



AVEVA WORLD



Replacing an aging SCADA system

The Power of System Platform and OMI

Presented by: Lonnie Purvis
April 9th, 2025

Our Company

We are an agile system integrator specialized in delivering end-to-end industrial solutions that encompass the entire spectrum of manufacturing needs, from initial design and integration to ongoing maintenance and support, for clients on a global scale.



AVEVA Endorsed Operate

- One of 13 Endorsed Operators in North America
- Highly successful AVEVA MES Deployments
- AVEVA certified engineers on staff
- 80% of our projects use AVEVA
- For our customers, this means:
 - Proven Technical Expertise
 - Proven Project success
 - Elevated levels of client service



Replacing an aging SCADA System

Overview

- Alaska's North Slope – The largest oil field in North America
- 250 miles north of the Arctic Circle
- Replace an aging SCADA system in 14 facilities that is no longer supported
- Total I/O count in excess of 1M



Replacing an aging SCADA System

Challenges

- Facility Upgrades – The customer is updating hardware while we are updating software
- Communications – Several protocols, connection limitations, slow communications, legacy systems
- Operational Continuity – Implementing the new with the old running in parallel
- Operator Buy In –
 - Multigenerational workforce
 - Training
- Unpacking the old system
- Schedule/Size/Rotation
- Change
- Early use of v.2023

Replacing an aging SCADA System

Solution

- System Platform –
 - Standards...at all levels
 - Change Management
 - Validate and protect
 - Security
- OMI
 - Standards...at all levels
 - Namespaces
 - Navigation
 - Dynamic toolsets

Replacing an aging SCADA System

Results

This is an active project. We have overcome many challenges. Although we are not counting it as a success at this point, we are starting to see the light at the end of the tunnel.

The results are a very scalable application that provides some very powerful (and cool) functionality. I would like to show some of that now.

Find...

Computer Name
FS3ONMHMI

10:31:34 AM
03/28/2025

A USER:
PRBATM\purvis

SOLT ?

FS3 MAIN MENU

FS3 PROCESS

FS3 OVERVIEW
FS3 RUN STATUS
FS3 FACEPLATE MENU
FS3 ESD OVERVIEW
DRILLSITE ESD/OSD OVERVIEW

OIL SECTION

COMMON LINES 4906
FS3 INLET MANIFOLD
FS1/FS3 TIE LINE
SLUGCATCHERS
NGL CONTROL GRAPHICS
OIL SEPARATION TRAIN A/C
OIL SEPARATION TRAIN B
TRAIN METER FLOWS
SURGE DRUM
SHIPPING PUMPS
CRUDE COOLERS
4913 METERING SKID
USFM MODULE
WATER METERS
OIL TRAIN BALANCE
FIZZY OIL
4910 WET GAS CI INJECTION

PIGGING

PWI PIGGING
PIGGING 7C / 15C

STV/IP

1825 LOADING
1825 STV/IP MAIN MENU

LPS

LPS LOADING
LPS OVERVIEW
1803 LPS COMPRESSOR
1803 TURBINE
1804 LPS COMPRESSOR
1804 TURBINE
WHR OVERVIEW

AL SYSTEMS

AL LOADING
AL OVERVIEW
GPB AL OVERVIEW
1806 AL COMPRESSOR
1806 TURBINE

TURBINE INLET AIR

INLET AIR DP

GAS CONDITIONING

GAS CONDITIONING
FIN FAN MENU
GAS QUALITY SURVEILLANCE

FUEL GAS

FS3 FUEL GAS

FLARE

FLARE MANIFOLD VALVES & PILOTS
FLARE AUXILIARIES AND METERING
FLARE KO DRUMS

FIRE & GAS

FIRE & GAS MAIN MENU
INLET H&V GAS DETECTION

H&V

OIL H&V TAGS
GAS H&V TAGS
UTILITIES H&V TAGS

CONTROLLER STATUS

OIL SECTION CONTROLLERS
GAS SECTION CONTROLLERS
UTILITY SECTION CONTROLLERS

PRODUCED WATER

WATER WHEEL
PWT
PWI
PWB
PW OPER RESETS

PWI INJECTION

RUSTON SPEED
15105 TURBINE
15106 TURBINE
15188 TURBINE
15189 TURBINE
PWI METERING

UTILITIES

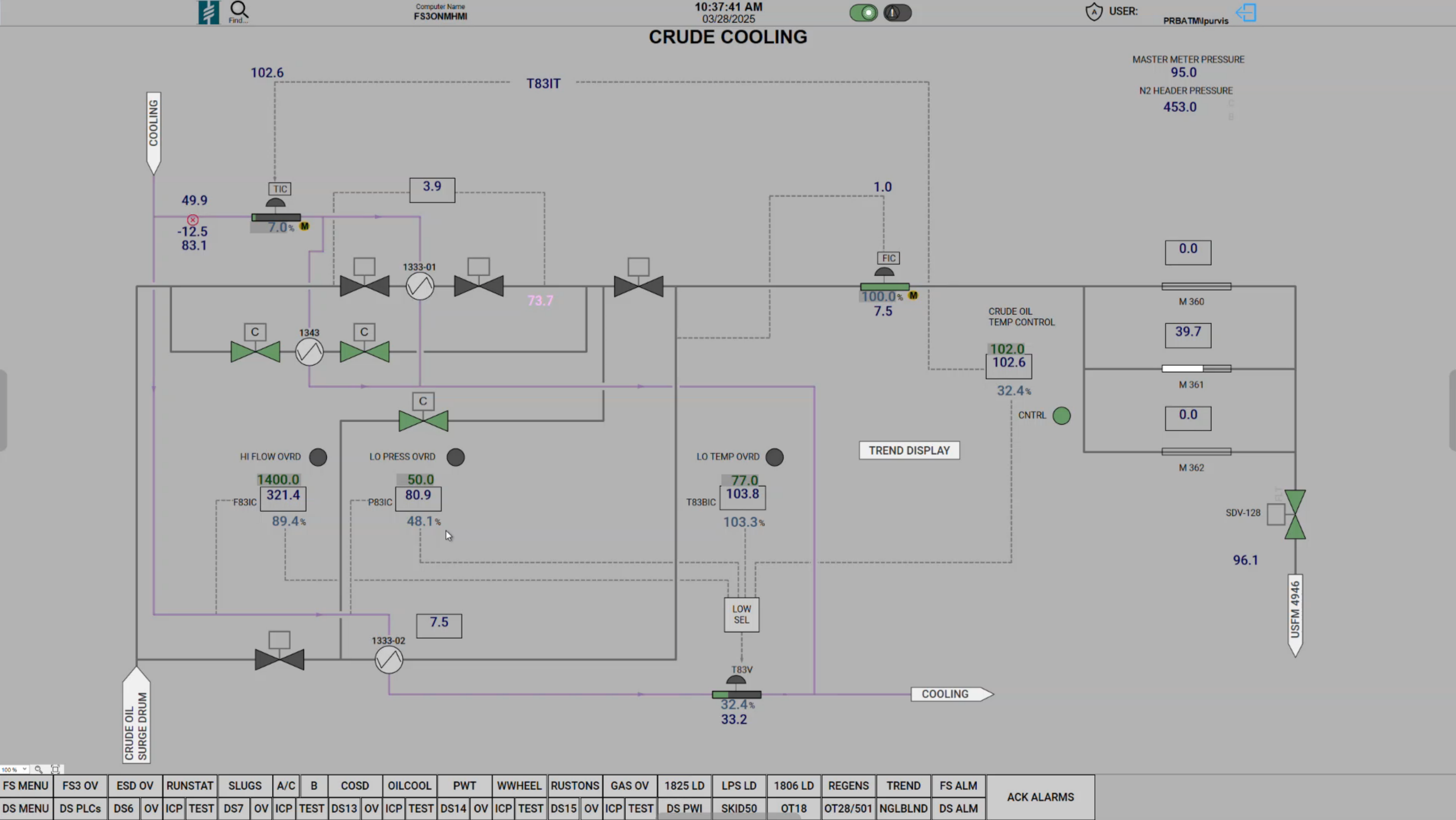
PLANT AIR
AIR DRYERS
COOLING GLYCOL
HYDRAULIC SYSTEMS
ELECTRICAL POWER
BROACH HEATERS
REGEN SKID
STORAGE TANKS
FACEPLATE MENU
GROUP SUMMARY
ALARM HISTORY
OMI HELP

100%

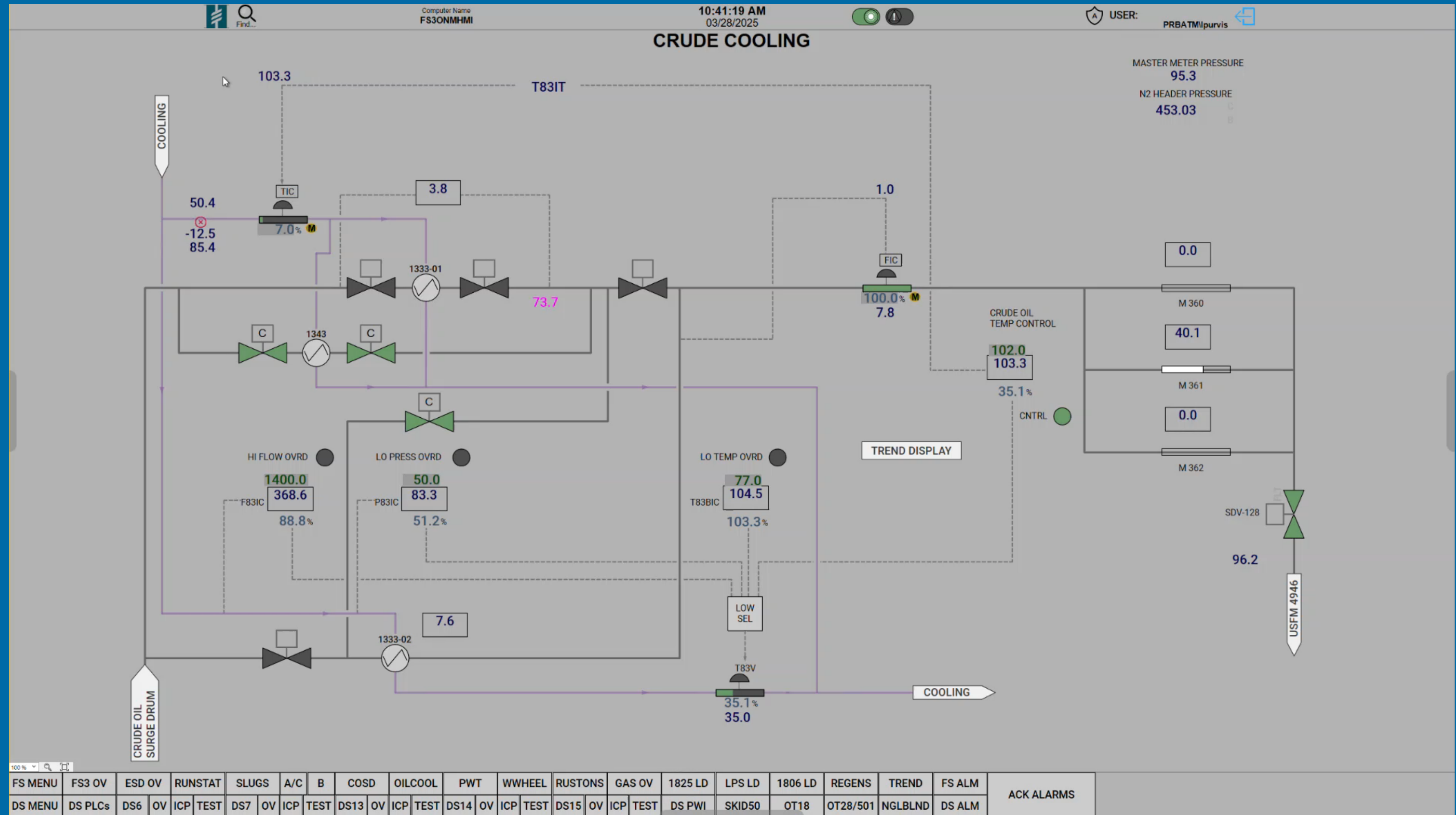
FS MENU	FS3 OV	ESD OV	RUNSTAT	SLUGS	A/C	B	COSD	OILCOOL	PWT	WWHEEL	RUSTONS	GAS OV	1825 LD	LPS LD	1806 LD	REGENS	TREND	FS ALM	ACK ALARMS				
DS MENU	DS PLCs	DS6	OV	ICP	TEST	DS7	OV	ICP	TEST	DS13	OV	ICP	TEST	DS14	OV	ICP	TEST	DS PWI	SKID50	OT18	OT28/501	NGLBLND	DS ALM

Symbol Backplane

Left/Center/Right Click



Tag Search By Tagname



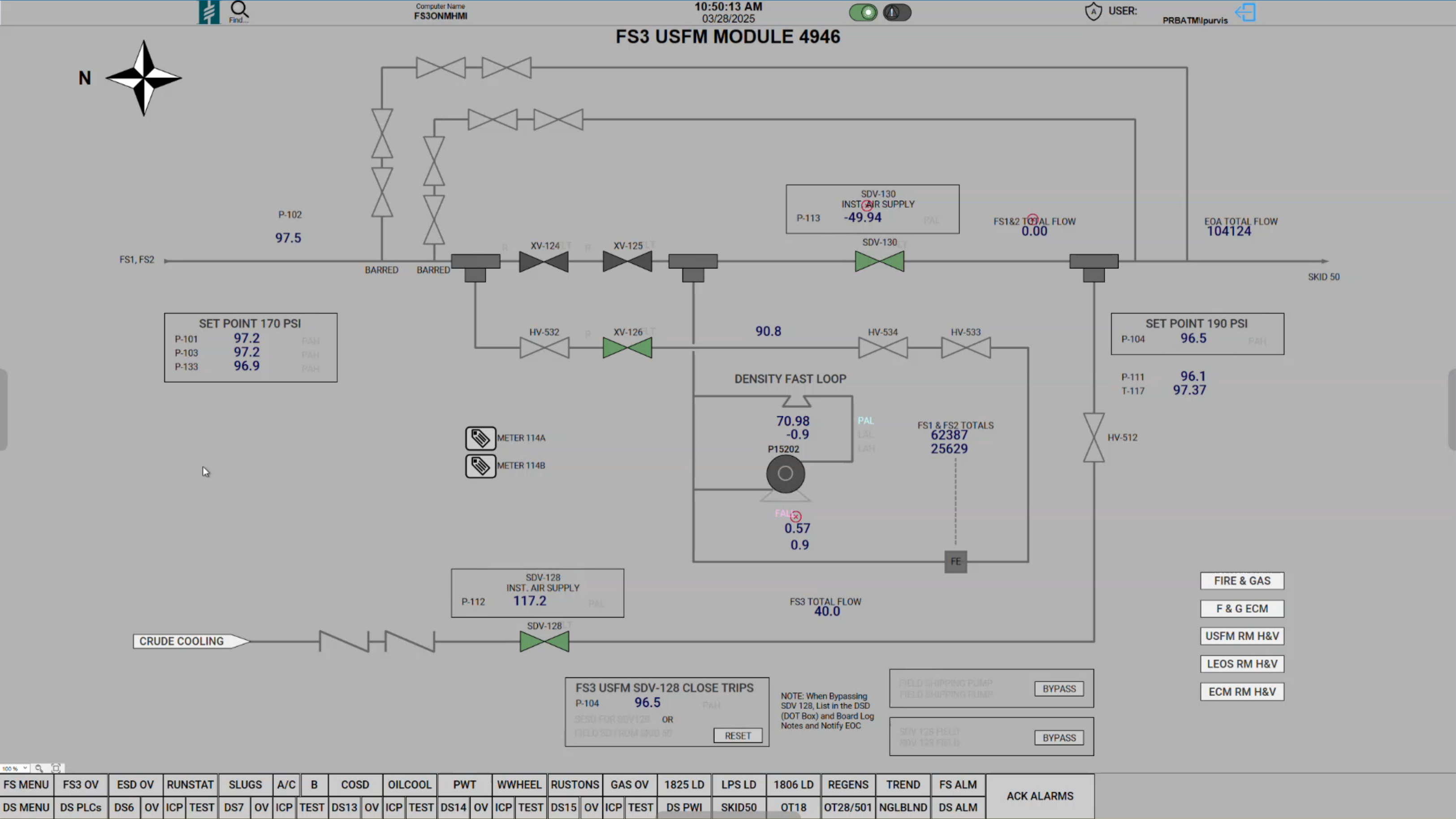
Tag Search

By Description & Graphic

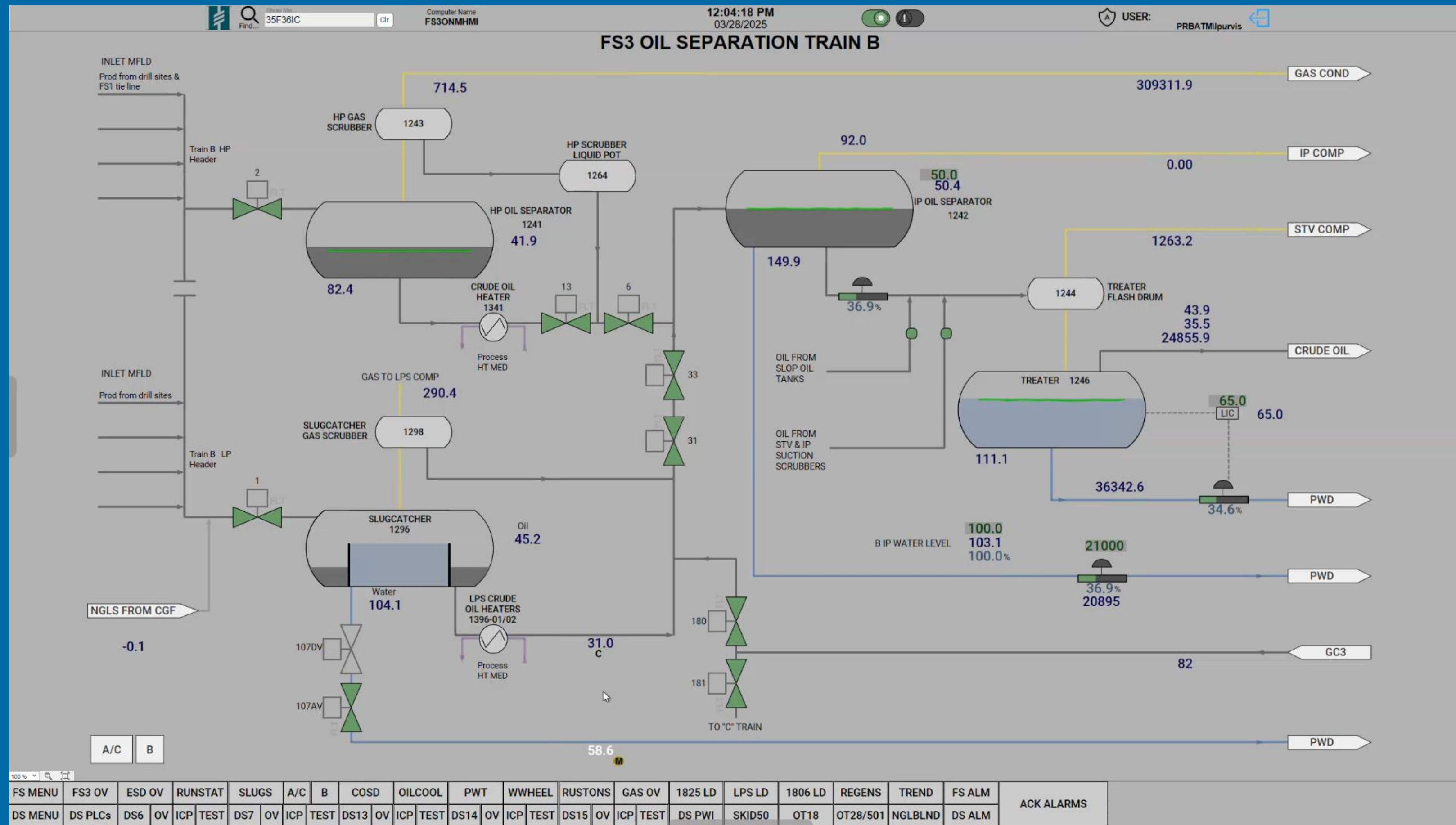
<div><div><div></div><div>Find...</div></div><div>Computer Name FS3ONMHMI</div></div>														<div>10:42:35 AM 03/28/2025</div>														<div><div><div></div><div>1</div></div><div>USER: PRBATM\lpurvis</div></div>													
AMBIENT TEMP=-9.2														FS3 OVERVIEW														AMBIENT PRESS=29.8 in HG													
<div><div><div><div><div></div><div>GAS</div><div>165.3</div></div><div><div>Open</div><div>B</div><div>317.6</div></div></div><div><div><div></div><div>GAS</div><div>173.9</div></div><div><div>Open</div><div>C</div><div>282.3</div></div></div></div><div><div><div></div><div>OIL</div><div>45.4</div></div><div><div></div><div>30.8</div><div>146.4</div></div><div><div><div></div><div>OIL</div><div>40.3</div></div><div><div></div><div>20.8</div><div>178.1</div></div></div><div><div><div></div><div>WATER</div><div>104.8</div></div><div><div></div><div>58.5</div><div>90.6</div><div>32.4</div></div></div></div></div>														<div><div><div><div><div></div><div>1803</div><div></div></div><div><div>SUCTION PRESS</div><div>148.3</div></div><div><div>SUCTION TEMP</div><div>79.00</div></div><div><div>DISCH PRESS</div><div>715.2</div></div><div><div>DISCH TEMP</div><div>349.00</div></div><div><div>NET DISCH FLOW</div><div>301.1</div></div><div><div>PT SPEED</div><div>4663.0</div></div><div><div>TURBINE EXH TEMP</div><div>781.0</div></div><div><div>TURBINE EXH PRESS</div><div>5.5</div></div></div><div><div><div></div><div>1804</div><div></div></div><div><div>SUCTION PRESS</div><div>149.5</div></div><div><div>SUCTION TEMP</div><div>78.00</div></div><div><div>DISCH PRESS</div><div>714</div></div><div><div>DISCH TEMP</div><div>349.00</div></div><div><div>NET DISCH FLOW</div><div>299.2</div></div><div><div>PT SPEED</div><div>4664</div></div><div><div>TURBINE EXH TEMP</div><div>851</div></div><div><div>TURBINE EXH PRESS</div><div>5.3</div></div></div></div></div>														<div><div><div><div><div></div><div>STV</div><div></div></div><div><div>SUCTION PRESS</div><div>0.7</div></div><div><div>SUCTION TEMP</div><div>91.2</div></div><div><div>DISCH PRESS</div><div>58.4</div></div><div><div>DISCH TEMP</div><div>307.3</div></div><div><div>STV NET FLOW</div><div>3.3</div></div></div><div><div><div></div><div>STV/IP COMPRESSOR 1825</div><div></div></div><div><div><div></div><div>ASD</div><div></div></div><div><div>SPEED</div><div>1599.7</div></div></div><div><div><div></div><div>IP</div><div></div></div><div><div>SUCTION PRESS</div><div>45.7</div></div><div><div>SUCTION TEMP</div><div>71.8</div></div><div><div>DISCH PRESS</div><div>167.5</div></div><div><div>DISCH TEMP</div><div>238.0</div></div><div><div>IP NET FLOW</div><div>5.2</div></div></div></div></div></div>													
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<div><div><div><div><div></div><div>15105</div><div>0.00</div></div><div><div>15106</div><div>62.1</div></div><div><div>15108</div><div>61.8</div></div><div><div>15189</div><div>61.7</div></div></div><div><div><div></div><div>RUSTONS</div><div></div></div><div><div>24.3</div><div>1968.7</div><div>1862.8</div><div>1876.7</div></div><div><div><div></div><div>100.00</div></div><div><div>0.00</div><div>0.00</div><div>0.00</div></div><div><div>Min. Flow</div></div></div></div></div></div>														<div><div><div><div><div></div><div>AIR</div><div></div></div><div><div>1881</div><div>115.6</div></div><div><div>1882</div><div></div></div></div><div><div><div></div><div>N2 HEADER 4913</div><div></div></div><div><div>453.10</div></div><div><div><div></div><div>UTILITIES</div><div></div></div><div><div><div></div><div>COOLING</div><div></div></div><div><div>MAIN</div><div>1359.9</div></div><div><div>4906</div><div>1474.1</div></div><div><div>4922</div><div>1348.3</div></div></div><div><div><div></div><div>HEATING</div><div></div></div><div><div>OBH</div><div>1431</div><div>1491</div><div>1481</div></div><div><div>218.9</div><div>214.6</div><div>185.9</div></div><div><div><div></div><div>WHR</div><div></div></div><div><div>1803</div><div>225</div></div><div><div>1804</div><div>225</div></div></div></div></div></div></div></div>																											
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<div><div><div><div><div></div><div>FS MENU</div></div><div><div>FS3 OV</div><div>ESD OV</div><div>RUNSTAT</div></div><div><div>SLUGS</div><div>A/C</div><div>B</div><div>COSD</div><div>OILCOOL</div><div>PWT</div><div>WWHEEL</div></div><div><div>RUSTONS</div><div>GAS OV</div><div>1825 LD</div></div></div><div><div>DS MENU</div><div>DS PLCs</div><div>DS6</div><div>OV</div><div>ICP</div><div>TEST</div><div>DS7</div><div>OV</div><div>ICP</div><div>TEST</div><div>DS13</div><div>OV</div><div>ICP</div><div>TEST</div><div>DS14</div><div>OV</div><div>ICP</div><div>TEST</div><div>DS15</div><div>OV</div><div>ICP</div><div>TEST</div><div>DS PWI</div></div></div></div>														<div><div><div><div><div></div><div>LPS LD</div></div><div><div>1806 LD</div><div>REGENS</div><div>TREND</div><div>FS ALM</div></div><div><div>ACK ALARMS</div></div></div><div><div><div></div><div>SKID50</div></div><div><div>OT18</div><div>OT28/501</div><div>NGLBLND</div><div>DS ALM</div></div></div></div></div>																											

Dynamic Group Feedback

Tabular Data

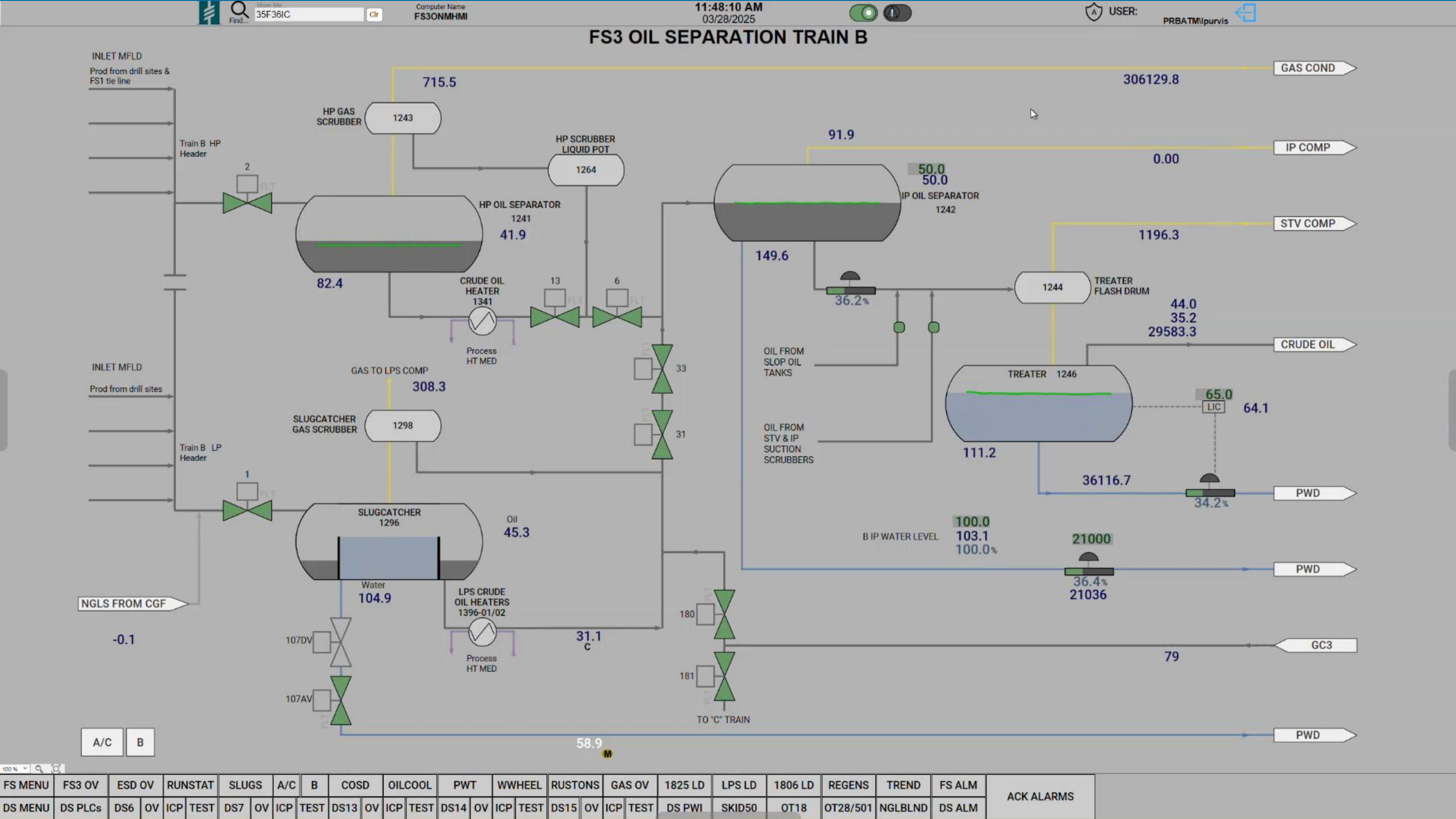


Faceplates Operator/Info/Config



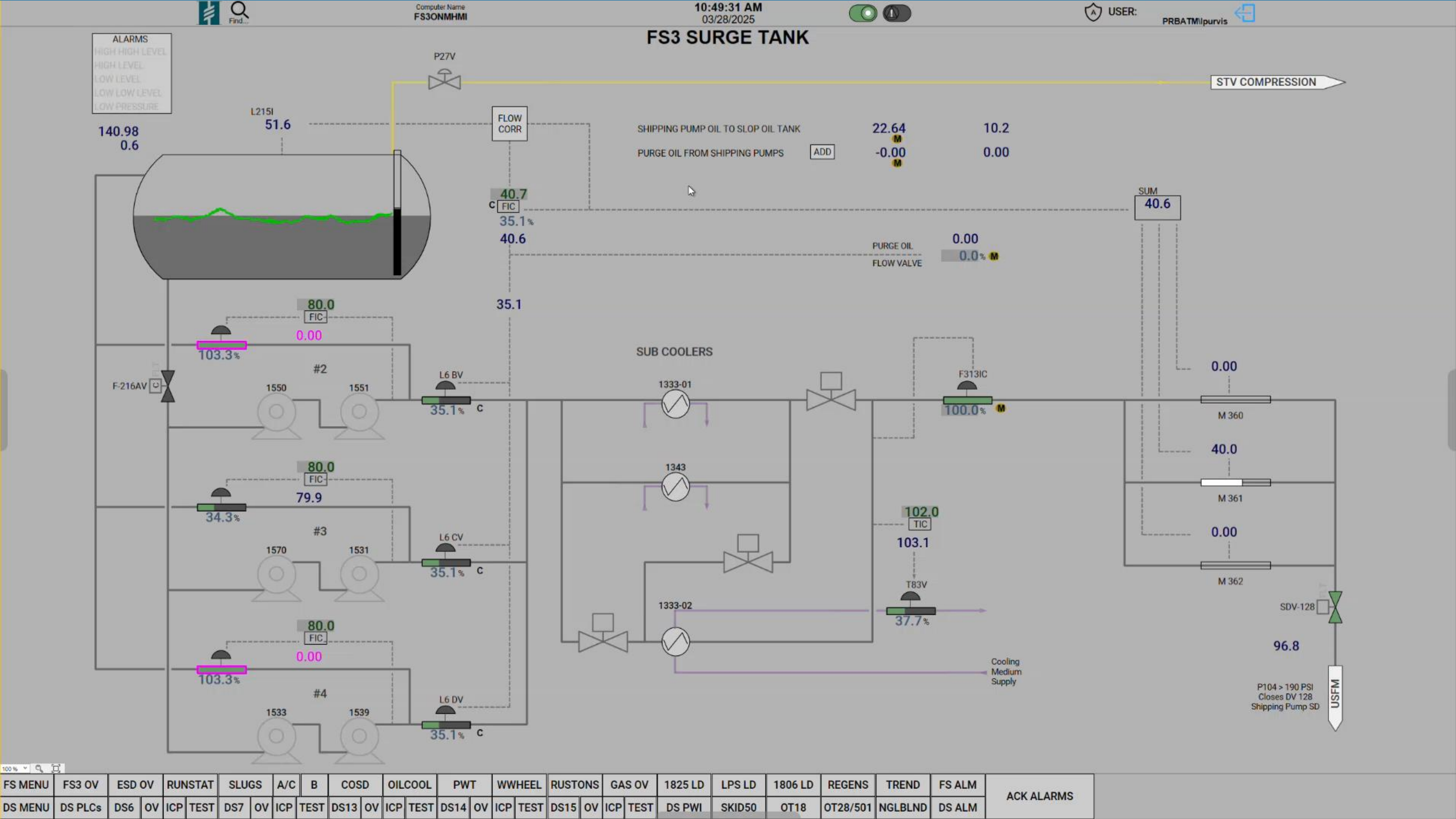
Administrators

Admin Tab



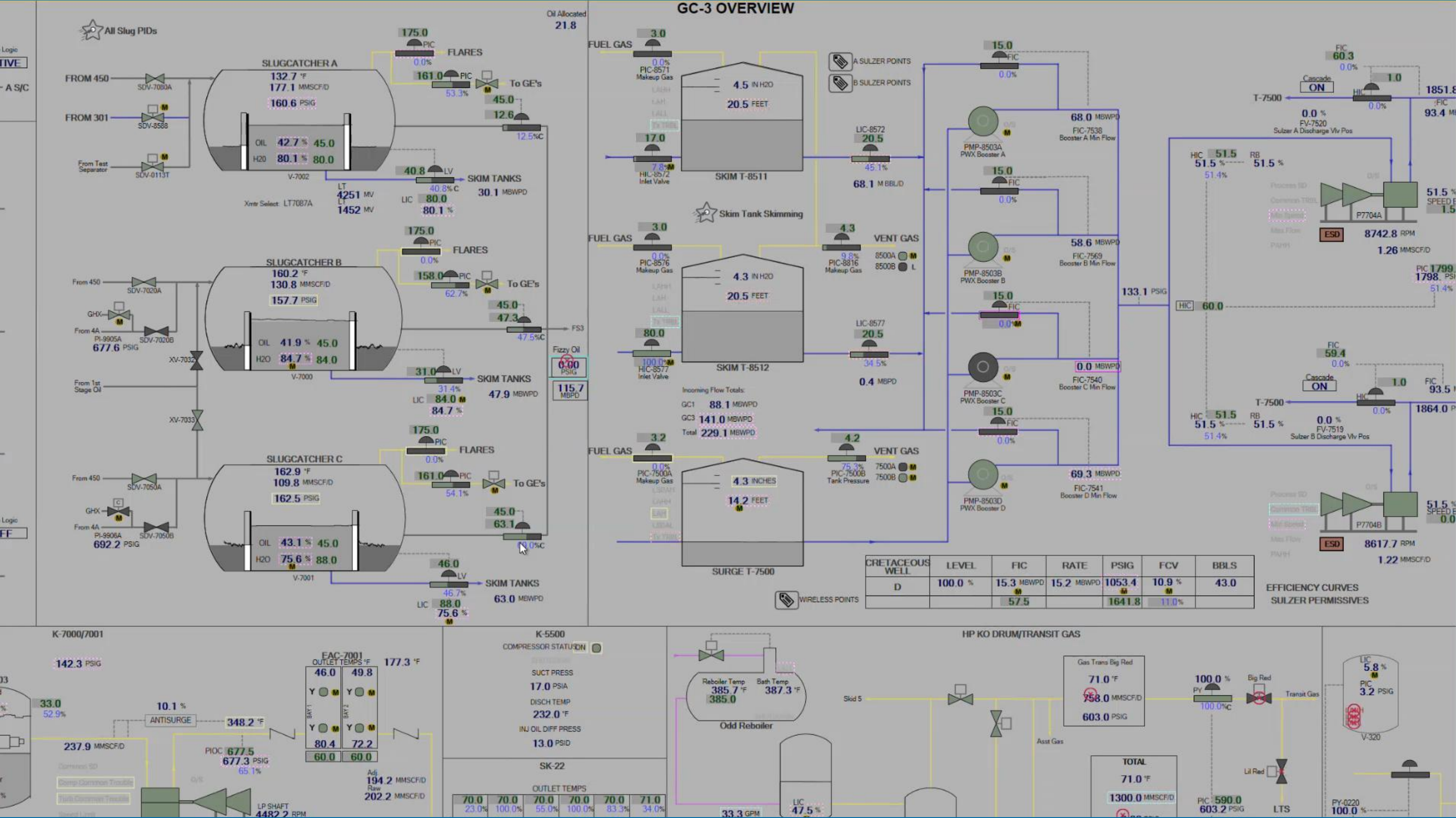
Display Options

Modes/Alarm Displays



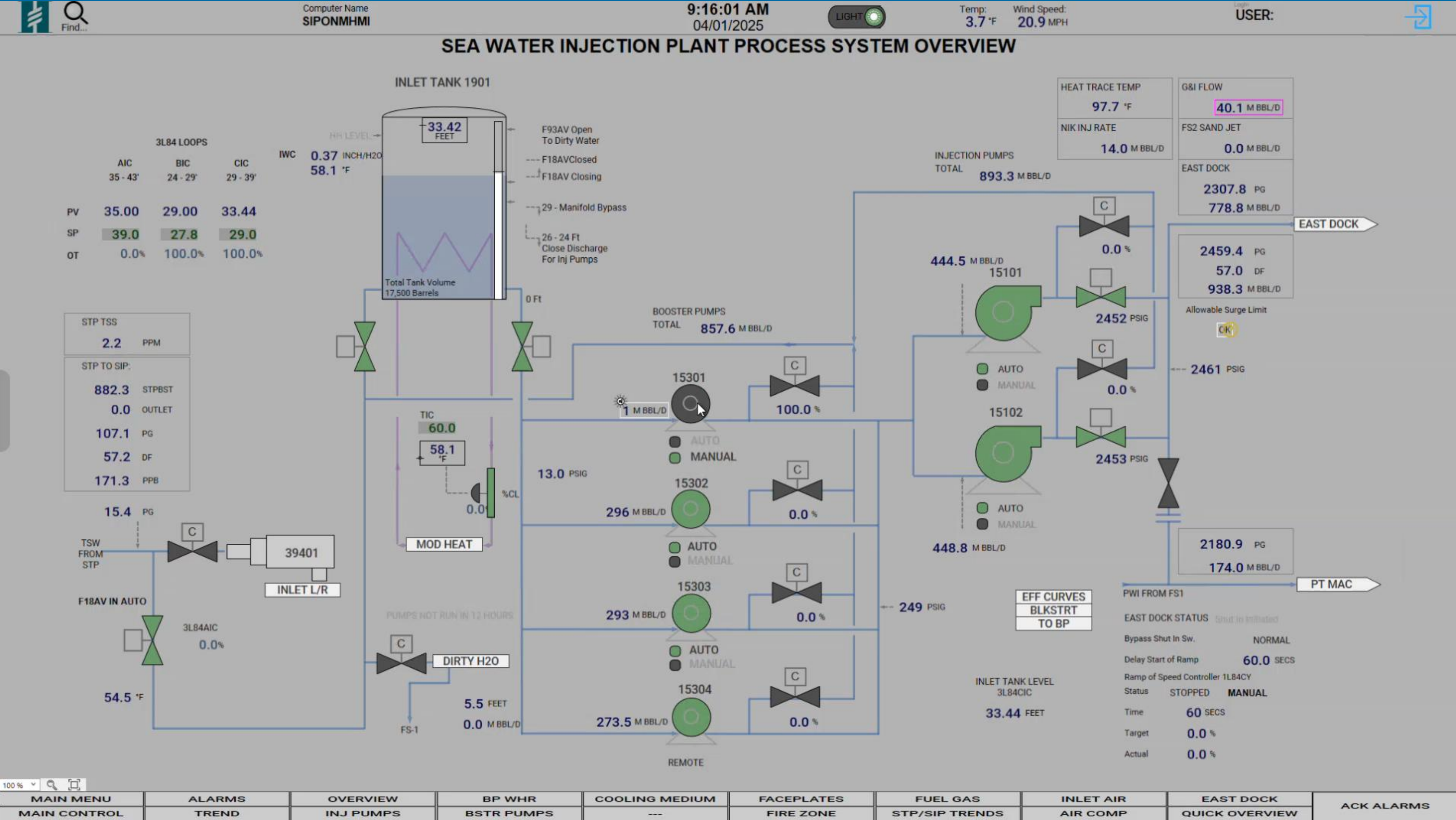
Shortcuts

Custom Displays



Help

Context Sensitive



HELP DISPLAY

OIL SELECTION

- ? 450 Device Help
- ? GC-3 Oil Limits
- ? Slugcatcher Gas SDV Bypass Switch
- ? Slugcatcher Shutdown Logic
- ? Scale and Corrosion Inhibitor Rates
- ? Digital Devices (DCD)
- ? LDF Valves Help

WHRU

- ? General Information
- ? Operating Parameters
- ? V-7005 and V-7011 General Info
- ? Steam Chart
- ? Operating Temperature Parameters

- ? Alarm Priorities and Icons
- ? Device Status Icons
- ? Object Display Graphics Interaction & Standards

PWX

- ? Cascade Control
- ? Ratio-Bias Control
- ? Slop Oil Logic
- ? Sulzer Load Share
- ? Sulzer Minimum Speed Trip
- ? Slop Oil Start and Stops
- ? Recycle Water Pump Start Stop Logic
- ? Capacities for PWX Injection & Boosters

MISCELLANEOUS

- ? Chemical Tank Capacities
- ? Pigging Help
- ? Alarm and Shutdown Pressures
- ? GC Backpressure Control Logic
- ? LPS Glycol Boiler
- ? Alarm History
- ? Operator Notes
- ? Blocked Valve Logic

LPS COMPRESSION

- ? Discharge Cooler Control for 460
- ? Discharge Cooler Control for 461
- ? Emergency Shutdown
- ? High Discharge Pressure Protection
- ? High Pressure Protection for 460 & 461
- ? LPS Compression General Info
- ? Suction Header Pressure Controls
- ? LPS Compressor Over Pressure
- ? K7000-1 Shutdown Switches

OPERATOR NOTES

- ? GC-3 Misc
- ? Oil
- ? Gas
- ? LPS
- ? PWX
- ? Rover

Computer Name: FS3ONMHMI 10:58:15 AM 04/01/2025 USER: PRBATM\purvis

FS3 FG ZONE 62 MODULE 4942

LEVEL 100' FIRE ZONE 62 MODULE 4942

Mod 62 100 Foot Level

PROPANE 0.00 P-62-02 H₂S 0.00 H-62-04 PROPANE 0.00 P-62-01 H₂S 0.00 H-62-01

LADDER

THERMAL DETECTOR F-62-1

SKIM OIL PUMP 15195

SUMP HIGH LEVEL

H₂S 0.00 H-62-03

PROPANE 0.00 P-62-03

LEVEL 115' FIRE ZONE 62 MODULE 4942

Mod 62 115 Foot Level

METHANE 0.00 M-62-01

LADDER

THERMAL DETECTOR F-62-1

METHANE 0.00 M-62-02

OPEN TO BELOW

LEVEL 125' FIRE ZONE 62 MODULE 4942

Mod 62 125 Foot Level

METHANE 0.00 M-62-04

LADDER

THERMAL DETECTOR F-62-1

METHANE 0.00 M-62-03

LEVEL 139' FIRE ZONE 62 MODULE 4942

Mod 62 139 Foot Level

METHANE 0.00 M-62-06

THERMAL DETECTOR F-62-1

METHANE 0.00 M-62-05

FIRE DISPLAY

FS MENU	FS3 OV	ESD OV		RUNSTAT		SLUGS		A/C	B	COSD		OILCOOL		PWT		WWHEEL		RUSTONS		GAS OV		1825 LD	LPS LD	1806 LD	REGENS	TREND	FS ALM	ACK ALARMS
DS MENU	DS PLCs	DS6	OV	ICP	TEST	DS7	OV	ICP	TEST	DS13	OV	ICP	TEST	DS14	OV	ICP	TEST	DS15	OV	ICP	TEST	DS PWI	SKID50	OT18	OT28/501	NGLBLND	DS ALM	

Making it Work Standards

The figure shows three side-by-side screenshots of the HMI Designer software interface, specifically the 'Attributes' tab for different object types.

- Left Screenshot (\$GPB_PID_AB_CLX_M_v2):** Shows the 'Attributes' section with a search bar containing 'Search Current Attributes (Ctrl + E)'. Below it, a list of attributes is displayed, including 'Faceplate [PID_Faceplate_Generic_v2] [\$GPB_PID_M_v2]', 'Faceplate_Config [PID_Faceplate_Config_v2] [\$GPB_PID_M_v2]', 'Faceplate_Display [PID_Faceplate_Display_v2] [\$GPB_PID_M_v2]', and 'Faceplate_Info [PID_Faceplate_Info_v2] [\$GPB_PID_M_v2]'. The status bar indicates '53 of 1379 displayed. 1 selected'.
- Middle Screenshot (\$GPB_Valve_BLY_M_v2):** Similar to the left one, but for a valve object. It lists attributes like 'Faceplate [Valve_Faceplate_Generic_v2]', 'Faceplate_Config [Valve_Faceplate_Config_v2] [\$GPB_Valve_M_v2]', 'Faceplate_Display [Valve_Faceplate_Dispatch_Generic_v2]', and 'Faceplate_Info [Valve_Faceplate_Info_v2] [\$GPB_Valve_M_v2]'. The status bar indicates '43 of 1096 displayed. 1 selected'.
- Right Screenshot (\$GPB_Motor_Starter_APACS_M_v2):** Similar to the others, but for a motor starter object. It lists attributes like 'Faceplate [Motor_Faceplate_APACS_v2]', 'Faceplate_Config [Motor_Faceplate_Config_v2] [\$GPB_Motor_Starter_M_v2]', 'Faceplate_Display [Motor_Faceplate_Dispatch_APACS_v2]', and 'Faceplate_Info [Motor_Faceplate_Info_v2] [\$GPB_Motor_Starter_M_v2]'. The status bar indicates '7 of 7 displayed. 0 selected'.

Getting it Done

How

- Standards/Standards/Standards
 - Attribute Names
 - Script Names
 - Linked Content Names
 - Stylesheet Settings
 - Content Type
- Graphics
 - Standard naming
 - Standard configuration
 - Provide all options in a master graphic
- OI Servers
 - Master Definition for Standard
 - Master Definition for Redundant PLCs/Controllers

Getting it Done

How

- Our Customer
- Our Vendor
- AVEVA Tech Support
- AVEVA R&D
- The Apex Team

Apex Manufacturing Solutions

Thank You!

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