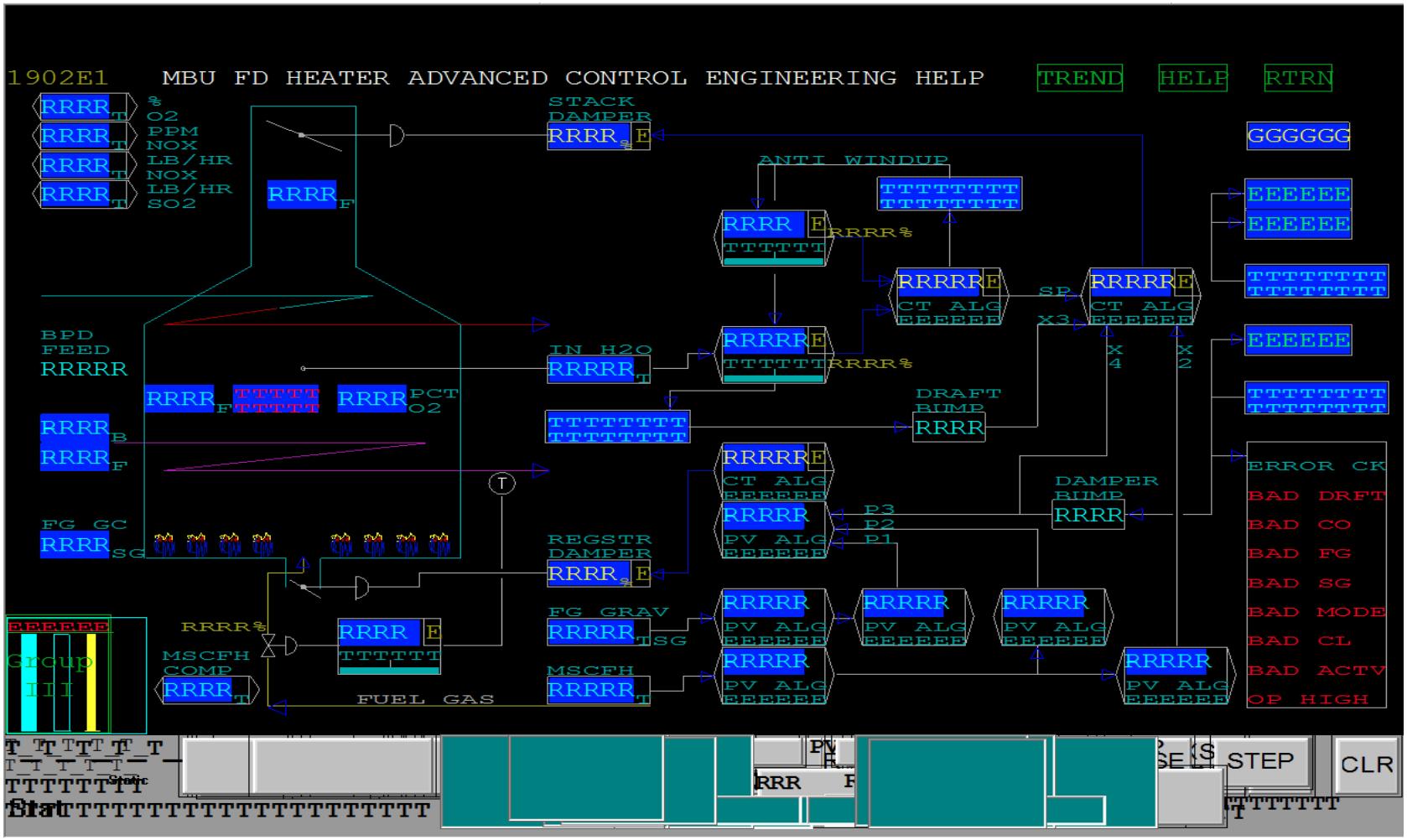


6. Existing HMI Screens to be Confirmed

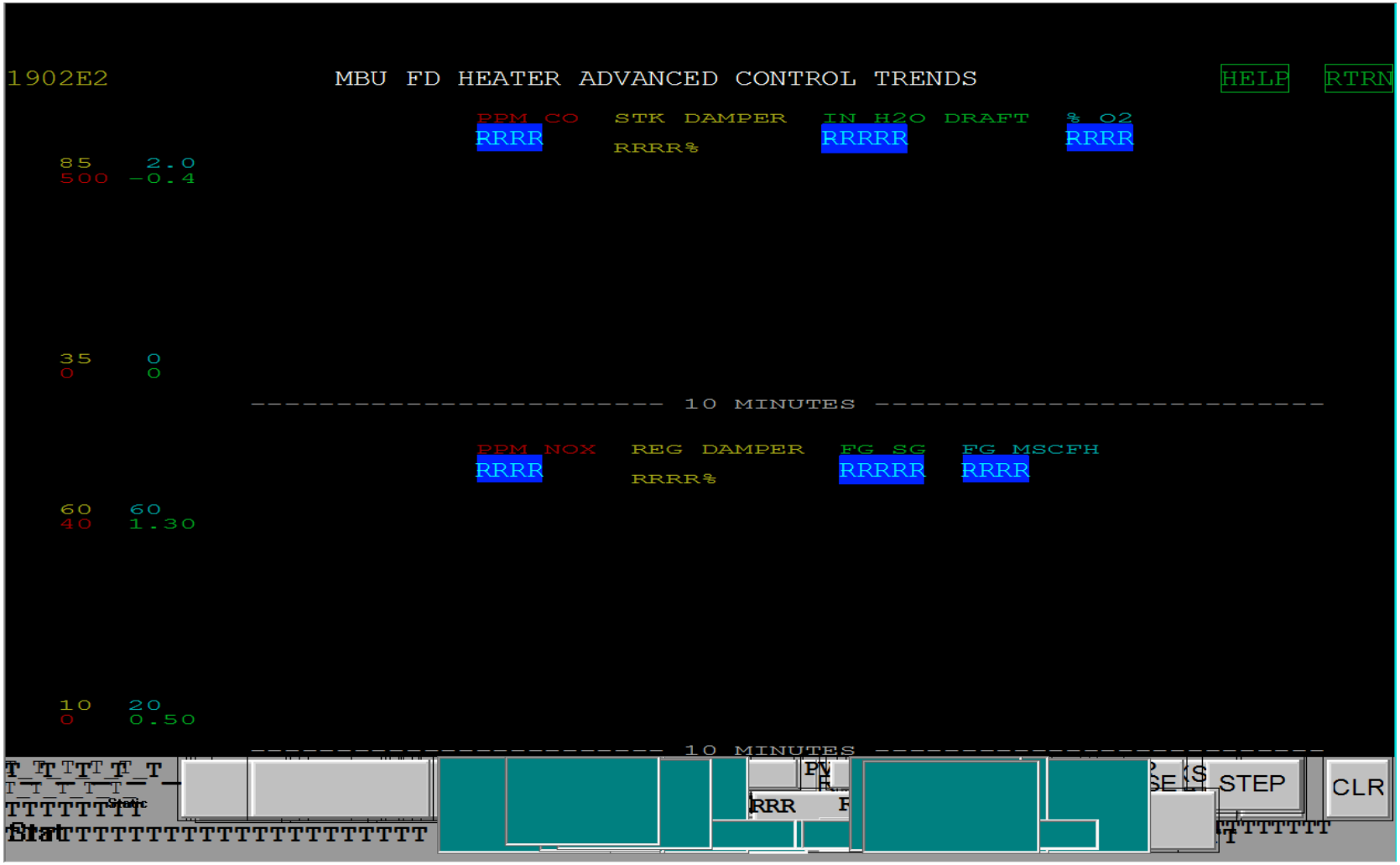
N/A

7. Existing HMI Screens Not Being Migrated

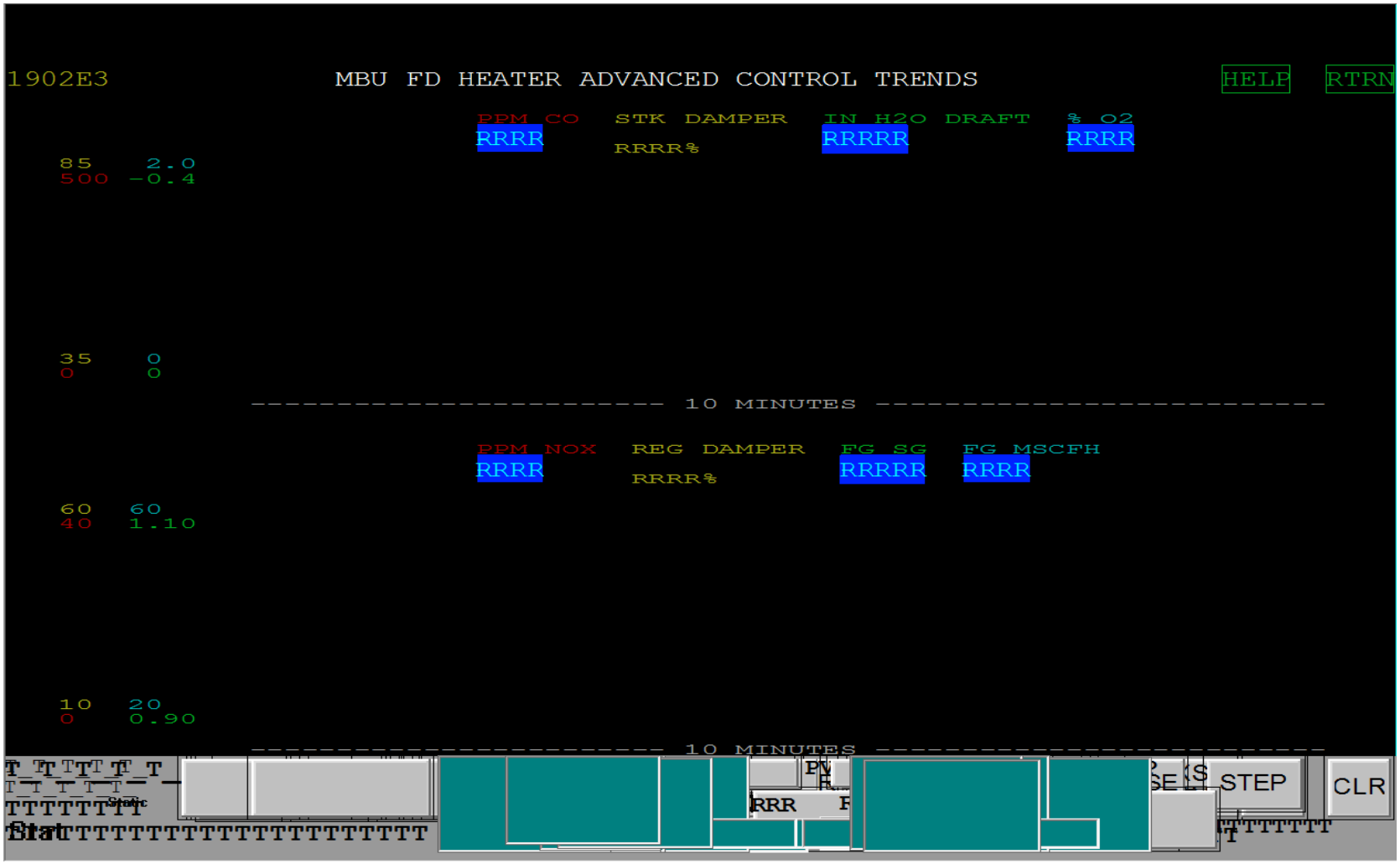
7.1 MBU FD HEATER ADVANCED CONTROL ENGINEERING HELP (1902E1.DS)



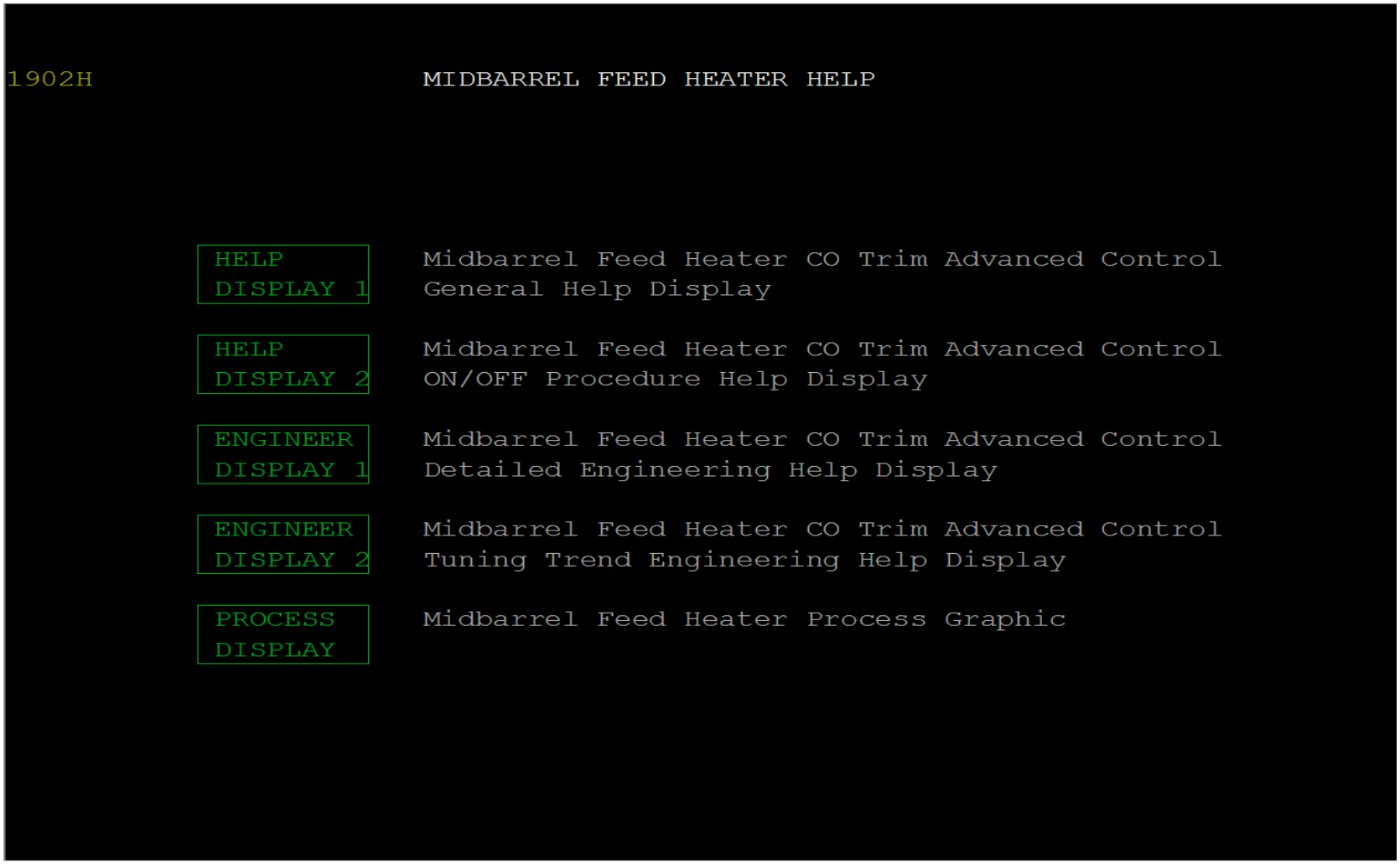
7.2 MBU FD HEATER ADVANCED CONTROL TRENDS (1902E2.DS)



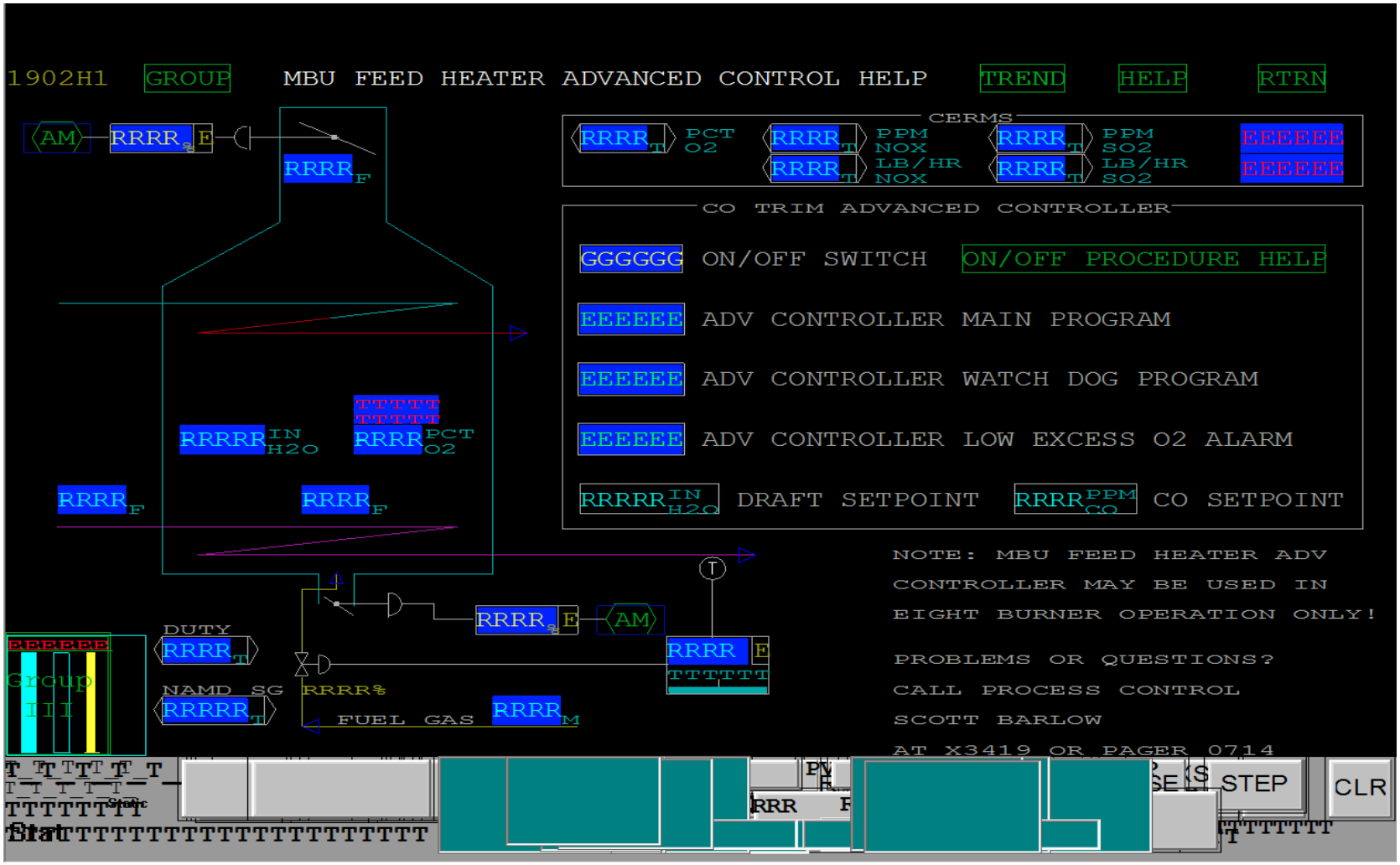
7.3 MBU FD HEATER ADVANCED CONTROL TRENDS (1902E3.DS)



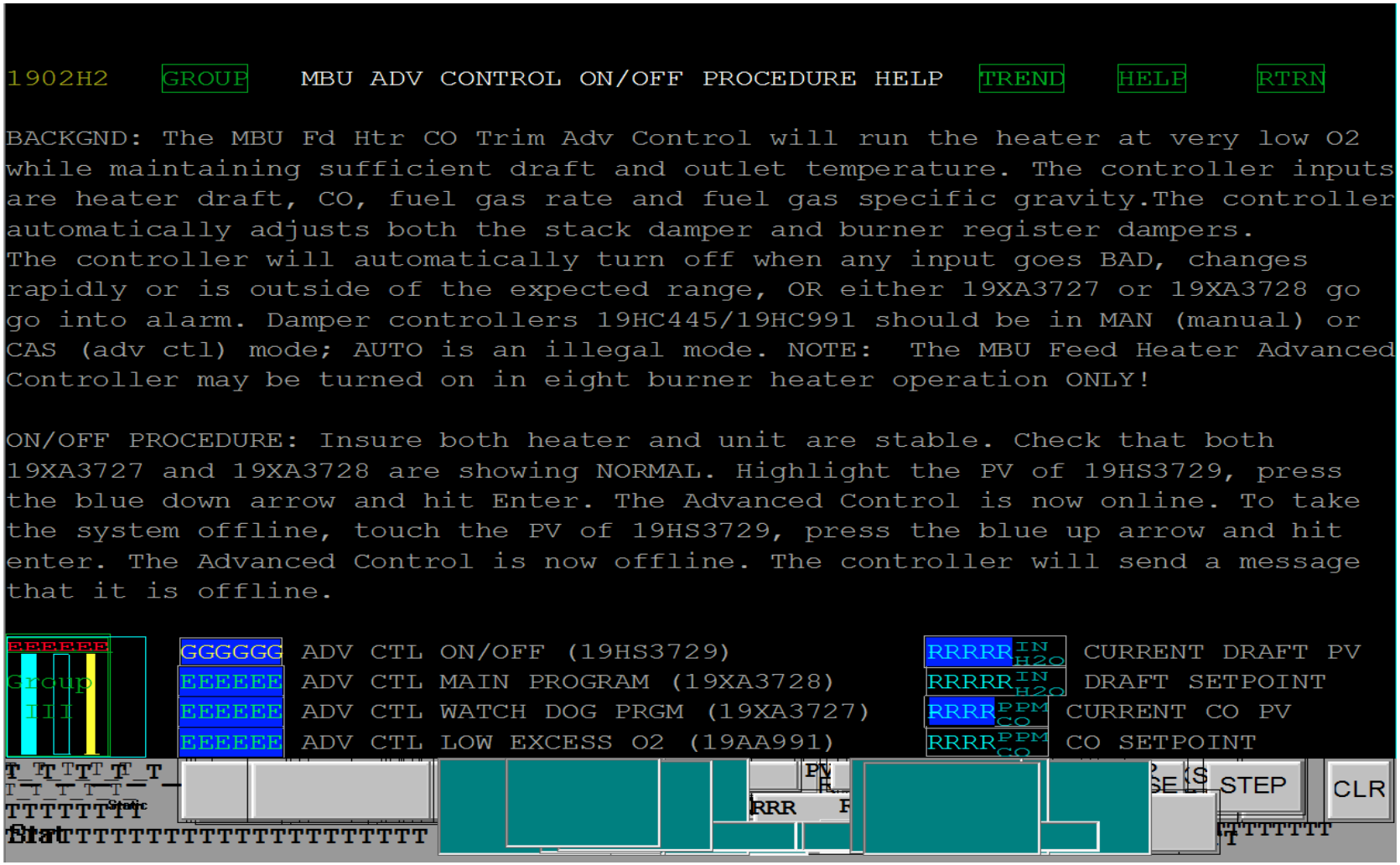
7.4 MIDBARREL FEED HEATER HELP (1902H.DS)



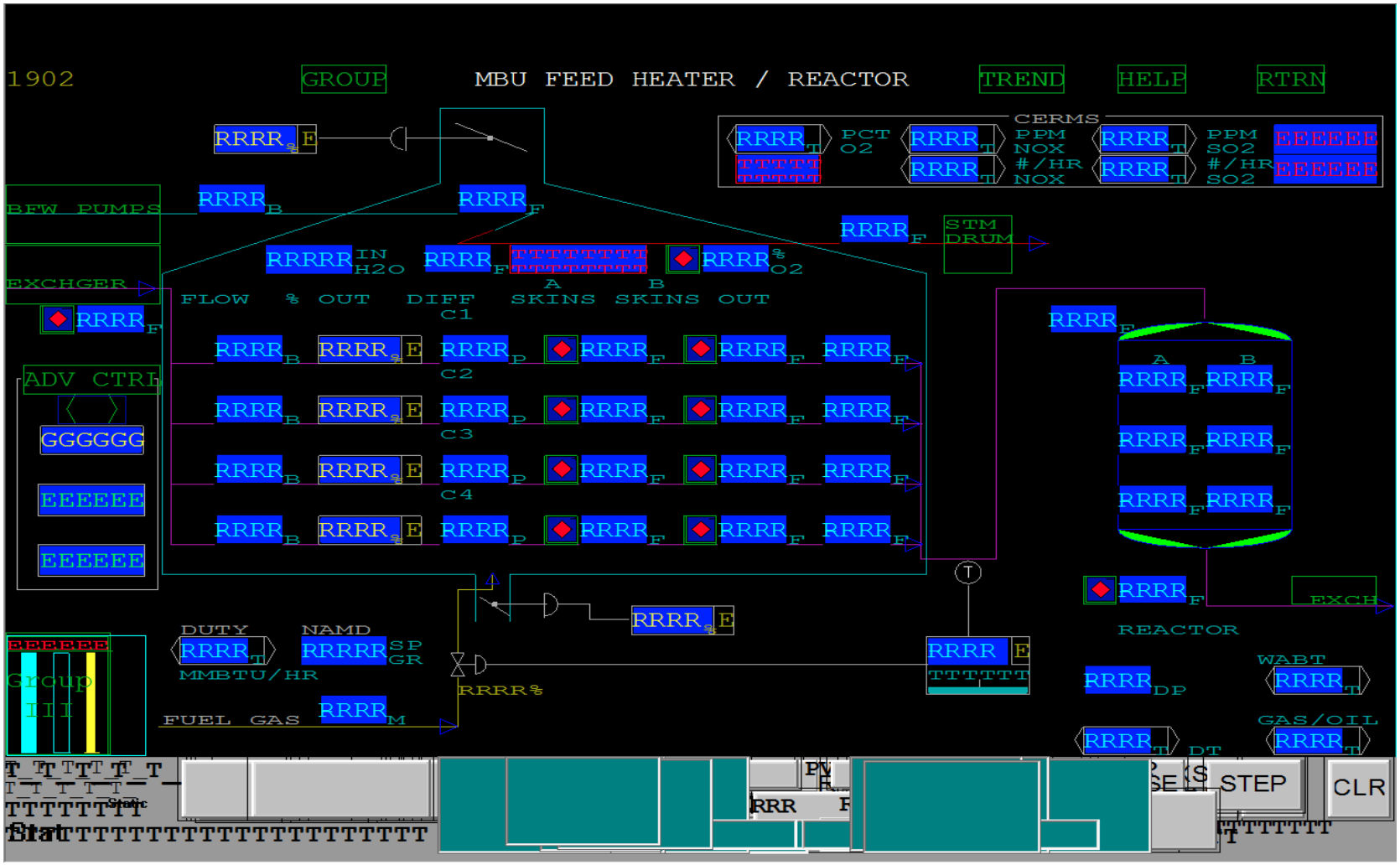
7.5 MBU FEED HEATER ADVANCED CONTROL HELP (1902H1.DS)



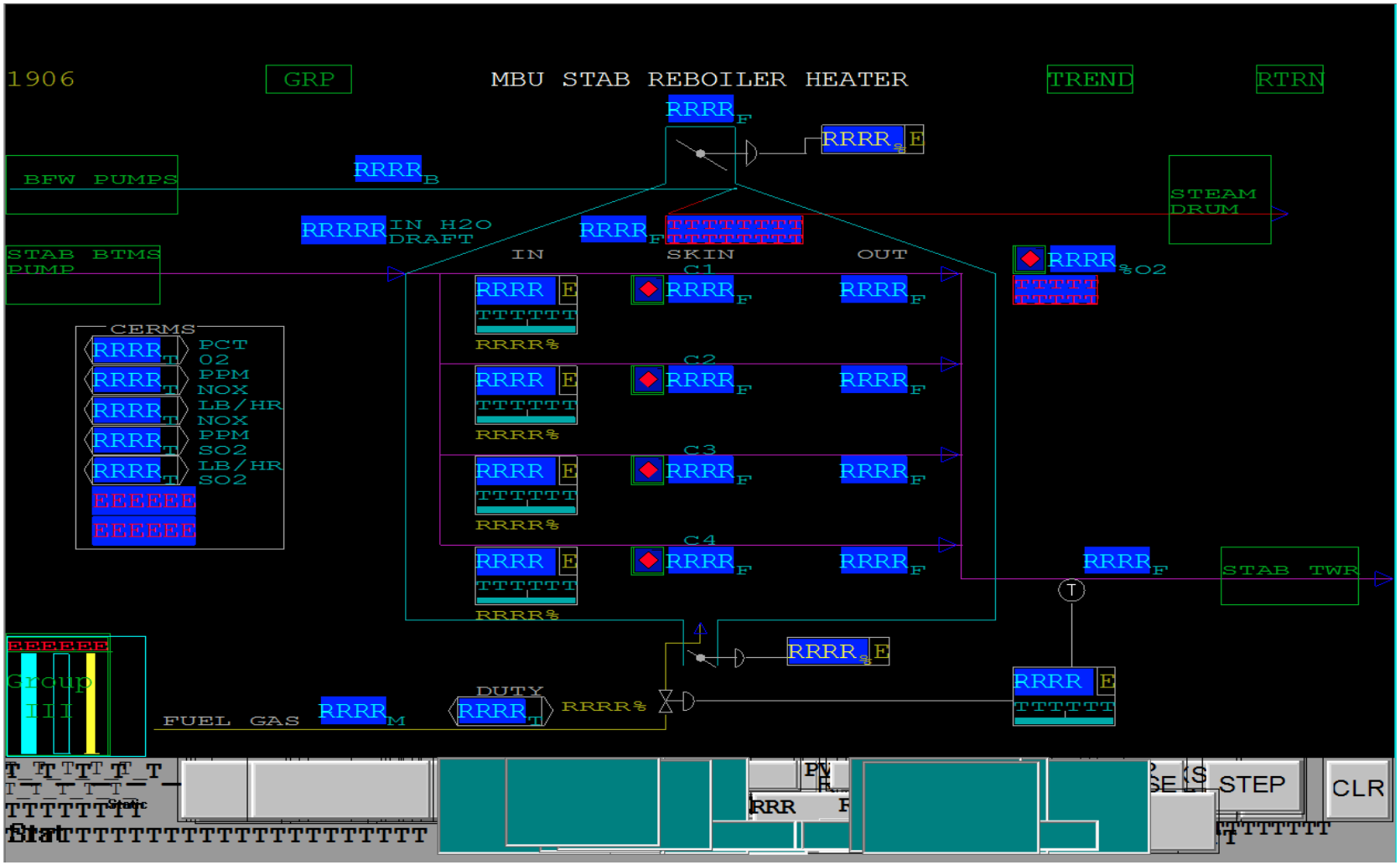
7.6 MBU ADV CONTROL ON/OFF PROCEDURE HELP (1902H2.DS)



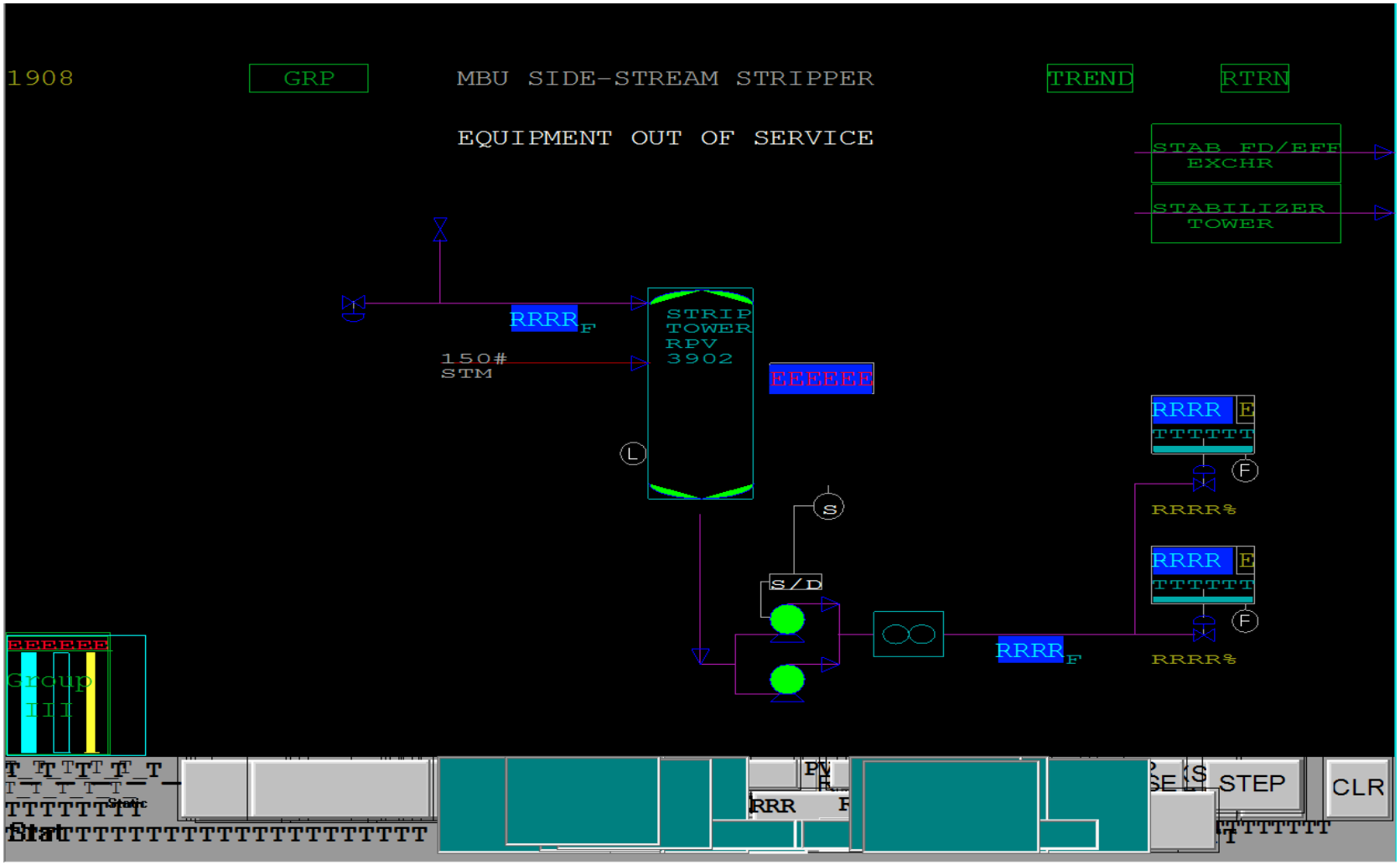
7.7 MBU FEED HEATER / REACTOR (1902OLD.DS)



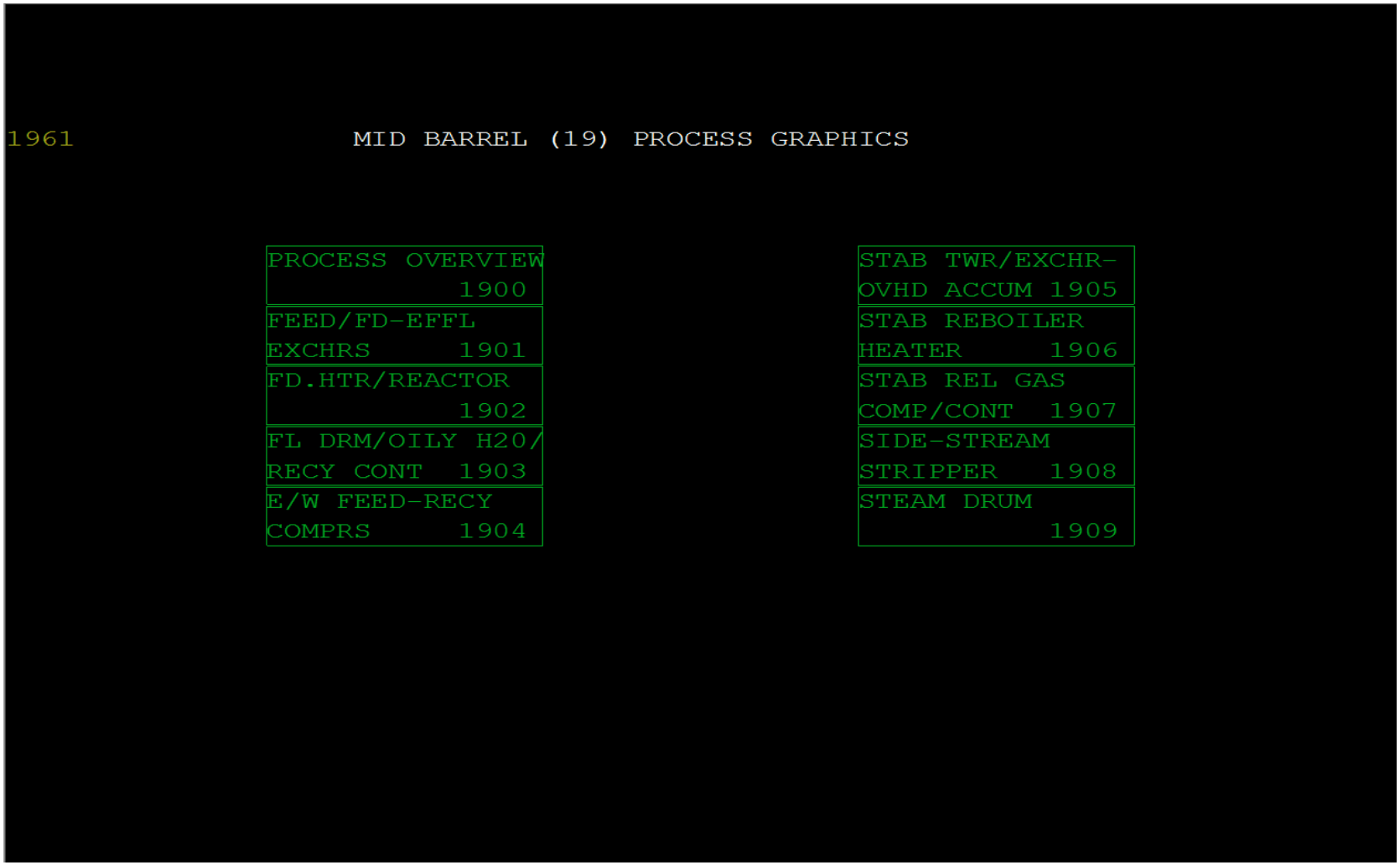
7.8 MBU STAB REBOILER HEATER (1906OLD.DS)



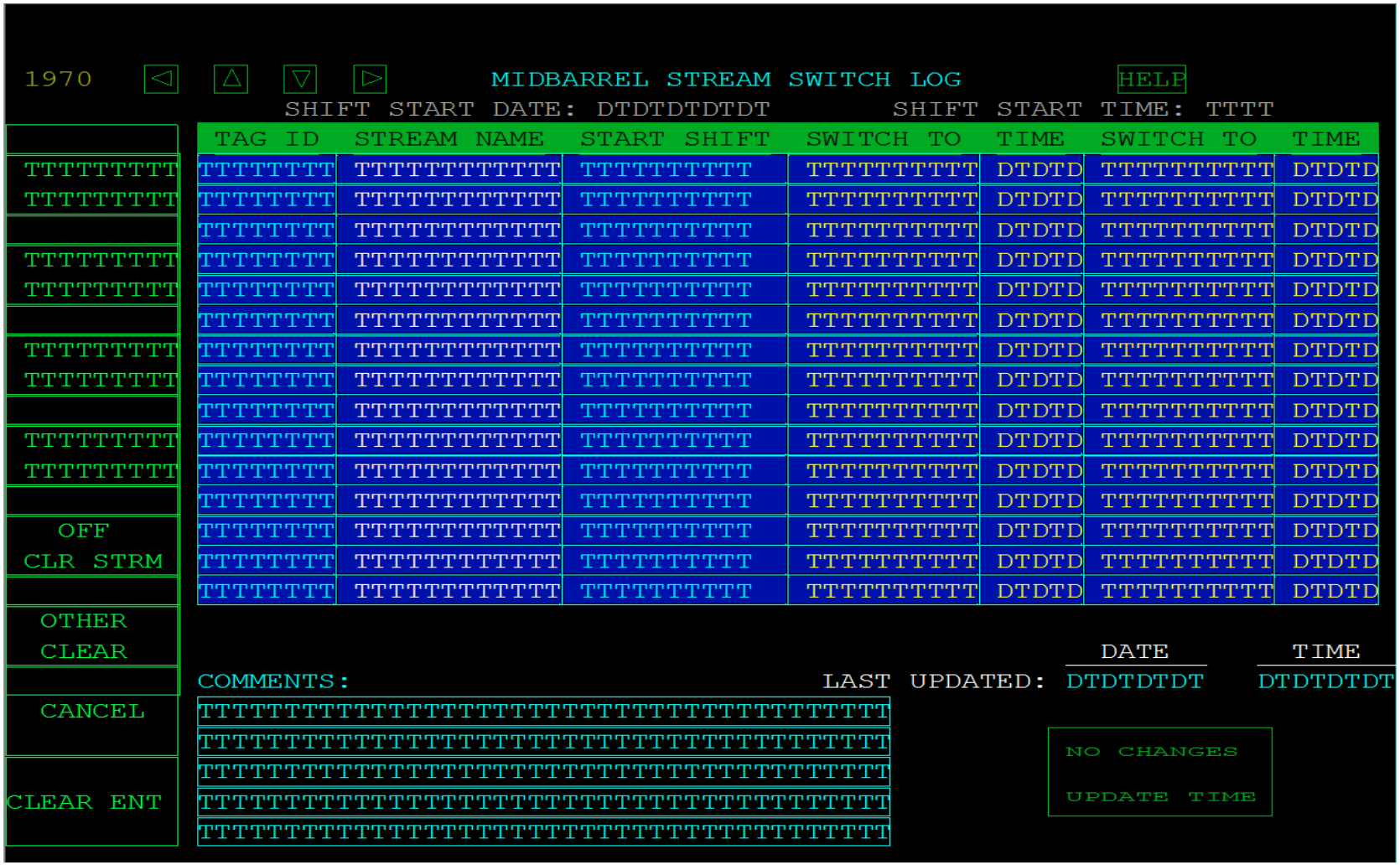
7.9 MBU SIDE-STREAM STRIPPER (1908.DS)



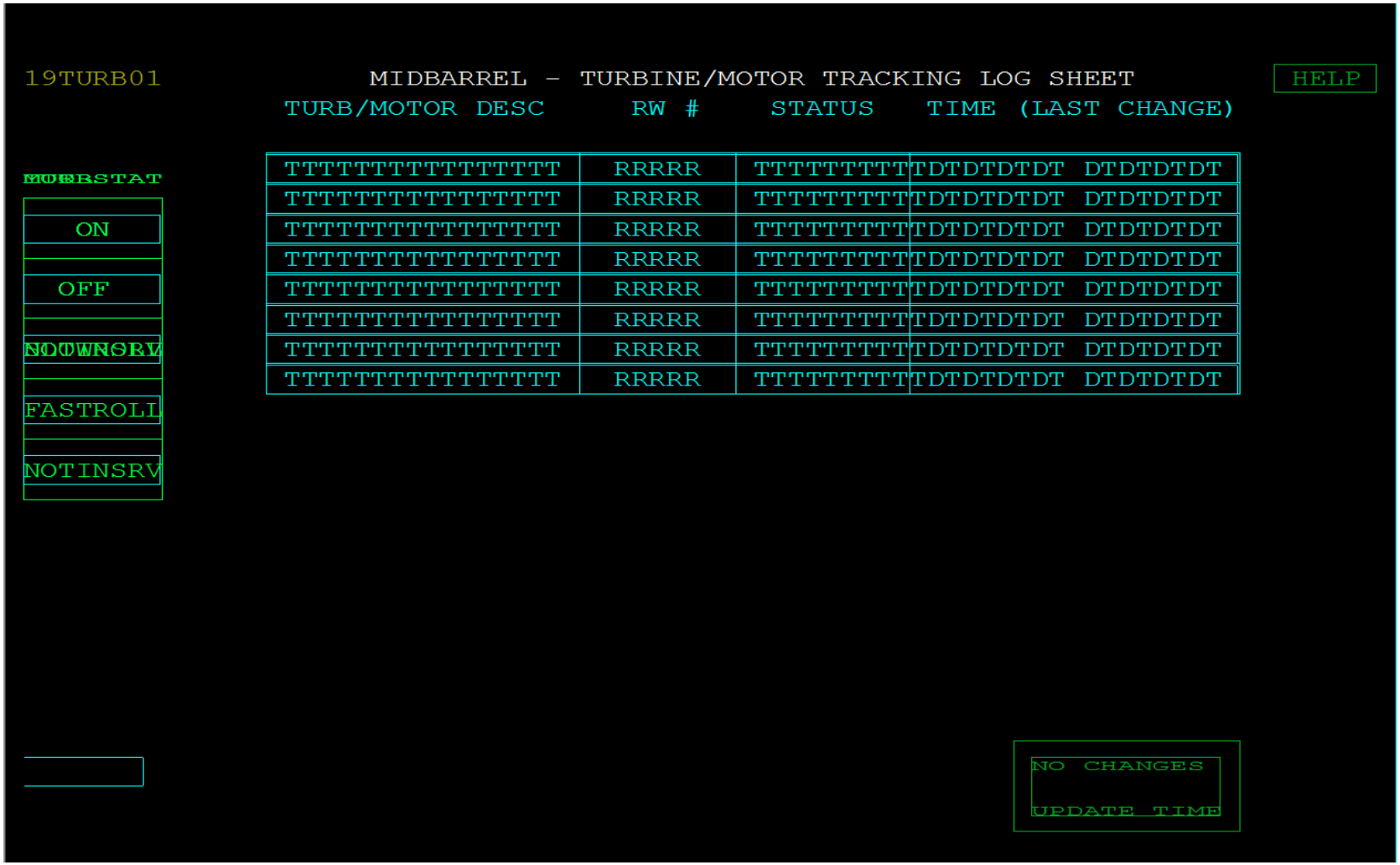
7.10 MID BARREL (19) PROCESS GRAPHICS (1961.DS)



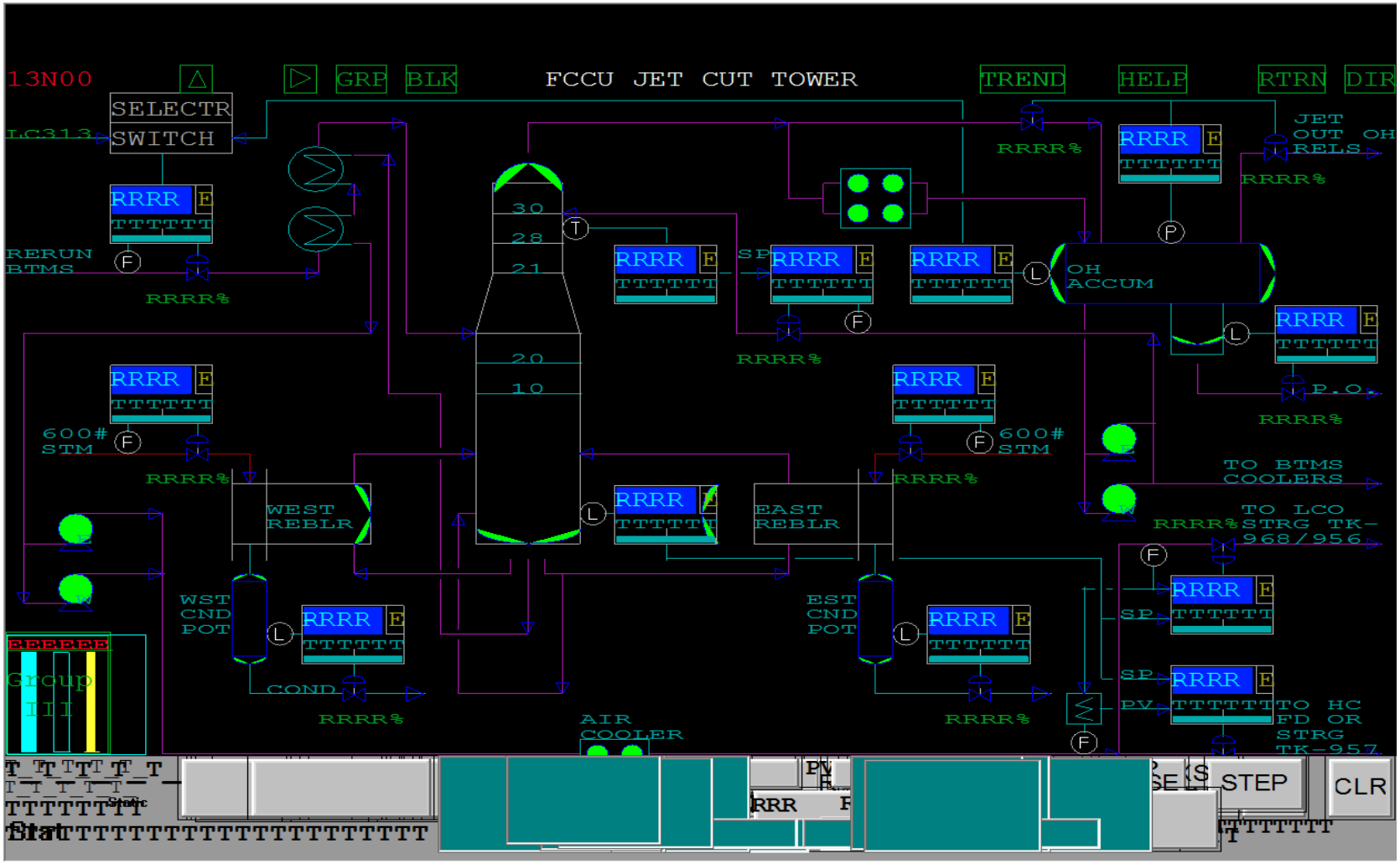
7.11 MIDBARREL STREAM SWITCH LOG (1970.DS)



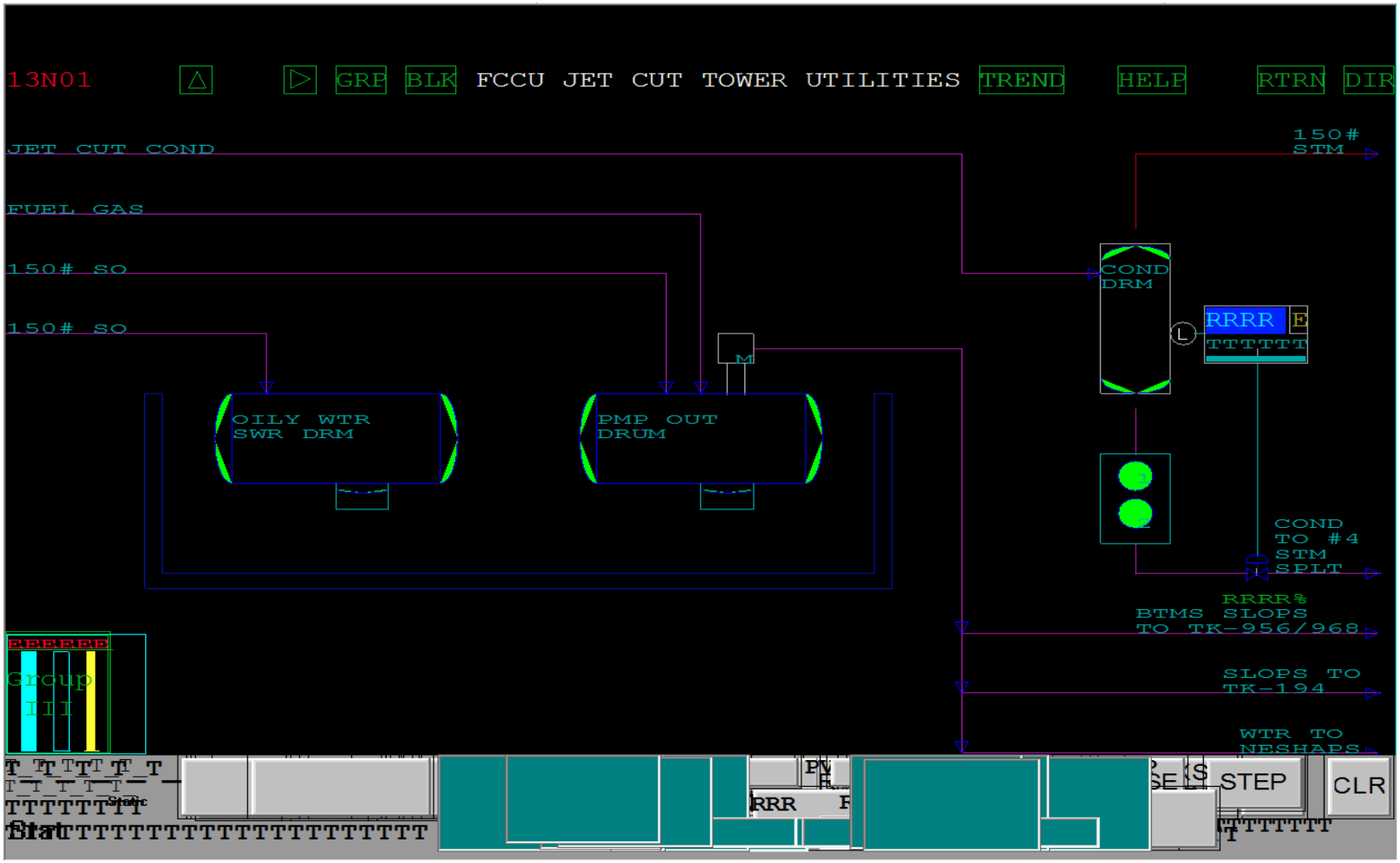
7.12 MIDBARREL - TURBINE/MOTOR TRACKING LOG SHEET (19TURB01.DS)



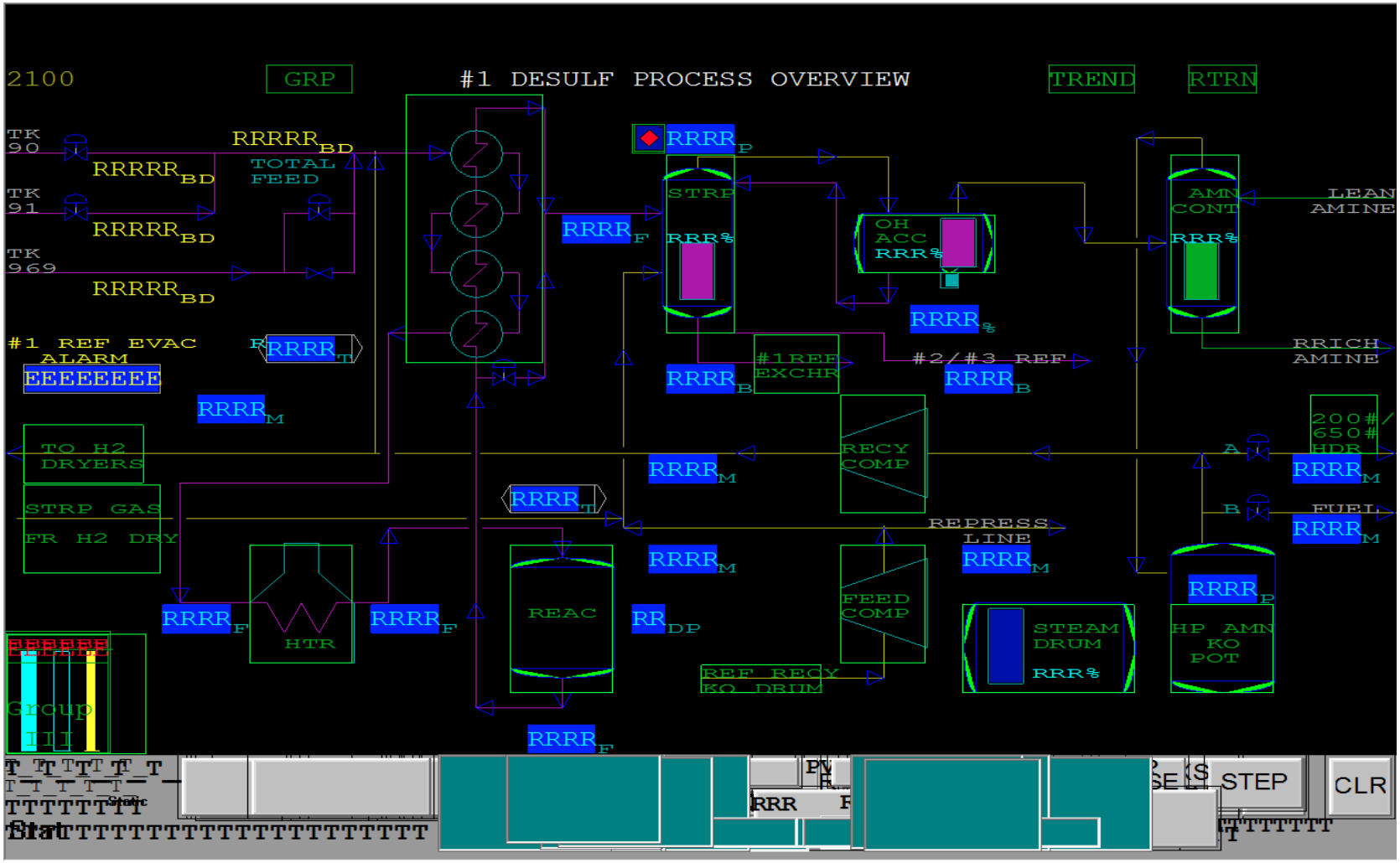
7.13 FCCU JET CUT TOWER (13N00.DS)



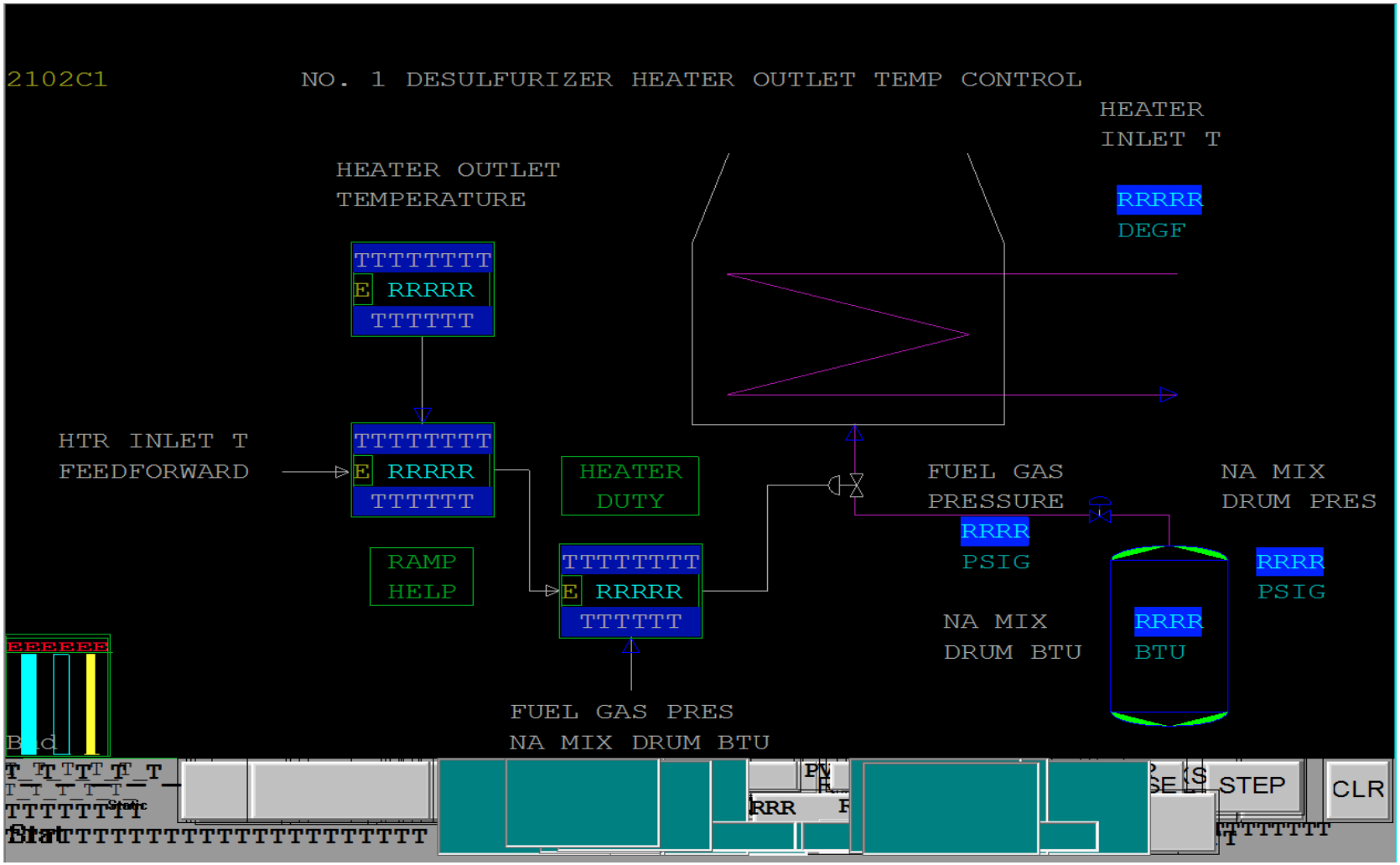
7.14 FCCU JET CUT TOWER UTILITIES (13N01.DS)



7.15 #1 DESULF PROCESS OVERVIEW (2100SDL.DS)



7.16 NO. 1 DESULFURIZER HEATER OUTLET TEMP CONTROL (2102C1.DS)



7.17 NO. 1 DESULF HEATER OUTLET TEMPERATURE SUPERVISORY CONTROLS (2102H1A.DS)

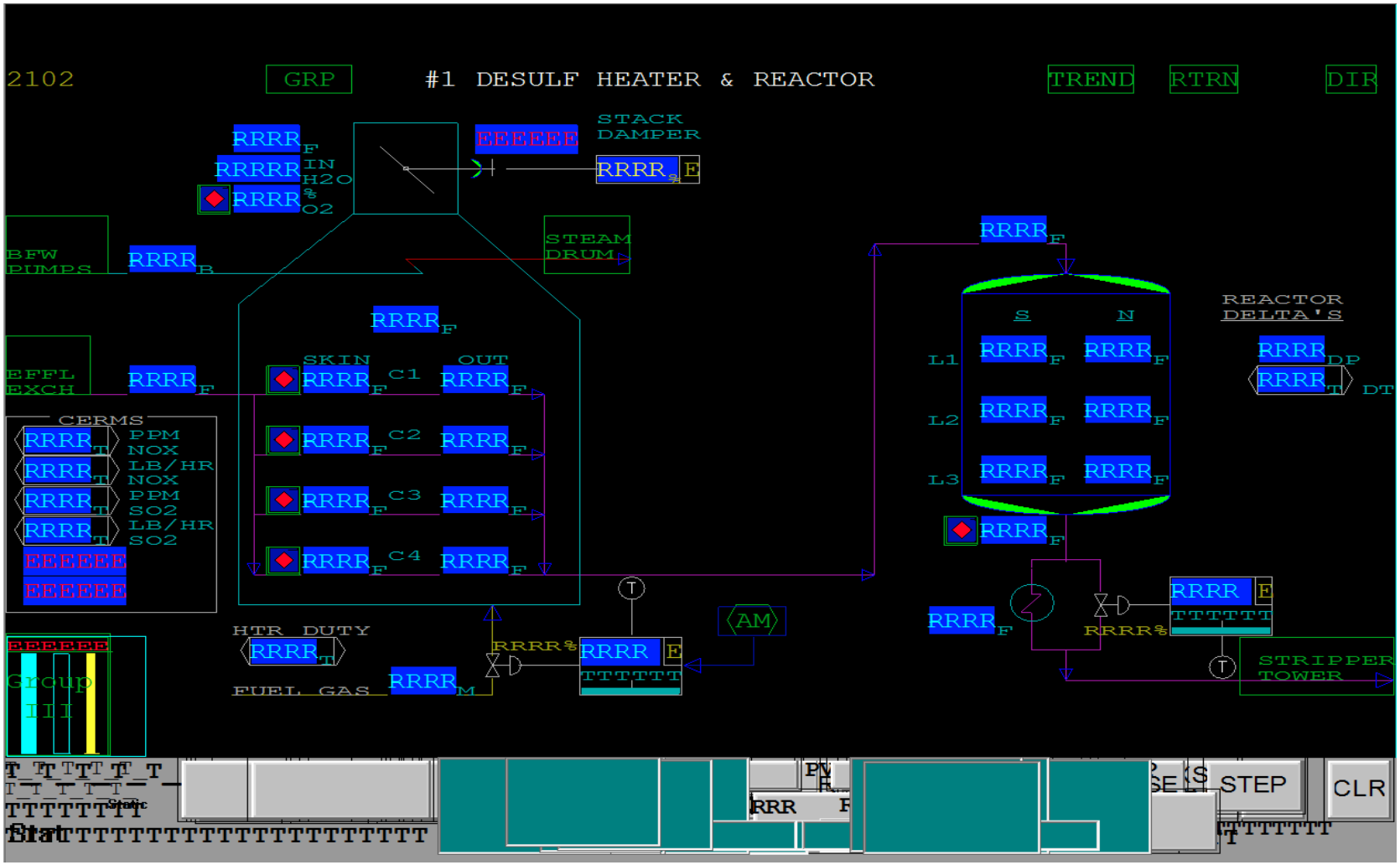
7.18 NO. 1 DESULF HEATER OUTLET TEMPERATURE SUPERVISORY CONTROLS (2102H1B.DS)

```
2102H1B            NO. 1 DESULF HEATER OUTLET TEMPERATURE          PAGE 2 OF 2
                              SUPERVISORY CONTROLS
SETPOINT LIMITS:
 The AM will not accept setpoints beyond the following limits:
                                          Low      High
   Outlet temperature (21TC3600):      RRRRRR - RRRRRR   Deg F
   Duty controller (21QC3050):         RRRRRR - RRRRRR   MMBtu/Hr
AM FAILURE INSTRUCTIONS:
 1.  21TC600 will automatically revert to "AUTO-C".
 2.  Put 21TC600 into "AUTO" if desired.
 3.  Use 21TC600 until AM is restored.
INSTRUMENT FAILURE / MAINTENANCE INSTRUCTIONS:
  Inst.                          Instructions
 21PC451             Put 21TC600 into "AUTO" or "MAN".
 84AI999(A or B)     Put 21TC600 into "AUTO" or "MAN".
 21FI115             Put 21TC600 into "AUTO" or "MAN".
 21TI705             Put 21TC600 into "AUTO" or "MAN" or
                       (OPTION) Put 21QC3050 into "AUTO" and adjust duty setpoint
                       to hold temperature.  Put 21QC3050 back into "CAS" when
                       21TI705 is repaired.
 21TC600             Put 21TC600 into "MAN" or use same OPTION listed for 21TI705.
ANY QUESTIONS OR COMMENTS:
 Contact the Process Control Group:  Richard Anderson    x6720
                                     Dean Syn            x8259
                  PROCESS  TEMP                                      PREV
                  DISPLAY  CONTRLS                                   PAGE
```

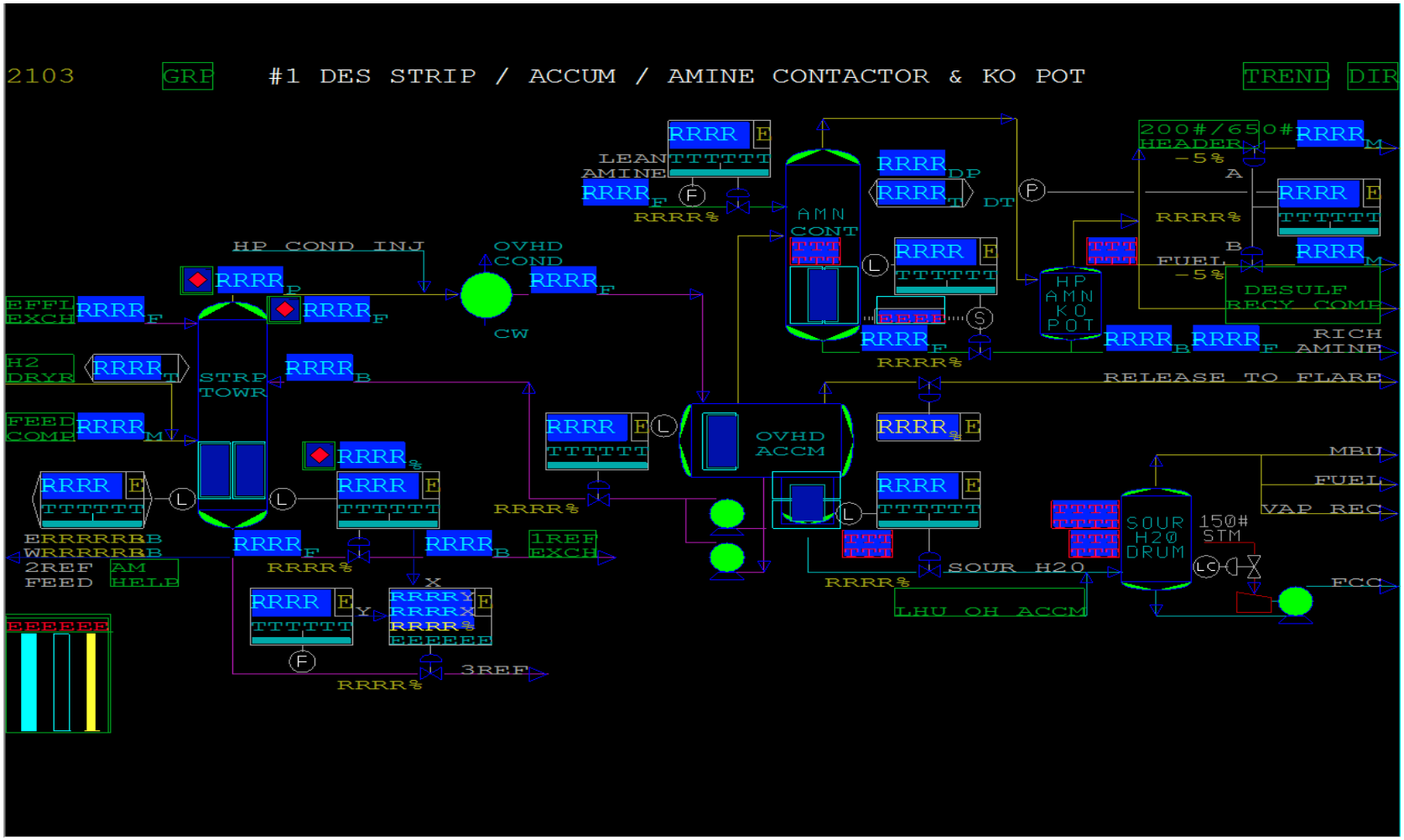
7.19 NO. 1 DESULFURIZER HEATER RAMP HELP (2102H1R.DS)

```
2102H1R              NO. 1 DESULFURIZER HEATER RAMP HELP    PROCESS DISPLAY    CONTROL DISPLAY

DESCRIPTION:
 The setpoint of the heater outlet temperature controller is ramped to a final
 temperature over a predefined time by an Application Module controller. This
 function is designed to provide a consistent cool down or heat up of the
 reactors in a shorter period of time.
ENTRIES:
  SPTV (TARGET TEMP): The final temperature to which the heater will be ramped.

  TVPROC (STATUS OF RAMP): Indication of the status of the ramping function.
    The options are OFF, PRESET, and RUN.
  RAMPTIME (RAMP TIME): The time in minutes over which the temperature is to be
    ramped to the target temperature set point.
To Enable or Modify Control:
    1) Make sure 21TC600 is stable and in MAN or AUTO mode.
    2) Select 21TC3600 in group 117, put in AUTO & change the setpoint to match
       the setpoint of 21TC600. SPTV, TVPROC, & RAMPTIME can now be entered at
       the bottom of the group 117 display.
    3) Put TVPROC in PRESET mode.
    4) Enter the target temp, SPTV, in degrees F.
    5) Enter the RAMPTIME in minutes.
    6) Put TVPROC in RUN mode.
 At this point, the program will begin the ramp function.
To Disable Control:
    1) Put temperature controller 21TC600 in AUTO or MANUAL.
```

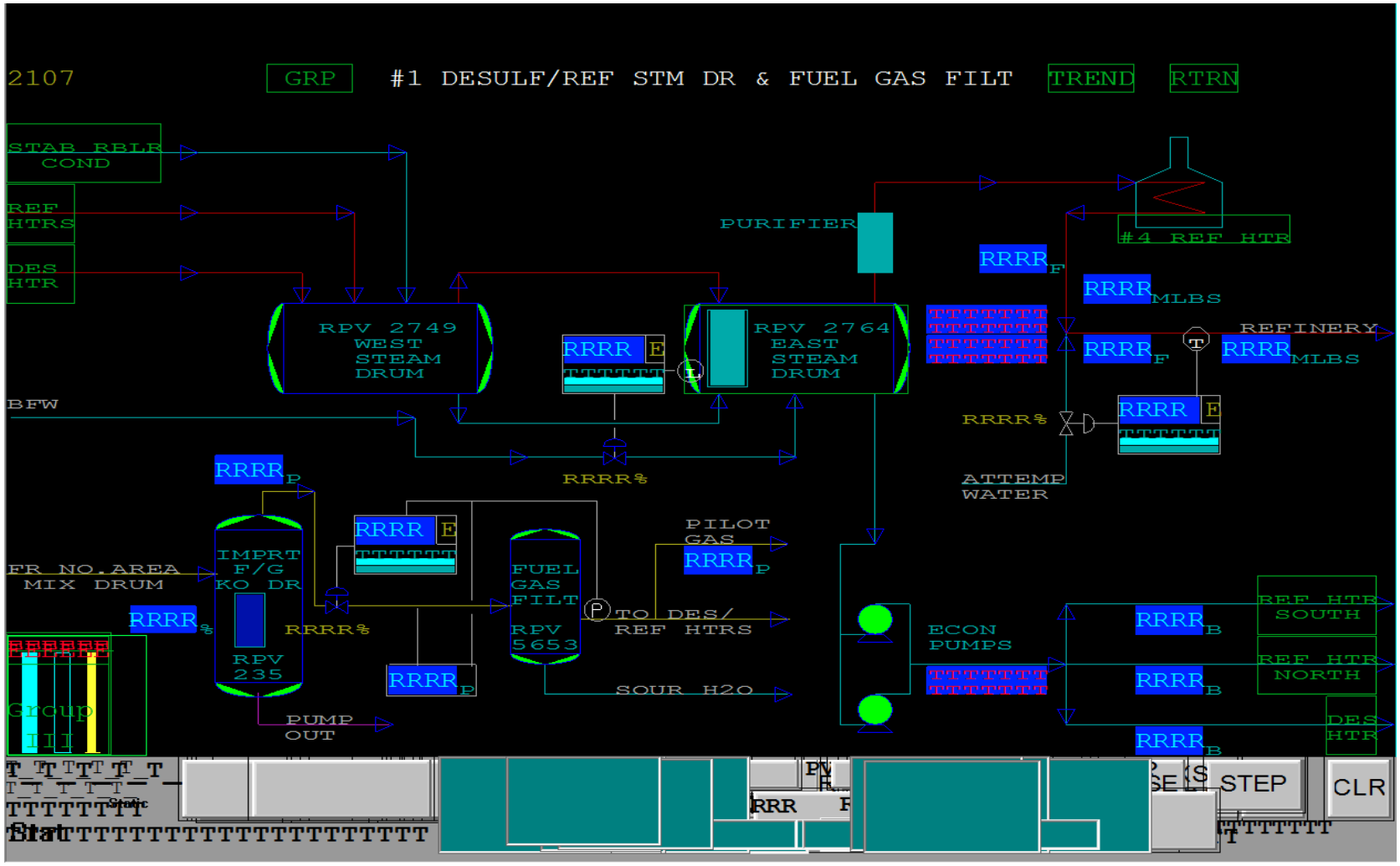
7.20 #1 DESULF HEATER & REACTOR (2102T.DS)



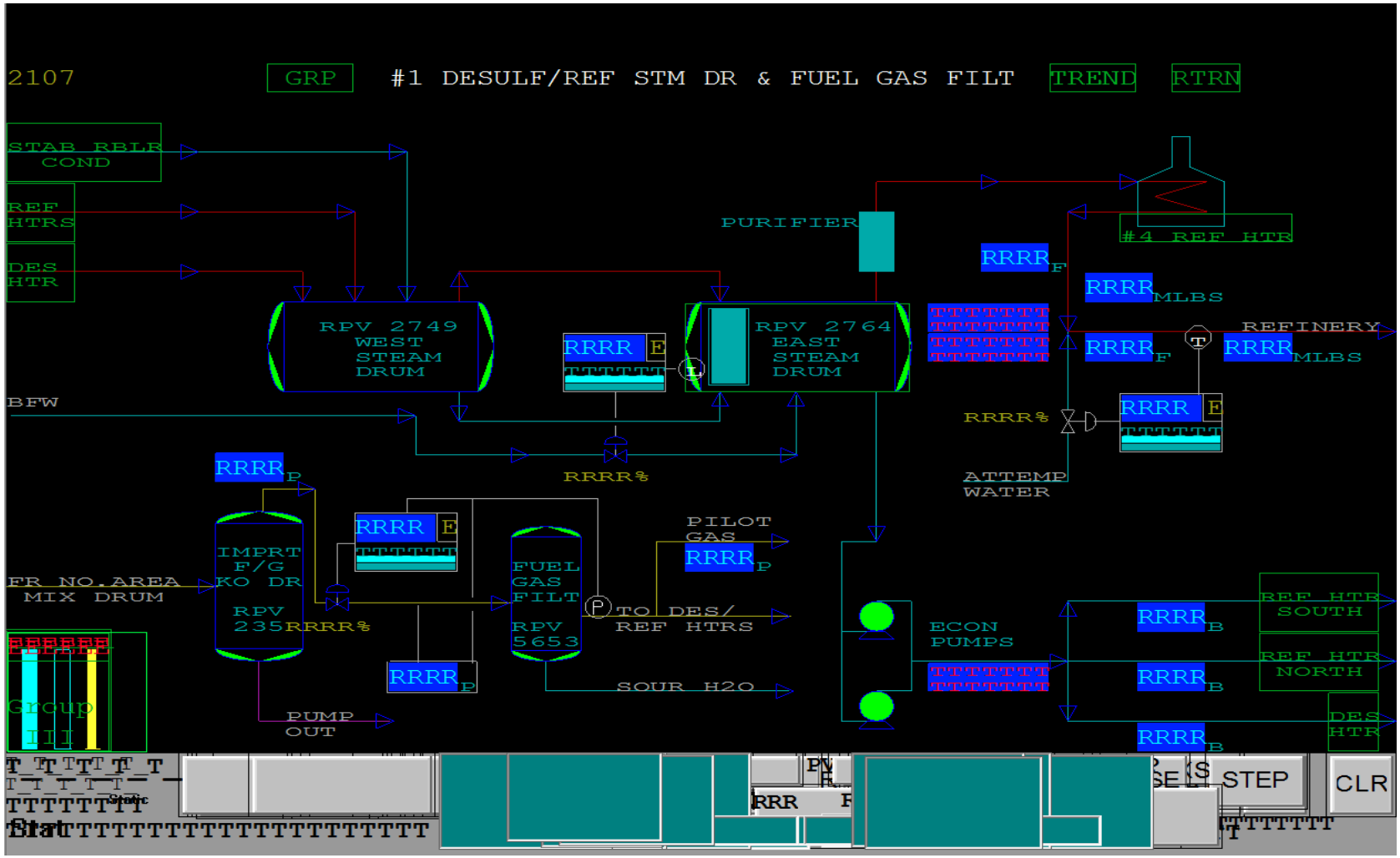
7.21 #1 DES STRIP / ACCUM / AMINE CONTACTOR & KO POT (2103T.DS)



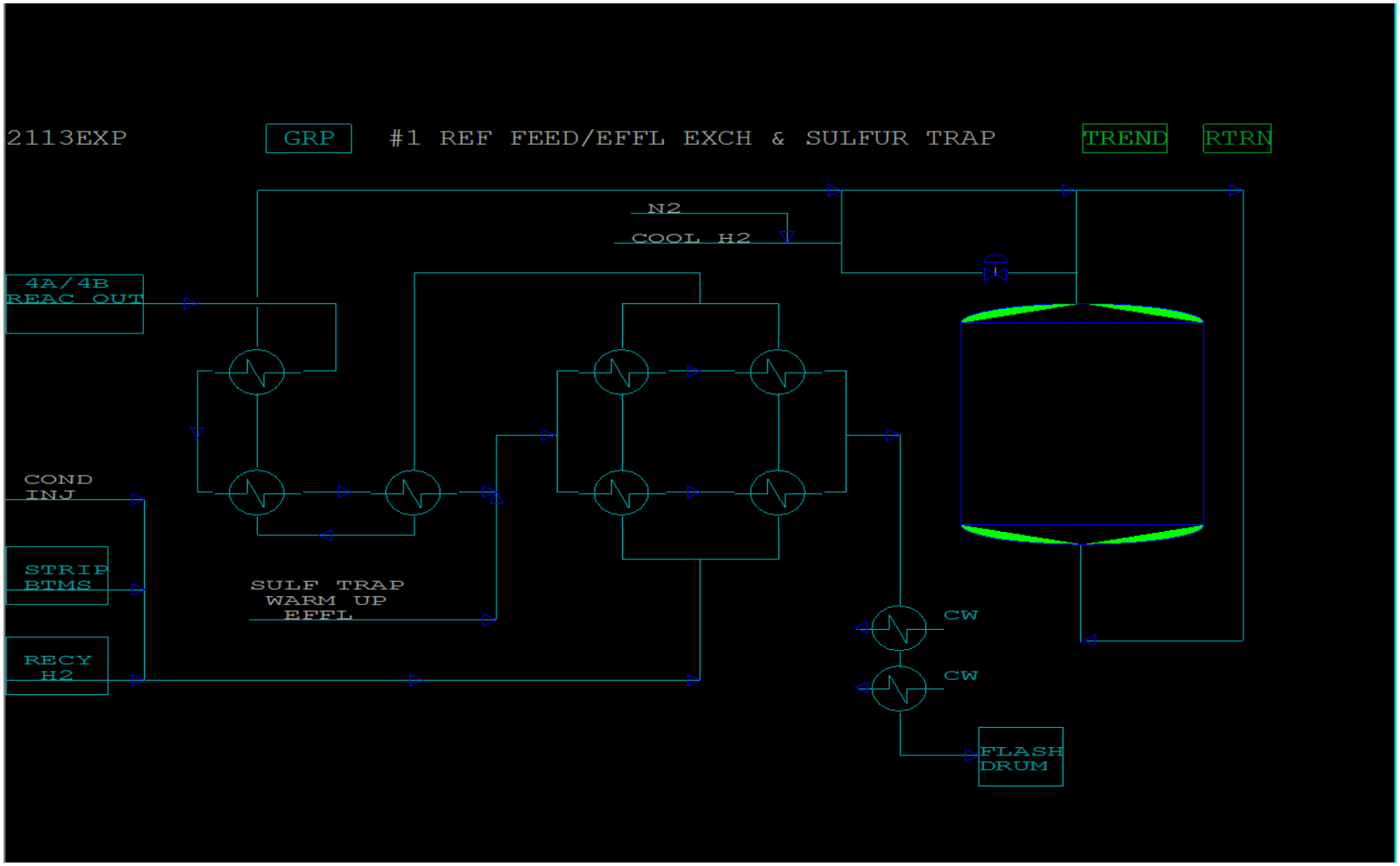
7.22 #1 DESULF/REF STM DR & FUEL GAS FILT (2107MBU.DS)



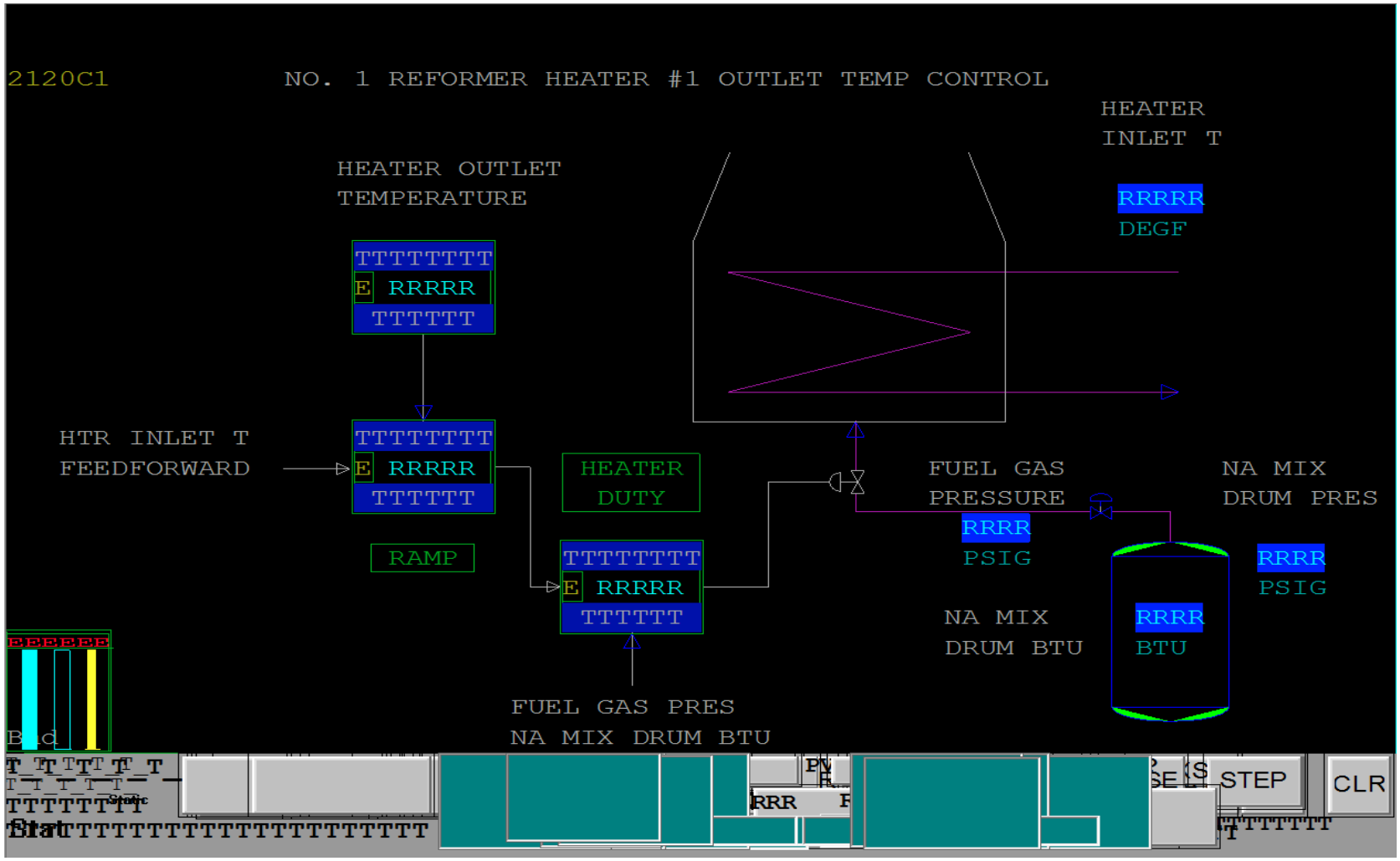
7.23 #1 DESULF/REF STM DR & FUEL GAS FILT (2107OLD.DS)



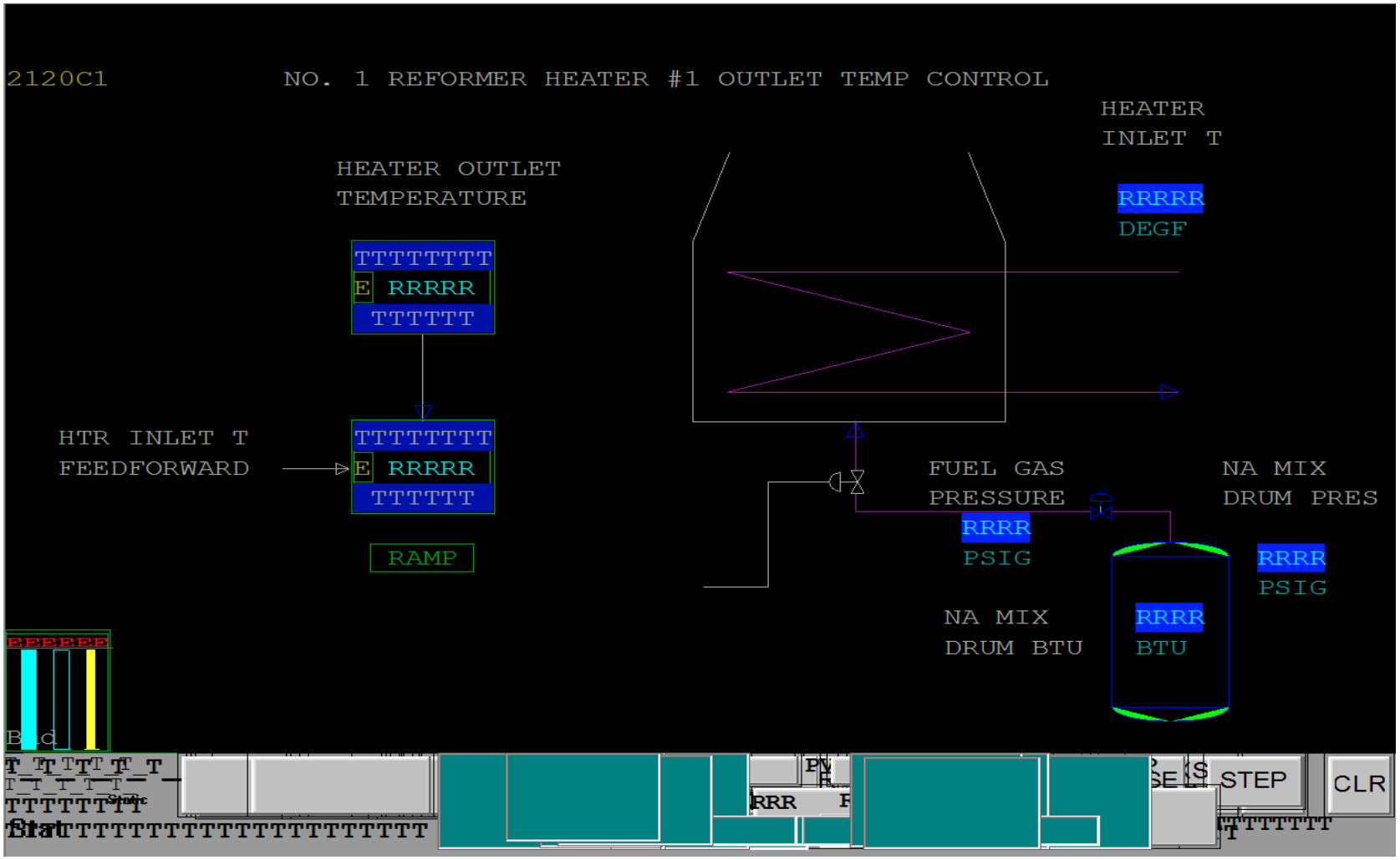
7.24 #1 REF FEED/EFFL EXCH & SULFUR TRAP (2113EXP.DS)



7.25 NO. 1 REFORMER HEATER #1 OUTLET TEMP CONTROL (2120C1.DS)



7.26 NO. 1 REFORMER HEATER #1 OUTLET TEMP CONTROL (2120C1T.DS)



7.27 NO. 1 REFORMER HEATER #1 OUTLET TEMPERATURE SUPERVISORY CONTROLS (2120H1A.DS)

```
2120H1A          NO. 1 REFORMER HEATER #1 OUTLET TEMPERATURE        PAGE 1 OF 2
                              SUPERVISORY CONTROLS

DESCRIPTION:
 Controls the No. 1 Reform htr #1 out temp using a temperature to duty cascade
 with a feedforward correction for the heater inlet temperature.  These super-
 visory controls reside in Application Module 24.  Refer to Schematic 2120C1.

BENEFITS:
 Reduces temperature swings while also minimizing fuel gas and stack o2 swings.

TO TURN AM CONTROL ON:
 1.  Call up Group 186 display or Schematic 2120 and touch the green AM symbol.
 2.  Verify that 21TC3621 & 21QC3051 are in "CAS".
       "CAS" is the "NORM" mode for these two controllers.
 3.  Put 21TC611 into "CAS" or "NORM" mode.
       NOTE: the AM controller takes its setpoint from 21TC611.
TO TURN AM CONTROLLER OFF:
 1.  Call up Group 186 display or Schematic 2120.
 2.  Put 21TC611 into "AUTO" or "MAN".  All cacades will be broken.

TO CHANGE AM TEMPERATURE CONTROLLER SETPOINT:
 1.  Change the setpoint for 21TC611.  The AM controller reads this setpoint.

                 PROCESS  TEMP                                      NEXT
                 DISPLAY  CONTRLS                                   PAGE
```

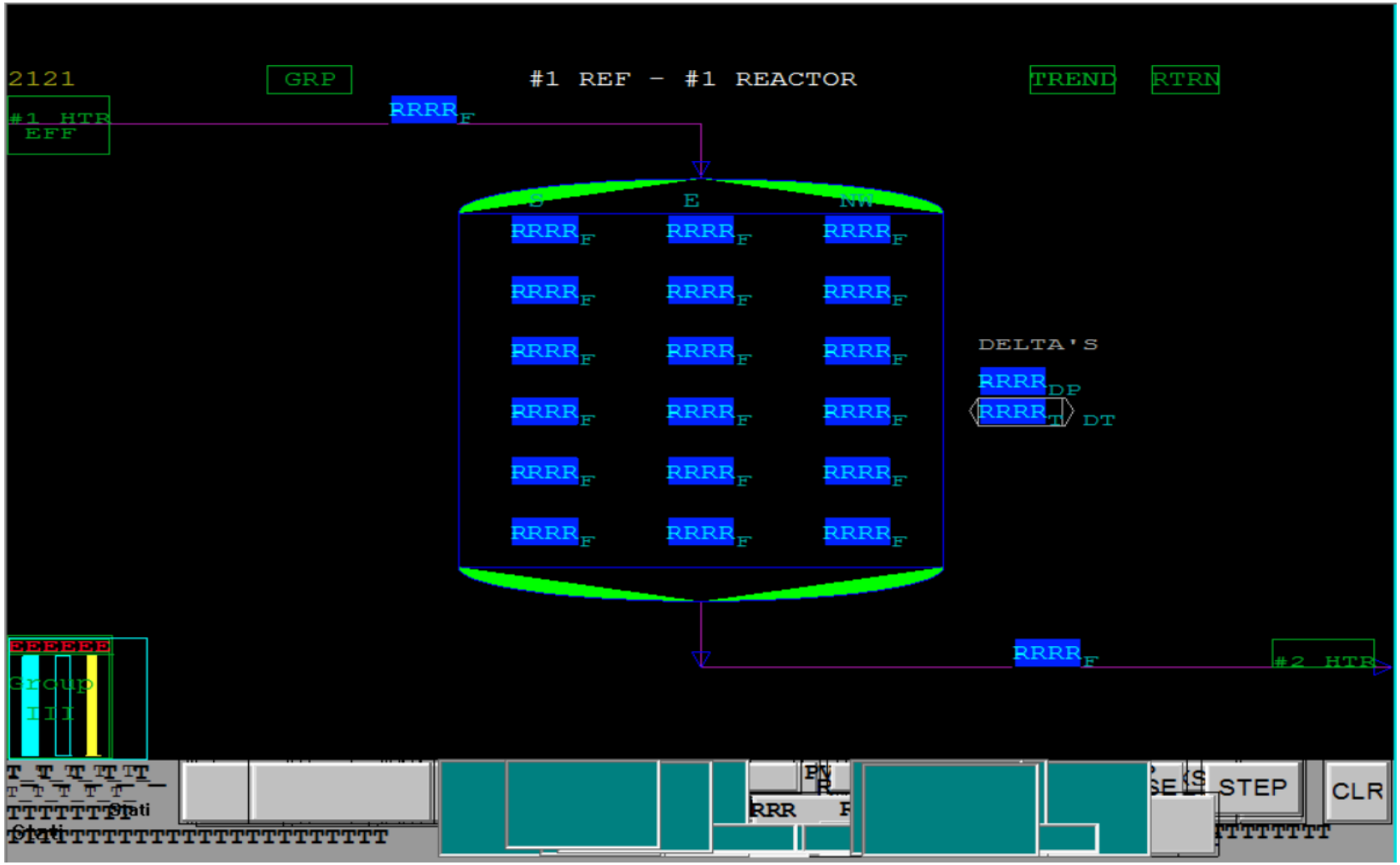
7.28 NO. 1 REFORMER HEATER #1 OUTLET TEMPERATURE SUPERVISORY CONTROLS (2120H1B.DS)

```
2120H1B          NO. 1 REFORMER HEATER #1 OUTLET TEMPERATURE          PAGE 2 OF 2
                              SUPERVISORY CONTROLS
SETPOINT LIMITS:
 The AM will not accept setpoints beyond the following limits:
                                        Low       High
   Outlet temperature (21TC3621):     RRRRRR  -  RRRRRR   Deg F
   Duty controller (21QC3051):        RRRRRR  -  RRRRRR   MMBtu/Hr
AM FAILURE INSTRUCTIONS:
 1.  21TC611 will automatically revert to "AUTO-C".
 2.  Put 21TC611 into "AUTO" if desired.
 3.  Use 21TC611 until AM is restored.
INSTRUMENT FAILURE / MAINTENANCE INSTRUCTIONS:
  Inst.                        Instructions
 21PC451            Put 21TC611 into "AUTO" or "MAN".
 84AI999(A or B)    Put 21TC611 into "AUTO" or "MAN".
 21FI131            Put 21TC611 into "AUTO" or "MAN".
 21TI930            Put 21TC611 into "AUTO" or "MAN" or
                      (OPTION) Put 21QC3051 into "AUTO" and adjust duty setpoint
                      to hold temperature.  Put 21QC3051 back into "CAS" when
                      21TI930 is repaired.
 21TC611            Put 21TC611 into "MAN" or use same OPTION listed for 21TI930.
ANY QUESTIONS OR COMMENTS:
 Contact the Process Control Group:  Richard Anderson    x6720
                                     Dean Syn            x8259
                  PROCESS  TEMP                                        PREV
                  DISPLAY  CONTRLS                                     PAGE
```

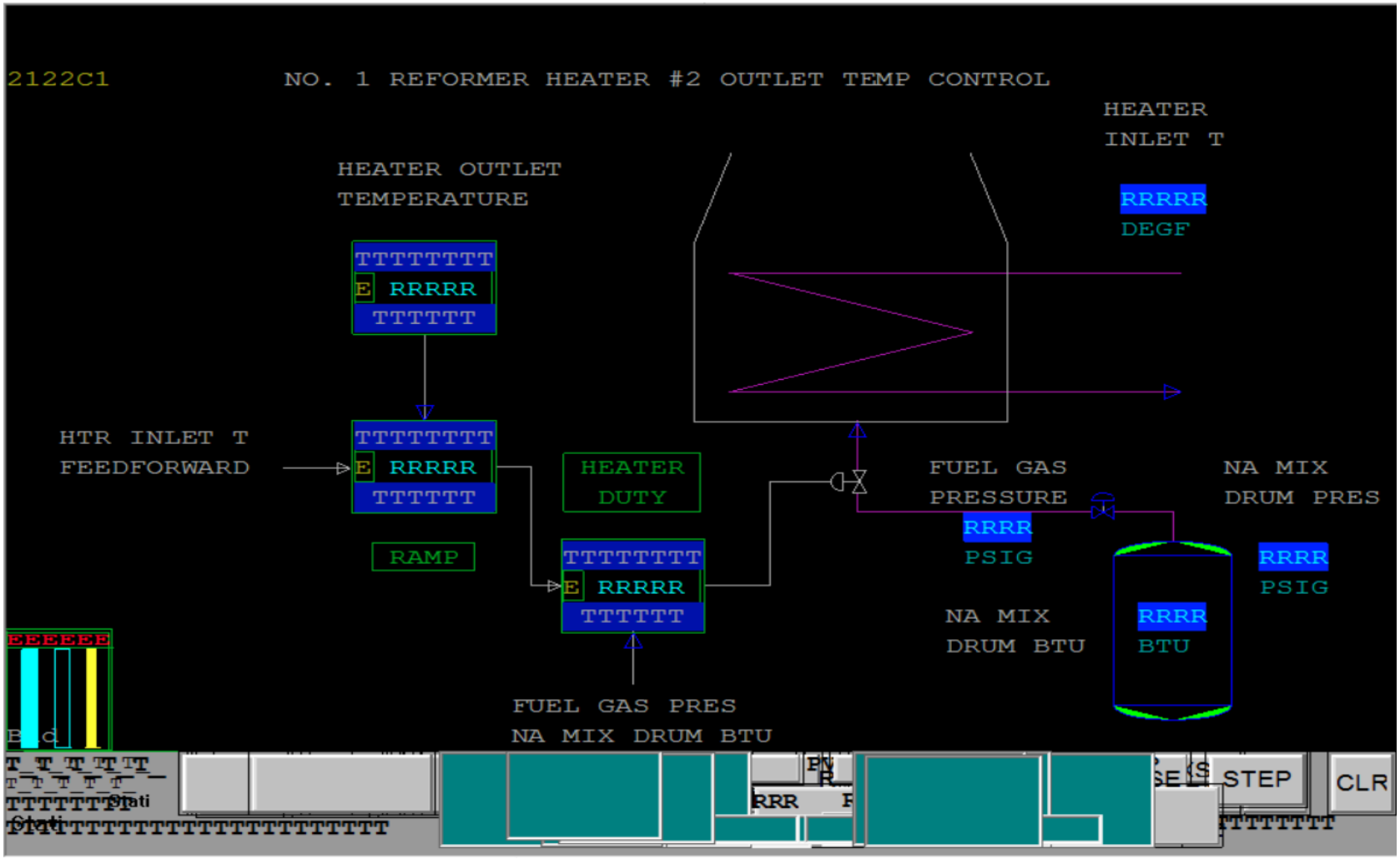
7.29 NO. 1 REFORMER HEATER #1 RAMP HELP (2120H1R.DS)

```
2120H1R                NO. 1 REFORMER HEATER #1 RAMP HELP

DESCRIPTION:
 The setpoint of the heater outlet temperature controller is ramped to a final
 temperature over a predefined time by an Application Module controller. This
 function is designed to provide a consistent cool down or heat up of the
 reactors in a shorter period of time.
ENTRIES:
  SPTV (TARGET TEMP): The final temperature to which the heater will be ramped.

  TVPROC (STATUS OF RAMP): Indication of the status of the ramping function.
    The options are OFF, PRESET, and RUN.
  RAMPTIME (RAMP TIME): The time in minutes over which the temperature is to be
    ramped to the target temperature set point.
To Enable or Modify Control:
    1) Place 21TC3621 in AUTO mode and select 21TC3621 from GROUP XXX.
 At this point, SPTV, TVPROC, and RAMPTIME can be input from the group display.
    2) Put TVPROC in PRESET mode.
    3) Enter the target temp, SPTV, in degrees F.
    4) Enter the RAMPTIME in minutes.
    5) Put TVPROC in RUN mode.
 At this point, the program will begin the ramp function.
To Disable Control:
    1) Put TVPROC in OFF mode.
       OR take the temperature controller out of AUTO mode.
                          [PROCESS DISPLAY]  [CONTROL DISPLAY]
```

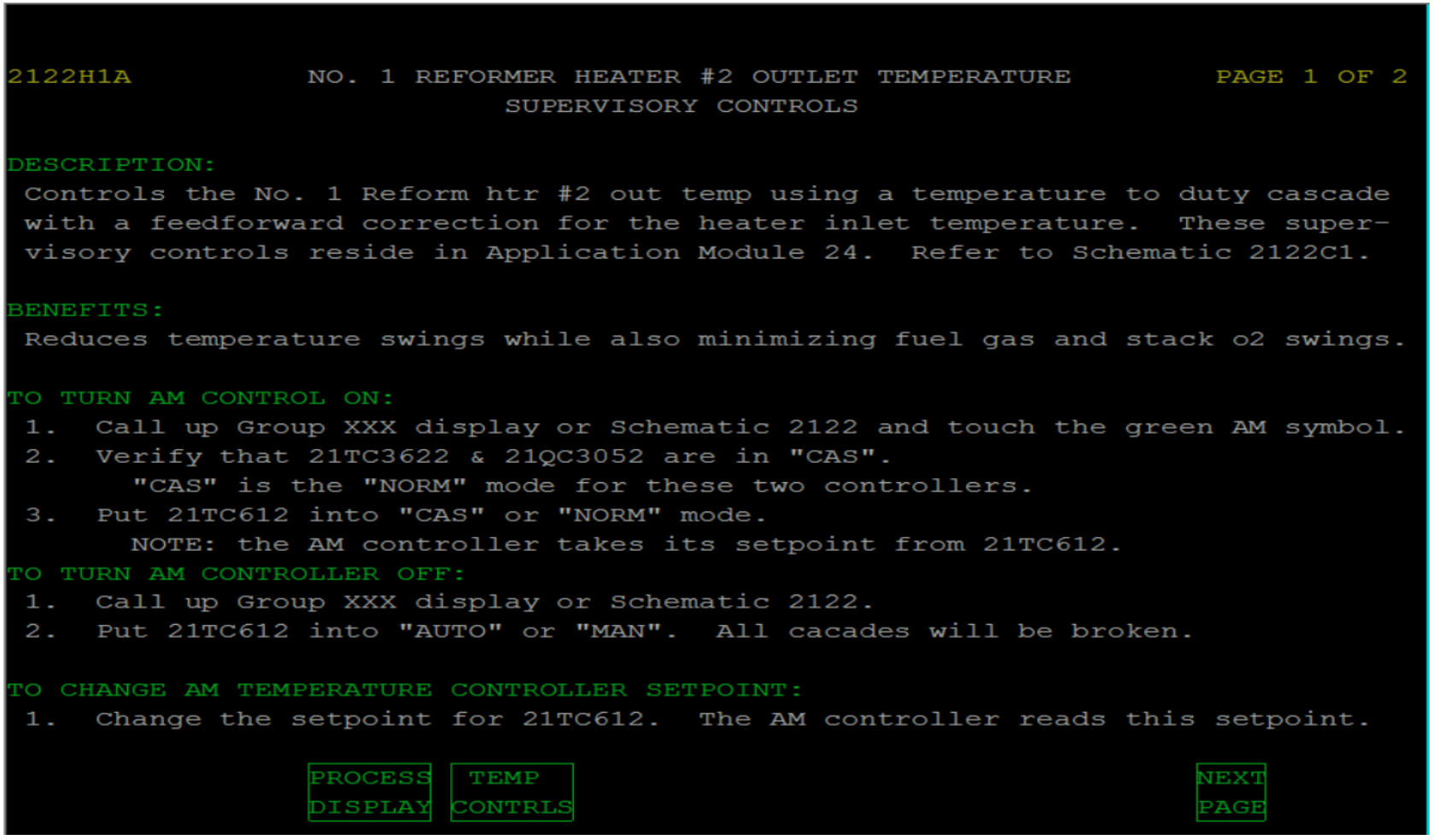
7.30 #1 REF - #1 REACTOR (2121OLD.DS)



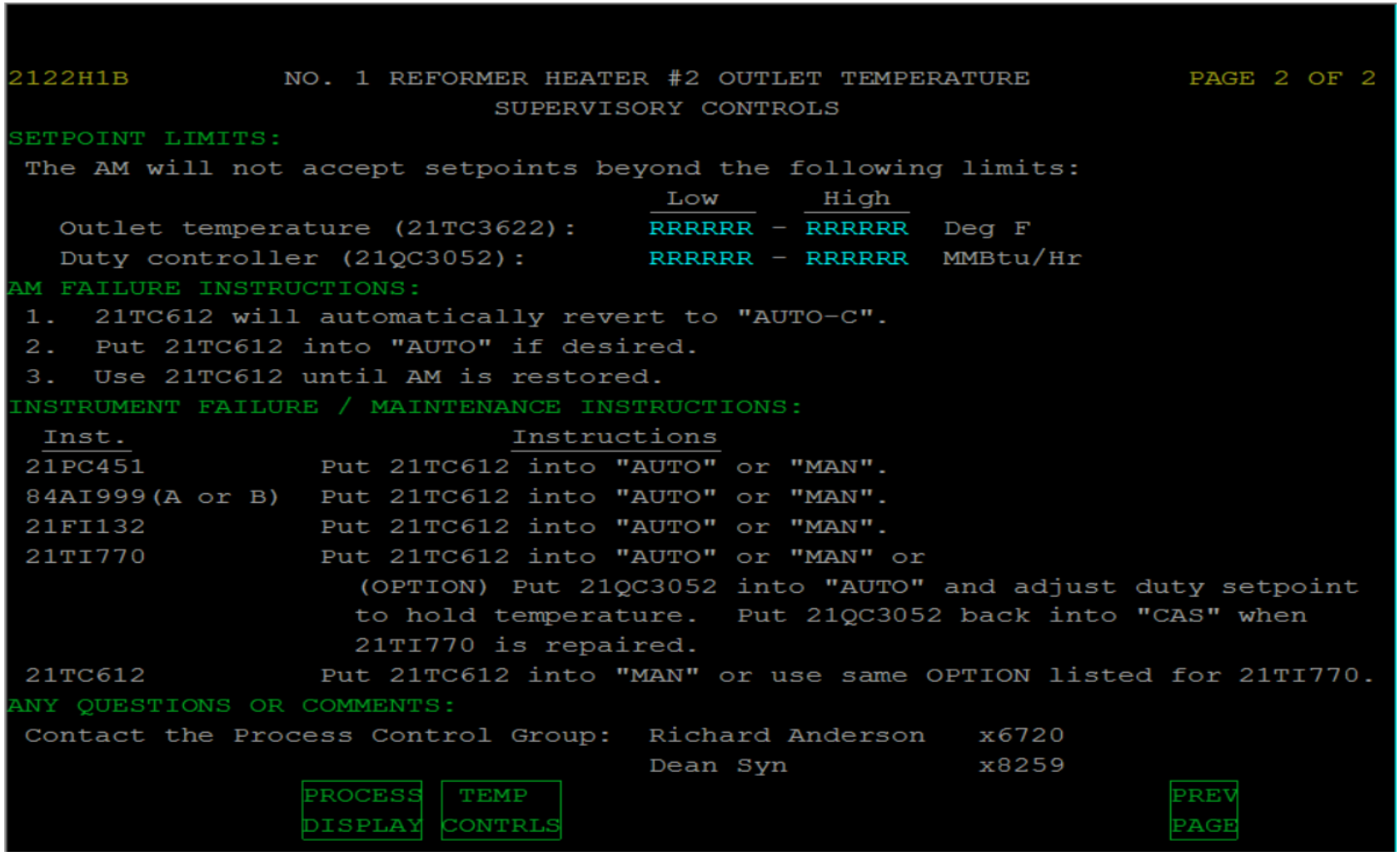
7.31 NO. 1 REFORMER HEATER #2 OUTLET TEMP CONTROL (2122C1.DS)



7.32 NO. 1 REFORMER HEATER #2 OUTLET TEMPERATURE SUPERVISORY CONTROLS (2122H1A.DS)



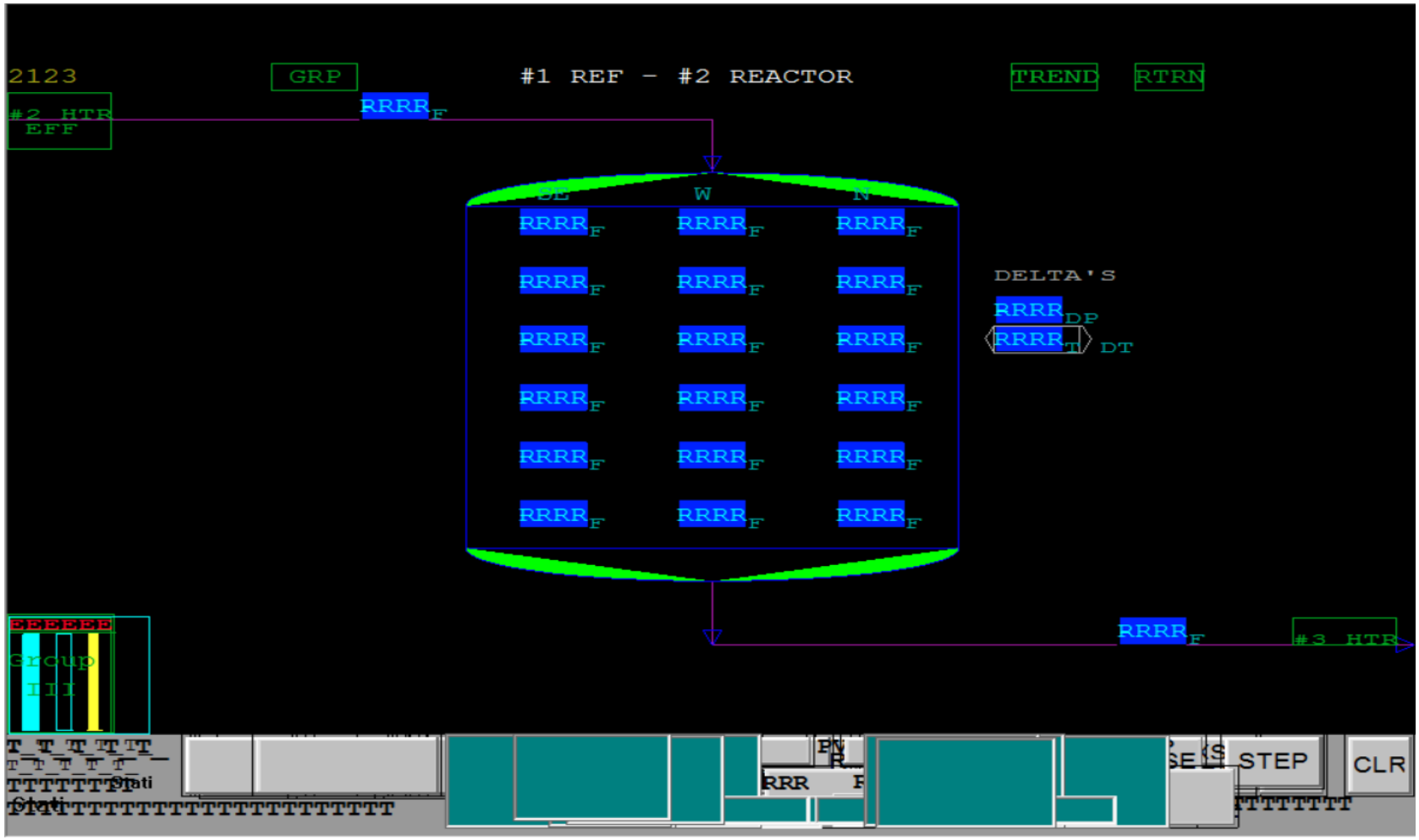
7.33 NO. 1 REFORMER HEATER #2 OUTLET TEMPERATURE SUPERVISORY CONTROLS (2122H1B.DS)



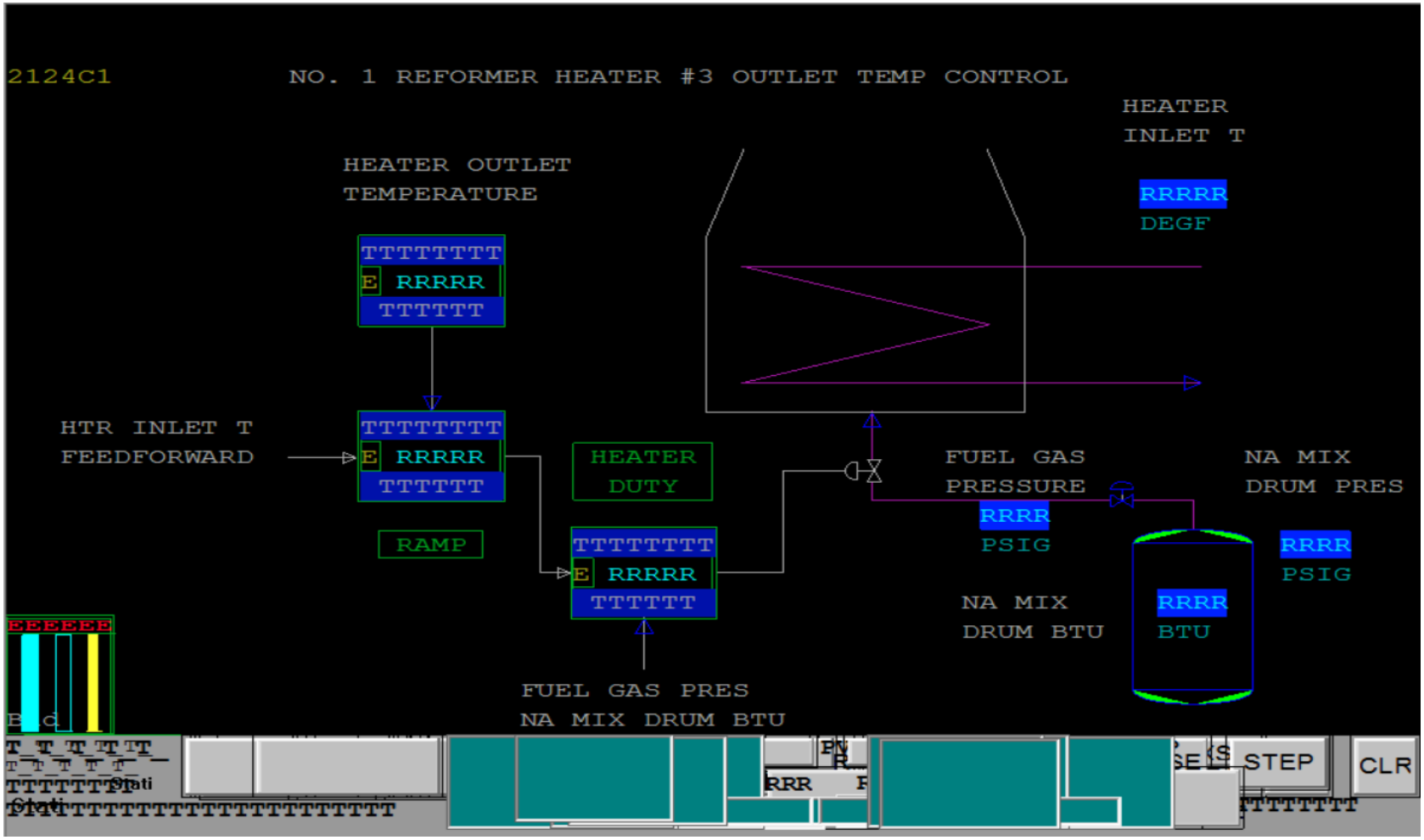
7.34 NO. 1 REFORMER HEATER #2 RAMP HELP (2122H1R.DS)

```
2122H1R                NO. 1 REFORMER HEATER #2 RAMP HELP

DESCRIPTION:
 The setpoint of the heater outlet temperature controller is ramped to a final
 temperature over a predefined time by an Application Module controller. This
 function is designed to provide a consistent cool down or heat up of the
 reactors in a shorter period of time.
ENTRIES:
  SPTV (TARGET TEMP): The final temperature to which the heater will be ramped.

  TVPROC (STATUS OF RAMP): Indication of the status of the ramping function.
    The options are OFF, PRESET, and RUN.
  RAMPTIME (RAMP TIME): The time in minutes over which the temperature is to be
    ramped to the target temperature set point.
To Enable or Modify Control:
    1) Place 21TC3622 in AUTO mode and select 21TC3622 from GROUP XXX.
 At this point, SPTV, TVPROC, and RAMPTIME can be input from the group display.
    2) Put TVPROC in PRESET mode.
    3) Enter the target temp, SPTV, in degrees F.
    4) Enter the RAMPTIME in minutes.
    5) Put TVPROC in RUN mode.
 At this point, the program will begin the ramp function.
To Disable Control:
    1) Put TVPROC in OFF mode.
       OR take the temperature controller out of AUTO mode.
                          [PROCESS DISPLAY]  [CONTROL DISPLAY]
```

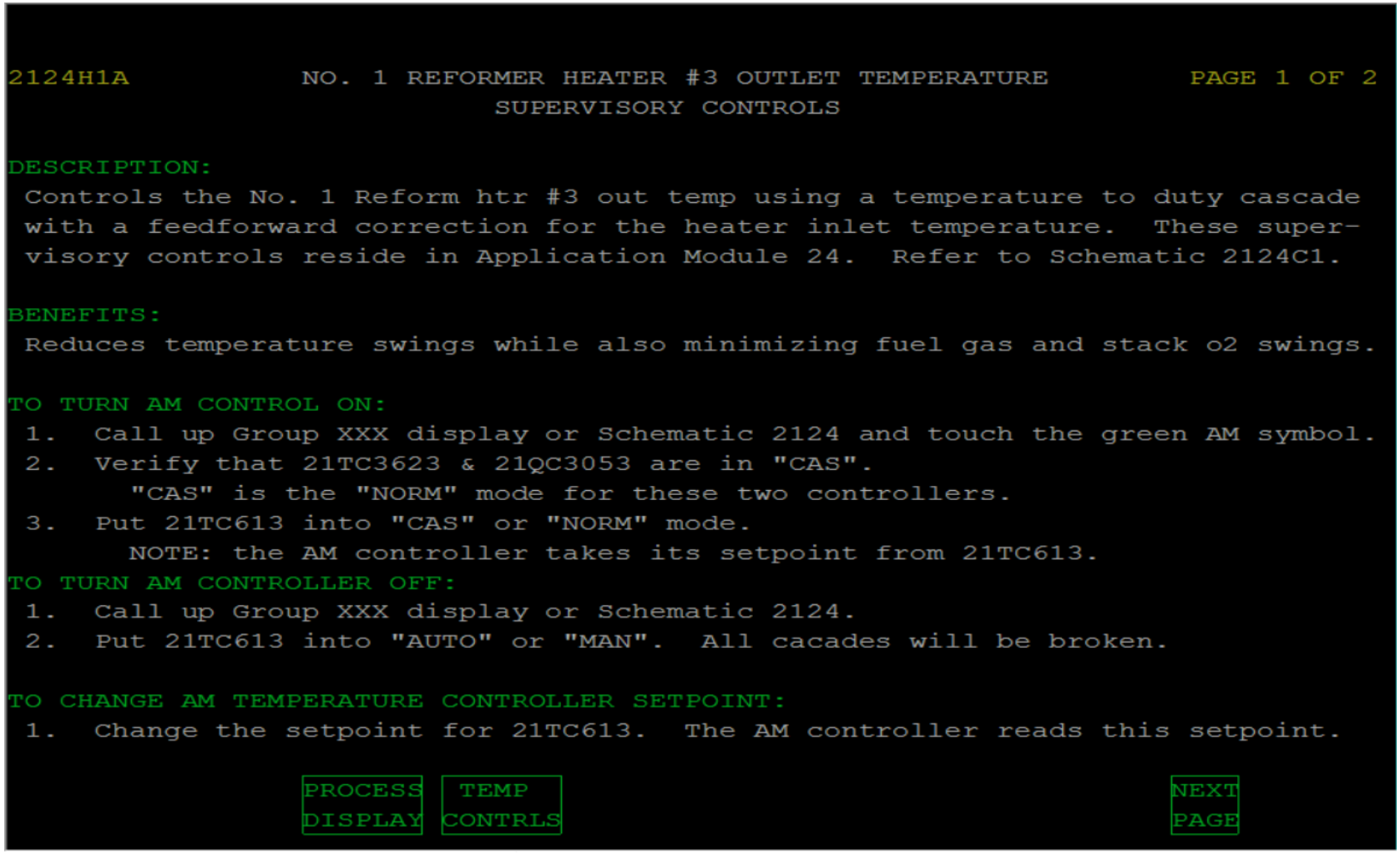
7.35 #1 REF - #2 REACTOR (2123OLD.DS)



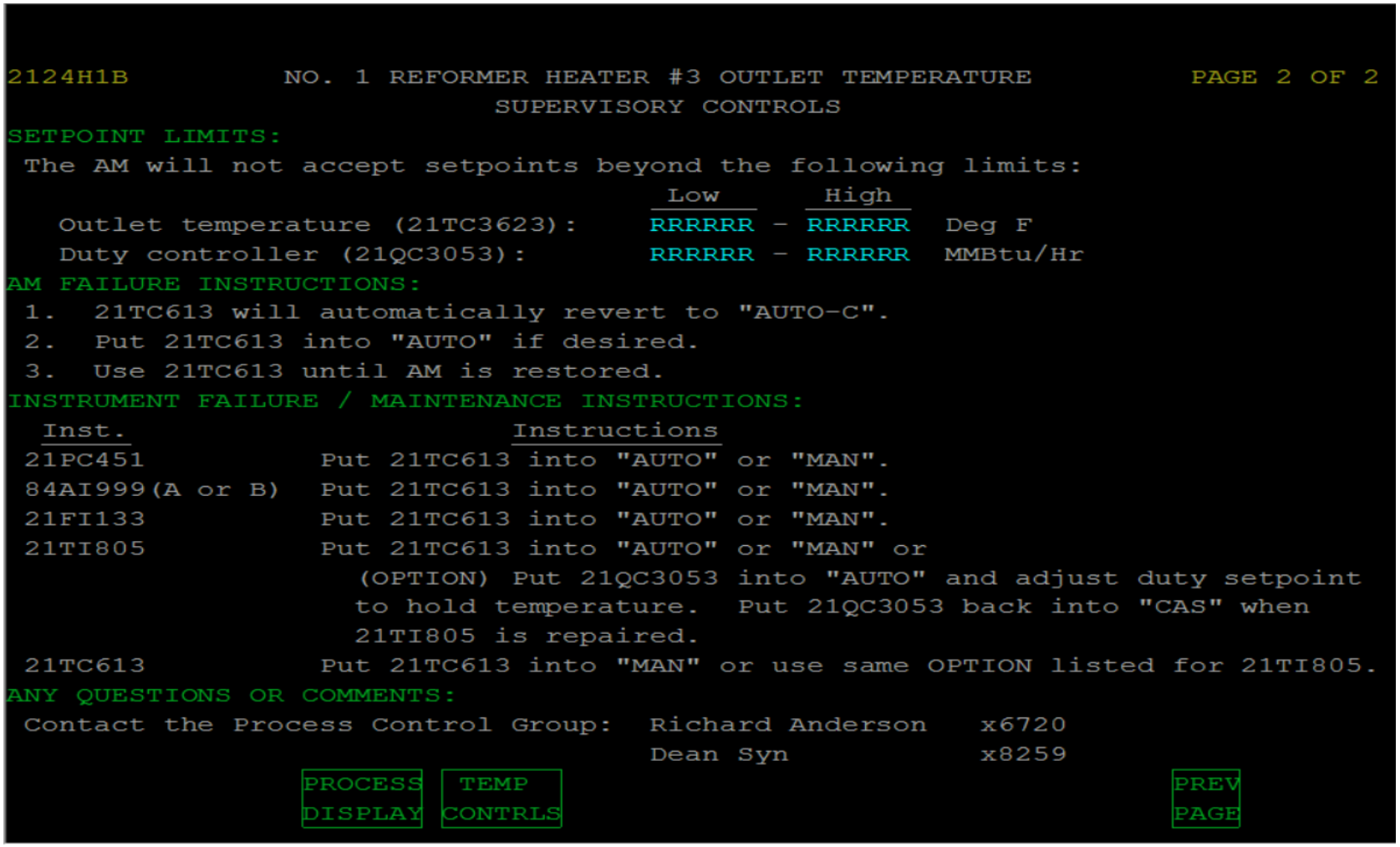
7.36 NO. 1 REFORMER HEATER #3 OUTLET TEMP CONTROL (2124C1.DS)



7.37 NO. 1 REFORMER HEATER #3 OUTLET TEMPERATURE SUPERVISORY CONTROLS (2124H1A.DS)



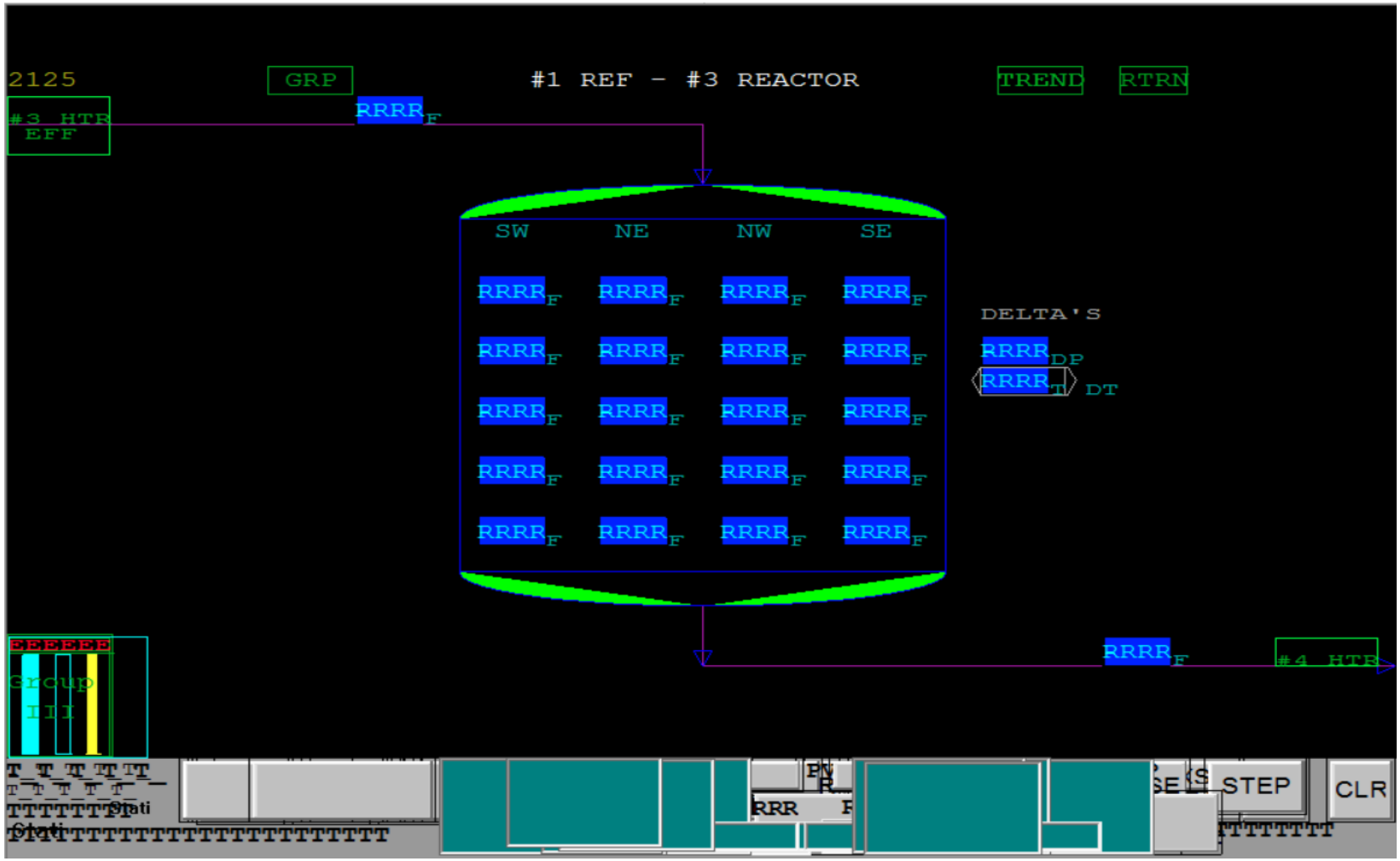
7.38 NO. 1 REFORMER HEATER #3 OUTLET TEMPERATURE SUPERVISORY CONTROLS (2124H1B.DS)



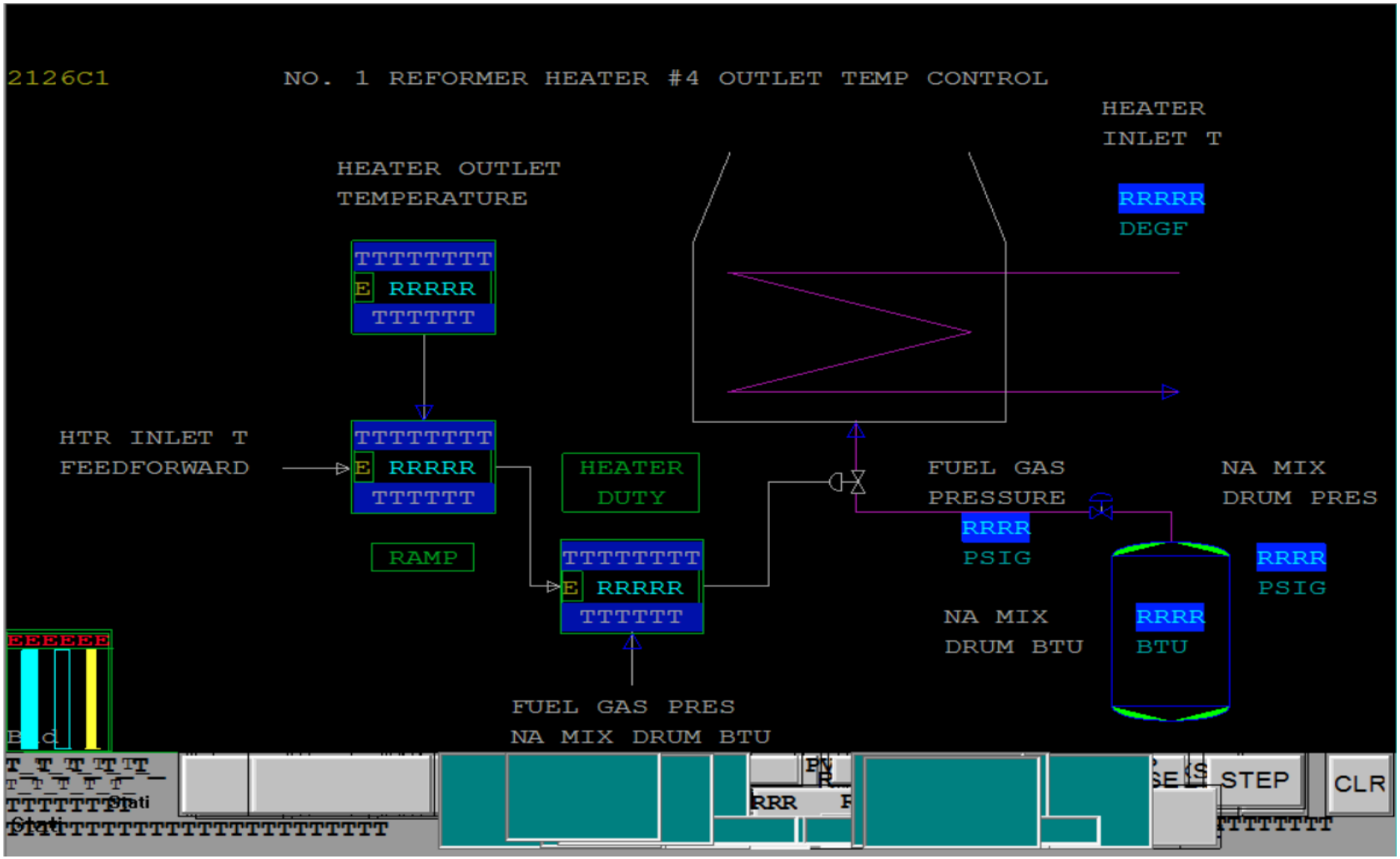
7.39 NO. 1 REFORMER HEATER #3 RAMP HELP (2124H1R.DS)

```
2124H1R                NO. 1 REFORMER HEATER #3 RAMP HELP

DESCRIPTION:
 The setpoint of the heater outlet temperature controller is ramped to a final
 temperature over a predefined time by an Application Module controller. This
 function is designed to provide a consistent cool down or heat up of the
 reactors in a shorter period of time.
ENTRIES:
  SPTV (TARGET TEMP): The final temperature to which the heater will be ramped.

  TVPROC (STATUS OF RAMP): Indication of the status of the ramping function.
    The options are OFF, PRESET, and RUN.
  RAMPTIME (RAMP TIME): The time in minutes over which the temperature is to be
    ramped to the target temperature set point.
To Enable or Modify Control:
    1) Place 21TC3623 in AUTO mode and select 21TC3623 from GROUP XXX.
 At this point, SPTV, TVPROC, and RAMPTIME can be input from the group display.
    2) Put TVPROC in PRESET mode.
    3) Enter the target temp, SPTV, in degrees F.
    4) Enter the RAMPTIME in minutes.
    5) Put TVPROC in RUN mode.
 At this point, the program will begin the ramp function.
To Disable Control:
    1) Put TVPROC in OFF mode.
       OR take the temperature controller out of AUTO mode.
                          [PROCESS DISPLAY]  [CONTROL DISPLAY]
```

7.40 #1 REF - #3 REACTOR (2125OLD.DS)

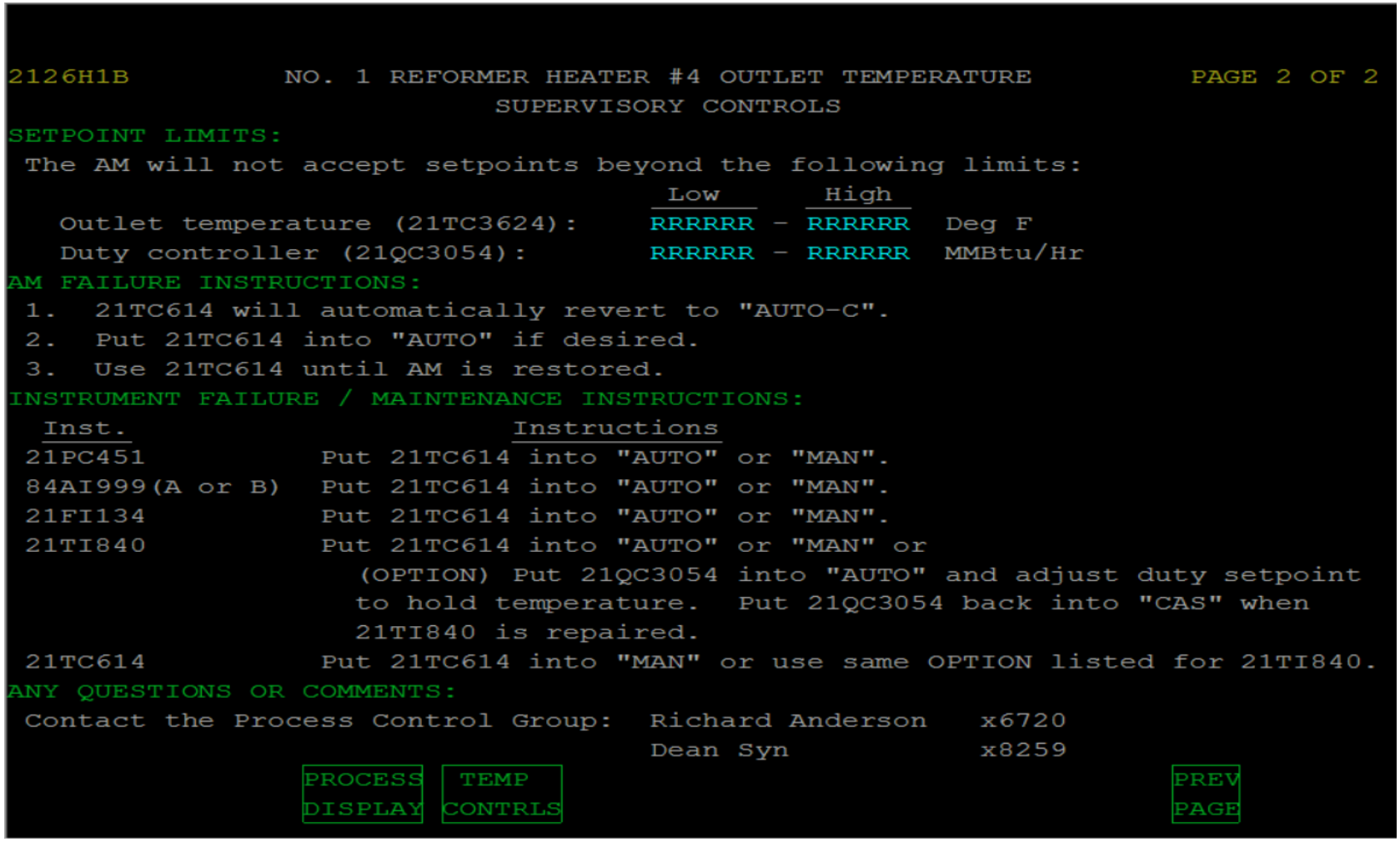


7.41 NO. 1 REFORMER HEATER #4 OUTLET TEMP CONTROL (2126C1.DS)

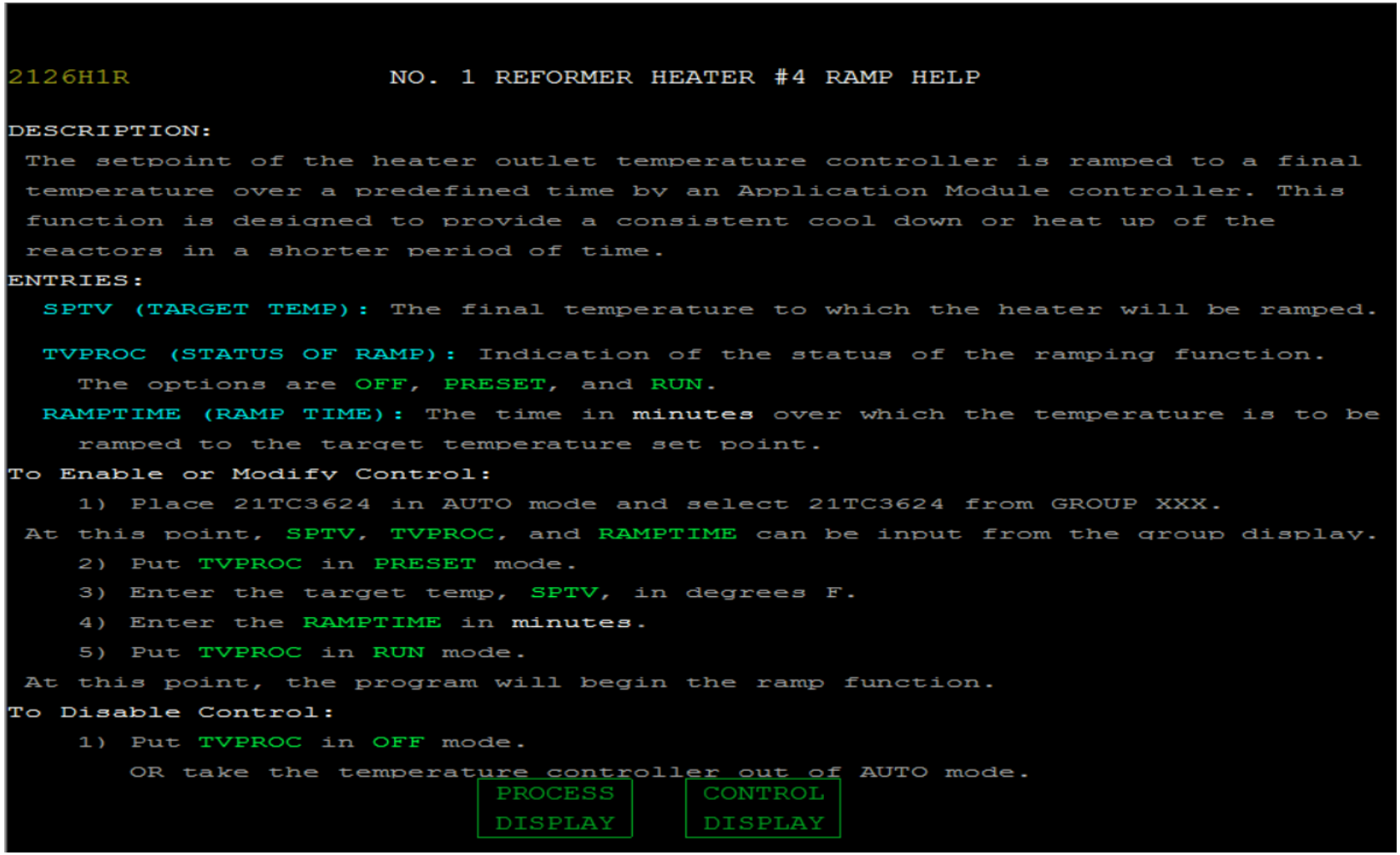


7.42 NO. 1 REFORMER HEATER #4 OUTLET TEMPERATURE SUPERVISORY CONTROLS (2126H1A.DS)

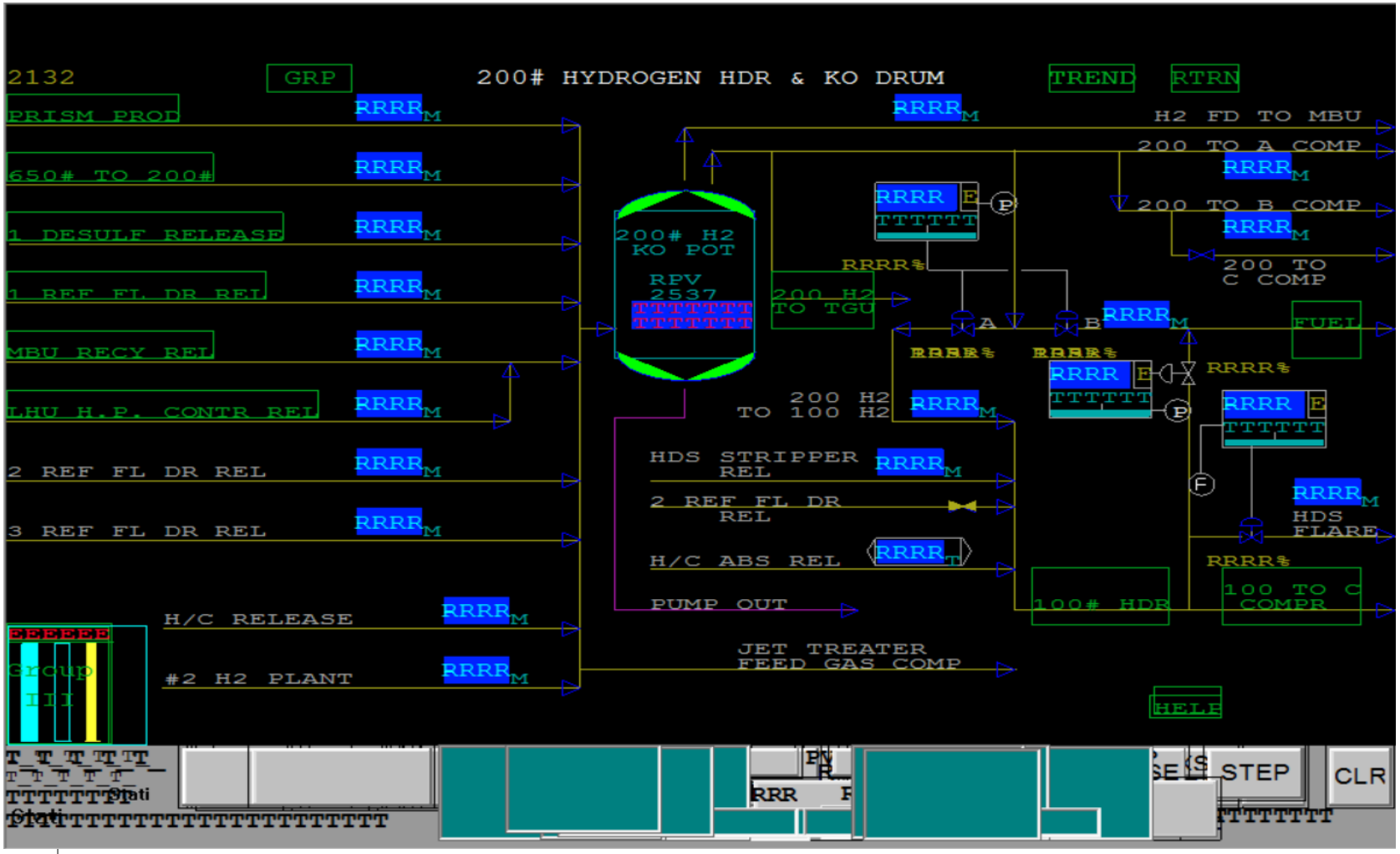
7.43 NO. 1 REFORMER HEATER #4 OUTLET TEMPERATURE SUPERVISORY CONTROLS (2126H1B.DS)



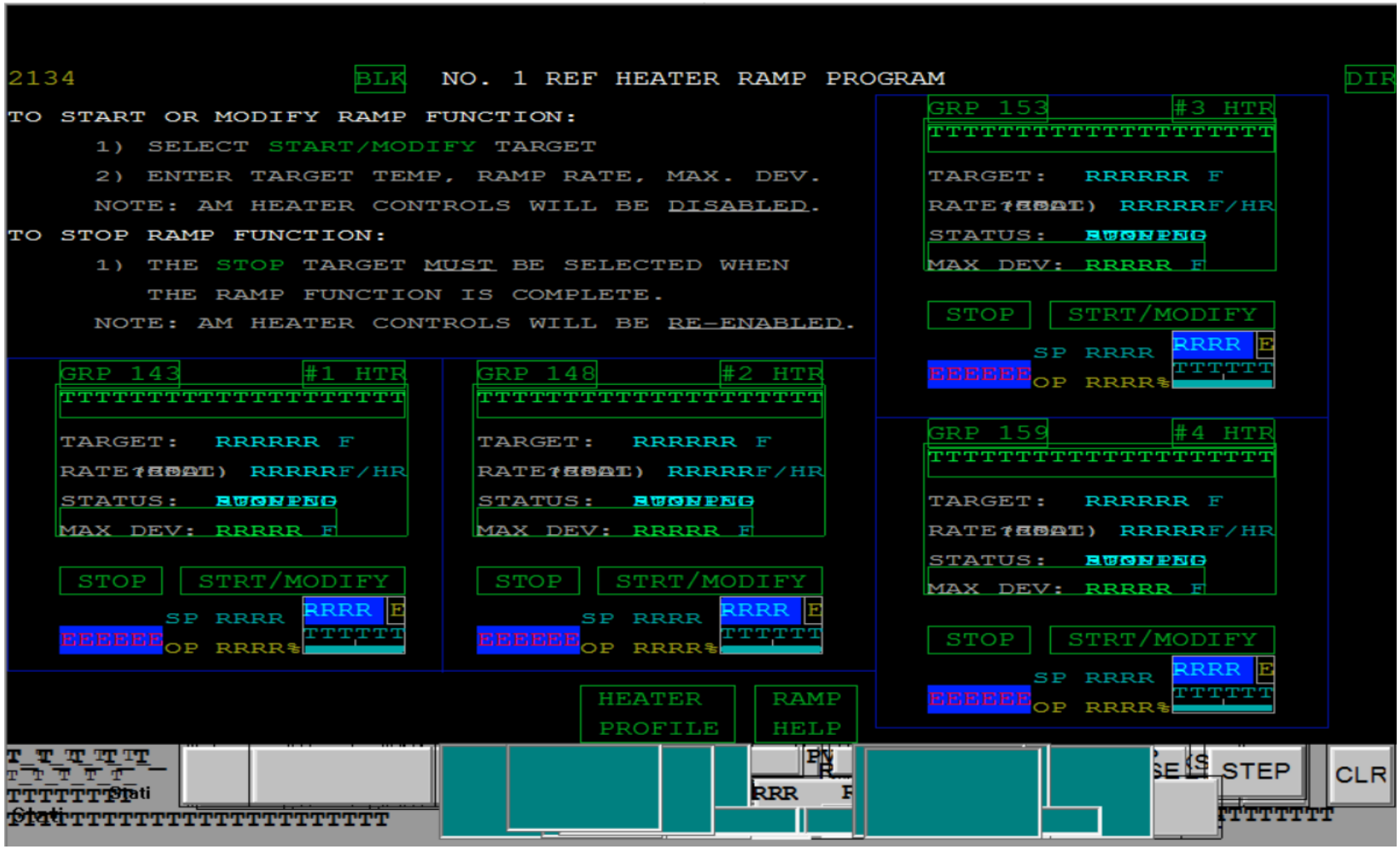
7.44 NO. 1 REFORMER HEATER #4 RAMP HELP (2126H1R.DS)



7.45 200# HYDROGEN HDR & KO DRUM (2132OLD.DS)



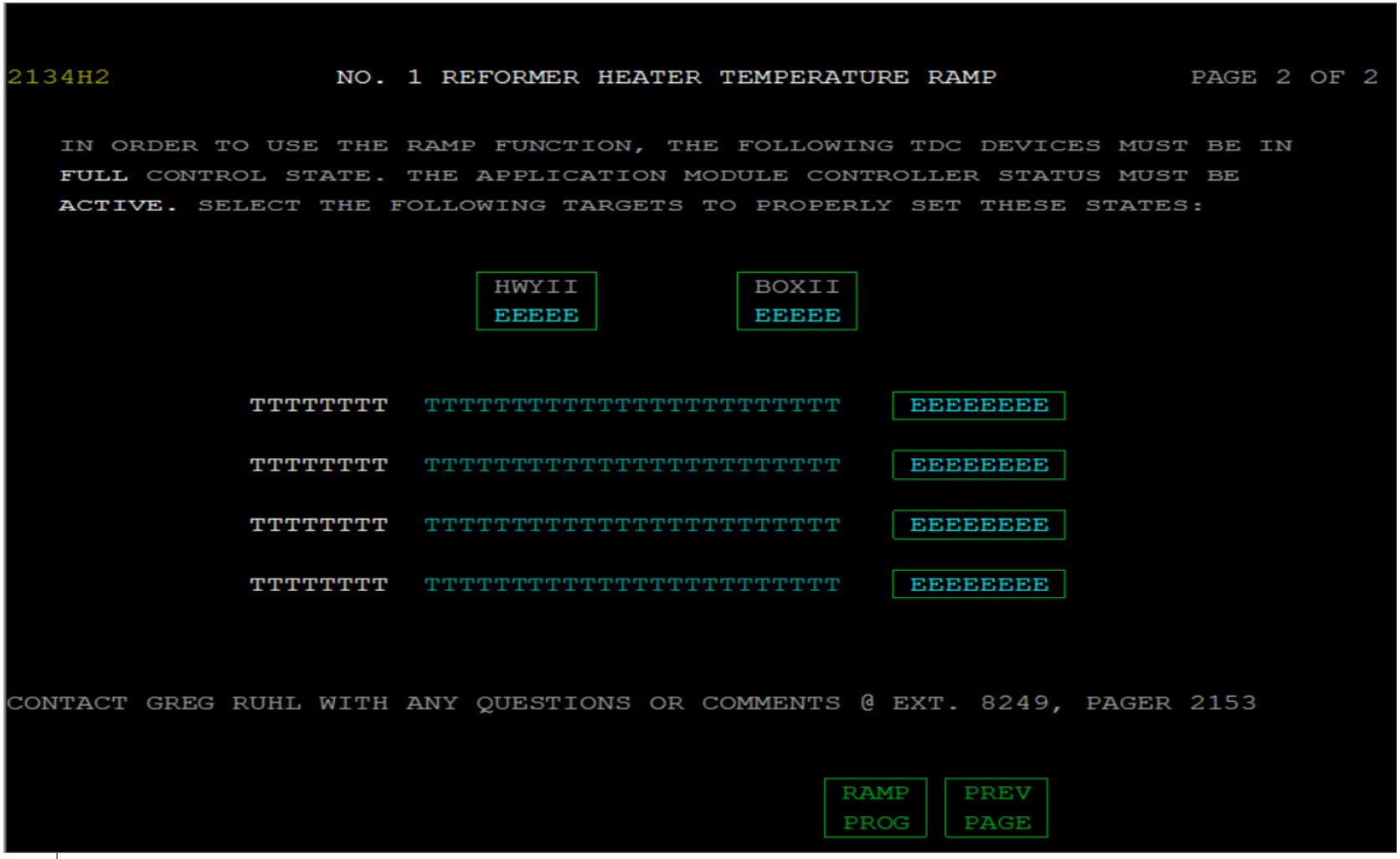
7.46 NO. 1 REF HEATER RAMP PROGRAM (2134.DS)



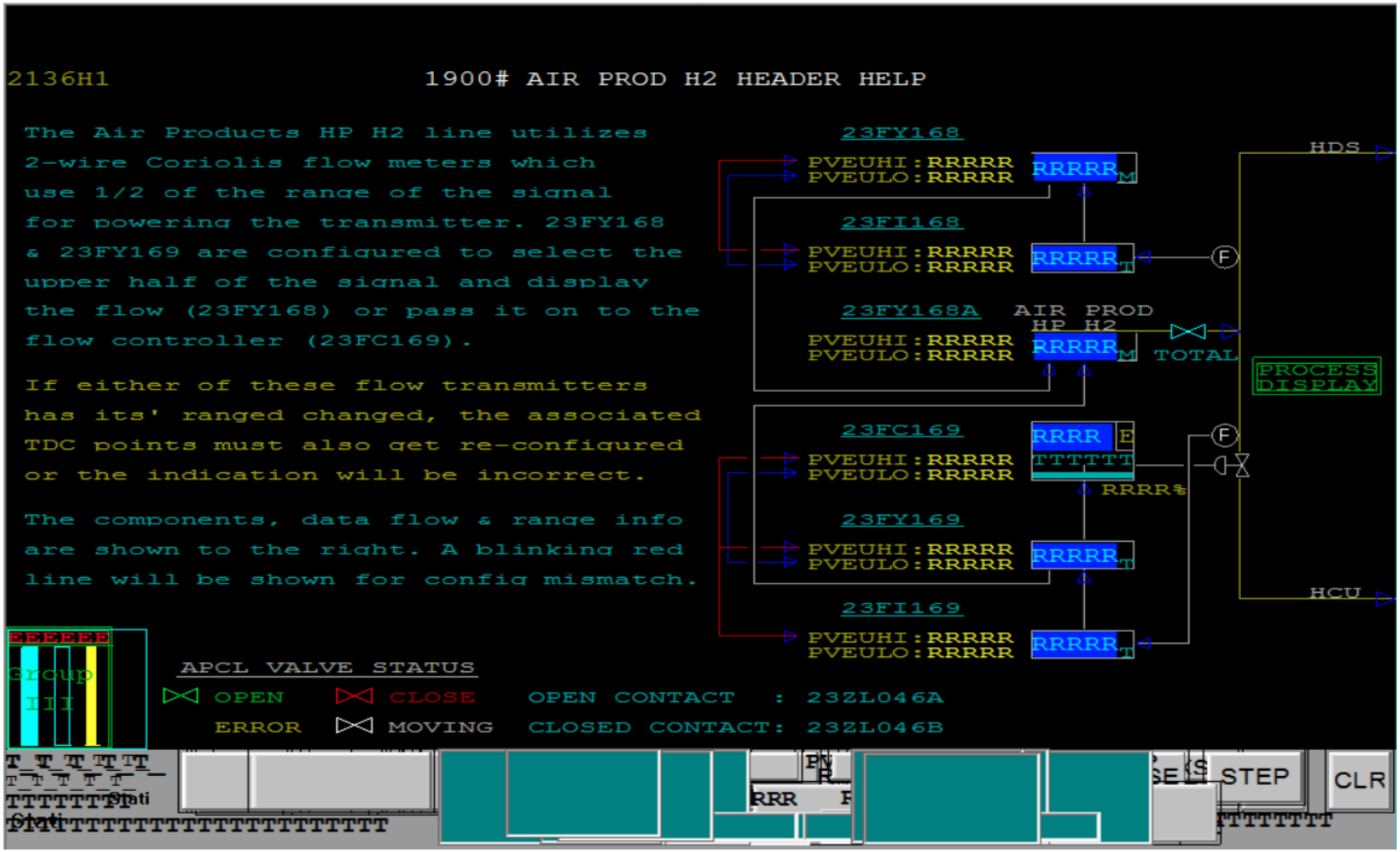
7.47 NO. 1 REFORMER HEATER TEMPERATURE RAMP (2134H1.DS)

```
2134H1                NO. 1 REFORMER HEATER TEMPERATURE RAMP        PAGE 1 OF 2
DESCRIPTION:
 The setpoint of the heater outlet temperature controller is ramped to a final
 temperature at a defined rate by an Application Module controller. This ramp
 function is designed to provide a consistent cool down or heat up of the
 reactors. PLEASE NOTE: THE RAMP FUNCTION WILL DISABLE THE AM HEATER DUTY
 CONTROLLERS.  WHEN THE RAMPING FUNCTION IS COMPLETE OR WHEN IT IS NECESSARY TO
 STOP THE RAMPING FUCTION, THE STOP TARGET MUST BE SELECTED.
ENTRIES:
  TARGET TEMP: This is the final temperature which the heater will be ramped to
  RAMP RATE: This value defines the rate at which the heater is to be ramped.
    is entered as a positive number in units of DEG F/HR.
  MAX DEVIATION: This is the maximum temperature deviation from setpoint. If the
    temperature deviates from setpoint by more than this value, the ramp
    function stops and waits for the temperature to catch up.
To Enable/Modify Control:
    1) Select START/MODIFY target on the schematic.
    2) Enter the TARGET TEMP and RAMP RATE.  MAX DEV can be changed at any time.
    After pressing ENTER, the program will disable the AM heater controller, put
    the Ramp controller in AUTO, and start the ramp function.
To Disable Control:
    1) The STOP target must be selected when the ramping function is complete
       or when it is necessary to stop the ramping function.
    NOTE: THE STOP TARGET WILL RE-ENABLE THE AM HEATER CONTROLLERS.
                                                  RAMP      NEXT
                                                  PROG      PAGE
```

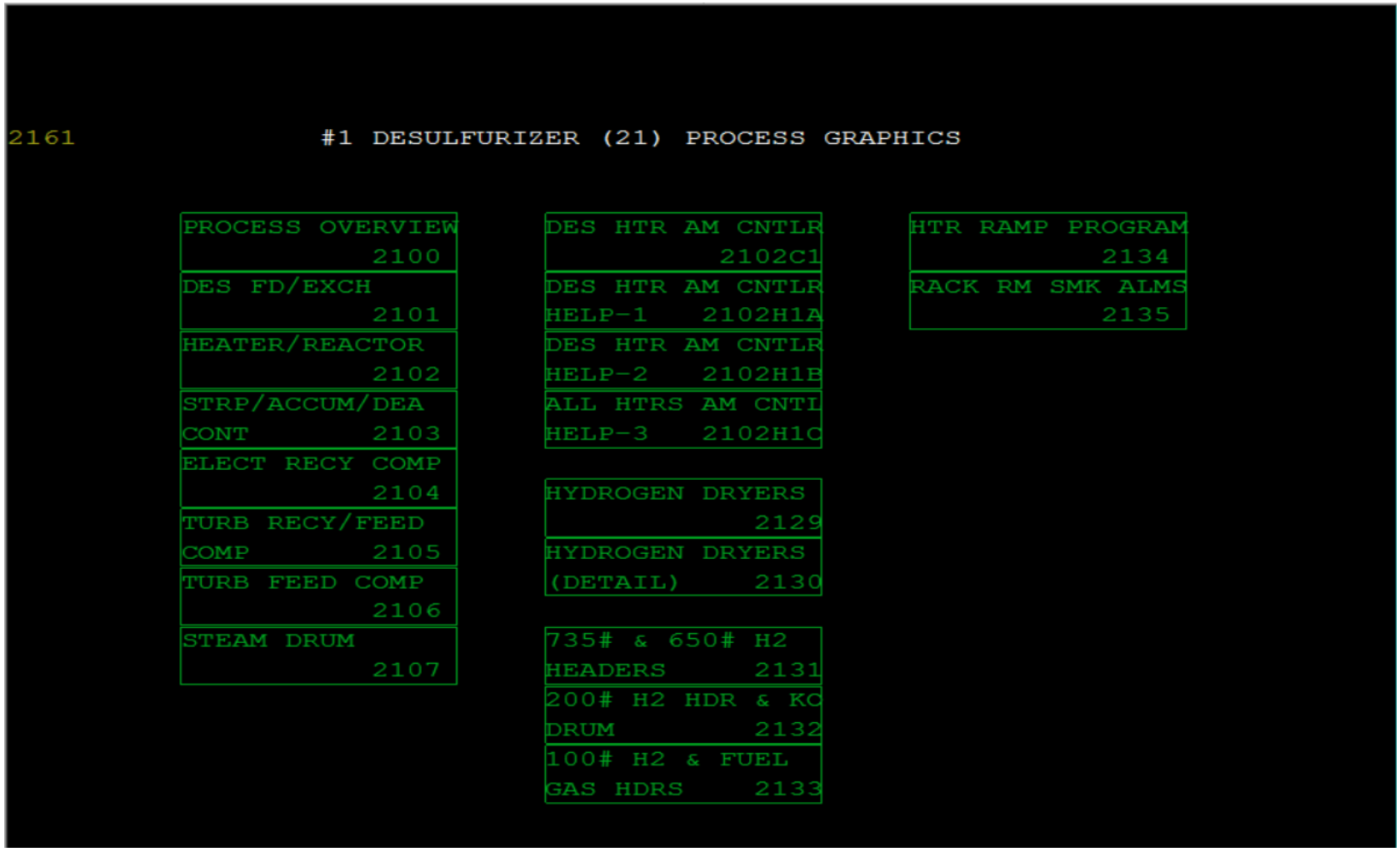
7.48 NO. 1 REFORMER HEATER TEMPERATURE RAMP (2134H2.DS)



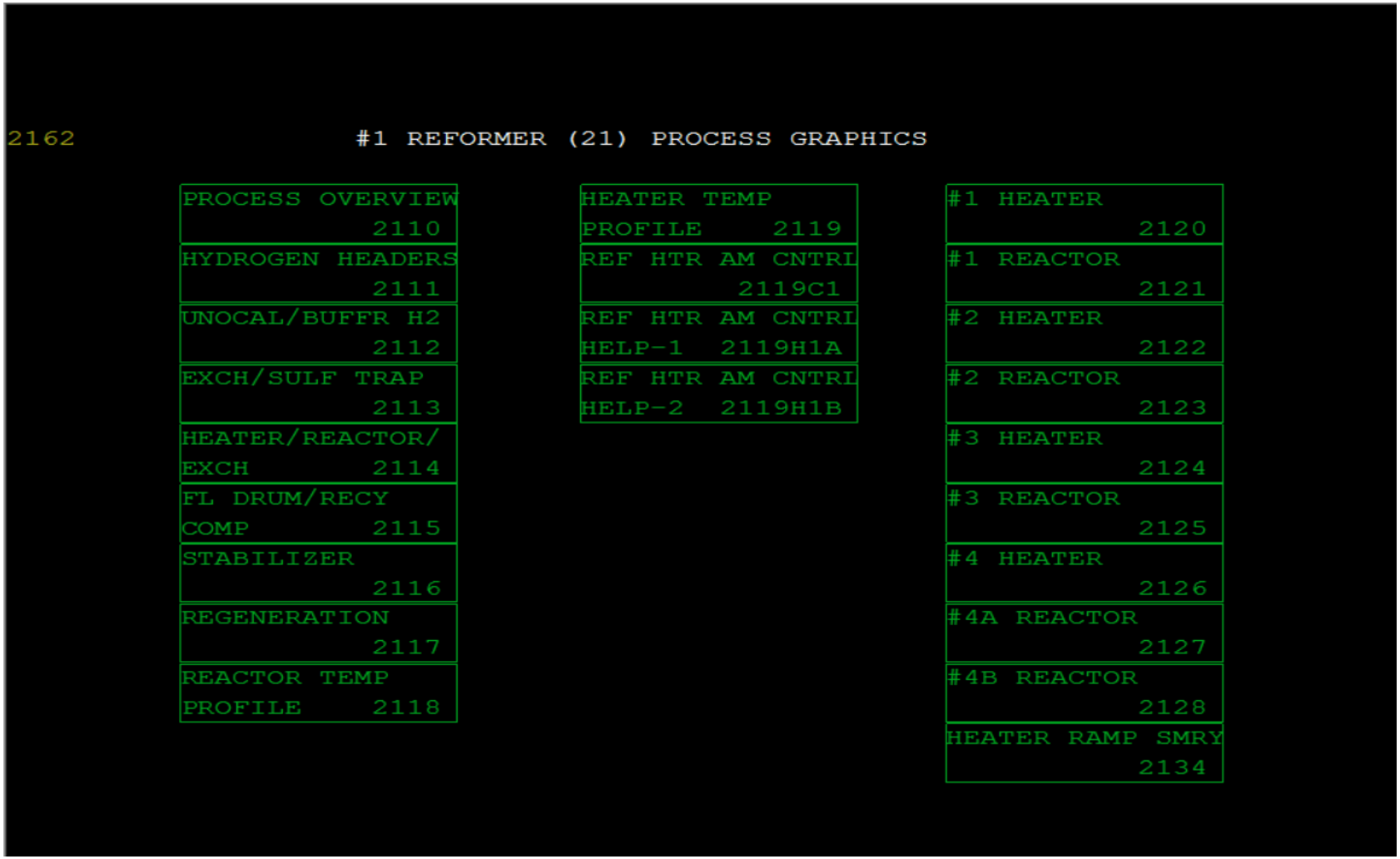
7.49 1900# AIR PROD H2 HEADER HELP (2136H1.DS)



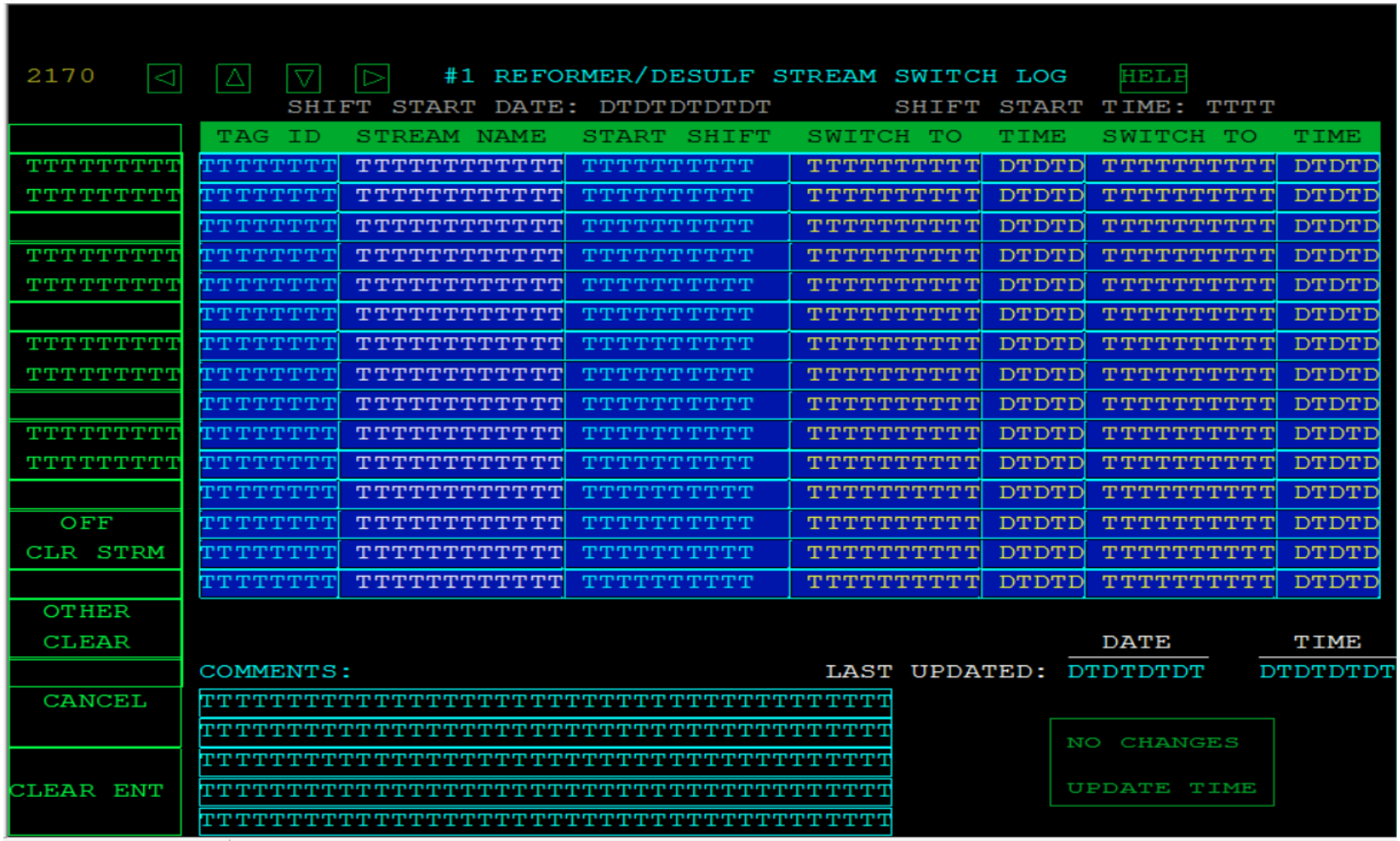
7.50 #1 DESULFURIZER (21) PROCESS GRAPHICS (2161.DS)



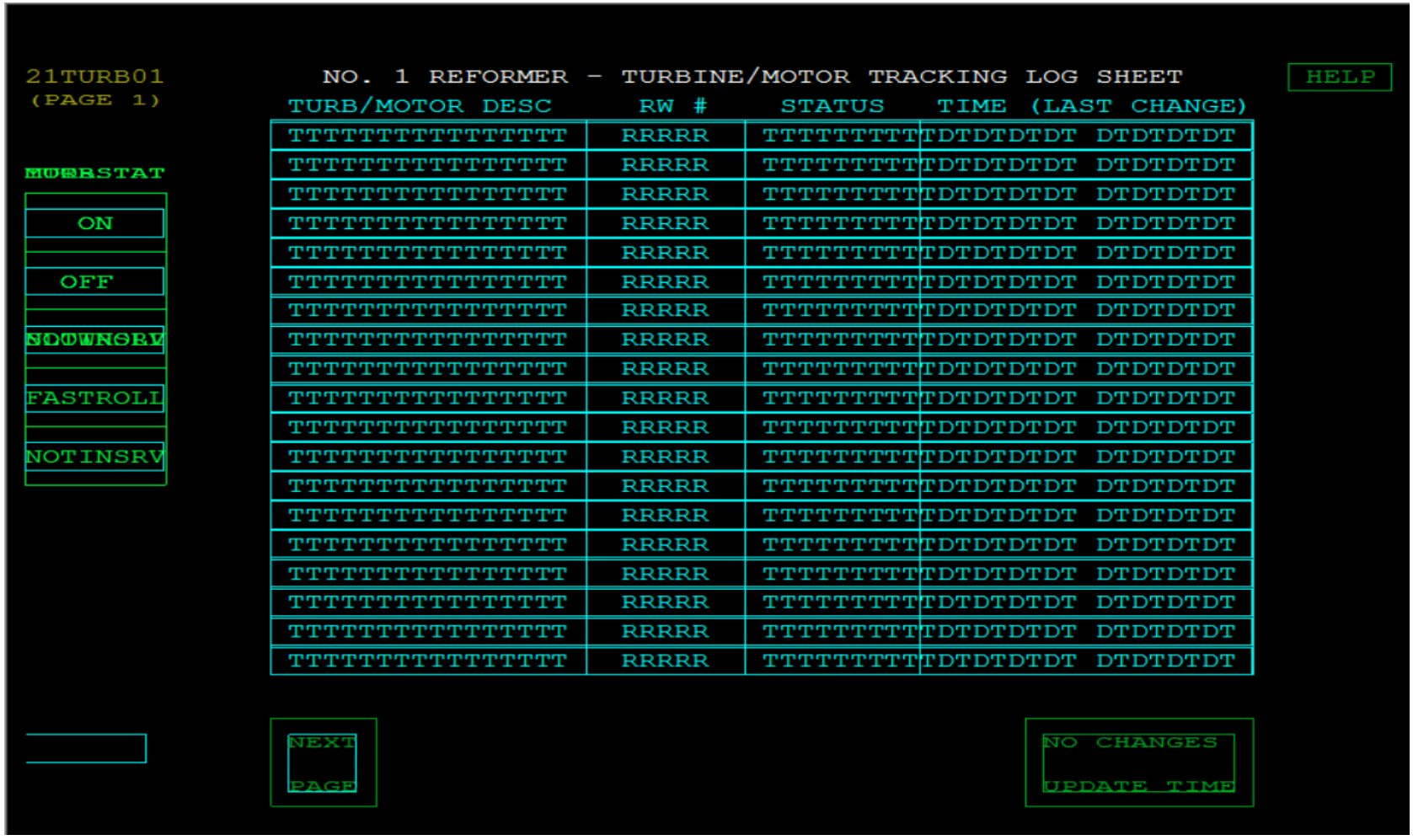
7.51 #1 REFORMER (21) PROCESS GRAPHICS (2162.DS)



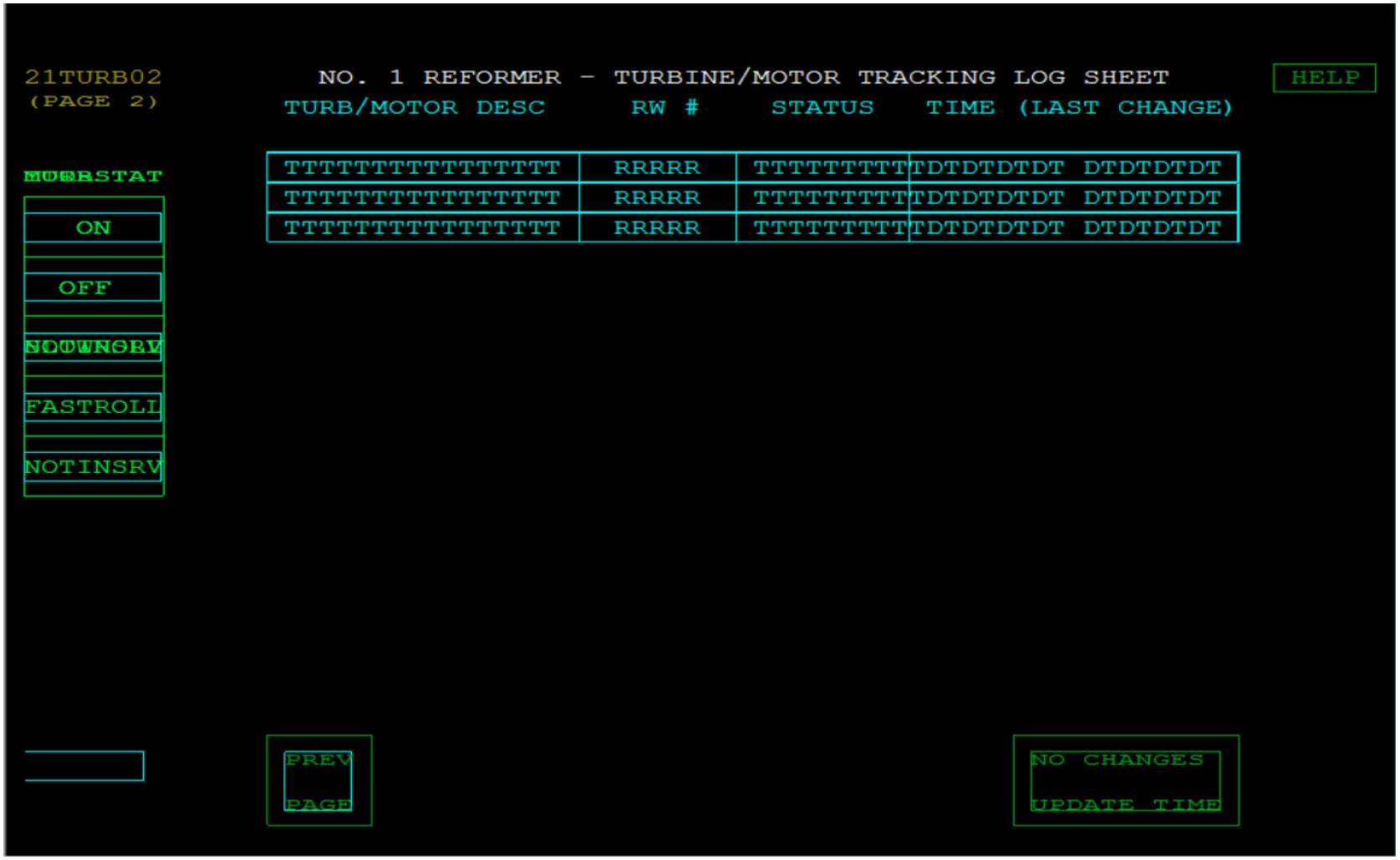
7.52 #1 REFORMER / DESULF STREAM SWITCH LOG (2170.DS)



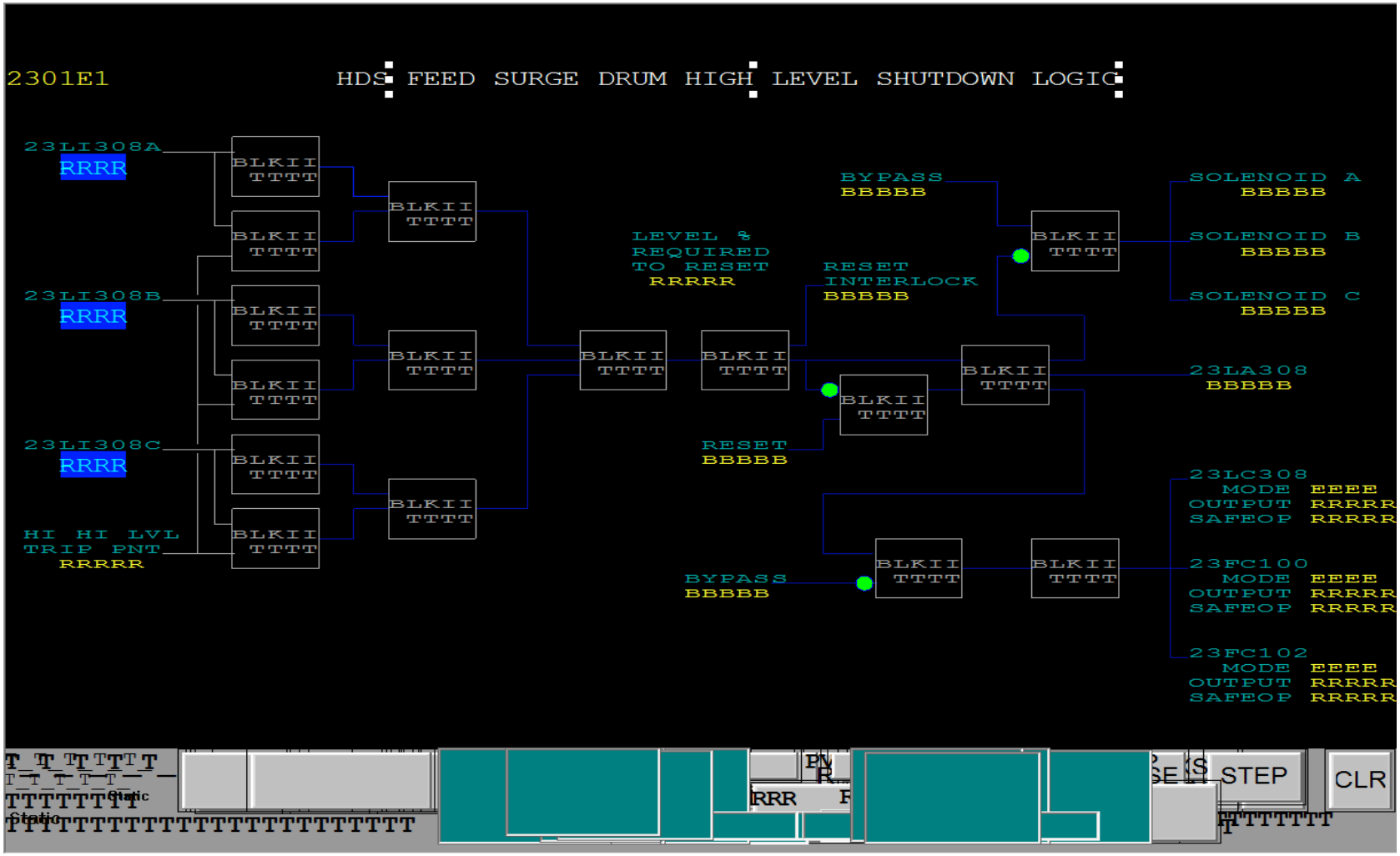
7.53 NO. 1 REFORMER - TURBINE/MOTOR TRACKING LOG SHEET (21TURB01.DS)



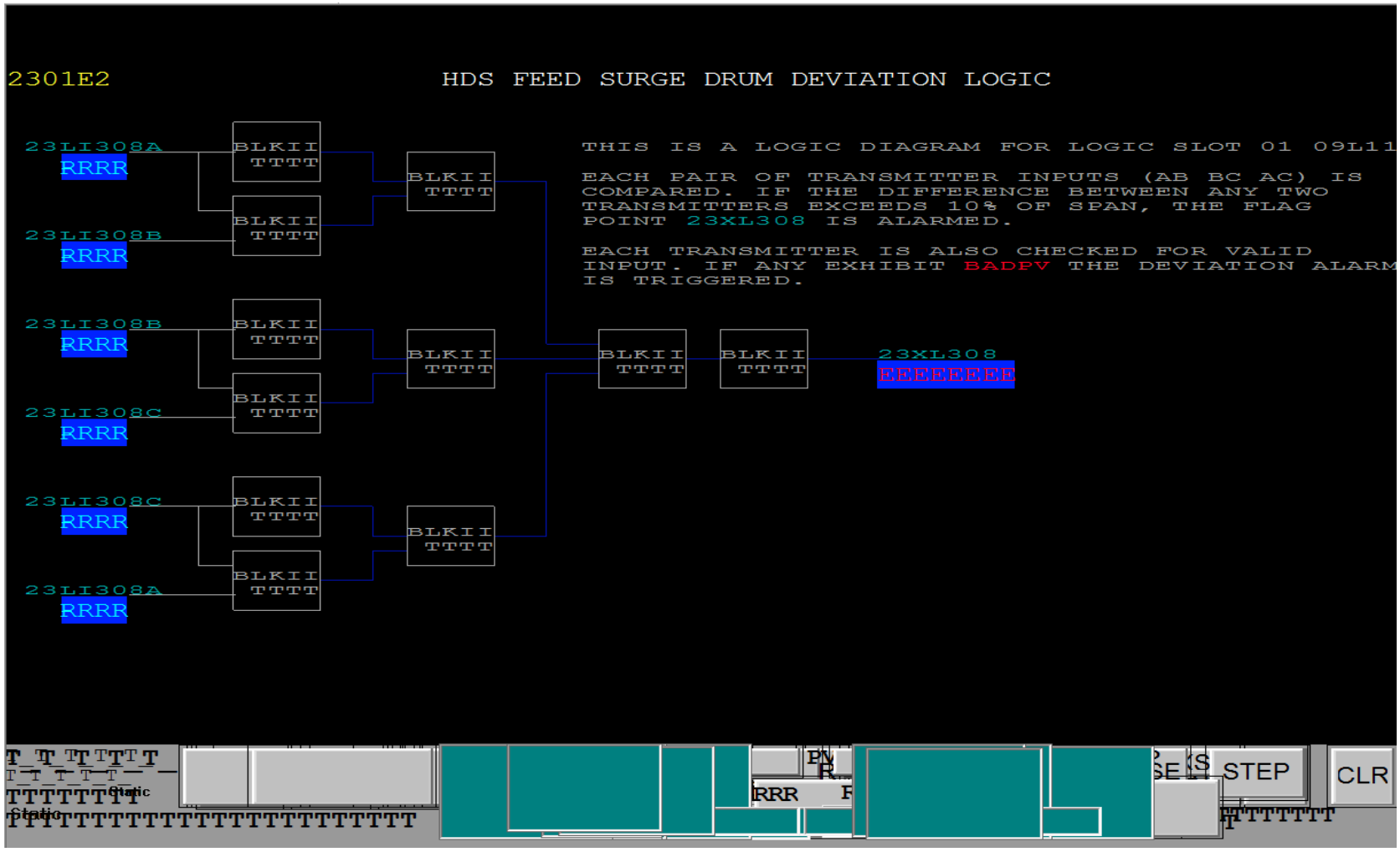
7.54 NO. 1 REFORMER - TURBINE/MOTOR TRACKING LOG SHEET (21TURB02.DS)



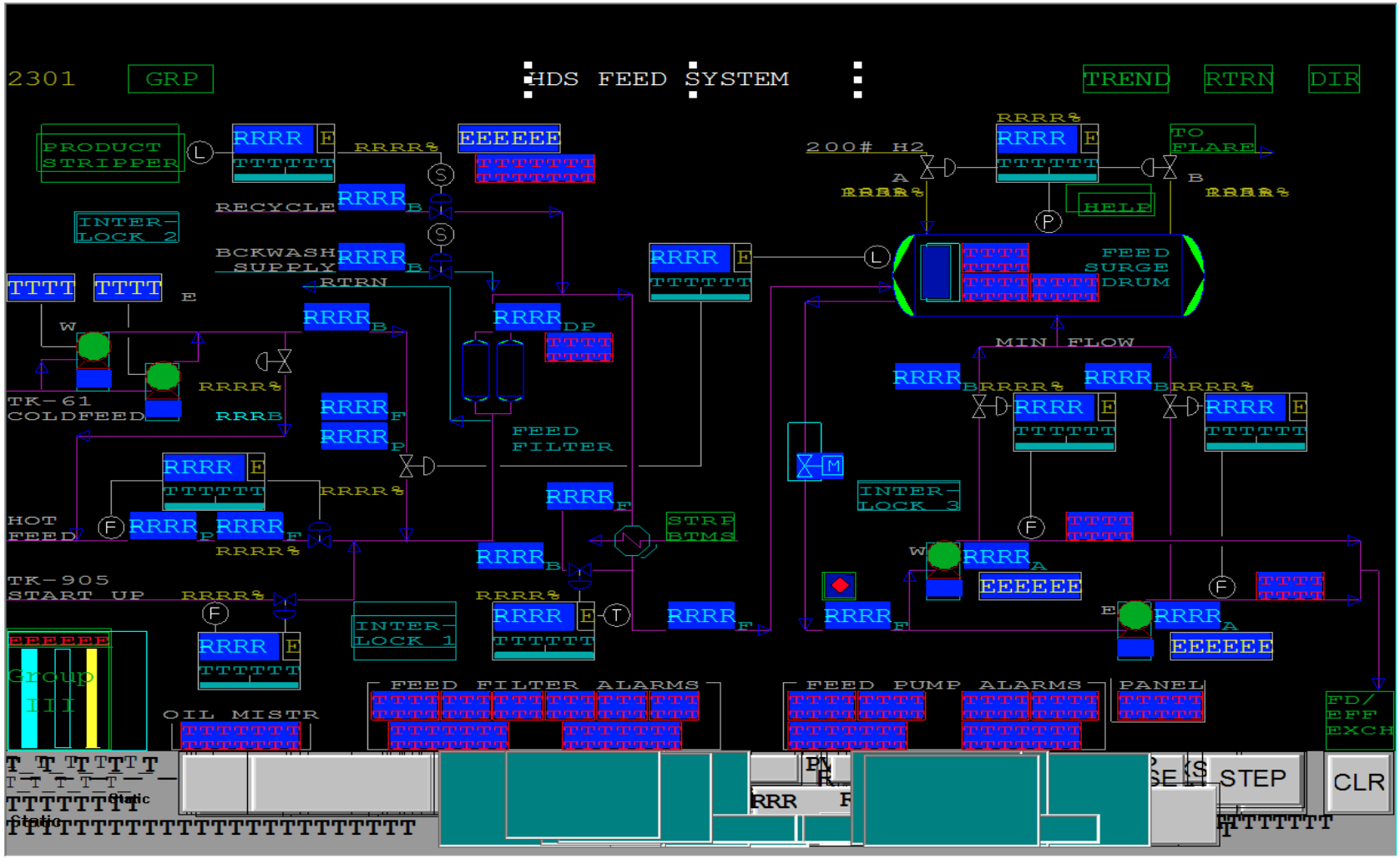
7.55 HDS FEED SURGE DRUM HIGH LEVEL SHUTDOWN LOGIC (2301E1.DS)



7.56 HDS FEED SURGE DRUM DEVIATION LOGIC (2301E2.DS)

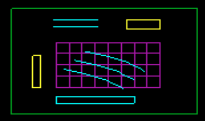


7.57 HDS FEED SYSTEM (2301OLD.DS)

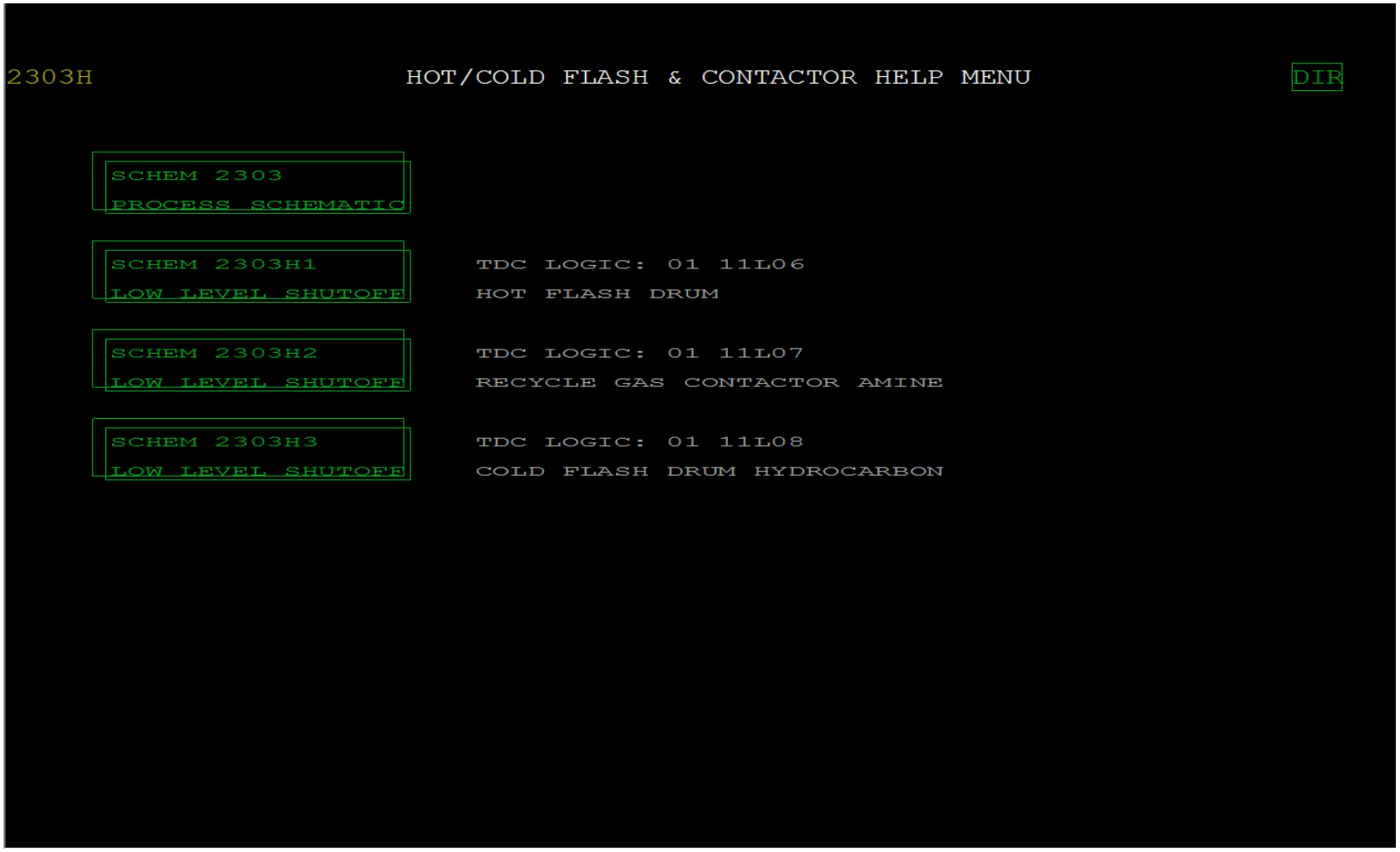


7.58 HOT FLASH LEVEL UPSET HELP SCREEN (2302H1O.DS)

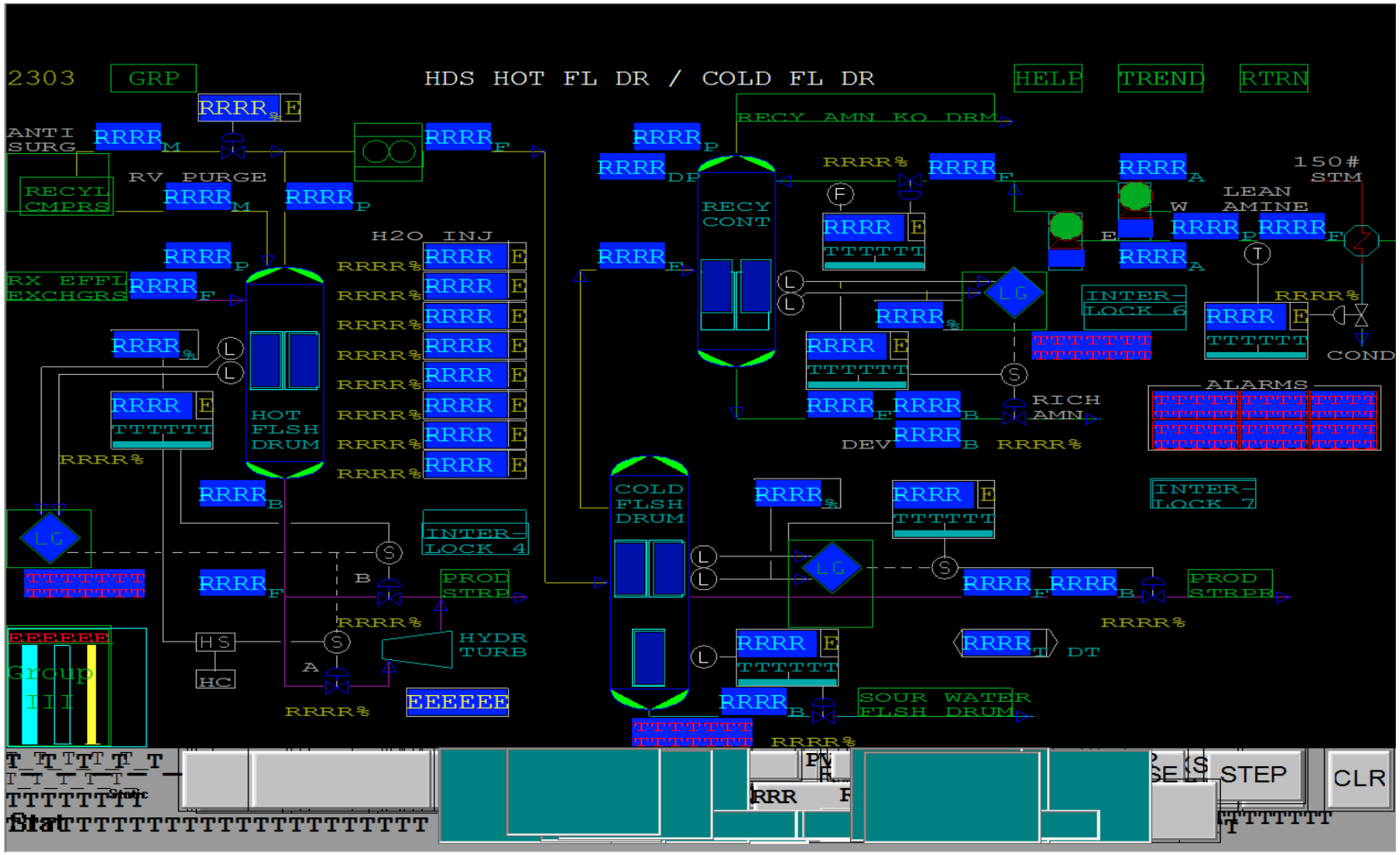
```
2302H1                HOT FLASH LEVEL UPSET HELP SCREEN

Use this screen when the unit is not operating properly with 23LC314 in AUTO
mode.

STEP 1: Place 23LC314 in MAN mode.
        Set the OP of 23LC314 to the average value over the past few hours.

STEP 2: Place 23PC427 in MAN mode.                                      .
        Manipulate the OP of 23PC427 so that 23FR141 is at the ave.age flow
          over the past few hours.

NOTES:  The reasoning behind STEP 1 is that if the flow coming into the Hot
        Flash Drum is equal to the flow coming out of it, then the level will
        balance.

        The reasoning behind STEP 2 is that even with 23LC314 in MAN, the level
        swings unless the pressure in the system is stabilized.  While the
        pressure controller normally controls in AUTO mode, it introduces
        disturbances when the unit is not at steady state.
```



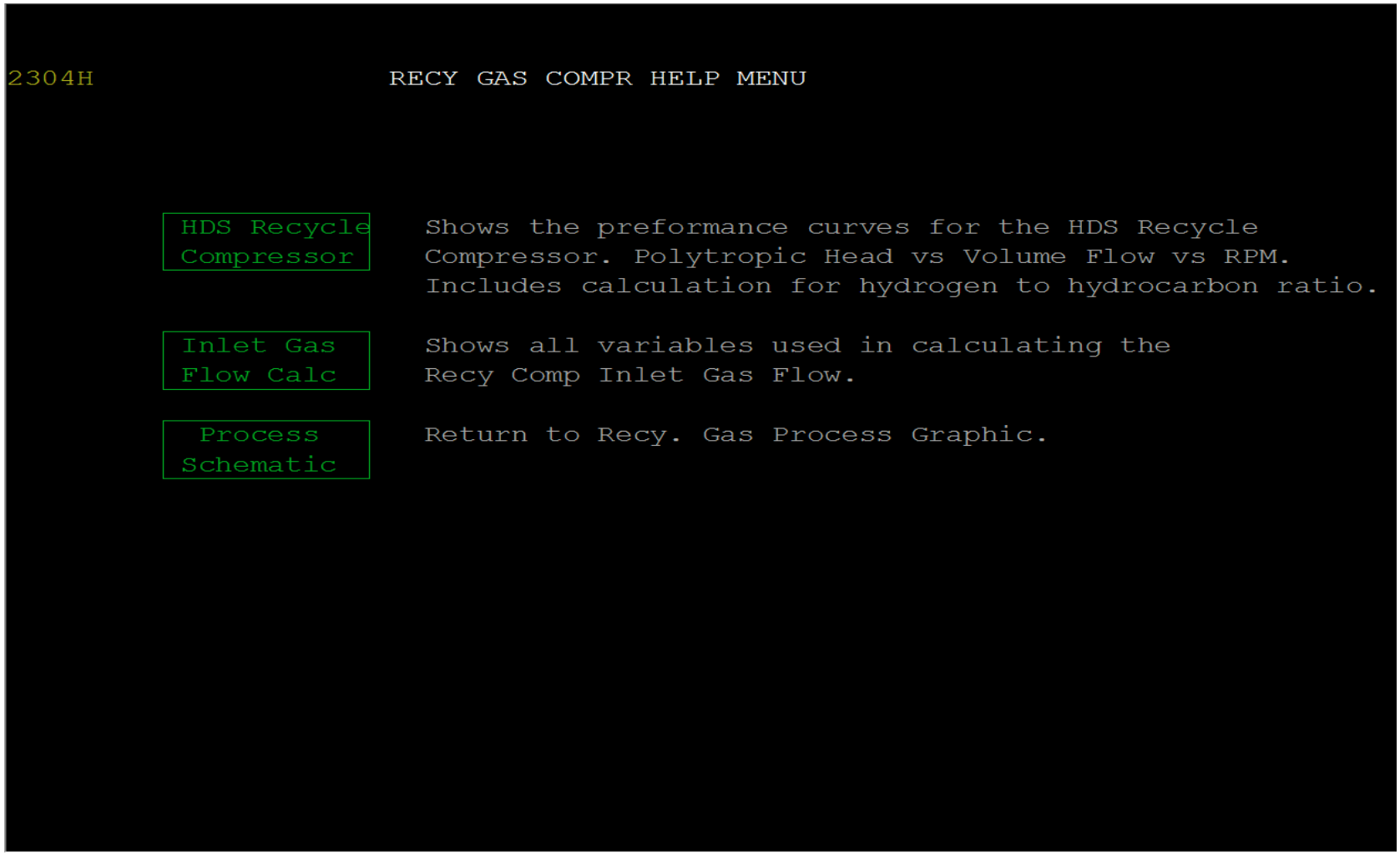
7.59 HOT/COLD FLASH & CONTACTOR HELP MENU (2303H.DS)



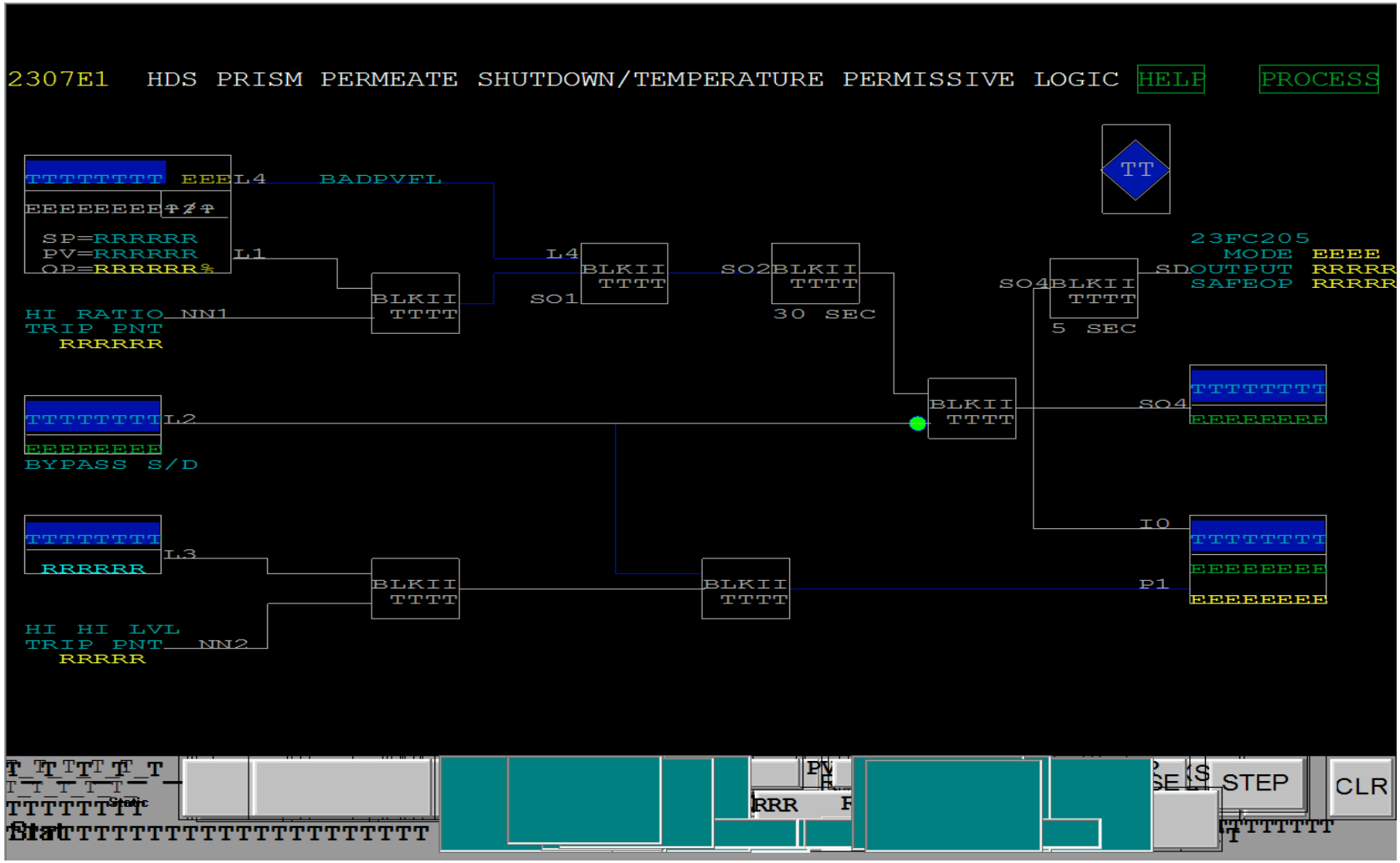
7.60 HDS HOT FL DR / COLD FL DR (2303OLD.DS)



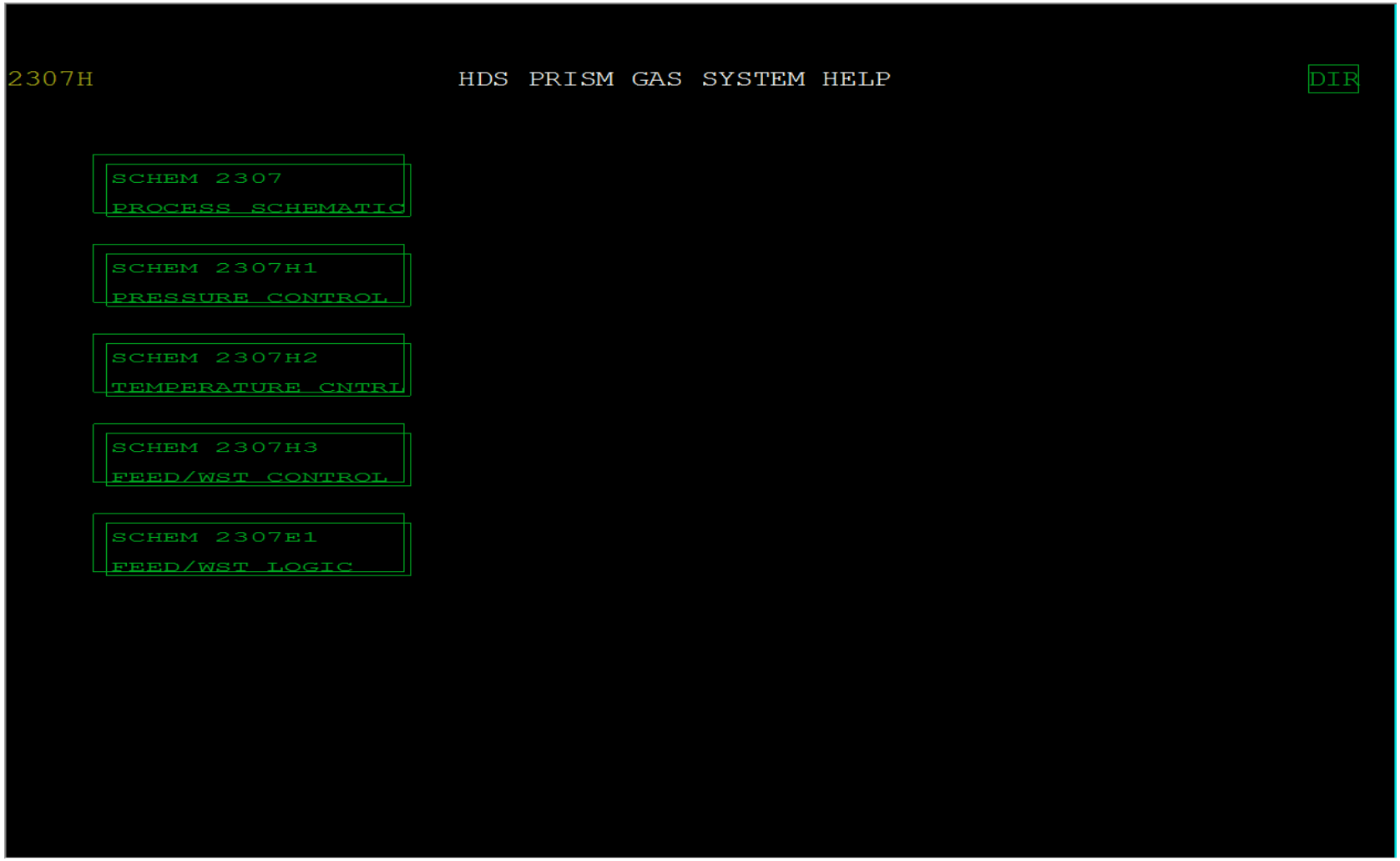
7.61 RECY GAS COMPR HELP MENU (2304H.DS)



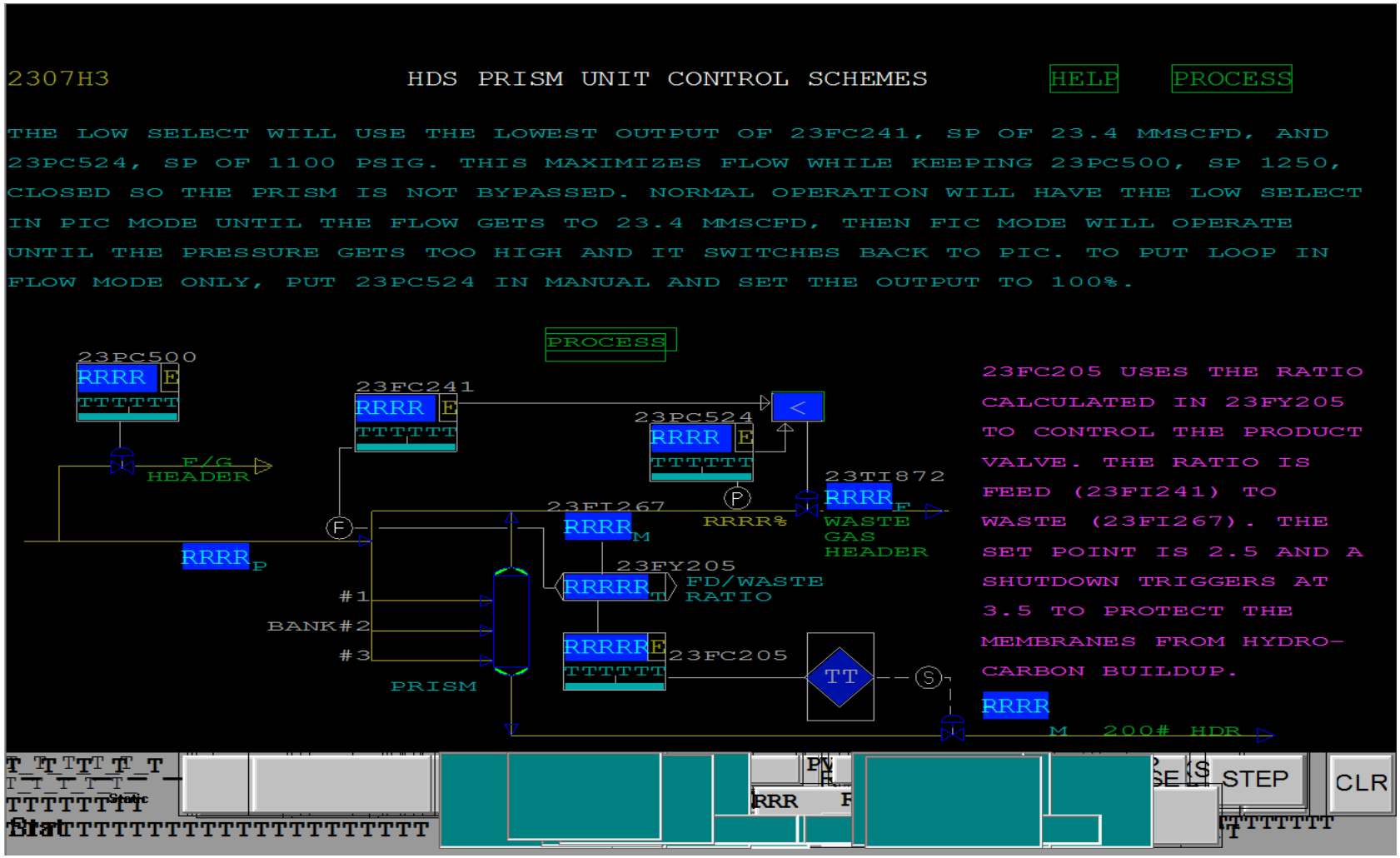
7.62 HDS PRISM PERMEATE SHUTDOWN/TEMPERATURE PERMISSIVE LOGIC (2307E1.DS)



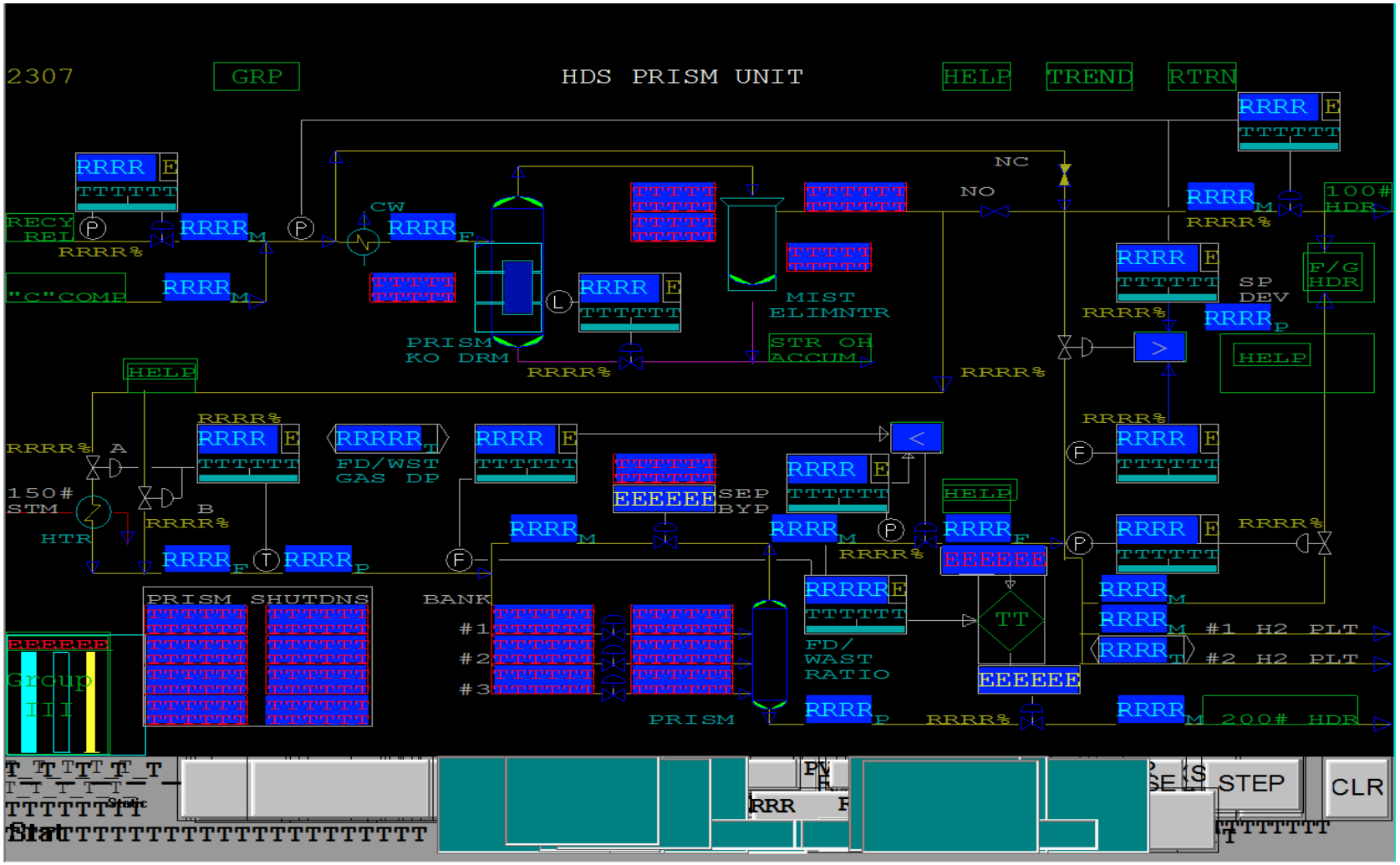
7.63 HDS PRISM GAS SYSTEM HELP (2307H.DS)



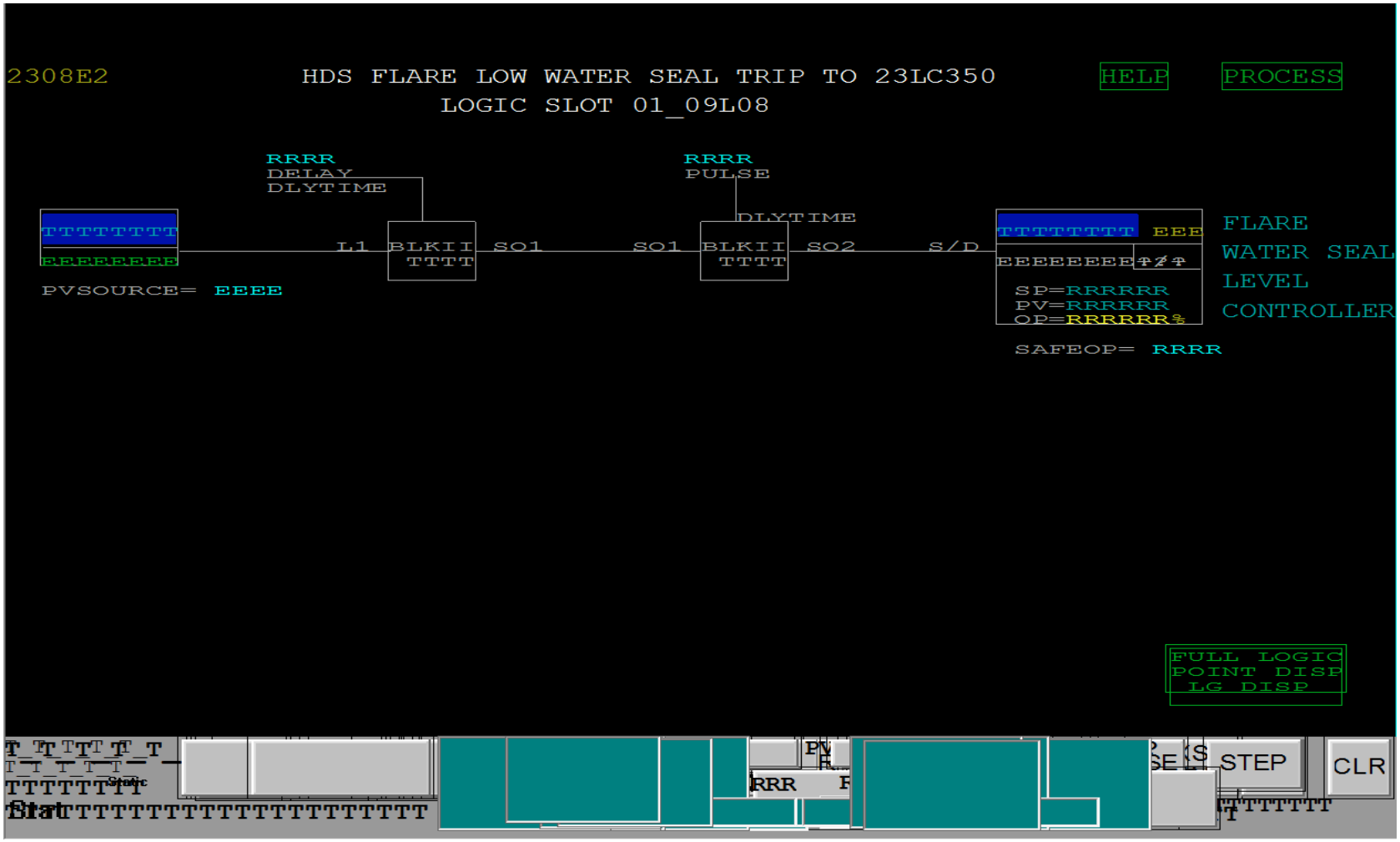
7.64 HDS PRISM UNIT CONTROL SCHEMES (2307H3.DS)



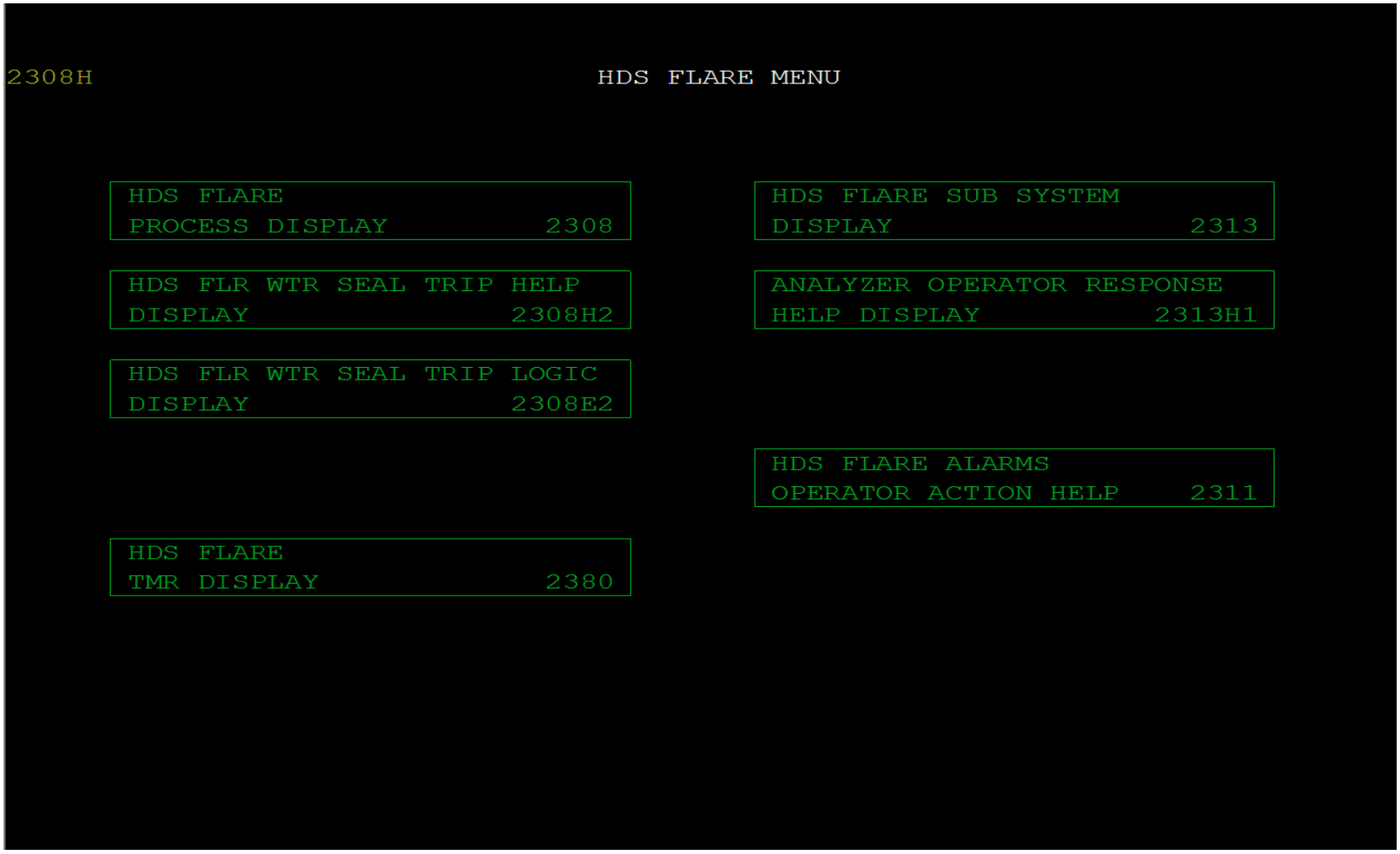
7.65 HDS PRISM UNIT (2307N.DS)



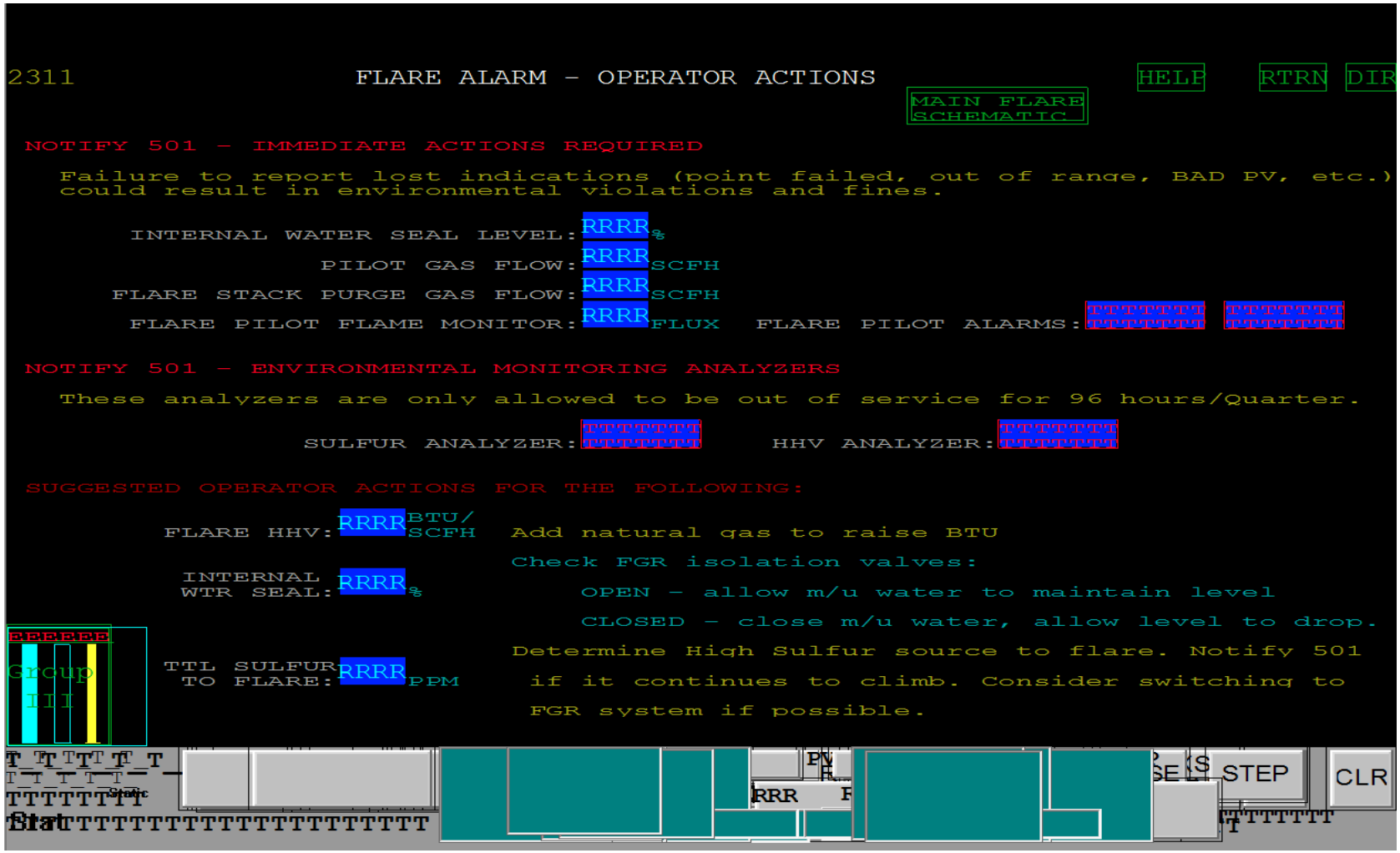
7.66 HDS FLARE LOW WATER SEAL TRIP TO 23LC350 LOGIC SLOT 01_09L08 (2308E2.DS)



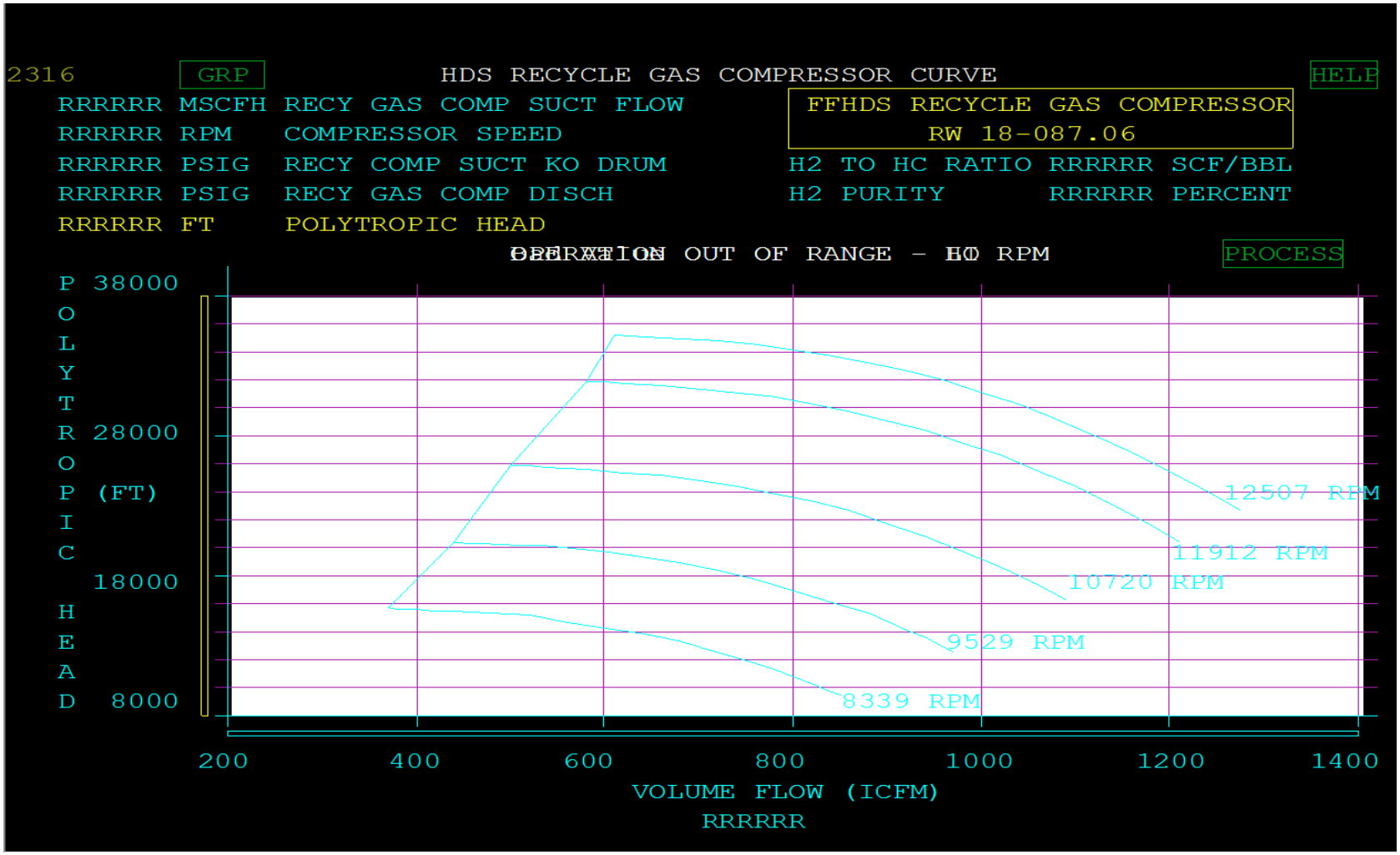
7.67 HDS FLARE MENU (2308H.DS)



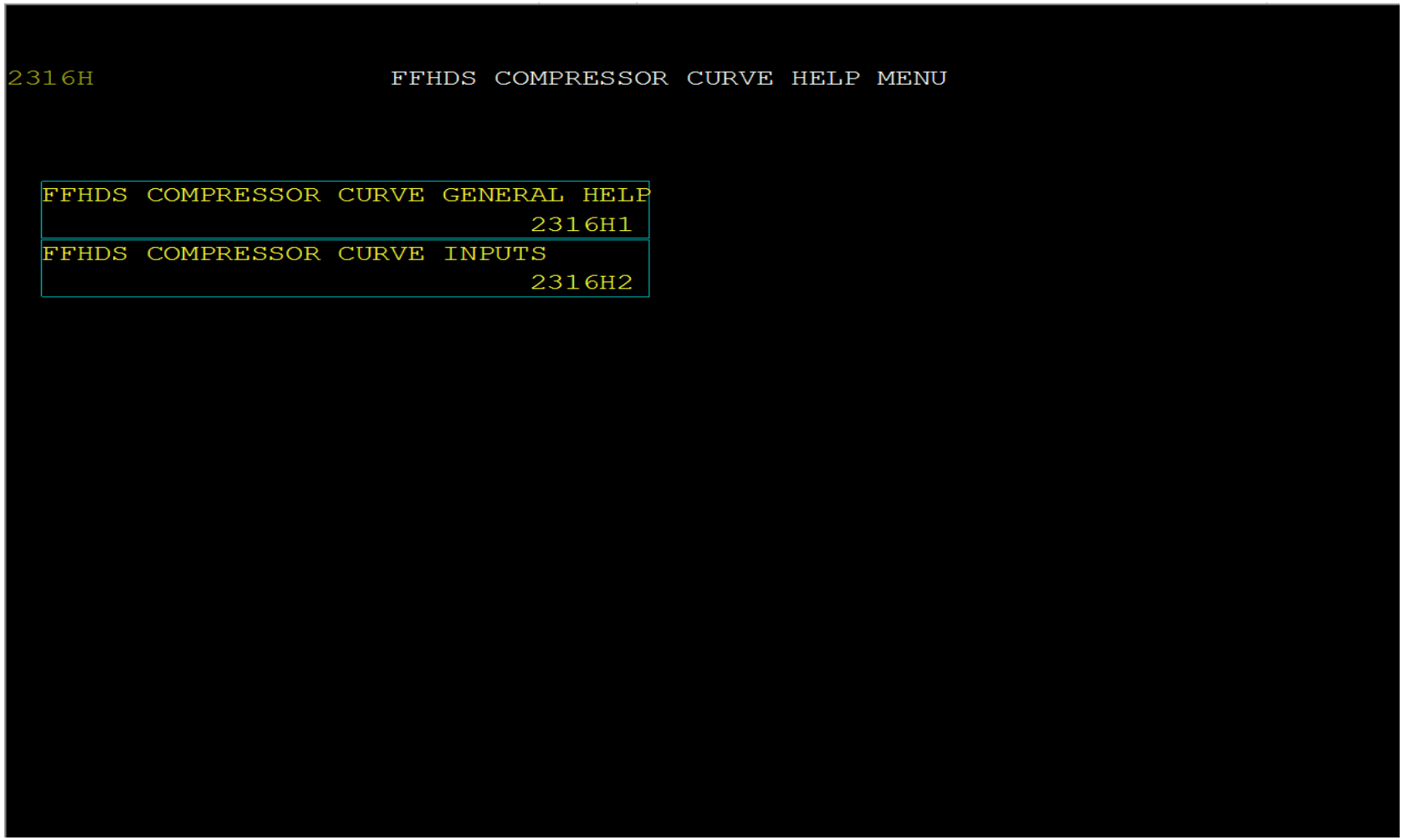
7.68 FLARE ALARM - OPERATOR ACTIONS (2311.DS)



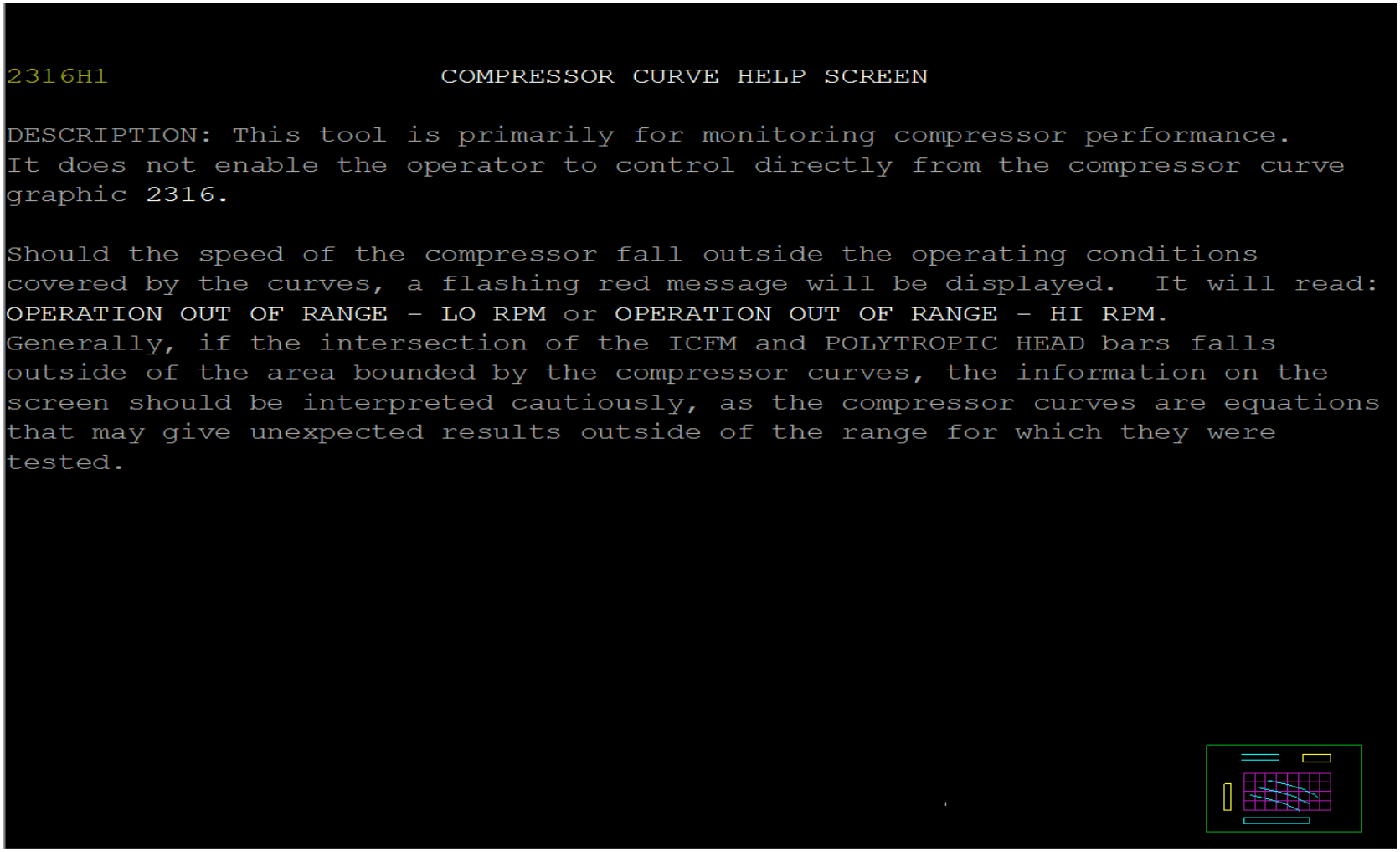
7.69 HDS RECYCLE GAS COMPRESSOR CURVE (2316.DS)



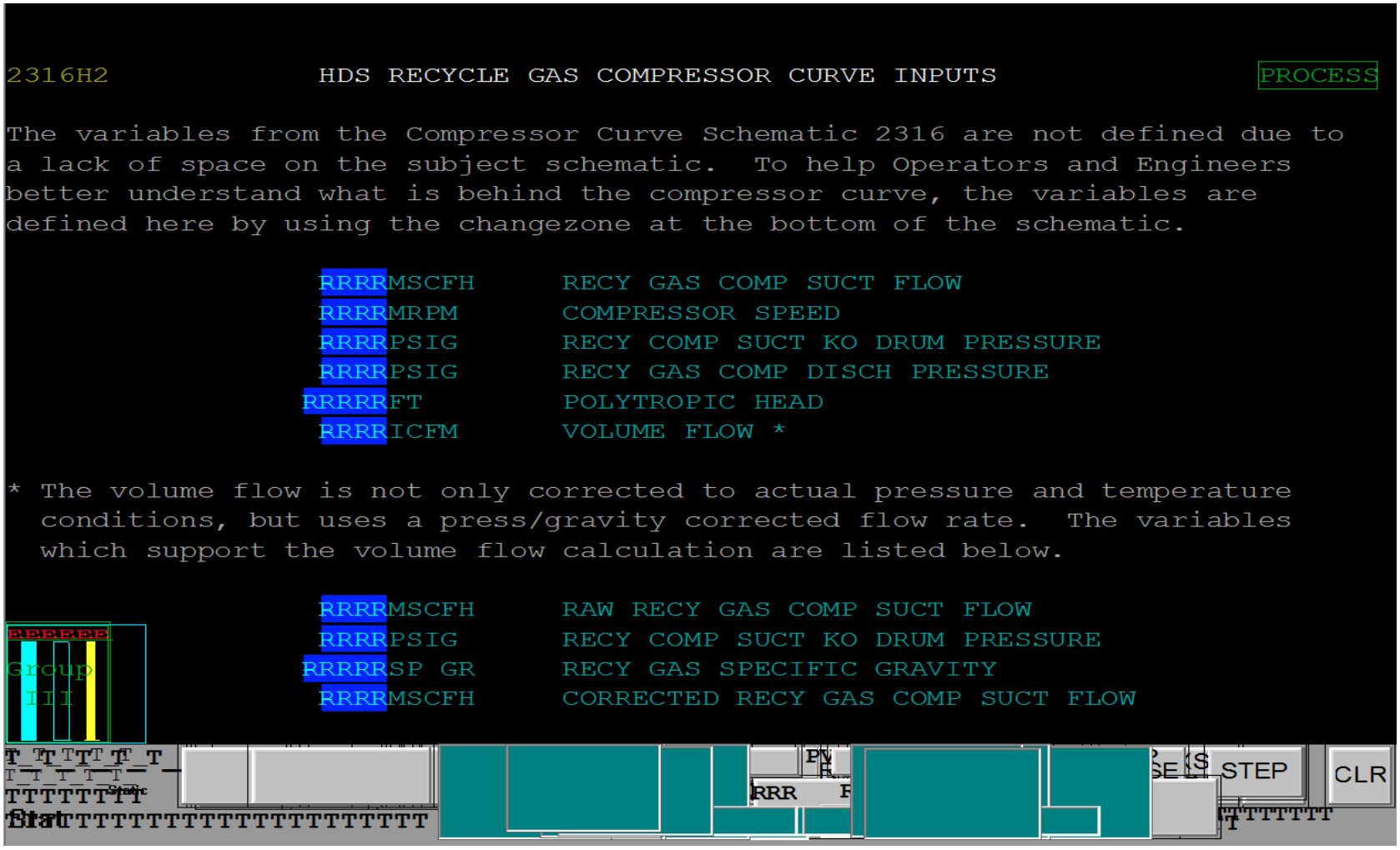
7.70 FFHDS COMPRESSOR CURVE HELP MENU (2316H.DS)



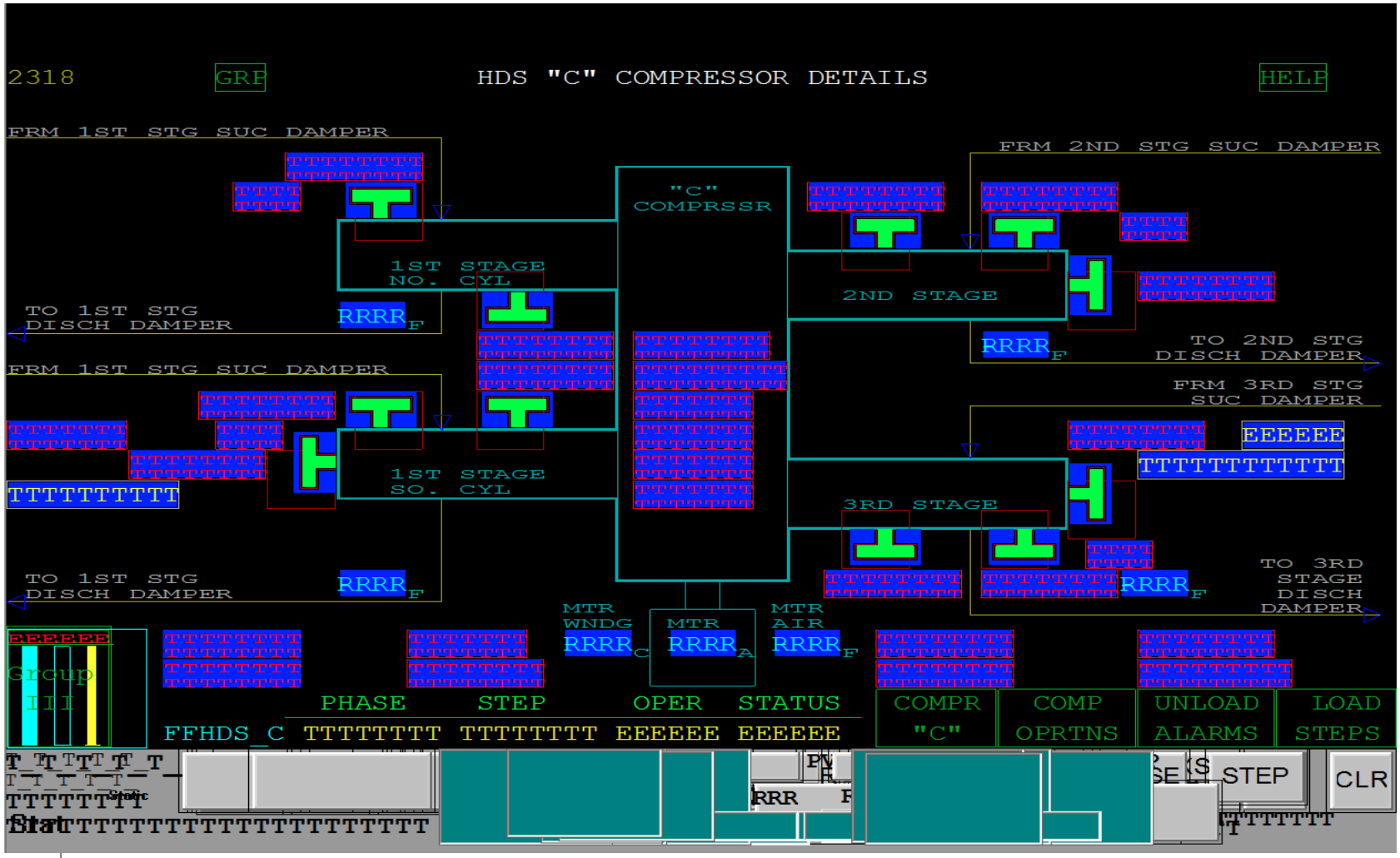
7.71 COMPRESSOR CURVE HELP SCREEN (2316H1.DS)



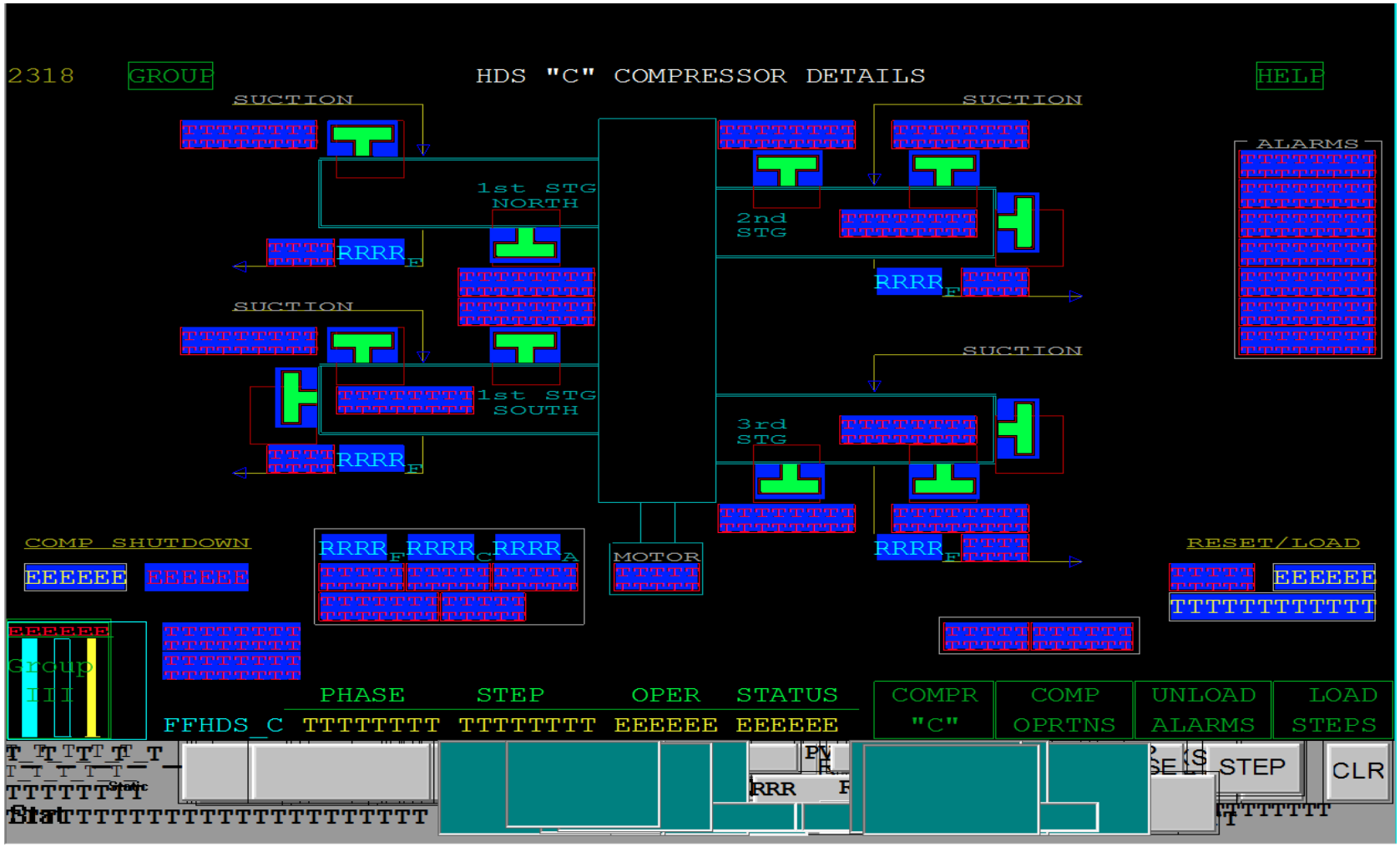
7.72 HDS RECYCLE GAS COMPRESSOR CURVE INPUTS (2316H2.DS)



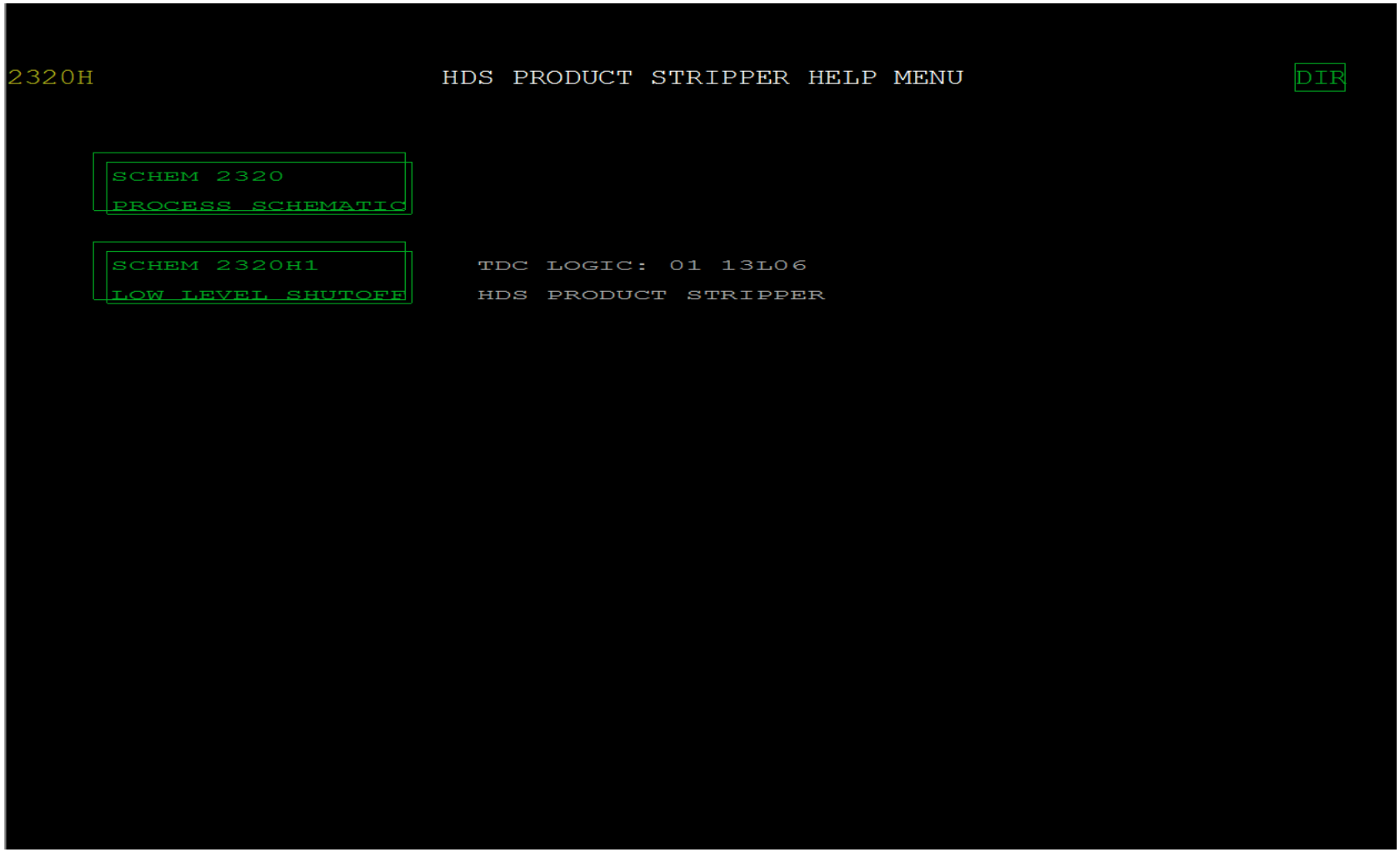
7.73 HDS "C" COMPRESSOR DETAILS (2318.DS)



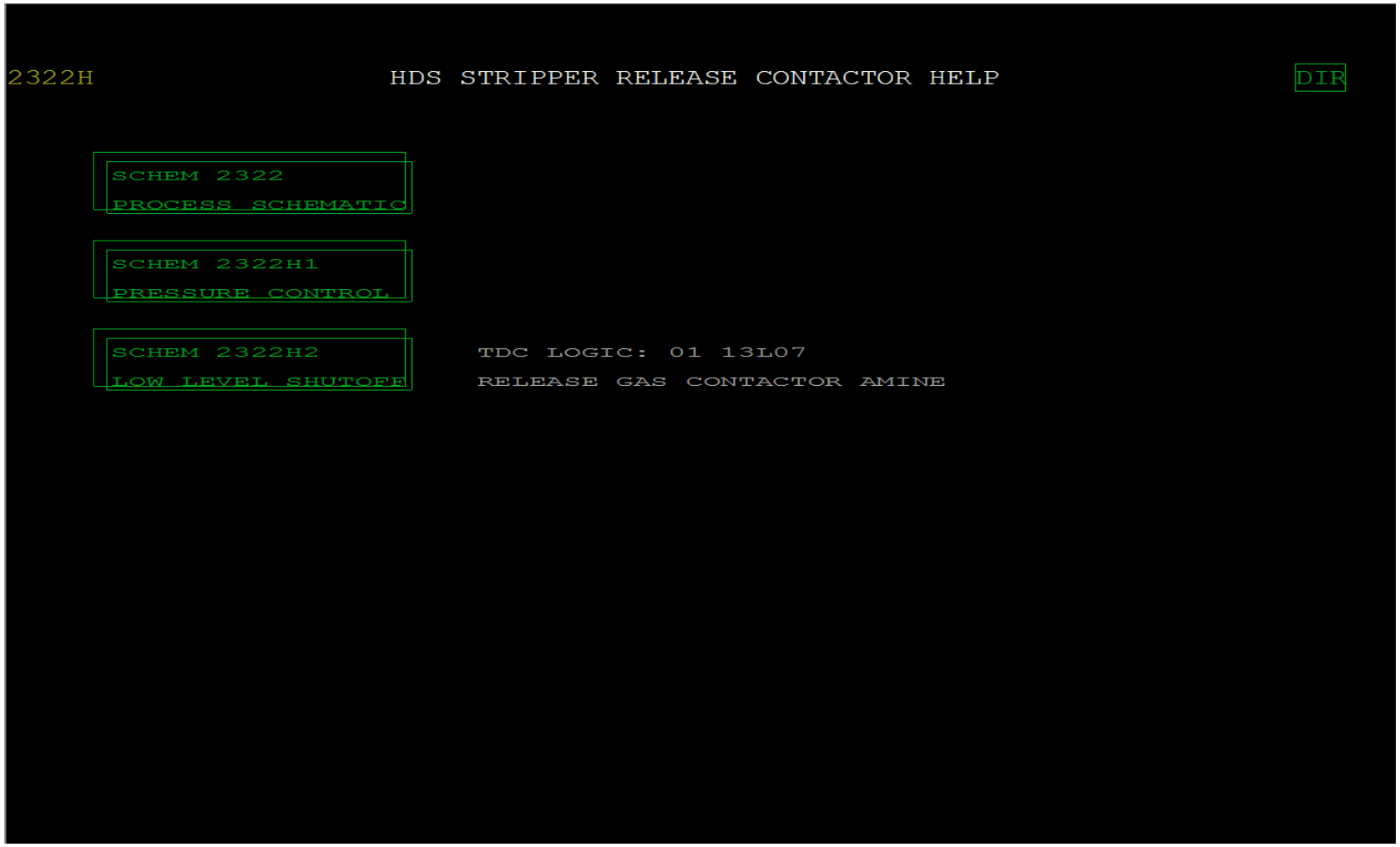
7.74 HDS "C" COMPRESSOR DETAILS (2318N.DS)



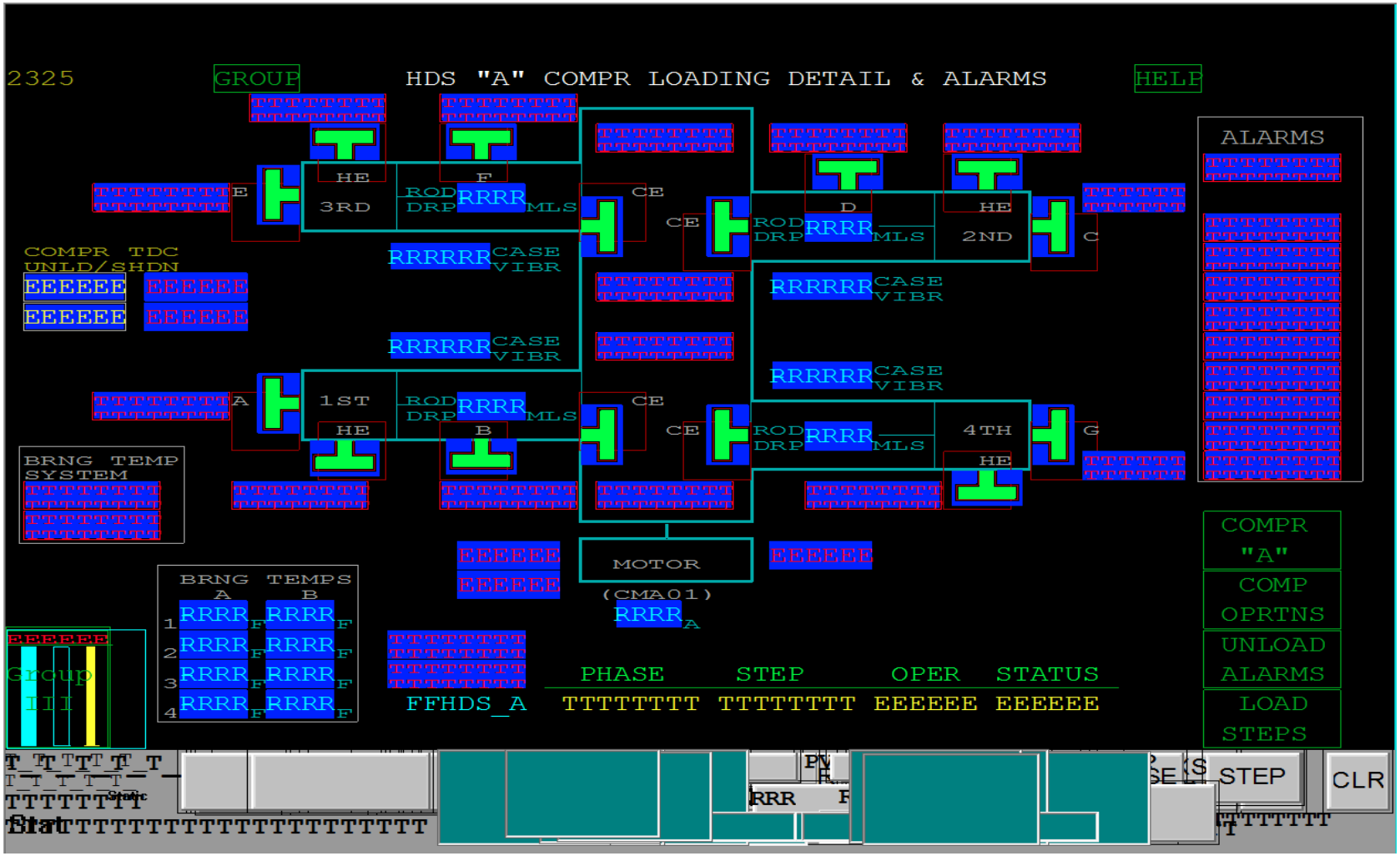
7.75 HDS PRODUCT STRIPPER HELP MENU (2320H.DS)



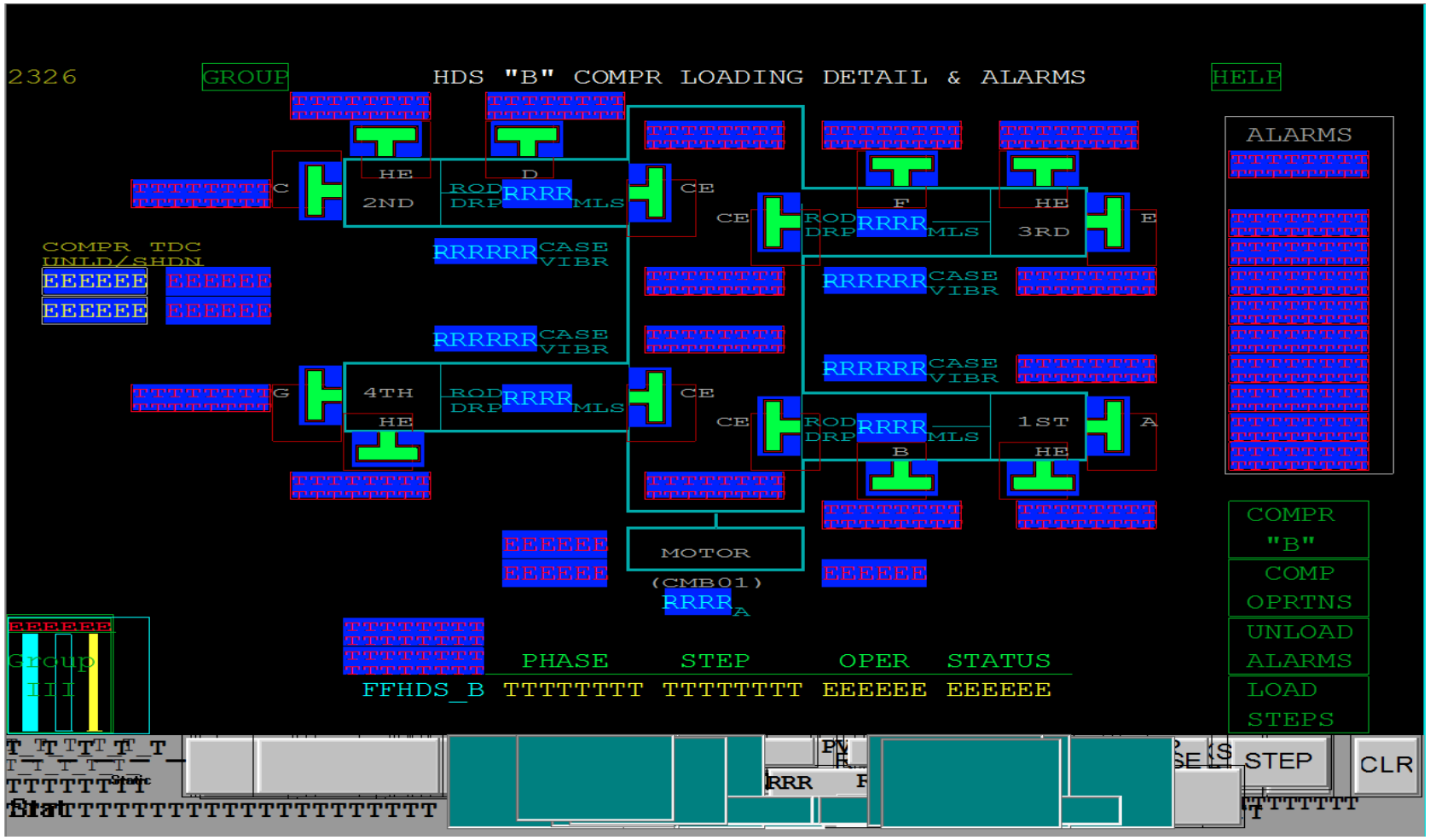
7.76 HDS STRIPPER RELEASE CONTACTOR HELP (2322H.DS)



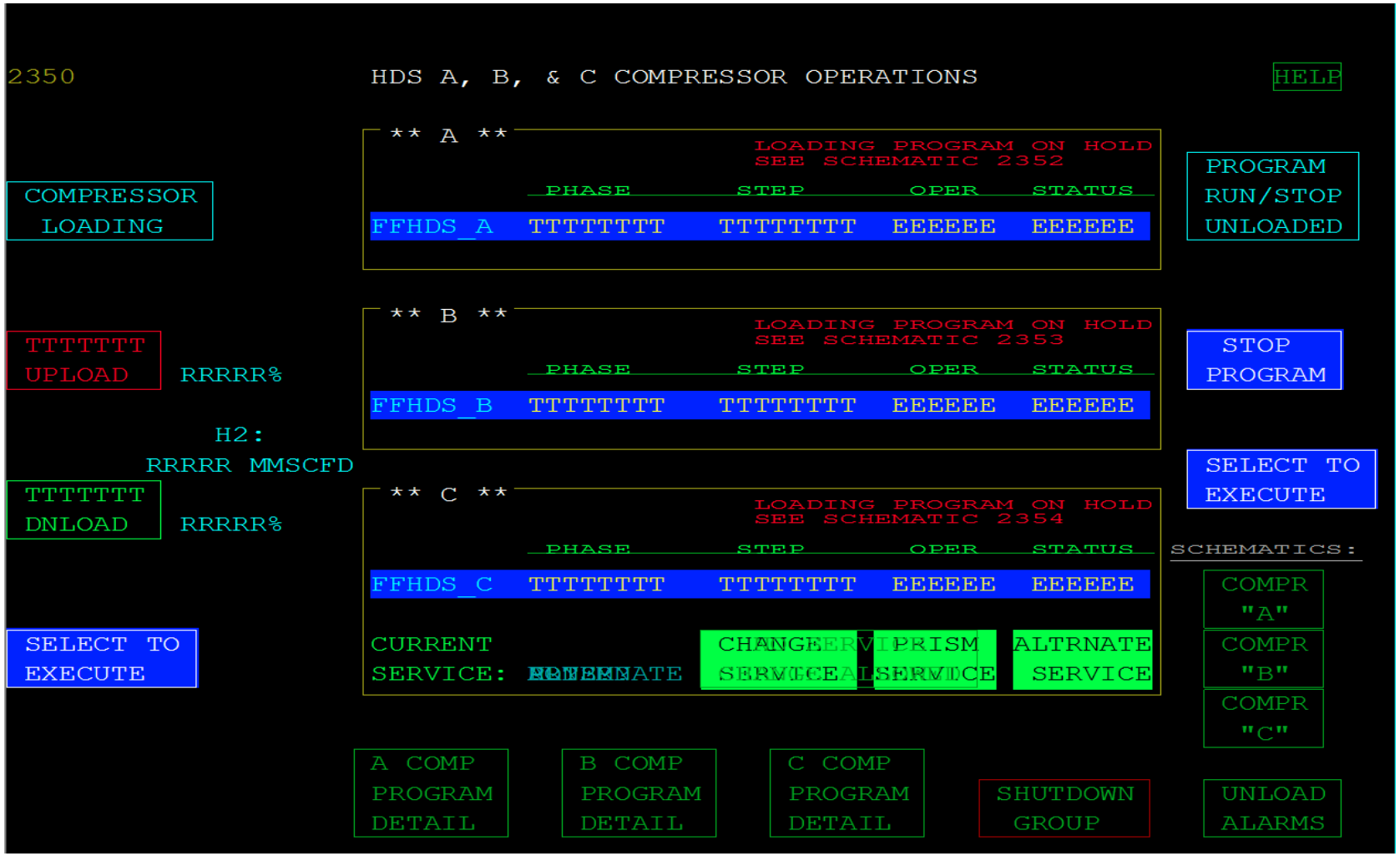
7.77 HDS "A" COMPR LOADING DETAIL & ALARMS (2325.DS)



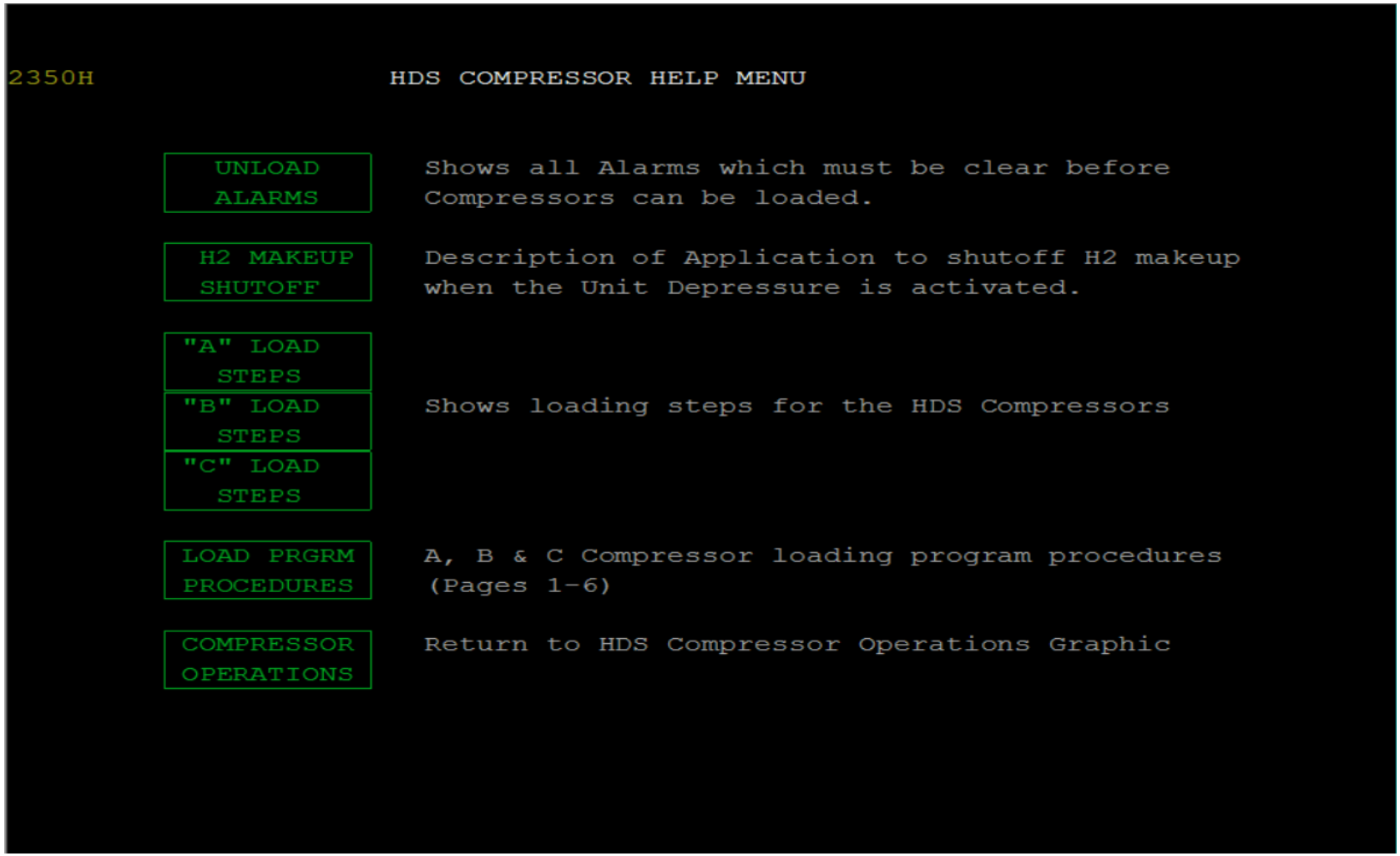
7.78 HDS "B" COMPR LOADING DETAIL & ALARMS (2326.DS)



7.79 HDS A, B, & C COMPRESSOR OPERATIONS (2350.DS)



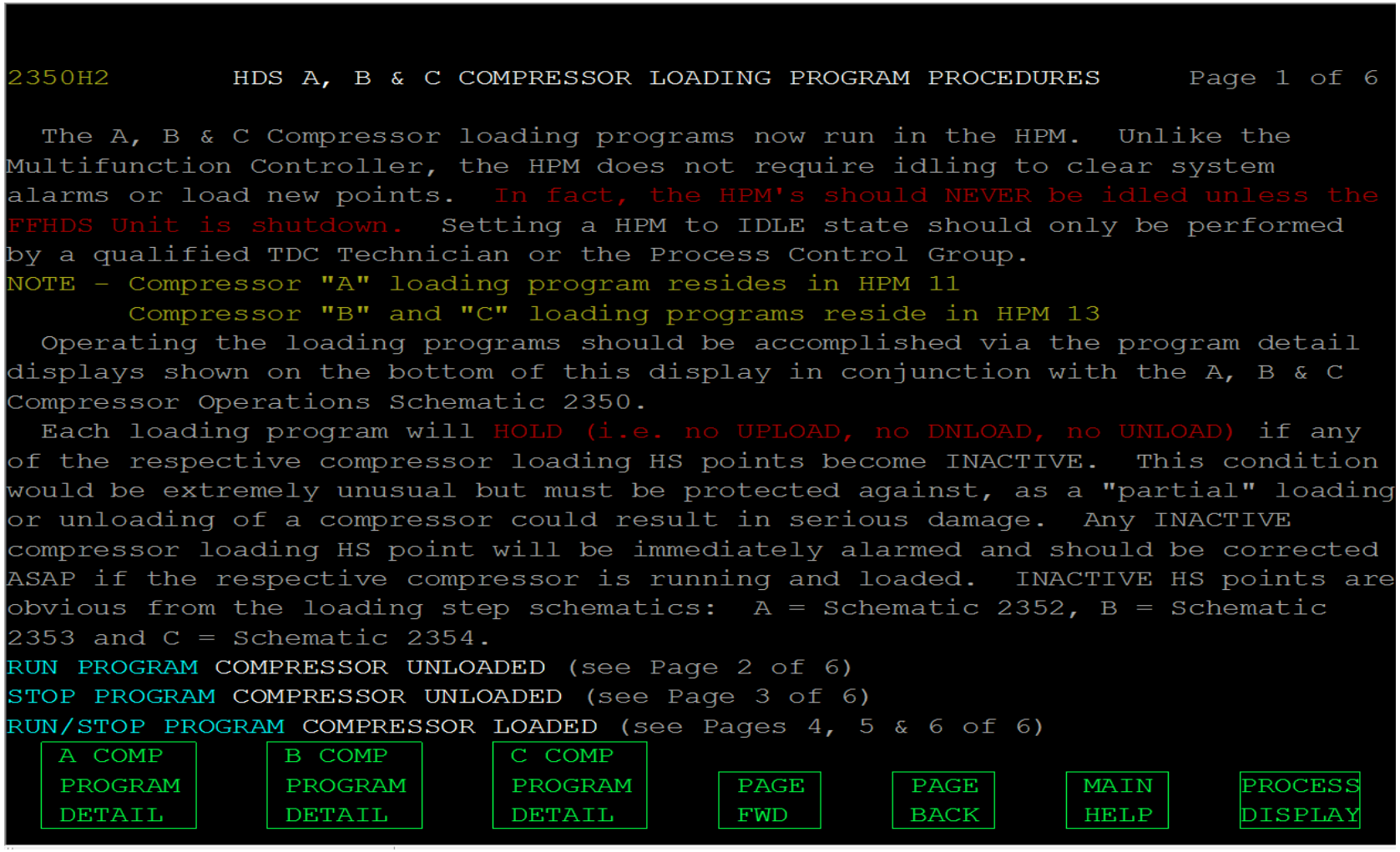
7.80 HDS COMPRESSOR HELP MENU (2350H.DS)



7.81 B COMPR TO PRISM SERVICE HELP (2350H1O.DS)

```
2350H1                B COMPR TO PRISM SERVICE HELP        HELP MENU

This procedure should be followed when changing the B Compressor from HDS
service to PRISM service. If the sequence is not followed exactly, it will
be necessary to start over from step 1.

1. From Schematic 2350 (Compressor Operations), stop all B Compr Programs.

2. From the Local Control Board, place the compressor in STANDBY.  Be patient
   while the Allen Bradley properly lines up the MOV valves.

3. From Schematic 2350, run the PRISM program. The program will go into the
   CHKN_ALB (Checking Allen Bradley) Phase and SRVC_SEL (Service Select) step.
   From the PRISM program DETAIL, the program should be at STATEMENT 2.

4. From the Local Control Board, put the compressor in PRISM service.  Messages
   should be sent stating 'TDC is waiting for Allen Bradley to lineup MOVs'.

5. From the PRISM program DETAIL, the program should be at STATEMENT 12 while
   it waits for the Allen Bradley. Be patient while the MOVs are lined up.

6. Once the MOV valves are lined up, messages will be sent stating 'PRISM
   lineup is complete' and the program will proceed to the ZRO_PCNT phase.

7. If all alarms all clear from Graphic 2351 (Unload Alarms), the compressor
   may be loaded at this time.
```

7.82 HDS A, B & C COMPRESSOR LOADING PROGRAM PROCEDURES (2350H2.DS)



7.83 HDS A, B & C COMPRESSOR LOADING PROGRAM PROCEDURES (2350H3.DS)

```
2350H3        HDS A, B & C COMPRESSOR LOADING PROGRAM PROCEDURES      Page 2 of 6

RUN PROGRAM COMPRESSOR UNLOADED
NOTE:  This funtion can also be performed using the targets on Schem 2350

1. Go to the correct Compressor Program Detail (see target below or Schem 2350)
2. The status should be as follows: OPER=OFF  EXEC=LOAD  MODE=AUTO *
3. PHASE and STEP should have no entries.
* If the MODE is not AUTO, then select word under MODE (SNGL STEP or SEMI AUTO)
  and select the AUTO target from the bottom of the display and ENTER.
  The MODE should change to AUTO.
4. Now select the word LOAD (under EXEC) and select the START target from the
   bottom of the display and ENTER.
5. The status should be as follows: OPER=NORM  EXEC=RUN  MODE=AUTO
6. If all the alarms preventing loading (Schem 2351) are green, then the
   compressor should be at: PHASE=ZRO_PCNT  STEP=STEP_1
7. Compressor loading program is now RUNNING. Proceed to Schmatic 2350 to
   load the compressor.
8. If any alarms preventing loading (Schem 2351) are in alarm, then the
   compressor should be at: PHASE=UNLOADED  STEP=WAITING
9. If the program has a failure message or this procedure is not working,
   contact the Process Control Group to troubleshoot.

 A COMP    B COMP    C COMP
 PROGRAM   PROGRAM   PROGRAM   PAGE   PAGE   MAIN   PROCESS
 DETAIL    DETAIL    DETAIL    FWD    BACK   HELP   DISPLAY
```

7.84 HDS A, B & C COMPRESSOR LOADING PROGRAM PROCEDURES (2350H4.DS)

```
2350H4        HDS A, B & C COMPRESSOR LOADING PROGRAM PROCEDURES      Page 3 of 6

STOP PROGRAM COMPRESSOR UNLOADED
NOTE:  This funtion can also be performed using the targets on Schem 2350

1. Go to the correct Compressor Program Detail (see target below or Schem 2350)
2. The status should be as follows: OPER=NORM  EXEC=RUN  MODE=AUTO
3. The PHASE and STEP will be either: PHASE=ZRO_PCNT  STEP=STEP_1
   or PHASE=UNLOADED  STEP=WAITING
   NOTE: If the PHASE reads anything else, the compressor is loaded - go to
         Help Display RUN/STOP PROGRAM COMPRESSOR LOADED
4. Select the word RUN (under EXEC) and select the STOP target from the
   bottom of the display and ENTER.  The EXEC should change to:
   F165 HALTED BY OPERATOR
5. Now select the word NORM (under OPER) and select the OFF target from the
   bottom of the display and ENTER.
   NOTE: If you select the SHUTDOWN target by mistake re-do Steps 4 & 5
6. The status should be as follows: OPER=OFF  EXEC=LOAD  MODE=AUTO
7. PHASE and STEP should have no entries
8. Compressor loading program is now OFF
9. If the program has a failure message or this procedure is not working,
   contact the Process Control Group to troubleshoot.

 A COMP    B COMP    C COMP
 PROGRAM   PROGRAM   PROGRAM   PAGE   PAGE   MAIN   PROCESS
 DETAIL    DETAIL    DETAIL    FWD    BACK   HELP   DISPLAY
```

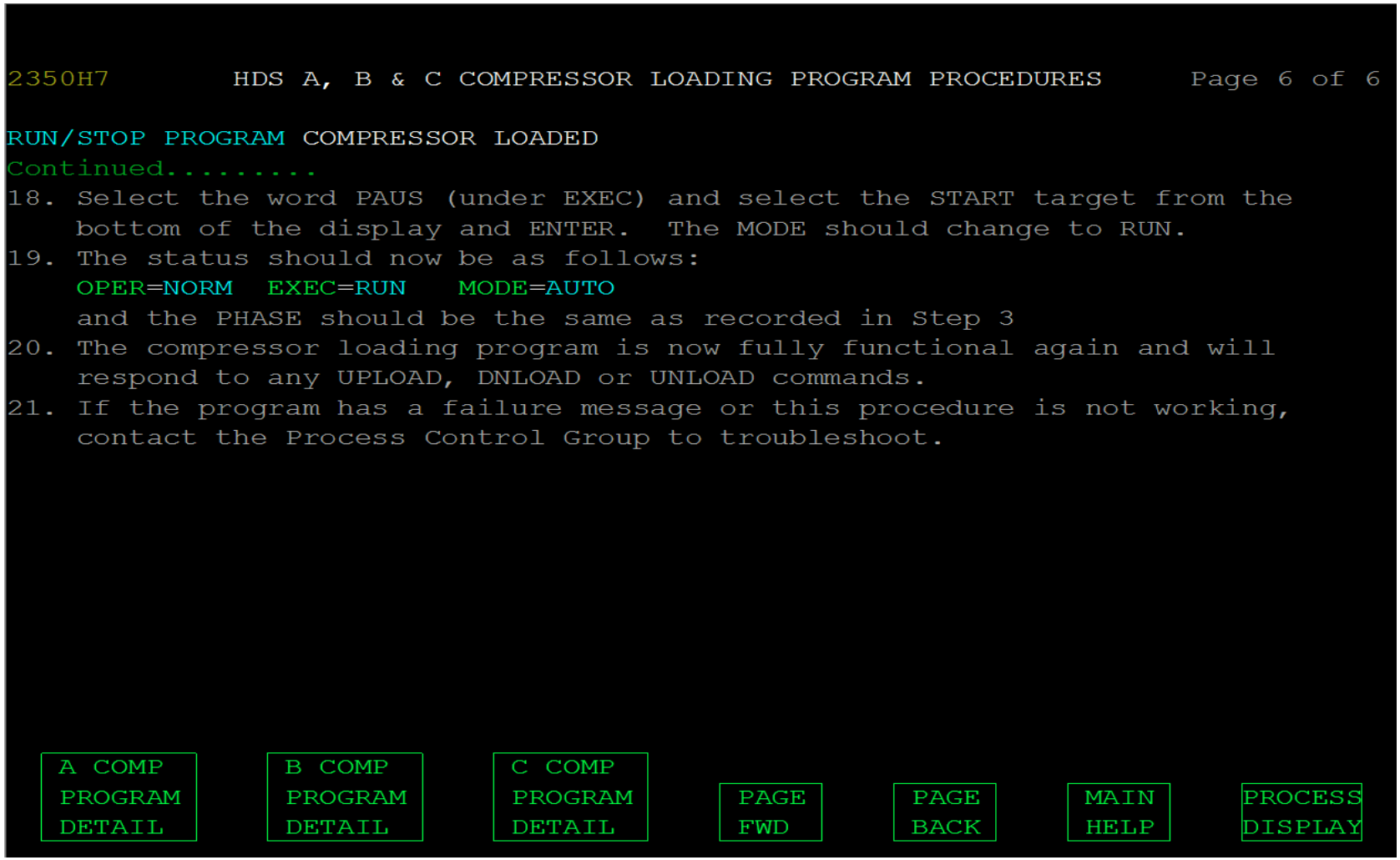
7.85 HDS A, B & C COMPRESSOR LOADING PROGRAM PROCEDURES (2350H5.DS)

```
2350H5        HDS A, B & C COMPRESSOR LOADING PROGRAM PROCEDURES      Page 4 of 6

RUN/STOP PROGRAM COMPRESSOR LOADED
NOTE: Since the HPM does not require idling, a compressor loading program RUN-
      STOP and STOP-RUN with the compressor loaded should be extremely rare.
      However, by following this procedure the program can be changed from RUN
      to STOP and then back again to RUN without affecting compressor operation.
1. Go to the correct Compressor Program Detail (see target below or Schem 2350)
2. The status should be as follows: OPER=NORM  EXEC=RUN  MODE=AUTO
3. Record the PHASE name which indicates the % loading of the compressor
   (example: PHASE=50_PCNT)
   NOTE: If the PHASE reads UNLOADED or ZRO_PCNT then the compressor is already
         unloaded, go to HELP DISPLAY STOP PROGRAM COMPRESSOR UNLOADED
4. Select the word RUN (under EXEC) and select the STOP target from the
   bottom of the display and ENTER.  The EXEC should change to:
   F165 HALTED BY OPERATOR
5. Now select the word NORM (under OPER) and select the OFF target from the
   bottom of the display and ENTER.  The OPER should change to OFF.
   NOTE: DO NOT SELECT THE SHUTDOWN TARGET OR THE COMPRESSOR WILL UNLOAD
6. The status should be as follows: OPER=OFF  EXEC=LOAD  MODE=AUTO
7. PHASE and STEP should have no entries
8. Compressor loading program is now off, but the compressor is still loaded to
   the PHASE recorded in Step 3 above.  Page forward to continue.....

 A COMP    B COMP    C COMP    PAGE      PAGE      MAIN      PROCESS
 PROGRAM   PROGRAM   PROGRAM   FWD       BACK      HELP      DISPLAY
 DETAIL    DETAIL    DETAIL
```

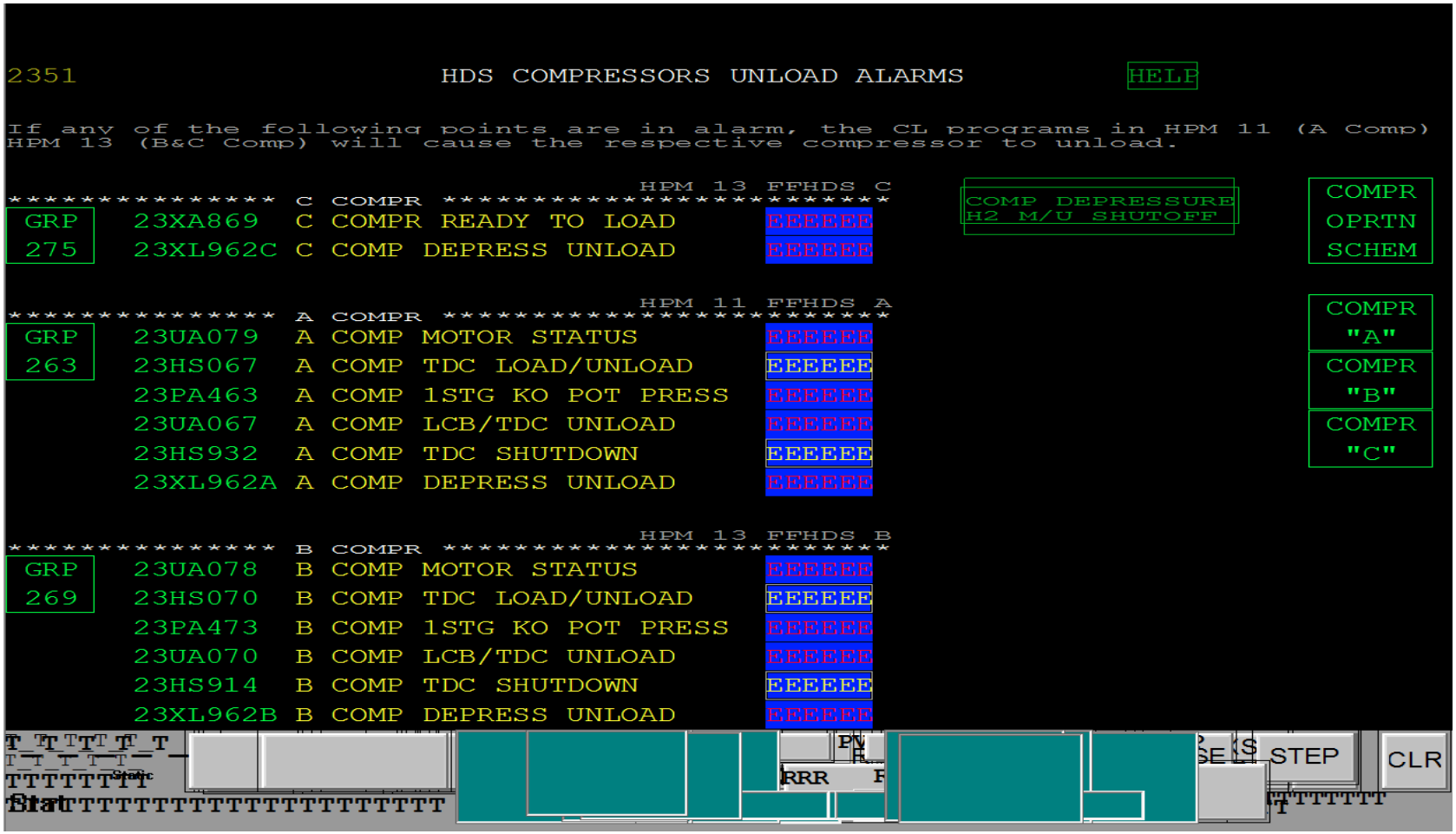
7.86 HDS A, B & C COMPRESSOR LOADING PROGRAM PROCEDURES (2350H6.DS)

```
2350H6        HDS A, B & C COMPRESSOR LOADING PROGRAM PROCEDURES      Page 5 of 6

RUN/STOP PROGRAM COMPRESSOR LOADED
Continued.........
9. The compressor can not be loaded OR unloaded in this mode
10. When it is desired to re-start the compressor loading program at the
    Phase recorded in Step 3, proceed with Step 11
11. Call up Schem 2351 and verify that there are no active alarms on the
    compressor whose loading program is being re-started.  Any active alarms
    must be cleared before proceeding or else the compressor will unload.
12. Select the word AUTO (under MODE) and select the SNGL STEP target from the
    bottom of the display and ENTER.  The MODE should change to SNGL.
13. Select the word LOAD (under EXEC) and select the START target from the
    bottom of the display and ENTER.  The EXEC should change to PAUS.
14. The status should be as follows:
    OPER=NORM  EXEC=PAUS  MODE=SNGL  PHASE=INIT
15. The program is now in SINGLE STEP mode, and we can forward step it back to
    the PHASE recorded in Step 3
16. Select the word INIT (under PHASE) and select the FWD target from the bottom
    of the display and ENTER.  Repeat the FWD and ENTER actions until the PHASE
    recorded in Step 3 is displaed under PHASE.
17. Select the word SNGL (under MODE) and select the AUTO target from the
    bottom of the display and ENTER.  The MODE should change to AUTO.
  A COMP     B COMP     C COMP     Page forward to continue.....
  PROGRAM    PROGRAM    PROGRAM    PAGE     PAGE     MAIN     PROCESS
  DETAIL     DETAIL     DETAIL     FWD      BACK     HELP     DISPLAY
```

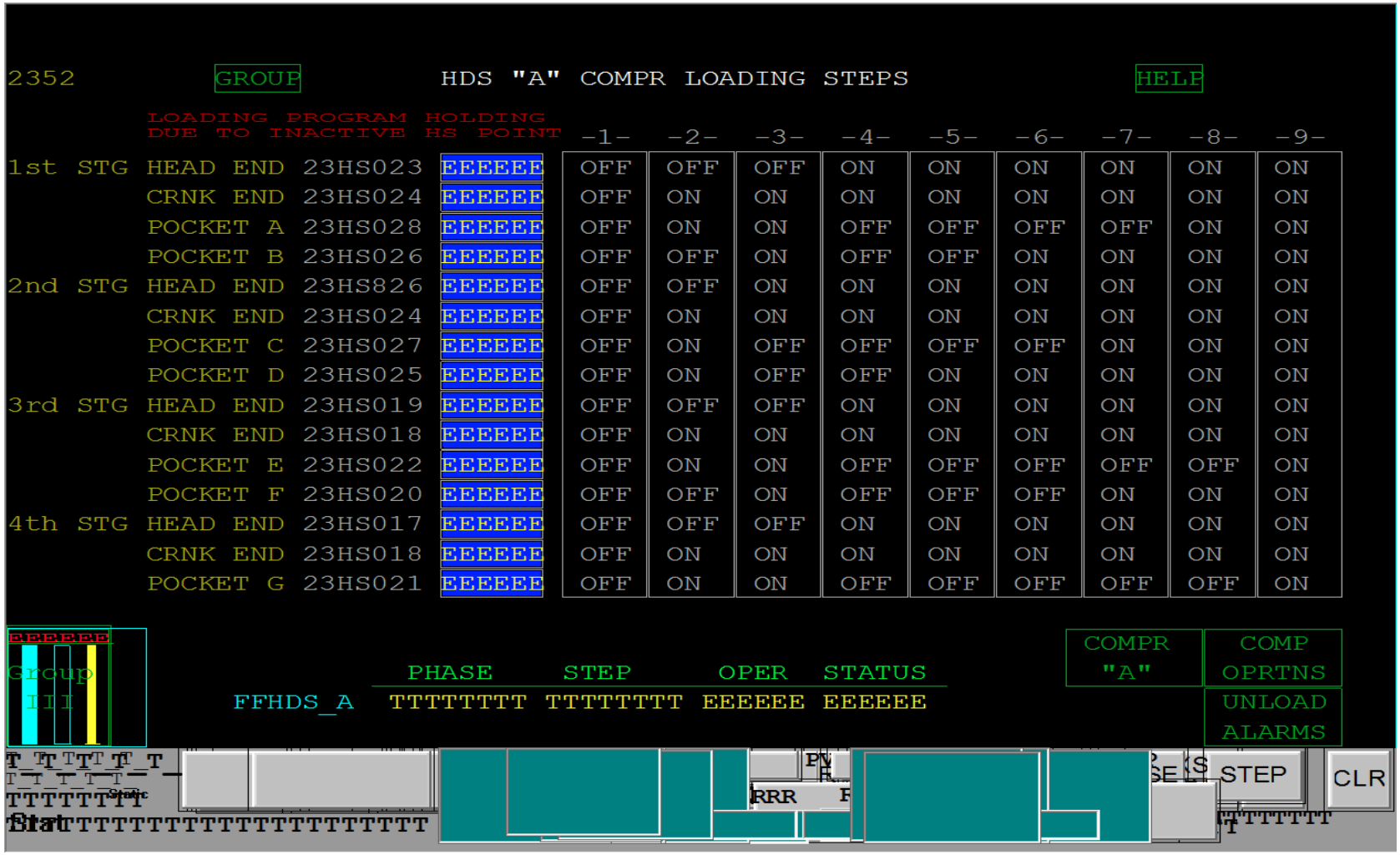
7.87 HDS A, B & C COMPRESSOR LOADING PROGRAM PROCEDURES (2350H7.DS)



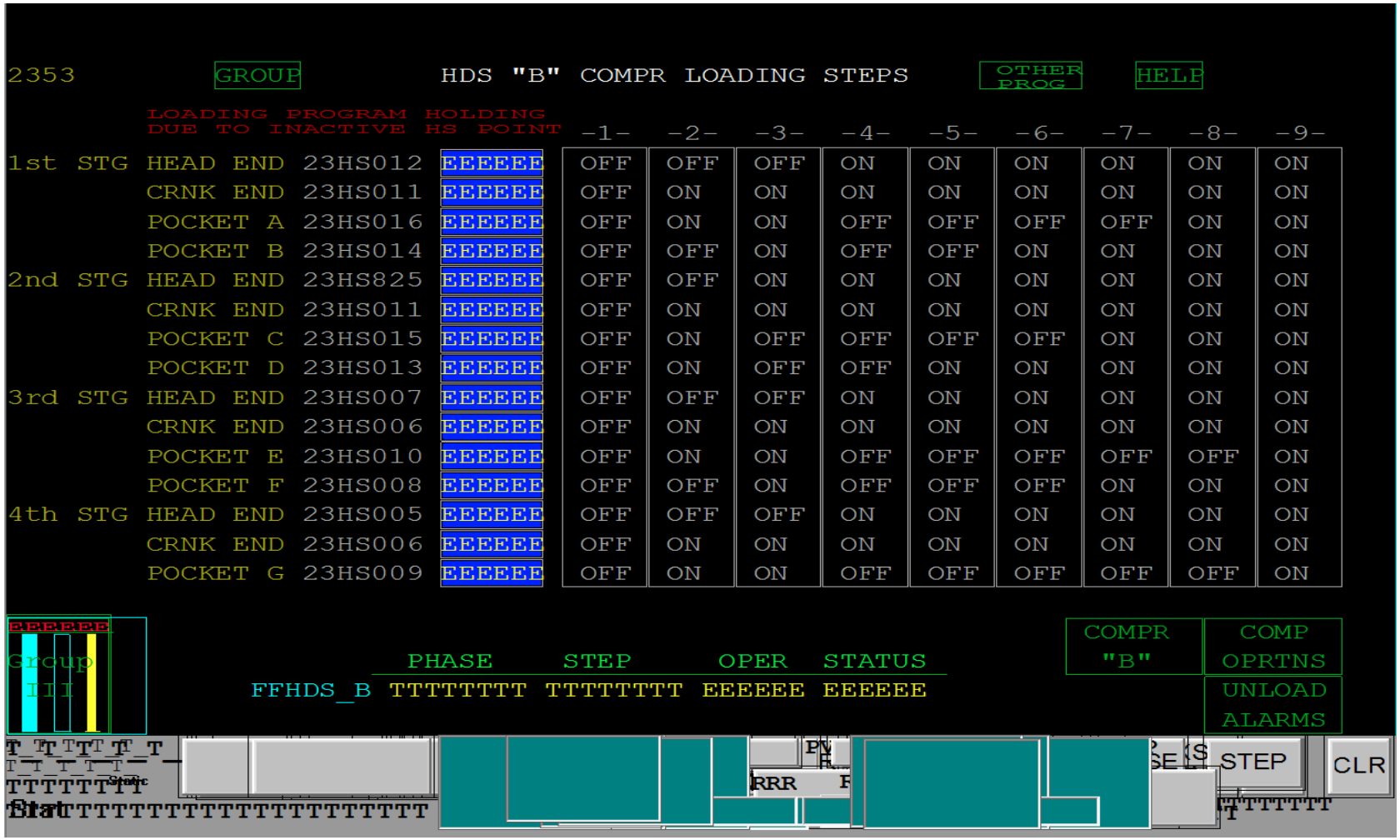
7.88 HDS COMPRESSORS UNLOAD ALARMS (2351.DS)



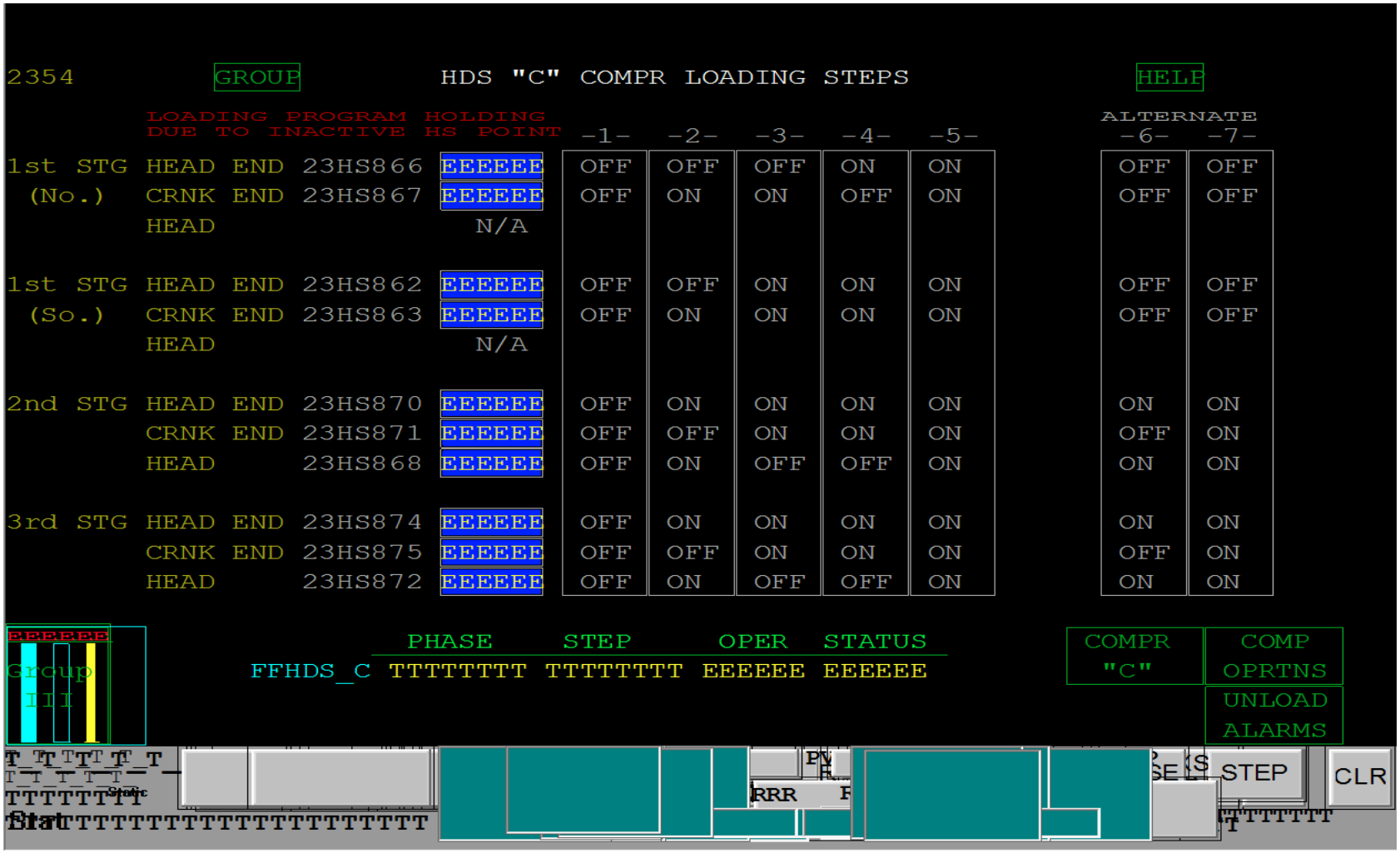
7.89 HDS "A" COMPR LOADING STEPS (2352.DS)



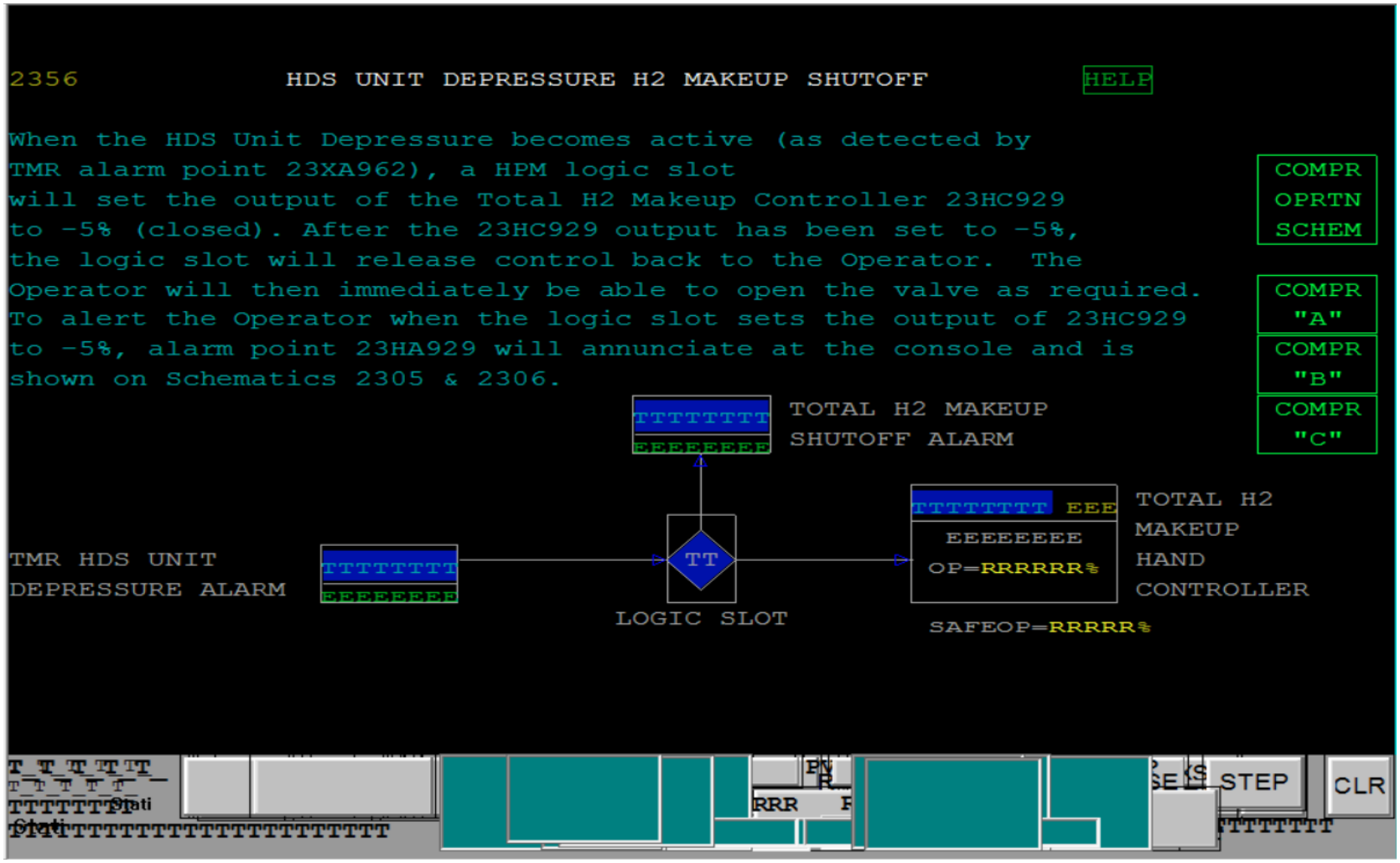
7.90 HDS "B" COMPR LOADING STEPS (2353.DS)



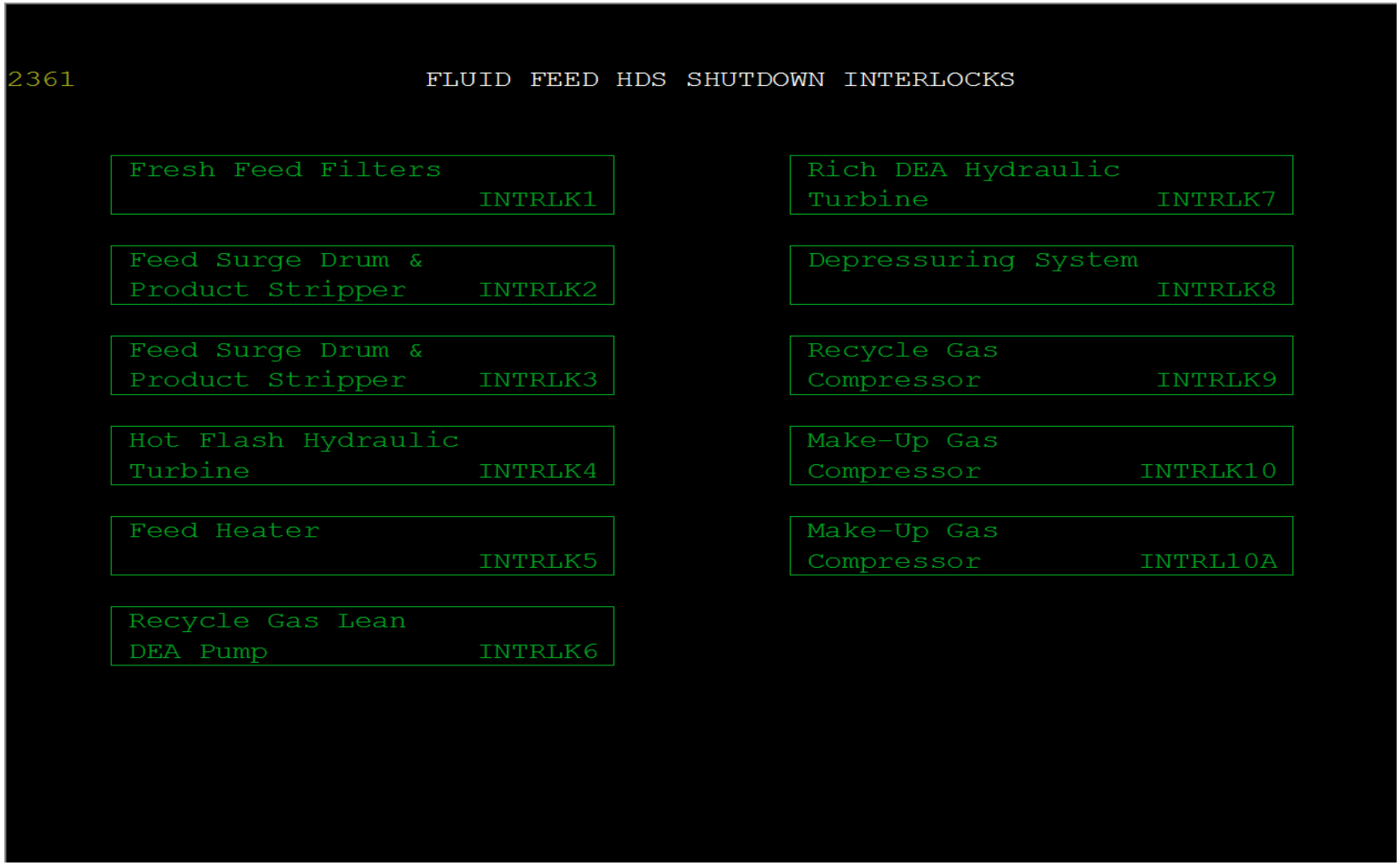
7.91 HDS "C" COMPR LOADING STEPS (2354.DS)



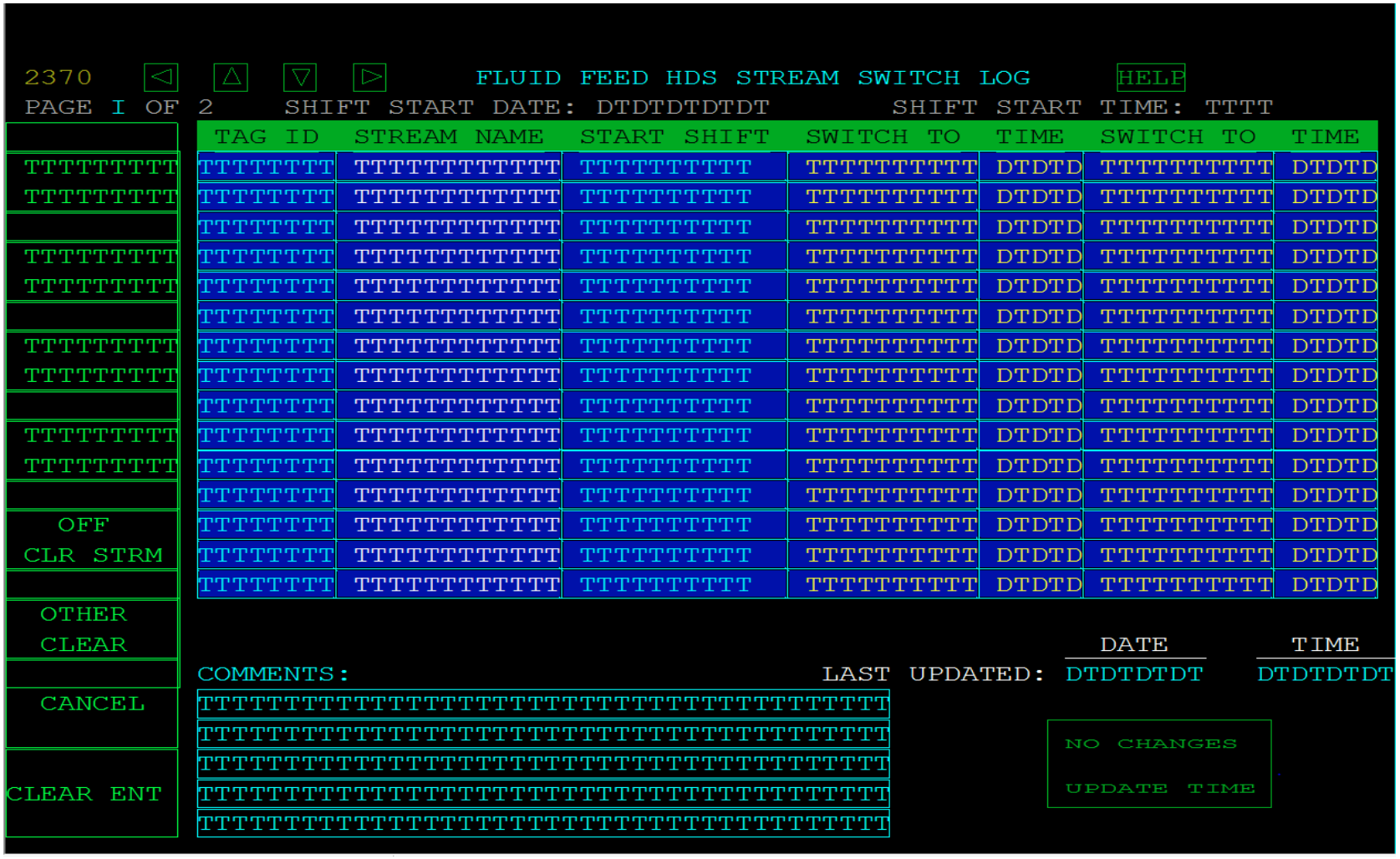
7.92 HDS UNIT DEPRESSURE H2 MAKEUP SHUTOFF (2356.DS)



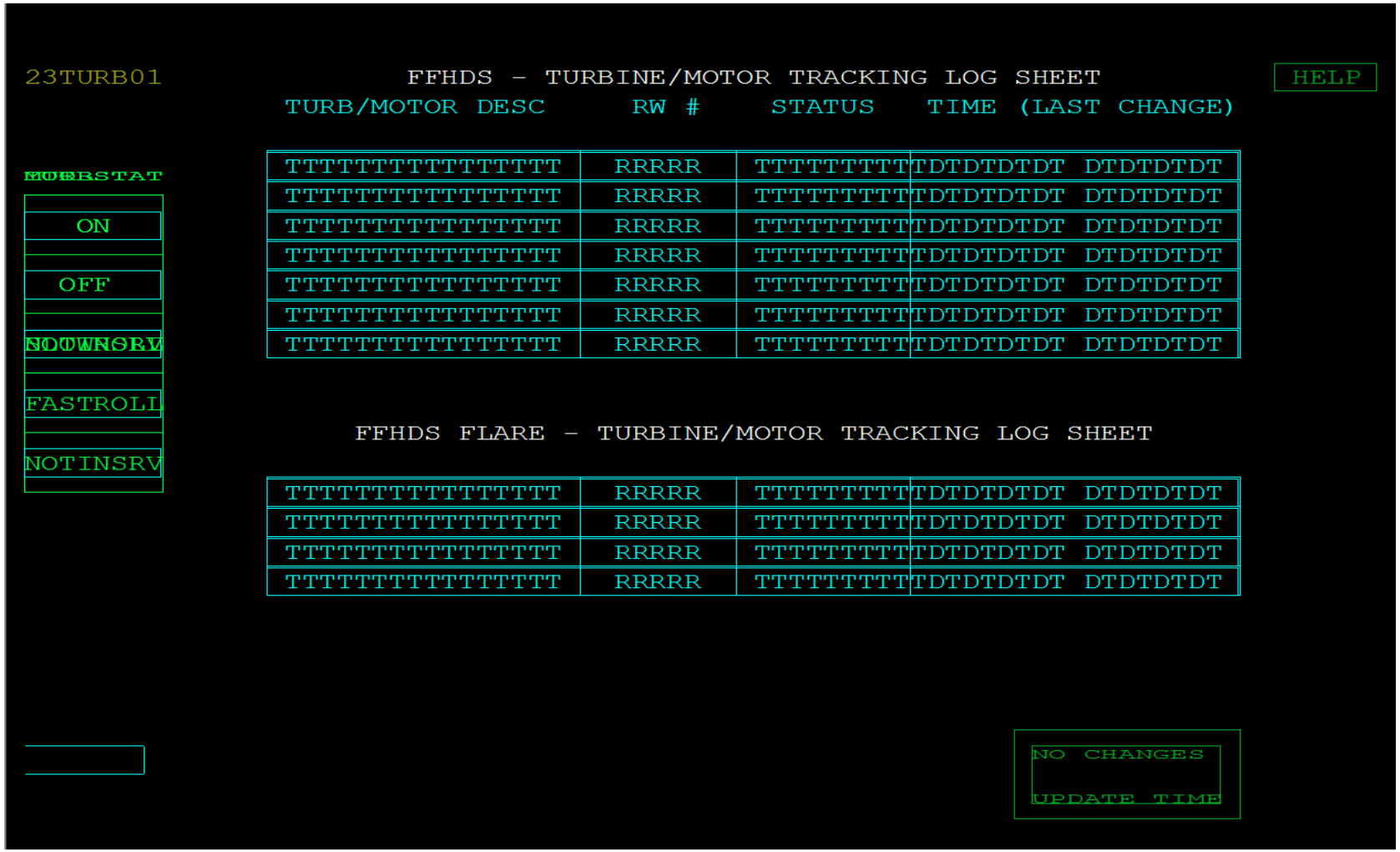
7.93 FLUID FEED HDS SHUTDOWN INTERLOCKS (2361.DS)



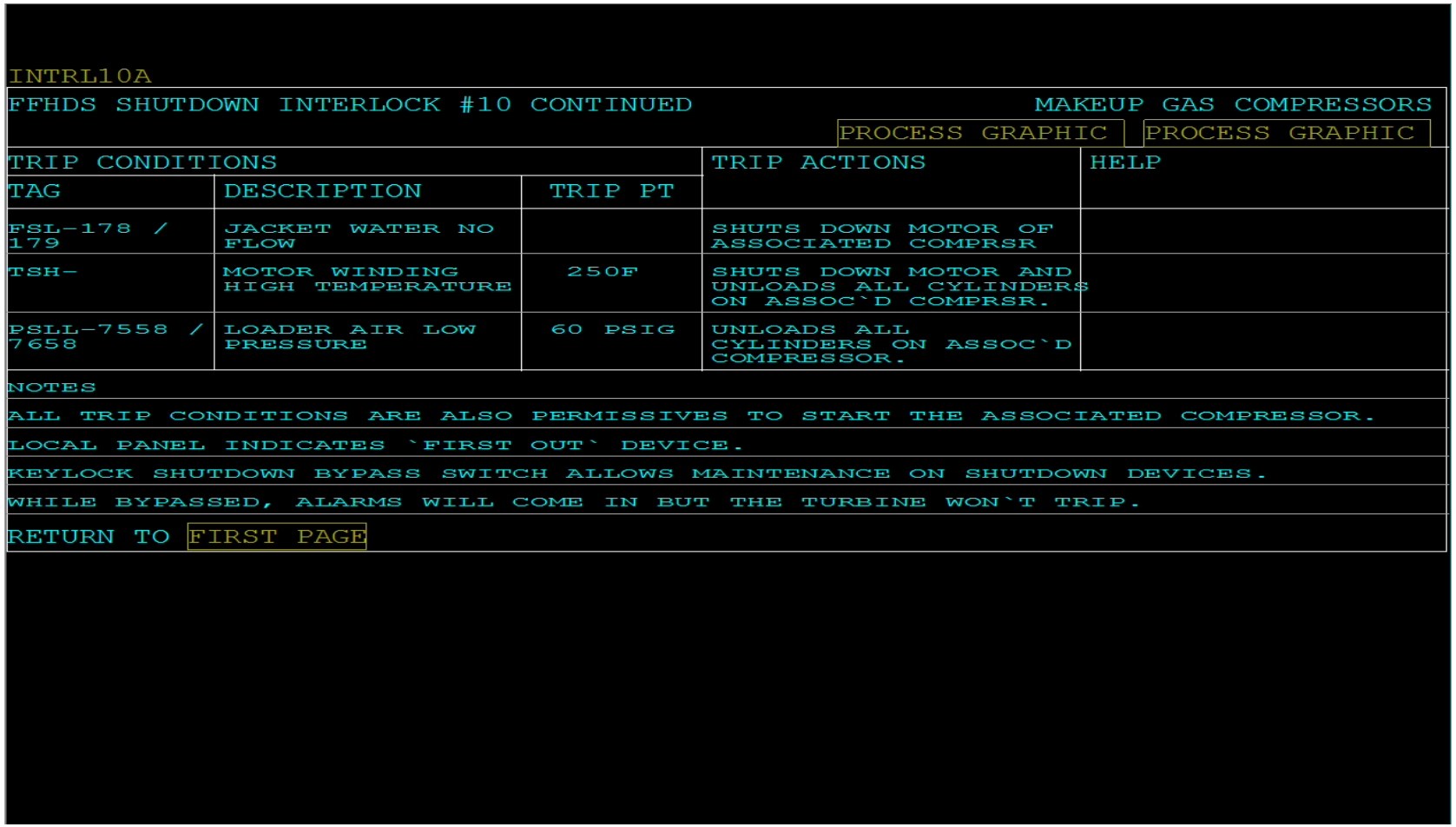
7.94 FLUID FEED HDS STREAM SWITCH LOG (2370.DS)



7.95 FFHDS - TURBINE/MOTOR TRACKING LOG SHEET (23TURB01.DS)



7.96 FFHDS SHUTDOWN INTERLOCK #10 CONTINUED (INTRL10A.DS)



INTRL10A

FFHDS SHUTDOWN INTERLOCK #10 CONTINUED — MAKEUP GAS COMPRESSORS

PROCESS GRAPHIC | PROCESS GRAPHIC

TRIP CONDITIONS			TRIP ACTIONS	HELP
TAG	DESCRIPTION	TRIP PT		
FSL-178 / 179	JACKET WATER NO FLOW		SHUTS DOWN MOTOR OF ASSOCIATED COMPRSR	
TSH-	MOTOR WINDING HIGH TEMPERATURE	250F	SHUTS DOWN MOTOR AND UNLOADS ALL CYLINDERS ON ASSOC`D COMPRSR.	
PSLL-7558 / 7658	LOADER AIR LOW PRESSURE	60 PSIG	UNLOADS ALL CYLINDERS ON ASSOC`D COMPRESSOR.	

NOTES

ALL TRIP CONDITIONS ARE ALSO PERMISSIVES TO START THE ASSOCIATED COMPRESSOR.

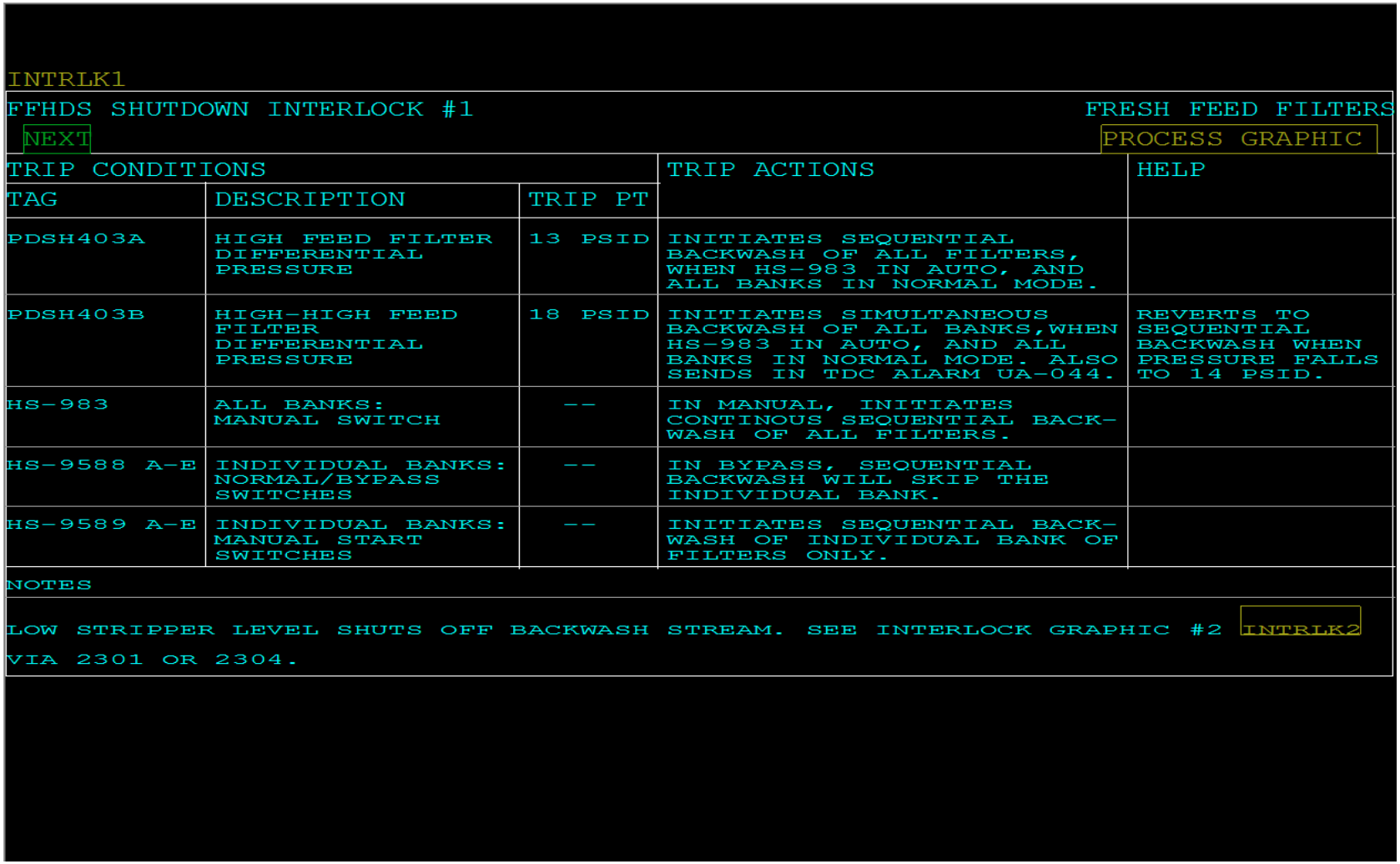
LOCAL PANEL INDICATES `FIRST OUT` DEVICE.

KEYLOCK SHUTDOWN BYPASS SWITCH ALLOWS MAINTENANCE ON SHUTDOWN DEVICES.

WHILE BYPASSED, ALARMS WILL COME IN BUT THE TURBINE WON`T TRIP.

RETURN TO FIRST PAGE

7.97 FFHDS SHUTDOWN INTERLOCK #1 (INTRLK1.DS)



INTRLK1

FFHDS SHUTDOWN INTERLOCK #1 — FRESH FEED FILTERS

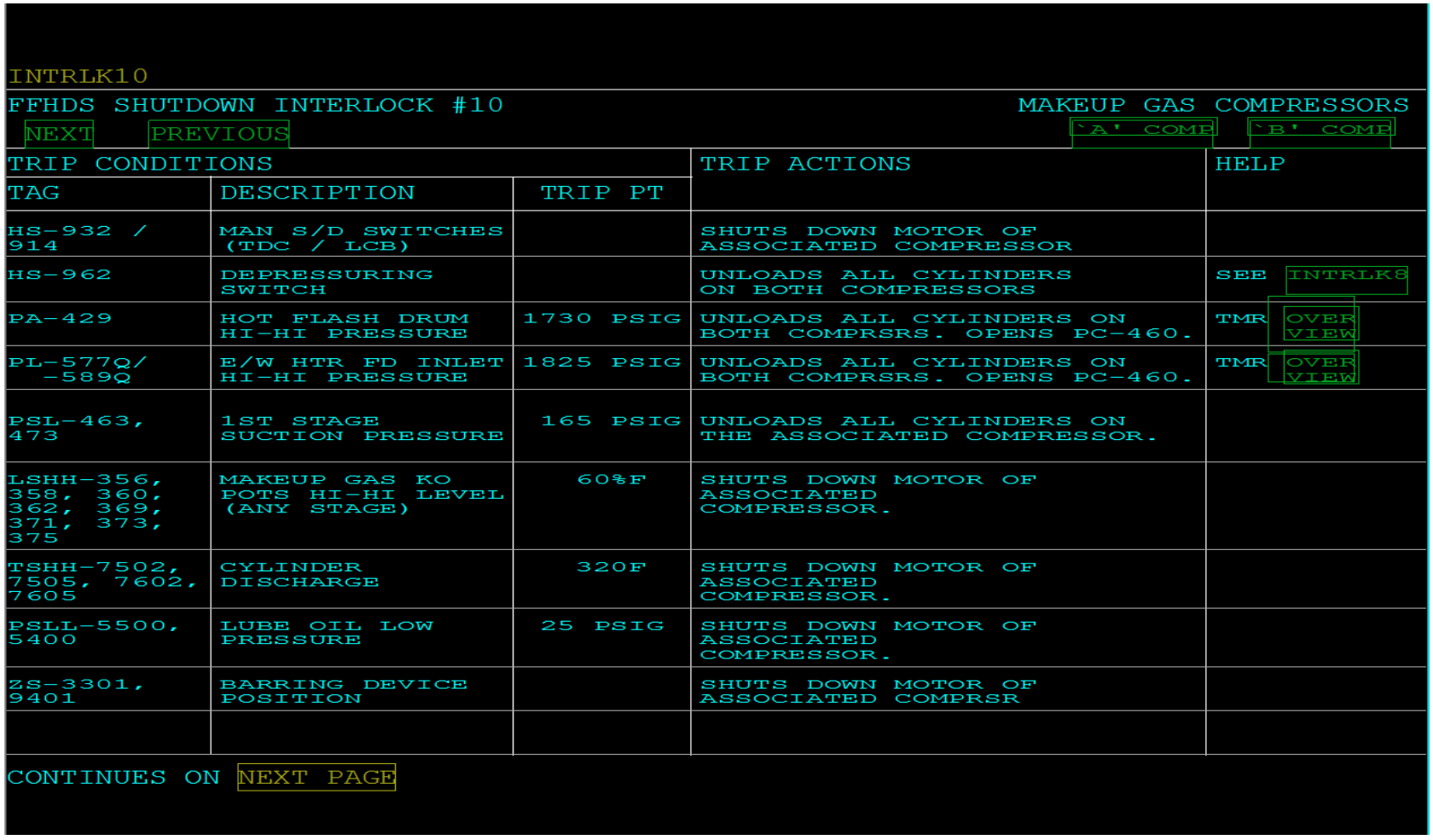
NEXT — PROCESS GRAPHIC

TRIP CONDITIONS			TRIP ACTIONS	HELP
TAG	DESCRIPTION	TRIP PT		
PDSH403A	HIGH FEED FILTER DIFFERENTIAL PRESSURE	13 PSID	INITIATES SEQUENTIAL BACKWASH OF ALL FILTERS, WHEN HS-983 IN AUTO, AND ALL BANKS IN NORMAL MODE.	
PDSH403B	HIGH-HIGH FEED FILTER DIFFERENTIAL PRESSURE	18 PSID	INITIATES SIMULTANEOUS BACKWASH OF ALL BANKS,WHEN HS-983 IN AUTO, AND ALL BANKS IN NORMAL MODE. ALSO SENDS IN TDC ALARM UA-044.	REVERTS TO SEQUENTIAL BACKWASH WHEN PRESSURE FALLS TO 14 PSID.
HS-983	ALL BANKS: MANUAL SWITCH	--	IN MANUAL, INITIATES CONTINOUS SEQUENTIAL BACK-WASH OF ALL FILTERS.	
HS-9588 A-E	INDIVIDUAL BANKS: NORMAL/BYPASS SWITCHES	--	IN BYPASS, SEQUENTIAL BACKWASH WILL SKIP THE INDIVIDUAL BANK.	
HS-9589 A-E	INDIVIDUAL BANKS: MANUAL START SWITCHES	--	INITIATES SEQUENTIAL BACK-WASH OF INDIVIDUAL BANK OF FILTERS ONLY.	

NOTES

LOW STRIPPER LEVEL SHUTS OFF BACKWASH STREAM. SEE INTERLOCK GRAPHIC #2 INTRLK2 VIA 2301 OR 2304.

7.98 FFHDS SHUTDOWN INTERLOCK #10 (INTRLK10.DS)



INTRLK10

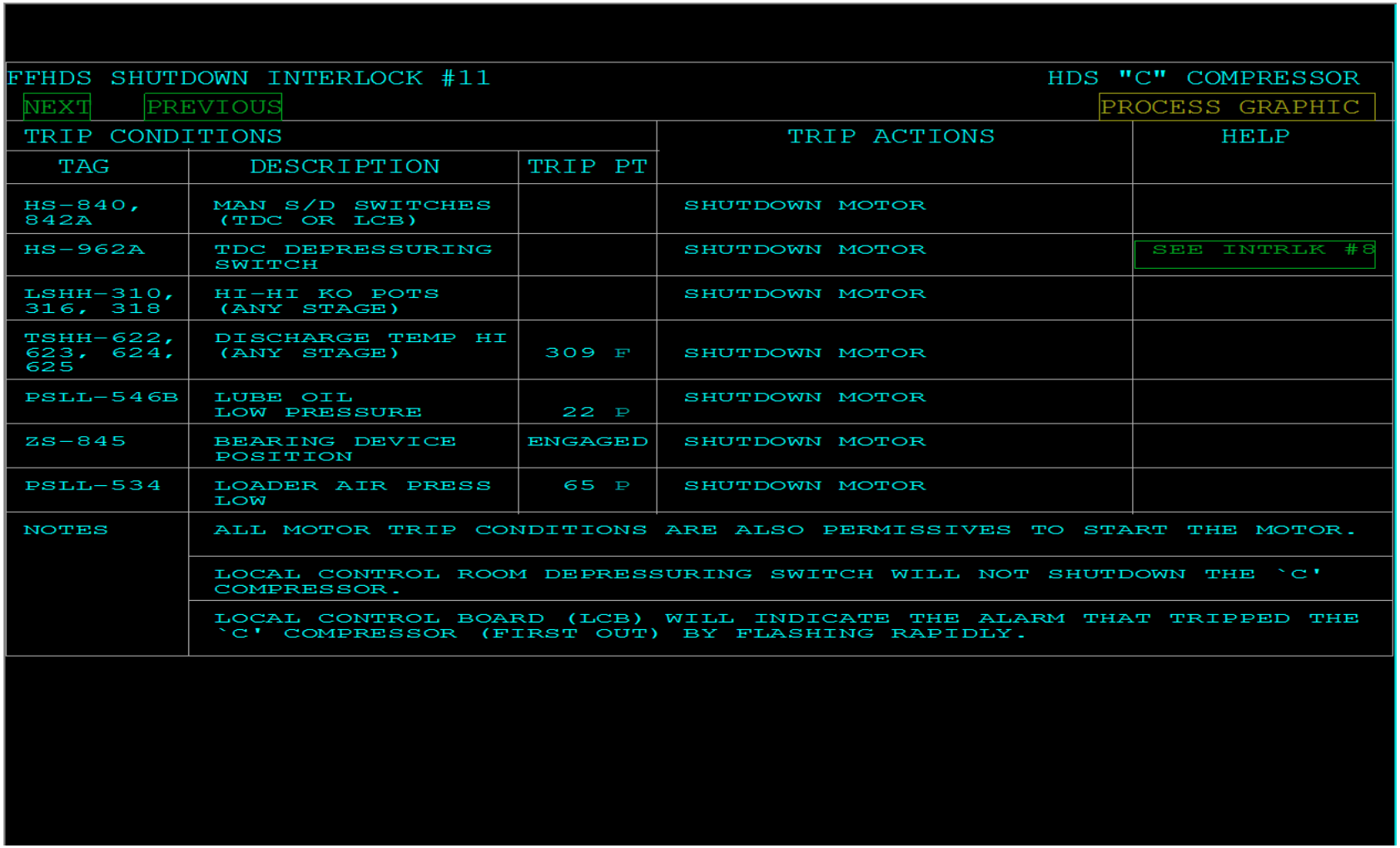
FFHDS SHUTDOWN INTERLOCK #10 — MAKEUP GAS COMPRESSORS

NEXT PREVIOUS — 'A' COMP 'B' COMP

TRIP CONDITIONS			TRIP ACTIONS	HELP
TAG	DESCRIPTION	TRIP PT		
HS-932 / 914	MAN S/D SWITCHES (TDC / LCB)		SHUTS DOWN MOTOR OF ASSOCIATED COMPRESSOR	
HS-962	DEPRESSURING SWITCH		UNLOADS ALL CYLINDERS ON BOTH COMPRESSORS	SEE INTRLK8
PA-429	HOT FLASH DRUM HI-HI PRESSURE	1730 PSIG	UNLOADS ALL CYLINDERS ON BOTH COMPRSRS. OPENS PC-460.	TMR OVER VIEW
PL-577Q/ -589Q	E/W HTR FD INLET HI-HI PRESSURE	1825 PSIG	UNLOADS ALL CYLINDERS ON BOTH COMPRSRS. OPENS PC-460.	TMR OVER VIEW
PSL-463, 473	1ST STAGE SUCTION PRESSURE	165 PSIG	UNLOADS ALL CYLINDERS ON THE ASSOCIATED COMPRESSOR.	
LSHH-356, 358, 360, 362, 369, 371, 373, 375	MAKEUP GAS KO POTS HI-HI LEVEL (ANY STAGE)	60%F	SHUTS DOWN MOTOR OF ASSOCIATED COMPRESSOR.	
TSHH-7502, 7505, 7602, 7605	CYLINDER DISCHARGE	320F	SHUTS DOWN MOTOR OF ASSOCIATED COMPRESSOR.	
PSLL-5500, 5400	LUBE OIL LOW PRESSURE	25 PSIG	SHUTS DOWN MOTOR OF ASSOCIATED COMPRESSOR.	
ZS-3301, 9401	BARRING DEVICE POSITION		SHUTS DOWN MOTOR OF ASSOCIATED COMPRSR	

CONTINUES ON NEXT PAGE

7.99 FFHDS SHUTDOWN INTERLOCK #11 (INTRLK11.DS)



FFHDS SHUTDOWN INTERLOCK #11 — HDS "C" COMPRESSOR

NEXT PREVIOUS — PROCESS GRAPHIC

TRIP CONDITIONS			TRIP ACTIONS	HELP
TAG	DESCRIPTION	TRIP PT		
HS-840, 842A	MAN S/D SWITCHES (TDC OR LCB)		SHUTDOWN MOTOR	
HS-962A	TDC DEPRESSURING SWITCH		SHUTDOWN MOTOR	SEE INTRLK #8
LSHH-310, 316, 318	HI-HI KO POTS (ANY STAGE)		SHUTDOWN MOTOR	
TSHH-622, 623, 624, 625	DISCHARGE TEMP HI (ANY STAGE)	309 F	SHUTDOWN MOTOR	
PSLL-546B	LUBE OIL LOW PRESSURE	22 P	SHUTDOWN MOTOR	
ZS-845	BEARING DEVICE POSITION	ENGAGED	SHUTDOWN MOTOR	
PSLL-534	LOADER AIR PRESS LOW	65 P	SHUTDOWN MOTOR	
NOTES	ALL MOTOR TRIP CONDITIONS ARE ALSO PERMISSIVES TO START THE MOTOR.			
	LOCAL CONTROL ROOM DEPRESSURING SWITCH WILL NOT SHUTDOWN THE `C' COMPRESSOR.			
	LOCAL CONTROL BOARD (LCB) WILL INDICATE THE ALARM THAT TRIPPED THE `C' COMPRESSOR (FIRST OUT) BY FLASHING RAPIDLY.			

7.100 FFHDS SHUTDOWN INTERLOCK #2 (INTRLK2.DS)

INTRLK2

FFHDS SHUTDOWN INTERLOCK #2 — FEED SURGE DRUM AND PRODUCT STRIPPER

NEXT | PREVIOUS | PROCESS GRAPHIC | PROCESS GRAPHIC

TRIP CONDITIONS			TRIP ACTIONS	HELP
TAG	DESCRIPTION	TRIP PT		
LSL-307	SURGE DRUM LOW LEVEL	50%	OPENS PRODUCT RECYCLE VALVE LV-338.	NORMALLY, LC-338 IS SET AT 10% OUTPUT IN MANUAL MODE AND HS-093 IS IN `OPERATE` MODE.
LSLL-306	FEED SURGE DRUM LOW-LOW LEVEL	18"	SHUTS DOWN BOTH FEED PUMP MOTORS.	
LSH-305	SURGE DRUM HIGH LEVEL	100%	CLOSES RECYCLE VALVE LV-338	
LSL-338B	STRIPPER LOW LEVEL	10%	CLOSES RECYCLE VALVE LV-338 AND CLOSES BACKWASH LOCAL SHUTOFF VALVE UV-948.	
LSL-338A	STRIPPER LOW-LOW LEVEL	5%	CLOSES HOT PRODUCT VALVE LV-337A.	

NOTES

OPERATOR CAN INITIATE PRODUCT RECYCLE: PUT HS-093 IN `BYPASS` AND ADJUST LC-338 AS NEEDED..

7.101 FFHDS SHUTDOWN INTERLOCK #3 (INTRLK3.DS)

INTRLK3

FFHDS SHUTDOWN INTERLOCK #3 — GASOIL FEED PUMPS

NEXT PREVIOUS — PROCESS GRAPHIC

TRIP CONDITIONS			TRIP ACTIONS	HELP
TAG	DESCRIPTION	TRIP PT		
ZS-909	SUCTION MOV POSITION	VALVE NOT FULL OPEN	SHUTS DOWN BOTH PUMP MOTORS	
LSLL-306	FEED SURGE DRUM LOW-LOW LEVEL	25%	SHUTS DOWN BOTH PUMP MOTORS	SEE INTRLK2
PA-429	HOT FLASH DRUM HI-HI PRESSURE	1730 PSIG	SHUTS DOWN BOTH PUMP MOTORS	TMR SHUTDOWN TMR
PL-577Q, 579Q	EAST/WEST HTR FD INLET HIHI PRESS	1825 PSIG	SHUTS DOWN BOTH PUMP MOTORS	TMR SHUTDOWN TMR
HS-962	DEPRESSURING SWITCH		SHUTS DOWN BOTH PUMP MOTORS	TMR SHUTDOWN TMR
PSLL-5286	E PUMP LUBE OIL LO-LO PRESSURE	10 PSIG	SHUTS DOWN EAST PUMP MOTOR.	
PSLL-5283	W PUMP LUBE OIL LO-LO PRESSURE	10 PSIG	SHUTS DOWN WEST PUMP MOTOR.	
FSL-109	EAST PUMP MINIMUM FLOW	200 BPH	SHUTS DOWN WEST PUMP MOTOR.	ASSOCIATE TAG FI-105
FSL-113	WEST PUMP MINIMUM FLOW	200 BPH	SHUTS DOWN WEST PUMP MOTOR.	ASSOCIATE TAG FI-115
HS-907, 907A	E PUMP MAN S/D SWITCH (TDC/LCB)		SHUTS DOWN EAST PUMP MOTOR.	
HS-908, 908A	W PUMP MAN S/D SWITCH (TDC/LCB)		SHUTS DOWN WEST PUMP MOTOR.	

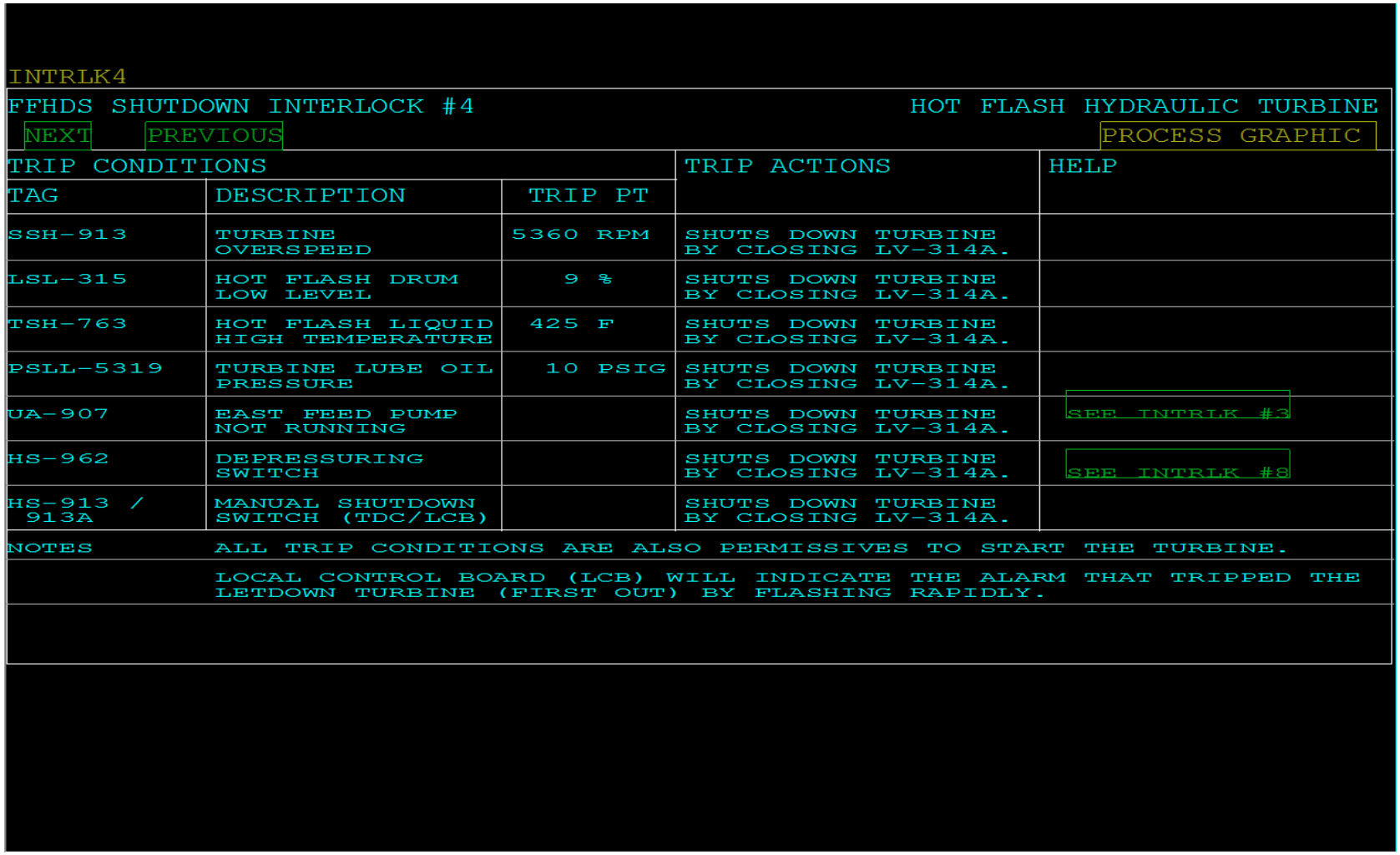
NOTES

WHEN THE PUMP MOTOR TRIPS, THE HEATER FULE GAS SHUT-OFF VALVE ALSO CLOSES.

LOCAL CONTROL BOARD (LCB) WILL INDICATE THE ALARM THAT TRIPPED THE FEED PUMP (FIRST OUT) BY FLASHING RAPIDLY.

FSL-109 & FSL-113 HAVE 10-SECOND DELAY FOR PUMP STARTUP ONLY TO ALLOW PUMP TO COME UP TO RATE.

7.102 FFHDS SHUTDOWN INTERLOCK #4 (INTRLK4.DS)



INTRLK4

FFHDS SHUTDOWN INTERLOCK #4 — HOT FLASH HYDRAULIC TURBINE

NEXT PREVIOUS — PROCESS GRAPHIC

TRIP CONDITIONS			TRIP ACTIONS	HELP
TAG	DESCRIPTION	TRIP PT		
SSH-913	TURBINE OVERSPEED	5360 RPM	SHUTS DOWN TURBINE BY CLOSING LV-314A.	
LSL-315	HOT FLASH DRUM LOW LEVEL	9 %	SHUTS DOWN TURBINE BY CLOSING LV-314A.	
TSH-763	HOT FLASH LIQUID HIGH TEMPERATURE	425 F	SHUTS DOWN TURBINE BY CLOSING LV-314A.	
PSLL-5319	TURBINE LUBE OIL PRESSURE	10 PSIG	SHUTS DOWN TURBINE BY CLOSING LV-314A.	
UA-907	EAST FEED PUMP NOT RUNNING		SHUTS DOWN TURBINE BY CLOSING LV-314A.	SEE INTRLK #3
HS-962	DEPRESSURING SWITCH		SHUTS DOWN TURBINE BY CLOSING LV-314A.	SEE INTRLK #8
HS-913 / 913A	MANUAL SHUTDOWN SWITCH (TDC/LCB)		SHUTS DOWN TURBINE BY CLOSING LV-314A.	

NOTES: ALL TRIP CONDITIONS ARE ALSO PERMISSIVES TO START THE TURBINE.

LOCAL CONTROL BOARD (LCB) WILL INDICATE THE ALARM THAT TRIPPED THE LETDOWN TURBINE (FIRST OUT) BY FLASHING RAPIDLY.

7.103 FFHDS SHUTDOWN INTERLOCK #5 (INTRLK5.DS)

INTRLK5

FFHDS SHUTDOWN INTERLOCK #5

FEED HEATER

NEXT PREVIOUS PROCESS GRAPHIC

TRIP CONDITIONS

TAG	DESCRIPTION	TRIP PT	TRIP ACTIONS	HELP
XA-910	FEED PUMPS MOTORS NOT RUNNING		CLOSES F/G SHUTOFF VALVE, UV-975.	SEE INTRLK #3
HS-962	DEPRESSURING SWITCH		CLOSES F/G SHUTOFF VALVE, UV-975.	SEE INTRLK #8
PI-567Q/ -568Q	EAST/WEST HEATER LOW F/G PRESSURE	1 PSIG	CLOSES F/G SHUTOFF VALVE, UV-975.	TMR SHUTDOWN
FL-125Q/ -120Q	EAST/WEST EXCHANGER GAS LOW-LOW FLOW	757 MSCFH	CLOSES F/G SHUTOFF VALVE, UV-975.	TMR SHUTDOWN
PA-429	HOT FLASH DRUM HIGH-HIGH PRESSURE	1730 PSIG	CLOSES F/G SHUTOFF VALVE, UV-975.	TMR SHUTDOWN
PL-577Q/ -579Q	EAST/WEST HEATER FEED INLET HI-HI PRESSURE	1825 PSIG	CLOSES F/G SHUTOFF VALVE, UV-975.	TMR SHUTDOWN
HS-975/ -975A	HEATER MANUAL SHUTDOWN SWITCH (TDC/LOCAL)		CLOSES F/G SHUTOFF VALVE, UV-975.	

NOTES ALL TRIP CONDITIONS ARE ALSO PERMISSIVES TO OPEN FUEL GAS SHUTOFF EXCEPT FOR THE LOW FUEL GAS PRESSURE. LOW FUEL GAS PRESSURE SHUTDOWN HAS A TIME DELAY OF 25-SECONDS TO ALLOW START UP OF THE HEATER.

PILOT GAS NOT AFFECTED BY INTERLOCK.

7.104 FFHDS SHUTDOWN INTERLOCK #6 (INTRLK6.DS)

INTRLK6

FFHDS SHUTDOWN INTERLOCK #6 — RECYCLE GAS LEAN DEA PUMPS

NEXT PREVIOUS — PROCESS GRAPHIC

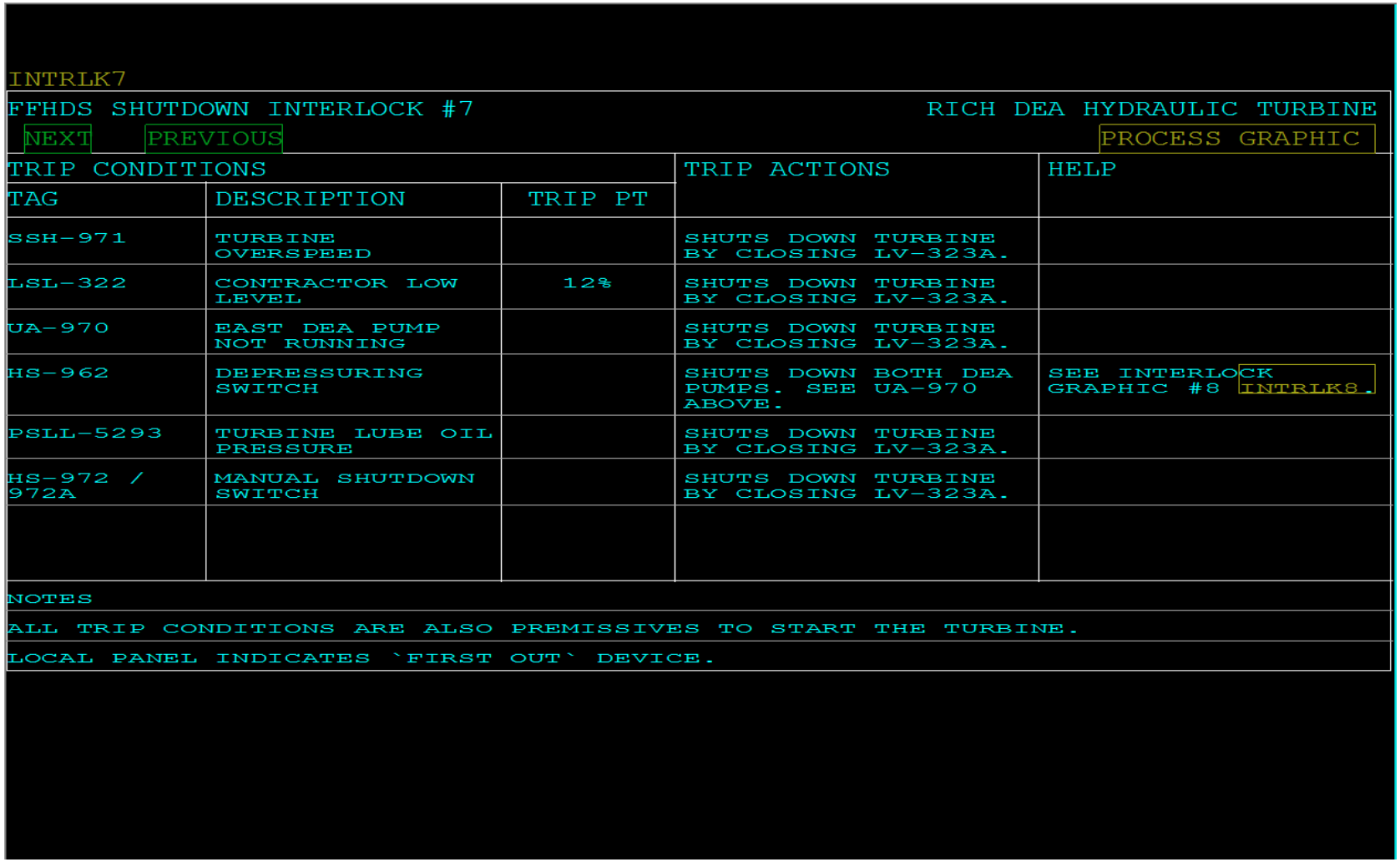
TRIP CONDITIONS			TRIP ACTIONS	HELP
TAG	DESCRIPTION	TRIP PT		
PSLL-432	LOW DEA PUMP SUCTION PRESSURE	23 PSIG	SHUTS DOWN BOTH DEA PUMPS MOTORS.	
HS-962	DEPRESSURING SWITCH		SHUTS DOWN BOTH DEA PUMPS MOTORS.	SEE INTERLOCK GRAPHIC #8 INTRLK8.
PSLL-5289	EAST PUMP LOW LUBE OIL PRESSURE		SHUTS DOWN EAST DEA PUMP MOTOR.	
PSLL-5292	WEST PUMP LOW LUBE OIL PRESSURE		SHUTS DOWN WEST DEA PUMP MOTOR.	
HS-973 / 973A	EAST PUMP MANUAL SHUTDOWN SWITCH		SHUTS DOWN EAST DEA PUMP MOTOR.	
HS-965 / 965A	WEST PUMP MANUAL SHUTDOWN SWITCH		SHUTS DOWN WEST DEA PUMP MOTOR.	

NOTES

ALL TRIP CONDITIONS ARE ALSO PREMISSIVES TO START THE PUMPS.

LOCAL PANEL INDICATES `FIRST OUT` DEVICE.

7.105 FFHDS SHUTDOWN INTERLOCK #7 (INTRLK7.DS)



INTRLK7

FFHDS SHUTDOWN INTERLOCK #7 — RICH DEA HYDRAULIC TURBINE

NEXT PREVIOUS — PROCESS GRAPHIC

TRIP CONDITIONS			TRIP ACTIONS	HELP
TAG	DESCRIPTION	TRIP PT		
SSH-971	TURBINE OVERSPEED		SHUTS DOWN TURBINE BY CLOSING LV-323A.	
LSL-322	CONTRACTOR LOW LEVEL	12%	SHUTS DOWN TURBINE BY CLOSING LV-323A.	
UA-970	EAST DEA PUMP NOT RUNNING		SHUTS DOWN TURBINE BY CLOSING LV-323A.	
HS-962	DEPRESSURING SWITCH		SHUTS DOWN BOTH DEA PUMPS. SEE UA-970 ABOVE.	SEE INTERLOCK GRAPHIC #8 INTRLK8.
PSLL-5293	TURBINE LUBE OIL PRESSURE		SHUTS DOWN TURBINE BY CLOSING LV-323A.	
HS-972 / 972A	MANUAL SHUTDOWN SWITCH		SHUTS DOWN TURBINE BY CLOSING LV-323A.	

NOTES

ALL TRIP CONDITIONS ARE ALSO PREMISSIVES TO START THE TURBINE.

LOCAL PANEL INDICATES `FIRST OUT` DEVICE.

7.106 FFHDS SHUTDOWN INTERLOCK #8 (INTRLK8.DS)

INTRLK8

FFHDS SHUTDOWN INTERLOCK #8 — DEPRESSURING SYSTEM

NEXT | PREVIOUS | PROCESS GRAPHIC

TRIP CONDITIONS			TRIP ACTIONS	HELP
TAG	DESCRIPTION	TRIP PT		
HS-962	DEPRESSURING SWITCH		FULLY OPENS DEPRESSURING VLV HV-962. (MECHANICAL STOP AT 50%)	
			STOPS DEPRESSURING WHEN `RESET'.	
			CLOSES FUEL GAS SHUTOFF VLV UV-975.	INTRLK #5
			UNLOADS A & B COMPRESSORS.	INTRLK 10
			SHUTS DOWN HOT FLASH HYDRAULIC TURBINE BY CLOSING LV-314A.	INTRLK #4
			SHUTS DOWN BOTH FEED PUMP MOTORS.	INTRLK #3
			SHUTS DOWN RECYCLE LEAN AMINE PUMP MOTORS WHICH SHUTS DOWN THE RICH AMINE HYDRAULIC TURBINE.	INTRLK #6 INTRLK #7
			SHUTS DOWN RECYCLE COMPRESSOR BY CLOSING T-T VALVE.	INTRLK #9
			SHUTS DOWN C COMPRESSOR MOTOR (TDC DEPRESSION SWITCH ONLY).	INTRLK 11
			CLOSES THE HYDROGEN FORWARD FLOW CONTROLLER HC-929.	
HC-962	DEPRESSURING CONTROL VALVE		OPERATOR ADJUSTS HV-962 WITH HC-962.	FAILS OPEN
PS-429	REACTOR LOW PRESSURE	1000 PSIG	ACTIVATES `ABLE TO RESET` UA-962.	

NOTES LOCAL CONTROL ROOM DEPRESSURING SWITCH WILL NOT SHUTDOWN `C' COMPRESSOR

7.107 FFHDS SHUTDOWN INTERLOCK #9 (INTRLK9.DS)

INTRLK9

FFHDS SHUTDOWN INTERLOCK #9 — RECYCLE GAS COMPRESSOR

NEXT | PREVIOUS | PROCESS GRAPHIC

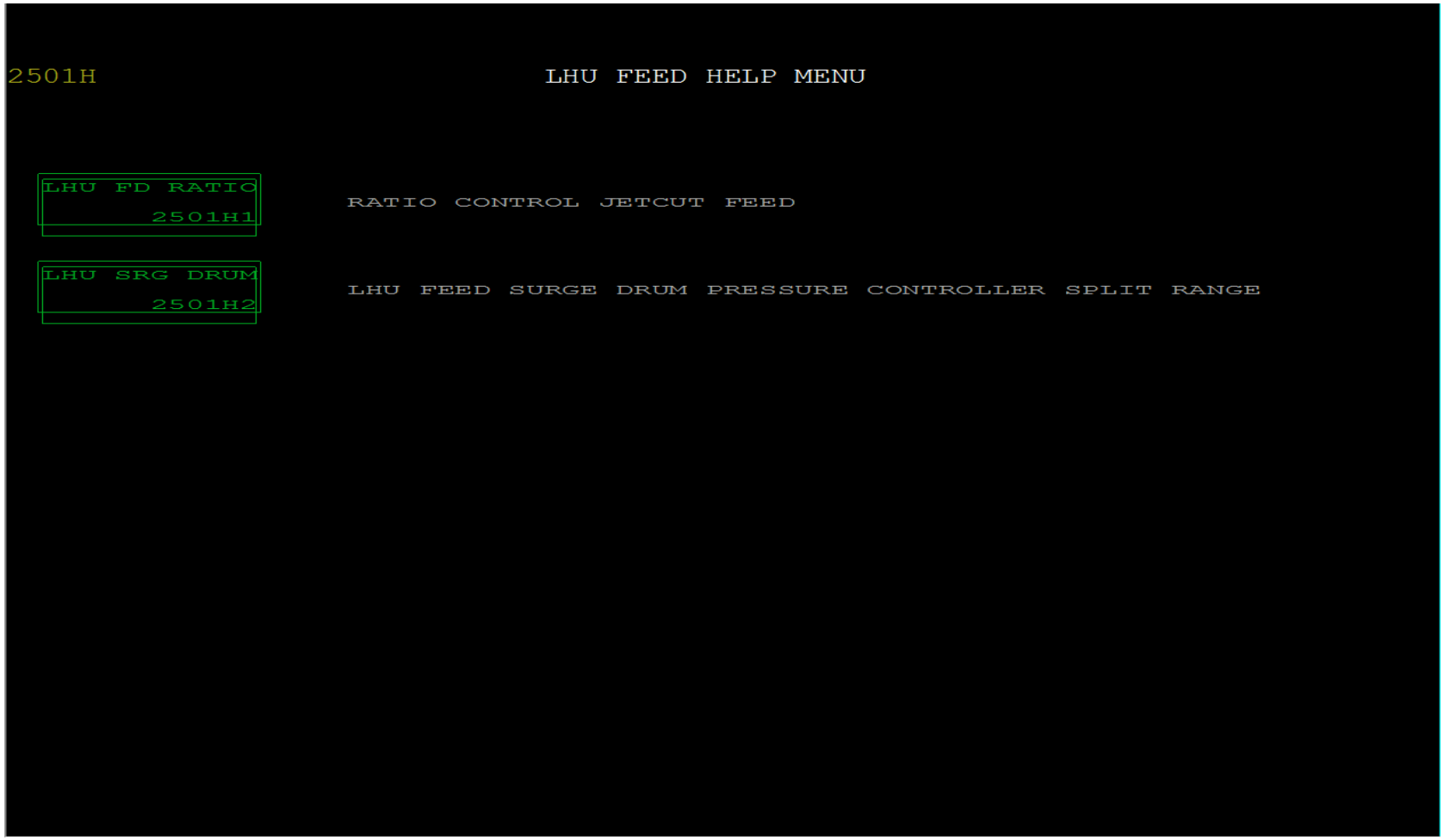
TRIP CONDITIONS			TRIP ACTIONS	HELP
TAG	DESCRIPTION	TRIP PT		
HS-954 / 9938	MANUAL SHUTDOWN SWITCHES		SHUTS DOWN TURBINE BY CLOSING T-T VALVE SHUTTING OFF STEAM TO TURBINE.	
HS-962	DEPRESSURING SWITCH		SAME ACTION.	SEE INTERLOCK GRAPHIC #8 INTRLK8.
LSHH-329 & LSHH-330	RECYCLE GAS KO DRM HI-HI LEVELS	89%	SAME ACTION.	BOTH HI LEVL DEVICES ARE REQU`D FOR TRIP.
SSHH-959	TURBINE OVERSPEED	13,608RPM	SAME ACTION.	
ZS-9935 / 9936	BAFCO VALVES POSITIONS	VALVE NOT FULLY OPN	SAME ACTION.	
TSHH-777	COMPRESSOR DISCHARGE TEMPERATURE	300F	SAME ACTION.	
PSLL-5230	LUBE OIL LOW PRESSURE	7 PSIG	SAME ACTION.	
LSLL-3205 / LS-385	SEAL OIL OVRHD TANK LOW LEVEL	47%	SAME ACTION.	BOTH LO LEVL DEVICES ARE REQU`D FOR TRIP.
XAHH-9688	COMPRESSOR HIGH AXIAL THRUST	2 MIL	SAME ACTION.	BOTH SENSORS ARE REQUIRED FOR TRIP.
XAHH-9698	TURBINE HIGH AXIAL THRUST	2 MIL	SAME ACTION.	BOTH SENSORS ARE REQUIRED FOR TRIP.

NOTES

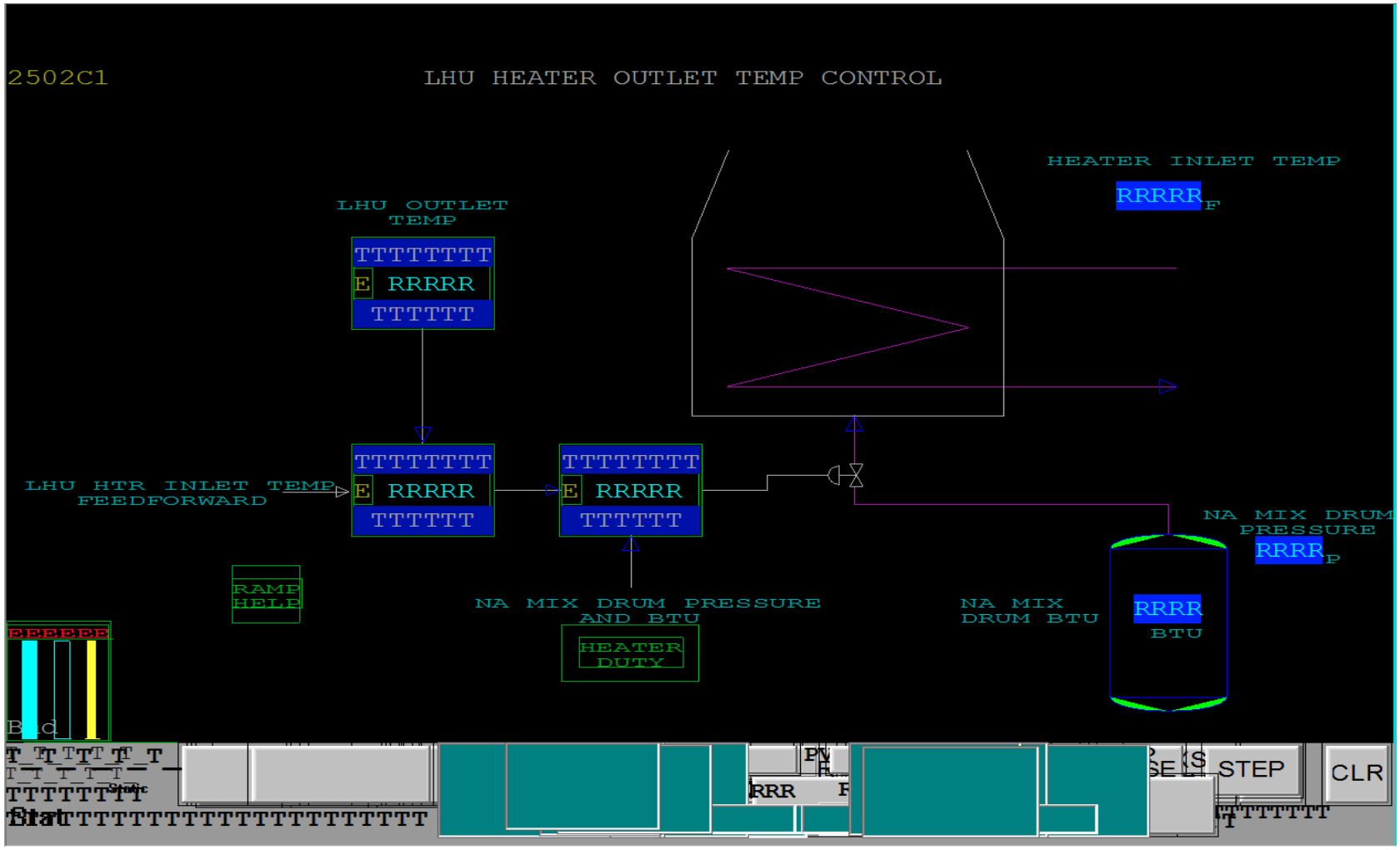
ALL TRIP CONDITIONS ARE ALSO PREMISSIVES TO START THE TURBINE.

LOCAL PANEL INDICATES `FIRST OUT` DEVICE.
KEYLOCK SHUTDOWN BYPASS SWITCH ALLOWS MAINTENANCE ON SHUTDOWN DEVICES.
WHILE BYPASSED, ALARMS WILL COME IN BUT THE TURBINE WON`T TRIP.

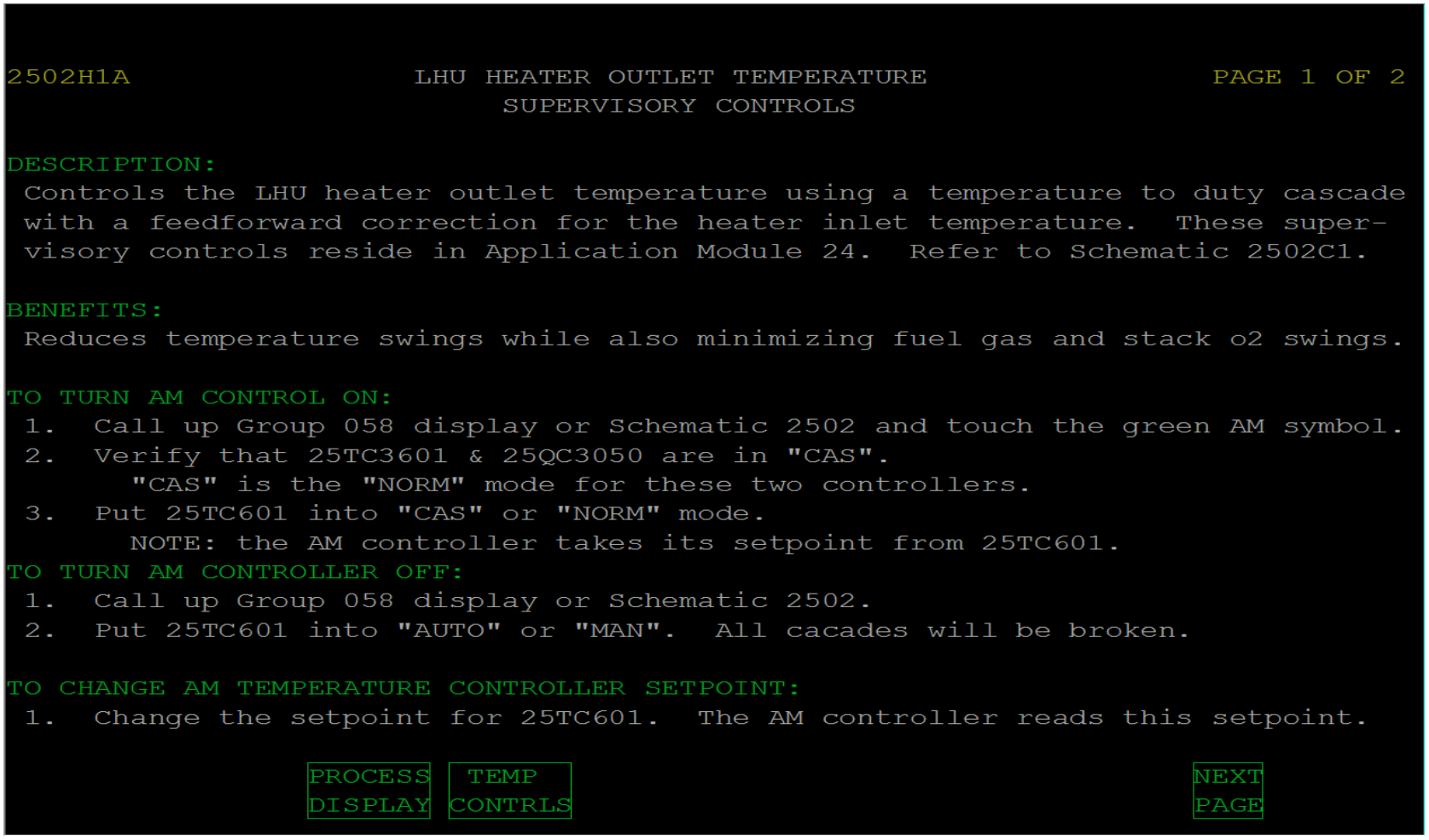
7.108 LHU FEED HELP MENU (2501H.DS)



7.109 LHU HEATER OUTLET TEMP CONTROL (2502C1.DS)



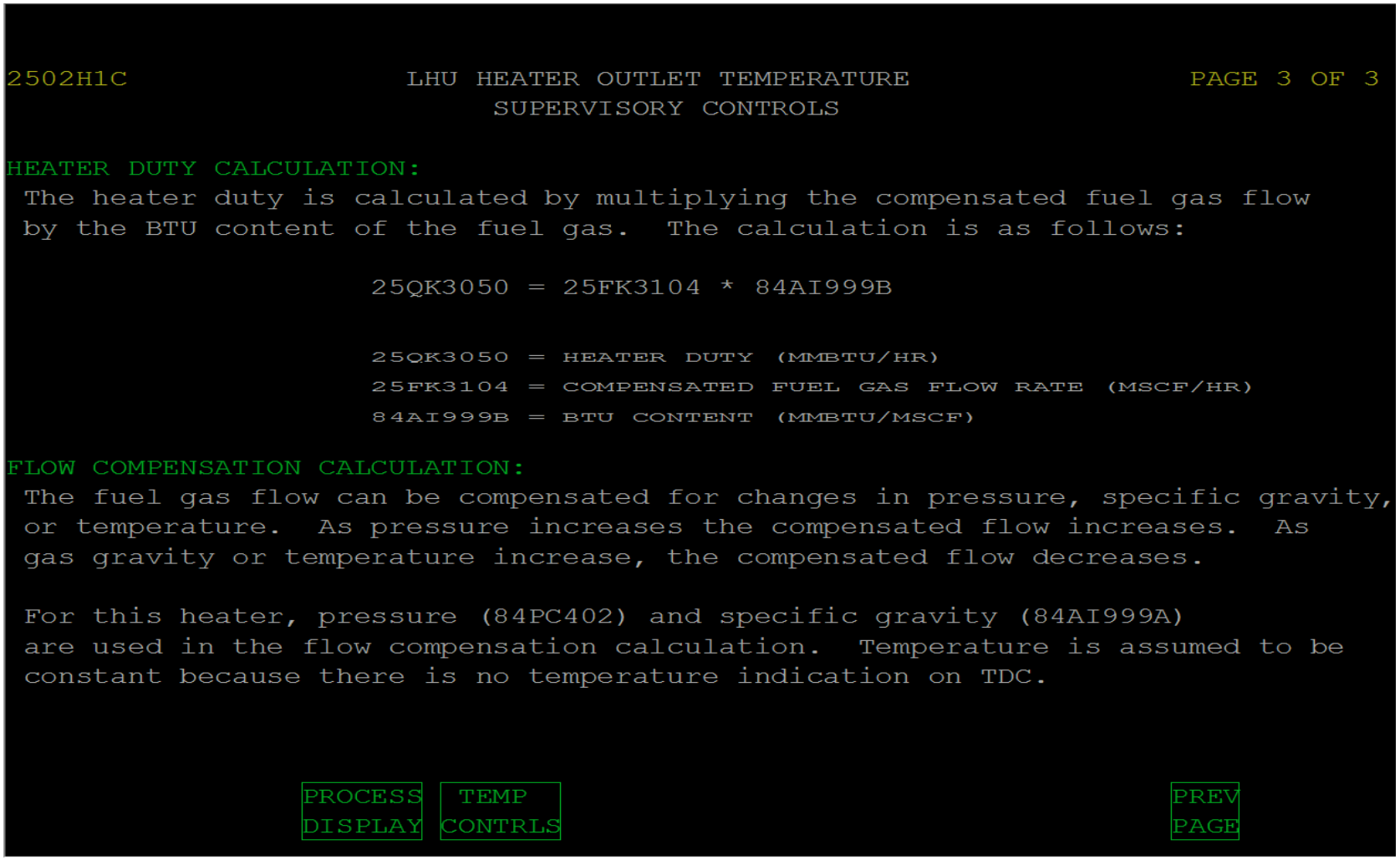
7.110 LHU HEATER OUTLET TEMPERATURE SUPERVISORY CONTROLS (2502H1A.DS)



7.111 LHU HEATER OUTLET TEMPERATURE SUPERVISORY CONTROLS (2502H1B.DS)

```
2502H1B                LHU HEATER OUTLET TEMPERATURE                PAGE 2 OF 2
                            SUPERVISORY CONTROLS
SETPOINT LIMITS:
 The AM will not accept setpoints beyond the following limits:
                                        Low      High
   Outlet temperature (25TC3601):     RRRRRR - RRRRRR   Deg F
   Duty controller (25QC3050):        RRRRRR - RRRRRR   MMBtu/Hr
AM FAILURE INSTRUCTIONS:
 1.  25TC601 will automatically revert to "AUTO-C".
 2.  Put 25TC601 into "AUTO" if desired.
 3.  Use 25TC601 until AM is restored.
INSTRUMENT FAILURE / MAINTENANCE INSTRUCTIONS:
  Inst.                      Instructions
 84PC402           Put 25TC601 into "AUTO" or "MAN".
 84AI999(A or B)   Put 25TC601 into "AUTO" or "MAN".
 25FI104           Put 25TC601 into "AUTO" or "MAN".
 25TI701           Put 25TC601 into "AUTO" or "MAN" or
                     (OPTION) Put 25QC3050 into "AUTO" and adjust duty setpoint
                     to hold temperature.  Put 25QC3050 back into "CAS" when
                     25TI701 is repaired.
 25TC601           Put 25TC601 into "MAN" or use same OPTION listed for 25TI701.
ANY QUESTIONS OR COMMENTS:
 Contact the Process Control Group:  Richard Anderson   x6720
                                     Dean Syn           x8259
                 PROCESS  TEMP                                      PREV
                 DISPLAY  CONTRLS                                   PAGE
```

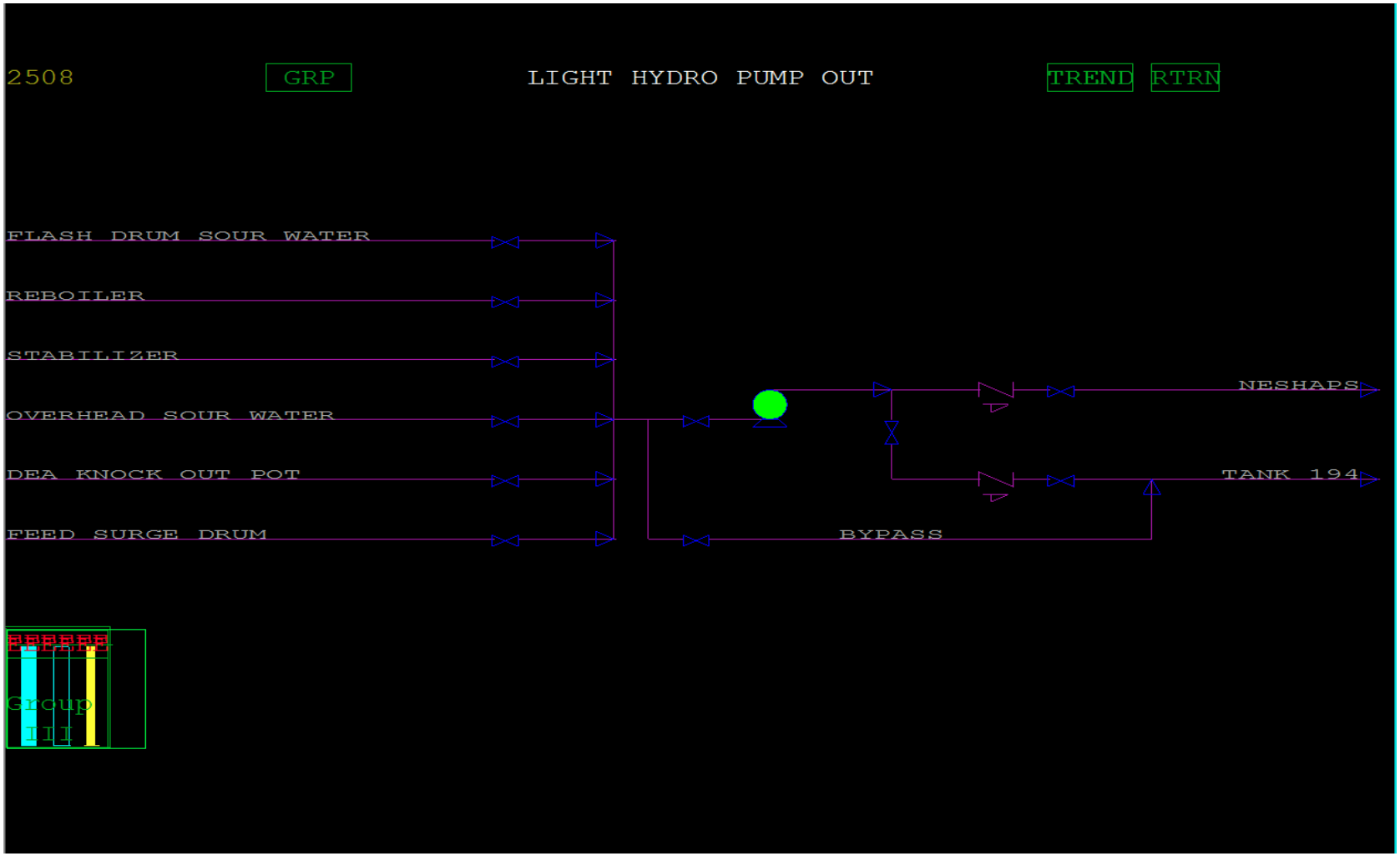
7.112 LHU HEATER OUTLET TEMPERATURE SUPERVISORY CONTROLS (2502H1C.DS)



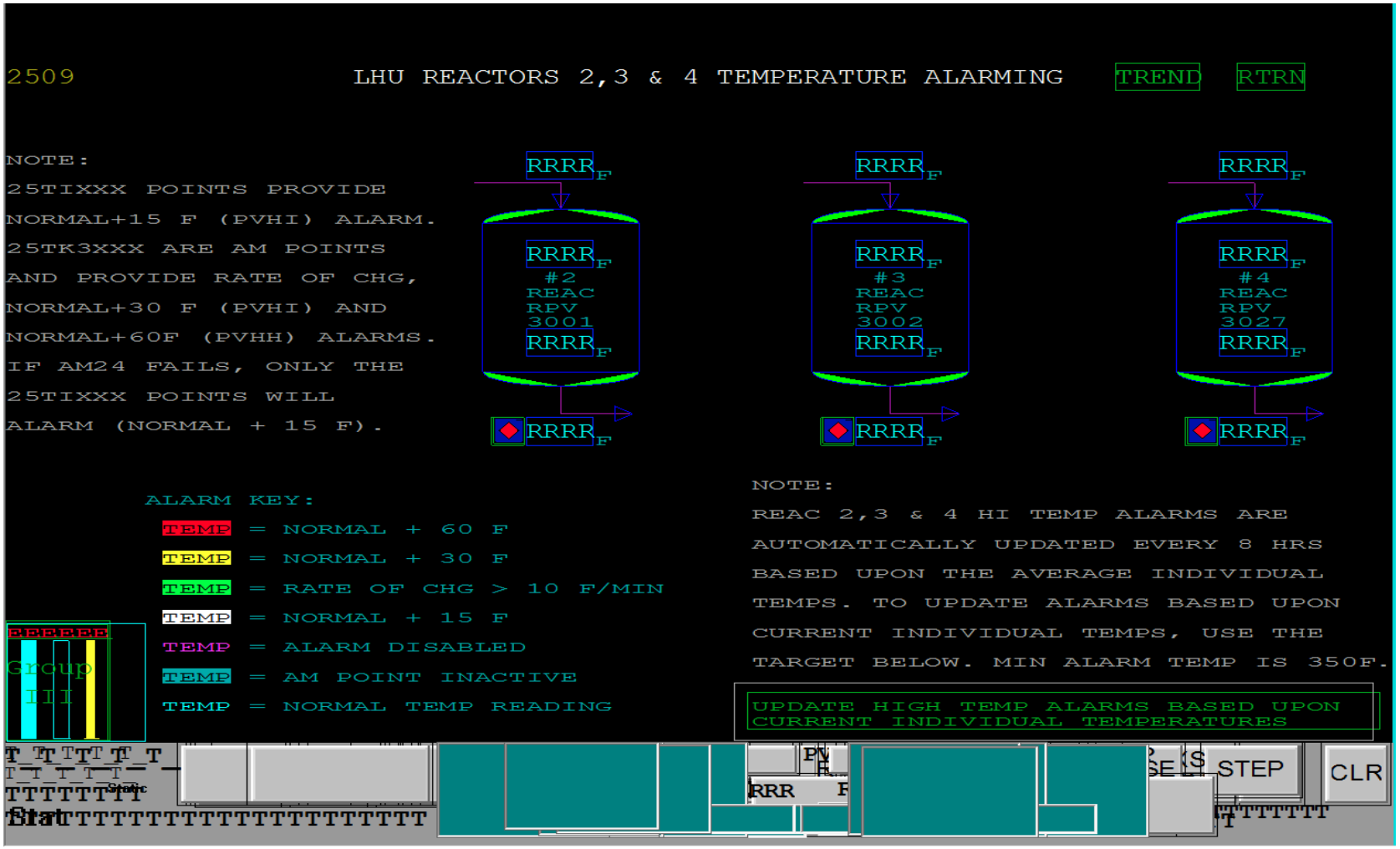
7.113 LHU HEATER RAMP HELP (2502H1R.DS)

```
2502H1R                          LHU HEATER RAMP HELP          PROCESS DISPLAY    CONTROL DISPLAY

DESCRIPTION:
 The setpoint of the heater outlet temperature controller is ramped to a final
 temperature over a predefined time by an Application Module controller. This
 function is designed to provide a consistent cool down or heat up of the
 reactors in a shorter period of time.
ENTRIES:
  SPTV (TARGET TEMP): The final temperature to which the heater will be ramped.

  TVPROC (STATUS OF RAMP): Indication of the status of the ramping function.
    The options are OFF, PRESET, and RUN.
  RAMPTIME (RAMP TIME): The time in minutes over which the temperature is to be
    ramped to the target temperature set point.
To Enable or Modify Control:
    1) Make sure 25TC601 is stable and in MAN or AUTO mode.
    2) Select 25TC3601 in group 58, put in AUTO & change the setpoint to match
       the setpoint of 25TC601. SPTV, TVPROC, & RAMPTIME can now be entered at
       the bottom of the group 58 display.
    3) Put TVPROC in PRESET mode.
    4) Enter the target temp, SPTV, in degrees F.
    5) Enter the RAMPTIME in minutes.
    6) Put TVPROC in RUN mode.
 At this point, the program will begin the ramp function.
To Disable Control:
    1) Put temperature controller 25TC601 in AUTO or MANUAL.
```

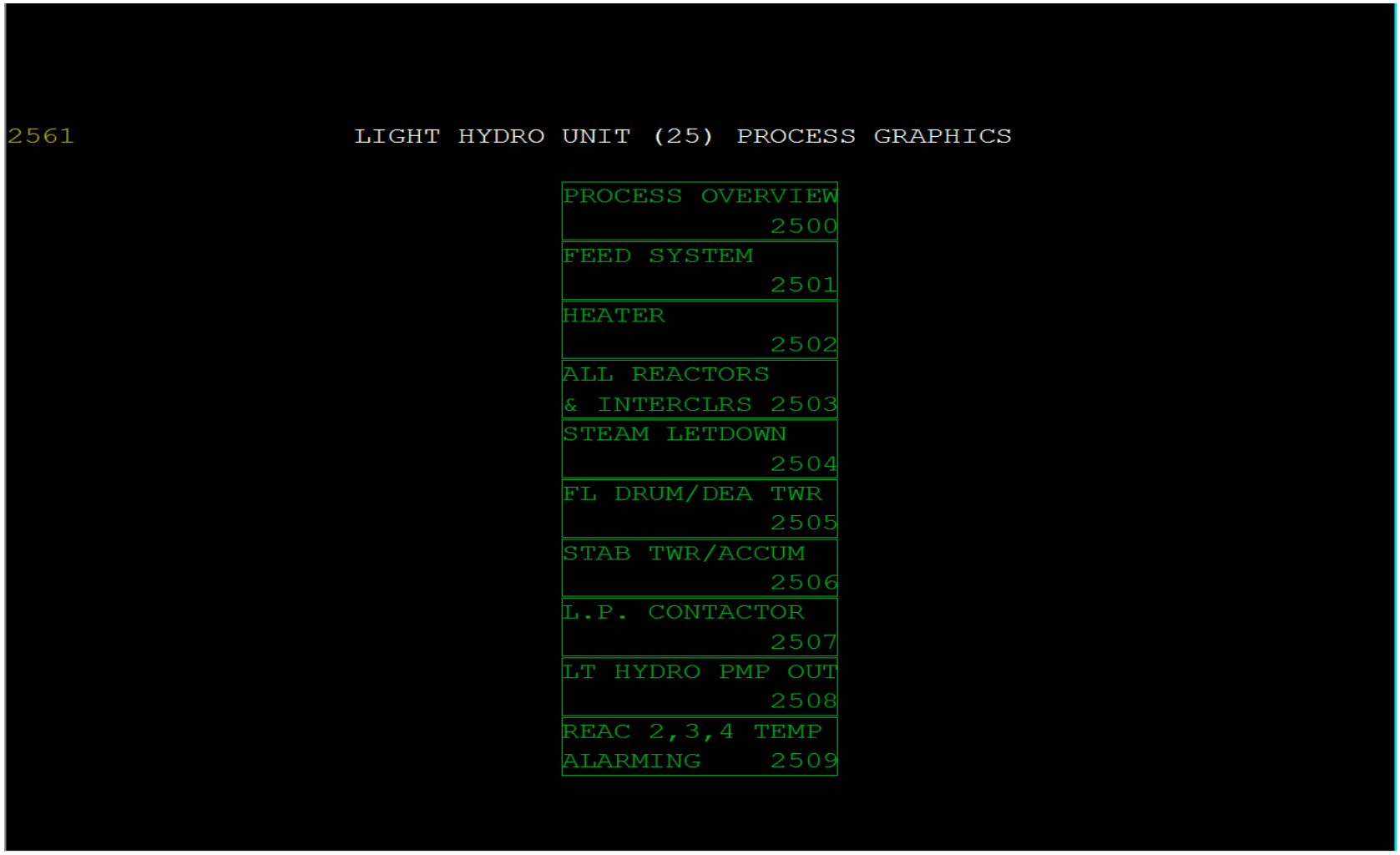
7.114 LIGHT HYDRO PUMP OUT (2508.DS)



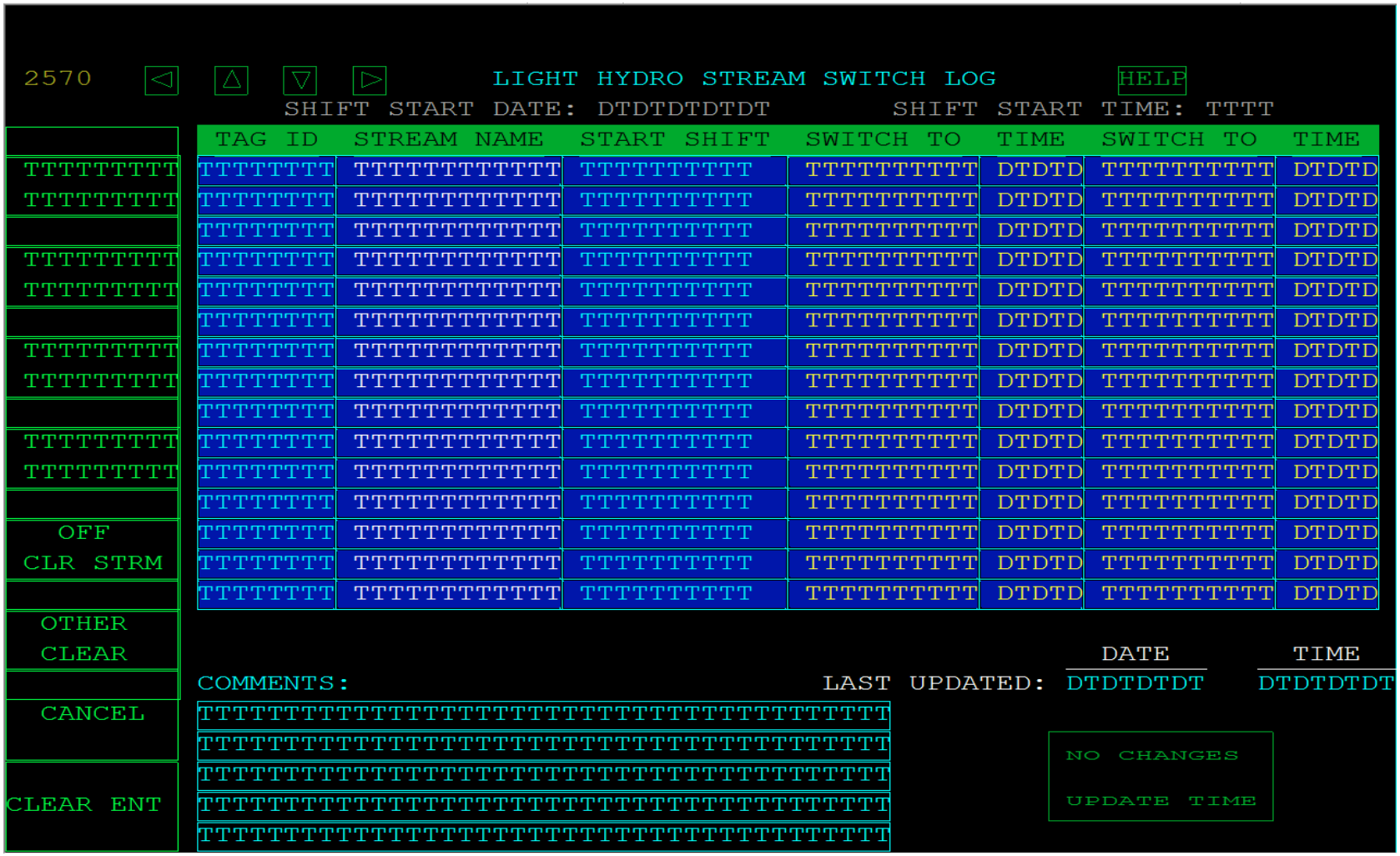
7.115 LHU REACTORS 2,3 & 4 TEMPERATURE ALARMING (2509.DS)



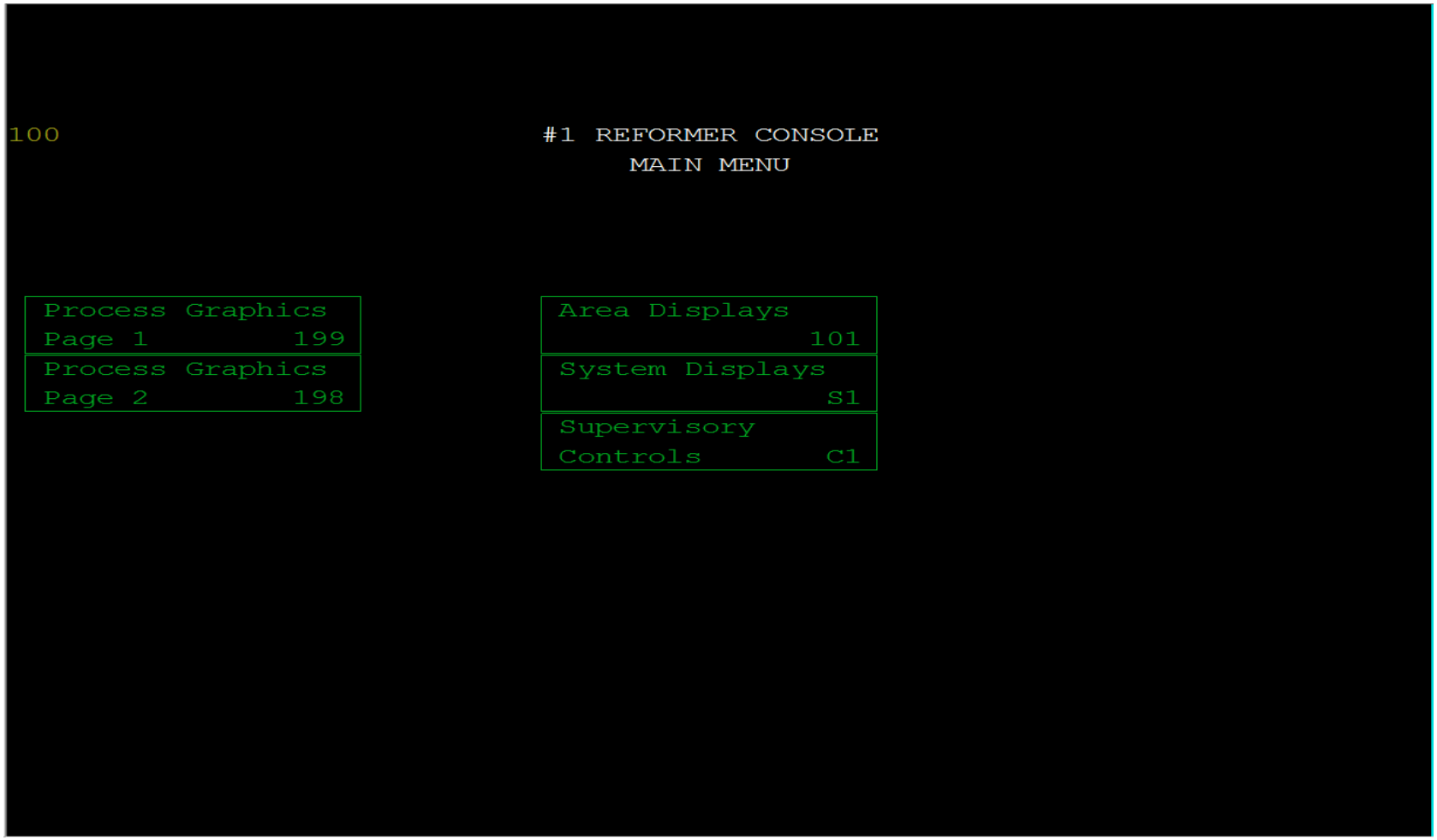
7.116 LIGHT HYDRO UNIT (25) PROCESS GRAPHICS (2561.DS)



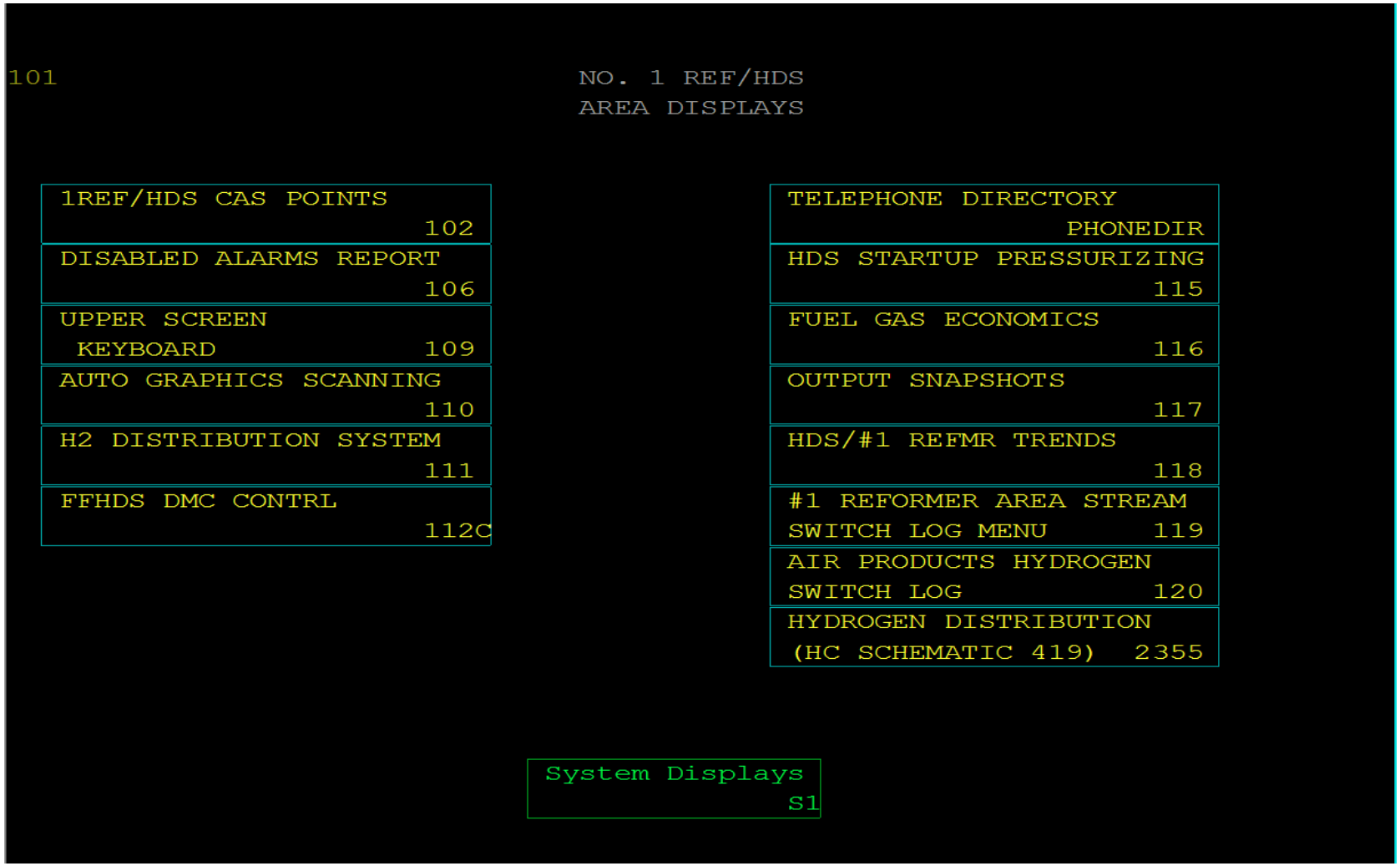
7.117 LIGHT HYDRO STREAM SWITCH LOG (2570.DS)



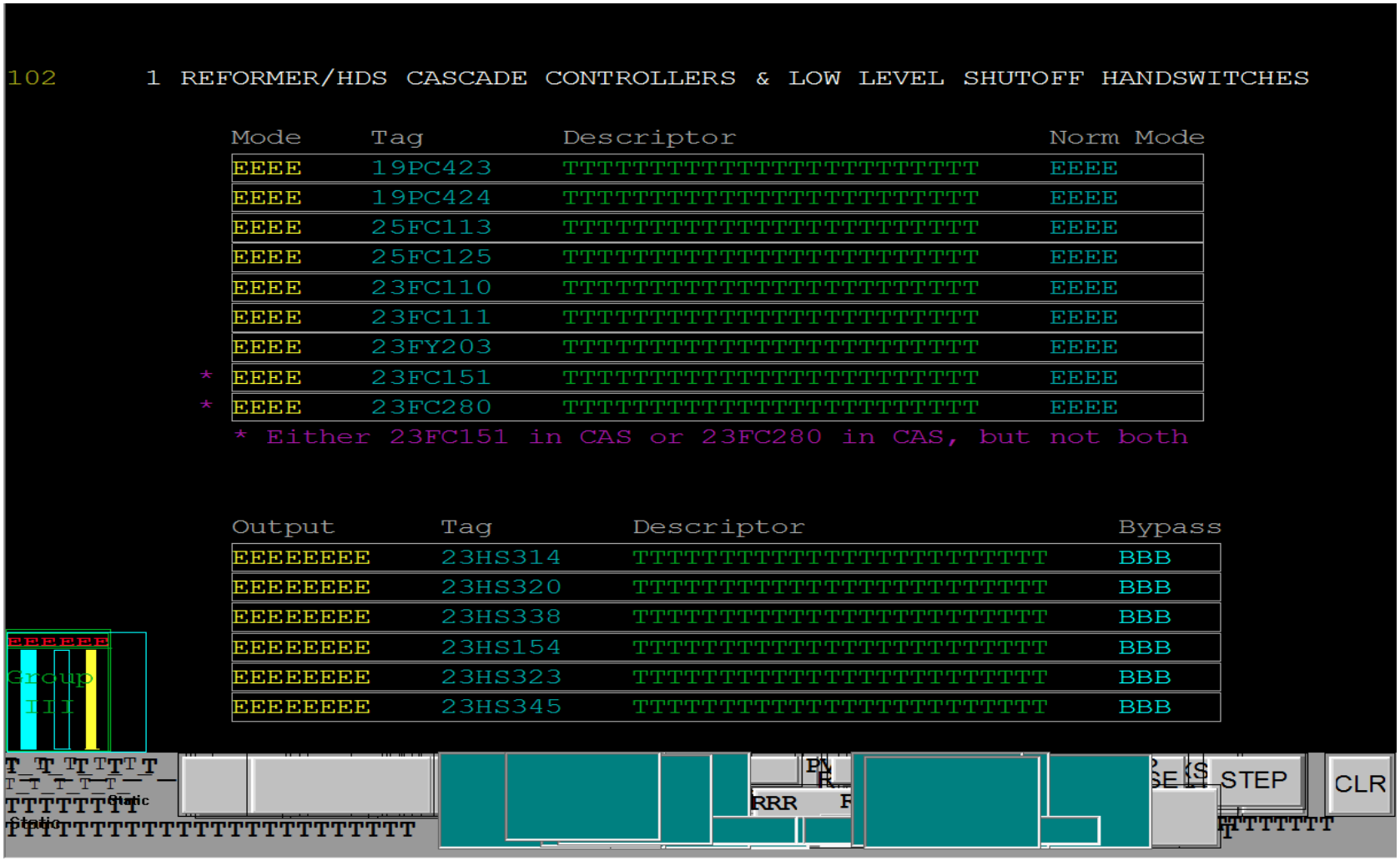
7.118 #1 REFORMER CONSOLE MAIN MENU (100.DS)



7.119 NO. 1 REF/HDS AREA DISPLAYS (101.DS)

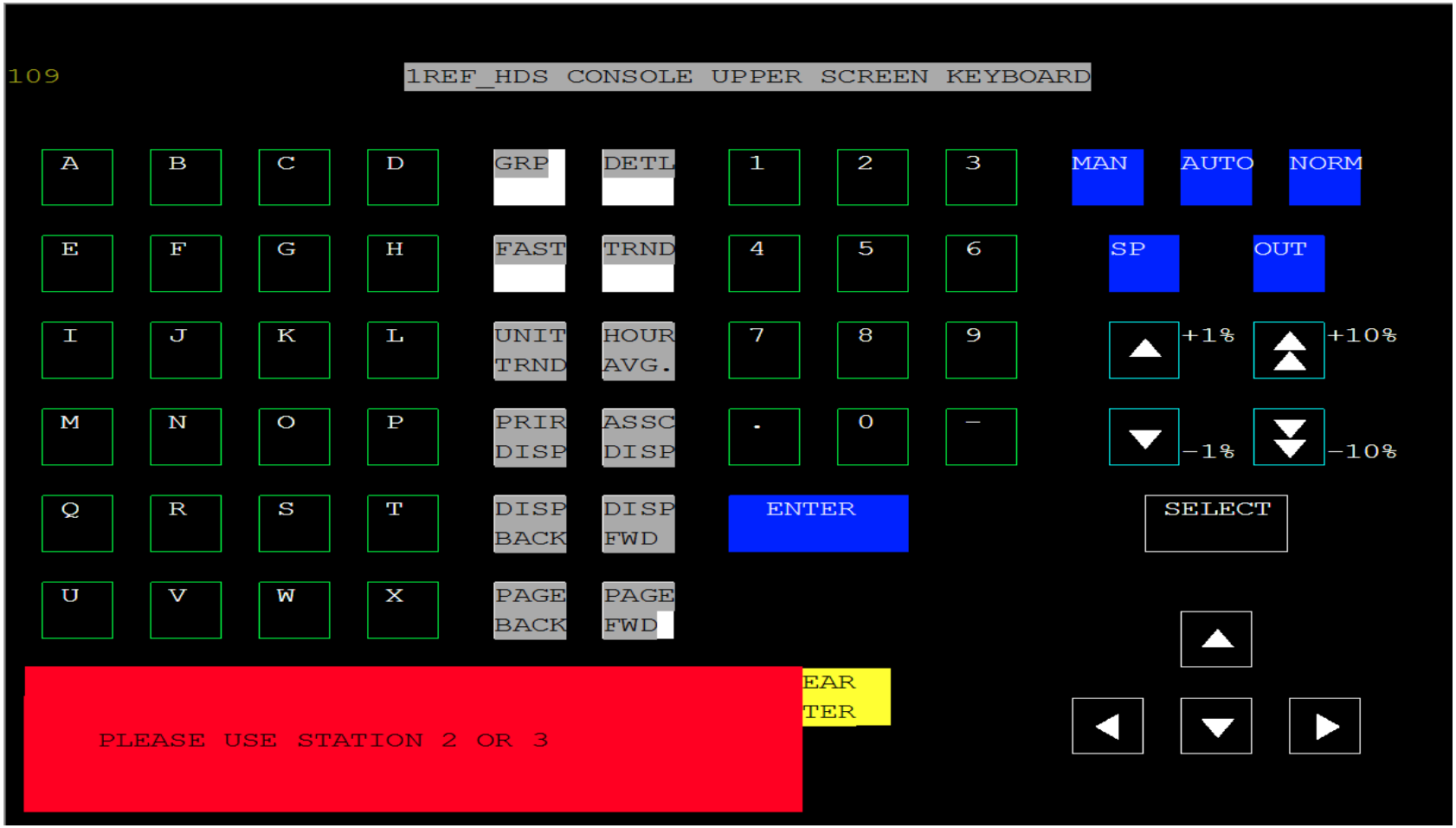


7.1201 REFORMER/HDS CASCADE CONTROLLERS & LOW LEVEL SHUTOFF HANDSWITCHES (102.DS)

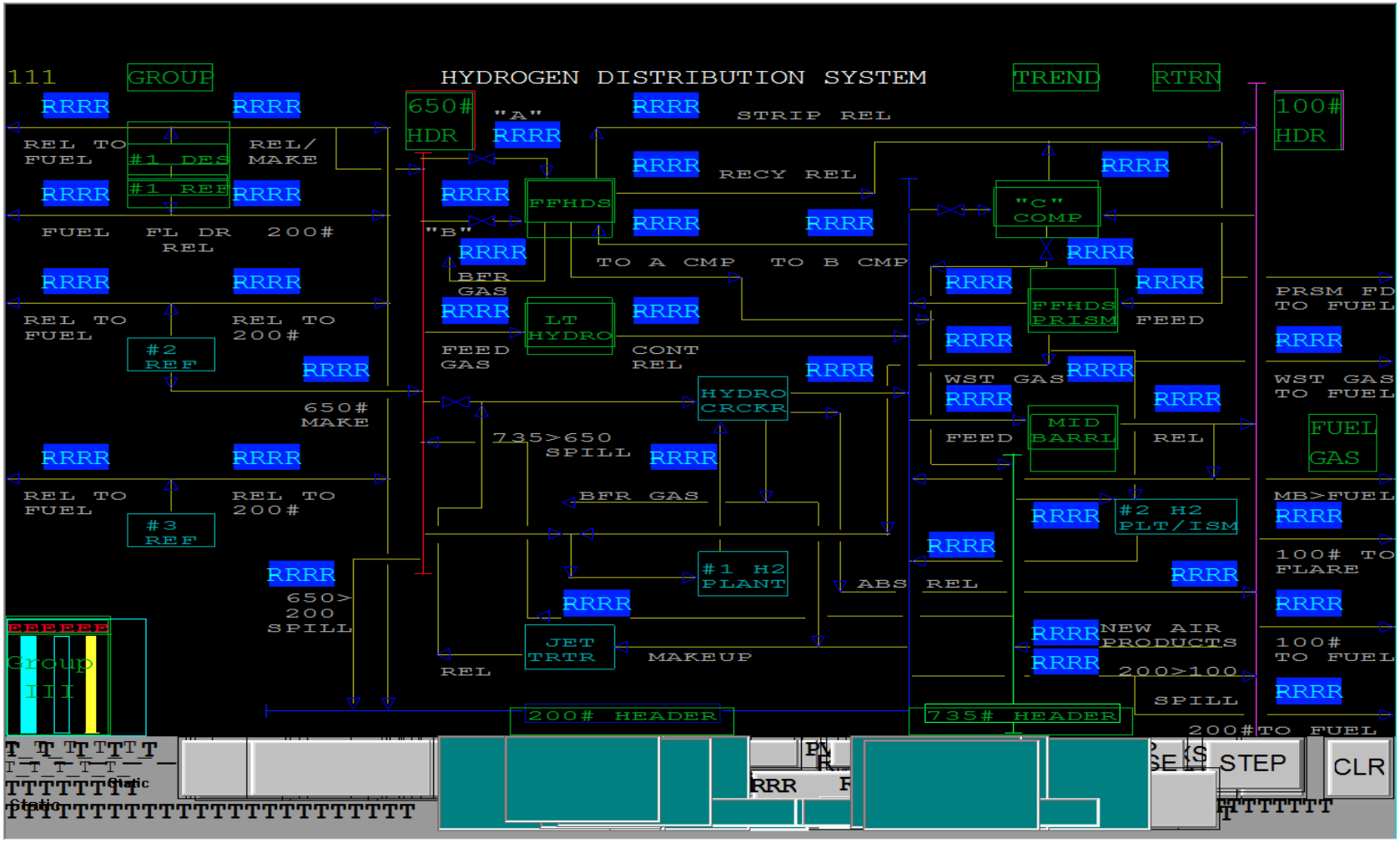


7.121 1REF/HDS AREA DISABLED ALARMS REPORT (106.DS)

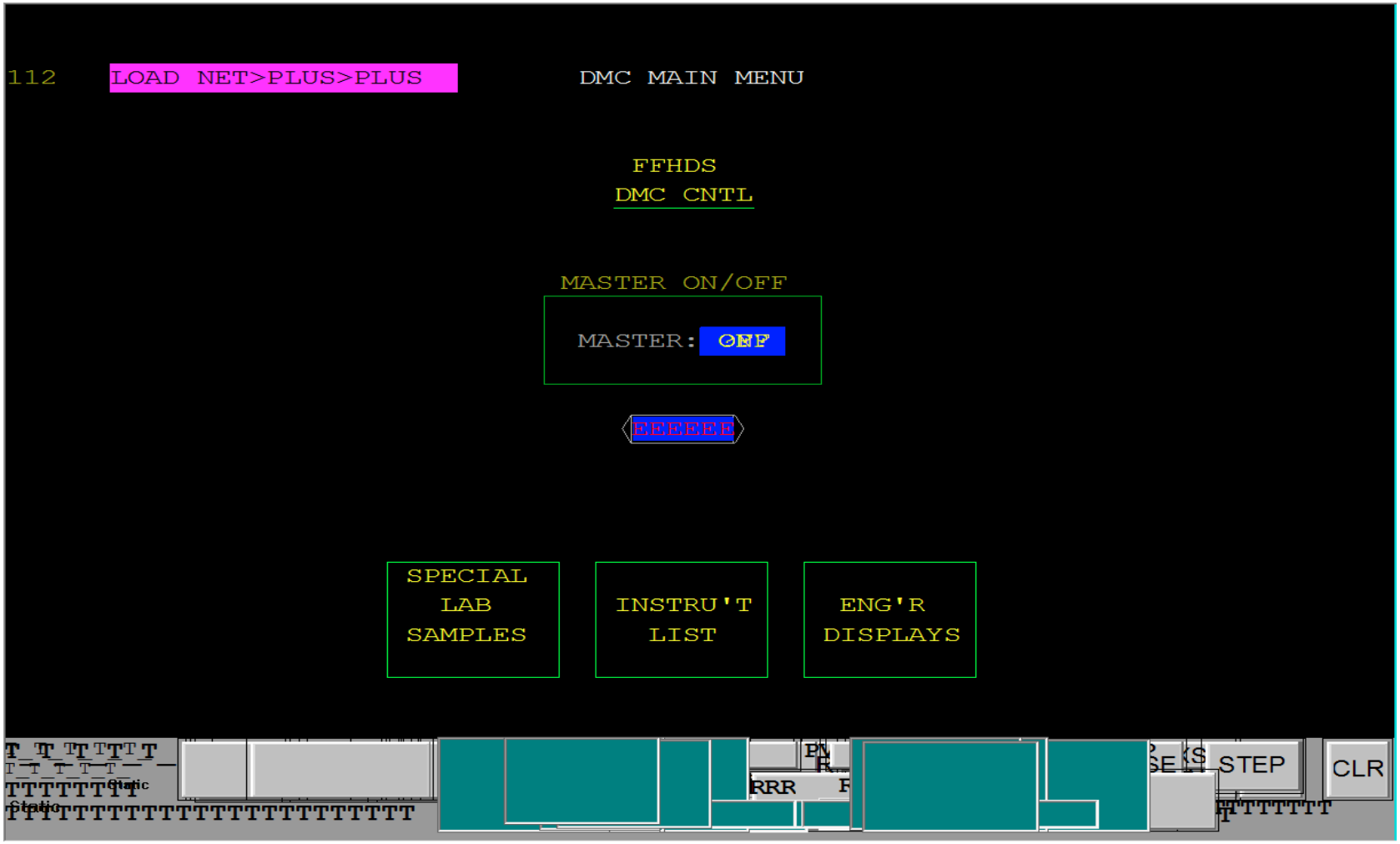
7.122 1REF_HDS CONSOLE UPPER SCREEN KEYBOARD (109.DS)



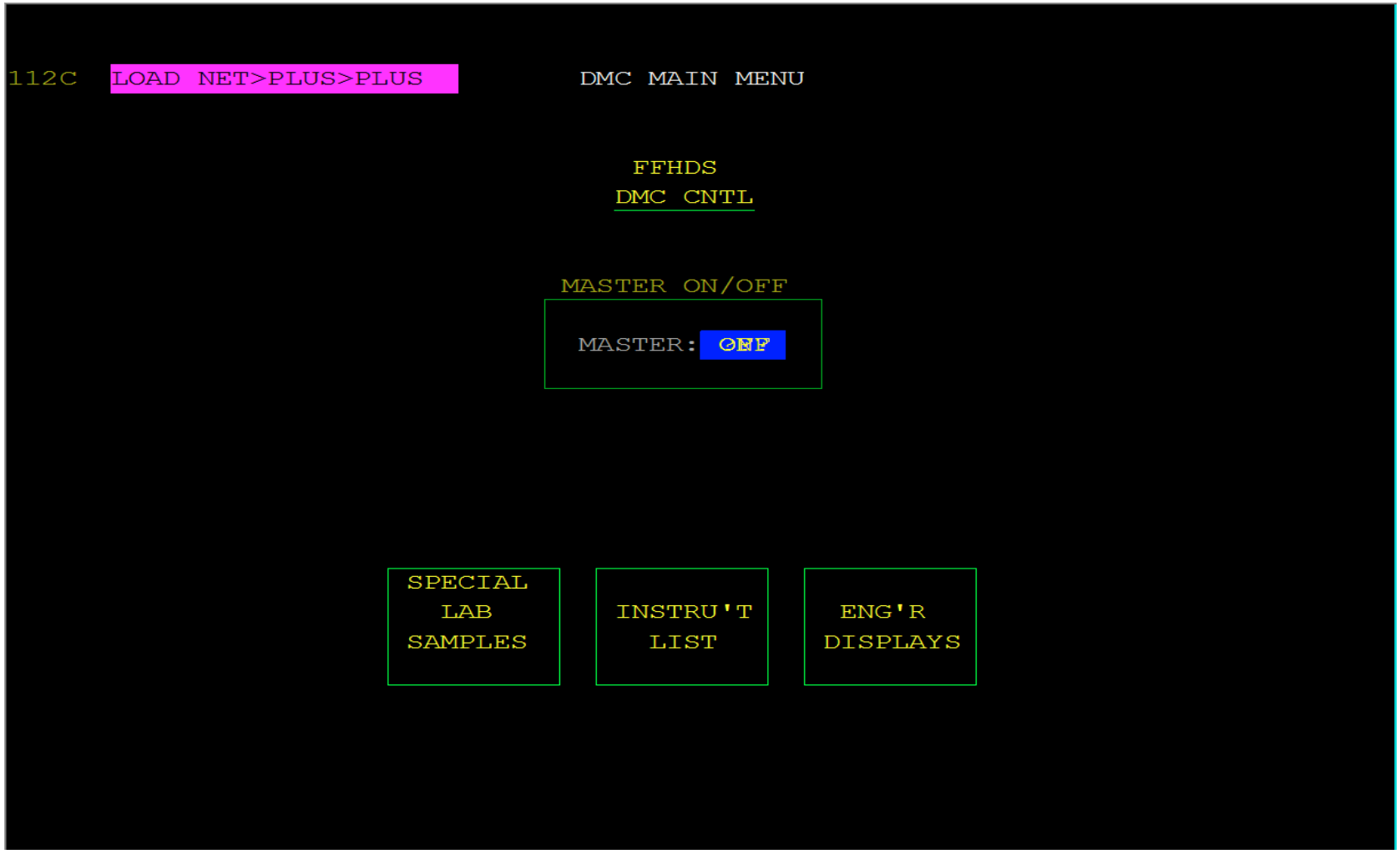
7.123 HYDROGEN DISTRIBUTION SYSTEM (111.DS)



7.124 DMC MAIN MENU (112.DS)



7.125 DMC MAIN MENU (112C.DS)



7.126 FFHDS DMC INSTRUMENT LIST (112H1.DS)

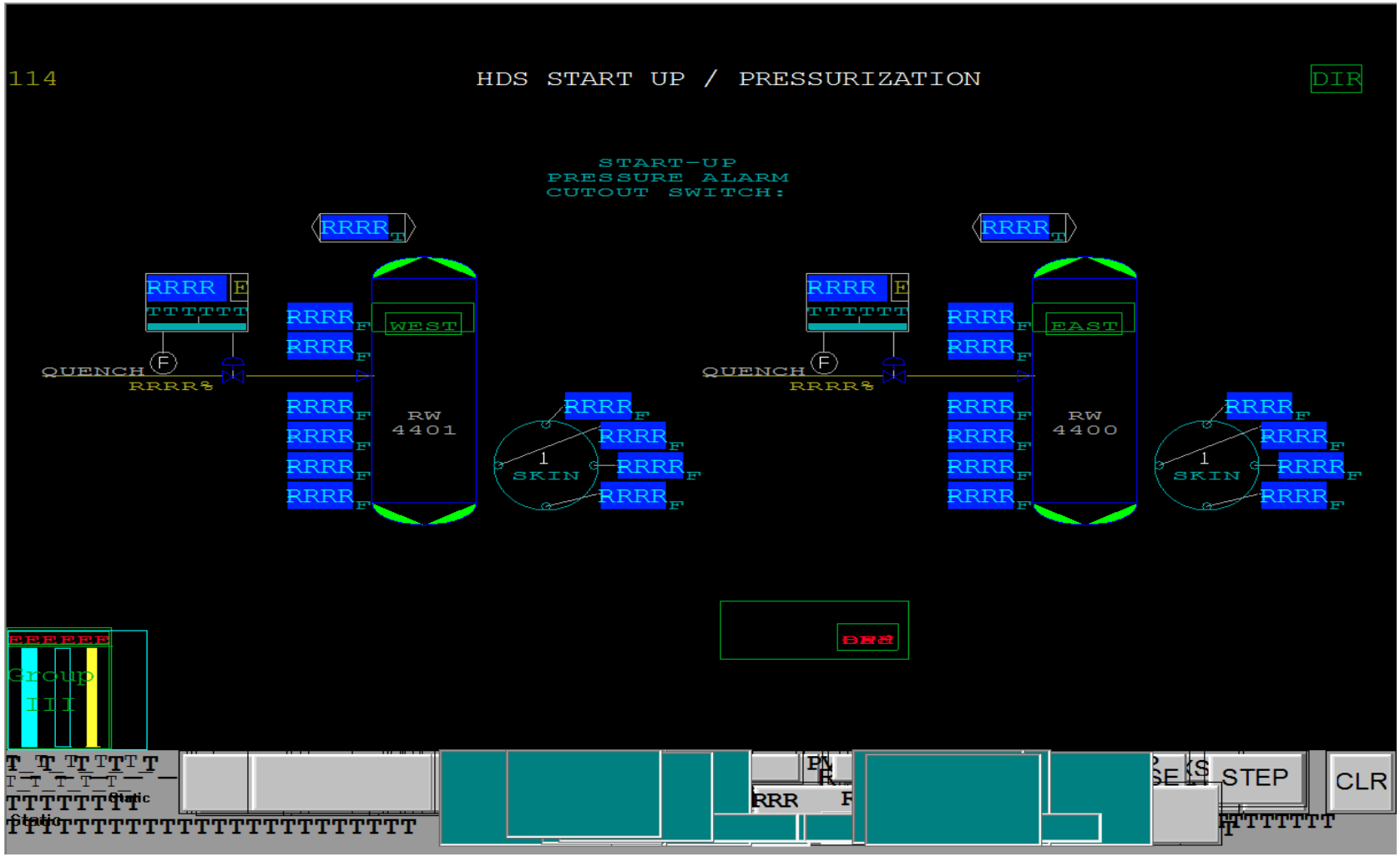
112H1 FFHDS DMC INSTRUMENT LIST

TAG ID	ACTION REQUIRED IF MAINTENANCE IS TO BE PERFORMED ON TAG ID
23FC110	TURN DMC OFF
23TC605	TURN DMC OFF
23TC876	TURN DMC OFF
23FC111	TURN DMC OFF
23TC606	TURN DMC OFF
23TC647	TURN DMC OFF
23TC600	TAKE VARIABLE OUT OF DMC SERVICE
23LC338	TAKE VARIABLE OUT OF DMC SERVICE
23TI700	TAKE VARIABLE OUT OF DMC SERVICE
23TI701	TAKE VARIABLE OUT OF DMC SERVICE
23PDI403	TAKE VARIABLE OUT OF DMC SERVICE
23TI707	TAKE VARIABLE OUT OF DMC SERVICE
23AI960	TAKE VARIABLE OUT OF DMC SERVICE
23PC427	TURN DMC OFF
23PC565	TURN DMC OFF
23AI949	TAKE VARIABLE OUT OF DMC SERVICE
23FC123	TURN DMC OFF
23PC566	TURN DMC OFF
23AI916	TAKE VARIABLE OUT OF DMC SERVICE
23FC167	TURN DMC OFF
23TI732	TAKE VARIABLE OUT OF DMC SERVICE

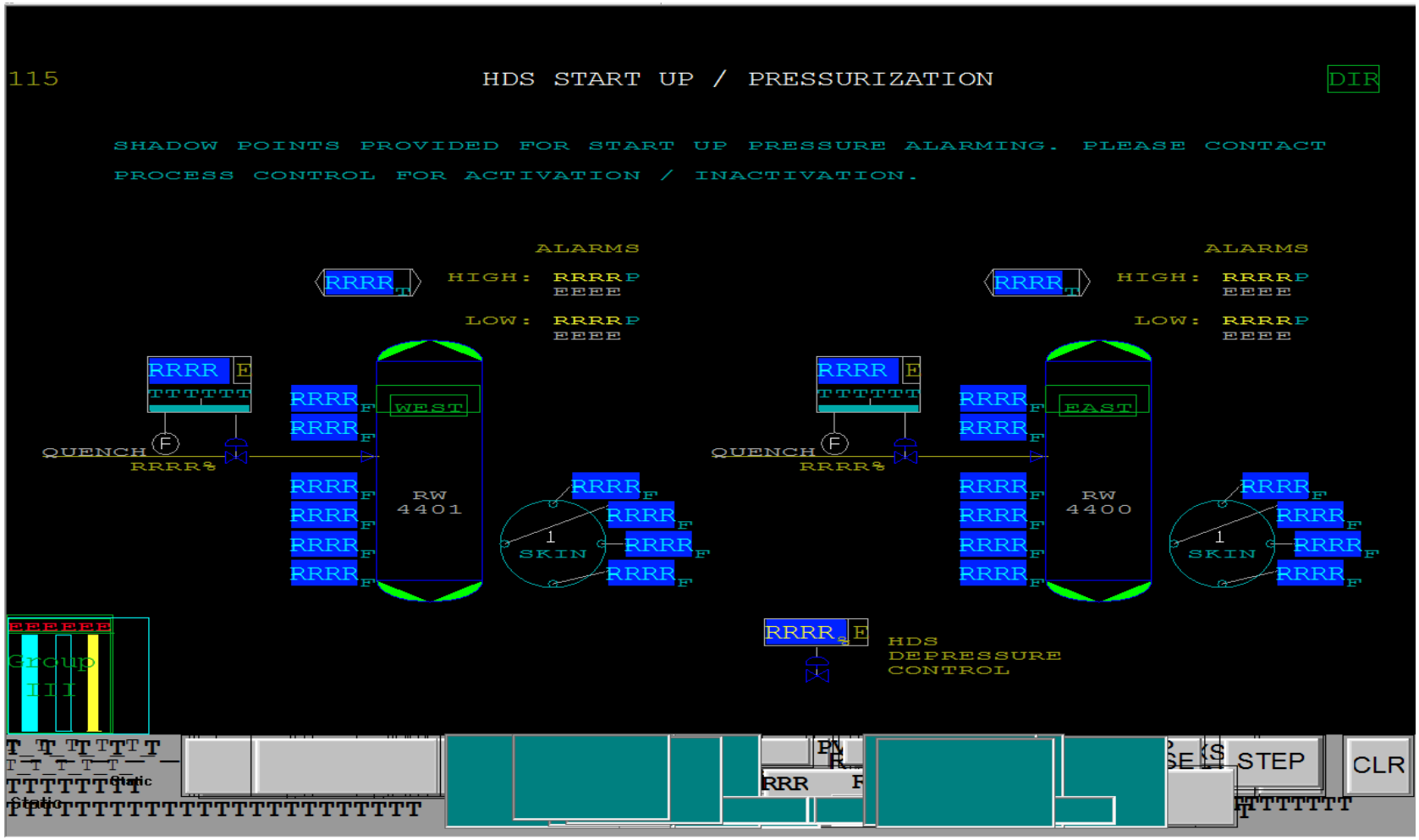
7.127 TELEPHONE DIRECTORY (113.DS)

```
113                          TELEPHONE DIRECTORY

       UNITS                       GAUGERS                  UNIT FOREMAN          PAGES
 1 REFORMER ------ 8163    PIPELINE GAUGER 7443    REFORMERS -- 8152    S.FOREMAN
 2 REFORMER ------ 8162    PUMPER GAUGER - 8405    HYDROCRACKER 8153     55-0787
 2 RACK RM ------- 8441    FIELD GAUGER -- 7447    FCC -------- 8151    GRANT
 3 RACK RM ------- 7329          SHOPS             SO.AREA #1 - 8166     55-0763
 HYDROCRACKER ---- 8350    PIPE ---------- 8780    SO.AREA #2 - 8157    CORCORAN
 FCC ------------- 8161    MACHINIST ----- 7336    SO.AREA #3 - 8169     55-0715
 4 STM PLANT _____ 8171    INSTRUMENT ---- 8340    STG/HAND --- 8154    NIGHT SUP
 SO.AREA CNTROL #1 7323    ELECTRICAL ---- 8300    UTILITIES -- 8158     55-0782
 1 CRUDE --------- 7434    WAREHOUSE ----- 8267    MAINT. ----- 3411    #1 SUPER
 2 CRUDE --------- 7429    KITCHEN ------- 8339    GATE 7 ----- 7577     55-0745
 4 CRUDE 52 VAC -- 7432    RADIO --------- 8303    MAIN GATE -- 8700
 1-2 TREATERS ---- 7465    TOOLROOM ------ 8578    PAYROLL ---- 8321
 51 VAC ---------- 7436    LABOR --------- 7406    ER --------- 8226    MULTI CHNL
 SO.AREA CNTROL #2 7322    WELD ---------- 7330    MEDICAL ---- 8175    HC------A1
 2 ALKY ---------- 7446    TRANSPORTATION  8785    FIRE MARSHAL 8775    STM PLT-A6
 SFIA ------------ 7452          LABS              FIRST AID -- 7333    COGEN---A7
 COKER ----------- 7448    CONTROL ------- 8247    CREDIT UNION 8477    S&H-----B7
 SULFUR PLANT ---- 7450    GAS ----------- 7331                         F&S-----C2
 WASTE H2O ------- 8137    CHEM ---------- 8359    REF.SUPER -- 8178    I&E-----C5
 5 OIL TRAP ------ 7458    ENGINE -------- 7486    SUPERVISOR - 8132
 7 OIL TRAP ------ 7453    INSTRUMENT ---- 8272    NIGHT SUP. - 8180
 COGEN ----------- 8825    #1 REF RACK RM- 8183    #1 SUPRVSR - 8131
```

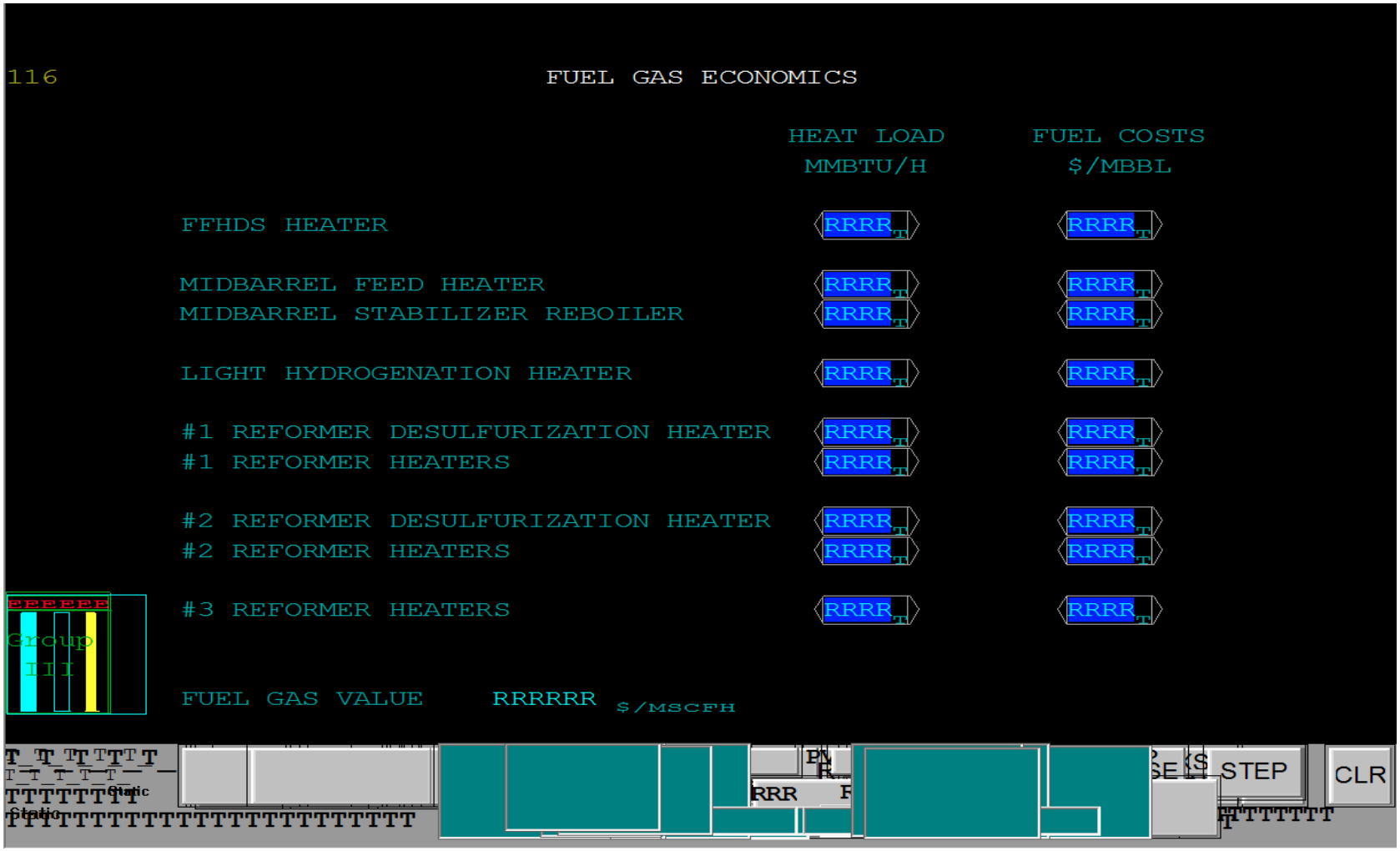
7.128 HDS START UP / PRESSURIZATION (114.DS)



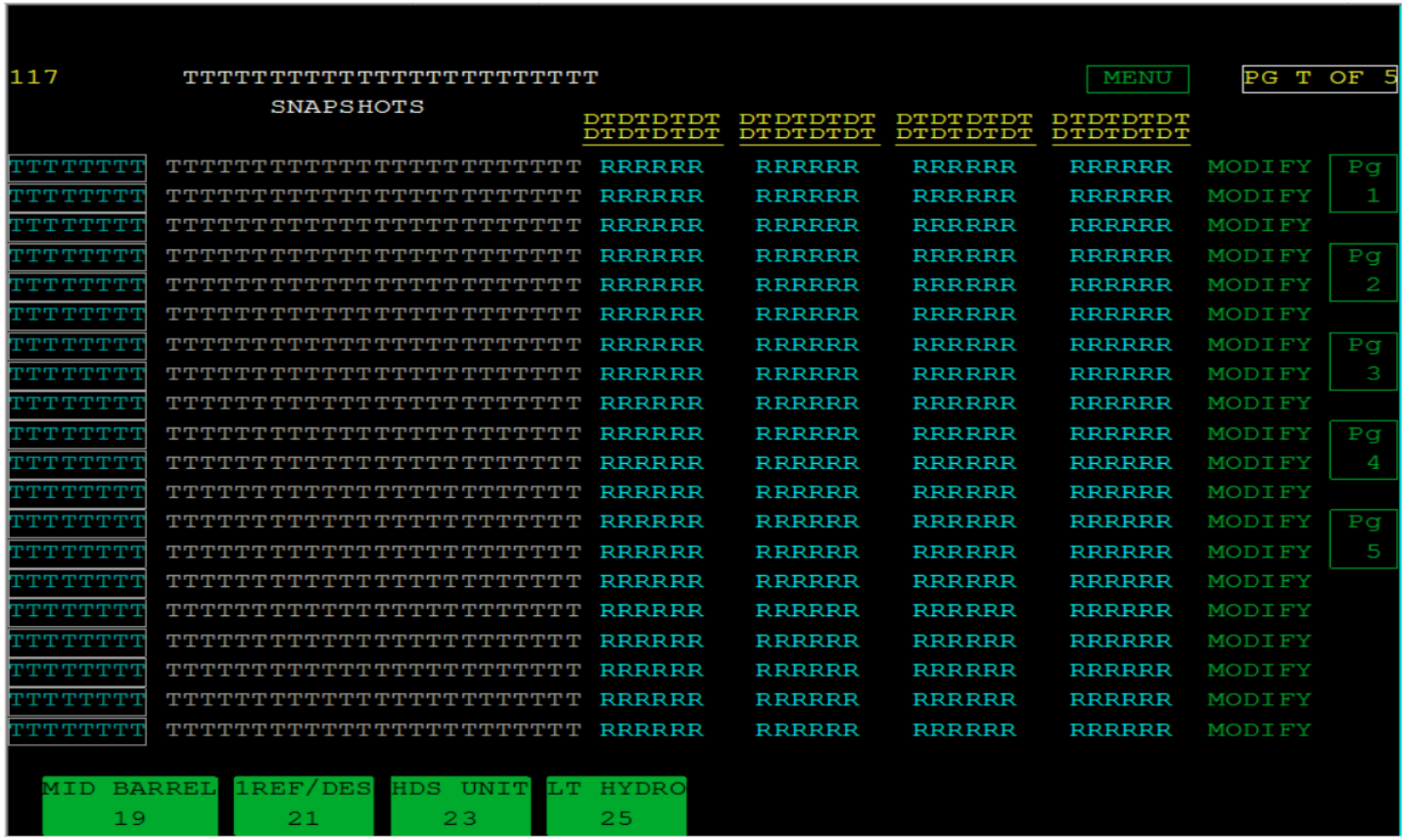
7.129 HDS START UP / PRESSURIZATION (115.DS)



7.130 FUEL GAS ECONOMICS (116.DS)

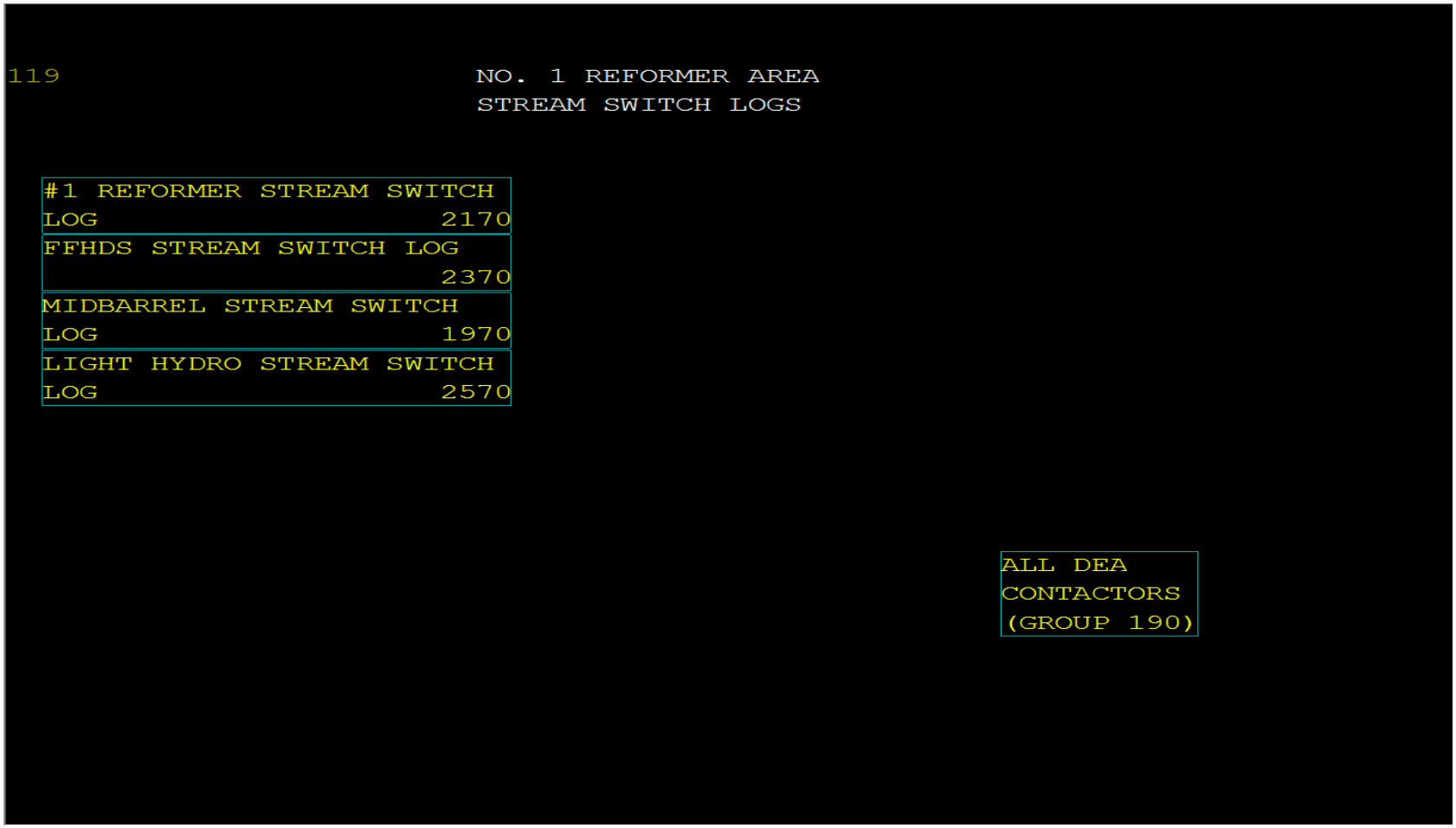


7.131 FUEL GAS ECONOMICS (117.DS)

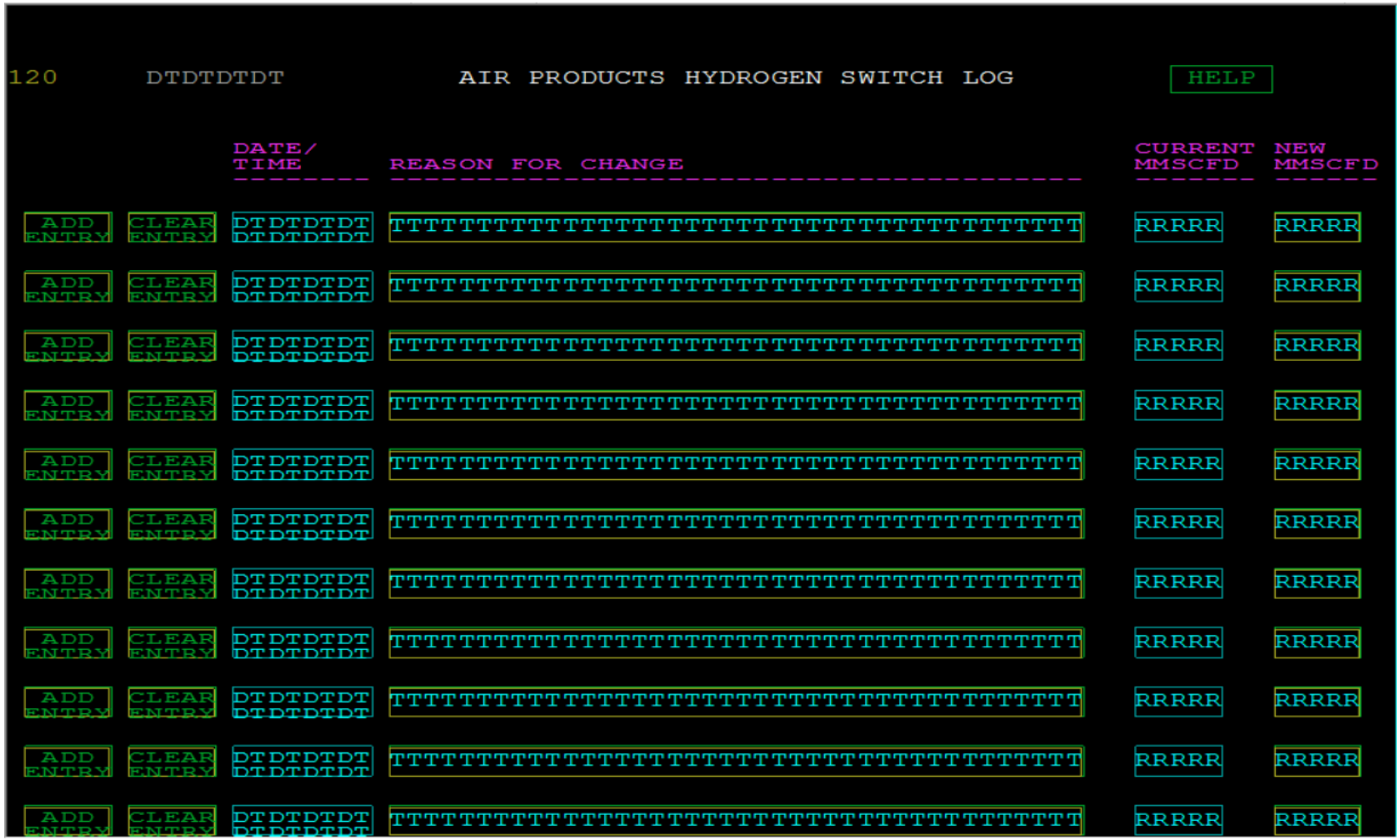


7.132 HDS/#1 REFMR TRENDS (118.DS)

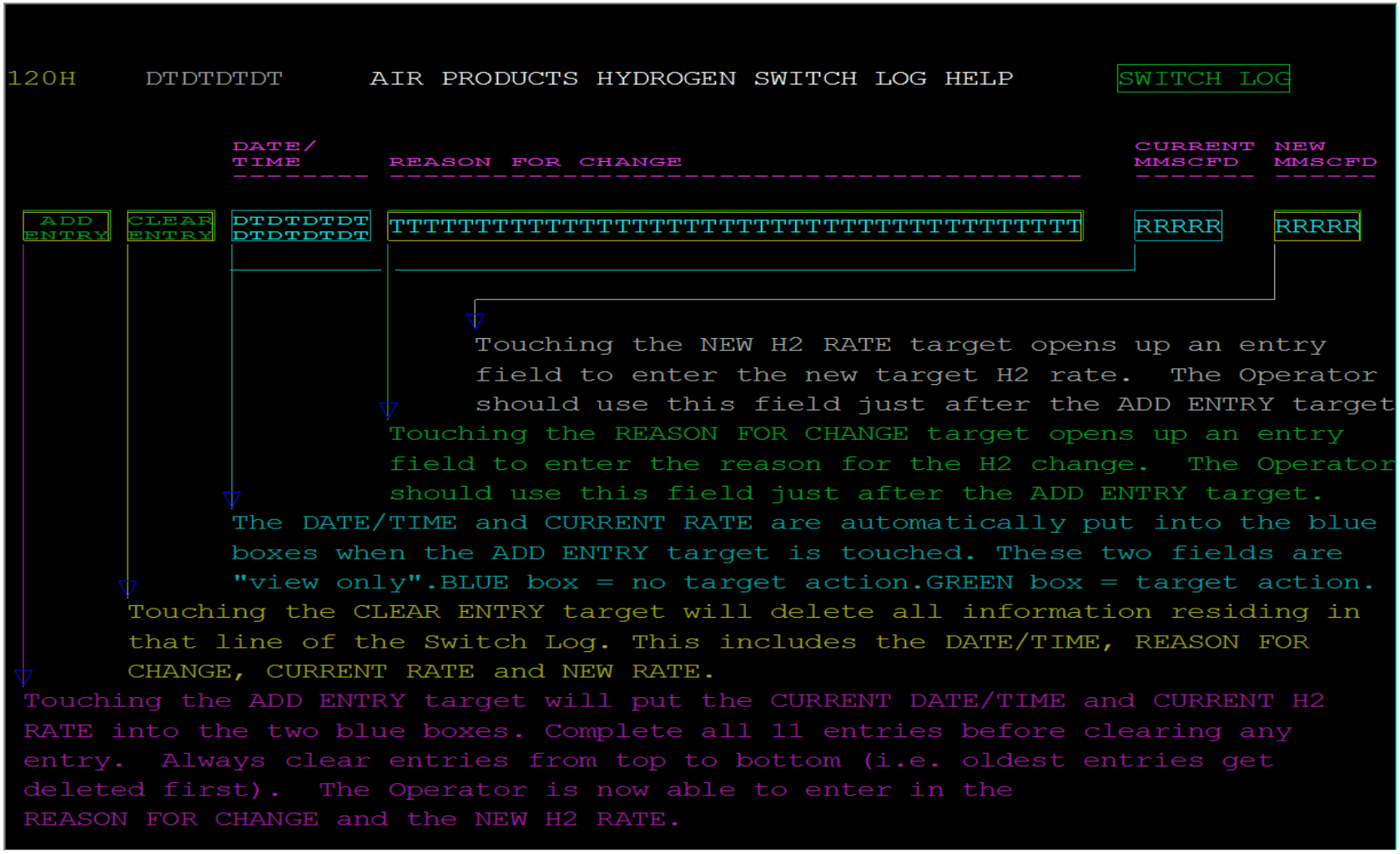
7.133 NO. 1 REFORMER AREA STREAM SWITCH LOGS (119.DS)



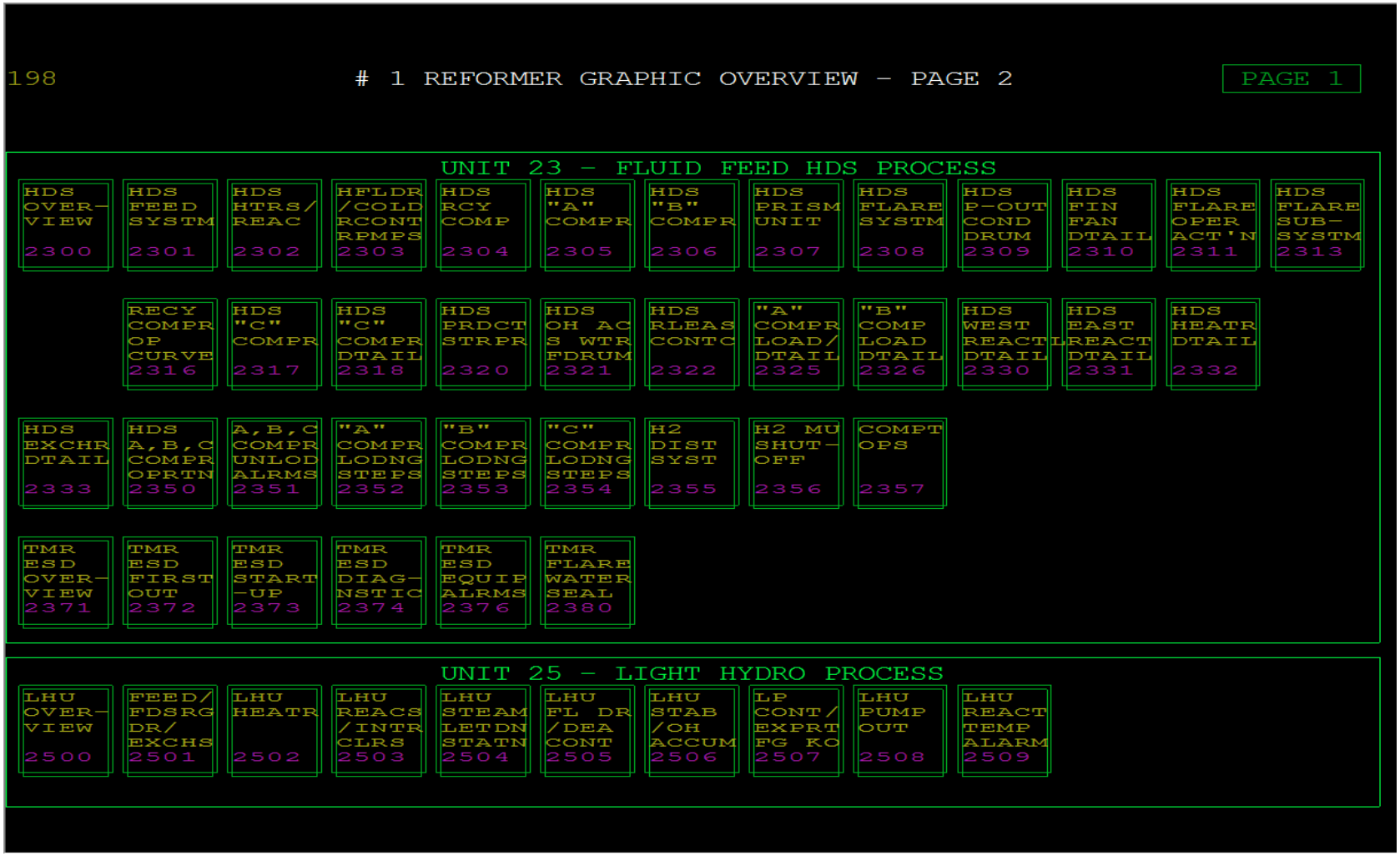
7.134 AIR PRODUCTS HYDROGEN SWITCH LOG (120.DS)



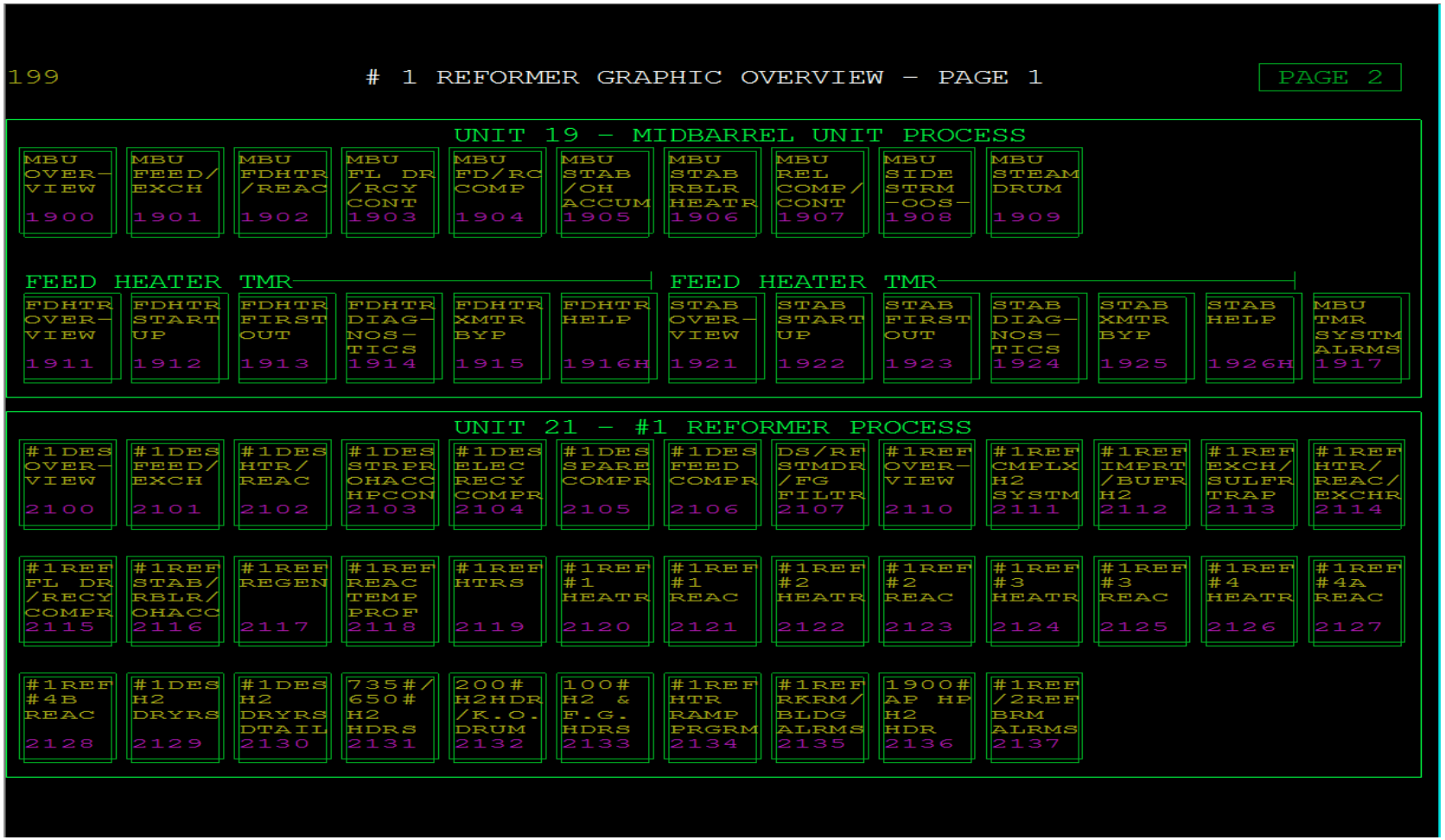
7.135 AIR PRODUCTS HYDROGEN SWITCH LOG HELP (120H.DS)



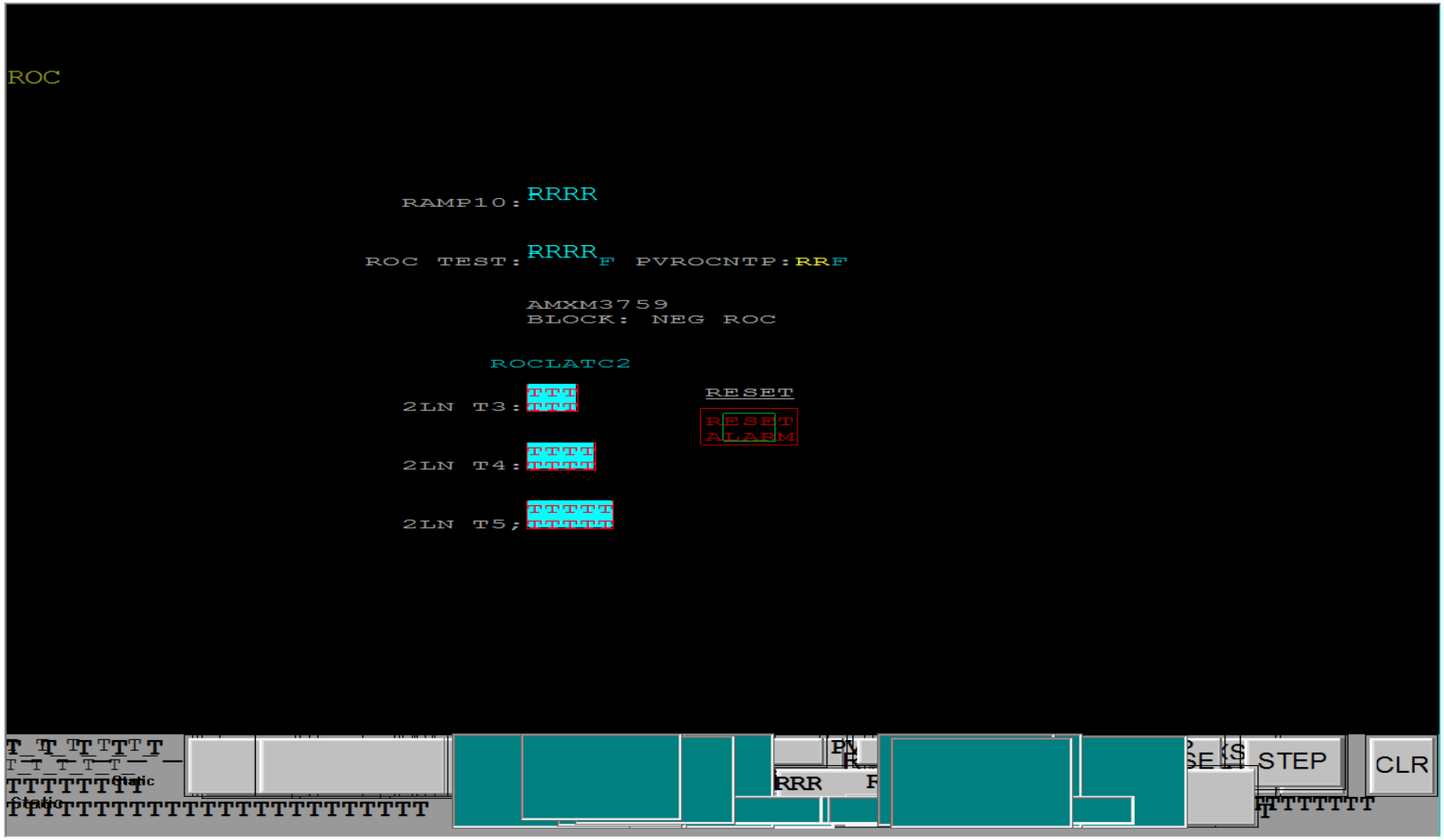
7.136# 1 REFORMER GRAPHIC OVERVIEW - PAGE 2 (198.DS)



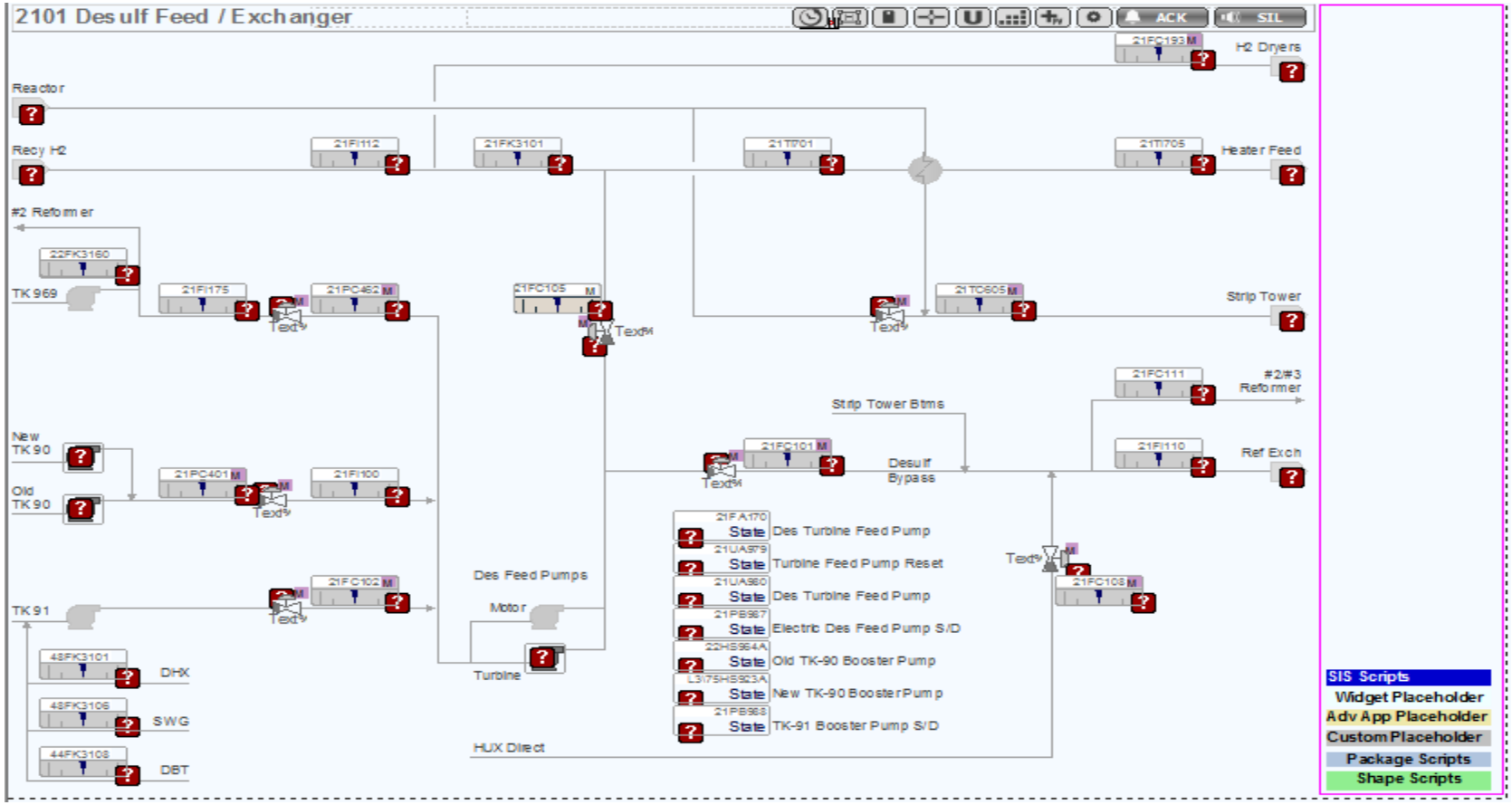
7.137 # 1 REFORMER GRAPHIC OVERVIEW - PAGE 12 (199.DS)



7.138 ROC (ROC.DS)

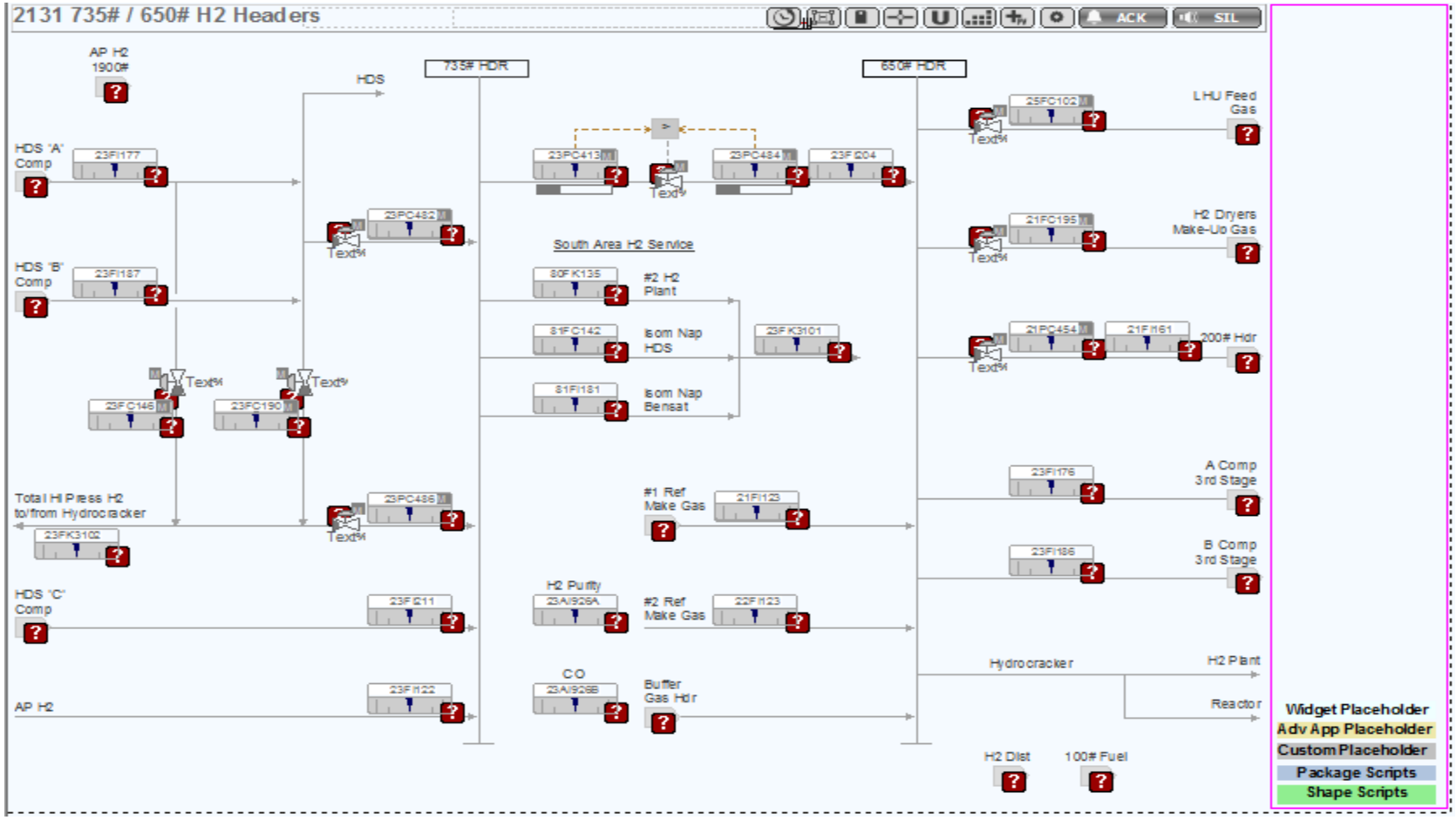


7.139 2101 DESULF FEED / EXCHANGER (1Ref2101.htm)



7.140 HDS / 1REF PV (1ref_pv.htm)

7.141 2131 735# / 650# H2 HEADERS (E2131.htm)

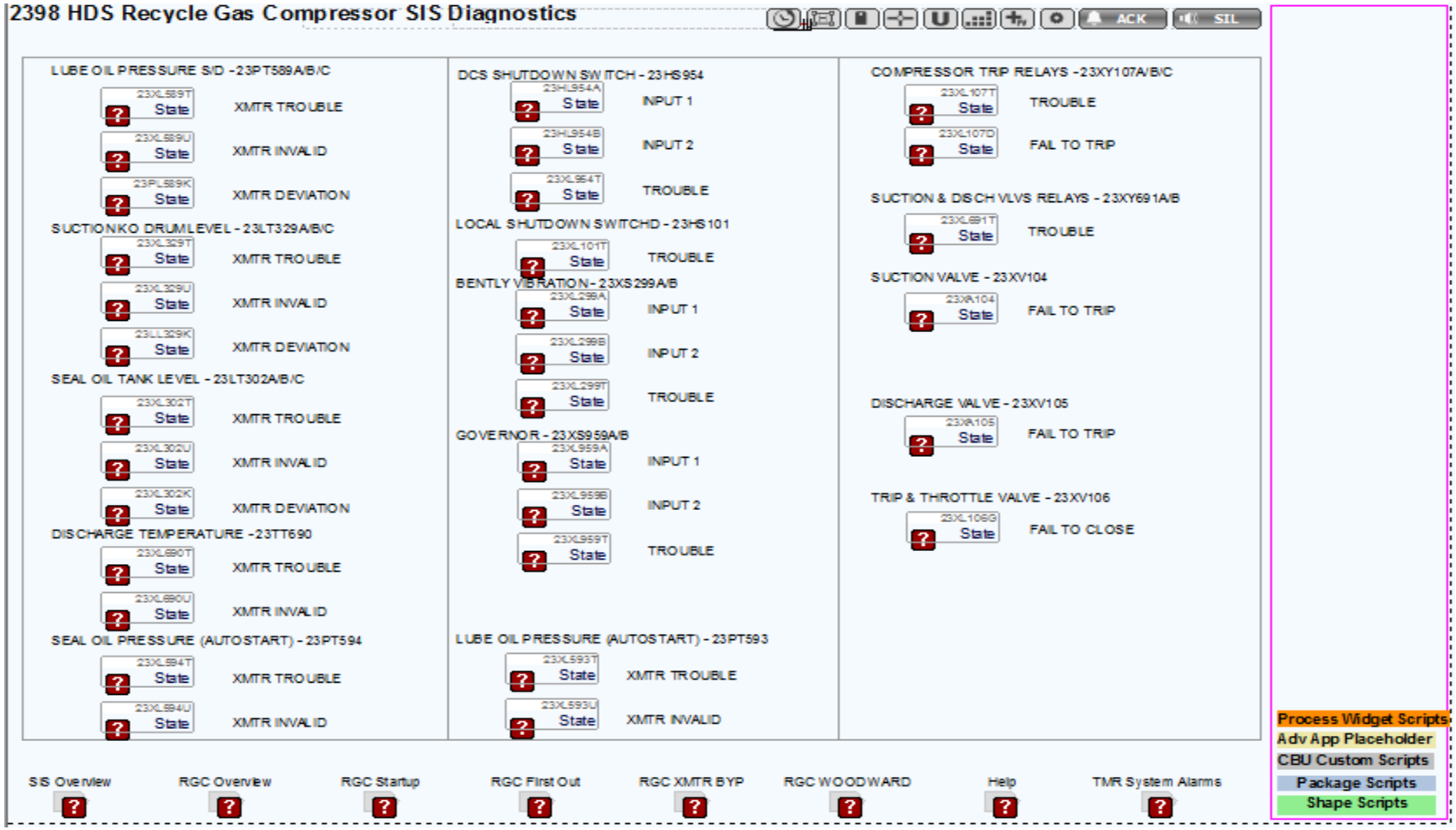


7.142 #1 REFORMER LAVEL 1 (Ref1_L1_Dash.htm)

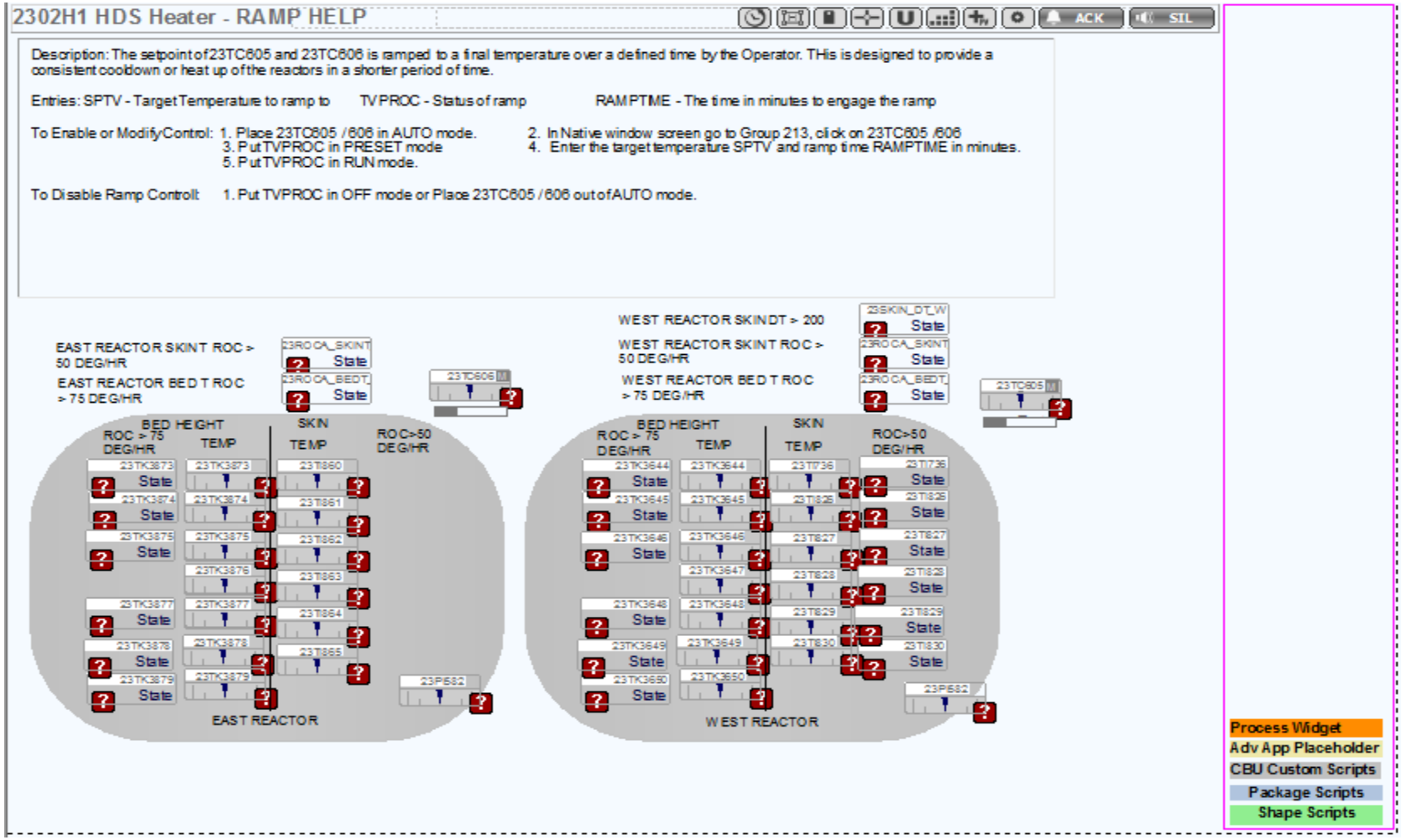
7.143 #1 REFORMER LAVEL 1 OVERVIEW (Ref1_Overview_Dash.htm)

7.144 TEMPLATE (Ref1_Template.htm)

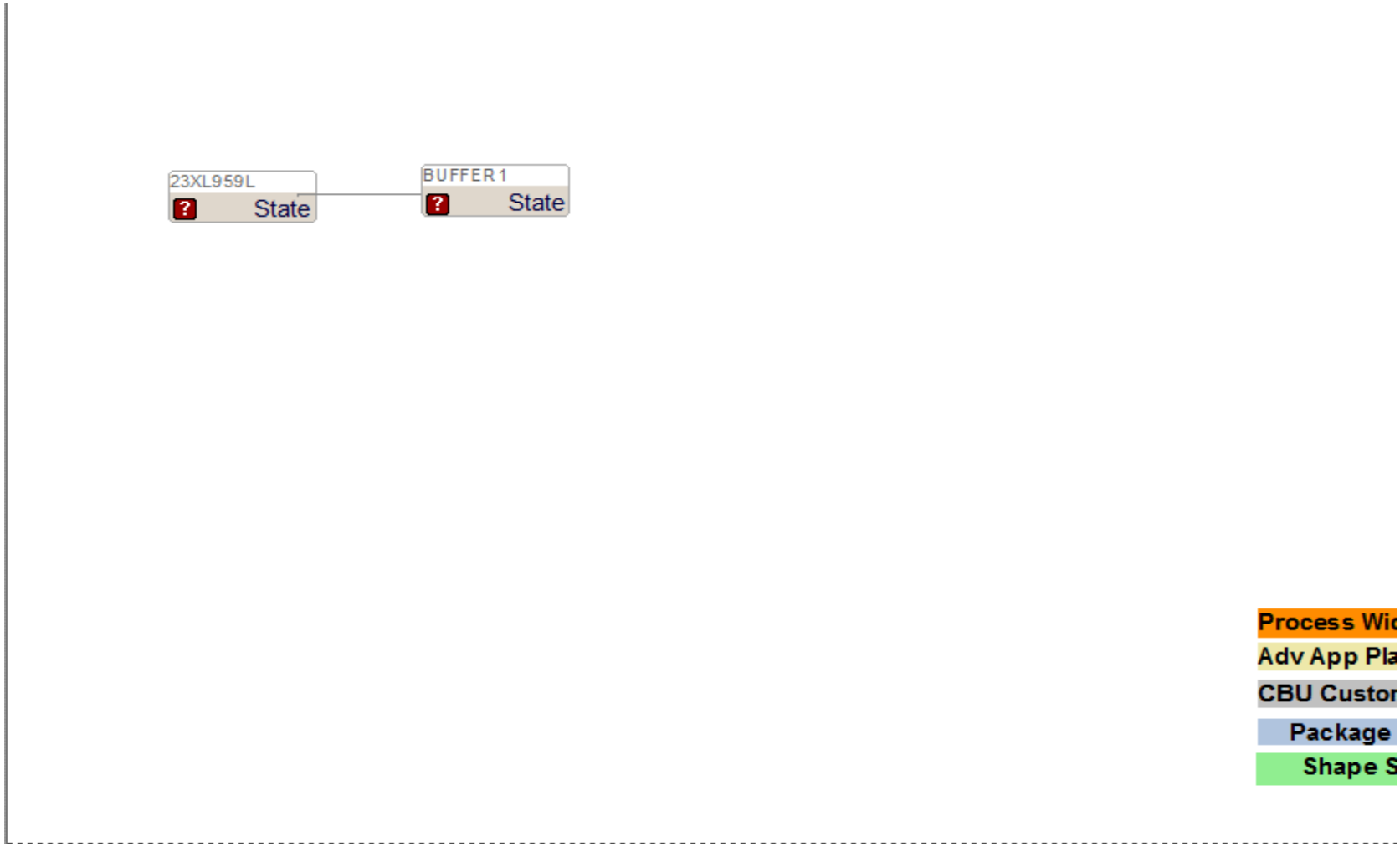
7.145 2398 HDS RECYCLE GAS COMPRESSOR SIS DIAGNOSTICS (Ref1_TeST.htm)



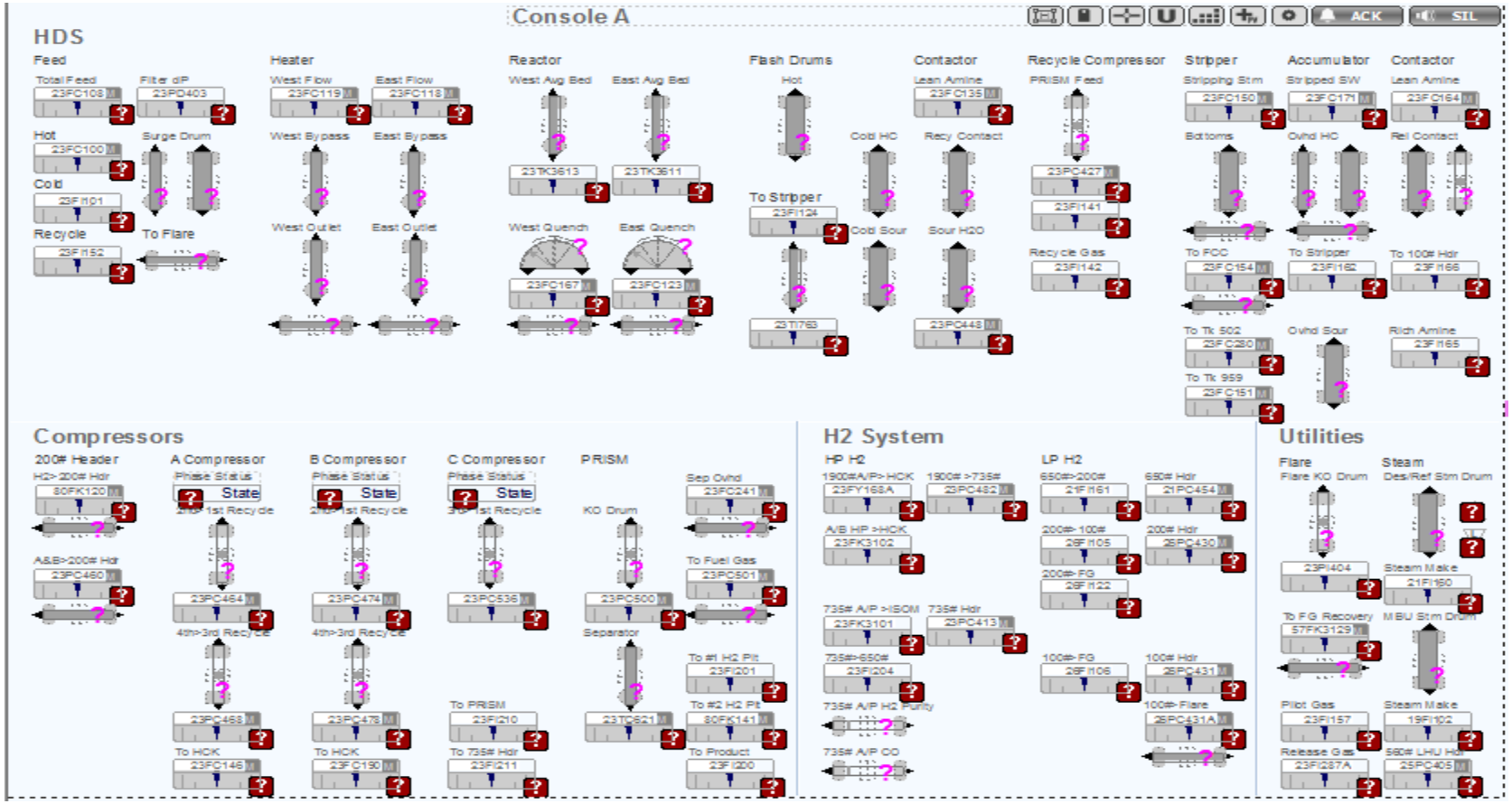
7.146 2302H1 HDS HEATER - RAMP HELP (Reformer_2302H1_Better.htm)



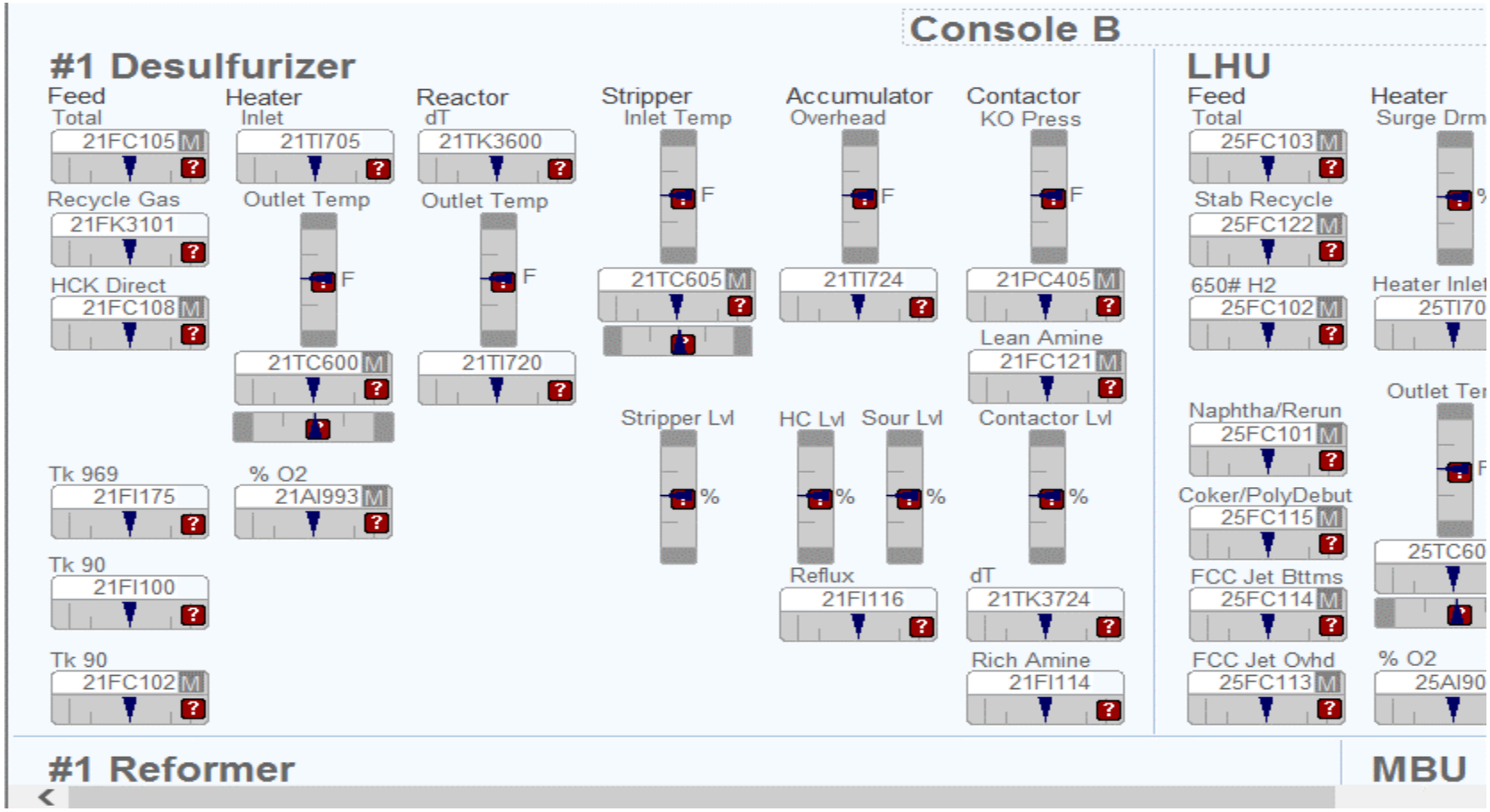
7.147 (Test_Logic.htm)



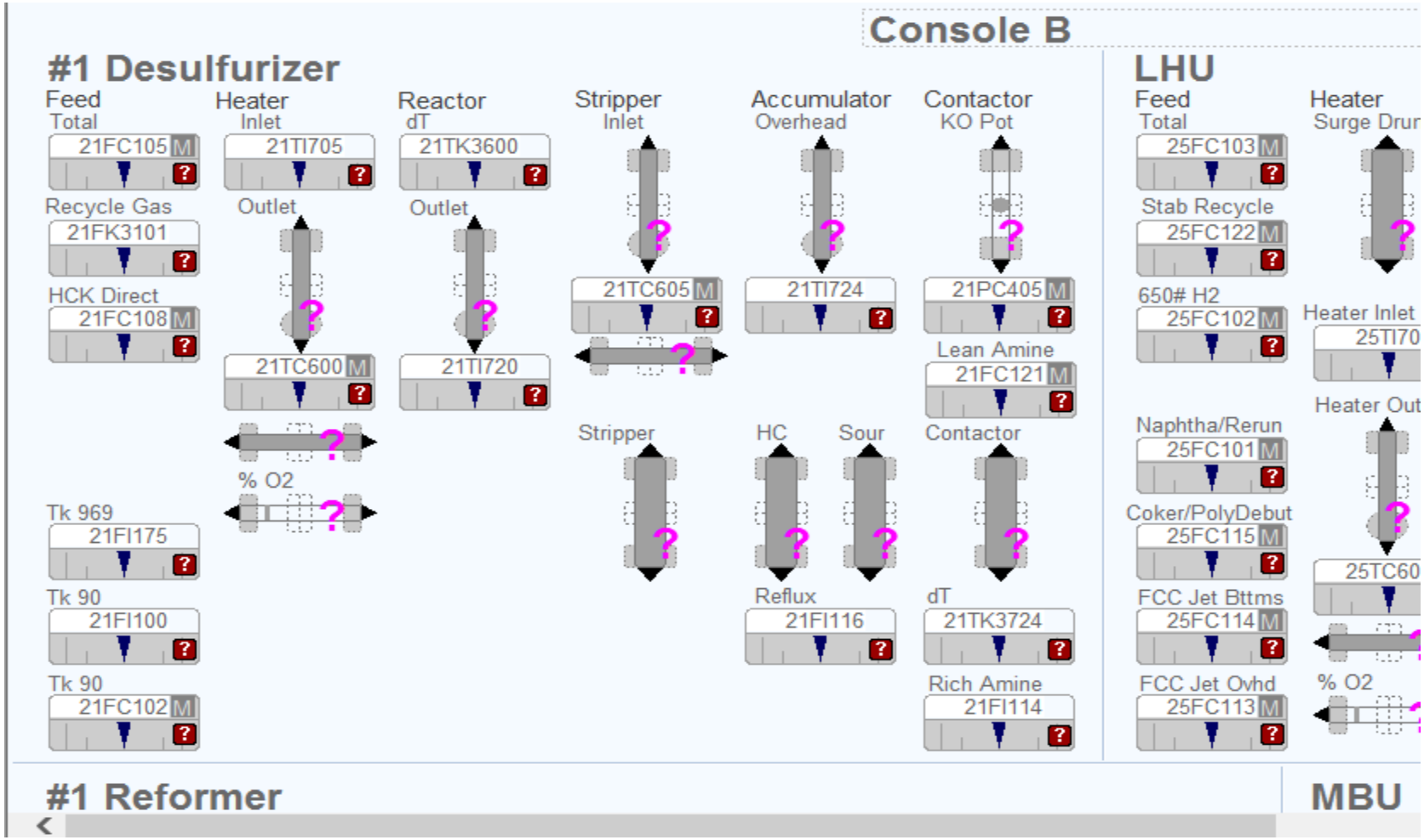
7.148 CONSOLE A (L1 Console A.htm)



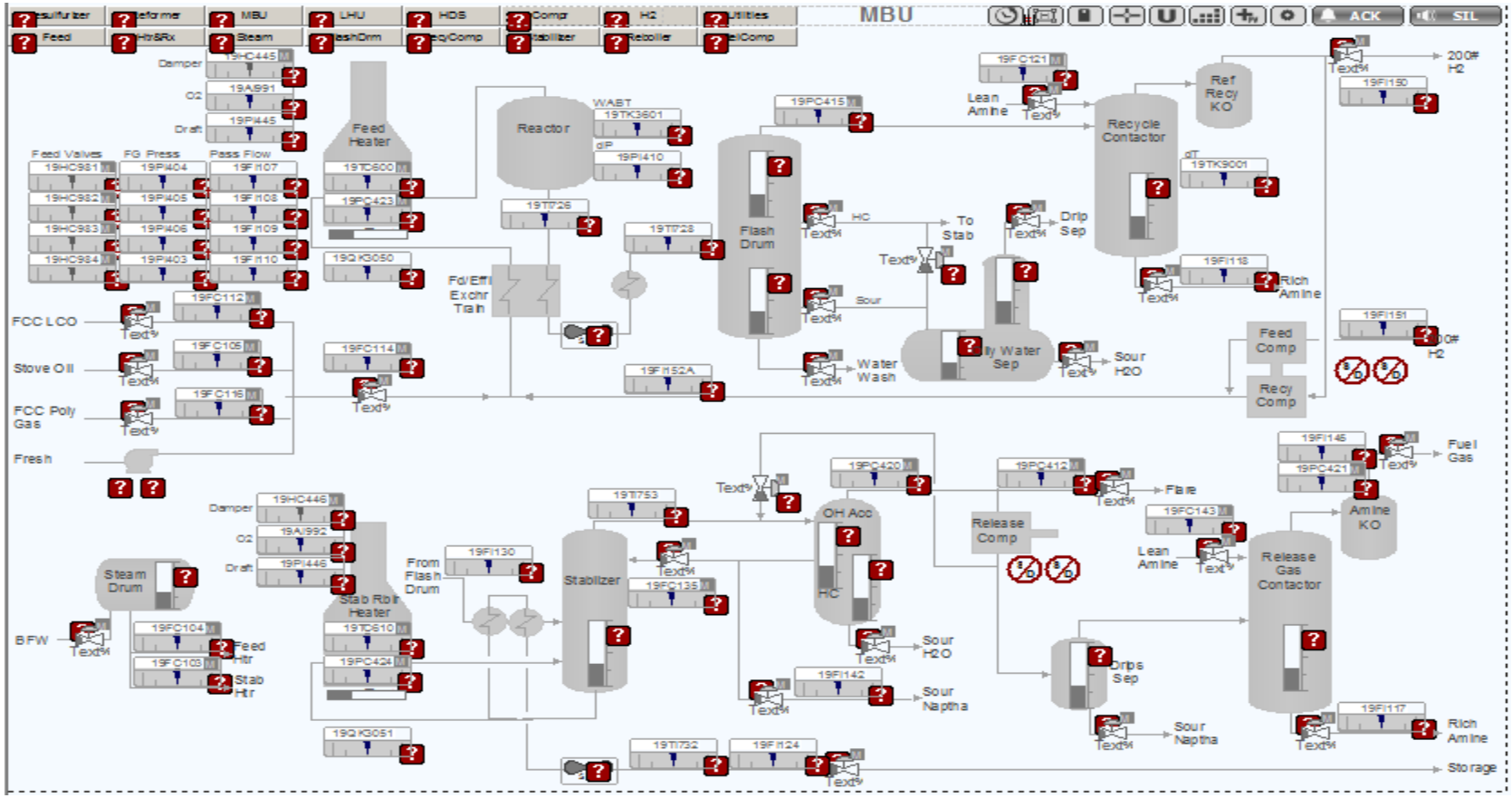
7.149 CONSOLE B (L1 Console B-2.htm)



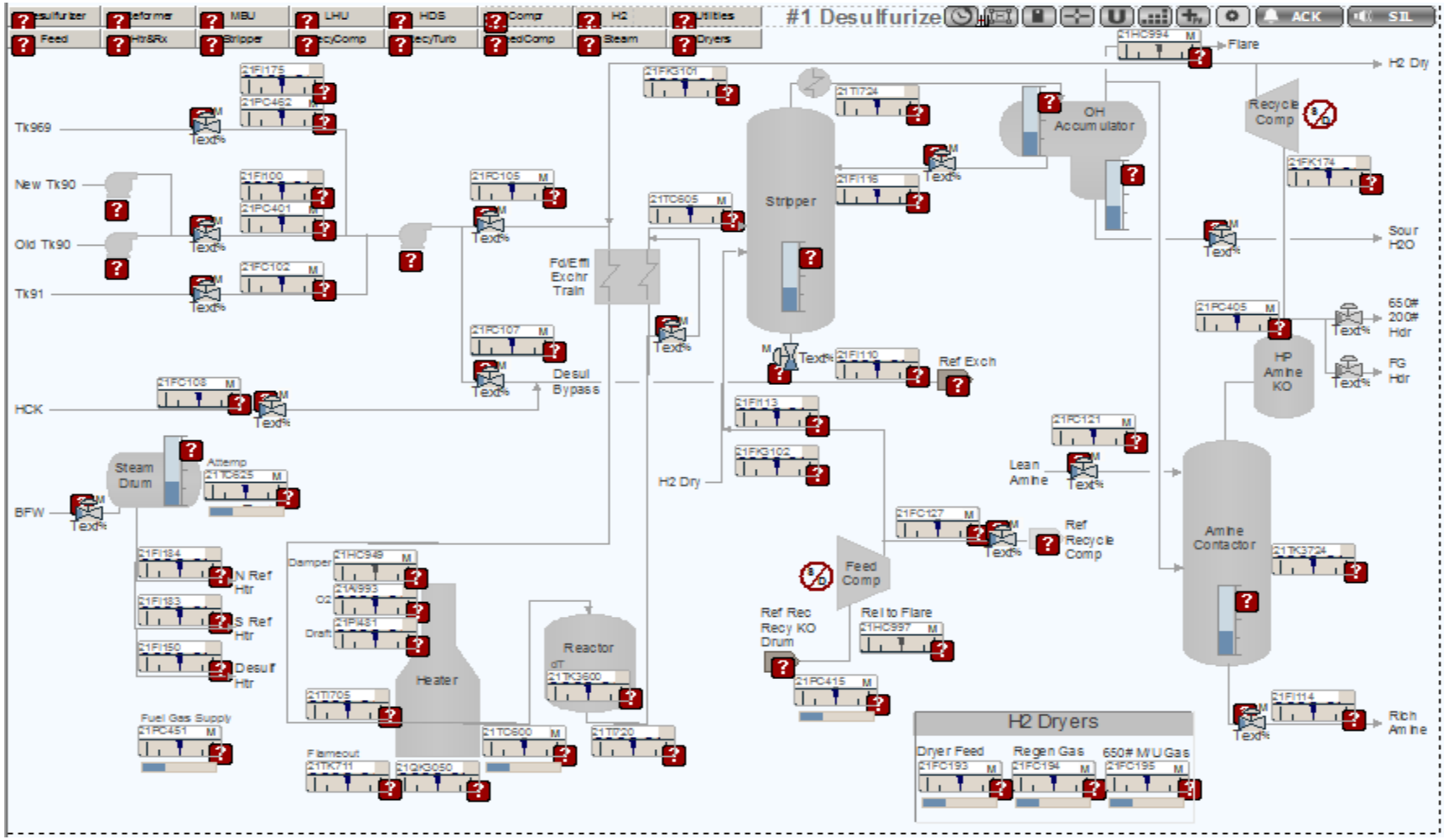
7.150 CONSOLE B (L1 Console B.htm)



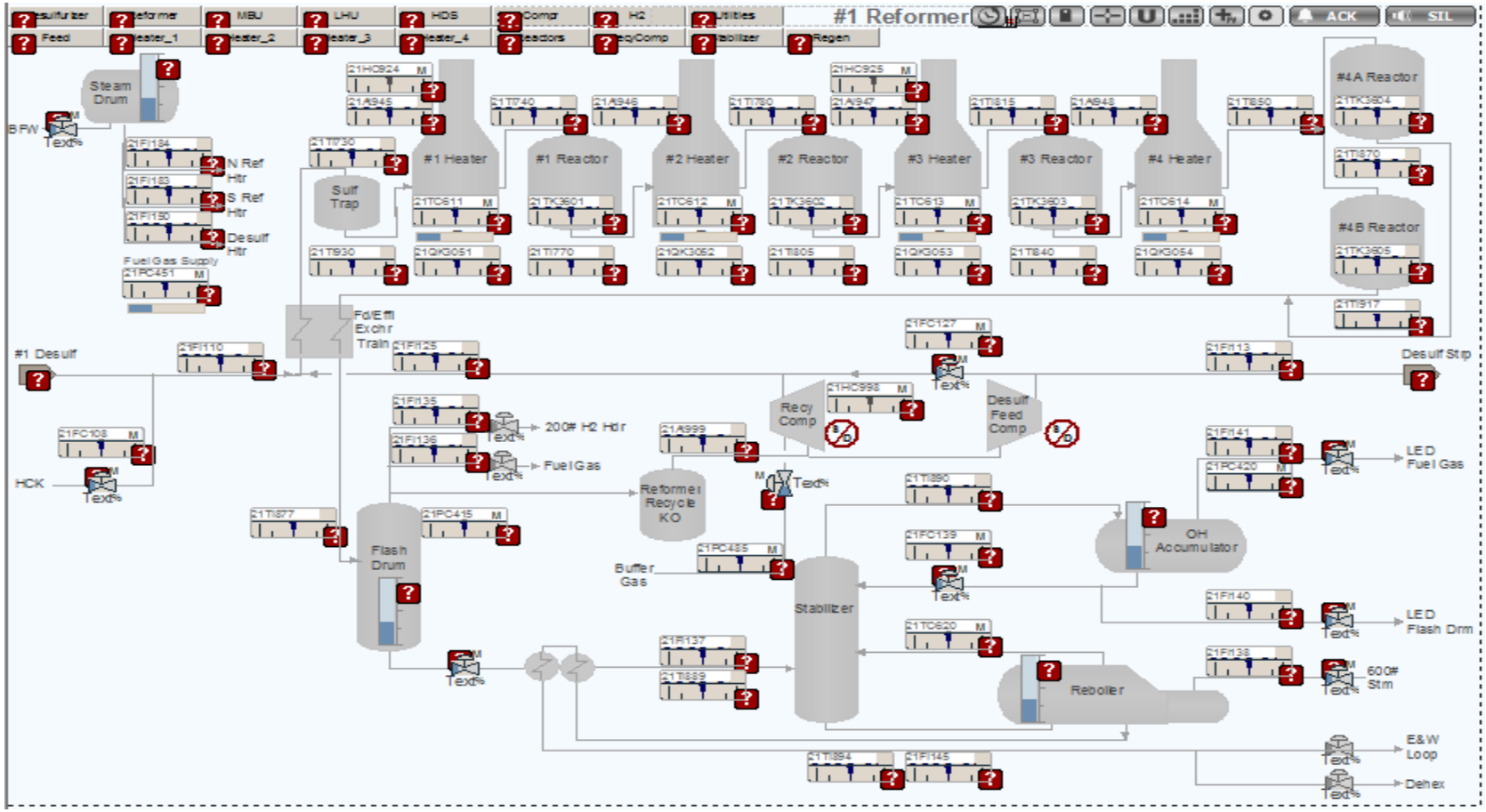
7.151 MBU (L2_19_MBU.htm)



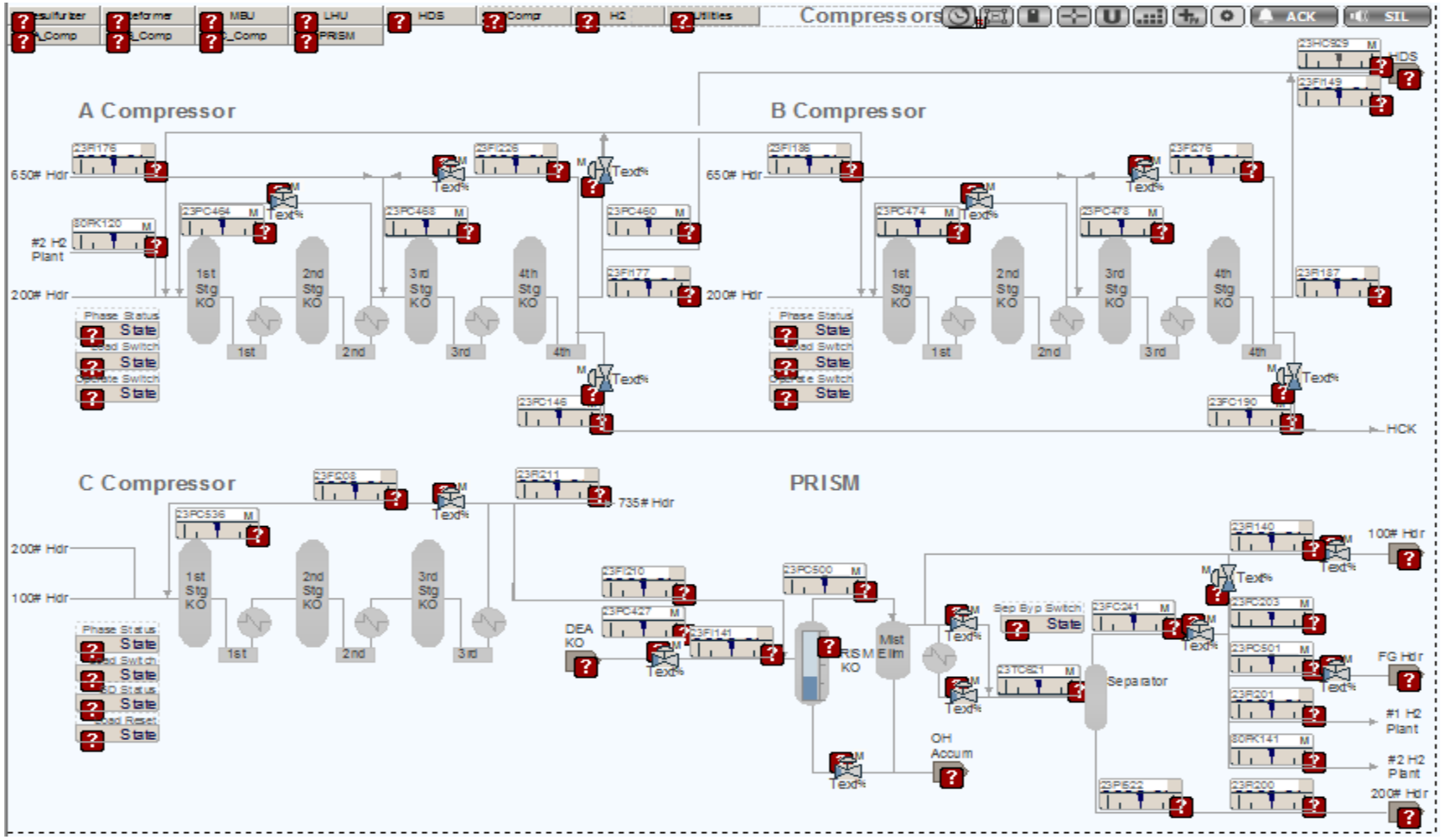
7.152 #1 DESULFURIZE (L2_21_1Desulfurizer.htm)



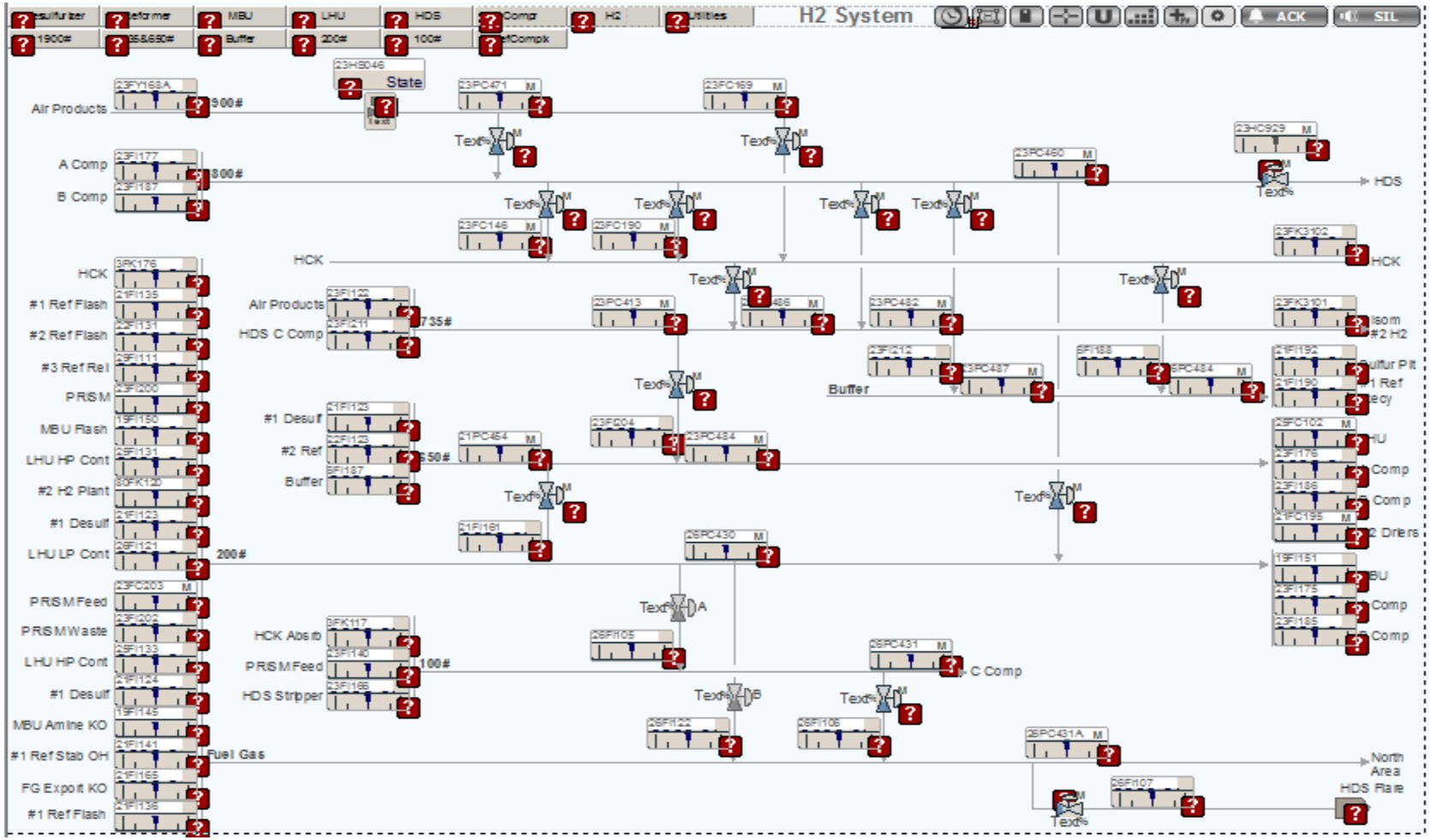
7.153 #1 REFORMER (L2_21_1Reformer.htm)



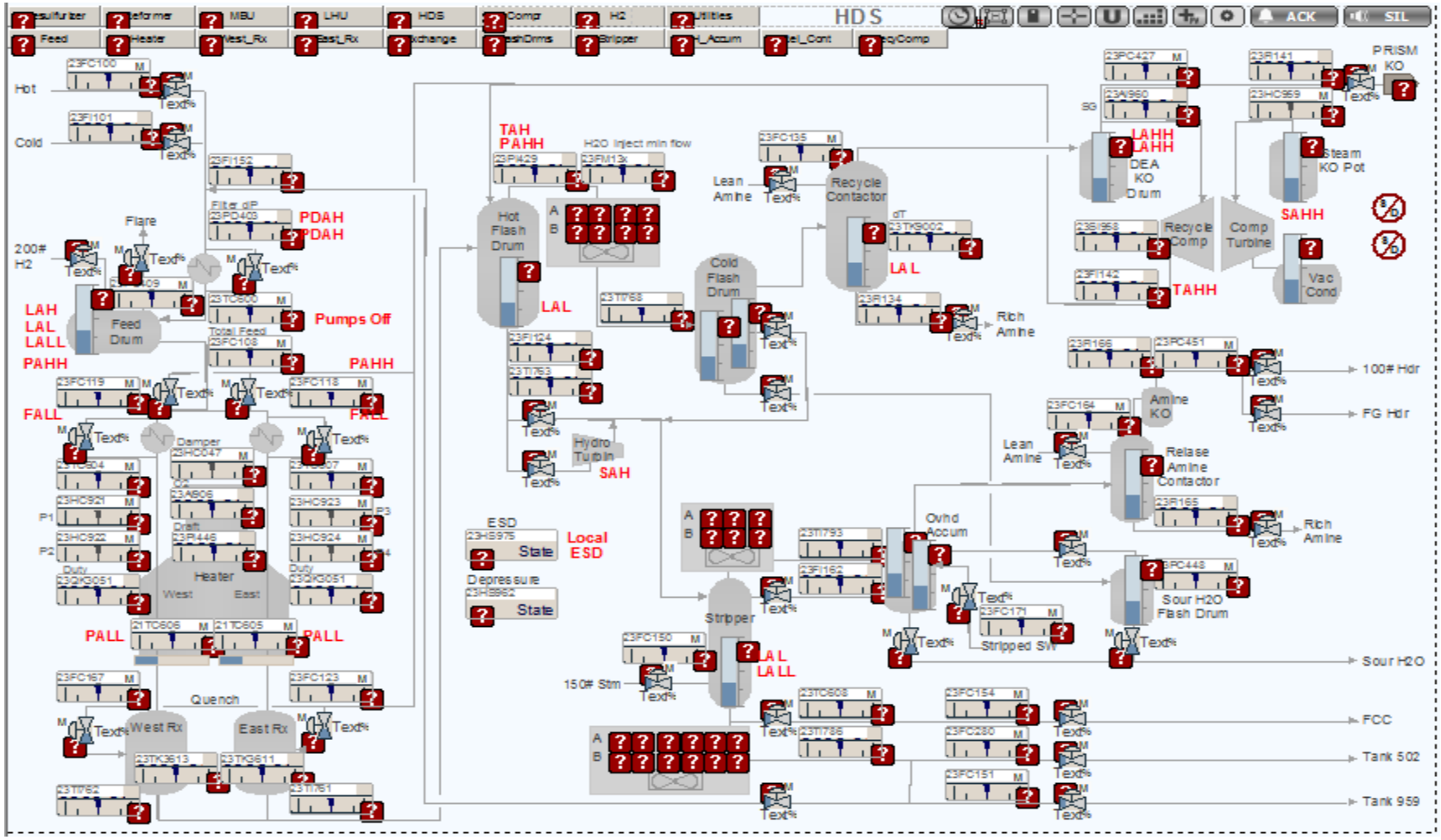
7.154 COMPRESSOR (L2_23_Compressor.htm)



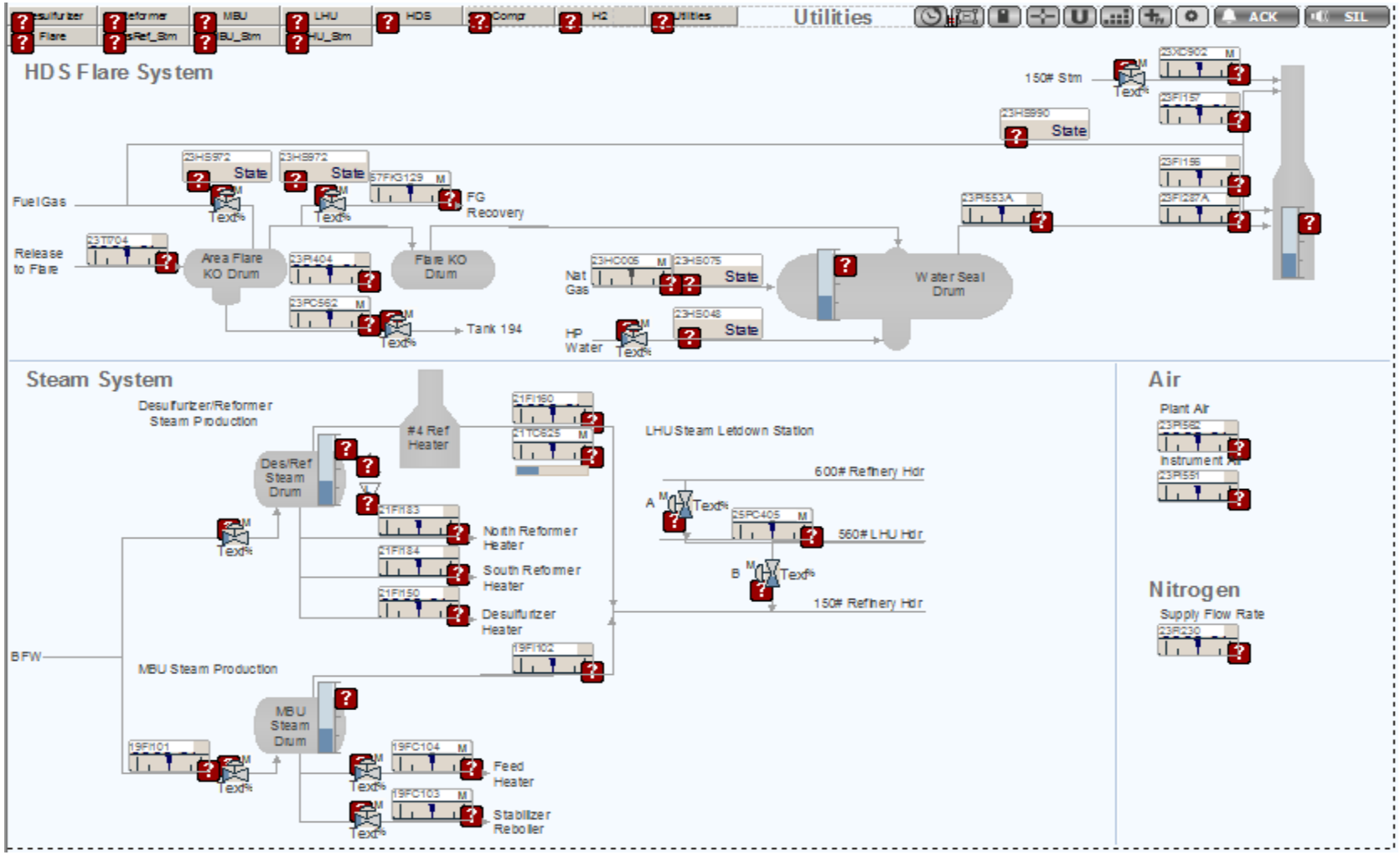
7.155 H2 SYSTEM (L2_23_H2System.htm)



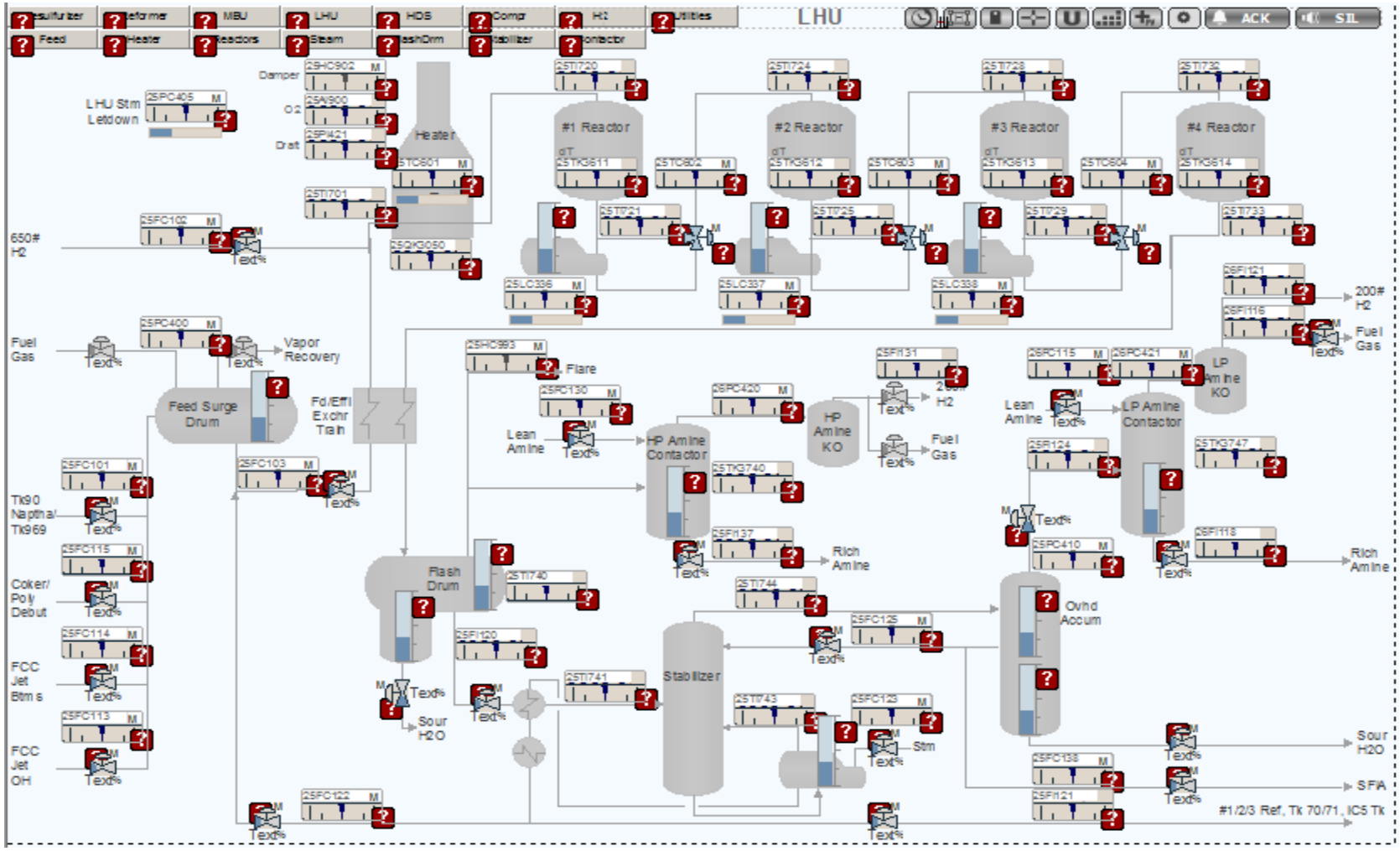
7.156 HDS (L2_23_HDS.htm)



7.157 UTILITIES (L2_23_Utilities.htm)



7.158 LHU (L2_25_LHU.htm)



8. New HMI Screens for Migration

N/A

9. 1 Reformer Console Shape List

Table 9.1 lists the shapes identified within Reformer 1 console for migration to EPKS R520.

Table 9.1. Existing EPKS Shape List

Sr No	Existing EPKS Shape Name
1	ShowHideIcons.sha
2	Package_Scripts.sha
3	Shape_Scripts.sha
4	AdvApp_PlaceHolder_Scripts.sha
5	Custom_PlaceHolder_Scripts.sha
6	WidgetScript_Placeholder.sha
7	SIS_Scripts.sha
8	indicator_TPS.sha
9	controller_no_op_TPS.sha
10	control_valve_horiz_TPS.sha
11	pump_right_TPS.sha
12	control_valve_vert_right_TPS.sha
13	dig_status_TPS.sha
14	Link_Right.sha
15	control_valve_vert_left_TPS.sha
16	indicator_CDA.sha
17	CBU_Custom_Scripts.sha
18	Process_Widget_Scripts.sha

Sr No	Existing EPKS Shape Name
19	Link_Left.sha
20	DrumStsTPS.sha
21	controller_no_op_CDA.sha
22	indicator_SCADA.sha
23	indicator_noalm_parameterized.sha
24	controller_TPS.sha
25	control_valve_horiz_CDA.sha
26	Overview_Scripts.sha
27	all_levelgauge_lib_v_pa_01.sha
28	all_tempgauge_lib_v_pa_01.sha
29	all_valveoutput_lib_h_pa_linear_01.sha
30	all_flowgauge_lib_h_pa_01.sha
31	all_pressuregauge_lib_v_pa_linear_01.sha
32	dig_status_notag_small_TPS.sha
33	all_ratioind_lib_h_pa_01.sha
34	dig_hi_sym_TPS.sha
35	dig_lo_sym_TPS.sha
36	Common_GSH.sha
37	Cmenu_GSH.sha
38	HPM_GSH.sha
39	indicator_verticalBar.sha
40	level_bar_TPS.sha

Sr No	Existing EPKS Shape Name
41	controller_hic_TPS.sha
42	finfan_horiz_TPS.sha
43	sd_sym_TPS.sha
44	dig_square_TPS.sha
45	All_pbNavigation_lib_h_ai_05.sha
46	ao_valve_horiz_TPS.sha
47	dig_valve_horiz_TPS.sha
48	ao_valve_vert_right_TPS.sha
49	control_valve_3way_vert_right_TPS.sha
50	dig_status_SCADA.sha
51	dig_status_CDA.sha
52	L1_Indicator_Flow.sha
53	L1_Controller_Flow.sha
54	L1_Controller_Level.sha
55	L1_Indicator_Press.sha
56	L1_Indicator_Temp.sha
57	L1_Controller_Press.sha
58	L1_Controller_Temp.sha
59	L1_Indicator_Anlysr.sha
60	indicator_notag_TPS.sha
61	level_bar_CDA.sha
62	controller_CDA.sha

Sr No	Existing EPKS Shape Name
63	dig_cta_sym_CDA.sha
64	dig_alarm_text_CDA.sha
65	dig_valve_right_CDA.sha
66	pump_right_CDA.sha
67	control_valve_vert_left_CDA.sha
68	dig_hi_sym_CDA.sha
69	dig_lo_sym_CDA.sha
70	controller_secondary_no_op_CDA.sha
71	controller_hic_CDA.sha
72	dig_alarm_text_TPS.sha
73	controller_primary_CDA.sha
74	control_valve_vert_right_CDA.sha
75	dig_status_colorbox_CDA.sha
76	pump_left_CDA.sha
77	dig_valve_right_TPS.sha
78	dig_cta_sym_TPS.sha
79	controller_primary_TPS.sha
80	controller_secondary_no_op_TPS.sha
81	ao_valve_vert_left_TPS.sha
82	pump_left_TPS.sha
83	indicator_AO_HC_TPS.sha
84	dig_alarm_text_SCADA.sha

Sr No	Existing EPKS Shape Name
85	indicator_AO_TPS.sha
86	do_valve_horiz_TPS.sha
87	control_switch_HR_TPS.sha
88	control_switch_VD_TPS.sha
89	dig_status_colorbox_TPS.sha
90	indicator_tag_left_TPS.sha
91	indicator_tag_left_CDA.sha
92	indicator_notag_CDA.sha
93	SIS_Permissive.sha
94	control_valve_3way_vert_right_CDA.sha
95	control_valve_3way_horiz_CDA.sha

Appendix A. Graphics Summary List

Table A.1. Graphics Summary with Operator Feedback

No.	Console	Display Name	Screen Title	Comment
1	1 Reformer	1Ref2101.htm	2101 DESULF FEED / EXCHANGER	DO NOT MIGRATE
2	1 Reformer	1ref_pv.htm	HDS / 1REF PV	DO NOT MIGRATE
3	1 Reformer	E2131.htm	2131 735# / 650# H2 HEADERS	DO NOT MIGRATE
4	1 Reformer	L1 Console A.htm	CONSOLE A	MIGRATE
5	1 Reformer	L1 Console B-2.htm	CONSOLE B	MIGRATE
6	1 Reformer	L1 Console B.htm	CONSOLE B	MIGRATE
7	1 Reformer	L2_19_MBU.htm	MBU	MIGRATE
8	1 Reformer	L2_21_1Desulfurizer.htm	#1 DESULFURIZE	MIGRATE
9	1 Reformer	L2_21_1Reformer.htm	#1 REFORMER	MIGRATE
10	1 Reformer	L2_23_Compressor.htm	COMPRESSOR	MIGRATE
11	1 Reformer	L2_23_H2System.htm	H2 SYSTEM	MIGRATE
12	1 Reformer	L2_23_HDS.htm	HDS	MIGRATE
13	1 Reformer	L2_23_Utilities.htm	UTILITIES	MIGRATE
14	1 Reformer	L2_25_LHU.htm	LHU	MIGRATE
15	1 Reformer	Ref1_1911.htm	1911 MIDBARREL FEED HEATER OVERVIEW	MIGRATE
16	1 Reformer	Ref1_1912.htm	1912 MIDBARREL FEED HEATER STARTUO	MIGRATE
17	1 Reformer	Ref1_1913.htm	1913 MIDBARREL FEED HEATER FIRSTOUT	MIGRATE
18	1 Reformer	Ref1_1914.htm	1914 MIDBARREL FEED HEATER DIAGNOSTICS	MIGRATE
19	1 Reformer	Ref1_1915.htm	1915 MIDBARREL FEED HEATER TRANSMITTER	MIGRATE

No.	Console	Display Name	Screen Title	Comment
20	1 Reformer	Ref1_1916H1.htm	1916H1 MIDBARREL FEED HEATER HELP (1 TO 6)	MIGRATE
21	1 Reformer	Ref1_1916H2.htm	1916H2 MIDBARREL FEED HEATER HELP (2TO 6)	MIGRATE
22	1 Reformer	Ref1_1916H3.htm	1916H3 MIDBARREL FEED HEATER HELP (3 TO 6)	MIGRATE
23	1 Reformer	Ref1_1916H4.htm	1916H4 MIDBARREL FEED HEATER HELP (4 TO 6)	MIGRATE
24	1 Reformer	Ref1_1916H5.htm	1916H5 MIDBARREL FEED HEATER HELP (5TO 6)	MIGRATE
25	1 Reformer	Ref1_1916H6.htm	1916H6 MIDBARREL FEED HEATER HELP (6TO 6)	MIGRATE
26	1 Reformer	Ref1_1917.htm	1917 MIDBARREL TWR SYSTEM ALARM	MIGRATE
27	1 Reformer	Ref1_1921.htm	1921 STABILIZER REBOILER HEATER OVERVIEW	MIGRATE
28	1 Reformer	Ref1_1922.htm	1922 STABILIZER REBOILER HEATER START U	MIGRATE
29	1 Reformer	Ref1_1923.htm	1923 STABILIZER REBOILER HEATER FIRST	MIGRATE
30	1 Reformer	Ref1_1924.htm	1924 STABILIZER REBOILER DIAGNOSTICS	MIGRATE
31	1 Reformer	Ref1_1925.htm	1925 STABILIZER REBOILER TRANSMITTER BYPASS	MIGRATE
32	1 Reformer	Ref1_1926H1.htm	1926H1 STABILIZER REBOILER HEATER HELP (1 OF 5)	MIGRATE
33	1 Reformer	Ref1_1926H2.htm	1926H2 STABILIZER REBOILER HEATER HELP (1 OF 5)	MIGRATE
34	1 Reformer	Ref1_1926H3.htm	1926H3 STABILIZER REBOILER HEATER HELP (1 OF 5)	MIGRATE
35	1 Reformer	Ref1_1926H4.htm	1926H4 STABILIZER REBOILER HEATER HELP (1 OF 5)	MIGRATE
36	1 Reformer	Ref1_1926H5.htm	1926H5 STABILIZER REBOILER HEATER HELP (1 OF 5)	MIGRATE
37	1 Reformer	Ref1_L1_Dash.htm	#1 REFORMER LAVEL 1	DO NOT MIGRATE
38	1 Reformer	Ref1_Overview_Dash.htm	#1 REFORMER LAVEL 1 OVERVIEW	DO NOT MIGRATE
39	1 Reformer	ref1_pv.htm	1 REFORMER / HDS CONSOLE PV SUMMARY	MIGRATE
40	1 Reformer	Ref1_Template.htm	TEMPLATE	DO NOT MIGRATE

No.	Console	Display Name	Screen Title	Comment
41	1 Reformer	Ref1_Test.htm	2398 HDS RECYCLE GAS COMPRESSOR SIS DIAGNOSTICS	DO NOT MIGRATE
42	1 Reformer	Reformer_1900.htm	1900 MID BARREL PROCESS	MIGRATE
43	1 Reformer	Reformer_1900h1.htm	1900H1 MODE SELECT HELP	MIGRATE
44	1 Reformer	Reformer_1901.htm	1901 MBU FEED / FEED EFT EXCHANGER DIESEL MODE	MIGRATE
45	1 Reformer	Reformer_1901A.htm	1901A MBU FEED / FEED EFT EXCHANGER NAPHTHA MODE	MIGRATE
46	1 Reformer	Reformer_1901H1.htm	1901H1 MBU FRESH FEED MIN FLOW LOGIC HELP	MIGRATE
47	1 Reformer	Reformer_1902.htm	1902 MBU FEED HEATER / REACTOR	MIGRATE
48	1 Reformer	Reformer_1902H3.htm	1902H3 MBU HEATER O2 OVERRIDE HELP	MIGRATE
49	1 Reformer	Reformer_1902H4.htm	1902H4 MBU FEED HTR. RAMP HELP	MIGRATE
50	1 Reformer	Reformer_1903.htm	1903 MBU FLASH DRUM / OILY WATER SEP / RECY CONT	MIGRATE
51	1 Reformer	Reformer_1904.htm	1904 MID BARREL FEED / RECYCLE COMPRESSORSS	MIGRATE
52	1 Reformer	Reformer_1904h1.htm	1904H1 MID BARREL FEED RECYCLE COMPRESSORSS HELP	MIGRATE
53	1 Reformer	Reformer_1905.htm	1905 MBU STABILIZER / OVHD ACCUM	MIGRATE
54	1 Reformer	Reformer_1905h1.htm	1905H1 MBU PRODUCTION TANK TEMPERATURE	MIGRATE
55	1 Reformer	Reformer_1906.htm	1906 MBU STABILIZER REBOILER HEATER	MIGRATE
56	1 Reformer	Reformer_1906H1.htm	1906H1 MBU STABILIZER REBOILER HEATER O2 OVERRIDER HELP	MIGRATE
57	1 Reformer	Reformer_1906h4.htm	1906H4 MBU RE HTR – RAMP HELP	MIGRATE
58	1 Reformer	Reformer_1907.htm	1907 STAB REL GAS COMP / AMINE CONT & KO	MIGRATE
59	1 Reformer	Reformer_1909.htm	1909 MID-BARREL STEAM DRUM	MIGRATE

No.	Console	Display Name	Screen Title	Comment
60	1 Reformer	Reformer_1911.htm	1911 MIDBARREL FEED HEATER OVERVIEW	MIGRATE
61	1 Reformer	Reformer_1912.htm	1912 MIDBARREL FEED HEATER STARTUP	MIGRATE
62	1 Reformer	Reformer_1913.htm	1913 MIDBARREL FEED HEATER FIRSTOUT	MIGRATE
63	1 Reformer	Reformer_1914.htm	1914 MIDBARREL FEED HEATER DIAGNOSTICS	MIGRATE
64	1 Reformer	Reformer_1915.htm	1915 MIDBARREL FEED HEATER TRANSMITTER	MIGRATE
65	1 Reformer	Reformer_1916h1.htm	1916H1 MIDBARREL FEED HEATER HELP (1 OF 6)	MIGRATE
66	1 Reformer	Reformer_1916h2.htm	1916H2 MIDBARREL FEED HEATER HELP (2 OF 6)	MIGRATE
67	1 Reformer	Reformer_1916h3.htm	1916H3 MIDBARREL FEED HEATER HELP (3 OF 6)	MIGRATE
68	1 Reformer	Reformer_1916h4.htm	1916H4 MIDBARREL FEED HEATER HELP (4 OF 6)	MIGRATE
69	1 Reformer	Reformer_1916h5.htm	1916H5 MIDBARREL FEED HEATER HELP (5 OF 6)	MIGRATE
70	1 Reformer	Reformer_1916H6.htm	1916H6 MIDBARREL FEED HEATER HELP (6 OF 6)	MIGRATE
71	1 Reformer	Reformer_1917.htm	1917 MIDBARREL TMR SYATEM ALARM	MIGRATE
72	1 Reformer	Reformer_1921.htm	1921 STABILIZER REBOILER HEATER OVERVIEW	MIGRATE
73	1 Reformer	Reformer_1922.htm	1922 STABILIZER REBOILER HEATER START UP	MIGRATE
74	1 Reformer	Reformer_1923.htm	1923 STABILIZER REBOILER HEATER FIRST	MIGRATE
75	1 Reformer	Reformer_1924.htm	1924 STABILIZER REBOILER HEATER DIAGNOSTICS	MIGRATE
76	1 Reformer	Reformer_1925.htm	1925 STABILIZER REBOILER HEATER TRANSMITTER BYPASS	MIGRATE
77	1 Reformer	Reformer_1926h1.htm	1926H1 STABILIZER REBOILER HEATER HELP (1 OF 5)	MIGRATE
78	1 Reformer	Reformer_1926h2.htm	1926H2 STABILIZER REBOILER HEATER HELP (2 OF 5)	MIGRATE
79	1 Reformer	Reformer_1926h3.htm	1926H3 STABILIZER REBOILER HEATER HELP (3 OF 5)	MIGRATE
80	1 Reformer	Reformer_1926h4.htm	1926H4 STABILIZER REBOILER HEATER HELP (4 OF 5)	MIGRATE

No.	Console	Display Name	Screen Title	Comment
81	1 Reformer	Reformer_1926h5.htm	1926H5 STABILIZER REBOILER HEATER HELP (5 OF 5)	MIGRATE
82	1 Reformer	Reformer_2100.htm	2100 #1 DESULF PROCESS OVERVIEW	MIGRATE
83	1 Reformer	Reformer_2101.htm	2101 DESULF FEED / EXCHANGER	MIGRATE
84	1 Reformer	Reformer_2102.htm	2102 #1 DESULF HEATER / REACTOR	MIGRATE
85	1 Reformer	Reformer_2102H3.htm	2102H3 1 REF DESULF HEATER O2 OVERVIEW HELP	MIGRATE
86	1 Reformer	Reformer_2102H4.htm	2102H4 #1 DESULF HTR RAMP HELP	MIGRATE
87	1 Reformer	Reformer_2103.htm	2103 DES STRIP / ACCUM / AMINE CONTACTOR & KO POT	MIGRATE
88	1 Reformer	Reformer_2103H1.htm	2103H1 AM CONTROLLER 21LC3300 HELP	MIGRATE
89	1 Reformer	Reformer_2104.htm	2104 #1 DESULF ELECT. RECY. COMP	MIGRATE
90	1 Reformer	Reformer_2104E1.htm	2104E1 #1 REFORMER DESULFURIZER COMPRESSOR	MIGRATE
91	1 Reformer	Reformer_2105.htm	2105 #1 DESULF TURB RECY / SPARE COMPRESSOR	MIGRATE
92	1 Reformer	Reformer_2106.htm	2106 #1 DESULF TURBINE FEED COMPRESSOR	MIGRATE
93	1 Reformer	Reformer_2107.htm	2107 #1 DESULF / REF STM DRUM & FUEL GAS FILTER	MIGRATE
94	1 Reformer	Reformer_2110.htm	2110 #1 REFORMER OVERVIEW	MIGRATE
95	1 Reformer	Reformer_2111.htm	2111 #1 REF COMPLEX H2 SYSTEM	MIGRATE
96	1 Reformer	Reformer_2112.htm	2112 #1 REFORMER BUFFER H2	MIGRATE
97	1 Reformer	Reformer_2113.htm	2113 #1 REFORMER FEED / EFFL EXCH & SULFUR TRAP	MIGRATE
98	1 Reformer	Reformer_2114.htm	2114 #1 REFORMER HEATER / REACTOR / EFF EXCH	MIGRATE
99	1 Reformer	Reformer_2115.htm	2115 #1 REF FLASH DRUM / KO / RECY COMPRS	MIGRATE
100	1 Reformer	Reformer_2115E1.htm	2115E1 #1 REFORMER RECYCLE COMPRESSOR	MIGRATE
101	1 Reformer	Reformer_2115H1.htm	2115H1 #1 REFORMER FLASH DRUM PRESSURE	MIGRATE

No.	Console	Display Name	Screen Title	Comment
102	1 Reformer	Reformer_2116.htm	2116 #1 REF STABILIZER / REBLR / ACCUM	MIGRATE
103	1 Reformer	Reformer_2117.htm	2117 #1 REFORMER REGENERATION	MIGRATE
104	1 Reformer	Reformer_2118.htm	2118 #1 REFORMER REACTOR TEMP PROFILE	MIGRATE
105	1 Reformer	Reformer_2119.htm	2119 #1 REFORMER HEATER TEMP PROFILE	MIGRATE
106	1 Reformer	Reformer_2120.htm	2120 #1 REFORMER - #1 HEATER	MIGRATE
107	1 Reformer	Reformer_2120H2.htm	2120H2 #1 REF HEATERS COMMON POSSIBLE FLAMEOUT HELP	MIGRATE
108	1 Reformer	Reformer_2120H3.htm	2120H3 1REFORMER #1 HEATER O2 OVERRIDE HELP	MIGRATE
109	1 Reformer	Reformer_2120H4.htm	2120H4 REF #1 HEATER - RAMP HELP	MIGRATE
110	1 Reformer	Reformer_2121.htm	2121 #1 REFORMER - #1 REACTO	MIGRATE
111	1 Reformer	Reformer_2122.htm	2122 #1 REFORMER - #2 HEATER	MIGRATE
112	1 Reformer	Reformer_2122H3.htm	2123 1REFORMER #2 HEATER O2 OVERRIDE HELP	MIGRATE
113	1 Reformer	Reformer_2122H4.htm	2122H4 REF #2 HEATER - RAMP HELP	MIGRATE
114	1 Reformer	Reformer_2123.htm	2123 #1 REFORMER - #2 REACTOR	MIGRATE
115	1 Reformer	Reformer_2124.htm	2124 #1 REFORMER - #3 HEATE	MIGRATE
116	1 Reformer	Reformer_2124H3.htm	2124H3 1REFORMER #3 HEATER O2 OVERRIDE HELP	MIGRATE
117	1 Reformer	Reformer_2124H4.htm	2124H4 REF #3 HEATER - RAMP HELP	MIGRATE
118	1 Reformer	Reformer_2125.htm	2125 #1 REFORMER - #3 REACTOR	MIGRATE
119	1 Reformer	Reformer_2126.htm	2126 #1 REFORMER - #4 HEATE	MIGRATE
120	1 Reformer	Reformer_2126H3.htm	2126H3 1REFORMER #4 HEATER O2 OVERRIDE HELP	MIGRATE
121	1 Reformer	Reformer_2126H4.htm	2126H4 REF #4 HEATER - RAMP HELP	MIGRATE

No.	Console	Display Name	Screen Title	Comment
122	1 Reformer	Reformer_2127.htm	2127 #1 REFORMER - #4A REACTOR	MIGRATE
123	1 Reformer	Reformer_2128.htm	2128 #1 REFORMER - #4B REACTOR	MIGRATE
124	1 Reformer	Reformer_2129.htm	2129 #1 DESULFURIZER HYDROGEN DRYERS	MIGRATE
125	1 Reformer	Reformer_2130.htm	2130 #1 DESULFURIZER HYDROGEN DRYERS	MIGRATE
126	1 Reformer	Reformer_2131.htm	2131 735# / 650# H2 HEADERS	MIGRATE
127	1 Reformer	Reformer_2132.htm	2132 200# H2 HEADER / KO DRUM	MIGRATE
128	1 Reformer	Reformer_2132H1.htm	2132H1 100# H2 HEADER PRESSURE CONTROL HELP	MIGRATE
129	1 Reformer	Reformer_2133.htm	2133 100# H2 / FUEL GAS HEADERS	MIGRATE
130	1 Reformer	Reformer_2135.htm	2135 #1 REF RACKROOM / OP SHELTER TDC / BUILDING/ ELEC ALARMS	MIGRATE
131	1 Reformer	Reformer_2136.htm	2136 1900# AIR PRODUCTS H2 HEADER	MIGRATE
132	1 Reformer	Reformer_2137.htm	2137 1 REF / 2 REF OP SHELTER (BRM)	MIGRATE
133	1 Reformer	Reformer_2300.htm	2300 HDS PROCESS OVERVIEW	MIGRATE
134	1 Reformer	Reformer_2301H1.htm	2301H1 HDS FEED SURGE DRUM PRESSURE CONTROL HELP	MIGRATE
135	1 Reformer	Reformer_2301H2.htm	2301H2 HDS FEED SURGE DRUM HI LEVEL SHUTDOWN RST/BYP	MIGRATE
136	1 Reformer	Reformer_2302.htm	2302 HDS HEATER / REACTORS	MIGRATE
137	1 Reformer	Reformer_2302H1.htm	2302H1 HDS HEATER - RAMP HELP	MIGRATE
138	1 Reformer	Reformer_2302H1_Better.htm	2302H1 HDS HEATER - RAMP HELP	DO NOT MIGRATE
139	1 Reformer	Reformer_2302_H1.htm	2302H1 HDS HEATER - START UP	MIGRATE
140	1 Reformer	Reformer_2303.htm	2303 HDS HOT FLASH DRUM / COLD FLASH DRUM	MIGRATE

No.	Console	Display Name	Screen Title	Comment
141	1 Reformer	Reformer_2303H1.htm	2303H1 HDS HOT FLASH DRUM LEVEL LOGIC HELP	MIGRATE
142	1 Reformer	Reformer_2303H2.htm	2303H2 HDS RECYCLE GAS CONTACTOR AMINE LOGIC HELP	MIGRATE
143	1 Reformer	Reformer_2303H3.htm	2303H3 HDS COLD FLASH DRUM HYDROCARBON LOGIC HELP	MIGRATE
144	1 Reformer	Reformer_2303_Tar.htm	2303 HDS HOT FLASH DRUM / COLD FLASH DRUM	MIGRATE
145	1 Reformer	Reformer_2304.htm	2304 HDS RECYCLE COMPRESSOR	MIGRATE
146	1 Reformer	Reformer_2304h1.htm	2304H1 HDS RCY COMP SYSTEM ALARM DETAIL	MIGRATE
147	1 Reformer	Reformer_2304H2.htm	2304H2 HDS RCY COMP VIB & TEMP DETAIL	MIGRATE
148	1 Reformer	Reformer_2305.htm	2305 HDS "A" COMPRESSOR	MIGRATE
149	1 Reformer	Reformer_2305H1.htm	2305H1 HDS A COMP SYSTEM AND PRESSURE ALARM DETAIL	MIGRATE
150	1 Reformer	Reformer_2305H2.htm	2305H2 HDS A COMP VIB & TEMP DETAIL	MIGRATE
151	1 Reformer	Reformer_2306.htm	2306 HDS "B" COMPRESSOR	MIGRATE
152	1 Reformer	Reformer_2306H1.htm	2306H1 HDS B COMP SYSTEM AND PRESSURE ALARM DETAIL	MIGRATE
153	1 Reformer	Reformer_2306H2.htm	2306H2 HDS B COMP VIBRATION AND TEMP DETAIL	MIGRATE
154	1 Reformer	Reformer_2307.htm	2307 HDS PRISM UNIT	MIGRATE
155	1 Reformer	Reformer_2307H1.htm	2307H1 HDS PRISM UNIT HELP	MIGRATE
156	1 Reformer	Reformer_2307H2.htm	2307H2 HDS PRISM UNIT TEMPERATURE CONTROL HELP	MIGRATE
157	1 Reformer	Reformer_2308.htm	2308 HDS FLARE SYSTEM	MIGRATE
158	1 Reformer	Reformer_2308H2.htm	2308H2 HDS FLARE H2O SEAL M/U H2O LOGIC HELP	MIGRATE

No.	Console	Display Name	Screen Title	Comment
159	1 Reformer	Reformer_2309.htm	2309 HDS PUMP OUT CONDENSATE DRUM	MIGRATE
160	1 Reformer	Reformer_2310.htm	2310 HDS FIN FAN DETAIL	MIGRATE
161	1 Reformer	Reformer_2313.htm	2313 HDS FLARE SUBSYSTEMS	MIGRATE
162	1 Reformer	Reformer_2313H1.htm	2313H1 HDS FLARE ANALYZER OPERATOR RESPONSE HELP	MIGRATE
163	1 Reformer	Reformer_2317.htm	2317 HDS "C" COMPRESSOR	MIGRATE
164	1 Reformer	Reformer_2320.htm	2320 HDS PRODUCT STRIPPER	MIGRATE
165	1 Reformer	Reformer_2320H1.htm	2320H1 HDS PRODUCT STRIPPER LEVEL LOGIC HELP	MIGRATE
166	1 Reformer	Reformer_2321.htm	2321 OVERHEAD ACCUMULATOR / SOUR WATER FLASH DRUM	MIGRATE
167	1 Reformer	Reformer_2322.htm	2322 HDS STRIPPER RELEASE CONTACTOR	MIGRATE
168	1 Reformer	Reformer_2322H1.htm	2322H1 HDS STRIPPER RELEASE PRESSURE CONTROL HELP	MIGRATE
169	1 Reformer	Reformer_2322H2.htm	2322H2 HDS STRIPPER RELEASE CONTACTOR LOGIC HELP	MIGRATE
170	1 Reformer	Reformer_2330.htm	2330 HDS WEST TRAIN REACTOR	MIGRATE
171	1 Reformer	Reformer_2331.htm	2331 HDS EAST TRAIN REACTOR	MIGRATE
172	1 Reformer	Reformer_2332.htm	2332 HDS HEATER	MIGRATE
173	1 Reformer	Reformer_2332H1.htm	2332H1 HDS HEATER FUEL GAS LOGIC HELP	MIGRATE
174	1 Reformer	Reformer_2332H3.htm	2332H3 FFHDS WEST HEATER O2 OVERRIDE HELP	MIGRATE
175	1 Reformer	Reformer_2332H4.htm	2332H4 FFHDS EAST HEATER O2 OVERRIDE HELP	MIGRATE
176	1 Reformer	Reformer_2333.htm	2333 HDS EXCHANGERS	MIGRATE
177	1 Reformer	Reformer_2333H1.htm	2333H1 FFHDS LOW FEED FLOW SHUTOFF PROGRAM HELP	MIGRATE

No.	Console	Display Name	Screen Title	Comment
178	1 Reformer	Reformer_2340.htm	2340 RECYCLE GAS COMPRESSOR GOVERNOR (WOODWARD)	MIGRATE
179	1 Reformer	Reformer_2341.htm	2341 RECYCLE GAS COMPRESSOR WOODWARD MENU	MIGRATE
180	1 Reformer	Reformer_2341H1.htm	2341H1 WOODWARD GOVERNOR/DCS BYPASS HELP	MIGRATE
181	1 Reformer	Reformer_2341H2.htm	2341H2 RGC GOVERNOR BYPASS/ TRANSFER TO DCS	MIGRATE
182	1 Reformer	Reformer_2341H3.htm	2341H3 RGC GOVERNOR BYPASS/ TRANSFER BACK TO GOVERNOR	MIGRATE
183	1 Reformer	Reformer_2355.htm	2355 - H2 SYSTEM	MIGRATE
184	1 Reformer	Reformer_2357.htm	2357 HDS COMPACT OPERATIONS	MIGRATE
185	1 Reformer	Reformer_2371.htm	2371 HDS TMR ESD OVERVIEW	MIGRATE
186	1 Reformer	Reformer_2372.htm	2372 HDS ESD FIRSTOUT	MIGRATE
187	1 Reformer	Reformer_2373.htm	2373 HDS ESD STARTUP	MIGRATE
188	1 Reformer	Reformer_2374.htm	2374 HDS ESD DIAGNOSTICS	MIGRATE
189	1 Reformer	Reformer_2375H1.htm	2375H1 HDS ESD HELP 1 OF 2	MIGRATE
190	1 Reformer	Reformer_2375H2.htm	2375H2 HDS ESD HELP 2 OF 2	MIGRATE
191	1 Reformer	Reformer_2376.htm	2376 HDS TMR EQUIPMENT ALARMS	MIGRATE
192	1 Reformer	Reformer_2380.htm	2380 HDS FLARE TMR	MIGRATE
193	1 Reformer	Reformer_2381.htm	2381 HDS REVERSE FEED FLOW SIS OVERVIEW	MIGRATE
194	1 Reformer	Reformer_2382.htm	2382 HDS COLD FLASH DRUM LEVEL SIS OVERVIEW	MIGRATE
195	1 Reformer	Reformer_2383.htm	2383 HDS AMINE CONTACTOR LEVEL SIS OVERVIEW	MIGRATE
196	1 Reformer	Reformer_2384.htm	2384 HDS SIS TRICONEX HARDWARE ALARMS	MIGRATE

No.	Console	Display Name	Screen Title	Comment
197	1 Reformer	Reformer_2389.htm	2384 HDS SIS TRICONEX HARDWARE ALARMS	MIGRATE
198	1 Reformer	Reformer_2389H1.htm	2389H1 HDS SIS HELP 1 OF 4	MIGRATE
199	1 Reformer	Reformer_2389H2.htm	2389H2 HDS SIS HELP 2 OF 4	MIGRATE
200	1 Reformer	Reformer_2389H3.htm	2389H3 HDS SIS HELP 3 OF 4	MIGRATE
201	1 Reformer	Reformer_2389H4.htm	2389H4 HDS SIS HELP 4 OF 4	MIGRATE
202	1 Reformer	Reformer_2390A.htm	2390A HDS FEED HEATER SIS OVERVIEW 1 OF 2	MIGRATE
203	1 Reformer	Reformer_2390B.htm	2390B HDS FEED HEATER SIS OVERVIEW 2 OF 2	MIGRATE
204	1 Reformer	Reformer_2391.htm	2391 HDS FEED HEATER SIS STARTUP	MIGRATE
205	1 Reformer	Reformer_2392.htm	2392 HDS FEED HEATER SIS FIRST OUT	MIGRATE
206	1 Reformer	Reformer_2393.htm	2393 HDS FEED HEATER SIS DIAGNOSTICS	MIGRATE
207	1 Reformer	Reformer_2394.htm	2394 HDS FEED HEATER SIS INPUT BYPASS	MIGRATE
208	1 Reformer	Reformer_2395.htm	2395 HDS RECYCLE GAS COMPRESSOR SIS OVERVIEW	MIGRATE
209	1 Reformer	Reformer_2396.htm	2396 HDS RECYCLE GAS COMPRESSOR SIS STARTUP	MIGRATE
210	1 Reformer	Reformer_2397.htm	2397 HDS RECYCLE GAS COMPRESSOR SIS FIRST OUT	MIGRATE
211	1 Reformer	Reformer_2398.htm	2398 HDS RECYCLE GAS COMPRESSOR SIS DIAGNOSTICS	MIGRATE
212	1 Reformer	Reformer_2399.htm	2399 HDS RECYCLE GAS COMPRESSOR SIS INPUT BYPASS	MIGRATE
213	1 Reformer	Reformer_2500.htm	2500 LIGHT HYDRO UNIT OVERVIEW	MIGRATE
214	1 Reformer	Reformer_2501.htm	2501 LHU FEED SYSTEM	MIGRATE
215	1 Reformer	Reformer_2501H1.htm	2501H1 JET CUT OH / BOTTOMS LHU FEED RATIO HELP	MIGRATE
216	1 Reformer	Reformer_2501H2.htm	2501H2 LHU FEED SURGE DRUM PRESSURE CONTROL HELP	MIGRATE

No.	Console	Display Name	Screen Title	Comment
217	1 Reformer	Reformer_2502.htm	2502 LHU HEATER	MIGRATE
218	1 Reformer	Reformer_2502H1.htm	2502H1 LHU HEATER FEED/OUTLET EXCHANGER BYPASS HELP	MIGRATE
219	1 Reformer	Reformer_2502H2.htm	2502H2 LHU HEATER FG LOGIC HELP	MIGRATE
220	1 Reformer	Reformer_2502H3.htm	2502H3 LHU HEATER O2 OVERRIDE HELP	MIGRATE
221	1 Reformer	Reformer_2502H4.htm	2502H4 LHU HEATER - RAMP HELP	MIGRATE
222	1 Reformer	Reformer_2503.htm	2503 LHU RX AND INTERCOOLERS	MIGRATE
223	1 Reformer	Reformer_2503H1.htm	2503H1 LHU RX AND INTERCOOLER TC HELP	MIGRATE
224	1 Reformer	Reformer_2504.htm	2504 LHU STEAM LETDOWN STATION	MIGRATE
225	1 Reformer	Reformer_2504H1.htm	2504H1 LHU STEAM LETDOWN STATION CONTROLLER HELP	MIGRATE
226	1 Reformer	Reformer_2505.htm	2505 LHU FLASH DRUM / AMINE CONT / KO POT	MIGRATE
227	1 Reformer	Reformer_2506.htm	2506 LHU STABILIZER / OH ACCUMULATOR	MIGRATE
228	1 Reformer	Reformer_2506H1.htm	2506H1 LHU STABILIZER / OH ACCUMULATOR LEVEL CONTROLLER HELP	MIGRATE
229	1 Reformer	Reformer_2507.htm	2507 LHU LP CONTACTOR / EXPORT FUEL GAS KO	MIGRATE
230	1 Reformer	Reformer_2511.htm	2511 LHU FEED HEATER SIS OVERVIEW	MIGRATE
231	1 Reformer	Reformer_2512.htm	2512 LHU FEED HEATER SIS STARTUP	MIGRATE
232	1 Reformer	Reformer_ 2513.htm	2513 LHU FEED HEATER SIS FIRST OUT	MIGRATE
233	1 Reformer	Reformer_2514.htm	2514 LHU FEED HEATER SIS DIAGNOSTICS	MIGRATE
234	1 Reformer	Reformer_2515.htm	2515 LHU FEED HEATER SIS TRANSMITTER BYPASS	MIGRATE
235	1 Reformer	Reformer_2516.htm	2516 LHU SIS TRICONEX HARDWARE ALARMS	MIGRATE

No.	Console	Display Name	Screen Title	Comment
236	1 Reformer	Reformer_2516H1.htm	2516H1 LHU FEED HEATER SIS HELP	MIGRATE
237	1 Reformer	Reformer_pi_01.htm	DATA FROM PI	MIGRATE
238	1 Reformer	Reformer_SISMENU.htm	SISMENU NAVIGATION	MIGRATE
239	1 Reformer	Test_Logic.htm		DO NOT MIGRATE
240	1 Reformer	1902E1.DS	MBU FD HEATER ADVANCED CONTROL ENGINEERING HELP	DO NOT MIGRATE
241	1 Reformer	1902E2.DS	MBU FD HEATER ADVANCED CONTROL TRENDS	DO NOT MIGRATE
242	1 Reformer	1902E3.DS	MBU FD HEATER ADVANCED CONTROL TRENDS	DO NOT MIGRATE
243	1 Reformer	1902H.DS	MIDBARREL FEED HEATER HELP	DO NOT MIGRATE
244	1 Reformer	1902H1.DS	MBU FEED HEATER ADVANCED CONTROL HELP	DO NOT MIGRATE
245	1 Reformer	1902H2.DS	MBU ADV CONTROL ON/OFF PROCEDURE HELP	DO NOT MIGRATE
246	1 Reformer	1902OLD.DS	MBU FEED HEATER / REACTOR	DO NOT MIGRATE
247	1 Reformer	1906OLD.DS	MBU STAB REBOILER HEATER	DO NOT MIGRATE
248	1 Reformer	1908.DS	MBU SIDE-STREAM STRIPPER	DO NOT MIGRATE
249	1 Reformer	1961.DS	MID BARREL (19) PROCESS GRAPHICS	DO NOT MIGRATE
250	1 Reformer	1970.DS	MIDBARREL STREAM SWITCH LOG	DO NOT MIGRATE
251	1 Reformer	19TURB01.DS	MIDBARREL - TURBINE/MOTOR TRACKING LOG SHEET	DO NOT MIGRATE
252	1 Reformer	13N00.DS	FCCU JET CUT TOWER	DO NOT MIGRATE
253	1 Reformer	13N01.DS	FCCU JET CUT TOWER UTILITIES	DO NOT MIGRATE
254	1 Reformer	2100SDL.DS	#1 DESULF PROCESS OVERVIEW	DO NOT MIGRATE
255	1 Reformer	2102C1.DS	NO. 1 DESULFURIZER HEATER OUTLET TEMP CONTROL	DO NOT MIGRATE

No.	Console	Display Name	Screen Title	Comment
256	1 Reformer	2102H1A.DS	NO. 1 DESULF HEATER OUTLET TEMPERATURE SUPERVISORY CONTROLS	DO NOT MIGRATE
257	1 Reformer	2102H1B.DS	NO. 1 DESULF HEATER OUTLET TEMPERATURE SUPERVISORY CONTROLS	DO NOT MIGRATE
258	1 Reformer	2102H1R.DS	NO. 1 DESULFURIZER HEATER RAMP HELP	DO NOT MIGRATE
259	1 Reformer	2102T.DS	#1 DESULF HEATER & REACTOR	DO NOT MIGRATE
260	1 Reformer	2103T.DS	#1 DES STRIP / ACCUM / AMINE CONTACTOR & KO POT	DO NOT MIGRATE
261	1 Reformer	2107MBU.DS	#1 DESULF/REF STM DR & FUEL GAS FILT	DO NOT MIGRATE
262	1 Reformer	2107OLD.DS	#1 DESULF/REF STM DR & FUEL GAS FILT	DO NOT MIGRATE
263	1 Reformer	2113EXP.DS	#1 REF FEED/EFFL EXCH & SULFUR TRAP	DO NOT MIGRATE
264	1 Reformer	2120C1.DS	NO. 1 REFORMER HEATER #1 OUTLET TEMP CONTROL	DO NOT MIGRATE
265	1 Reformer	2120C1T.DS	NO. 1 REFORMER HEATER #1 OUTLET TEMP CONTROL	DO NOT MIGRATE
266	1 Reformer	2120H1A.DS	NO. 1 REFORMER HEATER #1 OUTLET TEMPERATURE SUPERVISORY CONTROLS	DO NOT MIGRATE
267	1 Reformer	2120H1B.DS	NO. 1 REFORMER HEATER #1 OUTLET TEMPERATURE SUPERVISORY CONTROLS	DO NOT MIGRATE
268	1 Reformer	2120H1R.DS	NO. 1 REFORMER HEATER #1 RAMP HELP	DO NOT MIGRATE
269	1 Reformer	2121OLD.DS	#1 REF - #1 REACTOR	DO NOT MIGRATE
270	1 Reformer	2122C1.DS	NO. 1 REFORMER HEATER #2 OUTLET TEMP CONTROL	DO NOT MIGRATE
271	1 Reformer	2122H1A.DS	NO. 1 REFORMER HEATER #2 OUTLET TEMPERATURE SUPERVISORY CONTROLS	DO NOT MIGRATE
272	1 Reformer	2122H1B.DS	NO. 1 REFORMER HEATER #2 OUTLET TEMPERATURE SUPERVISORY CONTROLS	DO NOT MIGRATE

No.	Console	Display Name	Screen Title	Comment
273	1 Reformer	2122H1R.DS	NO. 1 REFORMER HEATER #2 RAMP HELP	DO NOT MIGRATE
274	1 Reformer	2123OLD.DS	#1 REF - #2 REACTOR	DO NOT MIGRATE
275	1 Reformer	2124C1.DS	NO. 1 REFORMER HEATER #3 OUTLET TEMP CONTROL	DO NOT MIGRATE
276	1 Reformer	2124H1A.DS	NO. 1 REFORMER HEATER #3 OUTLET TEMPERATURE SUPERVISORY CONTROLS	DO NOT MIGRATE
277	1 Reformer	2124H1B.DS	NO. 1 REFORMER HEATER #3 OUTLET TEMPERATURE SUPERVISORY CONTROLS	DO NOT MIGRATE
278	1 Reformer	2124H1R.DS	NO. 1 REFORMER HEATER #3 RAMP HELP	DO NOT MIGRATE
279	1 Reformer	2125OLD.DS	#1 REF - #3 REACTOR	DO NOT MIGRATE
280	1 Reformer	2126C1.DS	NO. 1 REFORMER HEATER #4 OUTLET TEMP CONTROL	DO NOT MIGRATE
281	1 Reformer	2126H1A.DS	NO. 1 REFORMER HEATER #4 OUTLET TEMPERATURE SUPERVISORY CONTROLS	DO NOT MIGRATE
282	1 Reformer	2126H1B.DS	NO. 1 REFORMER HEATER #4 OUTLET TEMPERATURE SUPERVISORY CONTROLS	DO NOT MIGRATE
283	1 Reformer	2126H1R.DS	NO. 1 REFORMER HEATER #4 RAMP HELP	DO NOT MIGRATE
284	1 Reformer	2132OLD.DS	200# HYDROGEN HDR & KO DRUM	DO NOT MIGRATE
285	1 Reformer	2134.DS	NO. 1 REF HEATER RAMP PROGRAM	DO NOT MIGRATE
286	1 Reformer	2134H1.DS	NO. 1 REFORMER HEATER TEMPERATURE RAMP	DO NOT MIGRATE
287	1 Reformer	2134H2.DS	NO. 1 REFORMER HEATER TEMPERATURE RAMP	DO NOT MIGRATE
288	1 Reformer	2136H1.DS	1900# AIR PROD H2 HEADER HELP	DO NOT MIGRATE
289	1 Reformer	2161.DS	#1 DESULFURIZER (21) PROCESS GRAPHICS	DO NOT MIGRATE
290	1 Reformer	2162.DS	#1 REFORMER (21) PROCESS GRAPHICS	DO NOT MIGRATE

No.	Console	Display Name	Screen Title	Comment
291	1 Reformer	2170.DS	#1 REFORMER / DESULF STREAM SWITCH LOG	DO NOT MIGRATE
292	1 Reformer	21TURB01.DS	NO. 1 REFORMER - TURBINE/MOTOR TRACKING LOG SHEET	DO NOT MIGRATE
293	1 Reformer	21TURB02.DS	NO. 1 REFORMER - TURBINE/MOTOR TRACKING LOG SHEET	DO NOT MIGRATE
294	1 Reformer	2301E1.DS	HDS FEED SURGE DRUM HIGH LEVEL SHUTDOWN LOGIC	DO NOT MIGRATE
295	1 Reformer	2301E2.DS	HDS FEED SURGE DRUM DEVIATION LOGIC	DO NOT MIGRATE
296	1 Reformer	2301OLD.DS	HDS FEED SYSTEM	DO NOT MIGRATE
297	1 Reformer	2302H1O.DS	HOT FLASH LEVEL UPSET HELP SCREEN	DO NOT MIGRATE
298	1 Reformer	2303H.DS	HOT/COLD FLASH & CONTACTOR HELP MENU	DO NOT MIGRATE
299	1 Reformer	2303OLD.DS	HDS HOT FL DR / COLD FL DR	DO NOT MIGRATE
300	1 Reformer	2304H.DS	RECY GAS COMPR HELP MENU	DO NOT MIGRATE
301	1 Reformer	2307E1.DS	HDS PRISM PERMEATE SHUTDOWN/TEMPERATURE PERMISSIVE LOGIC	DO NOT MIGRATE
302	1 Reformer	2307H.DS	HDS PRISM GAS SYSTEM HELP	DO NOT MIGRATE
303	1 Reformer	2307H3.DS	HDS PRISM UNIT CONTROL SCHEMES	DO NOT MIGRATE
304	1 Reformer	2307N.DS	HDS PRISM UNIT	DO NOT MIGRATE
305	1 Reformer	2308E2.DS	HDS FLARE LOW WATER SEAL TRIP TO 23LC350 LOGIC SLOT 01_09L08	DO NOT MIGRATE
306	1 Reformer	2308H.DS	HDS FLARE MENU	DO NOT MIGRATE
307	1 Reformer	2311.DS	FLARE ALARM - OPERATOR ACTIONS	DO NOT MIGRATE
308	1 Reformer	2316.DS	HDS RECYCLE GAS COMPRESSOR CURVE	DO NOT MIGRATE

No.	Console	Display Name	Screen Title	Comment
309	1 Reformer	2316H.DS	FFHDS COMPRESSOR CURVE HELP MENU	DO NOT MIGRATE
310	1 Reformer	2316H1.DS	COMPRESSOR CURVE HELP SCREEN	DO NOT MIGRATE
311	1 Reformer	2316H2.DS	HDS RECYCLE GAS COMPRESSOR CURVE INPUTS	DO NOT MIGRATE
312	1 Reformer	2318.DS	HDS "C" COMPRESSOR DETAILS	DO NOT MIGRATE
313	1 Reformer	2318N.DS	HDS "C" COMPRESSOR DETAILS	DO NOT MIGRATE
314	1 Reformer	2320H.DS	HDS PRODUCT STRIPPER HELP MENU	DO NOT MIGRATE
315	1 Reformer	2322H.DS	HDS STRIPPER RELEASE CONTACTOR HELP	DO NOT MIGRATE
316	1 Reformer	2325.DS	HDS "A" COMPR LOADING DETAIL & ALARMS	DO NOT MIGRATE
317	1 Reformer	2326.DS	HDS "B" COMPR LOADING DETAIL & ALARMS	DO NOT MIGRATE
318	1 Reformer	2350.DS	HDS A, B, & C COMPRESSOR OPERATIONS	DO NOT MIGRATE
319	1 Reformer	2350H.DS	HDS COMPRESSOR HELP MENU	DO NOT MIGRATE
320	1 Reformer	2350H1O.DS	B COMPR TO PRISM SERVICE HELP	DO NOT MIGRATE
321	1 Reformer	2350H2.DS	HDS A, B & C COMPRESSOR LOADING PROGRAM PROCEDURES	DO NOT MIGRATE
322	1 Reformer	2350H3.DS	HDS A, B & C COMPRESSOR LOADING PROGRAM PROCEDURES	DO NOT MIGRATE
323	1 Reformer	2350H4.DS	HDS A, B & C COMPRESSOR LOADING PROGRAM PROCEDURES	DO NOT MIGRATE
324	1 Reformer	2350H5.DS	HDS A, B & C COMPRESSOR LOADING PROGRAM PROCEDURES	DO NOT MIGRATE
325	1 Reformer	2350H6.DS	HDS A, B & C COMPRESSOR LOADING PROGRAM PROCEDURES	DO NOT MIGRATE

No.	Console	Display Name	Screen Title	Comment
326	1 Reformer	2350H7.DS	HDS A, B & C COMPRESSOR LOADING PROGRAM PROCEDURES	DO NOT MIGRATE
327	1 Reformer	2351.DS	HDS COMPRESSORS UNLOAD ALARMS	DO NOT MIGRATE
328	1 Reformer	2352.DS	HDS "A" COMPR LOADING STEPS	DO NOT MIGRATE
329	1 Reformer	2353.DS	HDS "B" COMPR LOADING STEPS	DO NOT MIGRATE
330	1 Reformer	2354.DS	HDS "C" COMPR LOADING STEPS	DO NOT MIGRATE
331	1 Reformer	2356.DS	HDS UNIT DEPRESSURE H2 MAKEUP SHUTOFF	DO NOT MIGRATE
332	1 Reformer	2361.DS	FLUID FEED HDS SHUTDOWN INTERLOCKS	DO NOT MIGRATE
333	1 Reformer	2370.DS	FLUID FEED HDS STREAM SWITCH LOG	DO NOT MIGRATE
334	1 Reformer	23TURB01.DS	FFHDS - TURBINE/MOTOR TRACKING LOG SHEET	DO NOT MIGRATE
335	1 Reformer	INTRL10A.DS	FFHDS SHUTDOWN INTERLOCK #10 CONTINUED	DO NOT MIGRATE
336	1 Reformer	INTRLK1.DS	FFHDS SHUTDOWN INTERLOCK #1	DO NOT MIGRATE
337	1 Reformer	INTRLK10.DS	FFHDS SHUTDOWN INTERLOCK #10	DO NOT MIGRATE
338	1 Reformer	INTRLK11.DS	FFHDS SHUTDOWN INTERLOCK #11	DO NOT MIGRATE
339	1 Reformer	INTRLK2.DS	FFHDS SHUTDOWN INTERLOCK #2	DO NOT MIGRATE
340	1 Reformer	INTRLK3.DS	FFHDS SHUTDOWN INTERLOCK #3	DO NOT MIGRATE
341	1 Reformer	INTRLK4.DS	FFHDS SHUTDOWN INTERLOCK #4	DO NOT MIGRATE
342	1 Reformer	INTRLK5.DS	FFHDS SHUTDOWN INTERLOCK #5	DO NOT MIGRATE
343	1 Reformer	INTRLK6.DS	FFHDS SHUTDOWN INTERLOCK #6	DO NOT MIGRATE
344	1 Reformer	INTRLK7.DS	FFHDS SHUTDOWN INTERLOCK #7	DO NOT MIGRATE
345	1 Reformer	INTRLK8.DS	FFHDS SHUTDOWN INTERLOCK #8	DO NOT MIGRATE

No.	Console	Display Name	Screen Title	Comment
346	1 Reformer	INTRLK9.DS	FFHDS SHUTDOWN INTERLOCK #9	DO NOT MIGRATE
347	1 Reformer	2501H.DS	LHU FEED HELP MENU	DO NOT MIGRATE
348	1 Reformer	2502C1.DS	LHU HEATER OUTLET TEMP CONTROL	DO NOT MIGRATE
349	1 Reformer	2502H1A.DS	LHU HEATER OUTLET TEMPERATURE SUPERVISORY CONTROLS	DO NOT MIGRATE
350	1 Reformer	2502H1B.DS	LHU HEATER OUTLET TEMPERATURE SUPERVISORY CONTROLS	DO NOT MIGRATE
351	1 Reformer	2502H1C.DS	LHU HEATER OUTLET TEMPERATURE SUPERVISORY CONTROLS	DO NOT MIGRATE
352	1 Reformer	2502H1R.DS	LHU HEATER RAMP HELP	DO NOT MIGRATE
353	1 Reformer	2508.DS	LIGHT HYDRO PUMP OUT	DO NOT MIGRATE
354	1 Reformer	2509.DS	LHU REACTORS 2,3 & 4 TEMPERATURE ALARMING	DO NOT MIGRATE
355	1 Reformer	2561.DS	LIGHT HYDRO UNIT (25) PROCESS GRAPHICS	DO NOT MIGRATE
356	1 Reformer	2570.DS	LIGHT HYDRO STREAM SWITCH LOG	DO NOT MIGRATE
357	1 Reformer	100.DS	#1 REFORMER CONSOLE MAIN MENU	DO NOT MIGRATE
358	1 Reformer	101.DS	NO. 1 REF/HDS AREA DISPLAYS	DO NOT MIGRATE
359	1 Reformer	102.DS	1 REFORMER/HDS CASCADE CONTROLLERS & LOW LEVEL SHUTOFF HANDSWITCHES	DO NOT MIGRATE
360	1 Reformer	106.DS	1REF/HDS AREA DISABLED ALARMS REPORT	DO NOT MIGRATE
361	1 Reformer	109.DS	1REF_HDS CONSOLE UPPER SCREEN KEYBOARD	DO NOT MIGRATE
362	1 Reformer	111.DS	HYDROGEN DISTRIBUTION SYSTEM	DO NOT MIGRATE
363	1 Reformer	112.DS	DMC MAIN MENU	DO NOT MIGRATE

No.	Console	Display Name	Screen Title	Comment
364	1 Reformer	112C.DS	DMC MAIN MENU	DO NOT MIGRATE
365	1 Reformer	112H1.DS	FFHDS DMC INSTRUMENT LIST	DO NOT MIGRATE
366	1 Reformer	113.DS	TELEPHONE DIRECTORY	DO NOT MIGRATE
367	1 Reformer	114.DS	HDS START UP / PRESSURIZATION	DO NOT MIGRATE
368	1 Reformer	115.DS	HDS START UP / PRESSURIZATION	DO NOT MIGRATE
369	1 Reformer	116.DS	FUEL GAS ECONOMICS	DO NOT MIGRATE
370	1 Reformer	117.DS	FUEL GAS ECONOMICS	DO NOT MIGRATE
371	1 Reformer	118.DS	HDS/#1 REFMR TRENDS	DO NOT MIGRATE
372	1 Reformer	119.DS	NO. 1 REFORMER AREA STREAM SWITCH LOGS	DO NOT MIGRATE
373	1 Reformer	120.DS	AIR PRODUCTS HYDROGEN SWITCH LOG	DO NOT MIGRATE
374	1 Reformer	120H.DS	AIR PRODUCTS HYDROGEN SWITCH LOG HELP	DO NOT MIGRATE
375	1 Reformer	198.DS	# 1 REFORMER GRAPHIC OVERVIEW - PAGE 2	DO NOT MIGRATE
376	1 Reformer	199.DS	# 1 REFORMER GRAPHIC OVERVIEW - PAGE 12	DO NOT MIGRATE
377	1 Reformer	ROC.DS	ROC	DO NOT MIGRATE

Appendix B. Display Performance Analysis Summary

Refer to attached 747002-LAR1C-AUT-SPC-0101 – Appendix B.