TECH TIP

HLBL TO FOXVIEW

JEFF ELLIS | EOSYS HUNTSVILLE

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TECH TIP

Who LOVES troubleshooting Sequence Logic?

TECH TIP

When it runs it ALWAYS runs, right?

But… When it doesn’t…

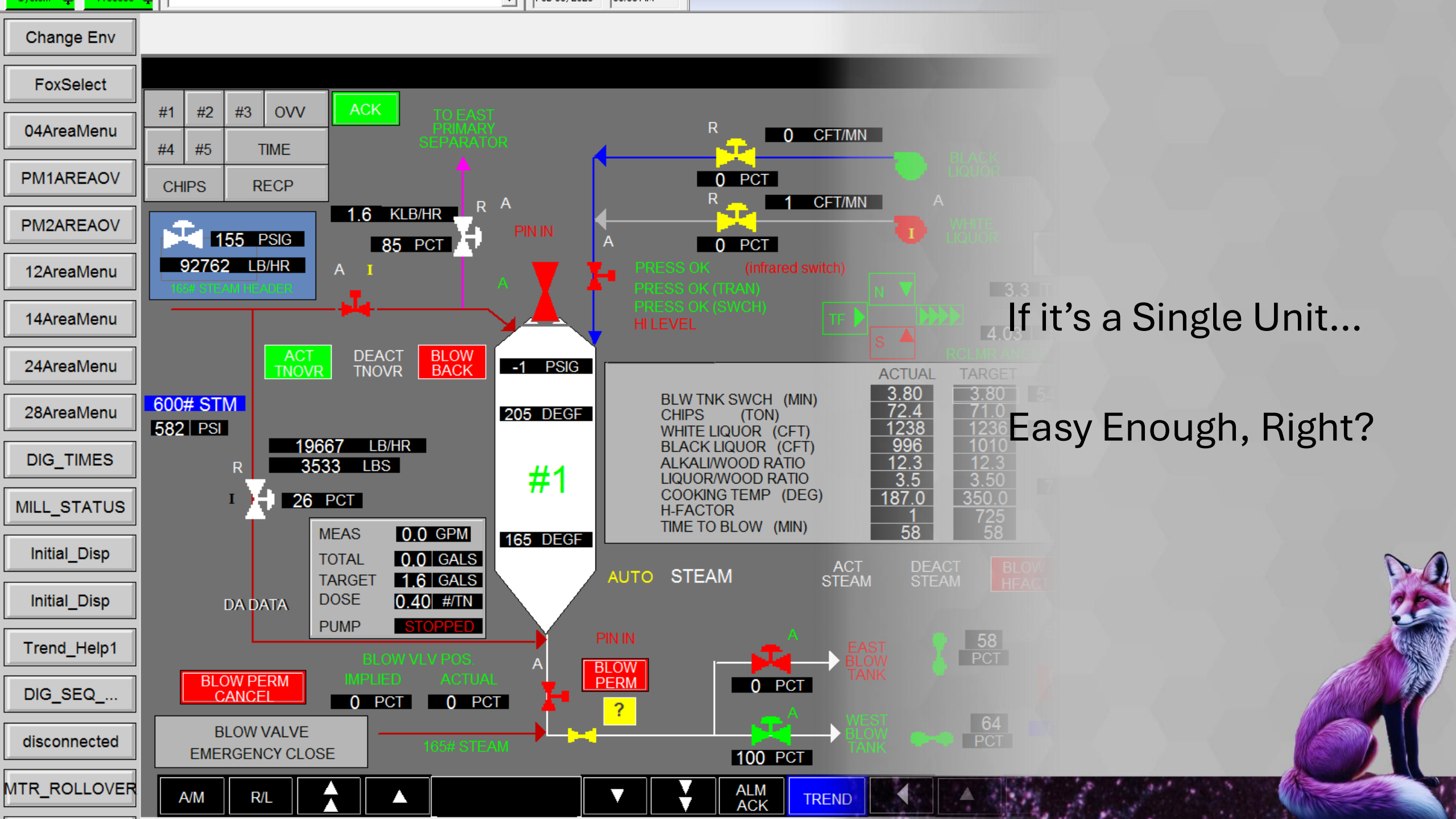
TECH TIP

It can be a PAIN to troubleshoot!!!

TECH TIP

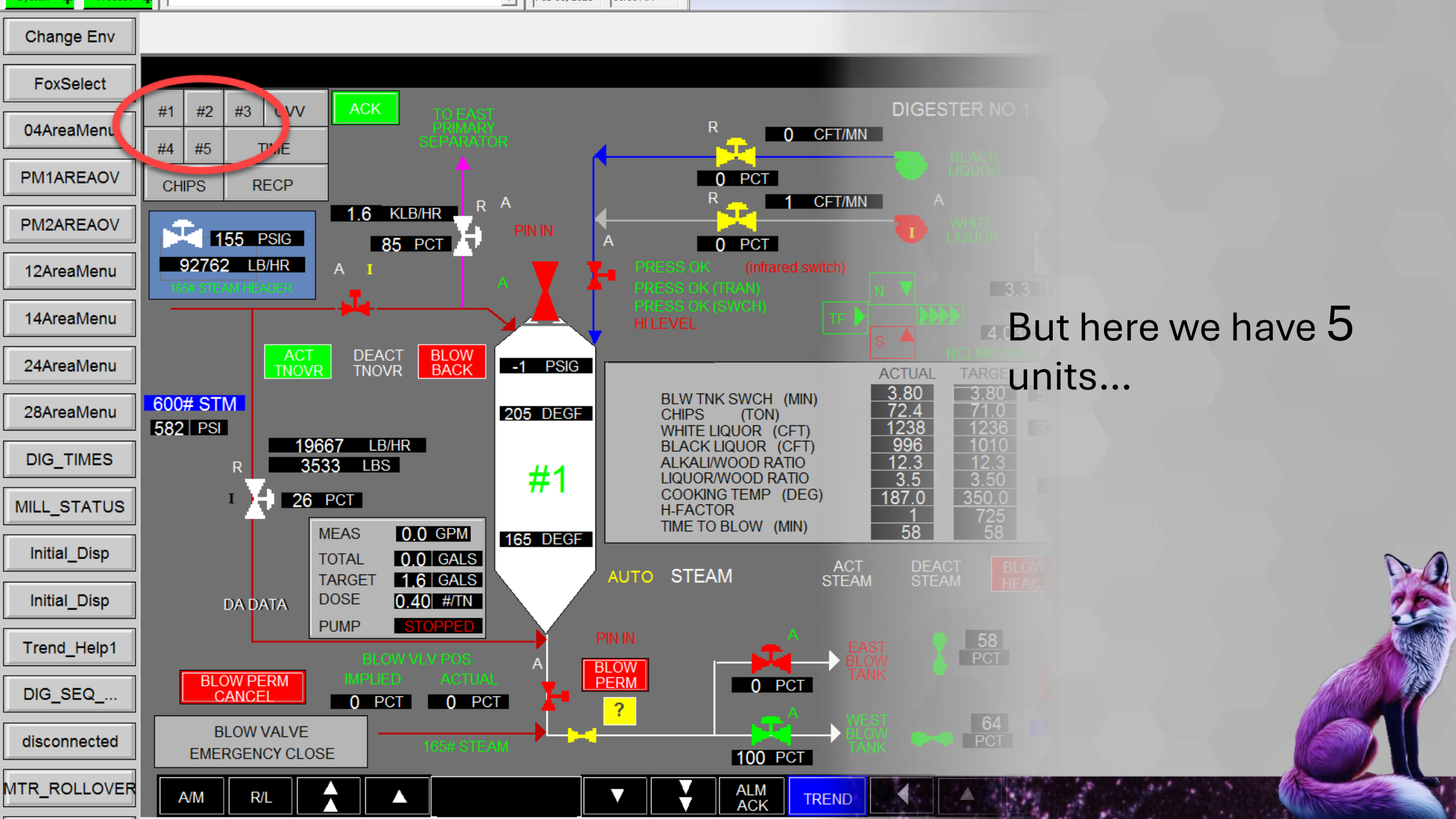
Play Along with Me…

We have a Batching Operation

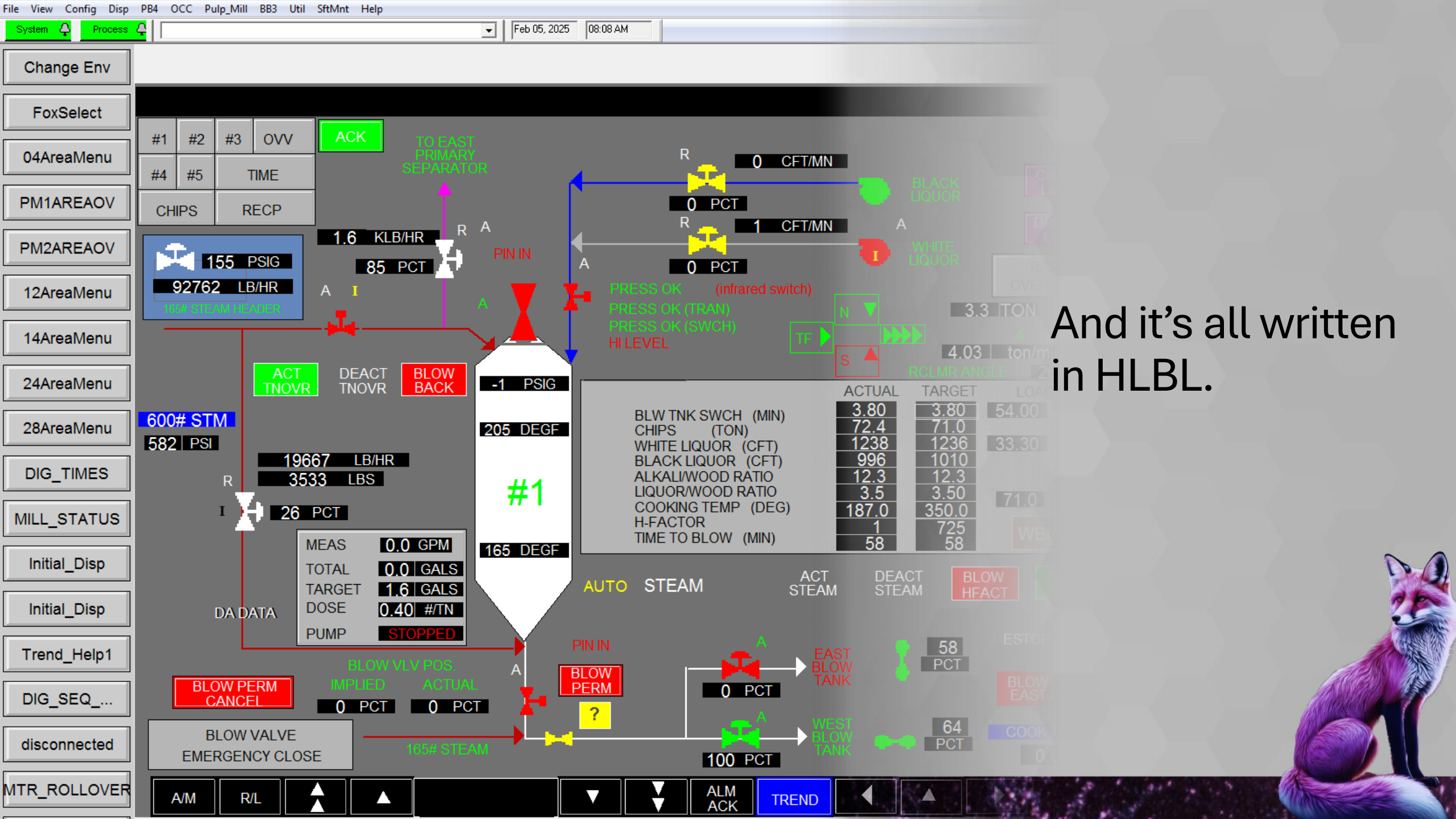


If it's a Single Unit...

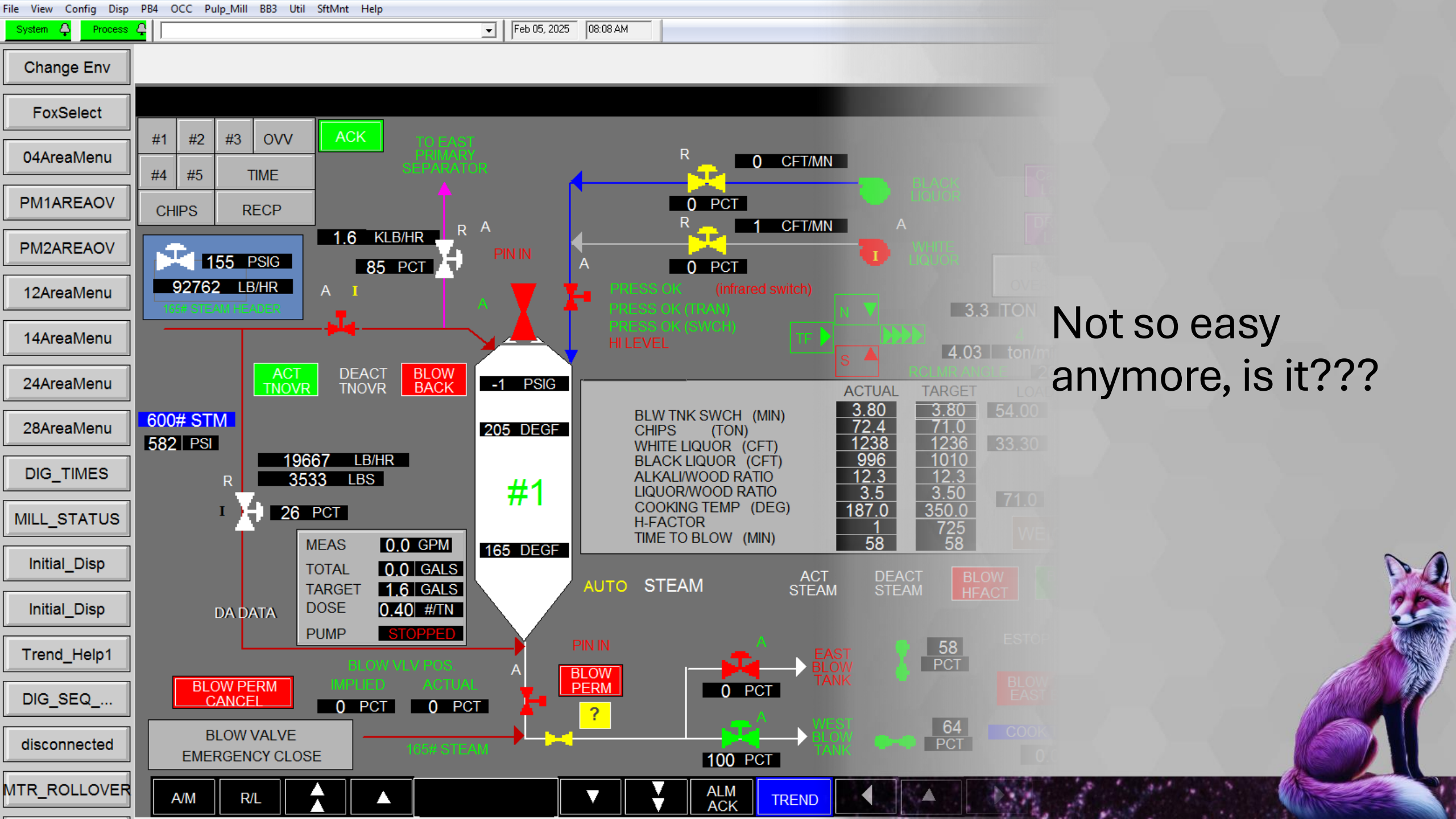
Easy Enough, Right?



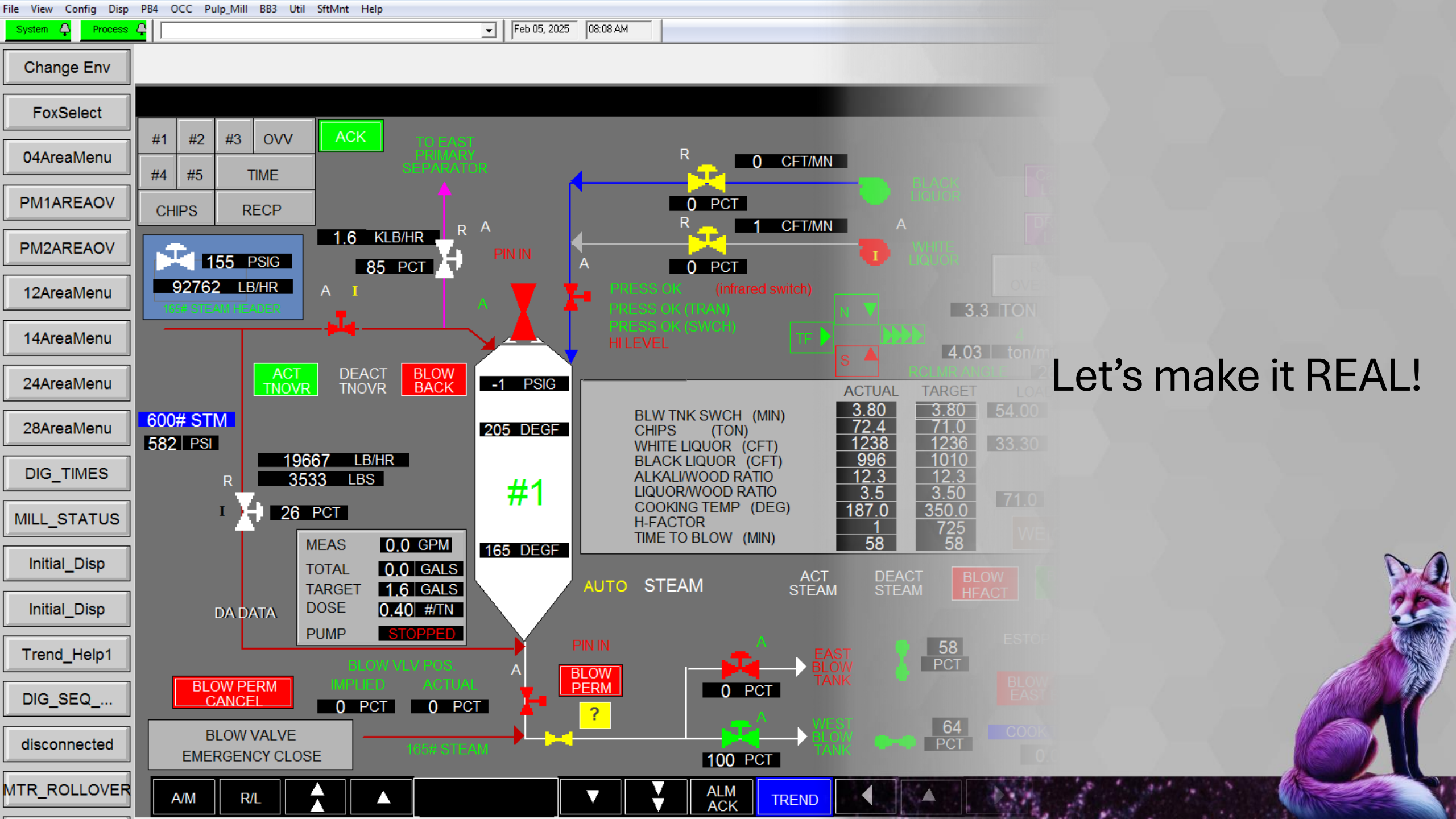
But here we have 5 units...



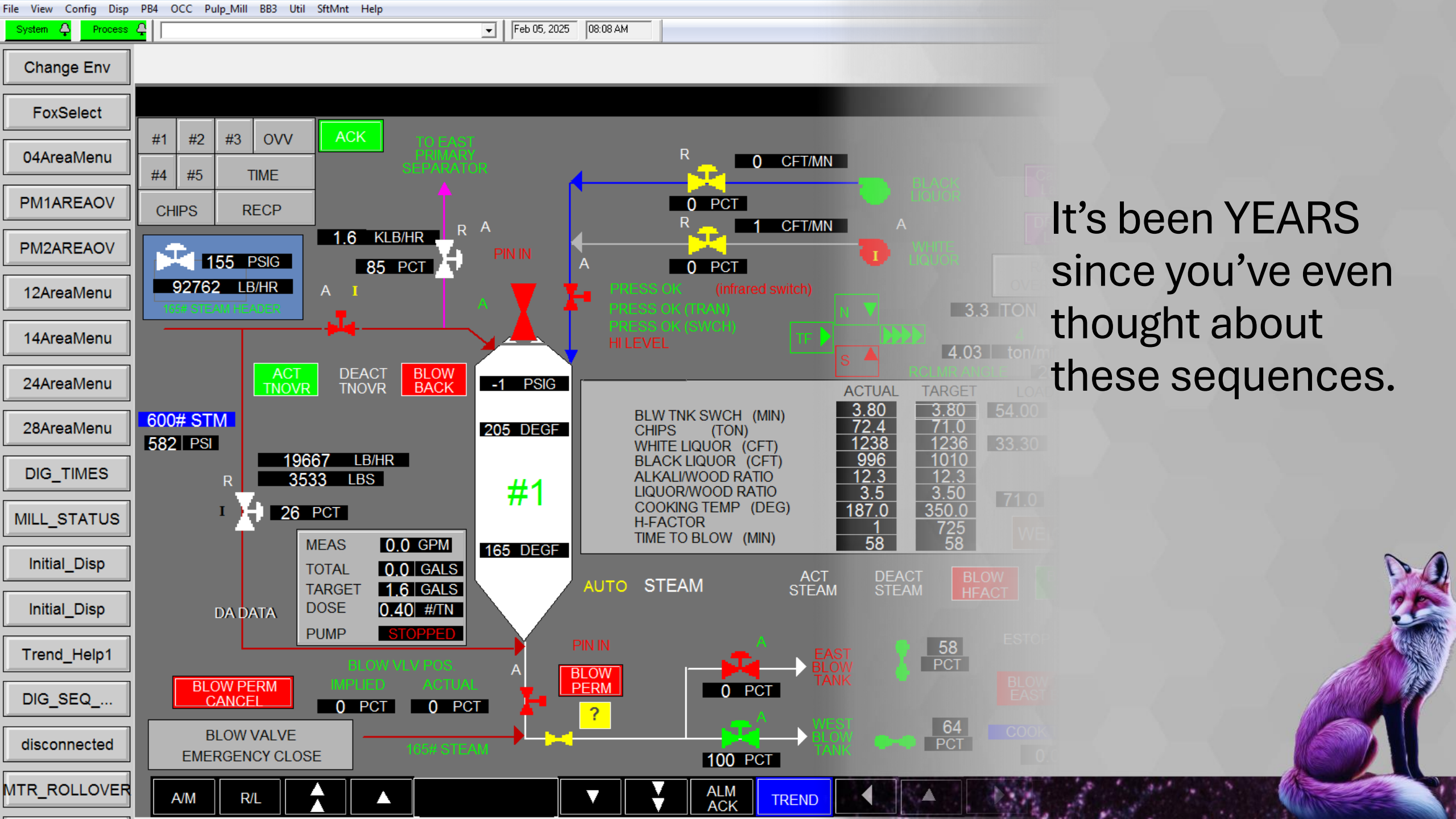
And it's all written in HLBL.



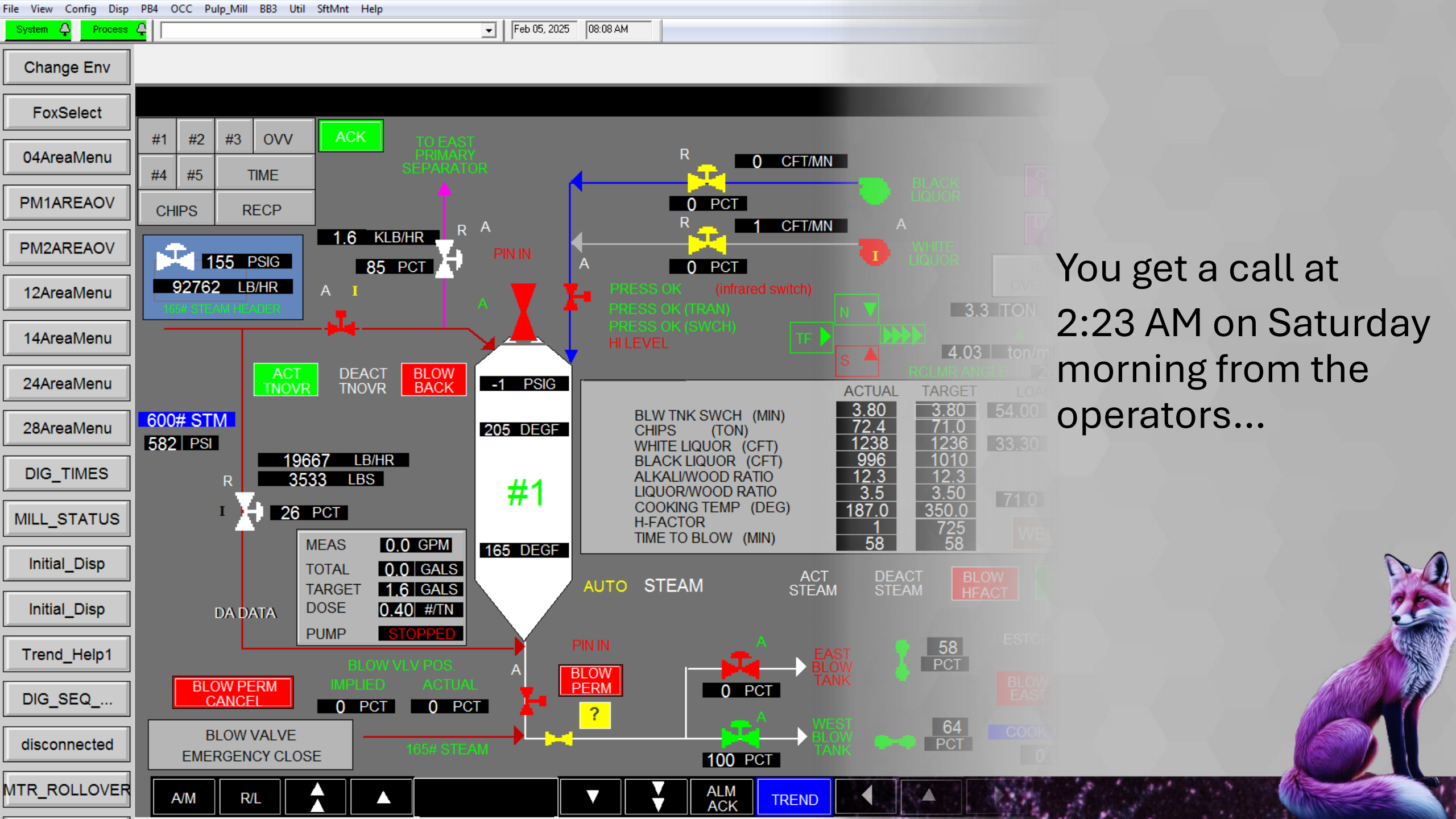
Not so easy anymore, is it???



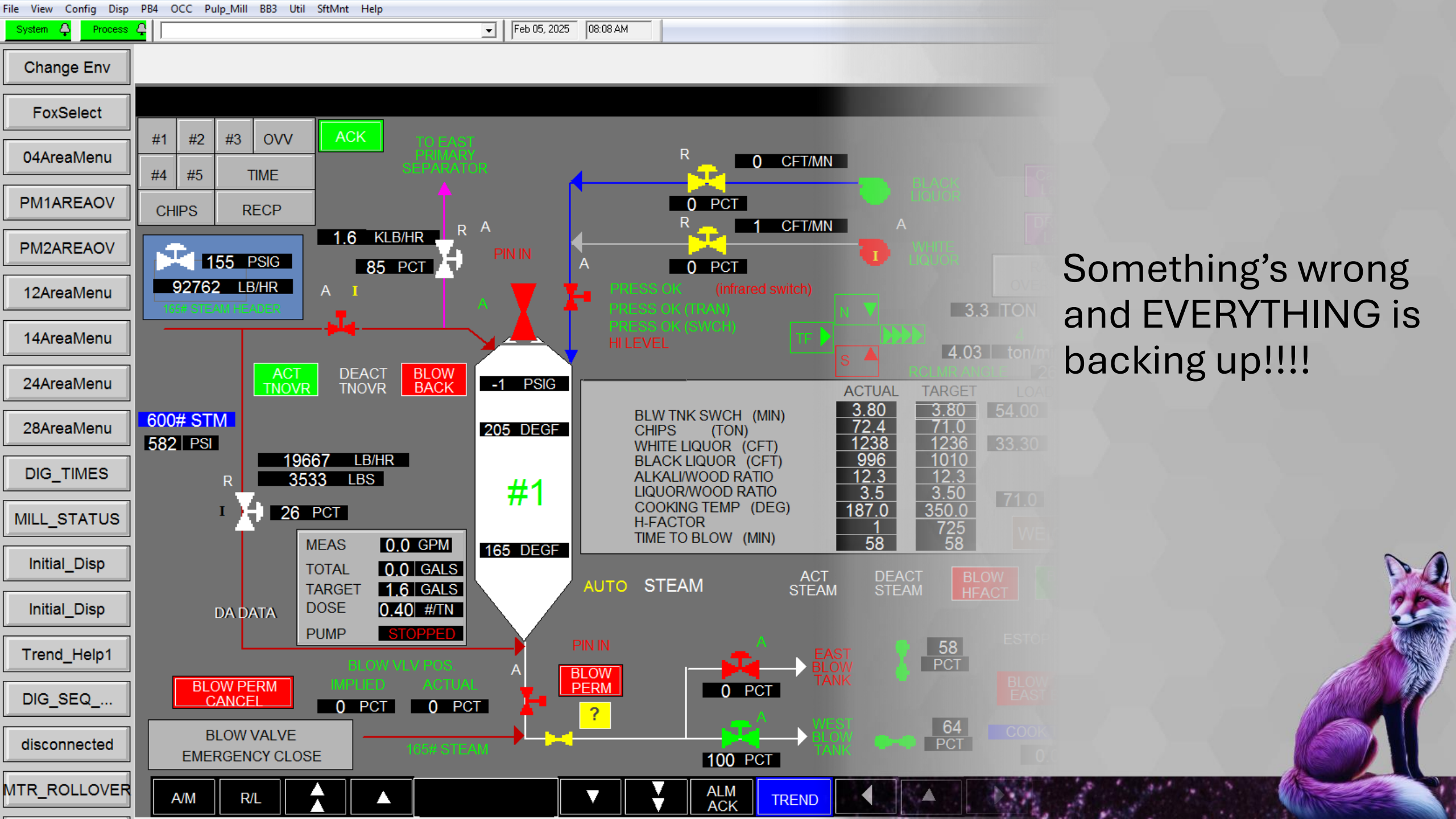
Let’s make it REAL!



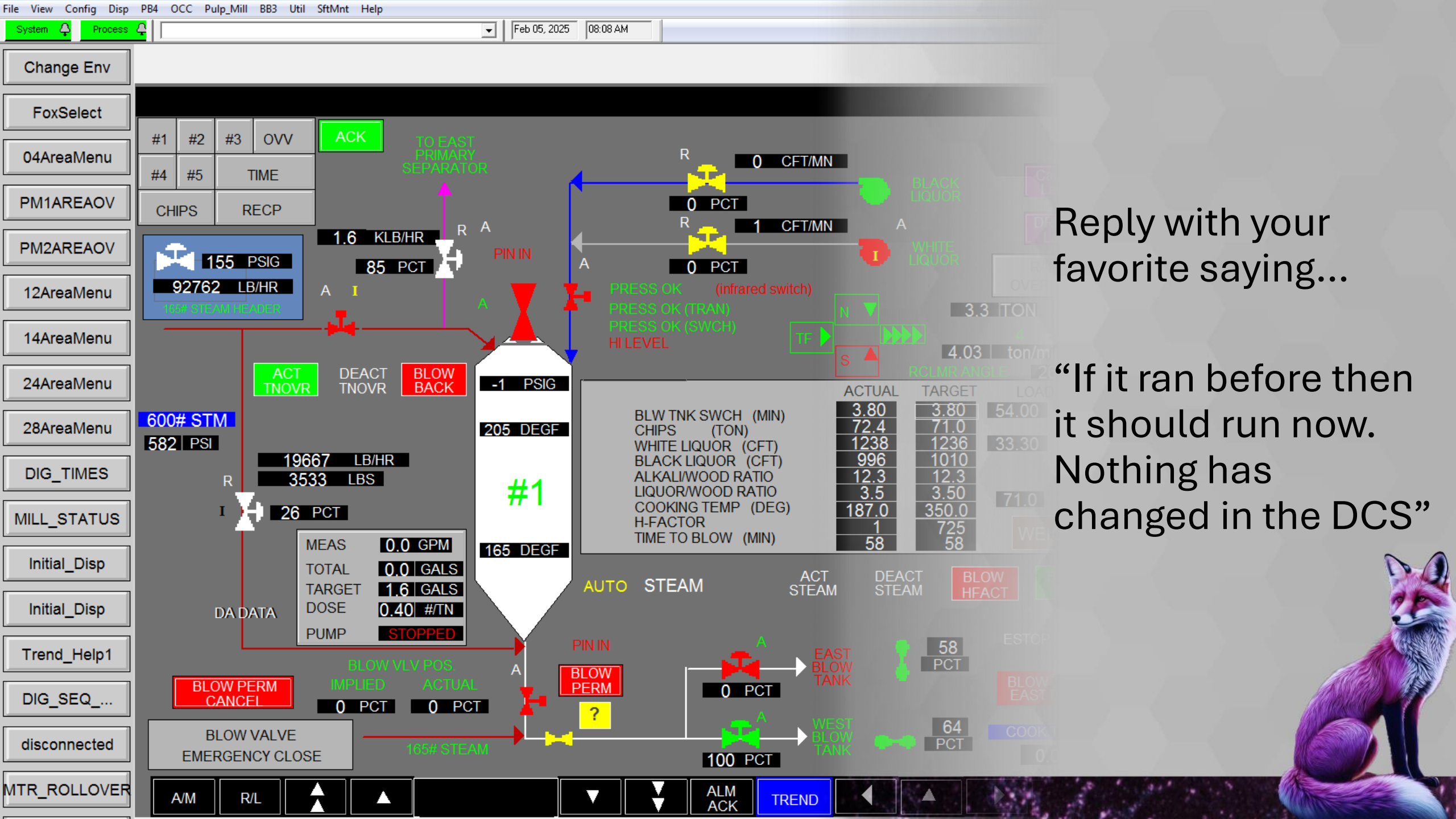
It's been YEARS since you've even thought about these sequences.



You get a call at 2:23 AM on Saturday morning from the operators...

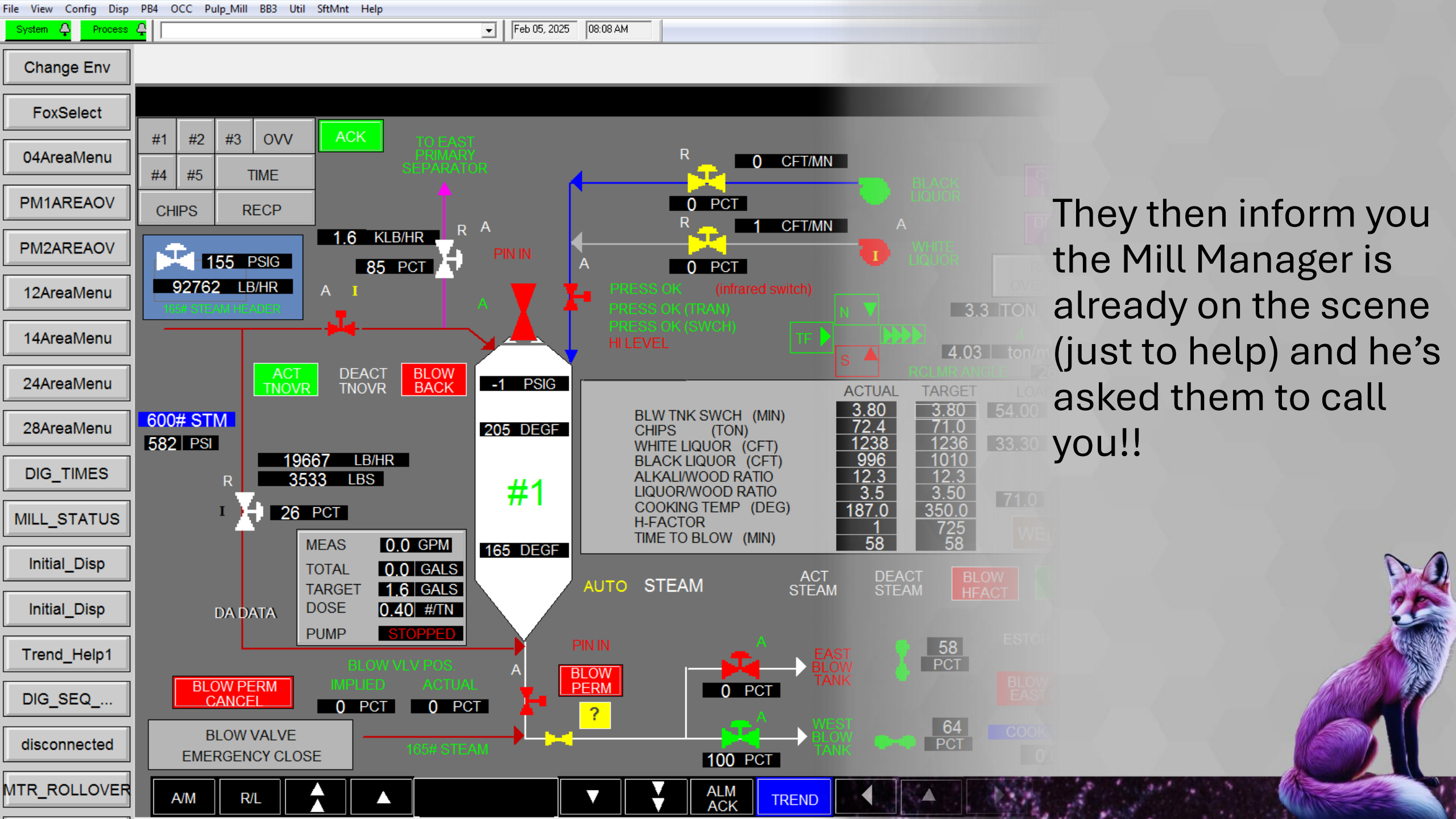


Something's wrong and EVERYTHING is backing up!!!!

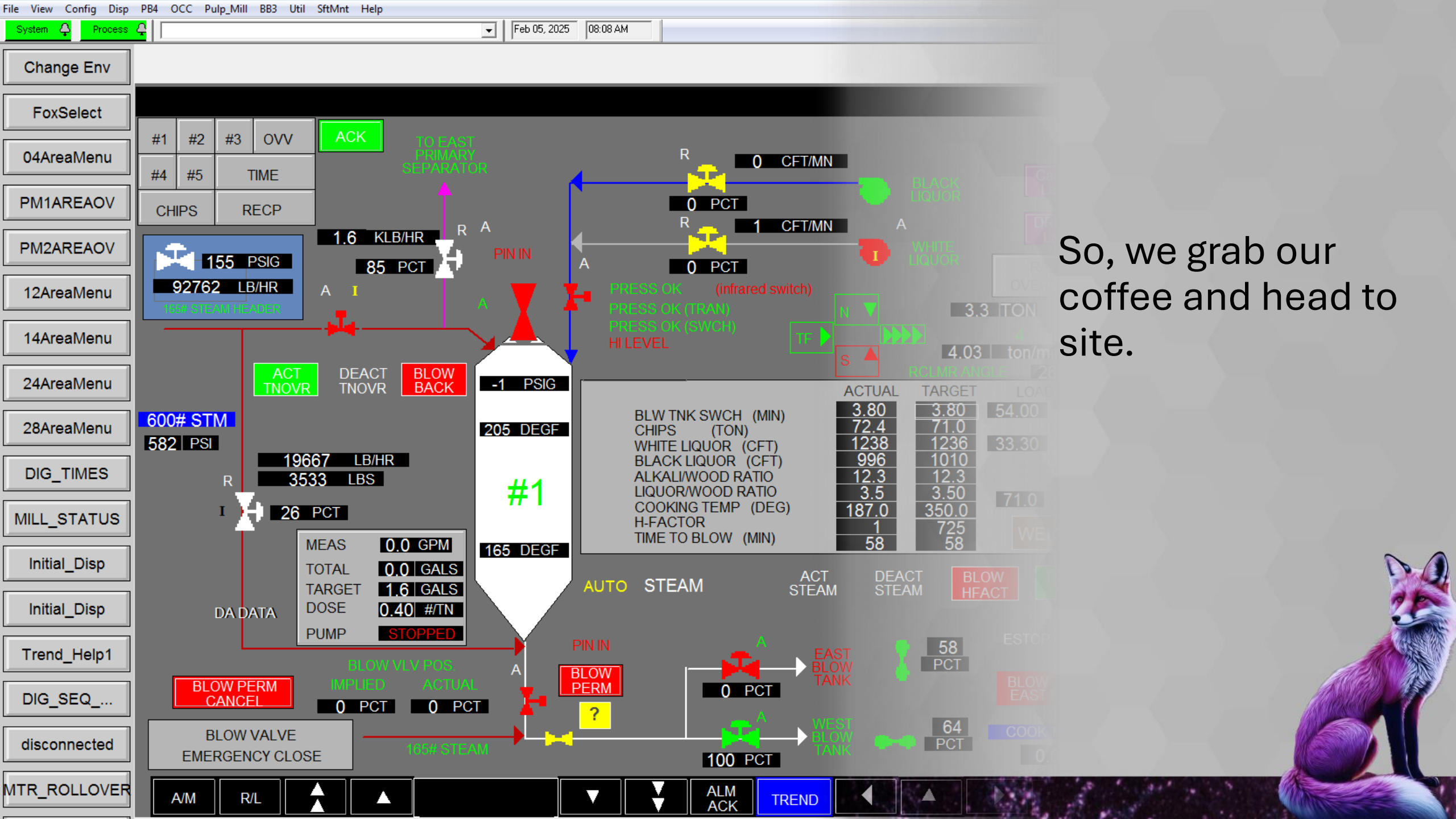


Reply with your favorite saying...

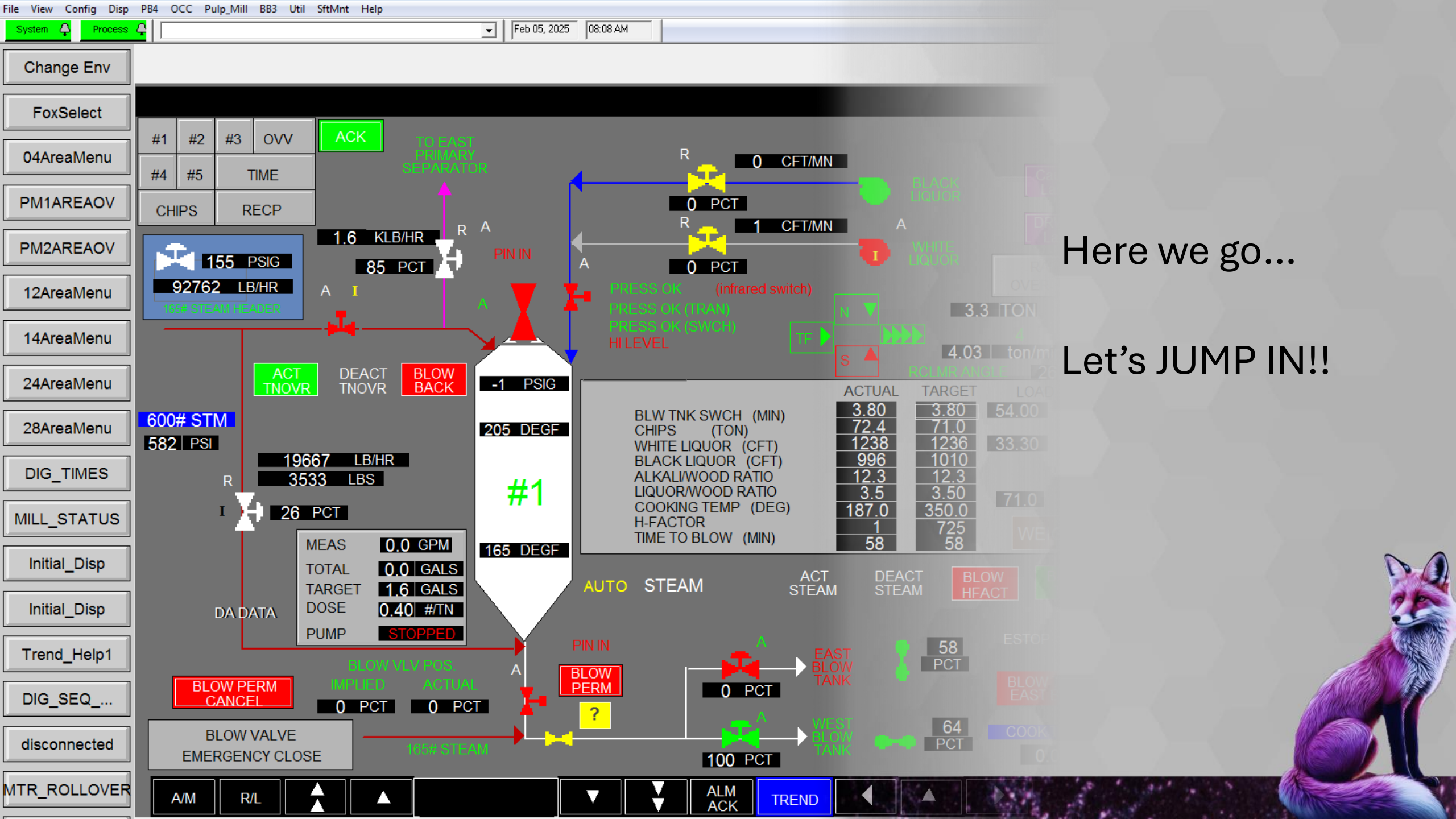
"If it ran before then it should run now. Nothing has changed in the DCS"



They then inform you the Mill Manager is already on the scene (just to help) and he's asked them to call you!!

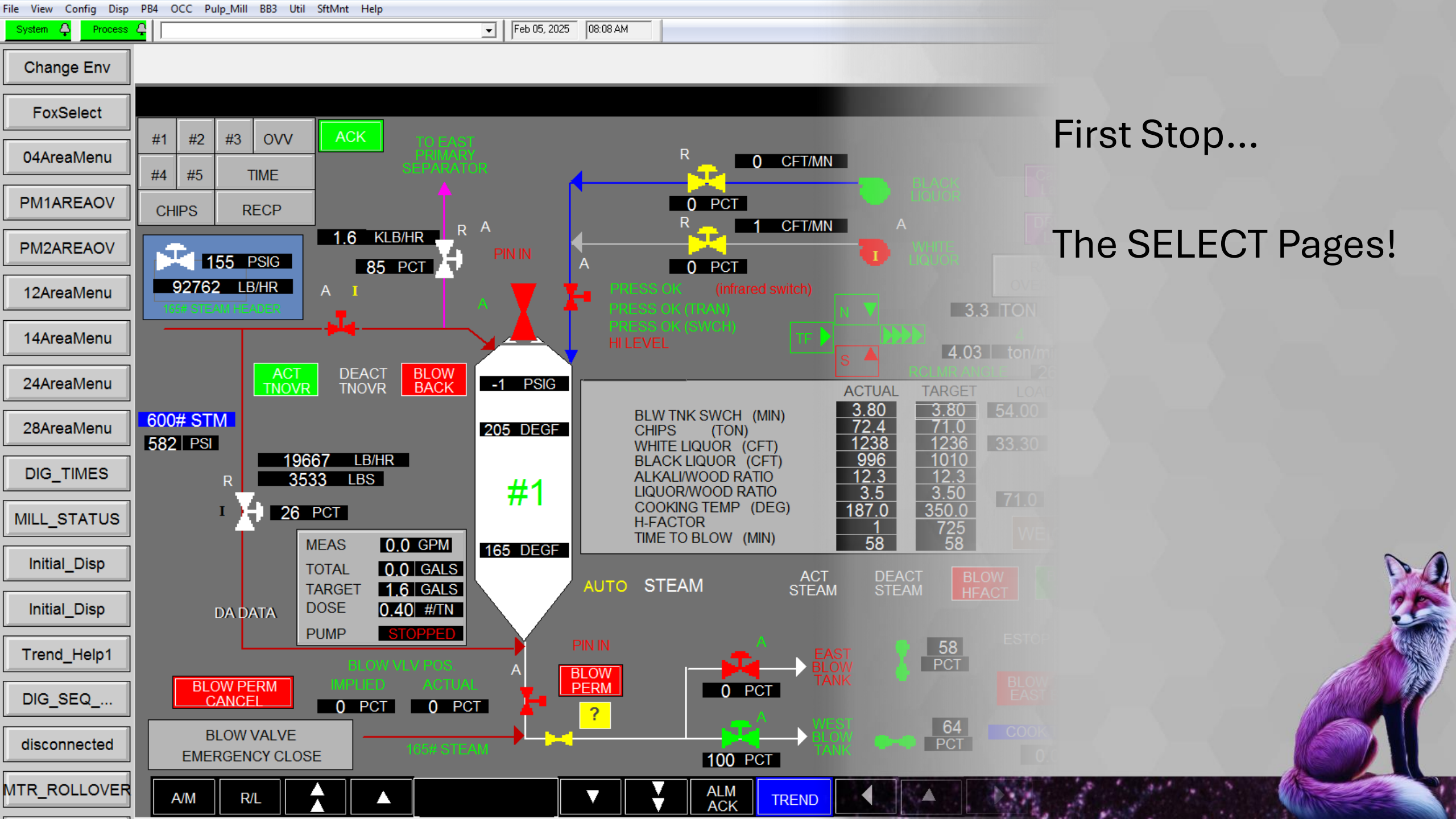


So, we grab our coffee and head to site.



Here we go...

Let's JUMP IN!!



First Stop...

The SELECT Pages!

System | Process | Feb 05, 2025 | 07:37 AM

Change Env
FoxSelect
04AreaMenu
PM1AREAOV
PM2AREAOV
12AreaMenu
14AreaMenu
24AreaMenu
28AreaMenu
DIG_TIMES
MILL_STATUS
Initial_Disp
Initial_Disp
Trend_Help1
DIG_SEQ_...
disconnected
MTR_ROLLOVER

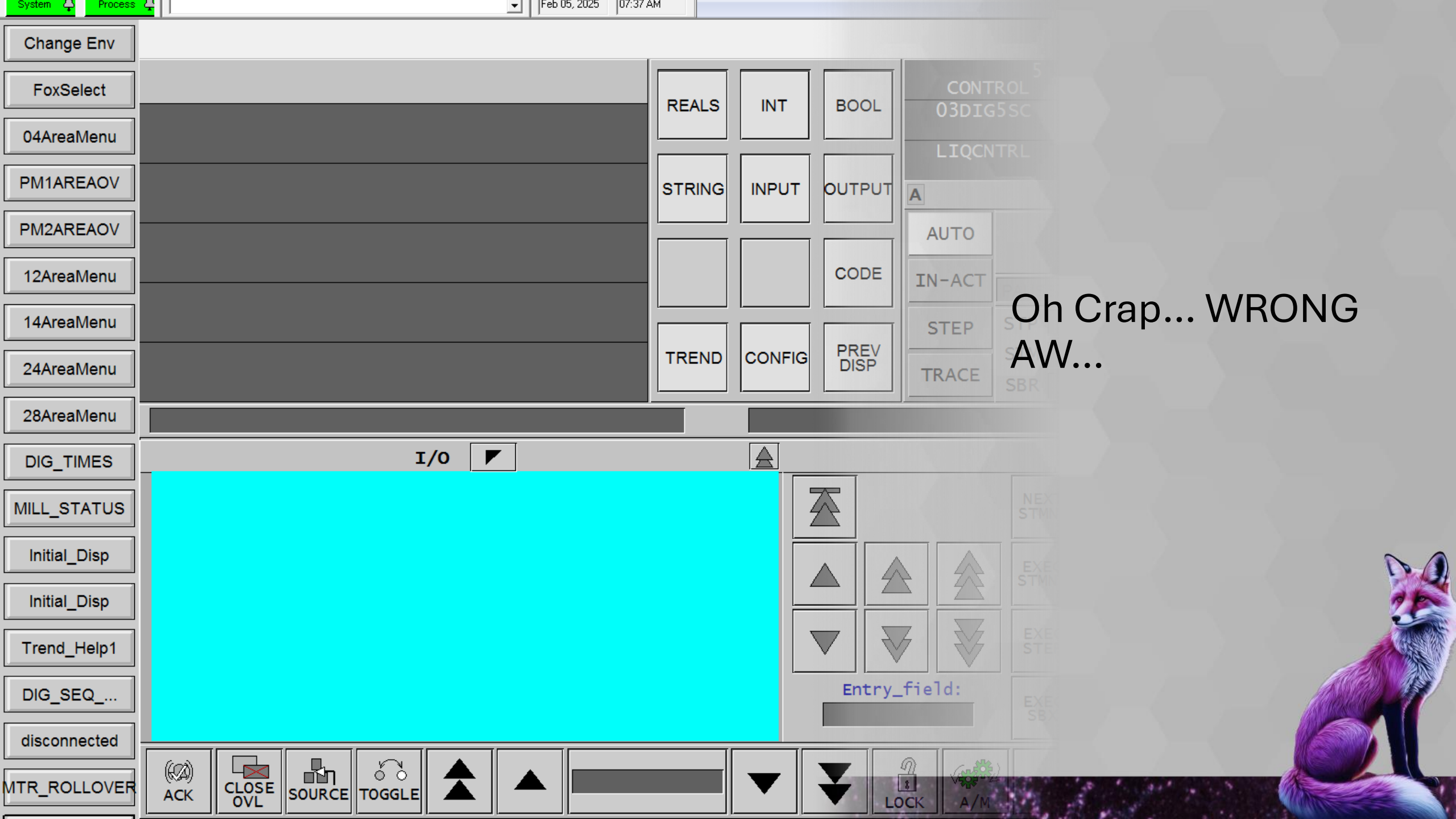
REALS | INT | BOOL
STRING | INPUT | OUTPUT
CODE
TREND | CONFIG | PREV DISP

CONTROL
03DIG5SC
LIQCNTRL
A
AUTO
IN-ACT
STEP
TRACE
STP
STM
SBR

I/O

Entry_field:

ACK | CLOSE OVL | SOURCE | TOGGLE | LOCK | A/M


Change Env
FoxSelect
04AreaMenu
PM1AREAOV
PM2AREAOV
12AreaMenu
14AreaMenu
24AreaMenu
28AreaMenu
DIG_TIMES
MILL_STATUS
Initial_Disp
Initial_Disp
Trend_Help1
DIG_SEQ_...
disconnected
MTR_ROLLOVER
REALS
INT
BOOL
STRING
INPUT
OUTPUT
CODE
TREND
CONFIG
PREV DISP
AUTO
IN-ACT
STEP
TRACE
I/O
Entry_field:
ACK
CLOSE OVL
SOURCE
TOGGLE
LOCK
A/M
Oh Crap... WRONG AW...

System Process Feb 05, 2025 07:37 AM

Change Env
FoxSelect
04AreaMenu
PM1AREAOV
PM2AREAOV
12AreaMenu
14AreaMenu
24AreaMenu
28AreaMenu
DIG_TIMES
MILL_STATUS
Initial_Disp
Initial_Disp
Trend_Help1
DIG_SEQ_...
disconnected
MTR_ROLLOVER

REALS INT BOOL
STRING INPUT OUTPUT
CODE
TREND CONFIG PREV DISP

CONTROL
03DIG5SC
LIQCNTRL
A
AUTO
IN-ACT
STEP
TRACE
STP
STM
SBR

I/O

Entry_field:

ACK CLOSE OVL SOURCE TOGGLE LOCK A/M

Heigh-Ho Heigh-Ho
To the RIGHT
station we go.

REALS | INT | BOOL
STRING | INPUT | OUTPUT
CODE
TREND | CONFIG | PREV DISP

UNIT 5
CONTROL
03DIG5SC
LIQCNTRL
A
AUTO
IN-ACT
STEP
TRACE
STP
SBR

I/O

```
     <<BEGIN>>

0029 retrycnt := 0;
0030 chpflwflg := FALSE;
0031 wlpmpflg := FALSE;
0032 blvlvflg := FALSE;
0033 :03DIGMISC:FX0203.INP2 := 0.0;
0034 :03DIGMISC:FX0204.INP2 := 0.0;

0035 oldtime := ::TIMER.TIMR1V;

0036 WHILE ( chiptotal < minwlchips ) OR
           (( chipflow < minchipflw ) AND ( ::TIMER.TIMR1V
```

NEXT STMNT
EXEC STMNT
EXEC STEP
EXEC SBR

Entry_field:

Now we're cooking...

FoxView 04AW04:04DM03 - IND

File View Config Disp PB4 Pulp_Mill BB3 Util SftMnt Help

System Process Feb 05, 2025 07:45 AM

Change Env
FoxSelect
04AreaMenu
Accum
Dig1
Sched
ALine
BLine
CLine
PurgeTrip
GLClar
FoxFind
14AreaMenu
RunTimes
Kiln
12AreaMenu
24AreaMenu
Initial_Disp

```
            ENDIF;

0041        CALL liqcalc();
0042        ::TARGETS.RI0015 := ::BLOWTIME.RO0001;
0043        WAIT 10;

    ENDWHILE;

0044 CALL liqcalc();

    <<OLIQAM_MSG>>

0045 oldtime := ::TIMER.TIMR1V;

0046 WHILE ( NOT :0301LL:L030117.CIN_7 ) DO

0047        WHILE ( NOT :0301LL:L030117.IFL_17 ) AND ( NOT

0048                SN0001 := "Liquor Valve NOT in TRUE";
0049                CALL message(SN0001);
0050                WAIT UNTIL ( :0301LL:L030117.IFL_17 OR
                            AFTER 120 GOTO OLIQAM_MSG;
0051                oldtime := ::TIMER.TIMR1V + 120.0;

            ENDWHILE;

0052        IF (::TIMER.TIMR1V - oldtime > 45.0) THEN

0053                SN0001 := "Unable to TRUE Liquor Valve"
```

ACK CLOSE OVL SOURCE TOGGLE

BOOL OUTPUT CODE PREV DISP

CONTROL 03DIG5SC LIQCNTRL

A AUTO IN-ACT STEP TRACE

STP STM SBR

Entry_field:

LOCK A/M

Looking BETTER...

FoxView 04AW04:04DM03 - IND

File View Config Disp PB4 Pulp_Mill BB3 Util SftMnt Help

System Process Feb 05, 2025 07:45 AM

Change Env
FoxSelect
04AreaMenu
Accum
Dig1
Sched
ALine
BLine
CLine
PurgeTrip
GLClar
FoxFind
14AreaMenu
RunTimes
Kiln
12AreaMenu
24AreaMenu
Initial Disp

```
            ENDIF;

0041        CALL liqcalc();
0042        ::TARGETS.RI0015 := ::BLOWTIME.RO0001;
0043        WAIT 10;

    ENDWHILE;

0044 CALL liqcalc();

    <<OLIQAM_MSG>>

0045 oldtime := ::TIMER.TIMR1V;

0046 WHILE ( NOT :0301LL:L030117.CIN_7 ) DO

0047        WHILE ( NOT :0301LL:L030117.IFL_17 ) AND ( NOT

0048                SN0001 := "Liquor Valve NOT in TRUE";
0049                CALL message(SN0001);
0050                WAIT UNTIL ( :0301LL:L030117.IFL_17 OR
                            AFTER 120 GOTO OLIQAM_MSG;
0051                oldtime := ::TIMER.TIMR1V + 120.0;

            ENDWHILE;

0052        IF (::TIMER.TIMR1V - oldtime > 45.0) THEN

0053                SN0001 := "Unable to TRUE Liquor Valve"
```

ACK CLOSE OVL SOURCE TOGGLE

BOOL OUTPUT CODE PREV DISP

CONTROL 03DIG5SC LIQCNTRL

A AUTO IN-ACT STEP TRACE

STP STM SBR

Entry_field:

LOCK A/M

WAIT, What the...?

I can't SEE everything...

FoxView 04AW04:04DM03 - IND

File View Config Disp PB4 Pulp_Mill BB3 Util SftMnt Help

System Process Feb 05, 2025 07:48 AM

Change Env
FoxSelect
04AreaMenu
Accum
Dig1
Sched
ALine
BLine
CLine
PurgeTrip
GLClar
FoxFind
14AreaMenu
RunTimes
Kiln
12AreaMenu
24AreaMenu
Initial Disp

```
0051                    oldtime := ::TIMER.TIMR1V + 120.0;

                ENDWHILE;

0052            IF (::TIMER.TIMR1V - oldtime > 45.0) THEN

0053                    SN0001 := "Unable to TRUE Liquor Valve"
0054                    CALL message (SN0001);
0055                    oldtime := ::TIMER.TIMR1V + 120.0;

                ENDIF;

0056            :0301LL:L030117.IFL_20 := FALSE;
0057            :0301LL:L030117.IFL_18 := TRUE;
0058            ::TARGETS.RI0015 := ::BLOWTIME.RO0001;
0059            WAIT 1;

        ENDWHILE;

0060 :03DIGMISC:WHTLIQPMPTMR.HOLD := FALSE;
0061 :03DIGMISC:FQWL05.HOLD := FALSE;
0062 :03DIGMISC:FQBL05.HOLD := FALSE;
0063 :0301LL:L030117.IFL_18 := FALSE;
0064 :0301LL:L030117.IFL_20 := FALSE;
0065 :03DIGMISC:FX0204.INP2 := 100.0;

0066 IF ( wlvoltgt / whtliqtime > :03DIGMISC:FT0204.HSC01 )

0067            :03DIGMISC:FIC0204.RSP := :03DIGMISC:FT0204.HSC
```

ACK CLOSE OVL SOURCE TOGGLE

BOOL OUTPUT CODE PREV DISP

CONTROL 03DIG5SC LIQCNTRL

A AUTO IN-ACT STEP TRACE

Entry_field:

LOCK

Huh? And this doesn't make sense...

FoxView 04AW04:04DM03 - IND

File View Config Disp PB4 Pulp_Mill BB3 Util SftMnt Help

System Process Feb 05, 2025 07:48 AM

Change Env
FoxSelect
04AreaMenu
Accum
Dig1
Sched
ALine
BLine
CLine
PurgeTrip
GLClar
FoxFind
14AreaMenu
RunTimes
Kiln
12AreaMenu
24AreaMenu
Initial_Disp

```
0051                    oldtime := ::TIMER.TIMR1V + 120.0;

                ENDWHILE;

0052            IF (::TIMER.TIMR1V - oldtime > 45.0) THEN

0053                    SN0001 := "Unable to TRUE Liquor Valve"
0054                    CALL message (SN0001);
0055                    oldtime := ::TIMER.TIMR1V + 120.0;

                ENDIF;

0056            :0301LL:L030117
0057            :0301LL:L030117
0058            ::TARGETS.RI001
0059            WAIT 1;

        ENDWHILE;

0060 :03DIGMISC:WHTLIQPMPTMR
0061 :03DIGMISC:FQWL05.HOLD
0062 :03DIGMISC:FQBL05.HOLD
0063 :0301LL:L030117.IFL_18
0064 :0301LL:L030117.IFL_20
0065 :03DIGMISC:FX0204.INP2

0066 IF ( wlvoltgt / whtliqtime > :03DIGMISC:FT0204.HSC01 )

0067            :03DIGMISC:FIC0204.RSP := :03DIGMISC:FT0204.HSC
```

```
   ClsLiquorVlv(FALSE);
   OpnLiquorVlv(TRUE);
   RemainCookTime := TimeToBlow;
   WAIT 1;

ENDWHILE;

:03DIGMISC:WHTLIQPMPTMR.HOLD    := FALSE;
WLiqAccum.HOLD   := FALSE;
BLiqAccum.HOLD   := FALSE;
OpnLiquorVlv(FALSE);
ClsLiquorVlv(FALSE);
WhtLiqCHOLIM := 100.0;
```

BOOL OUTPUT CODE PREV

CONTROL 03DIG5SC LIQCNTRL

A AUTO IN-ACT STEP TRACE

STP STM SBR

Entry_field:

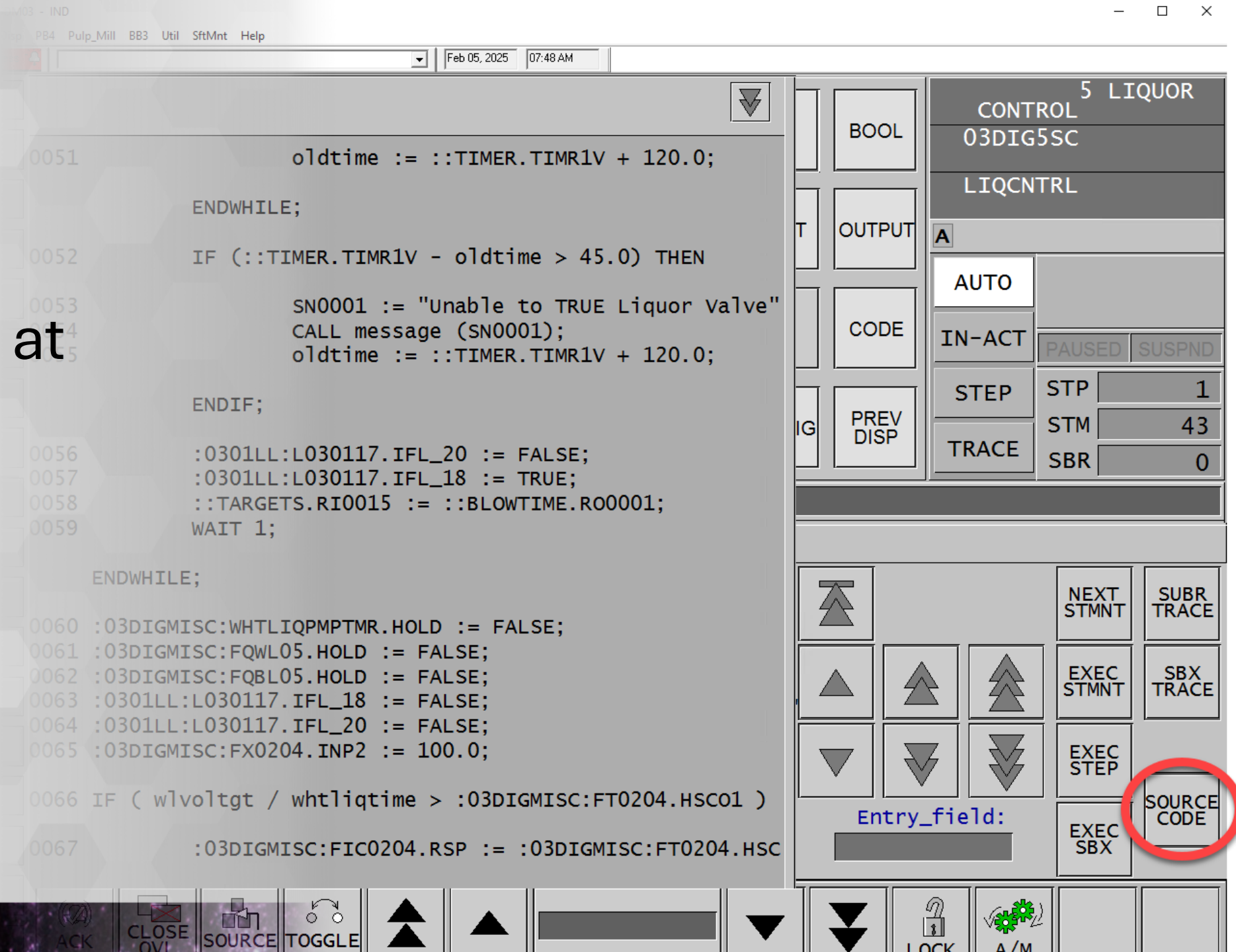
ACK CLOSE SOURCE TOGGLE LOCK

It's supposed to look more like this...

TECH TIP

So, let's look at the actual CODE...

GENIUS!



REALS | INT | BOOL

STRING | INPUT | OUTPUT

CODE

TREND | CONFIG | PREV DISP

03DIG5SC

COOK

A

AUTO

IN-ACT

STEP

TRACE

STP

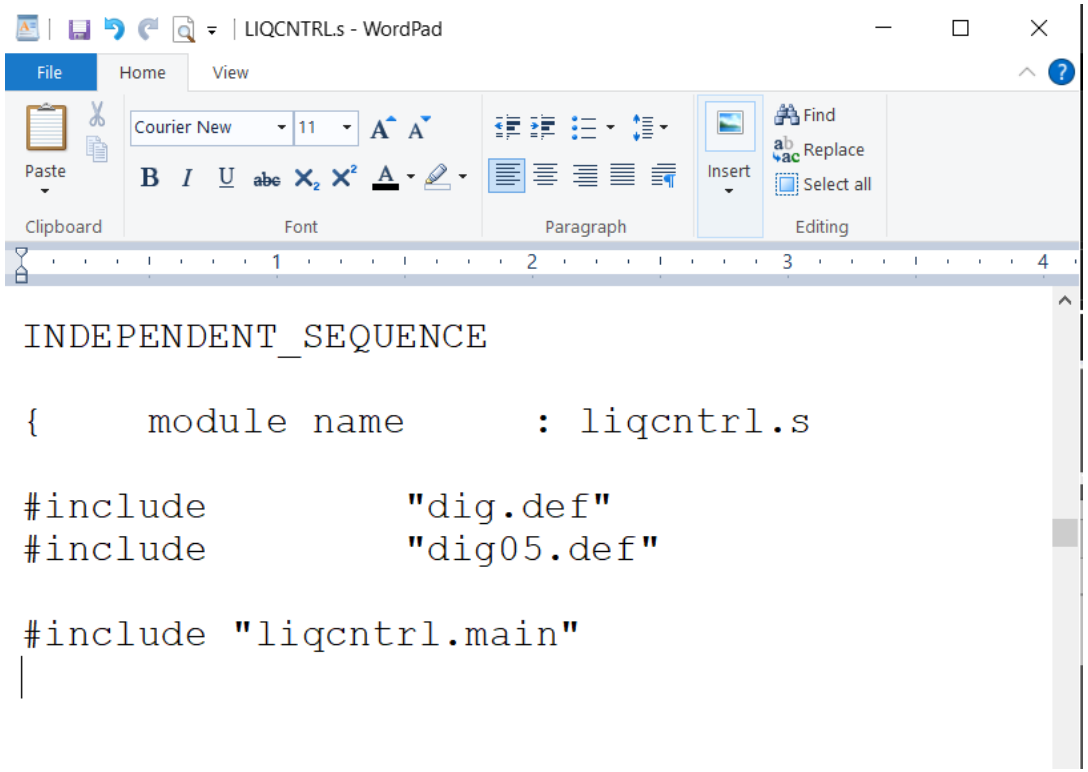
STM

SBR

I/O

```
DEPENDENT_SEQUENCE

{       module name     : cook.s                        }
{       block name      : 03DIG1SC:COOK                 }
{       block type      : DEP                           }
{       block period    : 2 (1 sec)                     }
{       block phase     : 1                             }
{       description     this module cooks the digester  }


{       revisions                                       }

{       7/01/91         Initial design                  }
{       12/07/91  Design changes required for site acceptance   }
{                       test in Dec. }
{       03/24/92  Modified for GB-AK }
{       03/26/92  modified report values }
{       08/23/92  modified steam shutoff on high pressure }
{       09/18/93  Upgraded digester package             }

#include        "dig.def"
#include        "dig01.def"

#include "cook.main"
```

What???
Something's
obviously
wrong



Open the S file.

Oh yeah, there's ONLY #includes in here.

UGH!

```
STATEMENTS

IF testphase THEN

     SENDMSG ("LIQCNTRL block begin") TO MSGGR2;

ENDIF;

DigChipAccum.CLEAR  := TRUE;
wlflwflag       := TRUE;
blflwflag       := TRUE;

{ 1/16/06 }
{  based on operators pick the chpchgtgt is calcuated  }
{ load by level or fixed weight }
{ NOTE: chip_bias is passed as an integer number 100 * valve }

IF (chip_calc_sw) THEN
    chpchgtgt           := tonsofchip + chip_bias / 100.0;
ELSE
    chpchgtgt           := actchptot * 1.03;
ENDIF;

:03DIGMISC:BLKLIQVLVTMR.CLEAR  := TRUE;
:03DIGMISC:BLKLIQVLVTMR.HABLIM := :03DIGMISC:BLKLIQVLVTMR.OUT * 1.2;
:03DIGMISC:BLKLIQVLVTMR.HHALIM := :03DIGMISC:BLKLIQVLVTMR.OUT * 1.3;
:03DIGMISC:WHTLIQPMPTMR.CLEAR  := TRUE;
:03DIGMISC:WHTLIQPMPTMR.HABLIM := :03DIGMISC:WHTLIQPMPTMR.OUT * 1.2;
:03DIGMISC:WHTLIQPMPTMR.HHALIM := :03DIGMISC:WHTLIQPMPTMR.OUT * 1.3;
HseChipAccum.HABLIM := chpchgtgt;

{ 1/16/06 based on operators pick }

IF (chip_calc_sw) THEN
    DigChipAccum.HABLIM := chpchgtgt;
ELSE
    DigChipAccum.HABLIM := actchptot;
ENDIF;

DigChipAccum.HOLD   := FALSE;
LiqQueLoadPerm := TRUE;
fillstart := CookTimer.TIMR1V;
RequestLiq(START);
WAIT 10;
{ set minimum ship flow = actual * 1.5 }
{ the chip belt isn't running yet }
{ modified 08/19/98 }
```

We **Finally** find the include files and now we can get started troubleshooting...

```
STATEMENTS

IF testphase THEN

     SENDMSG ("LIQCNTRL block begin") TO MSGGR2;

ENDIF;

DigChipAccum.CLEAR  := TRUE;
wlflwflag       := TRUE;
blflwflag       := TRUE;

{ 1/16/06 }
{  based on operators pick the chpchgtgt is calcuated  }
{ load by level or fixed weight }
{ NOTE: chip_bias is passed as an integer number 100 * valve }

IF (chip_calc_sw) THEN
    chpchgtgt           := tonsofchip + chip_bias / 100.0;
ELSE
    chpchgtgt           := actchptot * 1.03;
ENDIF;

:03DIGMISC:BLKLIQVLVTMR.CLEAR  := TRUE;
:03DIGMISC:BLKLIQVLVTMR.HABLIM := :03DIGMISC:BLKLIQVLVTMR.OUT * 1.2;
:03DIGMISC:BLKLIQVLVTMR.HHALIM := :03DIGMISC:BLKLIQVLVTMR.OUT * 1.3;
:03DIGMISC:WHTLIQPMPTMR.CLEAR  := TRUE;
:03DIGMISC:WHTLIQPMPTMR.HABLIM := :03DIGMISC:WHTLIQPMPTMR.OUT * 1.2;
:03DIGMISC:WHTLIQPMPTMR.HHALIM := :03DIGMISC:WHTLIQPMPTMR.OUT * 1.3;
HseChipAccum.HABLIM := chpchgtgt;

{ 1/16/06 based on operators pick }

IF (chip_calc_sw) THEN
    DigChipAccum.HABLIM := chpchgtgt;
ELSE
    DigChipAccum.HABLIM := actchptot;
ENDIF;

DigChipAccum.HOLD   := FALSE;
LiqQueLoadPerm := TRUE;
fillstart := CookTimer.TIMR1V;
RequestLiq(START);
WAIT 10;
{ set minimum ship flow = actual * 1.5 }
{ the chip belt isn't running yet }
{ modified 08/19/98 }
```

Yeah, there's no statement numbers but we're used to that...

TECH TIP

We’ve all been there…

So how can we improve?

TECH TIP

If you’re like most of us…

TECH TIP

You build troubleshooting screens.

FoxView 19AW03:19DM01 - DIG_SEQ_TROUBLE

File View Config Disp PB4 OCC Pulp_Mill BB3 Util SftMnt Help

System Process Feb 05, 2025 08:06 AM

Change Env
FoxSelect
04AreaMenu
PM1AREAOV
PM2AREAOV
12AreaMenu
14AreaMenu
24AreaMenu
28AreaMenu
DIG_TIMES
MILL_STATUS
Initial_Disp
Initial_Disp
Trend_Help1
DIG_SEQ_...
disconnected
MTR_ROLLOVER

#1 #2 #3 OVV
#4 #5 TIME
CHIPS RECP
SCHED

SEQUENCE TROUBLESHOOTING

DIG #5	DIG #1	DIG #4	DIG #2	DIG #3
OOS	STEAM	LIQUOR	COOK	STEAM
CHARGE	CHARGE	CHARGE	CHARGE	CHARGE
LIQCNTRL	LIQCNTRL	LIQCNTRL	LIQCNTRL	LIQCNTRL
COOK	COOK	COOK	COOK	COOK
RELIEF	RELIEF	RELIEF	RELIEF	RELIEF
BLOW	BLOW	BLOW	BLOW	BLOW
BLOWTIME	BLOWTIME	BLOWTIME	BLOWTIME	BLOWTIME
DATA	DATA	DATA	DATA	DATA
ESTOP	ESTOP	ESTOP	ESTOP	ESTOP
MESSAGE	MESSAGE	MESSAGE	MESSAGE	MESSAGE
TARGETS	TARGETS	TARGETS	TARGETS	TARGETS

03DIGSC

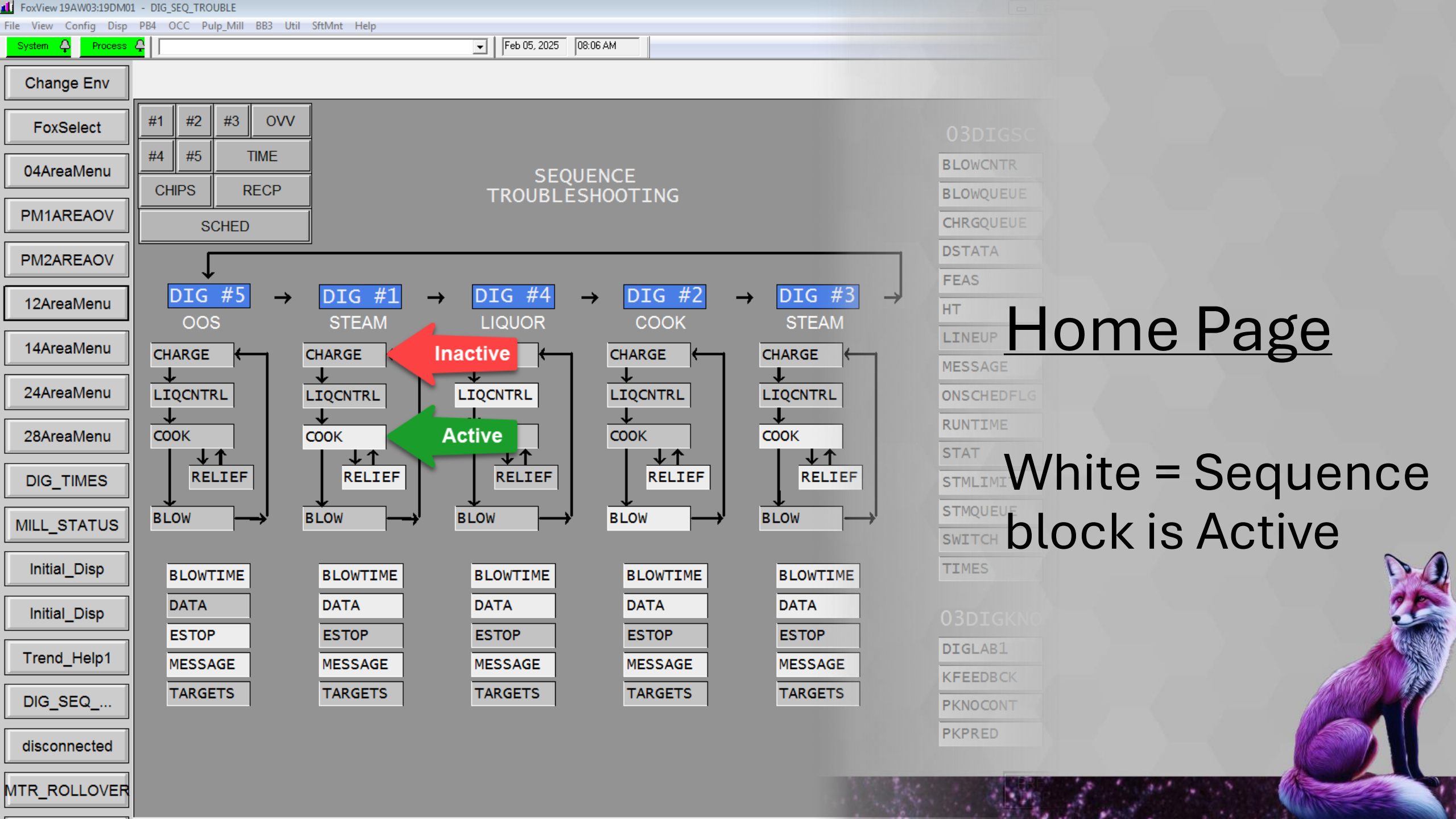
BLOWCNTR
BLOWQUEUE
CHRGQUEUE
DSTATA
FEAS
HT
LINEUP
MESSAGE
ONSCHEDFLG
RUNTIME
STAT
STMLIMIT
STMQUEUE
SWITCH
TIMES

03DIGKNO

DIGLAB1
KFEEDBCK
PKNOCONT
PKPRED

PREV DISP

Home Page


FoxView 19AW03:19DM01 - DIG_SEQ_TROUBLE
File View Config Disp PB4 OCC Pulp_Mill BB3 Util SftMnt Help
System
Process
Feb 05, 2025
08:06 AM
Change Env
FoxSelect
04AreaMenu
PM1AREAOV
PM2AREAOV
12AreaMenu
14AreaMenu
24AreaMenu
28AreaMenu
DIG_TIMES
MILL_STATUS
Initial_Disp
Initial_Disp
Trend_Help1
DIG_SEQ_...
disconnected
MTR_ROLLOVER
#1
#2
#3
OVV
#4
#5
TIME
CHIPS
RECP
SCHED
SEQUENCE
TROUBLESHOOTING
DIG #5
OOS
DIG #1
STEAM
DIG #4
LIQUOR
DIG #2
COOK
DIG #3
STEAM
CHARGE
LIQCNTRL
COOK
RELIEF
BLOW
Inactive
Active
BLOWTIME
DATA
ESTOP
MESSAGE
TARGETS
03DIGSC
BLOWCNTR
BLOWQUEUE
CHRGQUEUE
DSTATA
FEAS
HT
LINEUP
MESSAGE
ONSCHEDFLG
RUNTIME
STAT
STMLIMI
STMQUEUE
SWITCH
TIMES
03DIGKNO
DIGLAB1
KFEEDBCK
PKNOCONT
PKPRED
Home Page
White = Sequence block is Active

FoxView 19AW03:19DM01 - DIG_SEQ_TROUBLE

File View Config Disp PB4 OCC Pulp_Mill BB3 Util SftMnt Help

System Process Feb 05, 2025 08:06 AM

Change Env
FoxSelect
04AreaMenu
PM1AREAOV
PM2AREAOV
12AreaMenu
14AreaMenu
24AreaMenu
28AreaMenu
DIG_TIMES
MILL_STATUS
Initial_Disp
Initial_Disp
Trend_Help1
DIG_SEQ_...
disconnected
MTR_ROLLOVER

#1 #2 #3 OVV
#4 #5 TIME
CHIPS RECP
SCHED

SEQUENCE TROUBLESHOOTING

DIG #5	DIG #1	DIG #4	DIG #2	DIG #3
OOS	STEAM	LIQUOR	COOK	STEAM
CHARGE	CHARGE	CHARGE	CHARGE	CHARGE
LIQCNTRL	LIQCNTRL	LIQCNTRL	LIQCNTRL	LIQCNTRL
COOK	COOK	COOK	COOK	COOK
RELIEF	RELIEF	RELIEF	RELIEF	RELIEF
BLOW	BLOW	BLOW	BLOW	BLOW
BLOWTIME	BLOWTIME	BLOWTIME	BLOWTIME	BLOWTIME
DATA	DATA	DATA	DATA	DATA
ESTOP	ESTOP	ESTOP	ESTOP	ESTOP
MESSAGE	MESSAGE	MESSAGE	MESSAGE	MESSAGE
TARGETS	TARGETS	TARGETS	TARGETS	TARGETS

03DIGSC
BLOWCNTR
BLOWQUEUE
CHRGQUEUE
DSTATA
FEAS
HT
LINEUP
MESSAGE
ONSCHEDFLG
RUNTIME
STAT
STMLIMI
STMQUEUE
SWITCH
TIMES

03DIGKNO
DIGLAB1
KFEEDBCK
PKNOCONT
PKPRED

Home Page

Let's Dig Deeper...

File View Config Disp PB4 OCC Pulp_Mill BB3 Util SftMnt Help

System Process Feb 05, 2025 08:09 AM

Change Env
FoxSelect
04AreaMenu
PM1AREAOV
PM2AREAOV
12AreaMenu
14AreaMenu
24AreaMenu
28AreaMenu
DIG_TIMES
MILL_STATUS
Initial_Disp
Initial_Disp
Trend_Help1
DIG_SEQ_...
disconnected

03DIG1SC : COOK

AUTO
ACTIVE

SBX NORMAL
OP_ERR 0

SBR: 1 / STM: 1 - 4
SBR: 2 / STM: 1 - 7
SBR: 2 / STM: 8 - 22
TO_SYS_ERROR / STM: 1 - 11
TO_SYS_ERROR / STM: 13 - 13
TO_USR_ERROR / STM: 1 - 10
TO_USR_ERROR / STM: 12 - 12
TO_INACTIVE / STM: 1 - 6
TO_PAUSED / STM: 1 - 2
SBR: 0 / STM: 1 - 15
SBR: 0 / STM: 16 - 32
SBR: 0 / STM: 33 - 35
SBR: 0 / STM: 36 - 51
SBR: 0 / STM: 52 - 69
SBR: 0 / STM: 70 - 76
SBR: 0 / STM: 77 - 93
SBR: 0 / STM: 94 - 112
SBR: 0 / STM: 113 - 126
SBR: 0 / STM: 127 - 143
SBR: 0 / STM: 144 - 160

Level 2

File View Config Disp PB4 OCC Pulp_Mill BB3 Util SftMnt Help

System Process Feb 05, 2025 08:09 AM

Change Env
FoxSelect
04AreaMenu
PM1AREAOV
PM2AREAOV
12AreaMenu
14AreaMenu
24AreaMenu
28AreaMenu
DIG_TIMES
MILL_STATUS
Initial_Disp
Initial_Disp
Trend_Help1
DIG_SEQ_...
disconnected

03DIG1SC : COOK

AUTO ACTIVE | SBX NORMAL | OP_ERR 0 | SBR 0 | STM 138

SBR: 1 / STM: 1 - 4
SBR: 2 / STM: 1 - 7
SBR: 2 / STM: 8 - 22
TO_SYS_ERROR / STM: 1 - 11
TO_SYS_ERROR / STM: 13 - 13
TO_USR_ERROR / STM: 1 - 10
TO_USR_ERROR / STM: 12 - 12
TO_INACTIVE / STM: 1 - 6
TO_PAUSED / STM: 1 - 2
SBR: 0 / STM: 1 - 15
SBR: 0 / STM: 16 - 32
SBR: 0 / STM: 33 - 35
SBR: 0 / STM: 36 - 51
SBR: 0 / STM: 52 - 69
SBR: 0 / STM: 70 - 76
SBR: 0 / STM: 77 - 93
SBR: 0 / STM: 94 - 112
SBR: 0 / STM: 113 - 126
SBR: 0 / STM: 127 - 143
SBR: 0 / STM: 144 - 160

Level 2

Code divided into groups

Labels correspond to statement and routine numbers.

File View Config Disp PB4 OCC Pulp_Mill BB3 Util SftMnt Help

System Process Feb 05, 2025 08:09 AM

Change Env
FoxSelect
04AreaMenu
PM1AREAOV
PM2AREAOV
12AreaMenu
14AreaMenu
24AreaMenu
28AreaMenu
DIG_TIMES
MILL_STATUS
Initial_Disp
Initial_Disp
Trend_Help1
DIG_SEQ_...
disconnected

03DIG1SC : COOK

AUTO	SBX	NORMAL	SBR 0
ACTIVE	OP_ERR	0	STM 138

SBR: 1 / STM: 1 - 4
SBR: 2 / STM: 1 - 7
SBR: 2 / STM: 8 - 22
TO_SYS_ERROR / STM: 1 - 11
TO_SYS_ERROR / STM: 13 - 13
TO_USR_ERROR / STM: 1 - 10
TO_USR_ERROR / STM: 12 - 12
TO_INACTIVE / STM: 1 - 6
TO_PAUSED / STM: 1 - 2
SBR: 0 / STM: 1 - 15
SBR: 0 / STM: 16 - 32
SBR: 0 / STM: 33 - 35
SBR: 0 / STM: 36 - 51
SBR: 0 / STM: 52 - 69
SBR: 0 / STM: 70 - 76
SBR: 0 / STM: 77 - 93
SBR: 0 / STM: 94 - 112
SBR: 0 / STM: 113 - 126
SBR: 0 / STM: 127 - 143
SBR: 0 / STM: 144 - 160

Level 2

White = Contains current statement number

File View Config Disp PB4 OCC Pulp_Mill BB3 Util SftMnt Help

System Process Feb 05, 2025 08:09 AM

Change Env
FoxSelect
04AreaMenu
PM1AREAOV
PM2AREAOV
12AreaMenu
14AreaMenu
24AreaMenu
28AreaMenu
DIG_TIMES
MILL_STATUS
Initial_Disp
Initial_Disp
Trend_Help1
DIG_SEQ_...
disconnected

03DIG1SC : COOK

AUTO		SBX	NORMAL	SBR	0
ACTIVE		OP_ERR	0	STM	138

SBR: 1 / STM: 1 - 4
SBR: 2 / STM: 1 - 7
SBR: 2 / STM: 8 - 22
TO_SYS_ERROR / STM: 1 - 11
TO_SYS_ERROR / STM: 13 - 13
TO_USR_ERROR / STM: 1 - 10
TO_USR_ERROR / STM: 12 - 12
TO_INACTIVE / STM: 1 - 6
TO_PAUSED / STM: 1 - 2
SBR: 0 / STM: 1 - 15
SBR: 0 / STM: 16 - 32
SBR: 0 / STM: 33 - 35
SBR: 0 / STM: 36 - 51
SBR: 0 / STM: 52 - 69
SBR: 0 / STM: 70 - 76
SBR: 0 / STM: 77 - 93
SBR: 0 / STM: 94 - 112
SBR: 0 / STM: 113 - 126
SBR: 0 / STM: 127 - 143
SBR: 0 / STM: 144 - 160

Level 2

Let’s Dig Deeper...

FoxView 19AW03:19AW03 - COOK_13

File View Config Disp PB4 OCC Pulp_Mill BB3 Util SftMnt Help

System Process Feb 05, 2025 04:08 PM

Change Env
FoxSelect
04AreaMenu
PM1AREAOV
PM2AREAOV
12AreaMenu
14AreaMenu
24AreaMenu
28AreaMenu
DIG_TIMES
MILL_STATUS
Initial_Disp
Initial_Disp
Trend_Help1
DIG_SEQ_...
disconnected

03DIG1SC : COOK

< PREV

SBR: 0 / STM: 36 - 51

NEXT >

VALUES

AUTO | IN-ACT

SBX NORMAL | OP_ERR 0

SBR 0 | STM 170

```
      <<IDLECALC>>
0036  idletme := timetoblow - MaxHeatTime - MaxCookTime;
0037  IF (  idletme > 0.0 ) THEN
0038    DigStat := IDLEMODE ;
        [ IDLEMODE = 3 ]
0039    RemainCookTime := timetoblow;
0040    IF (  idletme > maxidle AND NOT  maxidleflg ) THEN
0041      SN0001 := "WARNING, Idle time is greater than ",TRUNC(      maxidle);
0042      CALL message (SN0001);
0043       maxidleflg := TRUE;
        ENDIF;
0044    WAIT 30;
0045     GOTO IDLECALC ;
      ENDIF;
0046  DigStat := STEAMMODE ;
       [ STEAMMODE = 4 ]
0047  CookTimer.TIMR2V := 0.0;
0048  SSStmTimer (START);
Function : SSStmTimer -->    ::TIMER.TIMR2R := START ;
       [ START = TRUE ]
0049  steamstart := CookTimer.TIMR1V;
0050  tmestmstrt := ( TimeOfDay/3600.0);
```

Level 3

FoxView 19AW03:19AW03 - COOK_13

File View Config Disp PB4 OCC Pulp_Mill BB3 Util SftMnt Help

System Process Feb 05, 2025 04:08 PM

Change Env
FoxSelect
04AreaMenu
PM1AREAOV
PM2AREAOV
12AreaMenu
14AreaMenu
24AreaMenu
28AreaMenu
DIG_TIMES
MILL_STATUS
Initial_Disp
Initial_Disp
Trend_Help1
DIG_SEQ_...
disconnected

03DIG1SC : COOK

< PREV

SBR: 0 / STM: 36 - 51

VALUES

NEXT >

AUTO
IN-ACT

SBX NORMAL SBR
OP_ERR 0 STM

```
      <<IDLECALC>>
0036  idletme := timetoblow - MaxHeatTime - MaxCookTime;
0037  IF (  idletme > 0.0 ) THEN
0038    DigStat := IDLEMODE ;
        [ IDLEMODE = 3 ]
0039    RemainCookTime := timetoblow;
0040    IF (  idletme > maxidle AND NOT  maxidleflg ) THEN
0041      SN0001 := "WARNING, Idle time is greater than ",TRUNC(      maxidle);
0042      CALL message (SN0001);
0043       maxidleflg := TRUE;
        ENDIF;
0044    WAIT 30;
0045     GOTO IDLECALC ;
      ENDIF;
0046  DigStat := STEAMMODE ;
       [ STEAMMODE = 4 ]
0047  CookTimer.TIMR2V := 0.0;
0048  SSStmTimer (START);
Function : SSStmTimer -->    ::TIMER.TIMR2R := START ;
       [ START = TRUE ]
0049  steamstart := CookTimer.TIMR1V;
0050  tmestmstrt := ( TimeOfDay/3600.0);
```

Level 3

Actual Code

FoxView 19AW03:19AW03 - COOK_13

File View Config Disp PB4 OCC Pulp_Mill BB3 Util SftMnt Help

System Process Feb 05, 2025 04:08 PM

Change Env
FoxSelect
04AreaMenu
PM1AREAOV
PM2AREAOV
12AreaMenu
14AreaMenu
24AreaMenu
28AreaMenu
DIG_TIMES
MILL_STATUS
Initial_Disp
Initial_Disp
Trend_Help1
DIG_SEQ_...
disconnected

03DIG1SC : COOK

< PREV

SBR: 0 / STM: 36 - 51

VALUES NEXT >

AUTO IN-ACT

SBX NORMAL SBR
OP_ERR 0 STM

```
      <<IDLECALC>>
0036  idletme := timetoblow - MaxHeatTime - MaxCookTime;
0037  IF (  idletme > 0.0 ) THEN
0038    DigStat := IDLEMODE ;
        [ IDLEMODE = 3 ]
0039    RemainCookTime := timetoblow;
0040    IF (  idletme > maxidle AND NOT  maxidleflg ) THEN
0041      SN0001 := "WARNING, Idle time is greater than ",TRUNC(      maxidle);
0042      CALL message (SN0001);
0043       maxidleflg := TRUE;
        ENDIF;
0044    WAIT 30;
0045     GOTO IDLECALC ;
      ENDIF;
0046  DigStat := STEAMMODE ;
       [ STEAMMODE = 4 ]
0047  CookTimer.TIMR2V := 0.0;
0048  SSStmTimer (START);
Function : SSStmTimer -->    ::TIMER.TIMR2R := START ;
       [ START = TRUE ]
0049  steamstart := CookTimer.TIMR1V;
0050  tmestmstrt := ( TimeOfDay/3600.0);
```

Level 3

Actual Code

with Statement Numbers!!!!

.s file

```
DigChipAccum.CLEAR  := TRUE;
wlflwflag       := TRUE;
blflwflag       := TRUE;

{ 1/16/06 }
{  based on operators pick the chpchgtgt is calcuated  }
{ load by level or fixed weight }
{ NOTE: chip_bias is passed as an integer number 100 * valv

IF (chip_calc_sw) THEN
    chpchgtgt           := tonsofchip + chip_bias / 100.0;
ELSE
    chpchgtgt           := actchptot * 1.03;
ENDIF;

:03DIGMISC:BLKLIQVLVTMR.CLEAR  := TRUE;
:03DIGMISC:BLKLIQVLVTMR.HABLIM := :03DIGMISC:BLKLIQVLVTMR.C
:03DIGMISC:BLKLIQVLVTMR.HHALIM := :03DIGMISC:BLKLIQVLVTMR.C
:03DIGMISC:WHTLIQPMPTMR.CLEAR  := TRUE;
:03DIGMISC:WHTLIQPMPTMR.HABLIM := :03DIGMISC:WHTLIQPMPTMR.C
:03DIGMISC:WHTLIQPMPTMR.HHALIM := :03DIGMISC:WHTLIQPMPTMR.C
HseChipAccum.HABLIM := chpchgtgt;

{ 1/16/06 based on operators pick }

IF (chip_calc_sw) THEN
    DigChipAccum.HABLIM := chpchgtgt;
ELSE
    DigChipAccum.HABLIM := actchptot;
ENDIF;

DigChipAccum.HOLD   := FALSE;
LiqQueLoadPerm := TRUE;
fillstart := CookTimer.TIMR1V;
RequestLiq(START);
WAIT 10;
{ set minimum ship flow = actual * 1.5 }
{ the chip belt isn't running yet }
{ modified 08/19/98 }
minchipflw := ABS(chipflow * 1.5);
minwlchips      := (whtliqchip/100.0)*tonsofchip;
minblchips      := (blkliqchip/100.0)*tonsofchip;
WLiqAccum.CLEAR := TRUE;
BLiqAccum.CLEAR := TRUE;
```

.r file

```
0003 :02DIGMISC:FQ01.CLEAR := TRUE;
0004 wlflwflag := TRUE;
0005 blflwflag := TRUE;


0006 IF (chip_calc_sw) THEN
0007     chpchgtgt := tonsofchip + chip_bias / 100.0;
     ELSE
0008     chpchgtgt := actchptot * 1.03;
     ENDIF;

0009 :03DIGMISC:BLKLIQVLVTMR.CLEAR := TRUE;
0010 :03DIGMISC:BLKLIQVLVTMR.HABLIM := :03DIGMISC:BLKLIQVLVT0011 :03DI
012 :03DIGMISC:WHTLIQPMPTMR.CLEAR := TRUE;
0013 :03DIGMISC:WHTLIQPMPTMR.HABLIM := :03DIGMISC:WHTLIQPMPT0014 :03DI
015 :02DIGMISC:FQ0219.HABLIM := chpchgtgt;


0016 IF (chip_calc_sw) THEN
0017     :02DIGMISC:FQ01.HABLIM := chpchgtgt;
     ELSE
0018     :02DIGMISC:FQ01.HABLIM := actchptot;
     ENDIF;

0019 :02DIGMISC:FQ01.HOLD := FALSE;
0020 :03DIGSC:CHRGQUEUE.BI0020 := TRUE;
0021 fillstart := ::TIMER.TIMR1V;
0022 ::WATCHDOG.BI0009 :=TRUE;
0023 WAIT 10;


0024 minchipflw      := ABS(chipflow * 1.5);
0025 minwlchips := (whtliqchip/100.0)*tonsofchip;
0026 minblchips := (blkliqchip/100.0)*tonsofchip;
0027 :03DIGMISC:FQWL01.CLEAR := TRUE;
0028 :03DIGMISC:FQBL01.CLEAR := TRUE;
```

.s file

```
DigChipAccum.CLEAR  := TRUE;
wlflwflag       := TRUE;
blflwflag       := TRUE;

{ 1/16/06 }
{  based on operators pick the chpchgtgt is calcuated  }
{ load by level or fixed weight }
{ NOTE: chip_bias is passed as an integer number 100 * valv

IF (chip_calc_sw) THEN
    chpchgtgt           := tonsofchip + chip_bias / 100.0;
ELSE
    chpchgtgt           := actchptot * 1.03;
ENDIF;

:03DIGMISC:BLKLIQVLVTMR.CLEAR  := TRUE;
:03DIGMISC:BLKLIQVLVTMR.HABLIM := :03DIGMISC:BLKLIQVLVTMR.
:03DIGMISC:BLKLIQVLVTMR.HHALIM := :03DIGMISC:BLKLIQVLVTMR.C
:03DIGMISC:WHTLIQPMPTMR.CLEAR  := TRUE;
:03DIGMISC:WHTLIQPMPTMR.HABLIM := :03DIGMISC:WHTLIQPMPTMR.C
:03DIGMISC:WHTLIQPMPTMR.HHALIM := :03DIGMISC:WHTLIQPMPTMR.C
HseChipAccum.HABLIM := chpchgtgt;

{ 1/16/06 based on operators pick }

IF (chip_calc_sw) THEN
    DigChipAccum.HABLIM := chpchgtgt;
ELSE
    DigChipAccum.HABLIM := actchptot;
ENDIF;

DigChipAccum.HOLD   := FALSE;
LiqQueLoadPerm := TRUE;
fillstart := CookTimer.TIMR1V;
RequestLiq(START);
WAIT 10;
{ set minimum ship flow = actual * 1.5 }
{ the chip belt isn't running yet }
{ modified 08/19/98 }
minchipflw := ABS(chipflow * 1.5);
minwlchips      := (whtliqchip/100.0)*tonsofchip;
minblchips      := (blkliqchip/100.0)*tonsofchip;
WLiqAccum.CLEAR := TRUE;
BLiqAccum.CLEAR := TRUE;
```

.r file

```
0003 :02DIGMISC:FQ01.CLEAR := TRUE;
0004 wlflwflag := TRUE;
0005 blflwflag := TRUE;


0006 IF (chip_calc_sw) THEN
0007     chpchgtgt := tonsofchip + chip_bias / 100.0;
     ELSE
0008     chpchgtgt := actchptot * 1.03;
     ENDIF;

0009 :03DIGMISC:BLKLIQVLVTMR.CLEAR := TRUE;
0010 :03DIGMISC:BLKLIQVLVTMR.HABLIM := :03DIGMISC:BLKLIQVLV0011 :03DI
012 :03DIGMISC:WHTLIQPMPTMR.CLEAR := TRUE;
0013 :03DIGMISC:WHTLIQPMPTMR.HABLIM := :03DIGMISC:WHTLIQPMPT0014 :03DI
015 :02DIGMISC:FQ0219.HABLIM := chpchgtgt;


0016 IF (chip_calc_sw) THEN
0017     :02DIGMISC:FQ01.HABLIM := chpchgtgt;
     ELSE
0018     :02DIGMISC:FQ01.HABLIM := actchptot;
     ENDIF;

0019 :02DIGMISC:FQ01.HOLD := FALSE;
0020 :03DIGSC:CHRGQUEUE.BI0020 := TRUE;
0021 fillstart := ::TIMER.TIMR1V;
0022 ::WATCHDOG.BI0009 :=TRUE;
0023 WAIT 10;


0024 minchipflw      := ABS(chipflow * 1.5);
0025 minwlchips := (whtliqchip/100.0)*tonsofchip;
0026 minblchips := (blkliqchip/100.0)*tonsofchip;
0027 :03DIGMISC:FQWL01.CLEAR := TRUE;
0028 :03DIGMISC:FQBL01.CLEAR := TRUE;
```

FoxView 19AW03:19AW03 - COOK_13

File View Config Disp PB4 OCC Pulp_Mill BB3 Util SftMnt Help

System Process Feb 05, 2025 04:08 PM

Change Env
FoxSelect
04AreaMenu
PM1AREAOV
PM2AREAOV
12AreaMenu
14AreaMenu
24AreaMenu
28AreaMenu
DIG_TIMES
MILL_STATUS
Initial_Disp
Initial_Disp
Trend_Help1
DIG_SEQ_...
disconnected
MTR_ROLLOVER

03DIG1SC : COOK | VALUES | AUTO | SBX NORMAL | SBR

< PREV | SBR: 0 / STM: 36 - 51 | NEXT > | IN-ACT | OP_ERR 0 | STM

```
      <<IDLECALC>>
0036  idletme := timetoblow - Ma      e - MaxCookTime;
0037  IF (  idletme > 0.0 ) THEN
0038    DigStat := IDLEMODE ;
         [ IDLEMODE = 3 ]
0039    RemainCookTime := timetoblow;
0040    IF (  idletme > maxidle AND NOT  maxidleflg ) THEN
0041      SN0001 := "WARNING, Idle time is greater than ",TRUNC(      maxidle);
0042      CALL message (SN0001);
0043       maxidleflg := TRUE;
        ENDIF;
0044    WAIT 30;
0045     GOTO IDLECALC ;
      ENDIF;
0046  DigStat := STEAMMODE ;
       [ STEAMMODE = 4 ]
0047  CookTimer.TIMR2V := 0.0;
0048  SSStmTimer (START);
Function : SSStmTimer -->    ::TIMER.TIMR2R := START ;
       [ START = TRUE ]
0049  steamstart := CookTimer.TIMR1V;
0050  tmestmstrt := ( TimeOfDay/3600.0);
0051  heattme := timetoblow - MaxCookTime;
```

Contant

FALSE

Macro

TRUE

ANALOG

Level 3

Underline = Variables

RED = FALSE

GREEN = TRUE

BLUE = Analog Value

WHITE = Internal Variable, Constant or Macro

FoxView 19AW03:19AW03 - COOK_13

File View Config Disp PB4 OCC Pulp_Mill BB3 Util SftMnt Help

System Process Feb 05, 2025 04:08 PM

Change Env
FoxSelect
04AreaMenu
PM1AREAOV
PM2AREAOV
12AreaMenu
14AreaMenu
24AreaMenu
28AreaMenu
DIG_TIMES
MILL_STATUS
Initial_Disp
Initial_Disp
Trend_Help1
DIG_SEQ_...
disconnected
MTR_ROLLOVER

03DIG1SC : COOK | VALUES | AUTO | SBX NORMAL | SBR

< PREV | SBR: 0 / STM: 36 - 51 | NEXT > | IN-ACT | OP_ERR 0 | STM

```
      <<IDLECALC>>
0036  idletme := timetoblow - MaxHeatTime - MaxCookTime;
0037  IF ( idletme > 0.0 ) THEN
0038    DigStat := IDLEMODE ;
          [ IDLEMODE = 3 ]
0039    RemainCookTime := timetoblow;
0040    IF ( idletme > maxidle AND NOT maxidleflg ) THEN
0041      SN0001 := "WARNING, Idle time is greater than ",TRUNC(      maxidle);
0042      CALL message (SN0001);
0043       maxidleflg := TRUE;
        ENDIF;
0044    WAIT 30;
0045     GOTO IDLECALC ;
      ENDIF;
0046  DigStat := STEAMMODE ;
        [ STEAMMODE = 4 ]
0047  CookTimer.TIMR2V := 0.0;
0048  SSStmTimer (START);
Function : SSStmTimer -->    ::TIMER.TIMR2R := START ;
        [ START = TRUE ]
0049  steamstart := CookTimer.TIMR1V;
0050  tmestmstrt := ( TimeOfDay/3600.0);
0051  heattme := timetoblow - MaxCookTime;
```

Constant Displayed

Macro Defined

Level 3

Constants Displayed

Macros are Defined

FoxView 19AW03:19AW03 - COOK_13

File View Config Disp PB4 OCC Pulp_Mill BB3 Util SftMnt Help

System Process Feb 05, 2025 04:08 PM

Change Env
FoxSelect
04AreaMenu
PM1AREAOV
PM2AREAOV
12AreaMenu
14AreaMenu
24AreaMenu
28AreaMenu
DIG_TIMES
MILL_STATUS
Initial_Disp
Initial_Disp
Trend_Help1
DIG_SEQ_...
disconnected

03DIG1SC : COOK | VALUES | AUTO | SBX NORMAL

< PREV | SBR: 0 / STM: 36 - 51 | NEXT > | IN-ACT | OP_ERR 0

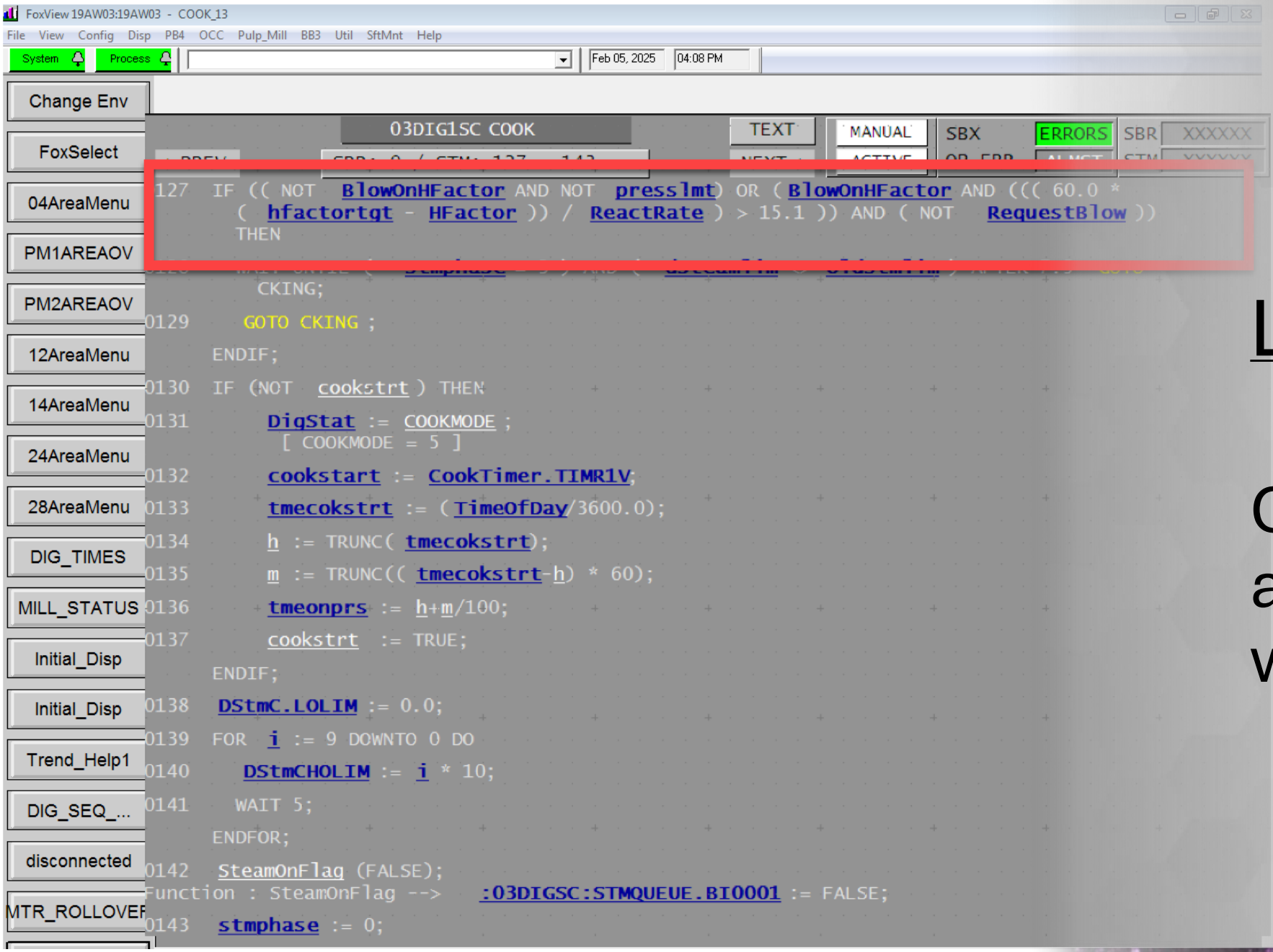
Labels

```
      <<IDLECALC>>
0036  idletme := timetoblow - MaxHeatTime - MaxCookTime;
0037  IF ( idletme > 0.0 ) THEN
0038    DigStat := IDLEMODE ;
        [ IDLEMODE = 3 ]
0039    RemainCookTime := timetoblow;
0040    IF ( idletme > maxidle AND NOT maxidleflg ) THEN
0041      SN0001 := "WARNING, Idle time is greater than ",TRUNC(      maxidl
0042      CALL message (SN0001);
0043      maxidleflg := TRUE;
        ENDIF;
0044    WAIT 30;
0045    GOTO IDLECALC ;
      ENDIF;
0046  DigStat := STEAMMODE ;
        [ STEAMMODE = 4 ]
0047  CookTimer.TIMR2V := 0.0;
0048  SSStmTimer (START);
Function : SSStmTimer -->    ::TIMER.TIMR2R := START ;
        [ START = TRUE ]
0049  steamstart := CookTimer.TIMR1V;
0050  tmestmstrt := ( TimeOfDay/3600.0);
```

GOTOs

Level 3

Yellow = Labels & ‘GOTO label’



Level 3

Oh, and you can actually SEE the whole line!!

FoxView 19AW03:19AW03 - COOK_13

File View Config Disp PB4 OCC Pulp_Mill BB3 Util SftMnt Help

System Process Feb 05, 2025 04:08 PM

Change Env
FoxSelect
04AreaMenu
PM1AREAOV
PM2AREAOV
12AreaMenu
14AreaMenu
24AreaMenu
28AreaMenu
DIG_TIMES
MILL_STATUS
Initial_Disp
Initial_Disp
Trend_Help1
DIG_SEQ_...
disconnected

03DIG1SC : COOK

VALUES | AUTO | SBX NORMAL

< PREV | SBR: 0 / STM: 36 - 51 | NEXT > | IN-ACT | OP_ERR 0

```
      <<IDLECALC>>
0036  idletme := timetoblow - MaxHeatTime - MaxCookTime;
0037  IF (  idletme > 0.0 ) THEN
0038    DigStat := IDLEMODE ;
        [ IDLEMODE = 3 ]
0039    RemainCookTime := timetoblow;
0040    IF (  idletme > maxidle AND NOT  maxidleflg ) THEN
0041      SN0001 := "WARNING, Idle time is greater than ",TRUNC(      maxidle);
0042      CALL message (SN0001);
0043       maxidleflg := TRUE;
        ENDIF;
0044    WAIT 30;
0045     GOTO IDLECALC ;
      ENDIF;
0046  DigStat := STEAMMODE ;
       [ STEAMMODE = 4 ]
0047  CookTimer.TIMR2V := 0.0;
0048  SSStmTimer (START);
Function : SSStmTimer -->    ::TIMER.TIMR2R := START ;
       [ START = TRUE ]
0049  steamstart := CookTimer.TIMR1V;
0050  tmestmstrt := ( TimeOfDay/3600.0);
```

Level 3

But here's the REAL Beauty...

FoxView 19AW03:19AW03 - COOK_13

File View Config Disp PB4 OCC Pulp_Mill BB3 Util SftMnt Help

System Process Feb 05, 2025 04:11 PM

Change Env
FoxSelect
04AreaMenu
PM1AREAOV
PM2AREAOV
12AreaMenu
14AreaMenu
24AreaMenu
28AreaMenu
DIG_TIMES
MILL_STATUS
Initial_Disp
Initial_Disp
Trend_Help1
DIG_SEQ_...
disconnected

03DIG1SC : COOK | TEXT | AUTO | SBX NORMAL

< PREV | SBR: 0 / STM: 36 - 51 | NEXT > | IN-ACT | OP_ERR 0

```
      <<IDLECALC>>
0036  -0.2000 :=      13.83 -       85.00 -       40.00;
0037  IF (  -0.2000 > 0.0 ) THEN
0038     9     := IDLEMODE ;
        [ IDLEMODE = 3 ]
0039           0.0000 :=      13.83;
0040    IF (  -0.2000 >   45.00 AND NOT  FALSE      ) THEN
0041      SN0001 := "WARNING, Idle time is greater than ",TRUNC(      45.00);
0042      CALL message (SN0001);
0043       FALSE      := TRUE;
        ENDIF;
0044    WAIT 30;
0045     GOTO IDLECALC ;
      ENDIF;
0046    9     := STEAMMODE ;
       [ STEAMMODE = 4 ]
0047          6664.00 := 0.0;
0048   SSStmTimer (START);
Function : SSStmTimer -->    TRUE          := START ;
       [ START = TRUE ]
0049    1326.00 :=          7990.00;
0050      14.35 := (     58310/3600.0);
```

Level 3

You can view the values of variables!

FoxView 19AW05:19AW05 - LIQCNTRL_18

File View Config Disp Disp_1 Disp_2 SftMnt ScratchPads Help

System Process Feb 05, 2025 08:02 AM

Change Env
FoxSelect
Print Screen
04AreaMenu
MILL_STATUS
PM1AREAOV
PM2AREAOV
12AreaMenu
14AreaMenu
24AreaMenu
28AreaMenu
Initial_Disp
Initial_Disp
Initial_Disp
Initial_Disp
Initial_Disp
Initial_Disp
Initial_Disp
Initial_Disp

TEXT

< PREV SBR: 0 / STM: 45 - 59 NEXT >

```
      <<OLIQAM_MSG>>
0045  oldtime  :=          1760.00;
0046  WHILE ( NOT  FALSE          ) DO
0047    WHILE ( NOT  TRUE          ) AND ( NOT  FALSE          ) DO
0048      SN0001 := "Liquor Valve NOT in AUTO";
0049      CALL message(SN0001);
0050      WAIT UNTIL (  TRUE          OR  FALSE          ) AFTER 120  GOTO OLIQAM_MSG
0051       oldtime  :=          1760.00 + 120.0;
      ENDWHILE;
0052    IF (          1760.00 - oldtime  > 45.0) THEN
0053      SN0001 := "Unable to   OPEN Liquor Valve";
          [ OPEN = TRUE ]
0054      CALL message (SN0001);
0055       oldtime  :=          1760.00 + 120.0;
      ENDIF;
0056    ClsLiquorVlv (FALSE);
Function : ClsLiquorVlv -->   FALSE                := FALSE;
0057    OpnLiquorVlv (TRUE);
Function : OpnLiquorVlv -->   FALSE                := TRUE;
0058          63.21 :=      63.44;
0059    WAIT 1;
      ENDWHILE;
```

Text Contents 03DIG1SC:TIMER.TIMR1V
Visibility 03DIG1SC:DISP_VIS.BI07

Level 3

Right-Click to expose CMP:BLK.PAR like always!

< PREV | SBR: 0 / STM: 77 - 93 | NEXT > | ACTIVE | OP_ERR 0 STM

```
    <<CKING>>
0077 IF (  timetoblow + (CookTimer.TIMR2V/60.0) -  cooktme ) < (  heattme  - 5 ) THEN
0078   newheattme  :=  timetoblow + (CookTimer.TIMR2V/60) -  cooktme;
0079   ramppct  :=  ( CookTimer.TIMR2V  / 60.0 ) / (  newheattme  + 1 );
     ELSE
0080   newheattme  :=  heattme;
0081   ramppct  :=  ( CookTimer.TIMR2V  / 60.0 ) / (  heattme  * 0.9 );
     ENDIF;
0082  targettemp  :=  ( ramppct  *  CkTempTgt  ) + (( 1.0 -  ramppct  ) *  inittemp
0083  calcstmrsp  :=  ( totalstm  / (  heattme  / 60.0 )) + ( 2.5 *  lbsstmdeg  *
        (  targettemp  -  CookTemp  ));
0084  templag  :=  (templag  + (DStmC.MEAS  /  k)) *  m1;
0085 IF  templag  > 6.0 THEN
0086   templag  :=  6.0
0087 ELSEIF  templag  < 0.0 THEN
0088   templag  :=  0.0
     ENDIF;
0089  toptemptgt  :=  CookTemp  +  templag  +  degreactht;
0090  rampfactor  :=  stmofftme  / (60.0 * 2.0);
0091  maxdstmrsp  :=  (CkTempTgt  -  toptemptgt) *  lbsstmdeg  /  rampfactor;
0092 IF  ( toptemptgt  >= (CkTempTgt  - 2) AND NOT  cookstrt  ) THEN
0093     DigStat  :=  COOKMODE  ;
```

Level 3

Now pages like this don't look so scary...

03DIG2SC : COOK | TEXT | AUTO | SBX NORMAL | SBR

< PREV | SBR: 0 / STM: 77 - 93 | NEXT > | ACTIVE | OP_ERR 0 | STM

```
    <<CKING>>
0077  IF (    12.44 + (      3334.00/60.0) -   17.77 ) < (   50.00 - 5 ) THEN
0078     50.00 :=    12.44 + (      3334.00/60) -   17.77;
0079     1.16 := (      3334.00 / 60.0 ) / (    50.00 + 1 );
      ELSE
0080     50.00 :=   50.00;
0081     1.16 := (      3334.00 / 60.0 ) / (   50.00 * 0.9 );
      ENDIF;
0082   388.62 := (   1.16 *   355.00 ) + (( 1.0 -   1.16 ) *   210.00 );
0083   227925 := (   65000 / (   50.00 / 60.0 )) + ( 2.5 *    360    *
        (    388.62 -   222.46 ));
0084    6.00 := (   6.00 + (    93463 / *)) *   1;
0085  IF    6.00 > 6.0 THEN
0086     6.00 := 6.0
0087  ELSEIF    6.00 < 0.0 THEN
0088     6.00 := 0.0
      ENDIF;
0089   232.96 :=   222.46 +   6.00 +     4.50;
0090   0.0667 :=     8.00 / (60.0 * 2.0);
0091   110000 := (   355.00 -   232.96) *   360    /    0.0667;
0092  IF (    232.96 >= (   355.00 - 2) AND NOT   cookstrt ) THEN
0093       4    := COOKMODE ;
```

Level 3

When you can see the values!

File Edit View Favorites Tools Help

Back Search Folders

Address D:\opt\PSI\DIG\ALL_CMNTs

Name	Size
03DIG1SC_BLOW.s_cmnt	43 KB
03DIG1SC_BLOWTIME.s_cmnt	22 KB
03DIG1SC_CHARGE.s_cmnt	25 KB
03DIG1SC_COOK.s_cmnt	33 KB
03DIG1SC_DATA.s_cmnt	23 KB
03DIG1SC_ESTOP.s_cmnt	29 KB
03DIG1SC_LIQCNTRL.s_cmnt	46 KB
03DIG1SC_MESSAGE.s_cmnt	23 KB
03DIG1SC_RELIEF.s_cmnt	33 KB
03DIG1SC_TARGETS.s_cmnt	15 KB
03DIG2SC_BLOW.s_cmnt	50 KB
03DIG2SC_BLOWTIME.s_cmnt	30 KB
03DIG2SC_CHARGE.s_cmnt	32 KB
03DIG2SC_COOK.s_cmnt	40 KB
03DIG2SC_DATA.s_cmnt	23 KB
03DIG2SC_ESTOP.s_cmnt	36 KB
03DIG2SC_LIQCNTRL.s_cmnt	52 KB
03DIG2SC_MESSAGE.s_cmnt	23 KB
03DIG2SC_RELIEF.s_cmnt	39 KB
03DIG2SC_TARGETS.s_cmnt	22 KB
03DIG3SC_BLOW.s_cmnt	50 KB
03DIG3SC_BLOWTIME.s_cmnt	30 KB

144 objects

Additional Tools

(For us OLD folk that can't think without a printout…)

One file for each sequence.

```
DEPENDENT_SEQUENCE

{  module name  : cook.s                                          }
{  block name   : 03DIG1SC:COOK
{  block type   : DEP                                            }

{*-------------------------------------------------------------------
{*     BEGINNING OF Include File : dig.def                 *}
{*-------------------------------------------------------------------

        #define   ON               TRUE
        #define   OFF              FALSE
        #define   START            TRUE
        #define   STOP             FALSE
        #define   REMOTE           TRUE
        #define   LOCAL            FALSE
        #define   AUTO             TRUE
        #define   MANUAL           FALSE
        #define   OPEN             TRUE
        #define   CLOSE            FALSE
        #define   RESET            TRUE
        #define   OOSMODE          0
        #define   SKIPMODE         1
        #define   CHARGEMODE       2
        #define   IDLEMODE         3
        #define   STEAMMODE        4
        #define   COOKMODE         5
        #define   BLOWMODE         6
        #define   HOLDMODE         7
        #define   CHARGEING        8
        #define   BLOWING          9
        #define   ONE              1
        #define   TWO              2
        #define   THREE            3
        #define   FOUR             4
        #define   FIVE             5
        #define   EXC_TYPE         0
        #define   DEP_TYPE         1
        #define   IND_TYPE         2
        #define   MON_TYPE         3

{*-------------------------------------------------------------------
{*     BEGINNING OF Include File : dig01.def               *}
{*-------------------------------------------------------------------

        #define   AlkaliToWood     ::TARGETS.RO0007
        #define   AllValvesClosed  ::WATCHDOG.BO0001
        #define   AnyBlowVlvOpn    :0301LL:L030116.OFL_9
        #define   BLiqAccum        :03DIGMISC:FQBL01
        #define   BLiqTnkLvl       :04BSW1:LT0172.PNT
        #define   BLiqVolTgt       :03DIGMISC:FQBL01.HABLIM
```

Additional Tools

All include files expanded

```
{*-------------------------------------------------------------------------------*}
{*    BEGINNING of SEQUENCE CODE                 *}
{*-------------------------------------------------------------------------------*}

STATEMENTS

0001  IF ( DigMode = 1 ) THEN

0002    ResetHFactor(RESET);

0003    IF testphase THEN

0004      SENDMSG ("COOK block begining execution , digester in AUTO") TO
          MSGGR2;

        ENDIF;

      ELSE

0005    IF testphase THEN

0006      SENDMSG ("COOK block begining execution , digester in MANUAL") TO
          MSGGR2;

        ENDIF;

0007    ACTIVATE ::TARGETS;
0008    WAIT 3;
      {       DStmQ.CLEAR := TRUE; }
      {       ResetHFactor(RESET); }
      {  SSCkTimer(START); }
      {  CookTimer.TIMR1V := 0.0; }

      ENDIF;
```

Additional Tools

The logic with something special…

```
{*-------------------------------------------------------------------------------*}
{*    BEGINNING of SEQUENCE CODE                 *}
{*-------------------------------------------------------------------------------*}

STATEMENTS

0001  IF ( DigMode = 1 ) THEN
0002    ResetHFactor(RESET);

0003    IF testphase THEN
0004      SENDMSG ("COOK block begining execution , digester in AUTO") TO
           MSGGR2;
        ENDIF;

      ELSE

0005    IF testphase THEN
0006      SENDMSG ("COOK block begining execution , digester in MANUAL") TO
           MSGGR2;
        ENDIF;

0007    ACTIVATE ::TARGETS;
0008    WAIT 3;
      {       DStmQ.CLEAR := TRUE; }
      {       ResetHFactor(RESET); }
      {   SSCkTimer(START); }
      {   CookTimer.TIMR1V := 0.0; }

      ENDIF;
```

Additional Tools

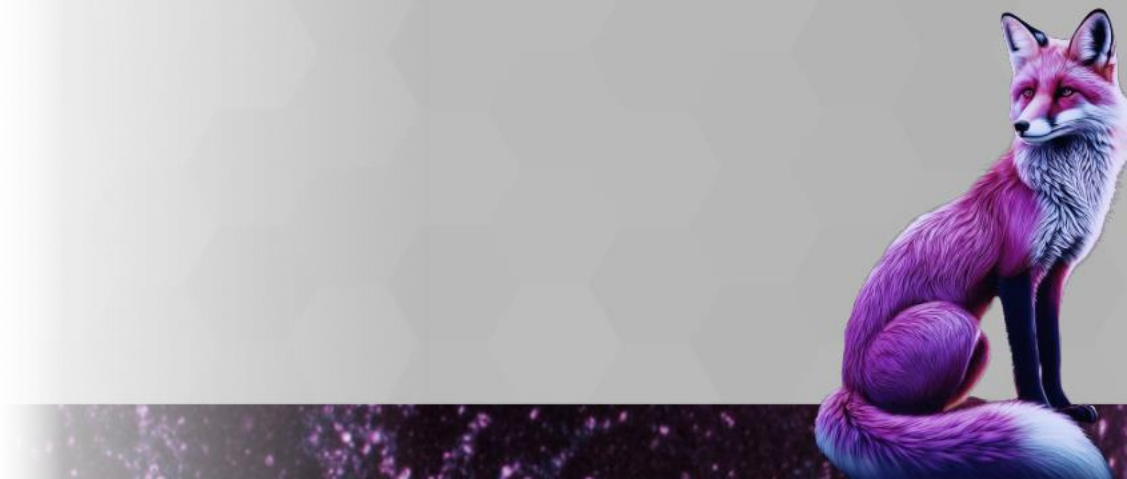
STATEMENT NUMBERS!!

(Same as Select Screens)

```
-------------------------------------------------------------
   VARIABLE CROSS-REFERENCE : 03DIG1SC:COOK [03CP03]
-------------------------------------------------------------

     AUTO           : 58
     BlowOnHFactor  : 124, 127,
     COOKMODE       : 93, 131*
     CkTempTgt      : 82, 91*, 92, 124*
     CookTemp       : 1, 89*, 124
     CookTimer      : 47, 49, 77, 78, 79, 81, 94, 132
     DStmC          : 26, 31, 32, 33, 35*, 58, 59, 60, 62*,
121, 123, 138*, 146, 147
     DStmCHOLIM     : 34, 61, 101*, 140, 148*
     DigMode        : 1
     DigStat        : 38, 46*, 93, 131*
     HFactor        : 126
     HseCkTempTgt   : 27
     IDLEMODE       : 38
     LOCAL          : 32
     MANUAL         : 31, 147
     MaxCookTime    : 28, 36, 51
     MaxHeatTime    : 28, 36
     MinHeatTime    : 52, 53
     ON             : 13, 64
     REMOTE         : 59
     RESET          : 2
     ReactRate      : 126, 1
     RemainCookTime : 39, 125, 126
     RequestBlow    : 10, 2
```

Additional Tools

PLUS… There's a Cross Reference



```
-------------------------------------------------------------
   VARIABLE CROSS-REFERENCE : 03DIG1SC:COOK [03CP03]
-------------------------------------------------------------

     AUTO            : 58
     BlowOnHFactor   : 124, 127,
     COOKMODE        : 93, 131*
     CkTempTgt       : 82, 91*, 92, 124*
     CookTemp        : 1, 89*, 124
     CookTimer       : 47, 49, 77, 78, 79, 81, 94, 132
     DStmC           : 26, 31, 32, 33, 35*, 58, 59, 60, 62*,
121, 123, 138*, 146, 147
     DStmCHOLIM      : 34, 61, 101*, 140, 148*
     DigMode         : 1
     DigStat         : 38, 46*, 93, 131*
     HFactor         : 126
     HseCkTempTgt    : 27
     IDLEMODE        : 38
     LOCAL           : 32
     MANUAL          : 31, 147
     MaxCookTime     : 28, 36, 51
     MaxHeatTime     : 28, 36
     MinHeatTime     : 52, 53
     ON              : 13, 64
     REMOTE          : 59
     RESET           : 2
     ReactRate       : 126, 1
     RemainCookTime  : 39, 125, 126
     RequestBlow     : 10, 2
```

Additional Tools

* = Sets (Destructive)

TECH TIP

All of this is AUTOMATED.

So, what kind of troubleshooting tools do you have?

TECH TIP

Anything you would like to share at our next SEUG meeting?

TECH TIP

HLBL TO FOXVIEW

Thank You!

DOWNLOAD THE PDF: