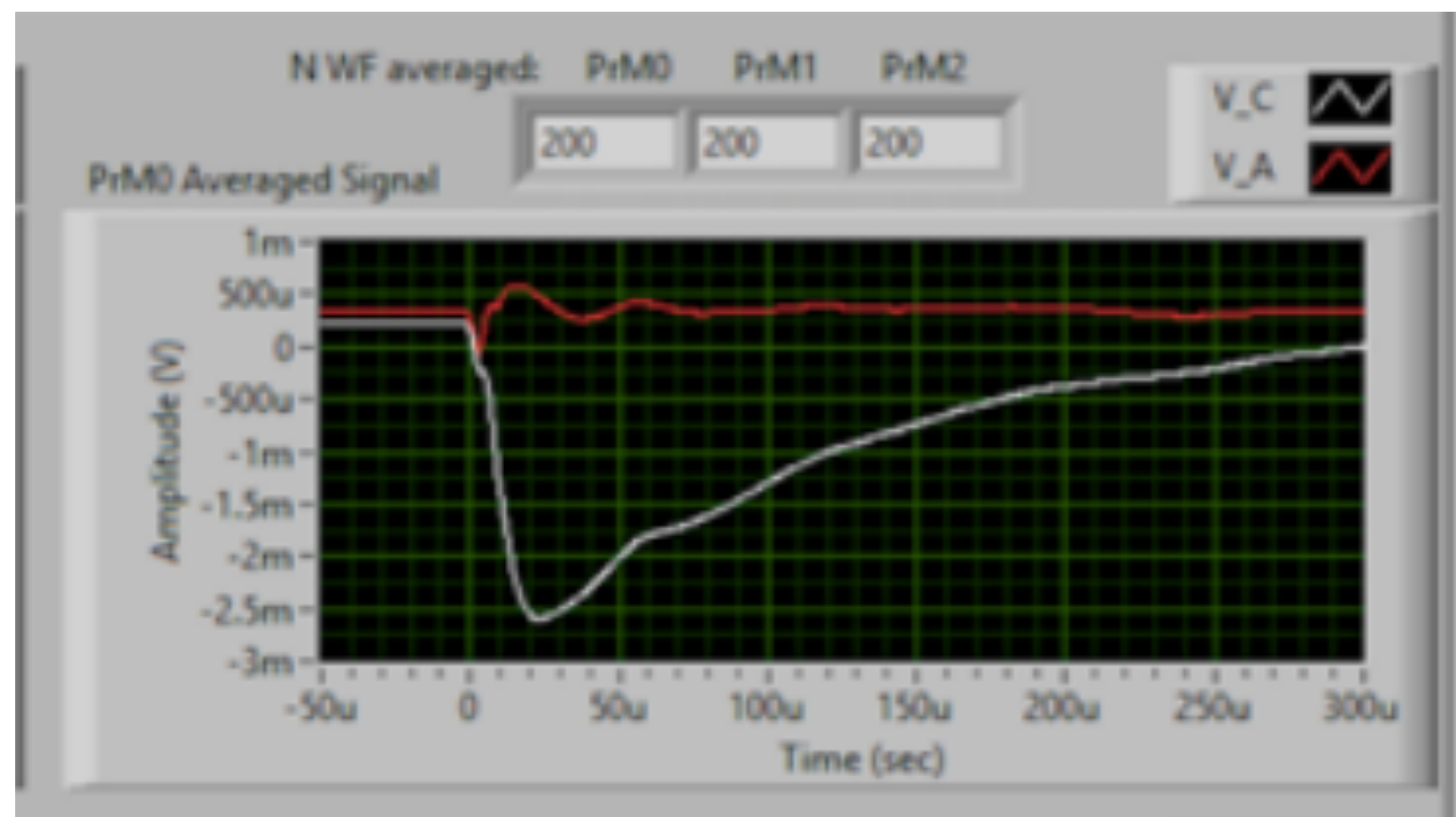


# Purity Monitor Status

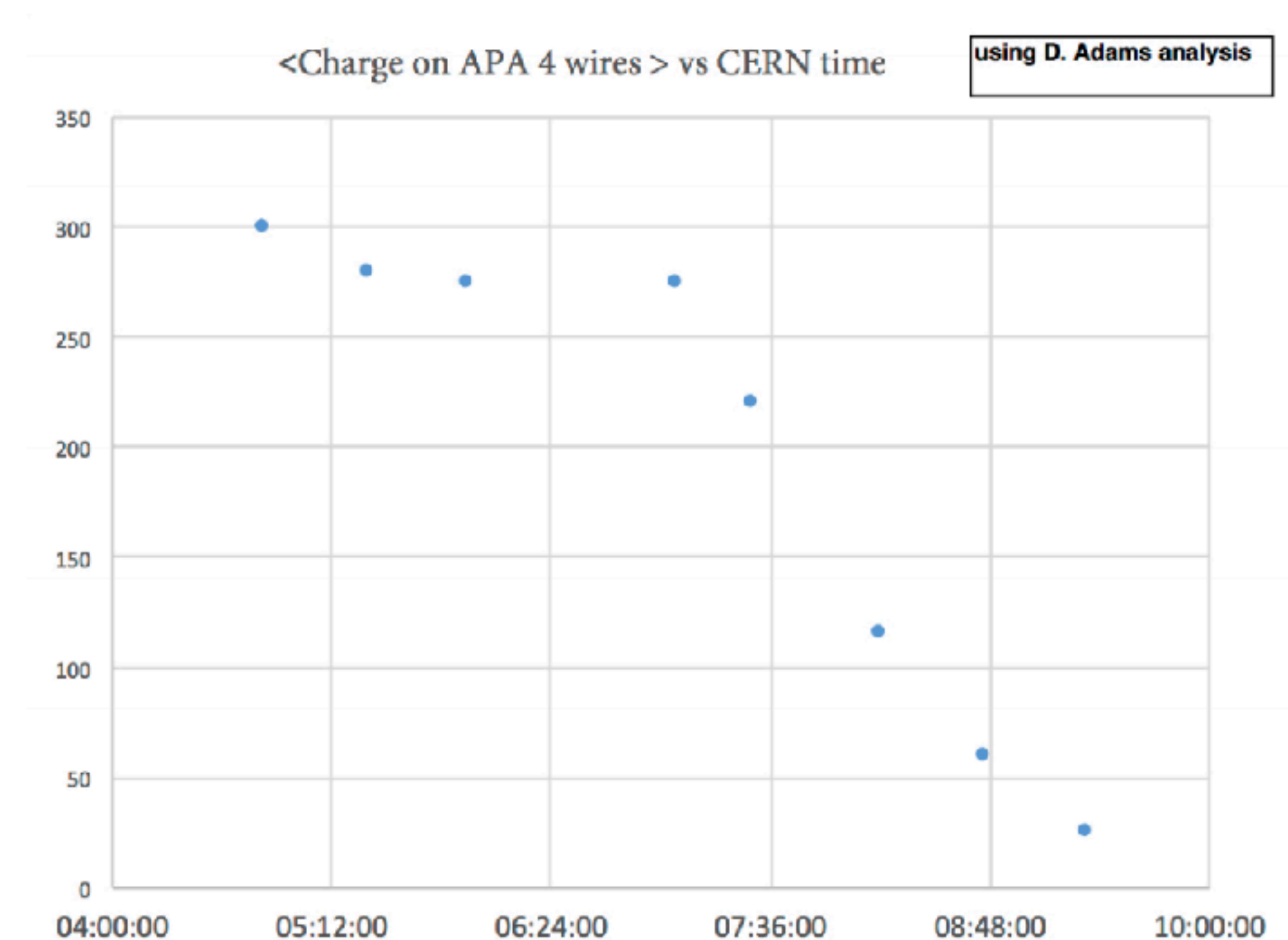
Nitish Nayak  
19th September, 2019

# Introduction

- Warm gas pump had a leak which seemed to let in air, resulting in loss of purity
- Purity monitor showed no visible output



25th July

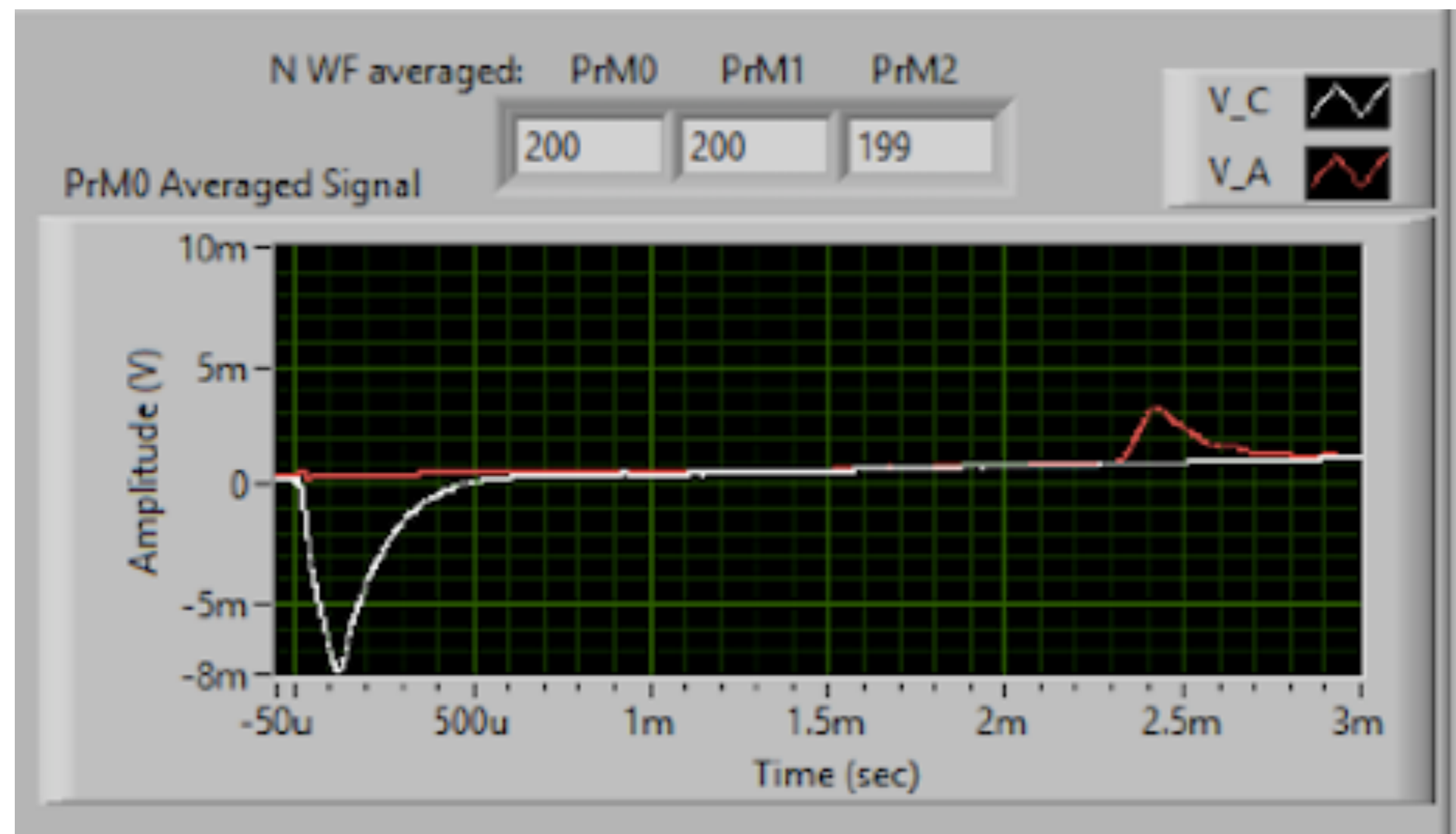


22nd July

<https://indico.fnal.gov/event/21373/contribution/2/material/slides/0.pdf>

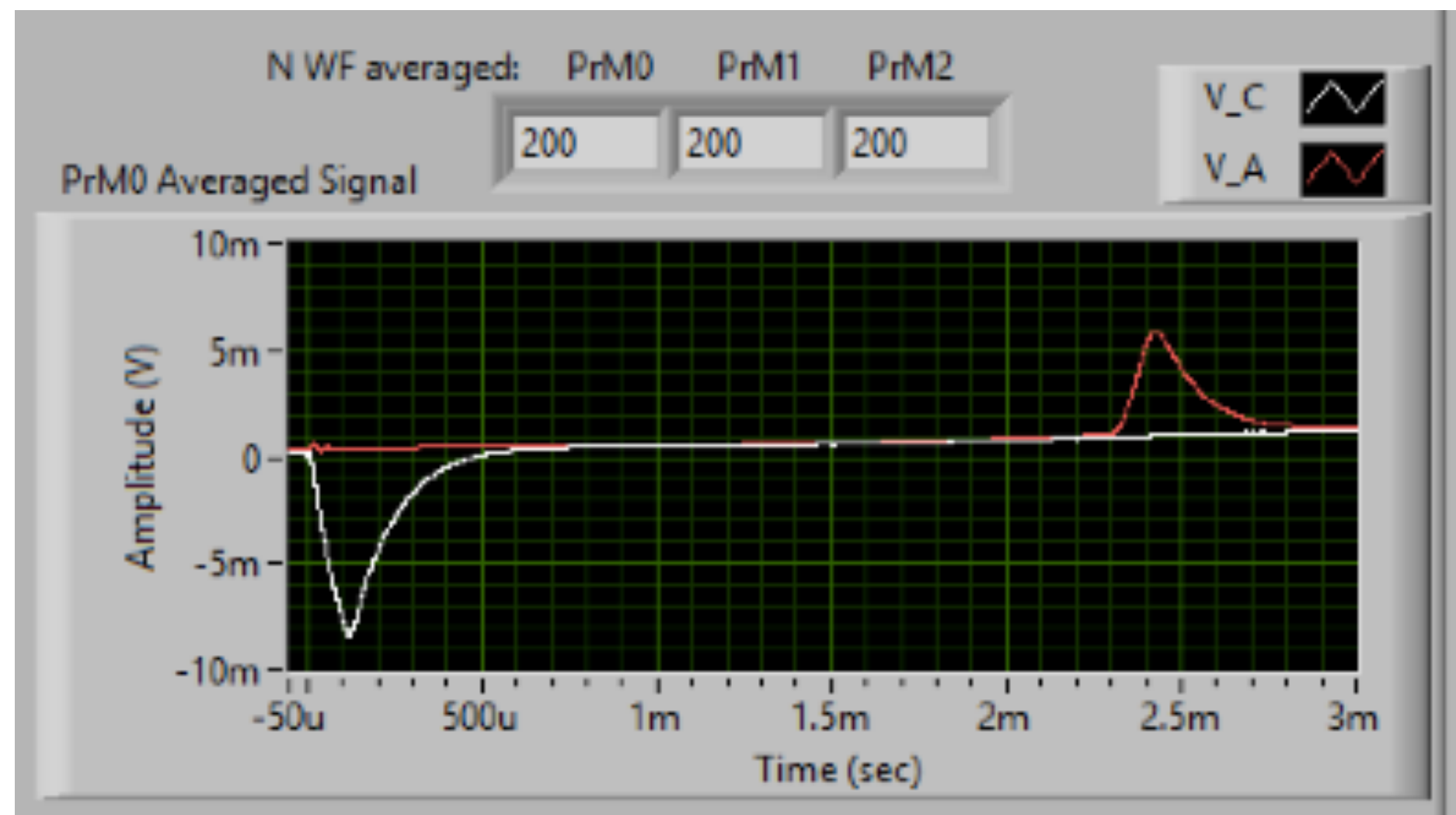
# Since then..

## Top PrM



**Sept 3rd**  
**-50V/250V**  
**2.25ms**

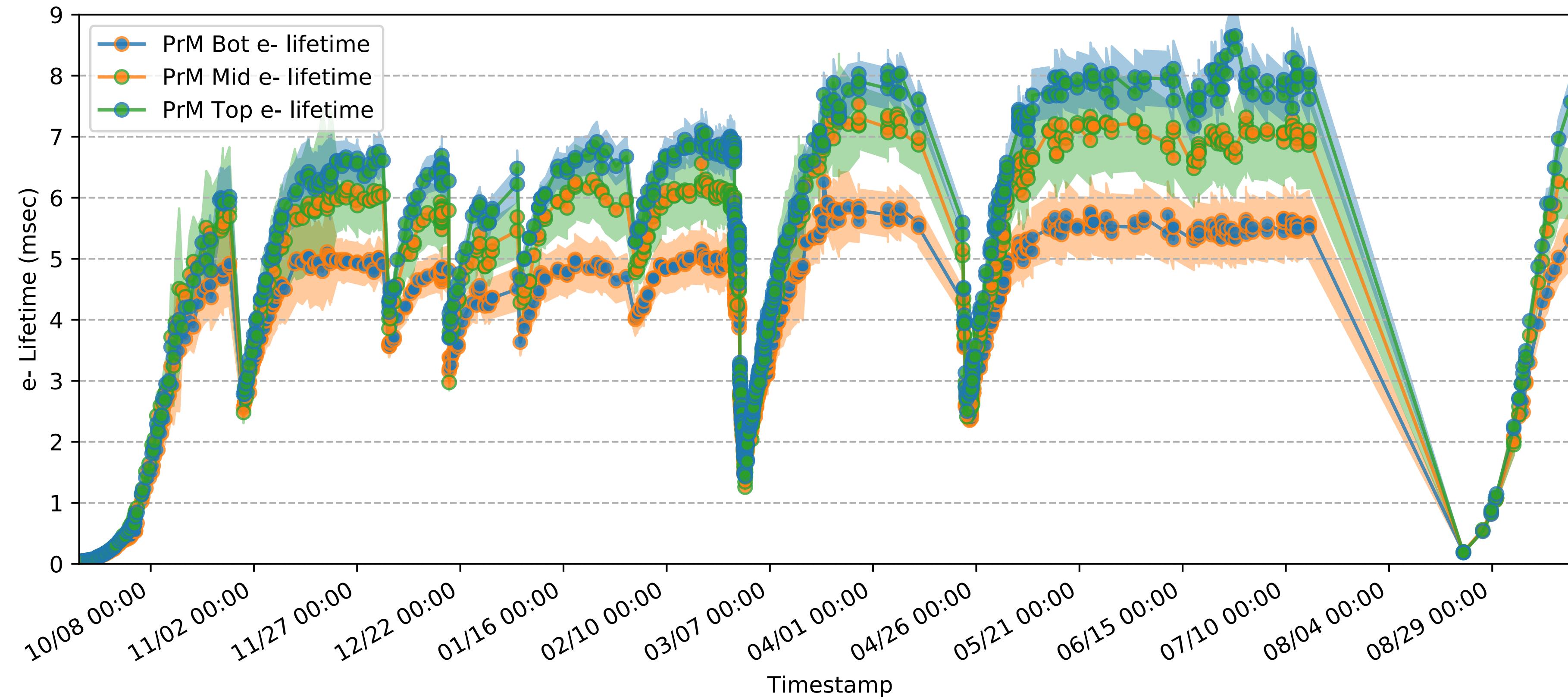
- Continuously monitoring the purity levels



**Sept 19th**  
**-50V/250V**  
**7.5ms**

- Started picking up signal ~last week of August
- We've recovered purity back to pre-July 25th levels

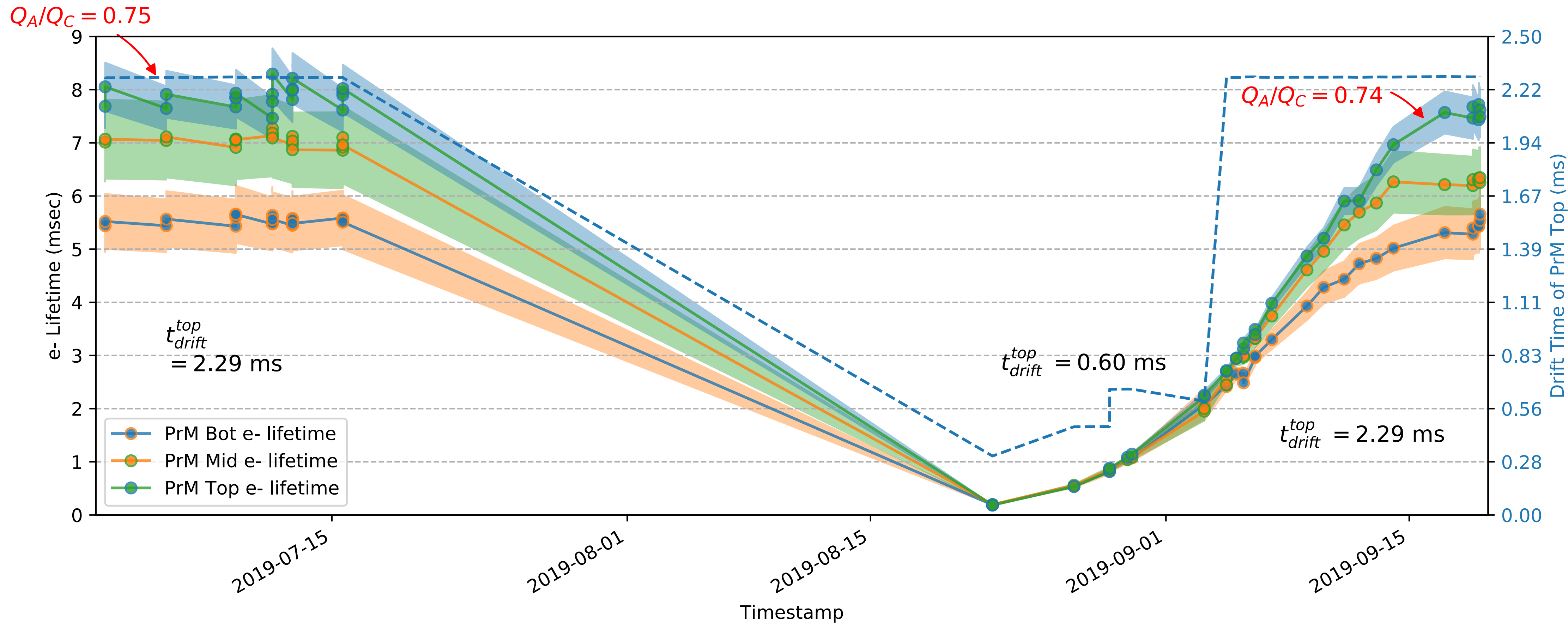
# Lifetime Plot



- Latest lifetime profile shows signs of tapering

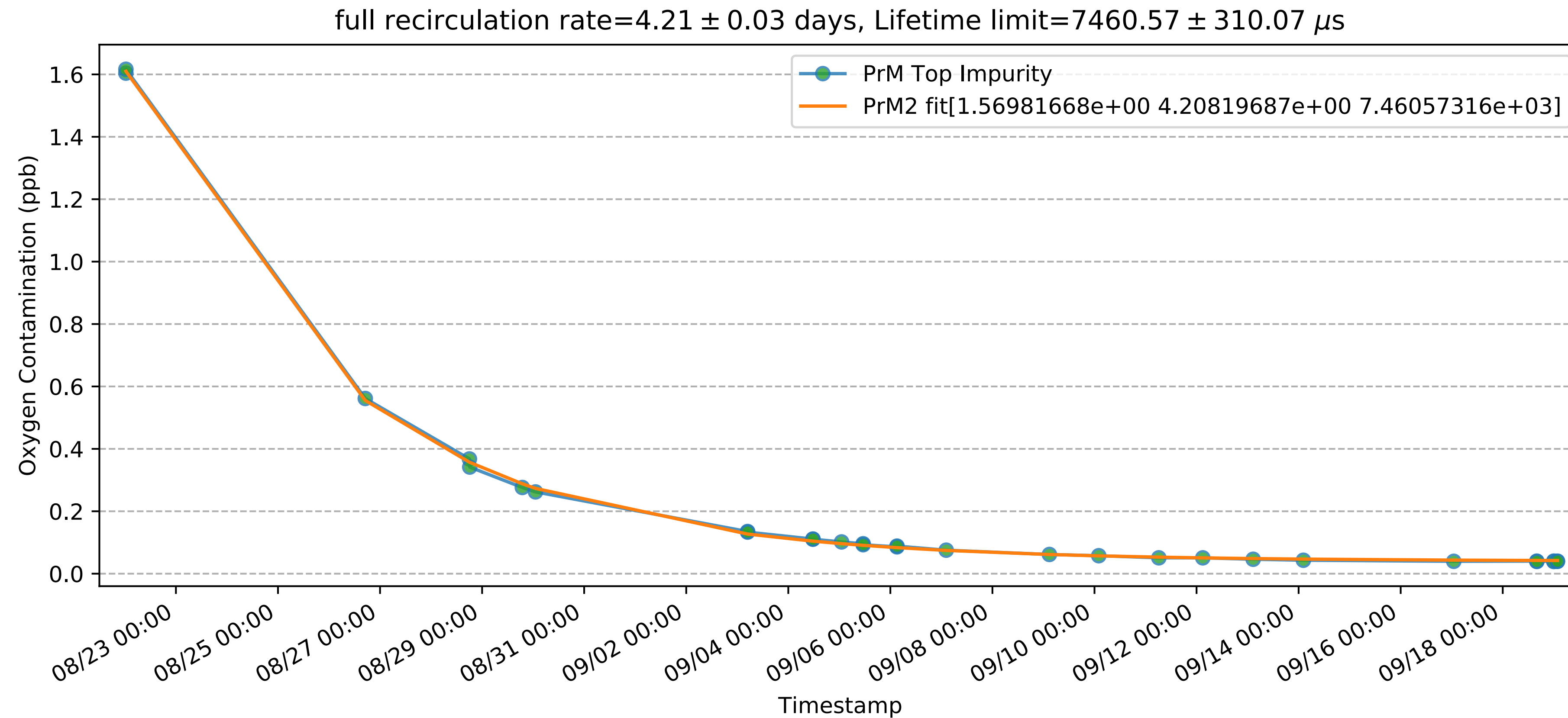


Lifetime Plot w/ Drift Time and Qa/Qc (Zoomed)



- Other parameters seem back to early-mid July values before the purity drop

# Impurity Plot



- Calculated from  $1/\text{lifetime}$  with 1 ppb  $\sim 0.3\text{ms}$
- fit to  $a \cdot \exp(-t/b) + 300/c$  tells us we've basically hit the limit at 7.5ms lifetime

# Impurity Plot (Log Scale)

