

# Particle Monitor Experience

## Tracking Corrosion Product Transport from an Air-Cooled Condenser

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*2<sup>nd</sup> ACC User's Group Meeting*

*Pueblo, CO*

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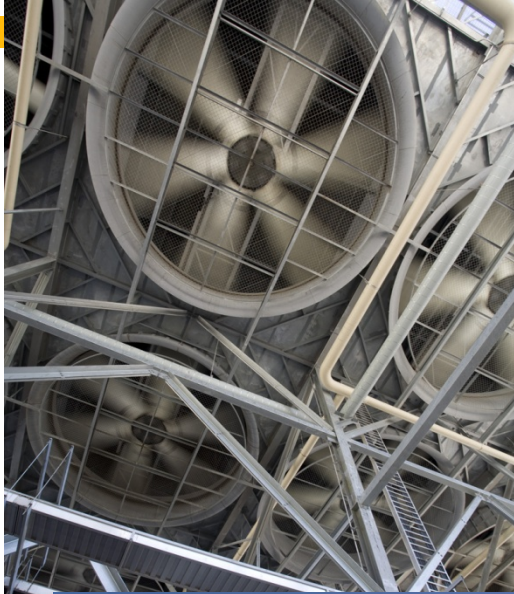
# Particle Monitor Experience

## ▶ Currant Creek Plant

- ▶ 80 miles South of Salt Lake City
- ▶ 2x1 HRSG with GEA Air-cooled condenser
- ▶ Built in 2005
- ▶ 2, 145 MW 7FA CTs & 1, 250 MW Toshiba steam turbine



# Air-Cooled Condenser



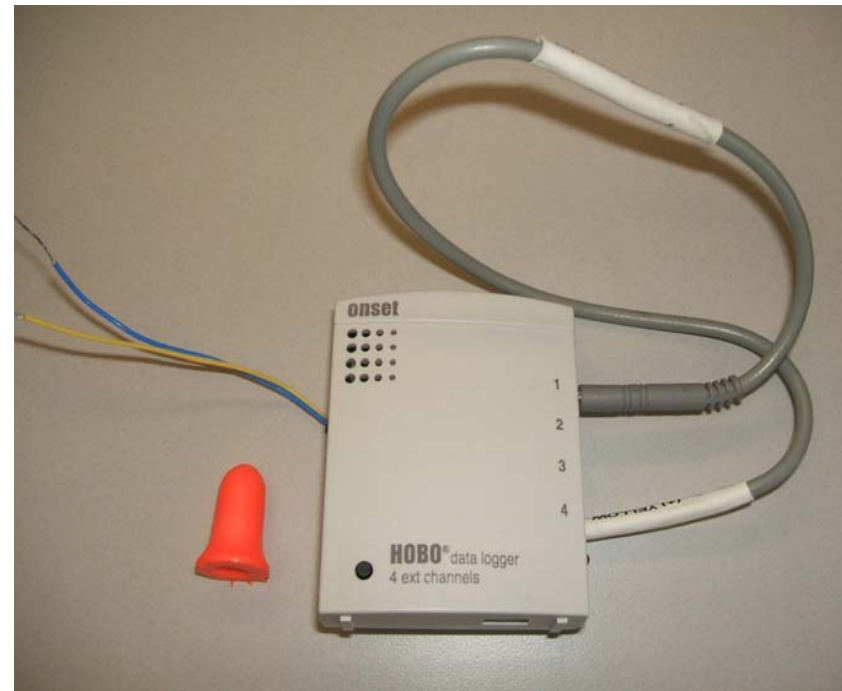
- GEA Air Cooled-Condenser
  - 1.5 MM lbs/hour steam
  - 1097 BTU/lb duty
  - 6.52" Hg back pressure
  - Inlet at 87°F



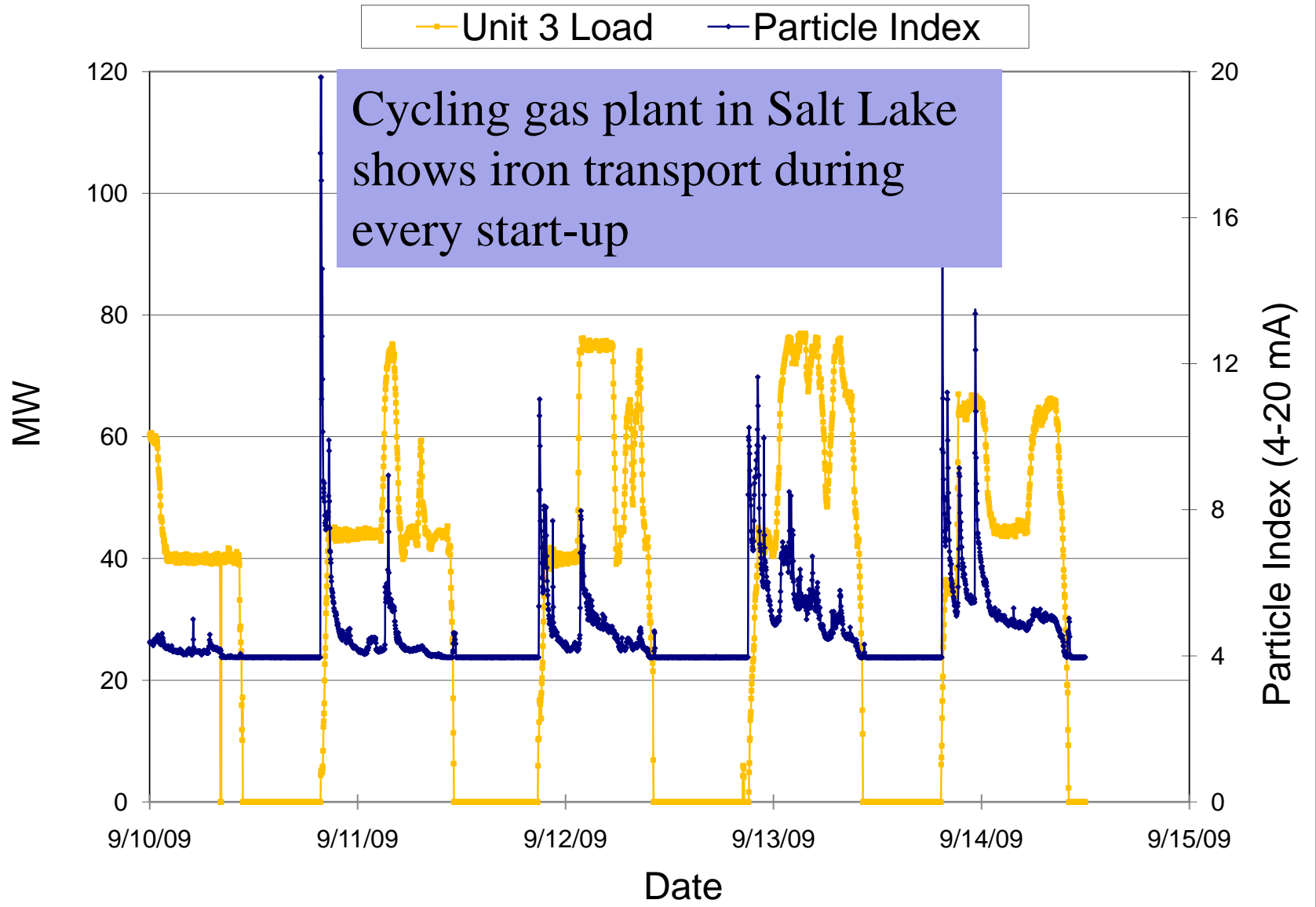
Full-flow Pall  
condensate filter used  
downstream of  
condensate pumps

# Equipment Used

- ▶ Chemtrac Particle Monitor (PM 2500)
- ▶ Hobo 4 channel data logger (made by Onset)



# Gadsby Unit 3 Corrosion Transport

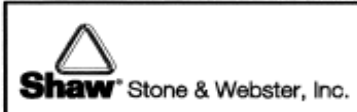
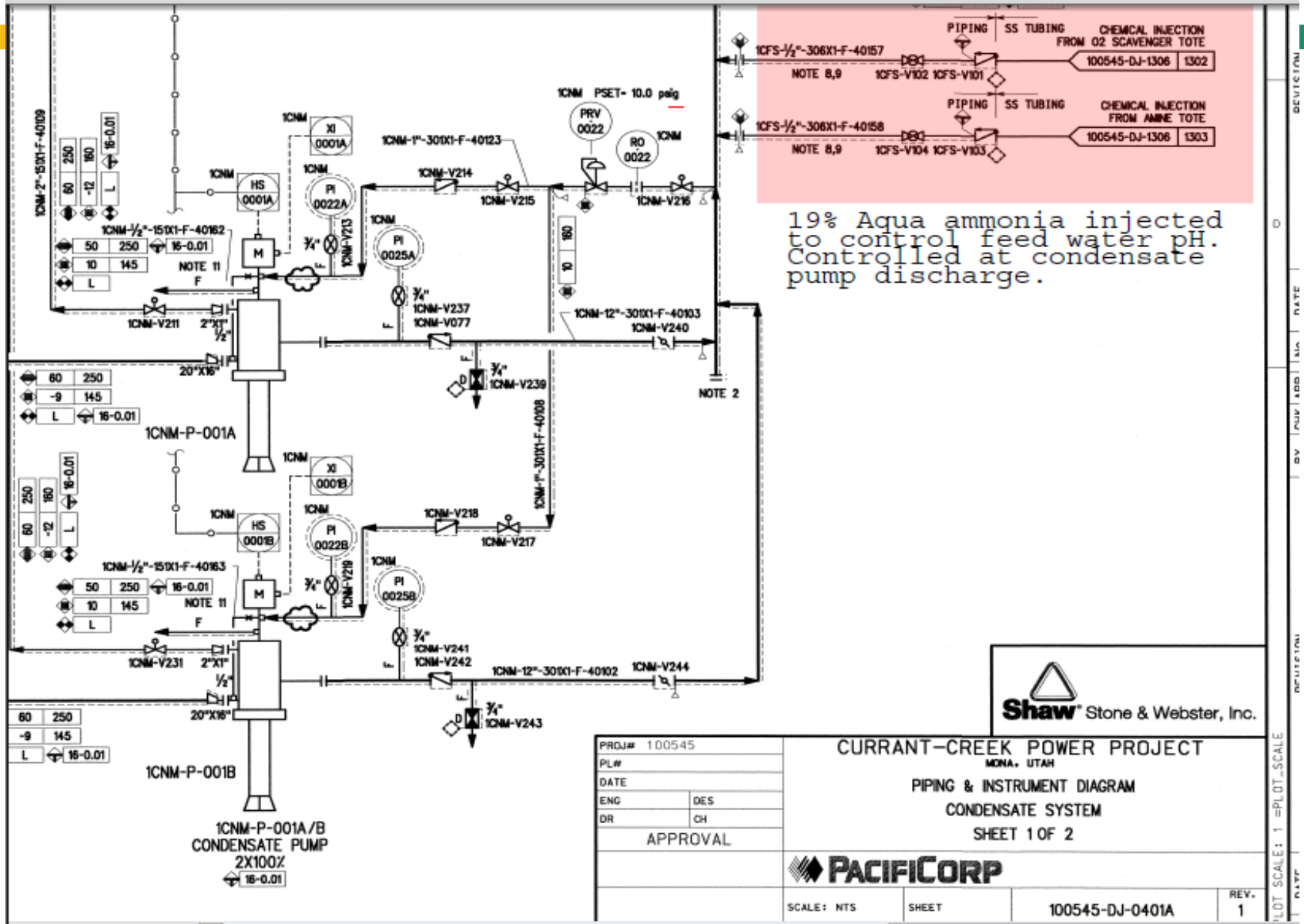


# Observations from Cycling Plant (Gadsby)

- ▶ Particle Monitor is very responsive to small changes in load or corrosion product transport.
- ▶ Corrosion product transport is heaviest at start-up.
- ▶ Corrosion product transport levels out within 2-5 hours of start-up or load change.

**Can similar findings be observed downstream of an air-cooled condenser at the Currant Creek Plant?**

# Chemistry & Particle Monitor Set-up



PRJ#	100545
PL#	
DATE	
ENG	DES
DR	CH
APPROVAL	

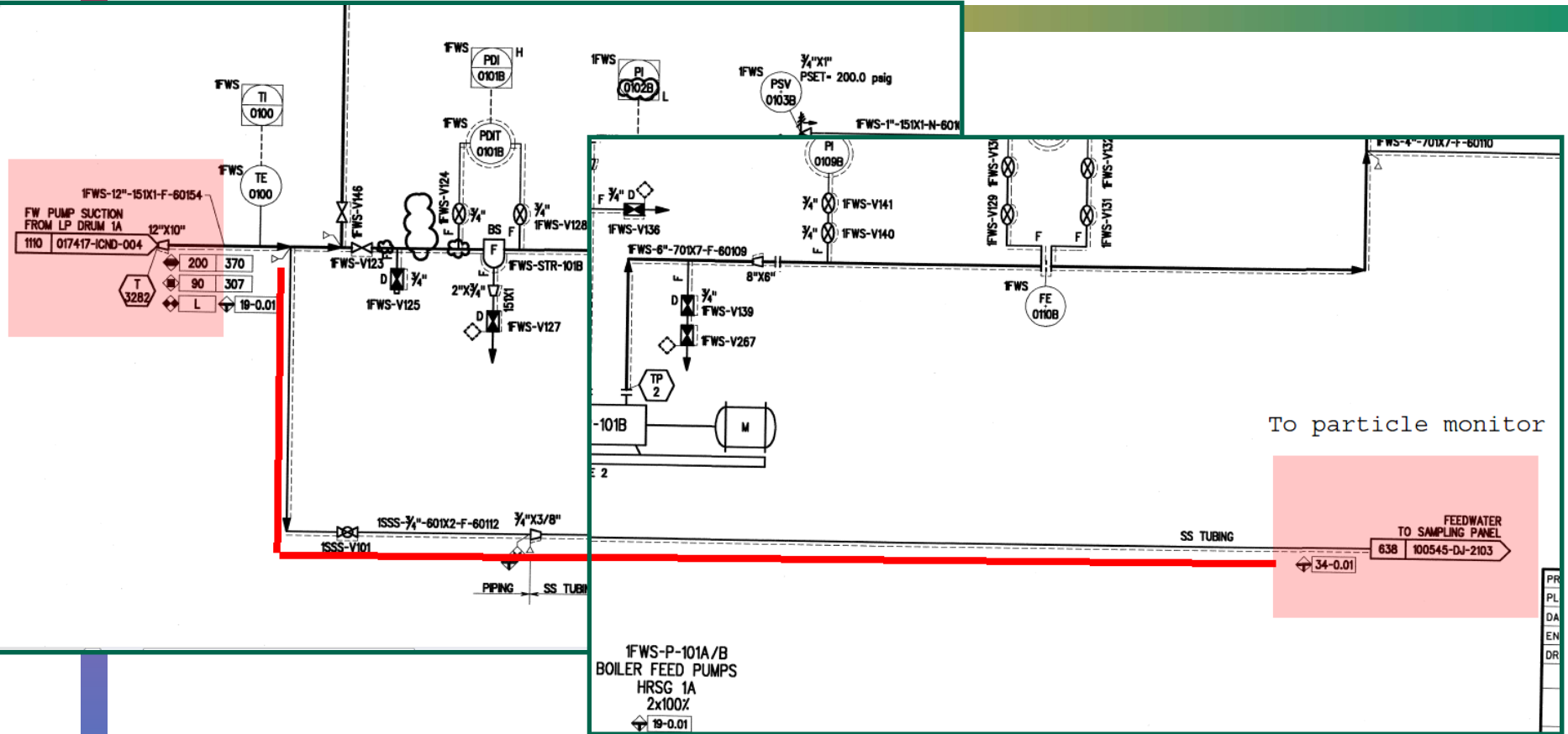
**CURRANT-CREEK POWER PROJECT**  
 MONA, UTAH  
**PIPING & INSTRUMENT DIAGRAM**  
**CONDENSATE SYSTEM**  
 SHEET 1 OF 2



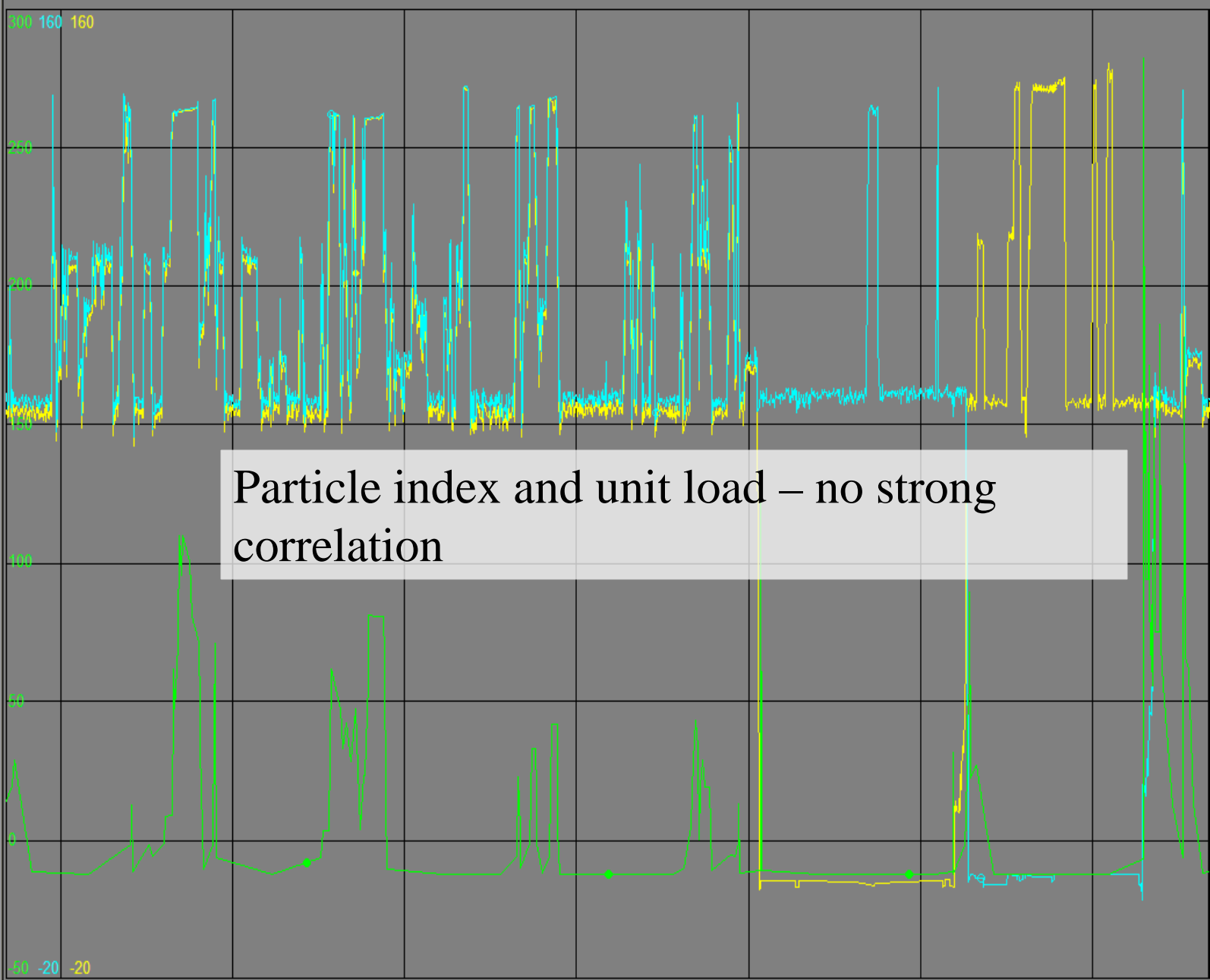
SCALE: NTS	SHEET	100545-DJ-0401A	REV. 1
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SECTION  
 0  
 DATE  
 NO.  
 PIV  
 ADD  
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# Location of Particle Monitor



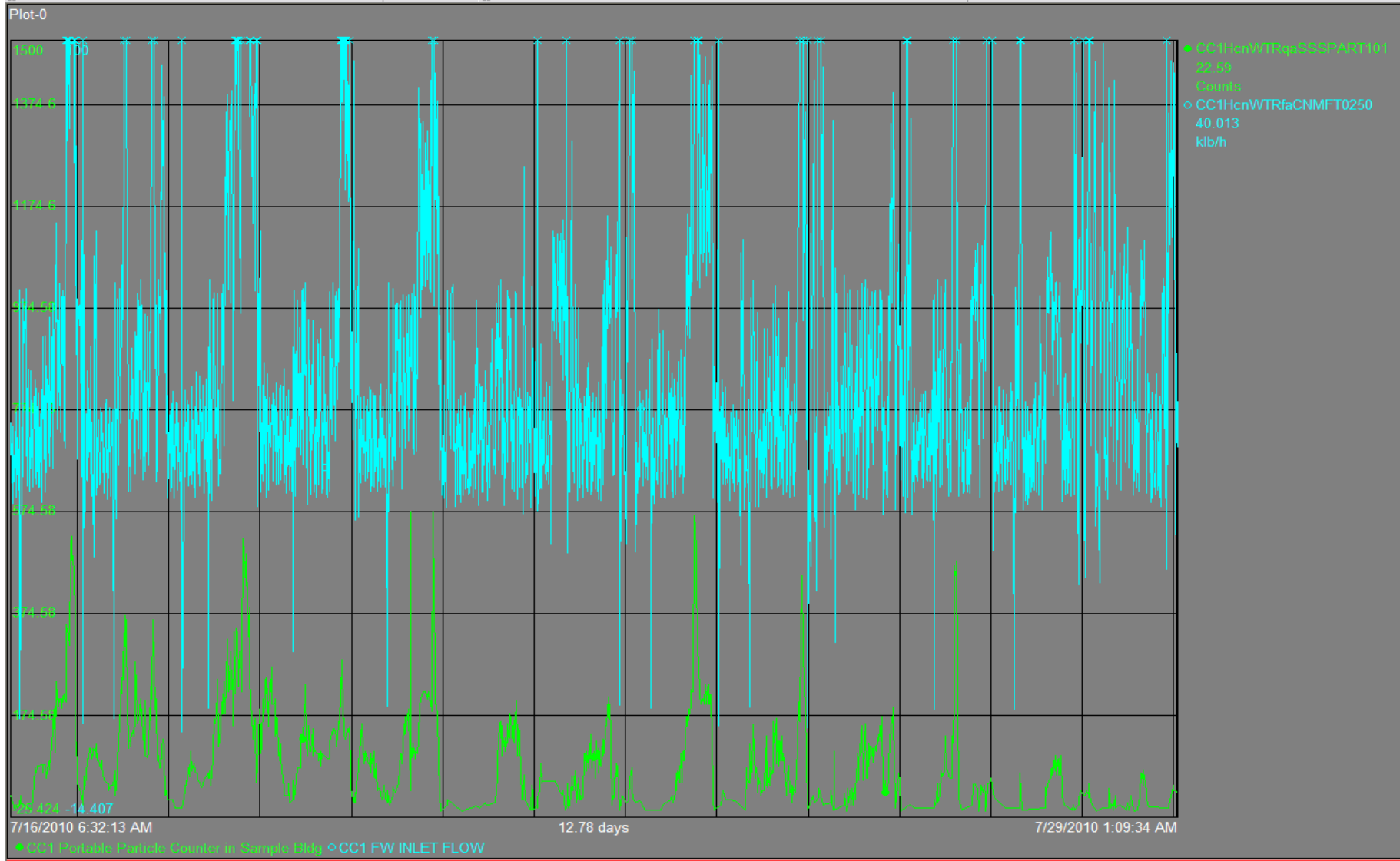




- CC1HerWTRqgSSSPART101  
-11.368  
Counts
- CCAGGnLODgnGMLJT101NMW  
87.933  
MW
- ◆ CCBGnLODgnGMLJT201NMW  
85.113  
MW

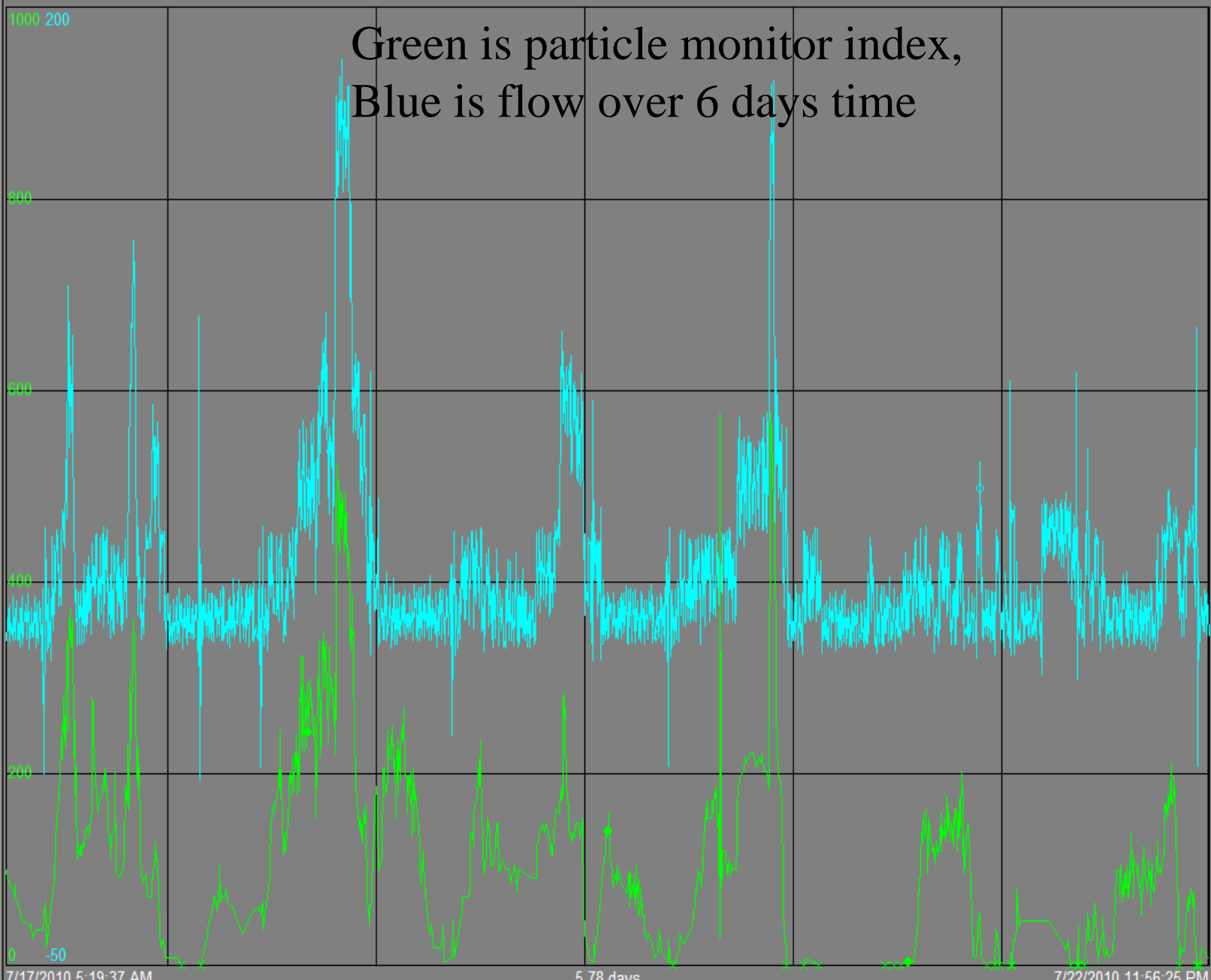
Particle index and unit load – no strong correlation

# Better correlation with flow and particle counts.

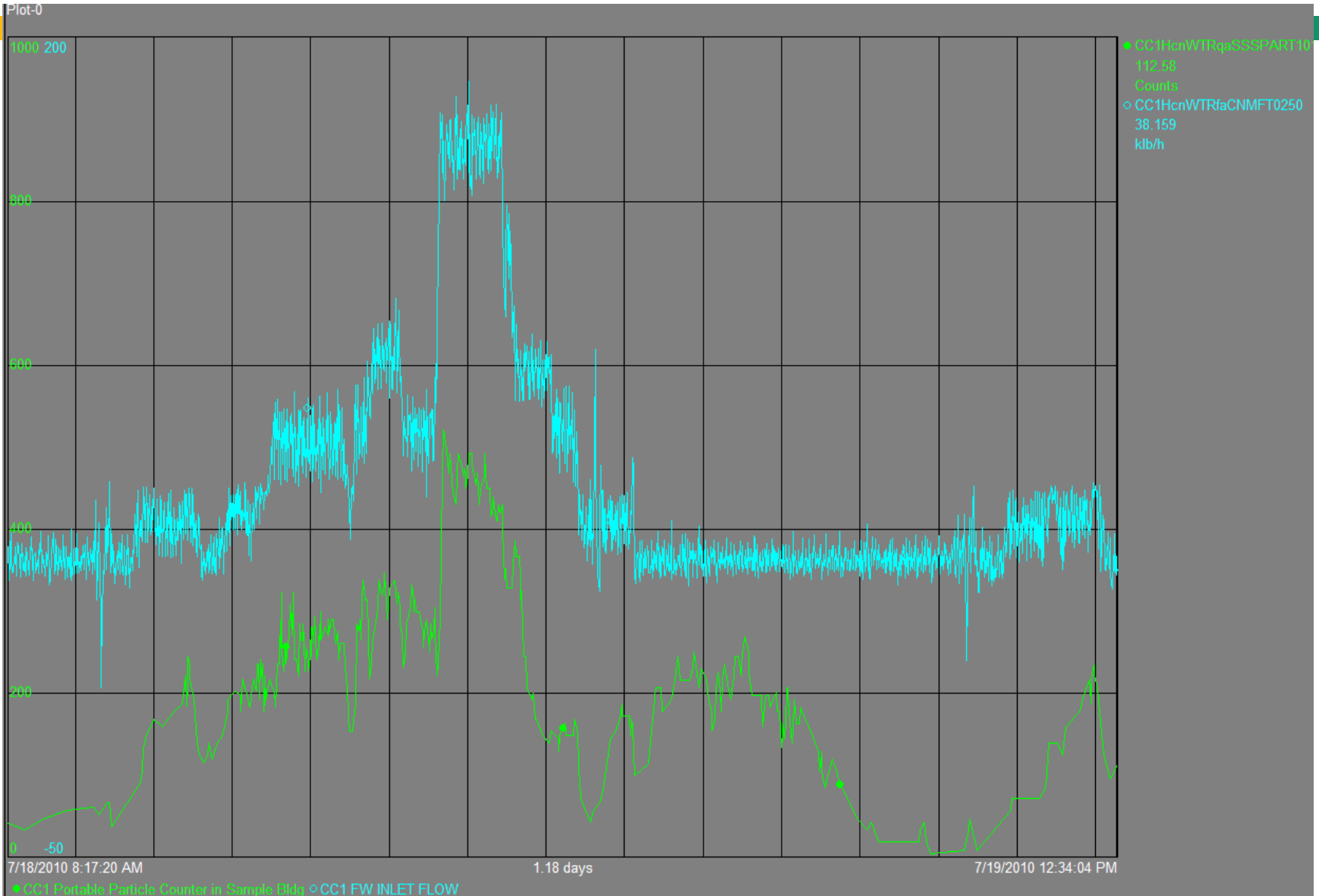


Green is particle monitor index,  
Blue is flow over 6 days time

- CC1HcnWTRfaSSSPART101  
7.6278  
Counts
- CC1HcnWTRfaCNMFT0250  
37.573  
klb/h



# Correlation between feedwater flow and particle monitor index.



# Conclusions

- ▶ No real correlation between dissolved oxygen, pH or any other chemistry data and particle monitor index.
- ▶ Fairly strong correlation between flow and particle monitor index.
- ▶ Unsure how we will use this data in the future, but would welcome advice and input.

# Questions?

**Thank You for any advice or input  
and for your attention!**