
Nanaimo Forest Products

Wash Press Installation Project

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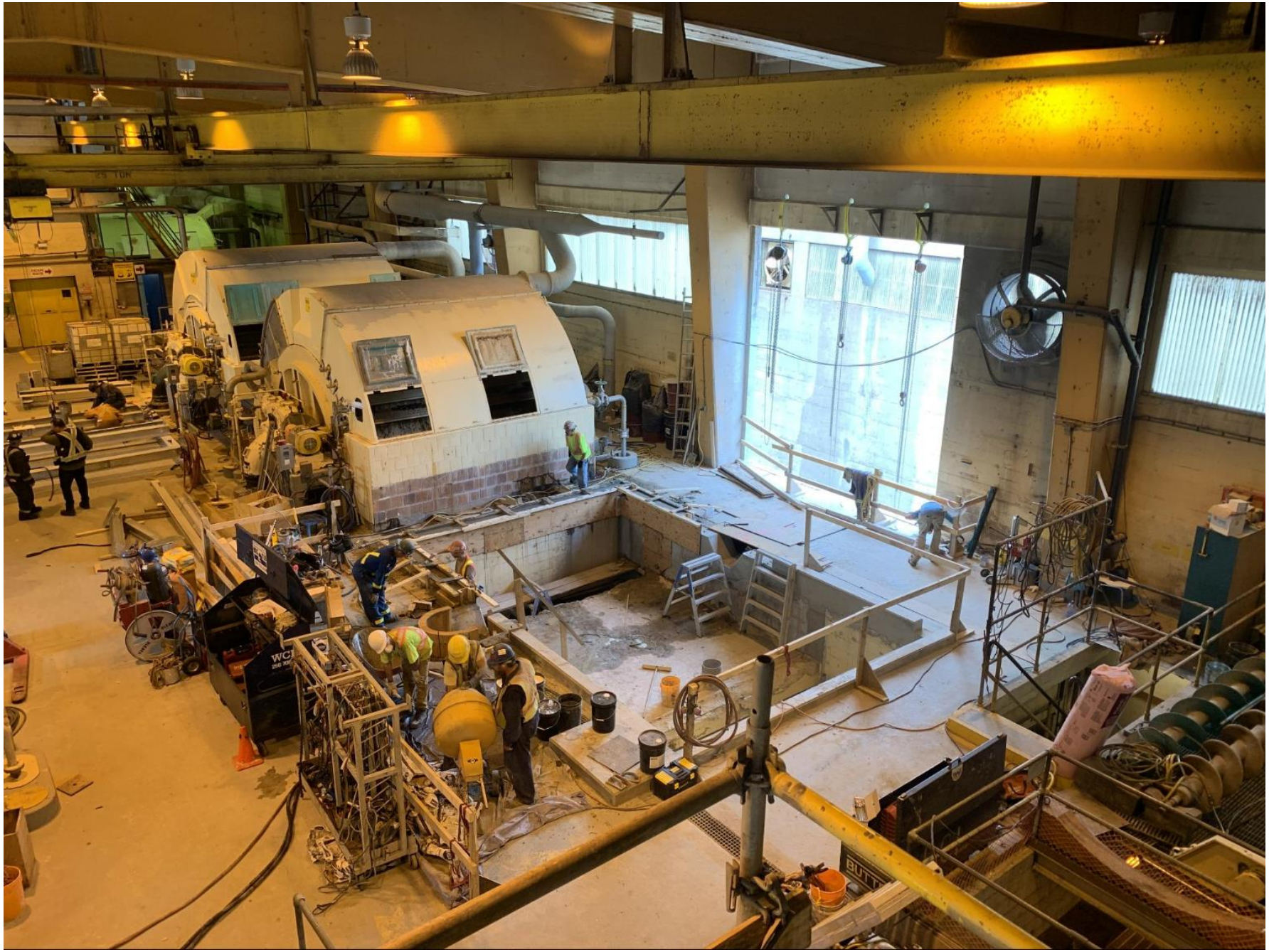
Nanaimo Forest Products
Fall Bleaching Committee, Nov 2019

Background

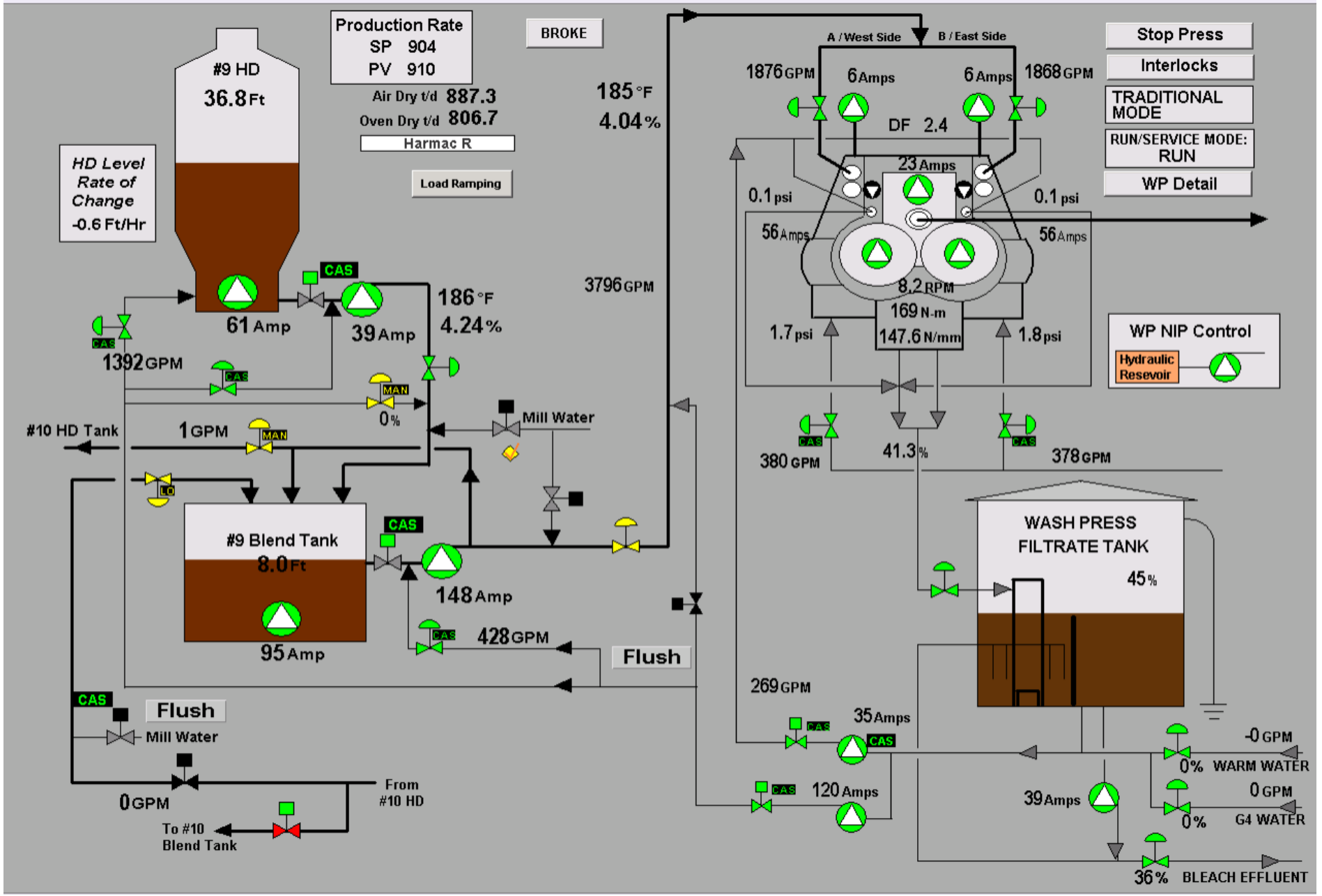
Problem: High carry over to bleach plant causing production limitation and elevated chemical consumption to achieve quality pulp.

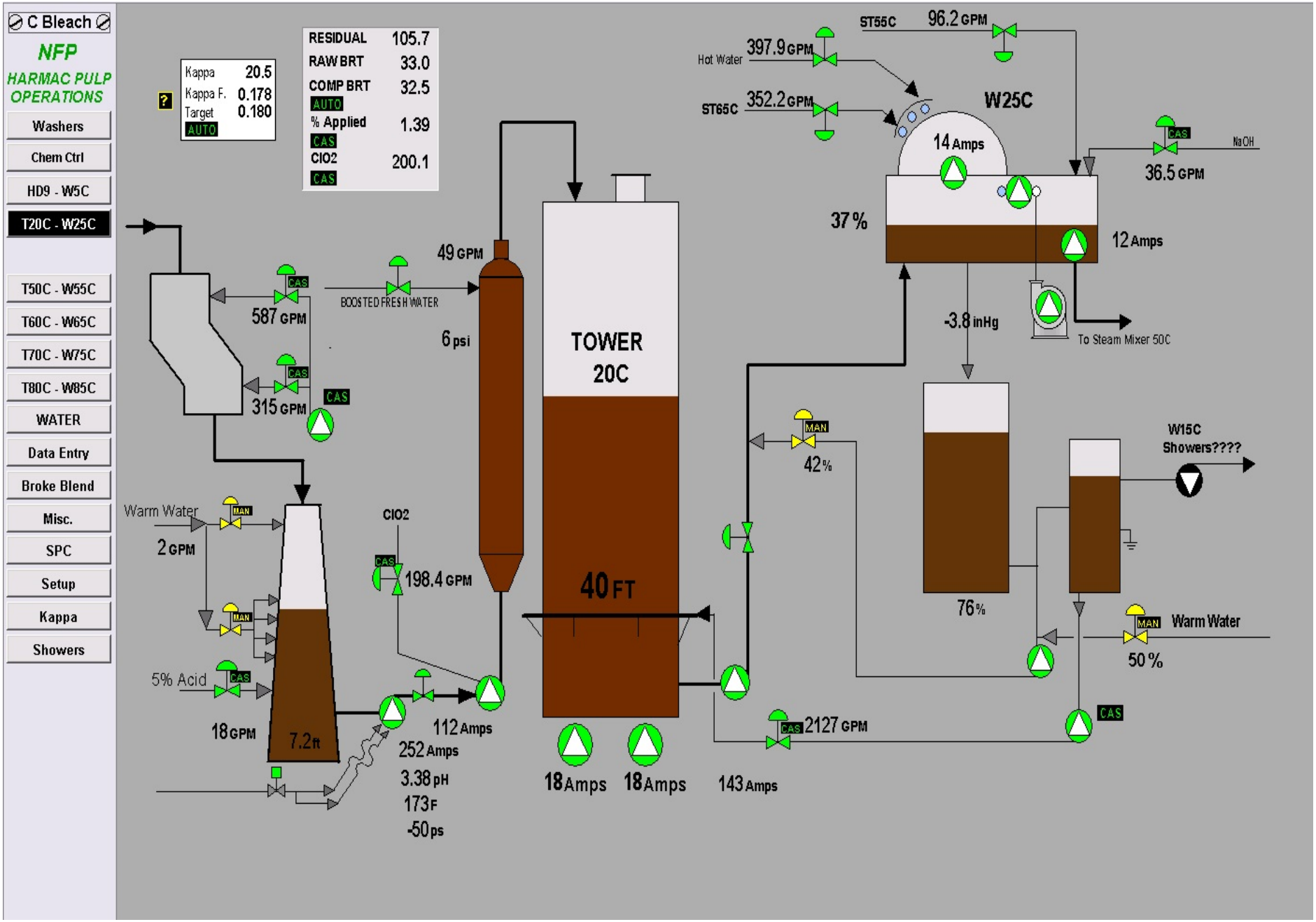
1. Press & Double O2 plant (2012)
2. Press only (2016)
3. Press & Papricycle (2018)



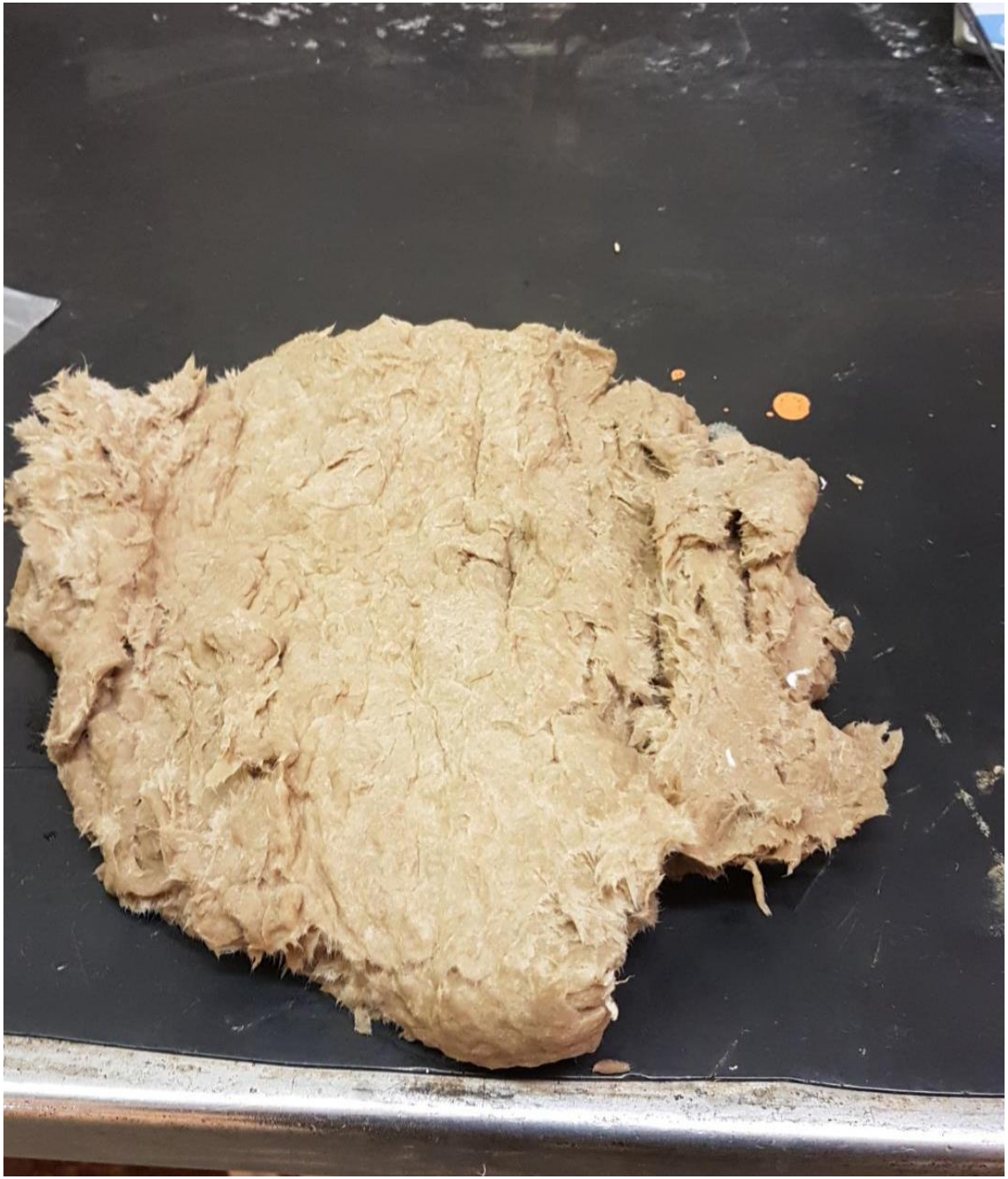
Installation and Commissioning

- Mechanical & civil installation
- DCS programming and modeling
- Operator training
- FAT/interlock checks
- E&I installation
- Loop and instrumentation checks
- Water run and Interlock checks
- Pulp startup
- Training

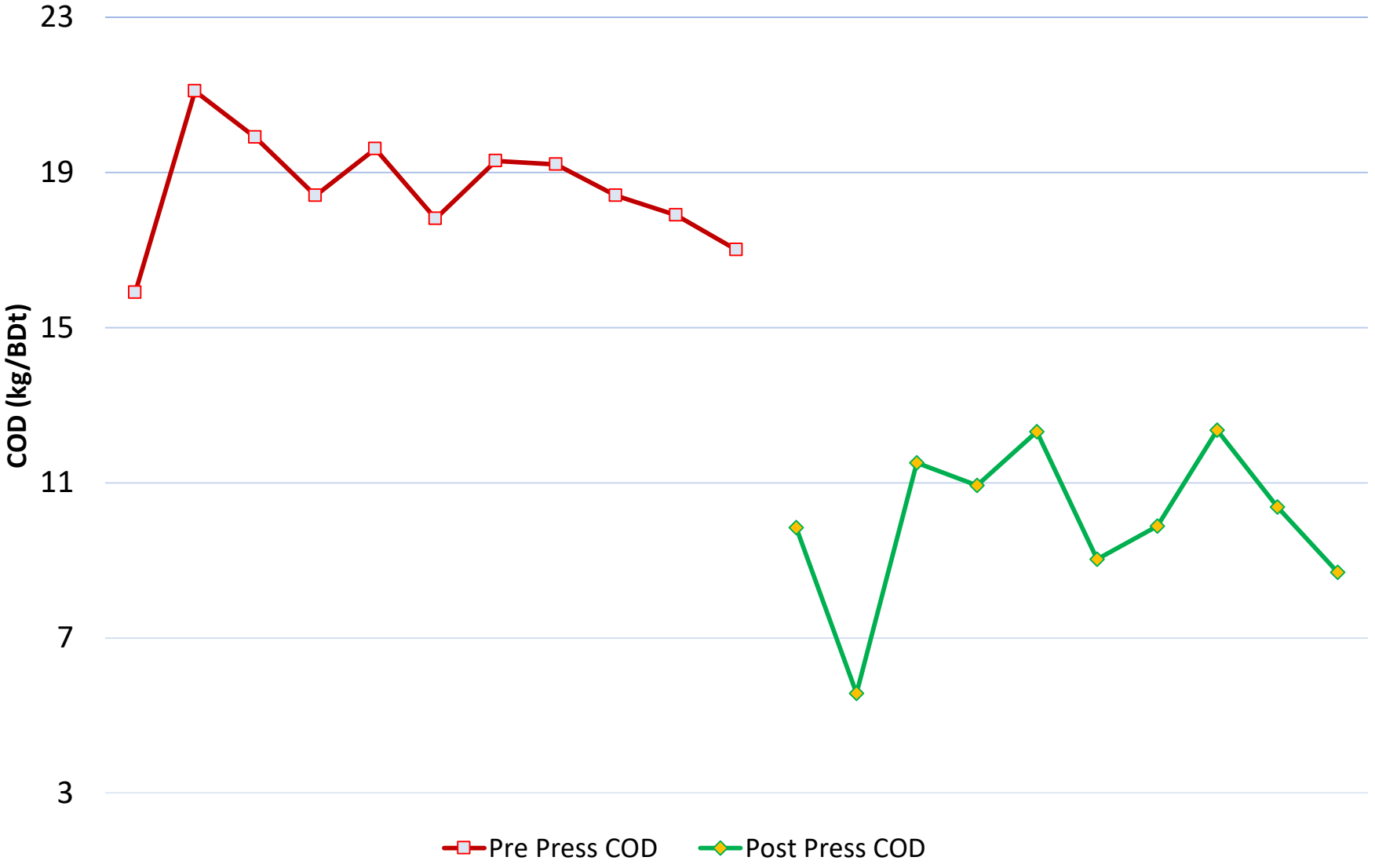

Production Rate
SP 904
PV 910
Air Dry t/d 887.3
Oven Dry t/d 806.7
Harmac R
Load Ramping
BROKE
185 °F
4.04 %
#9 HD
36.8 Ft
HD Level
Rate of
Change
-0.6 Ft/Hr
CAS
61 Amp
39 Amp
186 °F
4.24 %
3796 GPM
1392 GPM
MAN
0 %
#10 HD Tank
1 GPM
Mill Water
LO
#9 Blend Tank
8.0 Ft
148 Amp
95 Amp
428 GPM
Flush
Mill Water
0 GPM
From
#10 HD
To #10
Blend Tank
A / West Side
B / East Side
1876 GPM
6 Amps
6 Amps
1868 GPM
DF 2.4
23 Amps
0.1 psi
0.1 psi
56 Amps
56 Amps
8.2 RPM
169 N-m
147.6 N/mm
1.7 psi
1.8 psi
380 GPM
41.3 %
378 GPM
Stop Press
Interlocks
TRADITIONAL
MODE
RUN/SERVICE MODE:
RUN
WP Detail
WP NIP Control
Hydraulic
Resevoir
WASH PRESS
FILTRATE TANK
45 %
269 GPM
35 Amps
120 Amps
39 Amps
-0 GPM
0 % WARM WATER
0 GPM
0 % G4 WATER
36 % BLEACH EFFLUENT

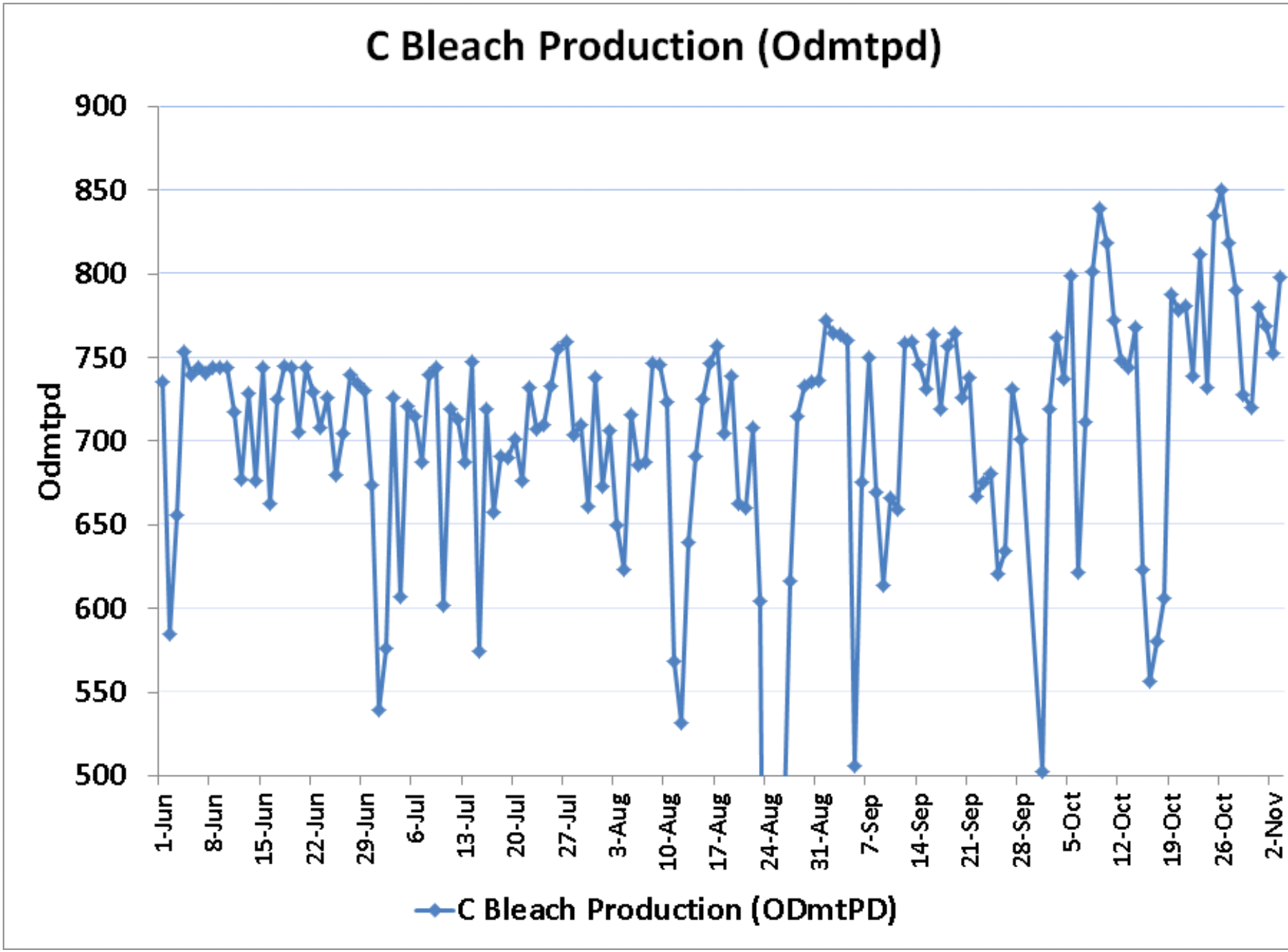

C Bleach
NFP
HARMAC PULP OPERATIONS
Washers
Chem Ctrl
HD9 - W5C
T20C - W25C
T50C - W55C
T60C - W65C
T70C - W75C
T80C - W85C
WATER
Data Entry
Broke Blend
Misc.
SPC
Setup
Kappa
Showers
Kappa 20.5
Kappa F. 0.178
Target 0.180
AUTO
RESIDUAL 105.7
RAW BRT 33.0
COMP BRT 32.5
AUTO
% Applied 1.39
CAS
ClO2 200.1
CAS
ST55C 96.2 GPM
Hot Water 397.9 GPM
ST65C 352.2 GPM
W25C
14 Amps
CAS
NaOH
36.5 GPM
37 %
12 Amps
To Steam Mixer 50C
-3.8 inHg
49 GPM
BOOSTED FRESH WATER
6 psi
CAS
587 GPM
CAS
315 GPM
CAS
TOWER 20C
40 FT
MAN
42 %
W15C Showers????
76 %
Warm Water
MAN
2 GPM
ClO2
CAS
198.4 GPM
MAN
MAN
Warm Water
50 %
5% Acid
CAS
18 GPM
7.2ft
112 Amps
252 Amps
3.38 pH
173 F
-50 ps
18 Amps
18 Amps
143 Amps
CAS
2127 GPM
CAS


TwinRoll™

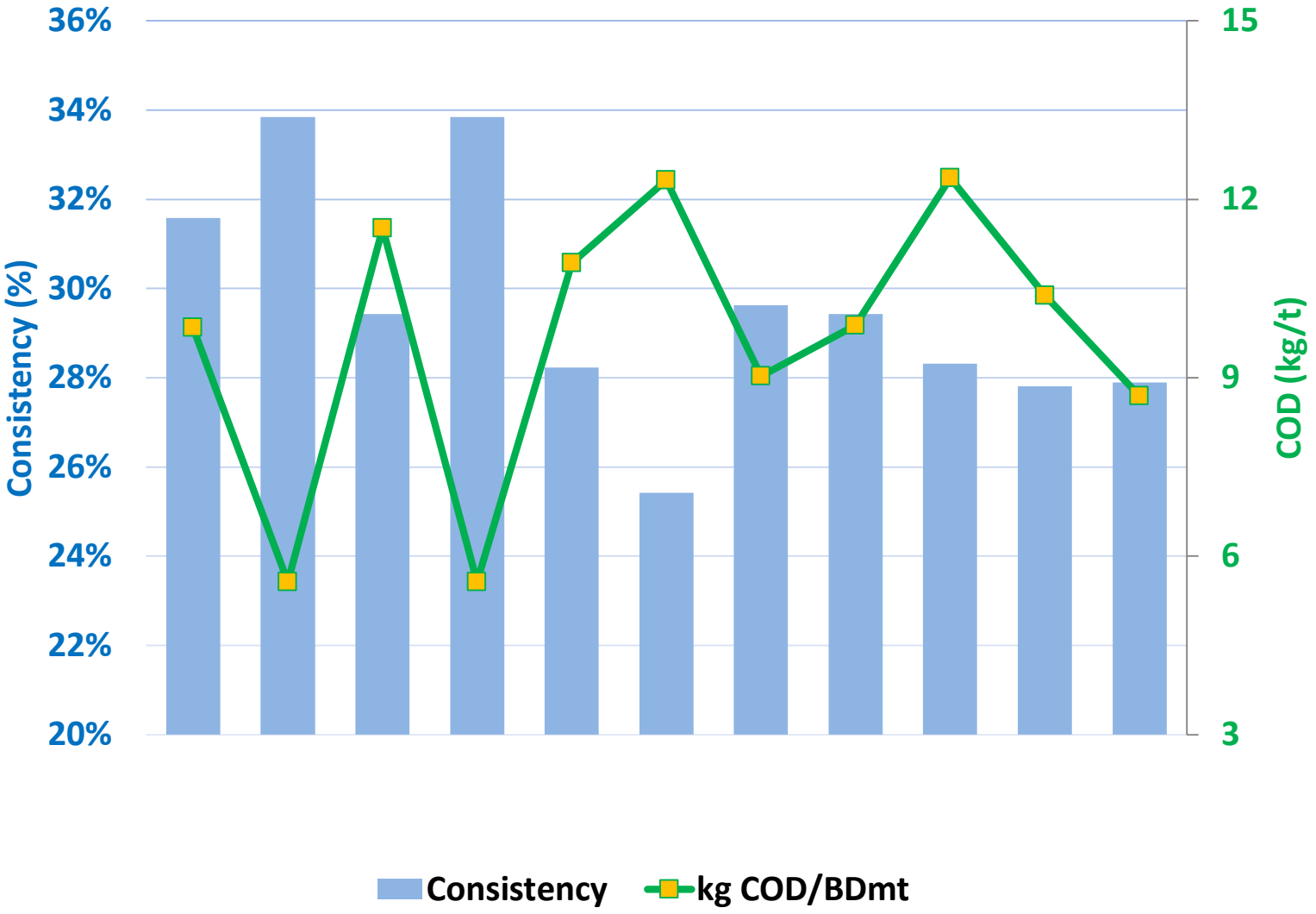


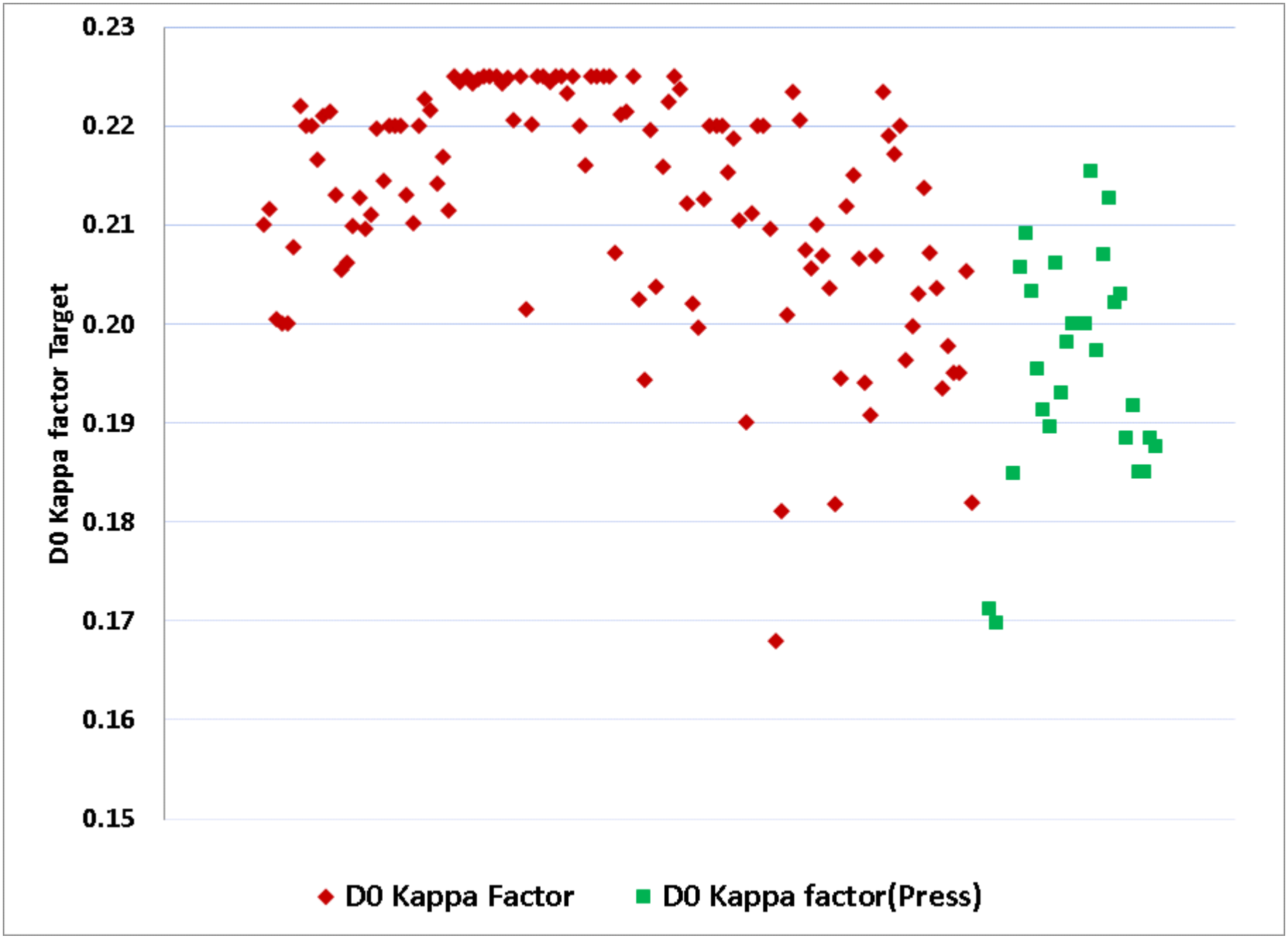
Pre Bleach Washer Discharge COD (Kg/t)

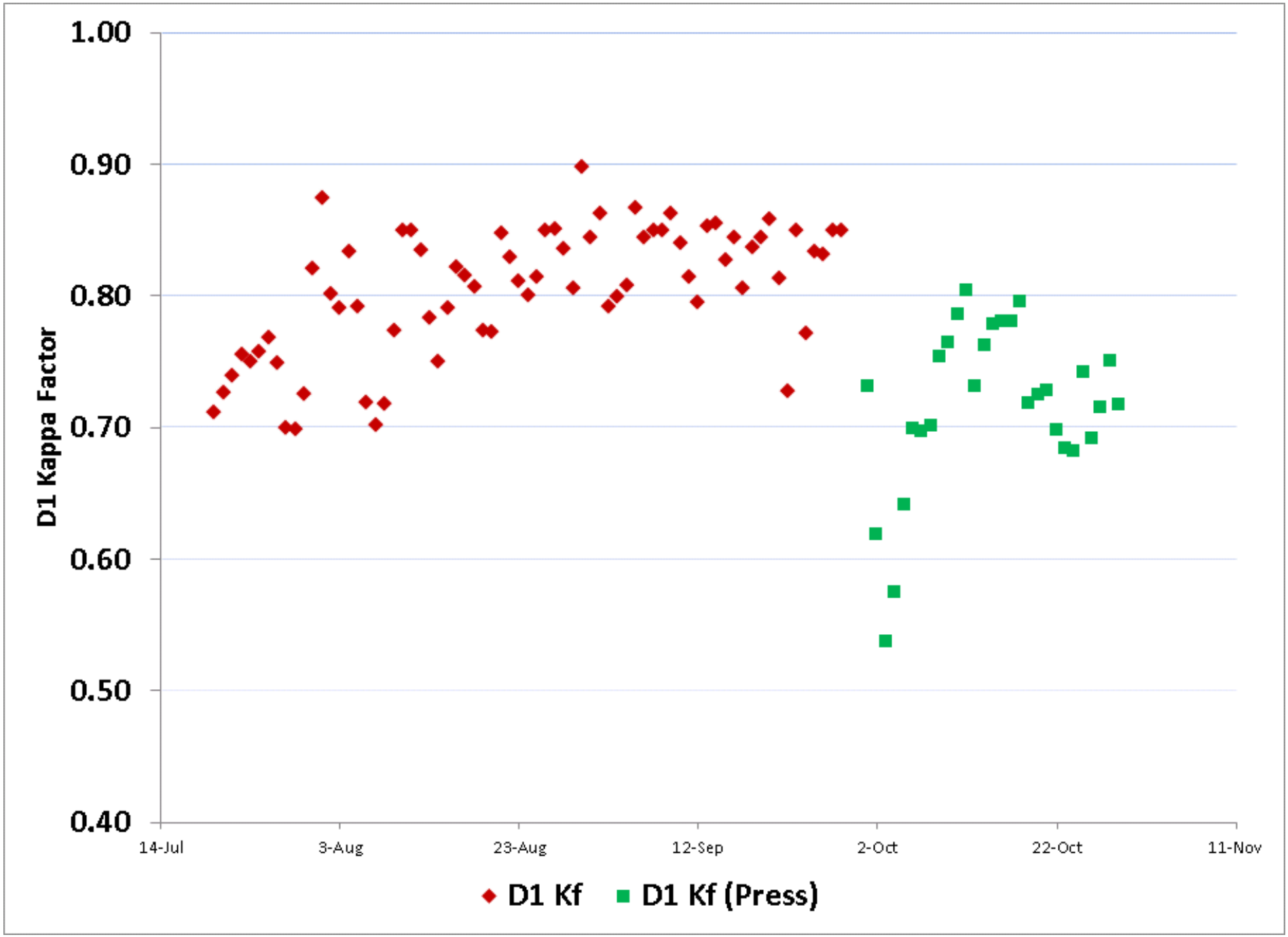


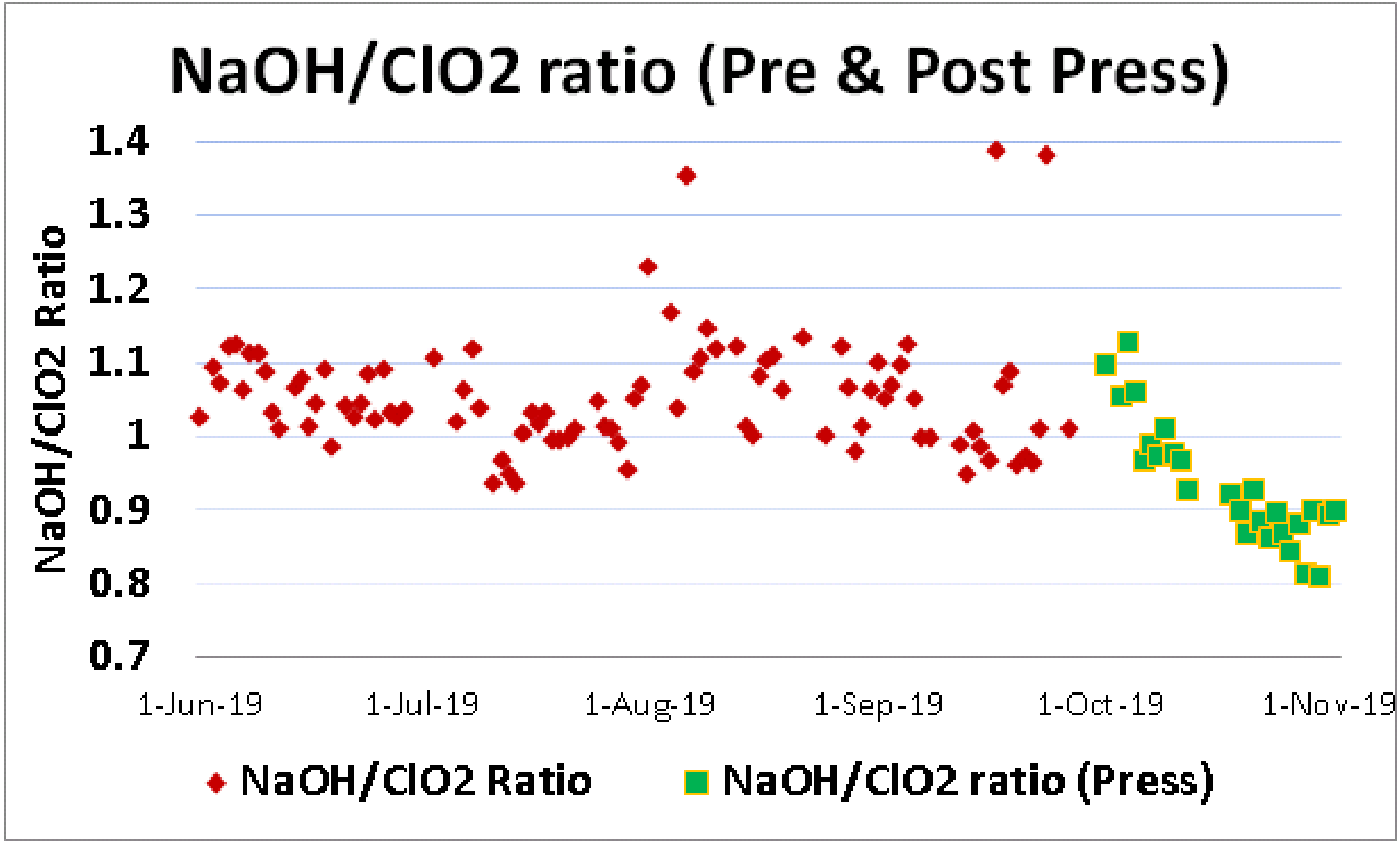

C Bleach Production (Odmtpd)
900
850
800
750
700
650
600
550
500
Odmtpd
1-Jun
8-Jun
15-Jun
22-Jun
29-Jun
6-Jul
13-Jul
20-Jul
27-Jul
3-Aug
10-Aug
17-Aug
24-Aug
31-Aug
7-Sep
14-Sep
21-Sep
28-Sep
5-Oct
12-Oct
19-Oct
26-Oct
2-Nov
C Bleach Production (ODmtPD)

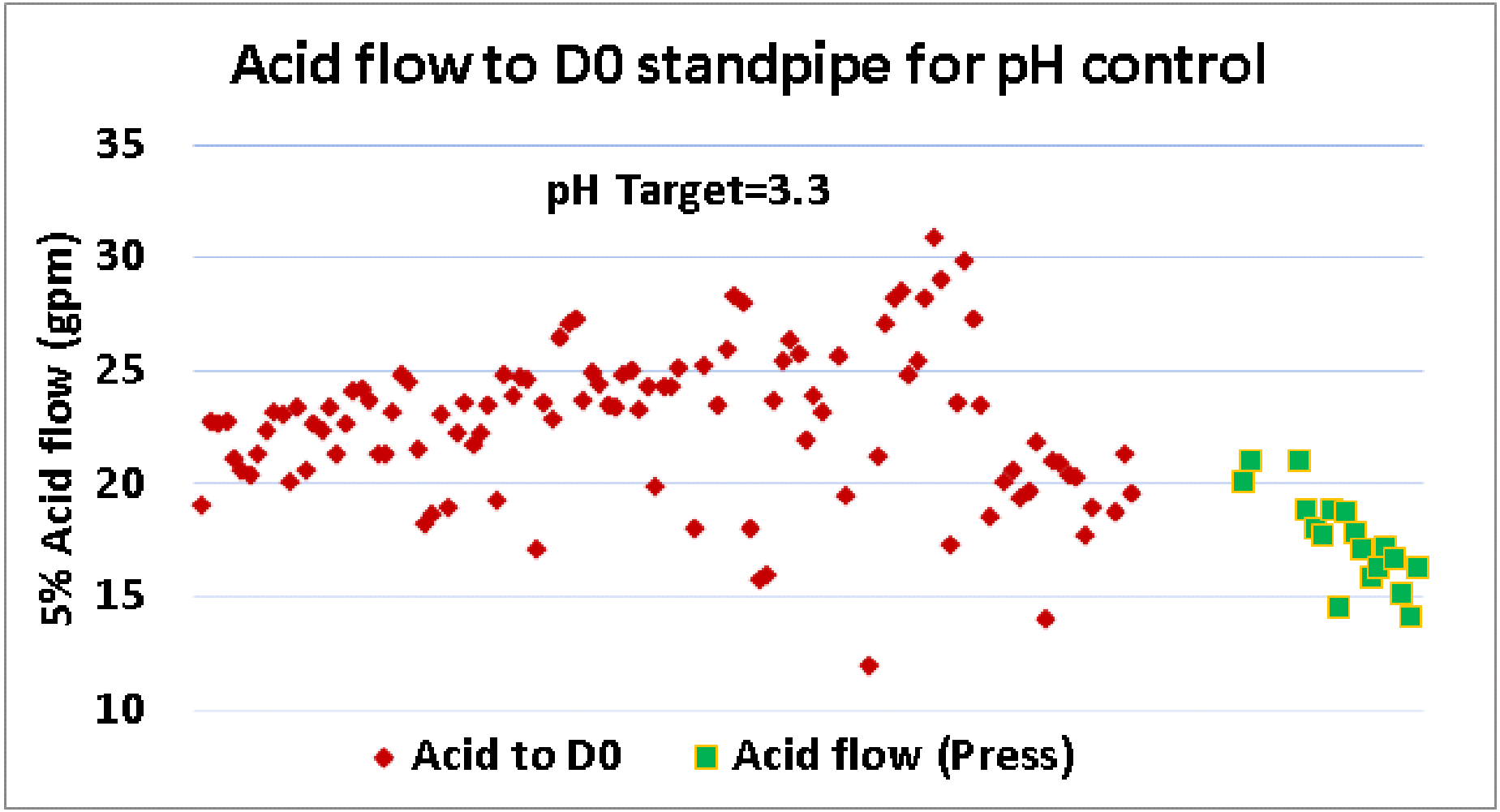
Press Discharge Consistency vs. COD

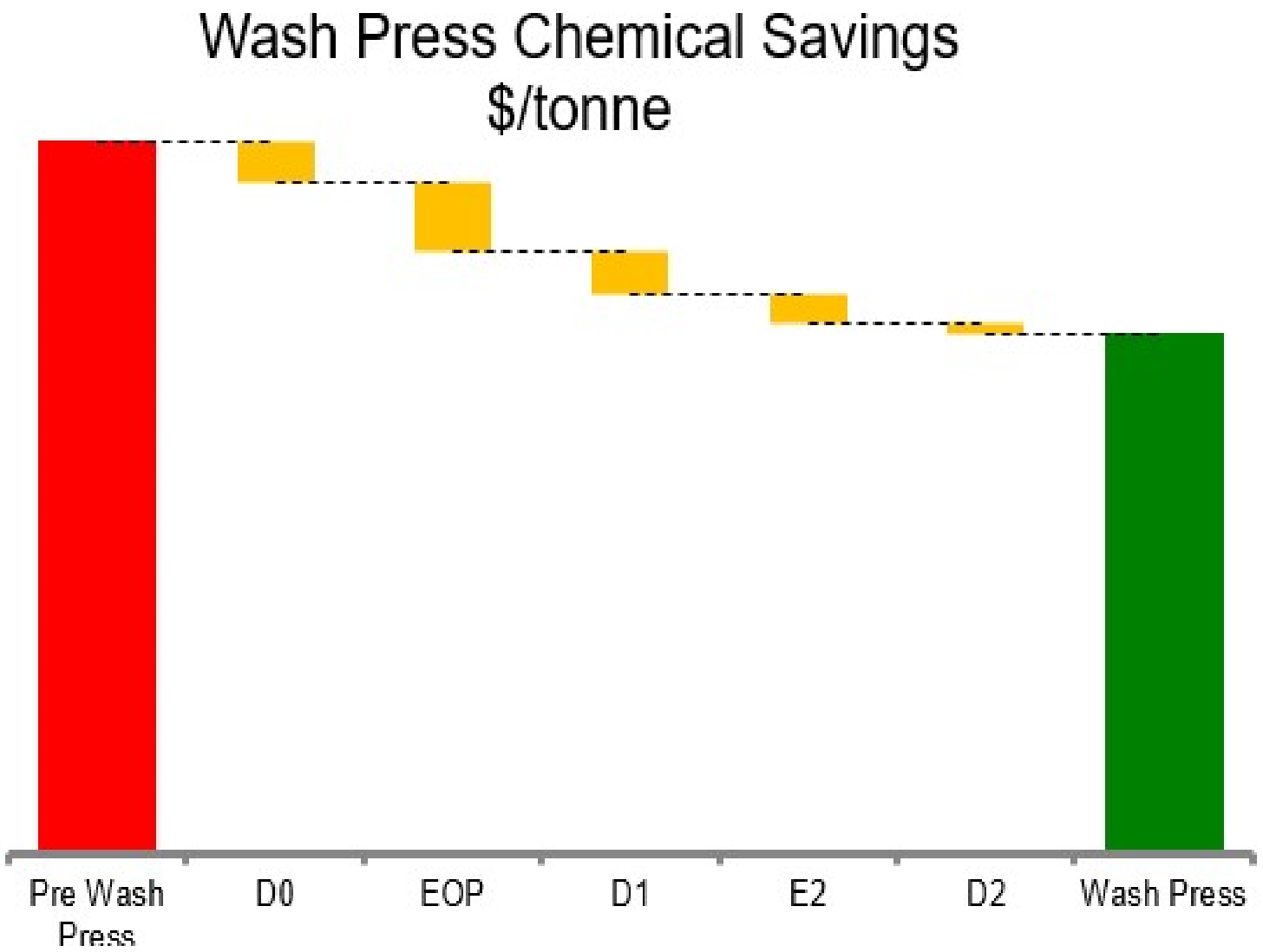



0.23
0.22
0.21
0.20
0.19
0.18
0.17
0.16
0.15
D0 Kappa factor Target
D0 Kappa Factor
D0 Kappa factor(Press)

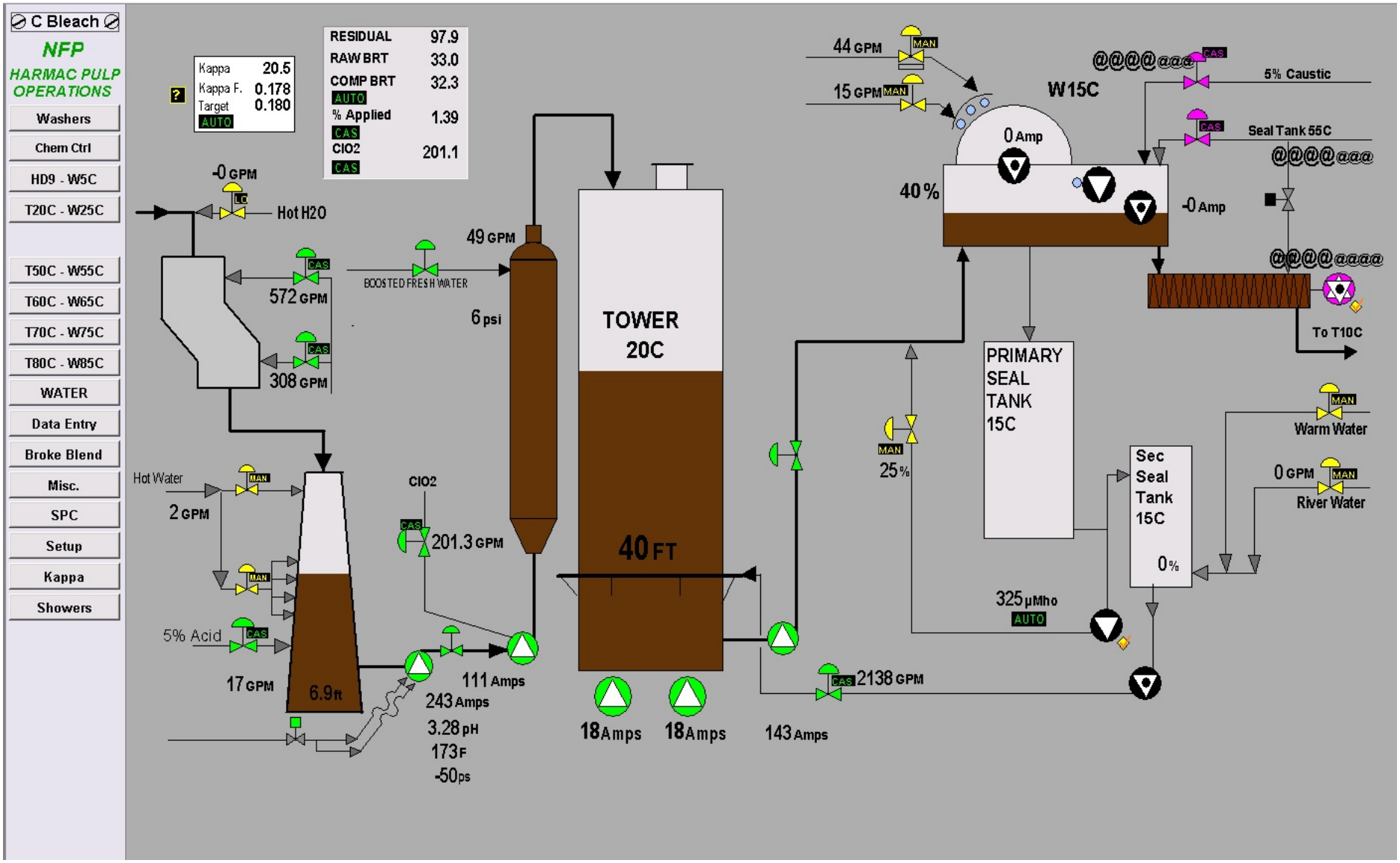

1.00
0.90
0.80
0.70
0.60
0.50
0.40
D1 Kappa Factor
14-Jul
3-Aug
23-Aug
12-Sep
2-Oct
22-Oct
11-Nov
D1 Kf
D1 Kf (Press)


NaOH/ClO2 ratio (Pre & Post Press)
NaOH/ClO2 Ratio
1.4
1.3
1.2
1.1
1
0.9
0.8
0.7
1-Jun-19
1-Jul-19
1-Aug-19
1-Sep-19
1-Oct-19
1-Nov-19
NaOH/ClO2 Ratio
NaOH/ClO2 ratio (Press)


Acid flow to D0 standpipe for pH control
pH Target=3.3
5% Acid flow (gpm)
35
30
25
20
15
10
Acid to D0
Acid flow (Press)


Wash Press Chemical Savings
$/tonne
Pre Wash Press
D0
EOP
D1
E2
D2
Wash Press


Next Step...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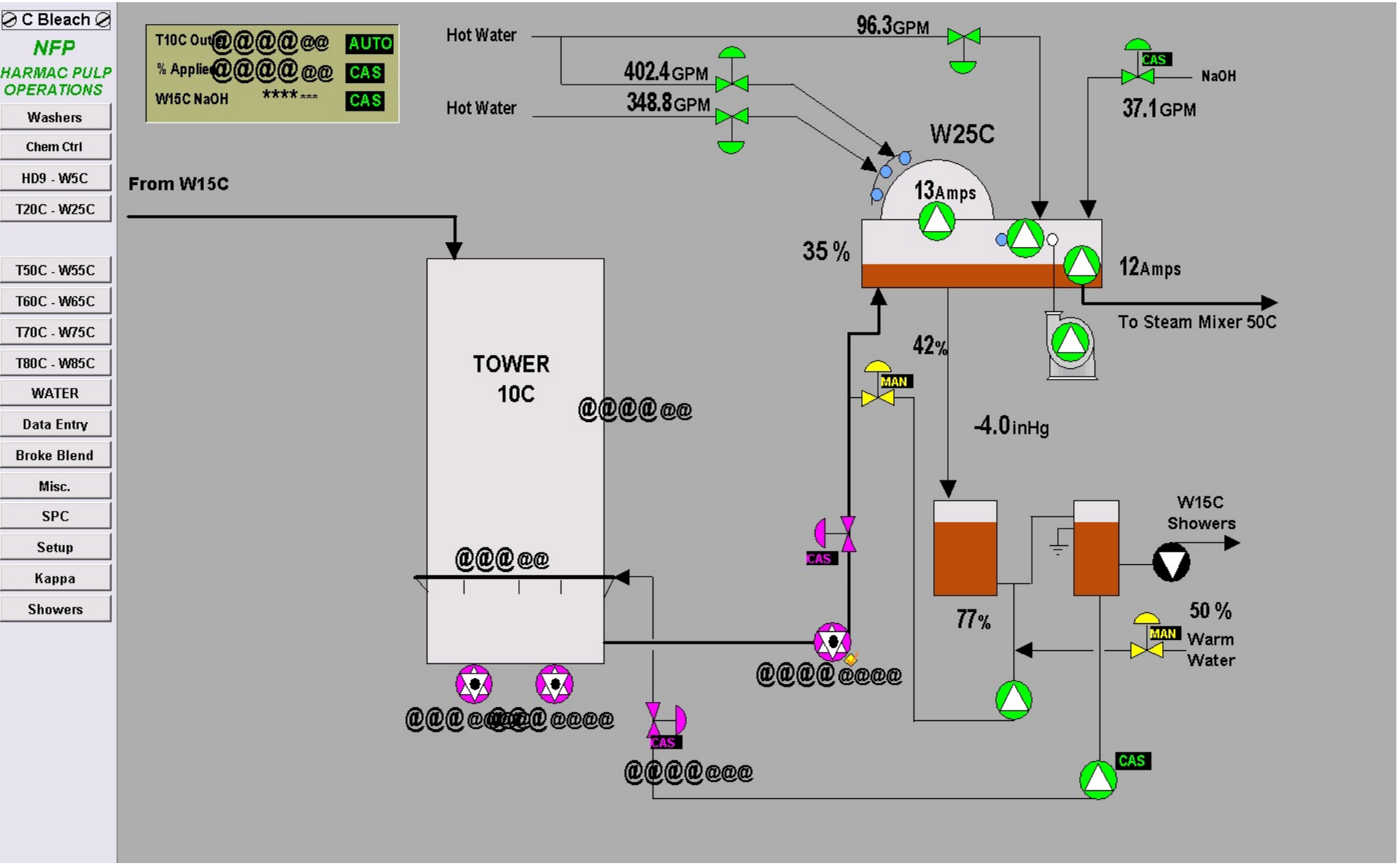
Kappa F. 0.178
Target 0.180
AUTO
RESIDUAL 97.9
RAW BRT 33.0
COMP BRT 32.3
AUTO
% Applied 1.39
CAS
ClO2 201.1
CAS
-0 GPM
LC
Hot H2O
572 GPM
308 GPM
49 GPM
BOOSTED FRESH WATER
6 psi
TOWER 20C
40 FT
Hot Water
2 GPM
5% Acid
17 GPM
6.9ft
ClO2
201.3 GPM
111 Amps
243 Amps
3.28 pH
173 F
-50ps
18 Amps
18 Amps
143 Amps
44 GPM
15 GPM
W15C
0 Amp
40 %
-0 Amp
5% Caustic
Seal Tank 55C
To T10C
PRIMARY SEAL TANK 15C
25 %
Sec Seal Tank 15C
0 %
325 µMho
AUTO
2138 GPM
Warm Water
0 GPM
River Water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T70C - W75C
T80C - W85C
WATER
Data Entry
Broke Blend
Misc.
SPC
Setup
Kappa
Showers
T10C Out @@@@@@ AUTO
% Applied @@@@@@ CAS
W15C NaOH ******** CAS
Hot Water
96.3GPM
402.4GPM
Hot Water
348.8GPM
CAS
NaOH
37.1GPM
W25C
13Amps
From W15C
35 %
12Amps
To Steam Mixer 50C
42%
MAN
TOWER
10C
@@@@@@
-4.0inHg
@@@@@
CAS
W15C
Showers
77%
50 %
MAN
Warm
Water
@@@@@@@@
@@@@@@@@@@@@
CAS
@@@@@@@
CAS

Never Give up!

HARMAC PACIFIC