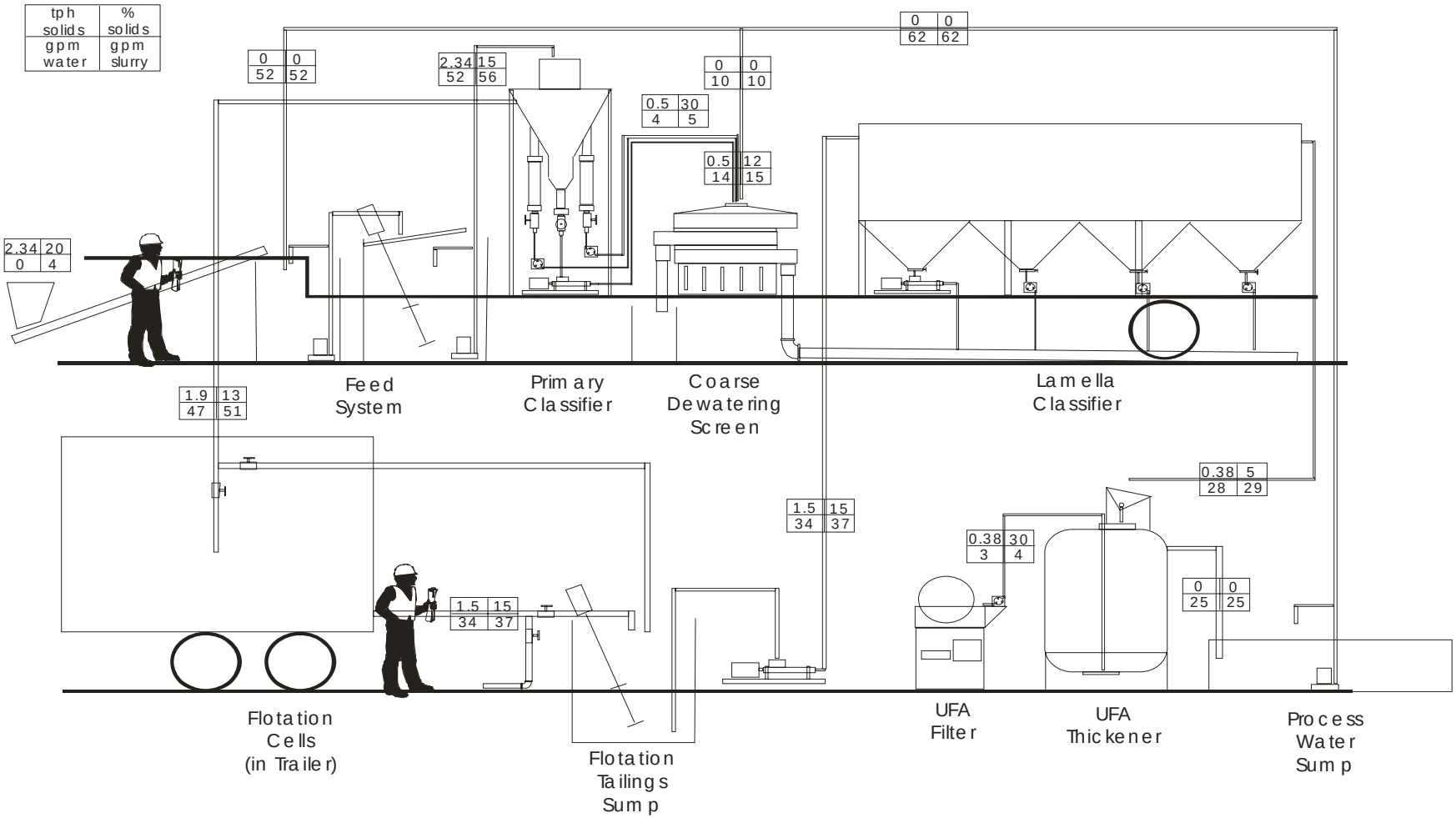
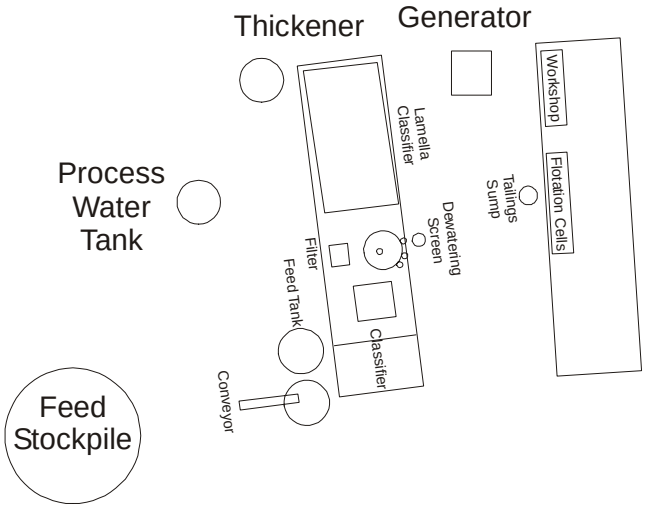
Ghent Field Testing

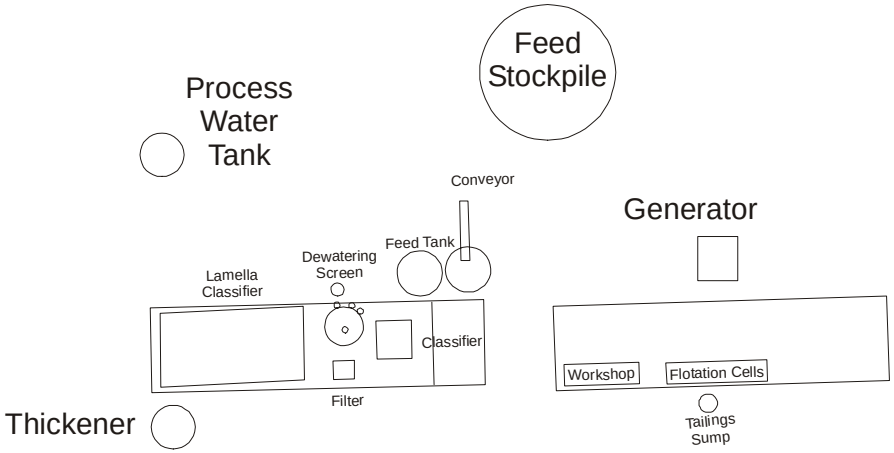
April 18, 2005

Ghent Testing Flowsheet

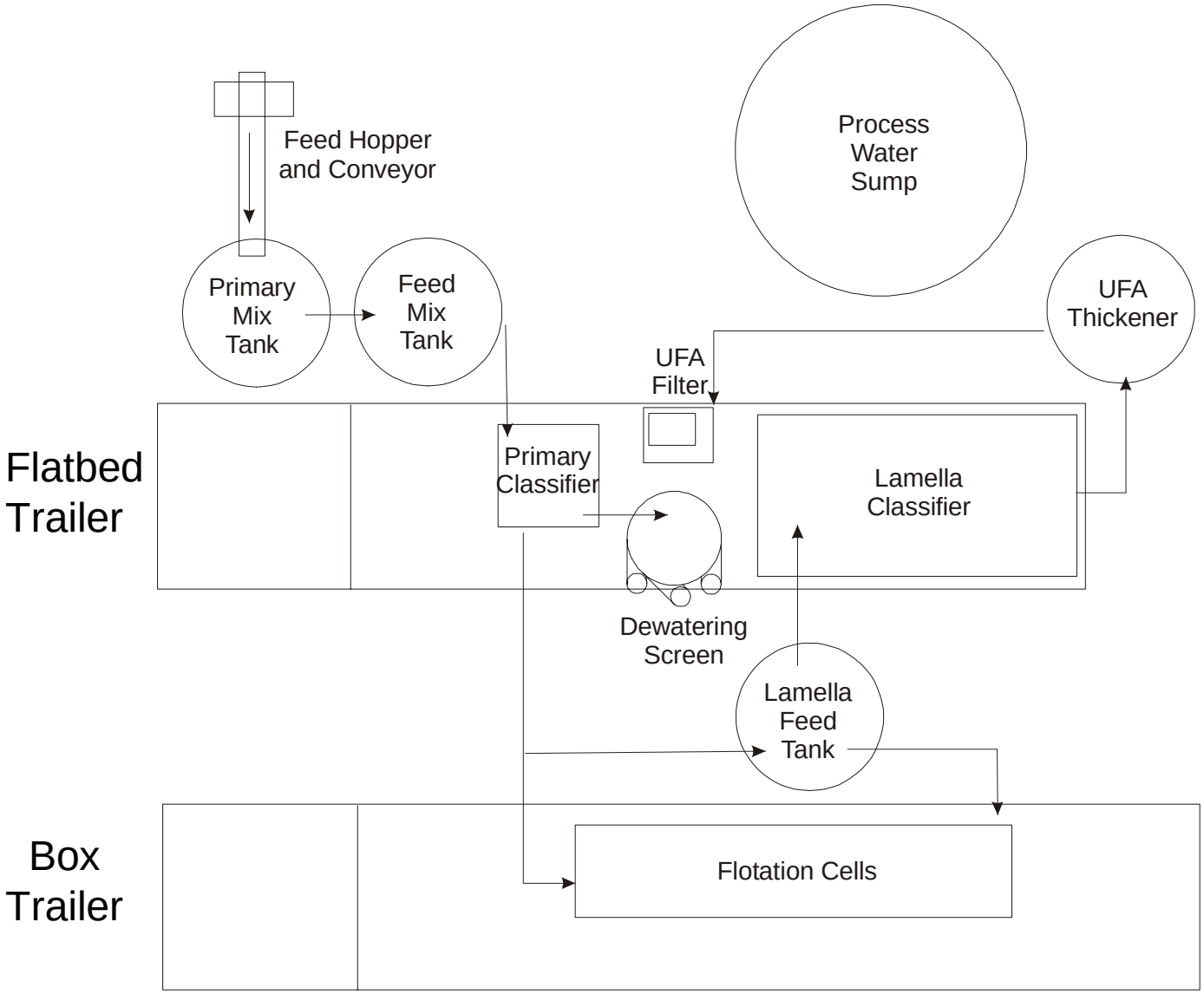


Site Layout

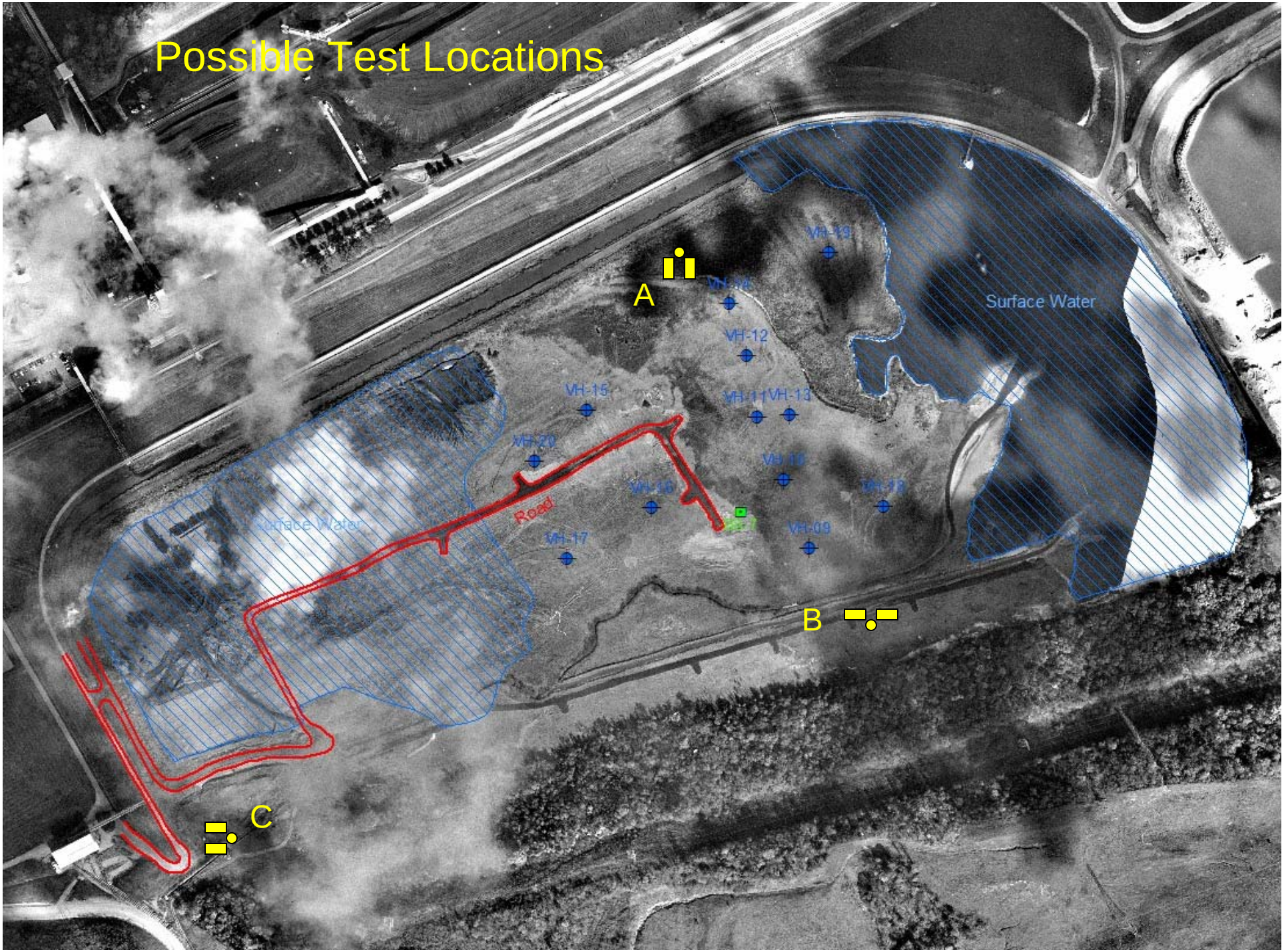

Thickener
Generator
Workshop
Lamella Classifier
Flotation Cells
Tailings Sump
Process Water Tank
Dewatering Screen
Filter
Feed Tank
Classifier
Conveyor
Feed Stockpile


Feed Stockpile
Process Water Tank
Conveyor
Generator
Feed Tank
Dewatering Screen
Lamella Classifier
Classifier
Workshop
Flotation Cells
Filter
Thickener
Tailings Sump

Equipment Layout



Possible Test Locations



Feed System

- Pre-screen feed at 3/8”
  - Homogenize
  - Remove coarse oversize
- Convey to primary mix tank (500 gal)
- Pump to feed slurry tank (500 gal)
  - Remove vegetation with 16 mesh sieve bend

Primary Classifier

- Reject +100 mesh
  - Dewater with Sweco
  - Coarse carbon recovered (-28+100)
- Recover +100 mesh
  - Feed to flotation or lamella

Lamella Classifier

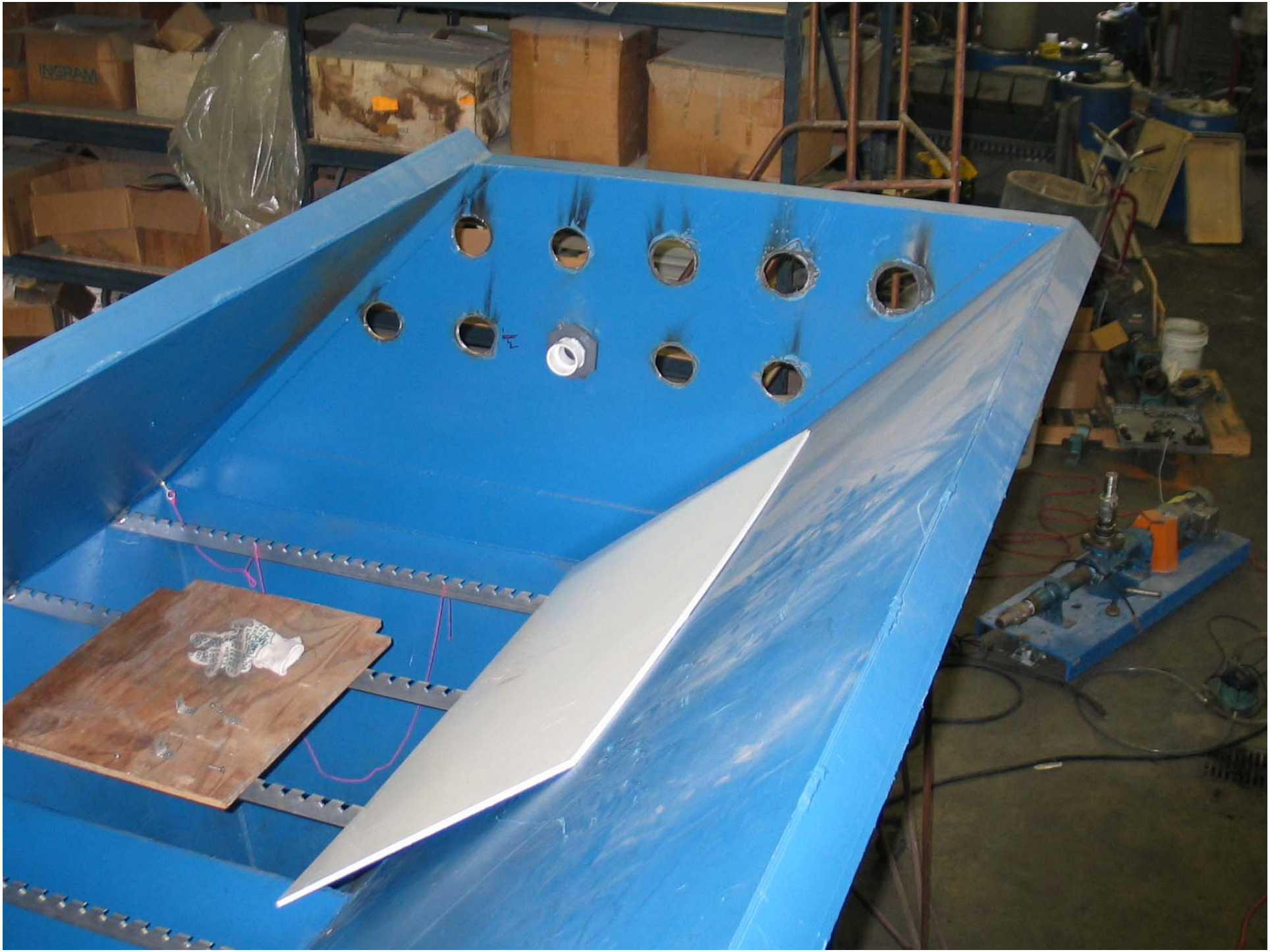
- Feed with flotation tailings
- Feed with primary classifier overflow
- Reject coarse (+5 micron) with pumps
- Recover UFA (-5 micron) in overflow

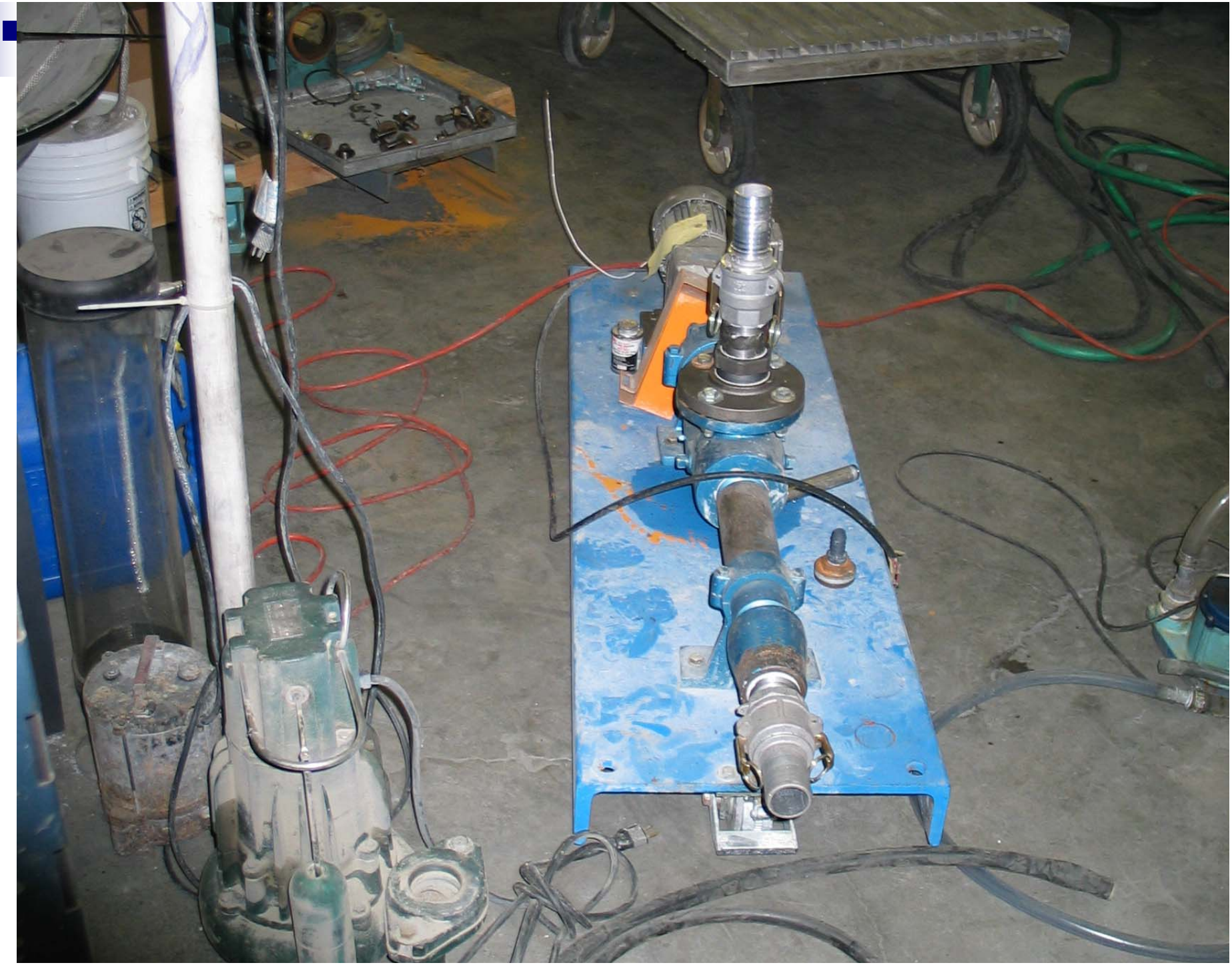
UFA Thickener

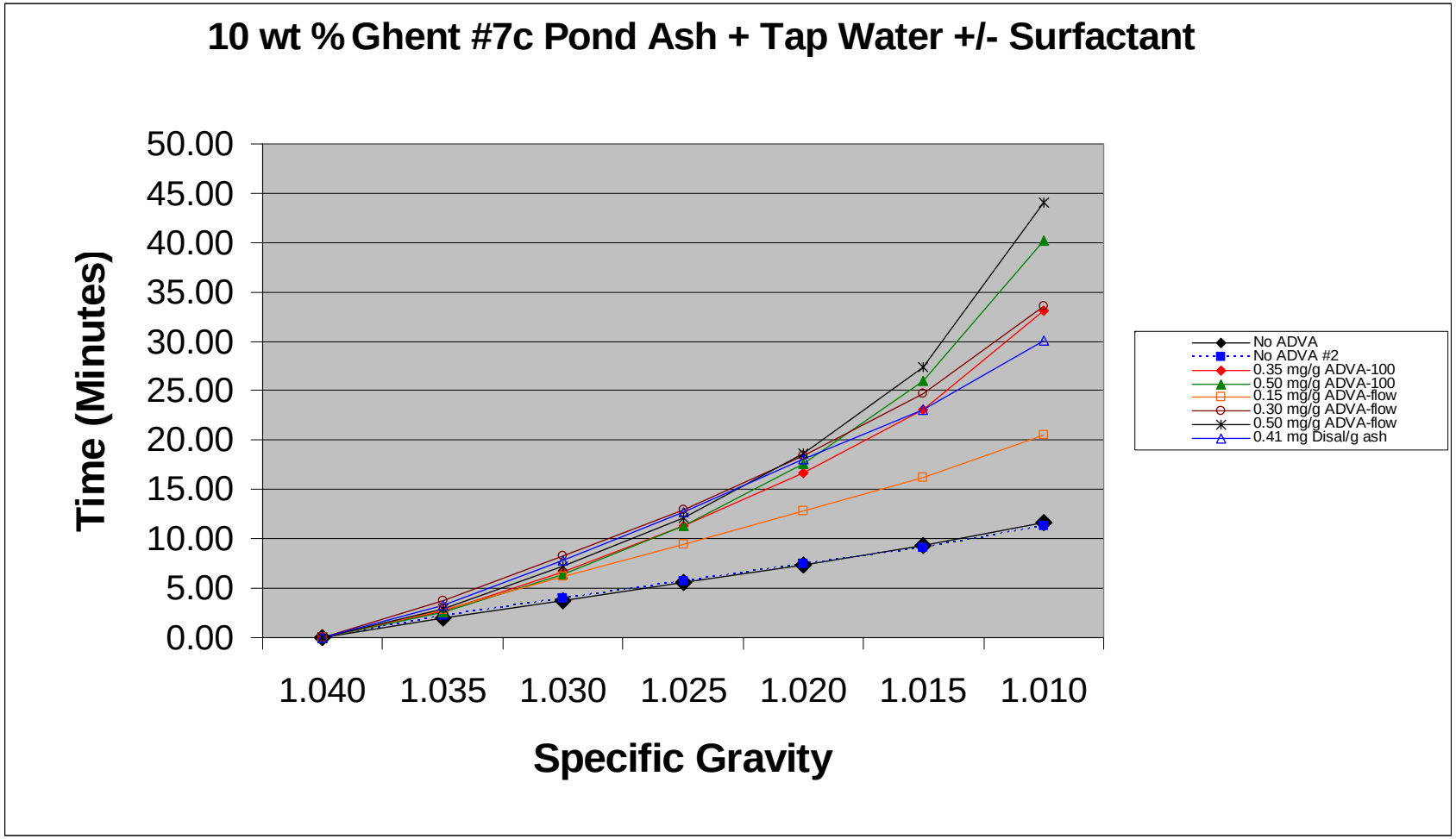
- Gravity feed from Lamella overflow
- Flocculate with PEO
  - Clarified overflow re-circulated to feed tank
  - Thickened underflow pumped to UFA filter

UFA Filter

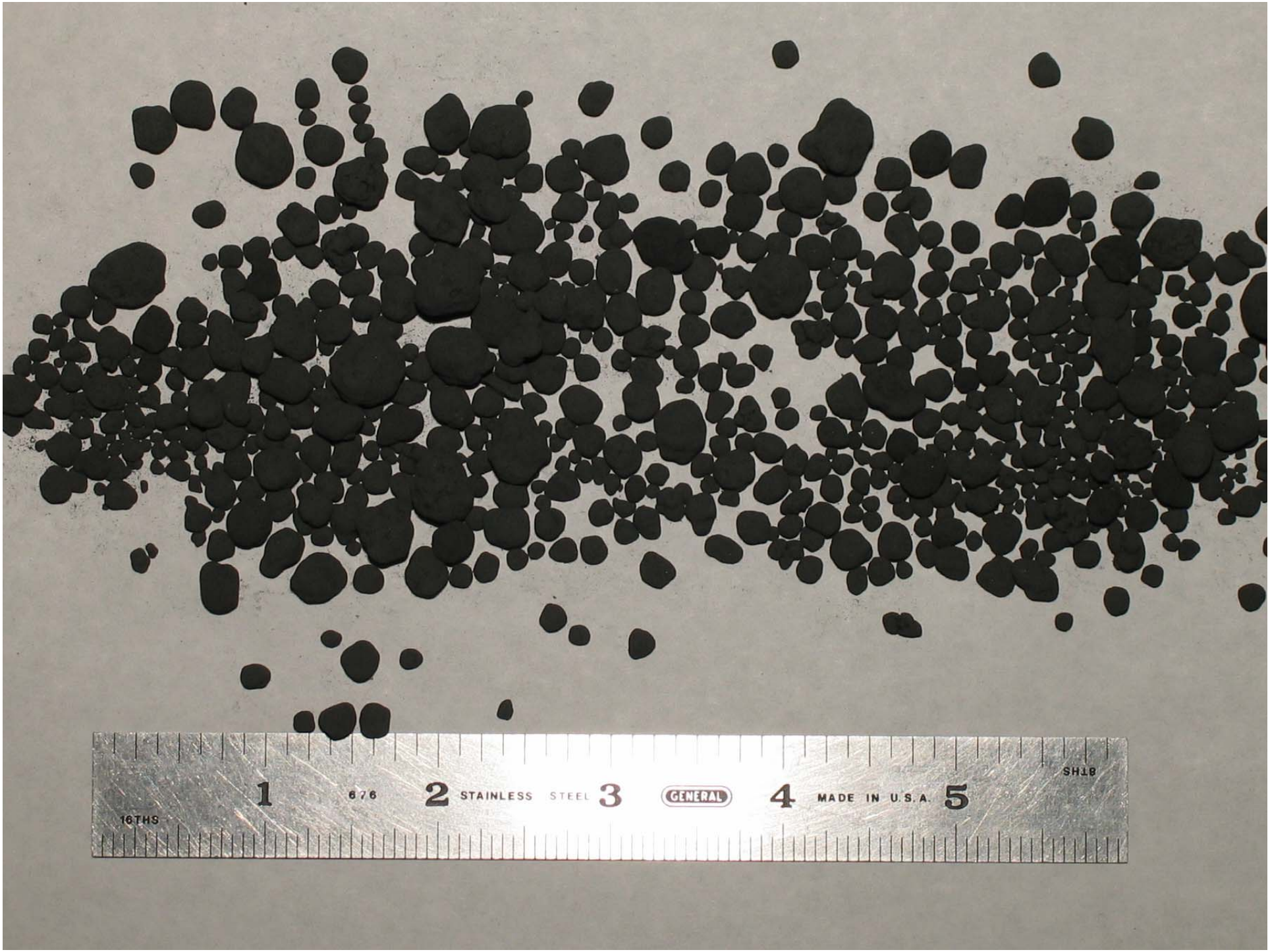
- Vacuum filter to 30% moisture
- Recover filtrate and overflow to filter later


INGRAM

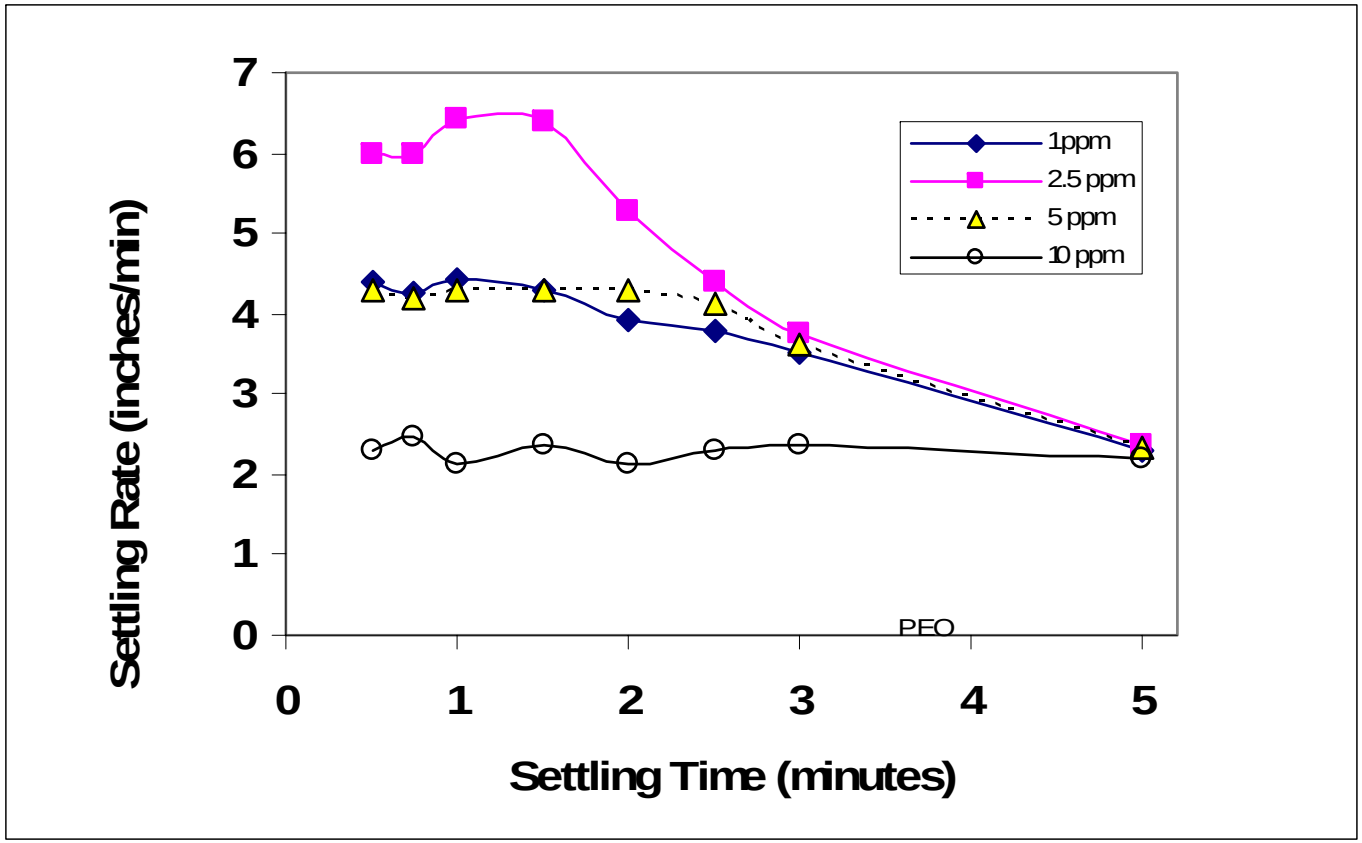



10 wt % Ghent #7c Pond Ash + Tap Water +/- Surfactant
Time (Minutes)
50.00
45.00
40.00
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
1.040
1.035
1.030
1.025
1.020
1.015
1.010
Specific Gravity
No ADVA
No ADVA #2
0.35 mg/g ADVA-100
0.50 mg/g ADVA-100
0.15 mg/g ADVA-flow
0.30 mg/g ADVA-flow
0.50 mg/g ADVA-flow
0.41 mg Disal/g ash

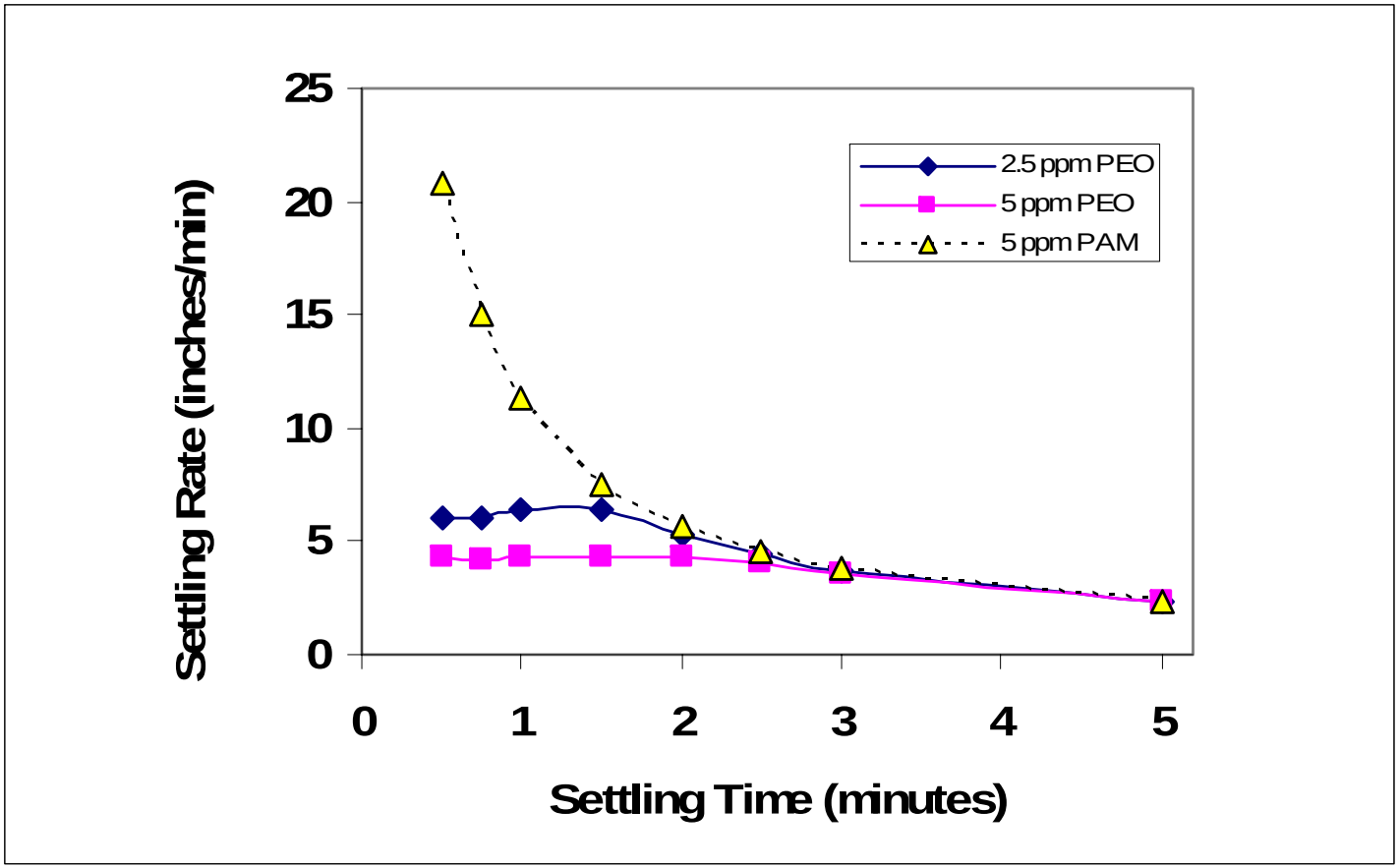
DANGER
WATCH
YOUR HANDS
AND FINGERS

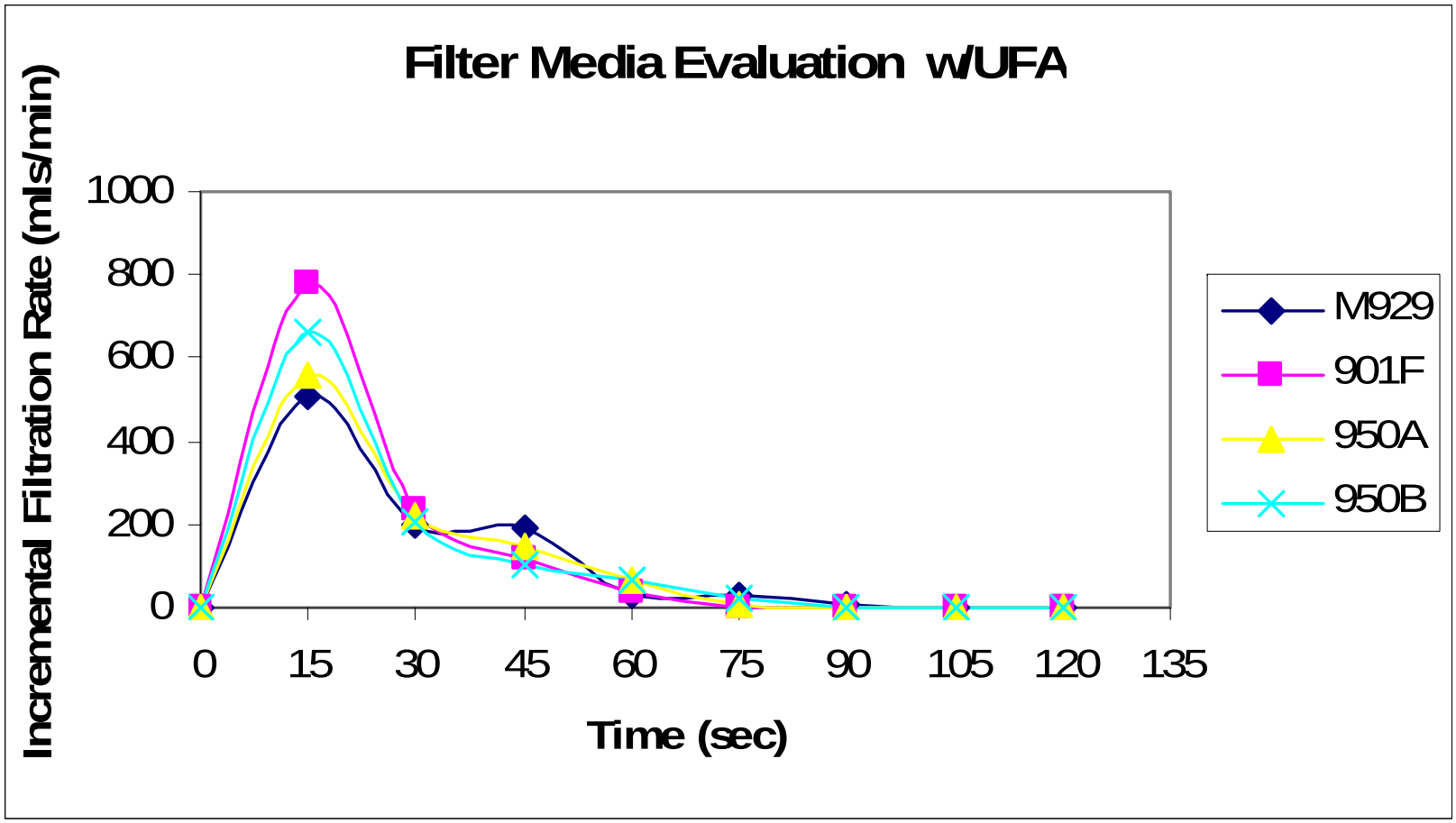

1
676
2
STAINLESS
STEEL
3
GENERAL
4
MADE IN U.S.A.
5
16THS
8THS

Batch Filtration of UFA w/ Floc

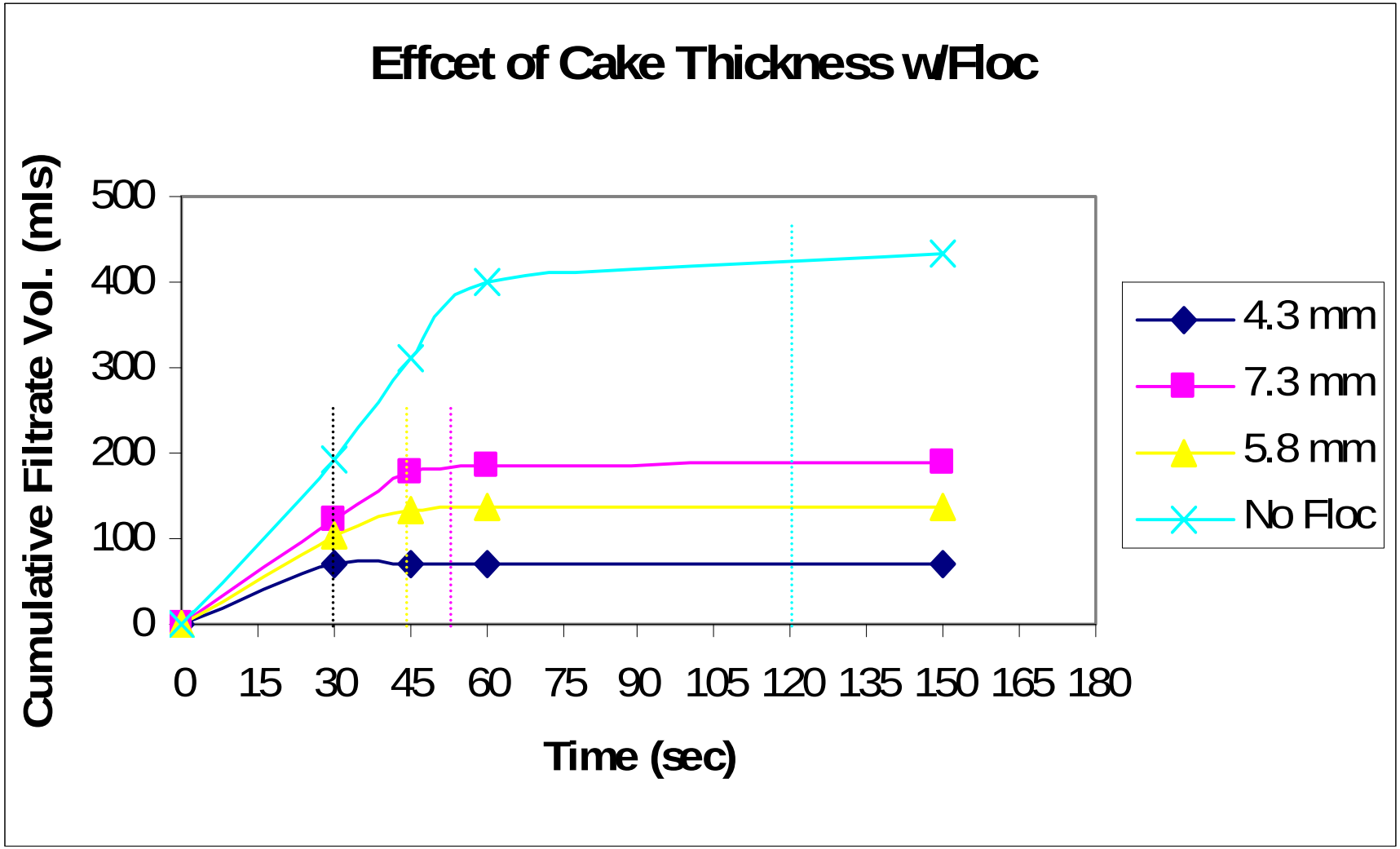


Comparison of PEO and PAM

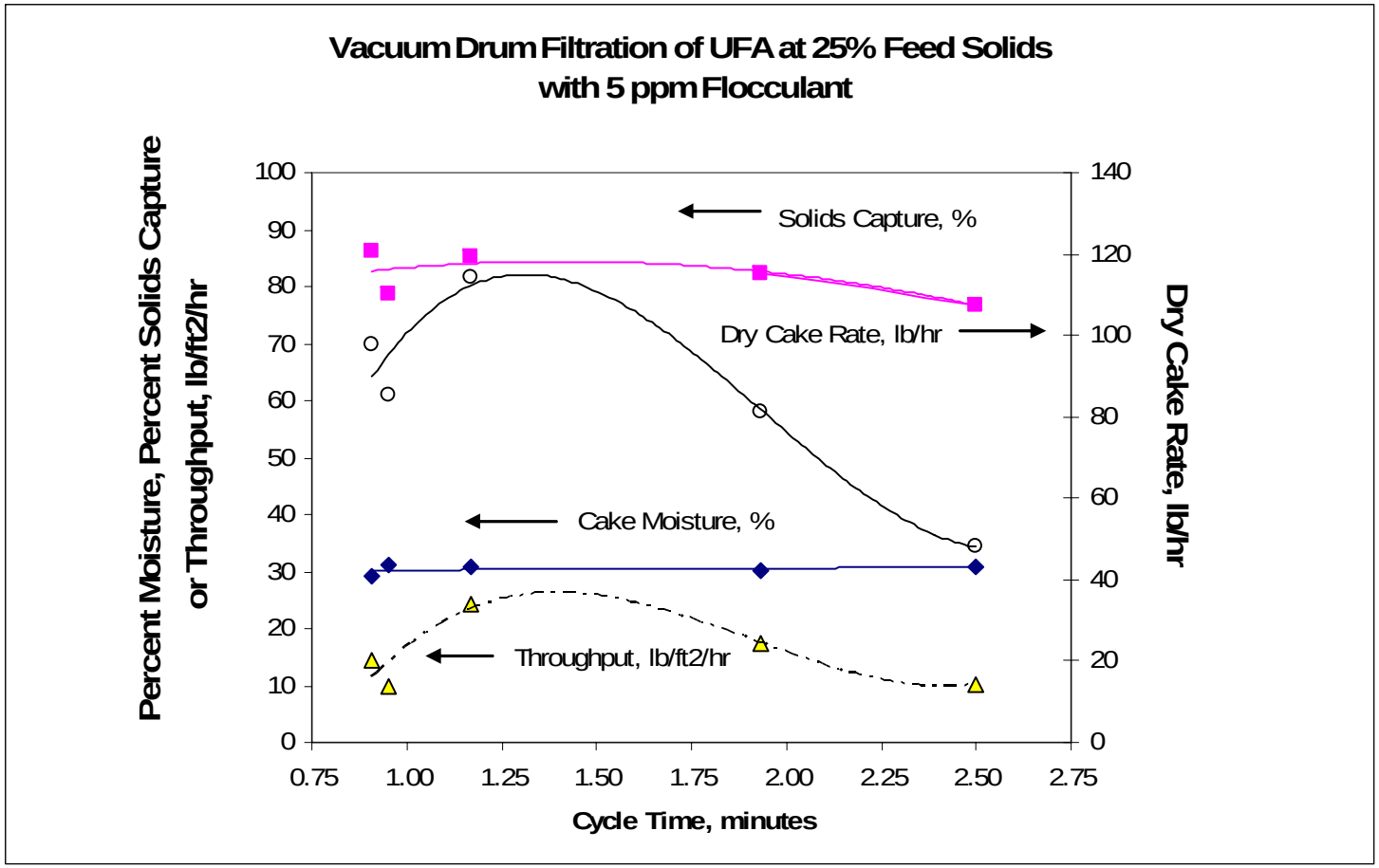


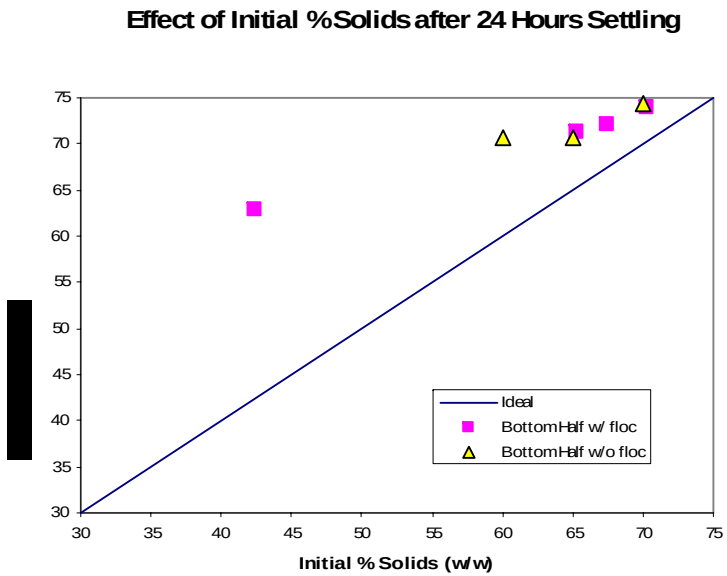
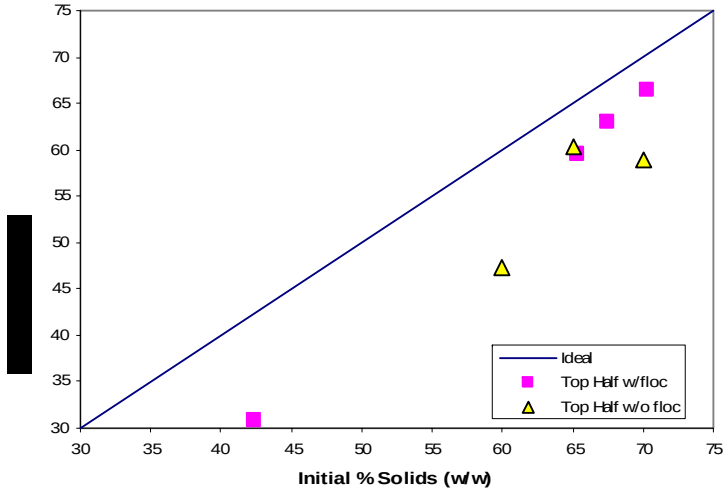

Filter Media Evaluation w/UFA
Incremental Filtration Rate (mls/min)
1000
800
600
400
200
0
0
15
30
45
60
75
90
105
120
135
Time (sec)
M929
901F
950A
950B

Cake Formation Time



Continuous Filtration Results



30% Moisture

Slurry Stabilization Results