



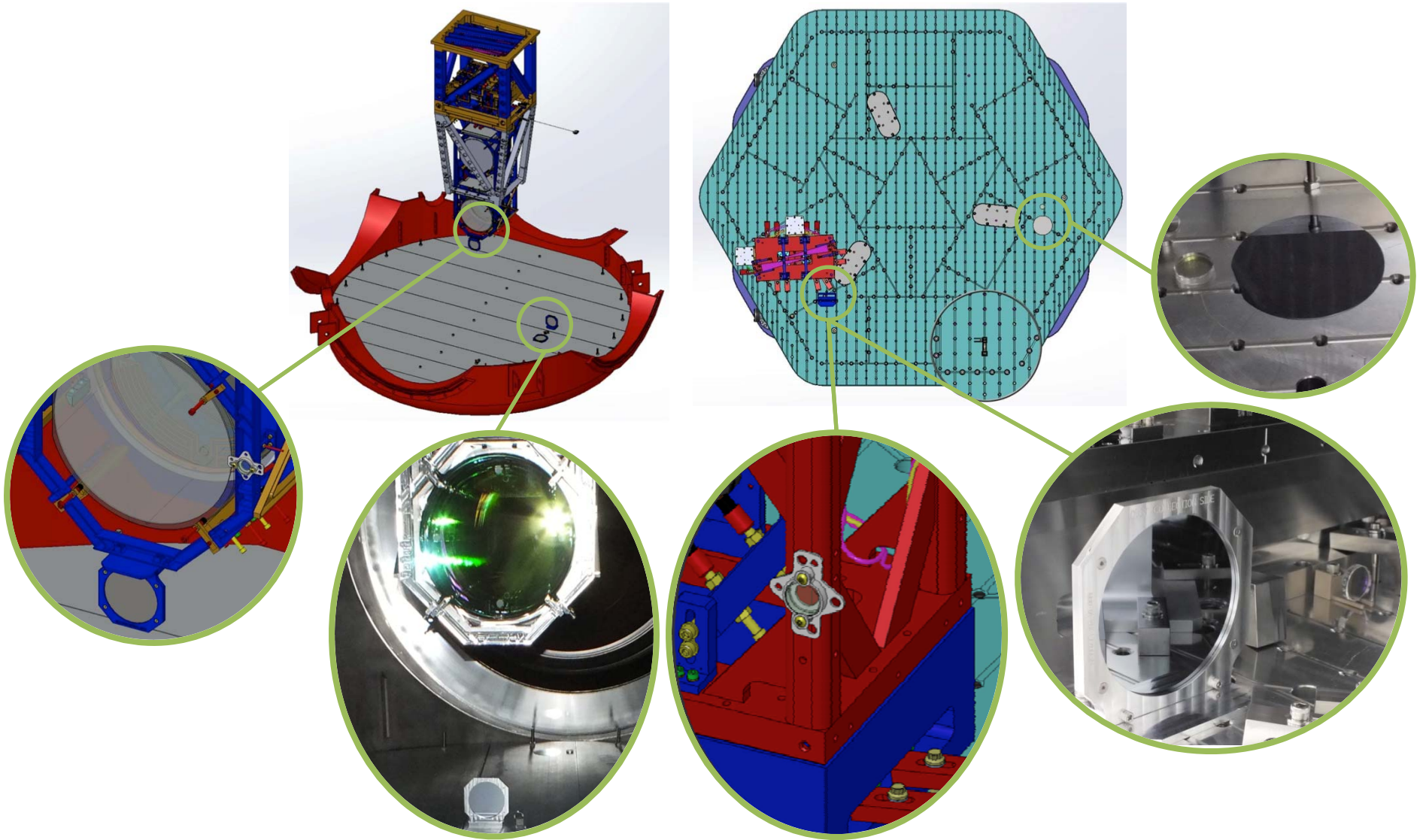
# **SUMMARY OF 4" WAFER DATA**

Contamination Control Working Group

February 26, 2014

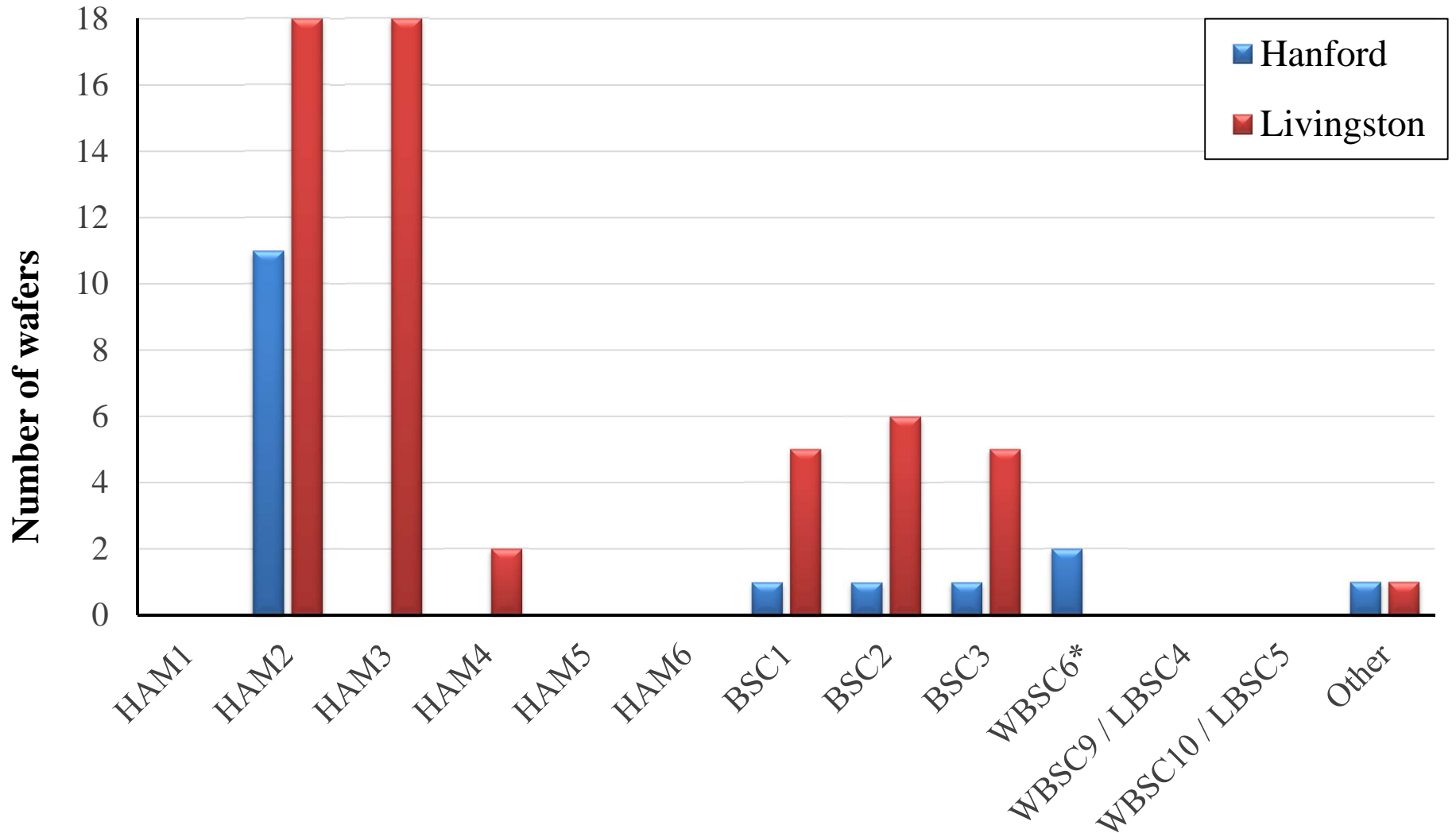


# 4" Wafer & 1" Optic Placement



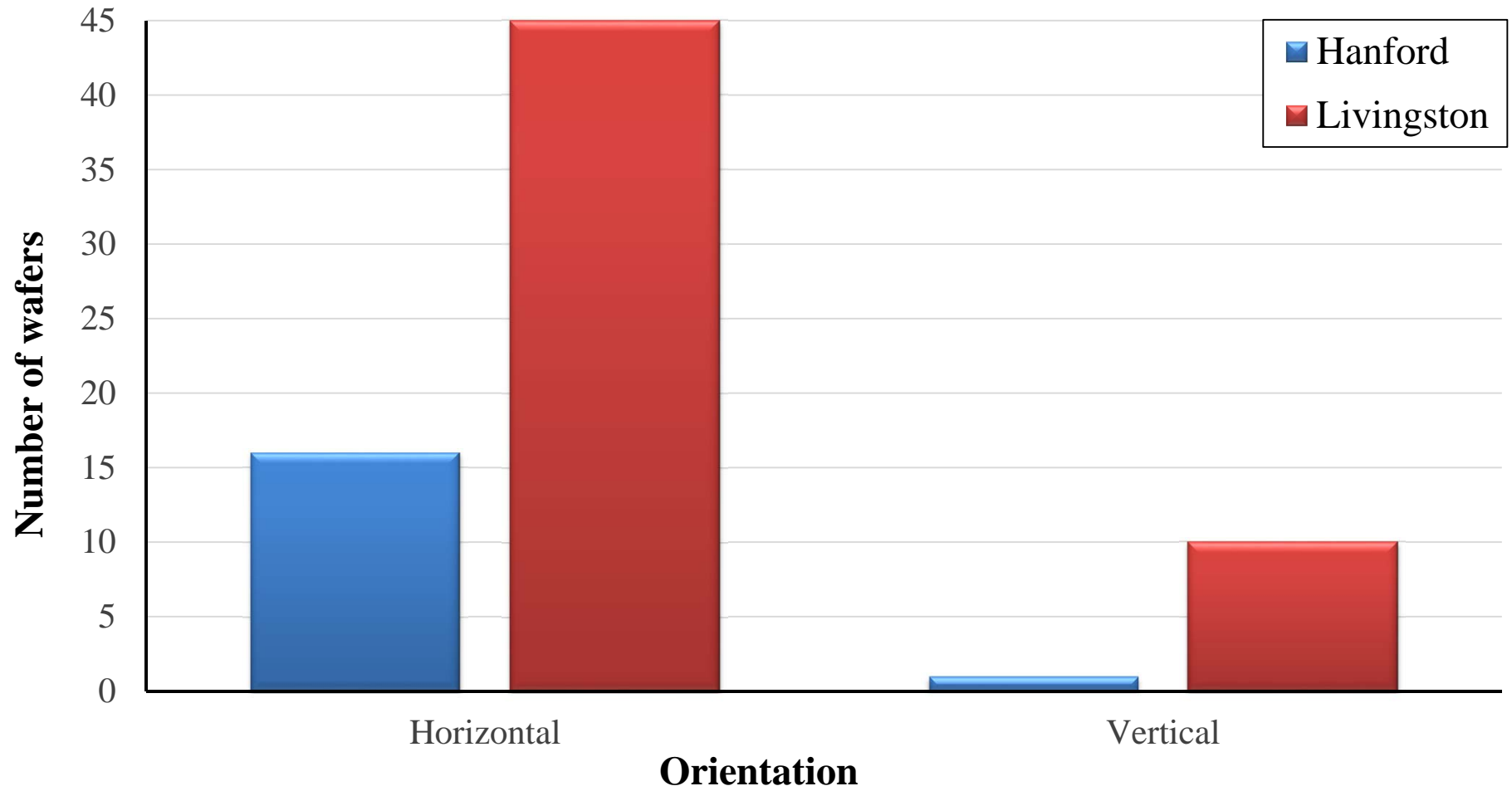


# Total Wafers Collected



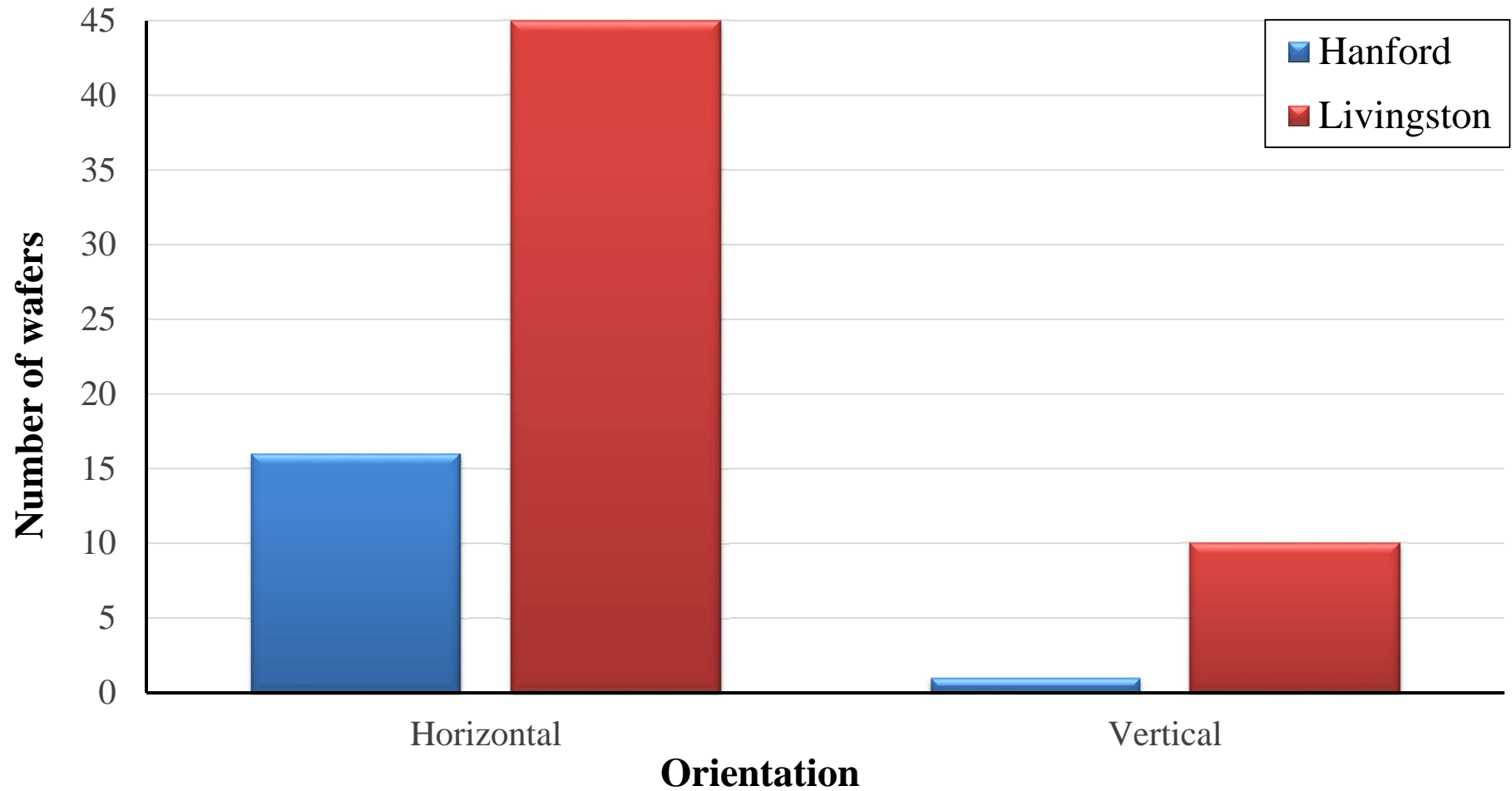


# Total Wafers Collected



# Total Wafers Collected

➤ *Need more samples for analysis.*





# Analysis Progress

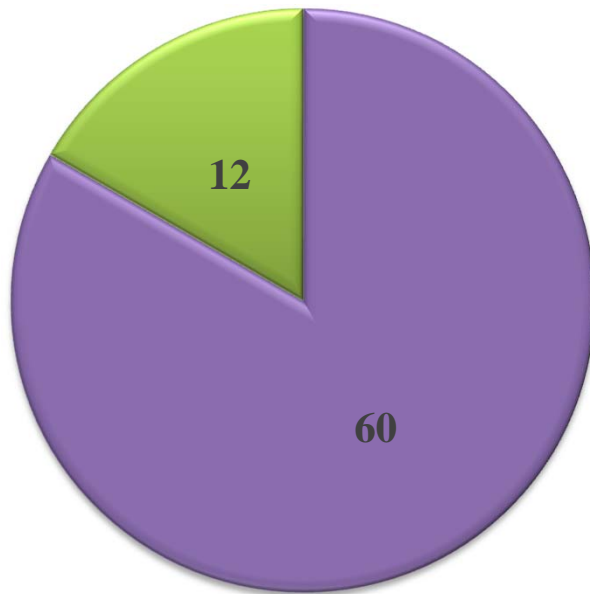
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- Counting microscope setup altered & upgraded.
- Must re-scan older wafers.
-

# Analysis Progress

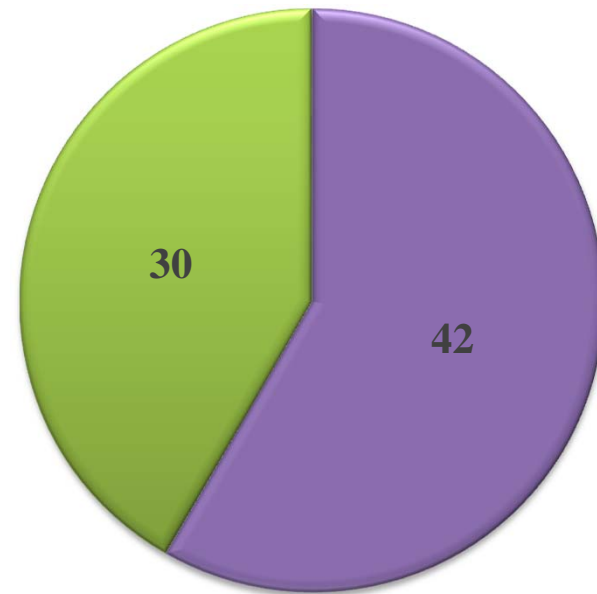
- Counting microscope setup altered & upgraded.
- Must re-scan older wafers.
- 

**Any Scan Settings**



■ Scanned ■ Need to scan

**New Scan Settings**

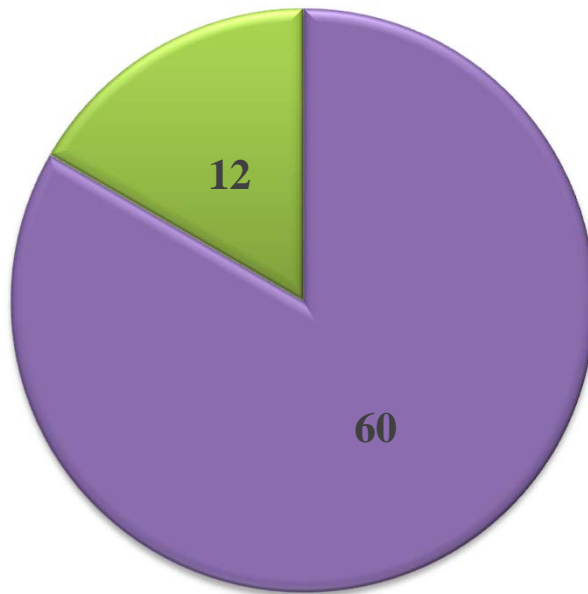


■ Scanned ■ Need to scan

# Analysis Progress

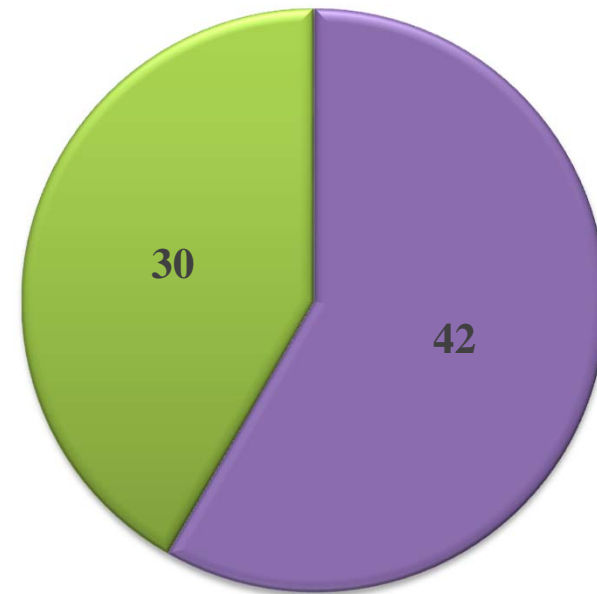
- Counting microscope setup altered & upgraded.
- Must re-scan older wafers.
- *Good start, there's more work to do.*

**Any Scan Settings**



■ Scanned ■ Need to scan

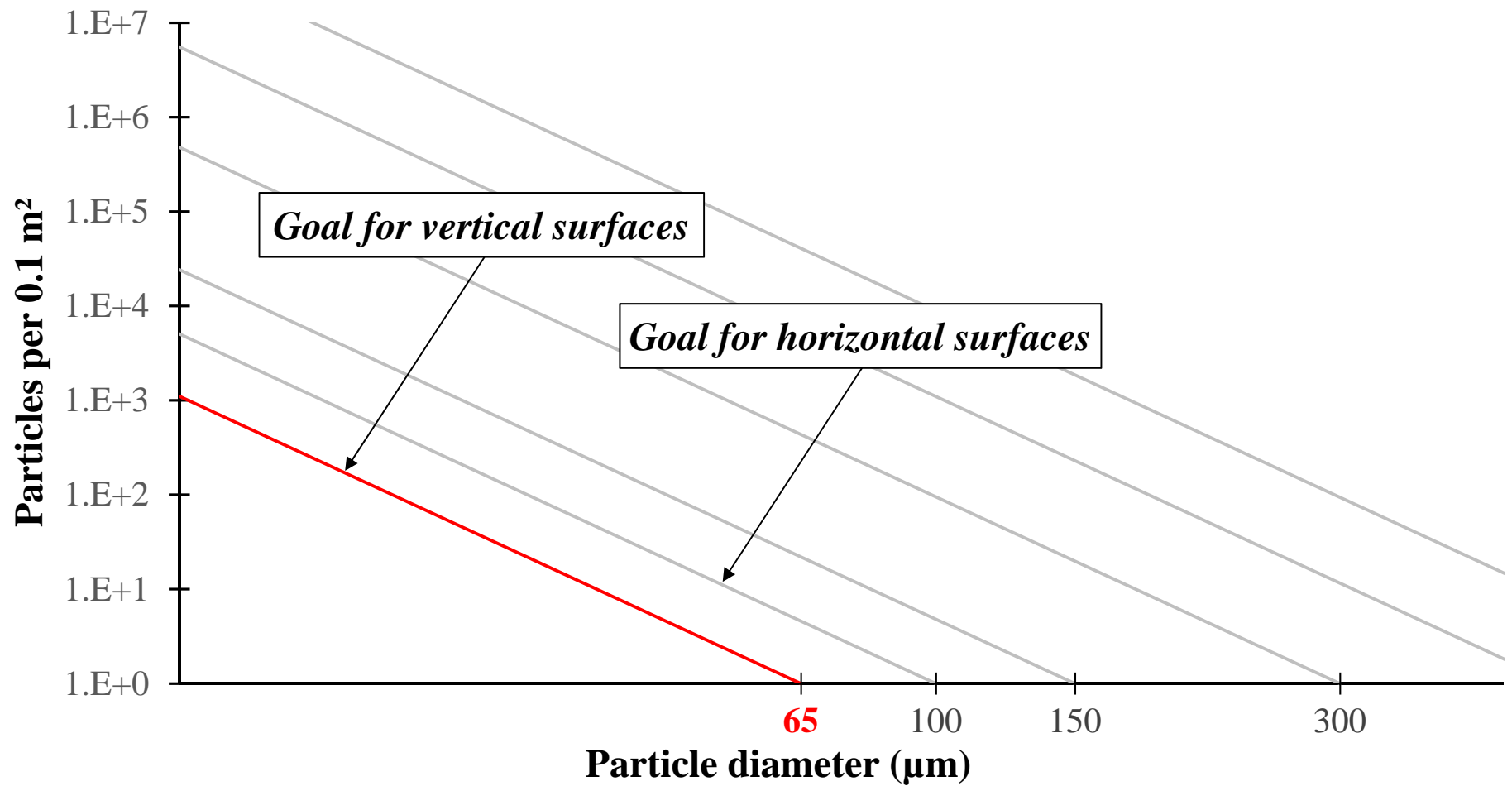
**New Scan Settings**



■ Scanned ■ Need to scan

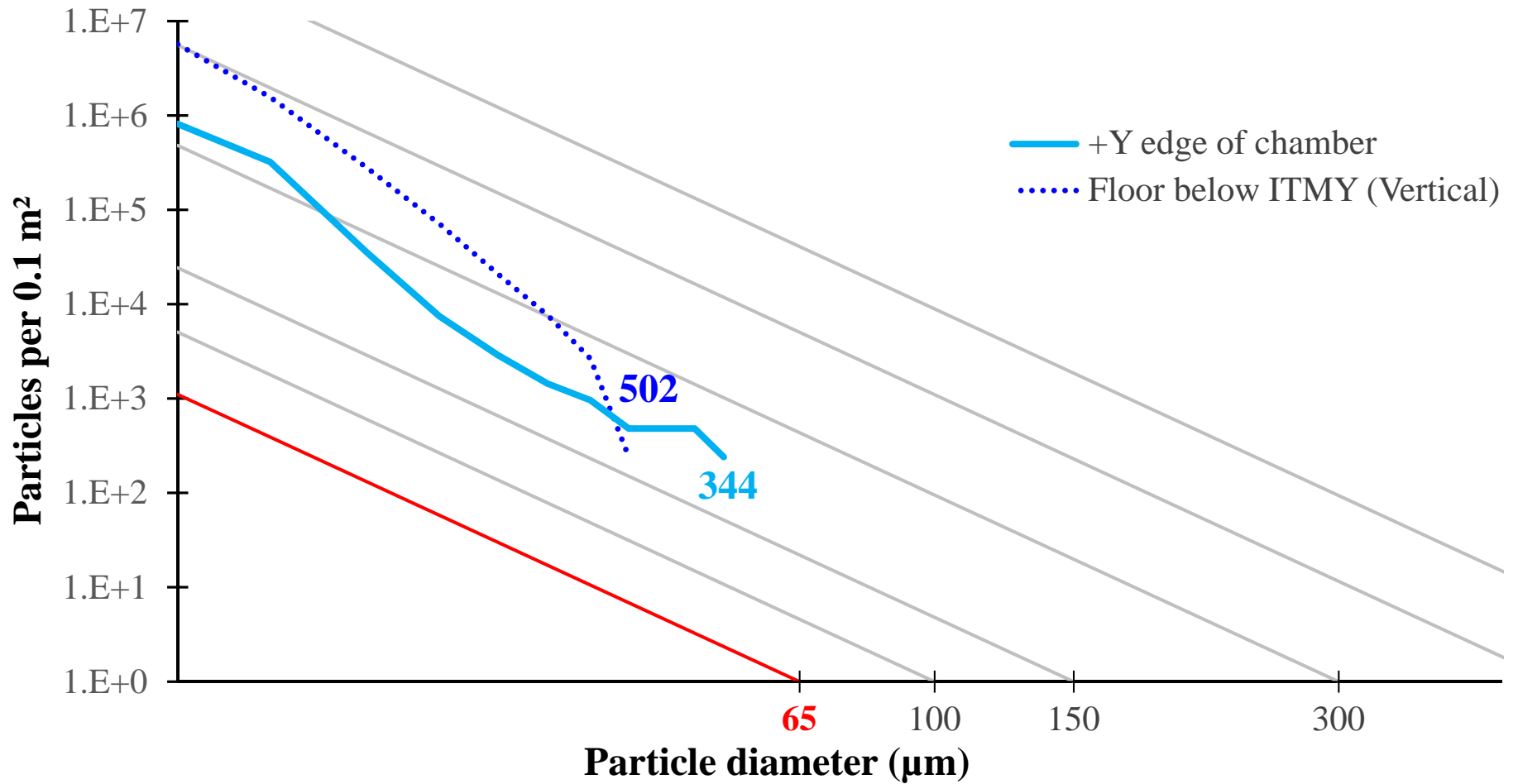


- log vs log<sup>2</sup> graph



# LBSC1 PCLs

June – Sept 2013  
 1 cycle (pump down & vent)  
 No work

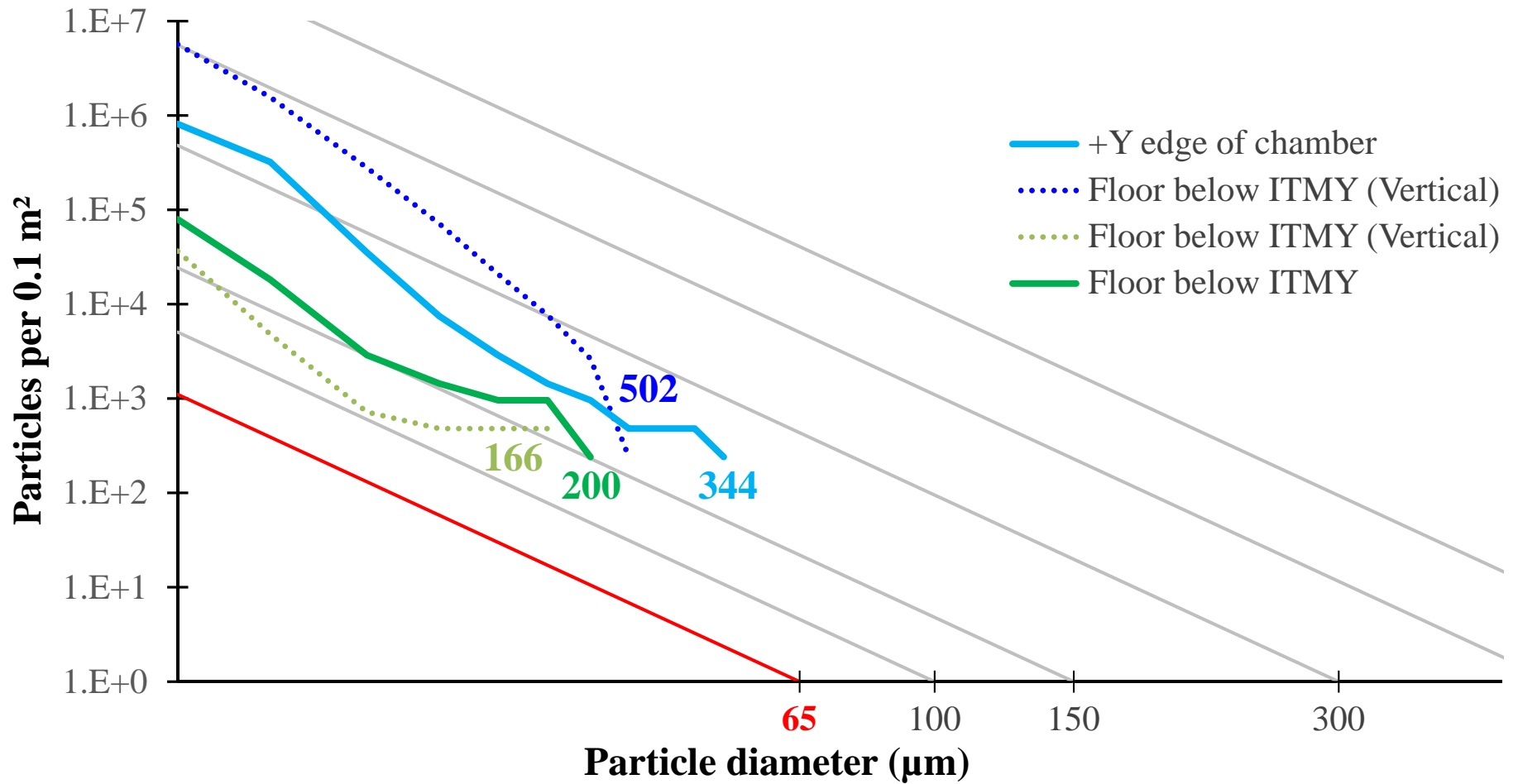




# LBSC1 PCLs

June – Sept 2013  
1 cycle (pump down & vent)  
No work

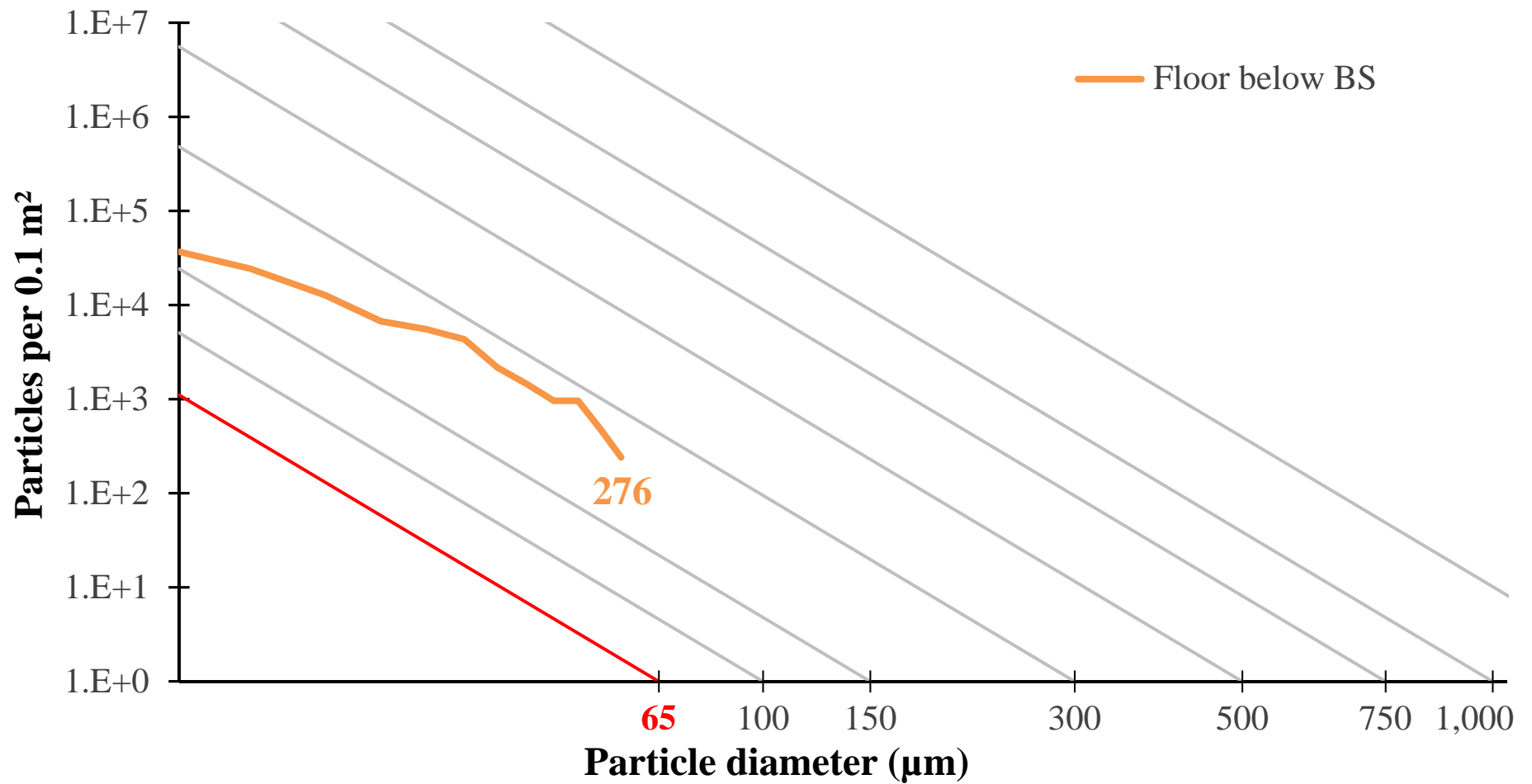
Sept – Nov 2013  
1 cycle  
\*Work is unknown\*





# LBSC2 PCLs

Mar – June 2013  
0 cycles  
Heavy work & foot traffic

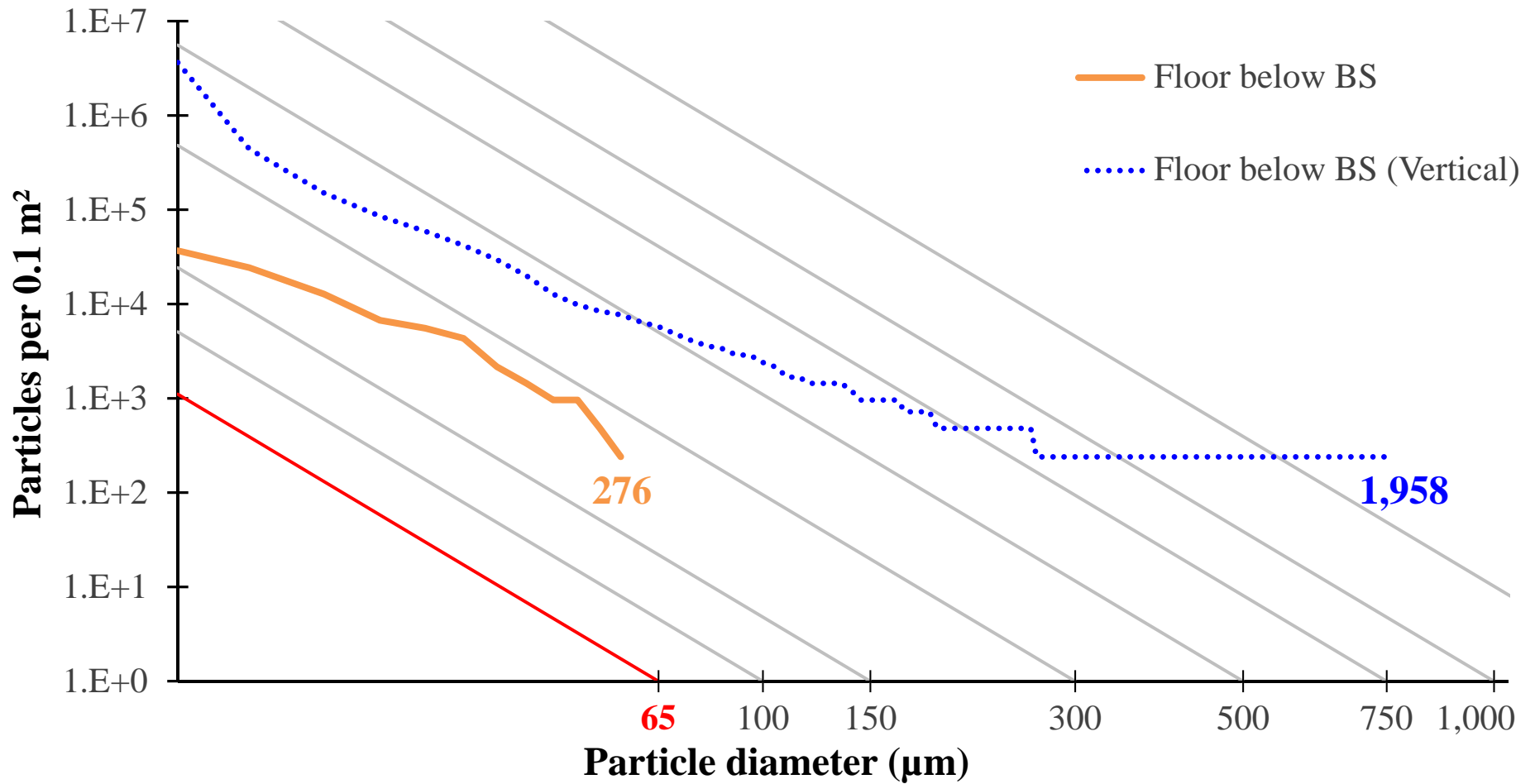




# LBSC2 PCLs

Mar – June 2013  
0 cycles  
Heavy work & foot traffic

June – Sept 2013  
1 cycle  
No work



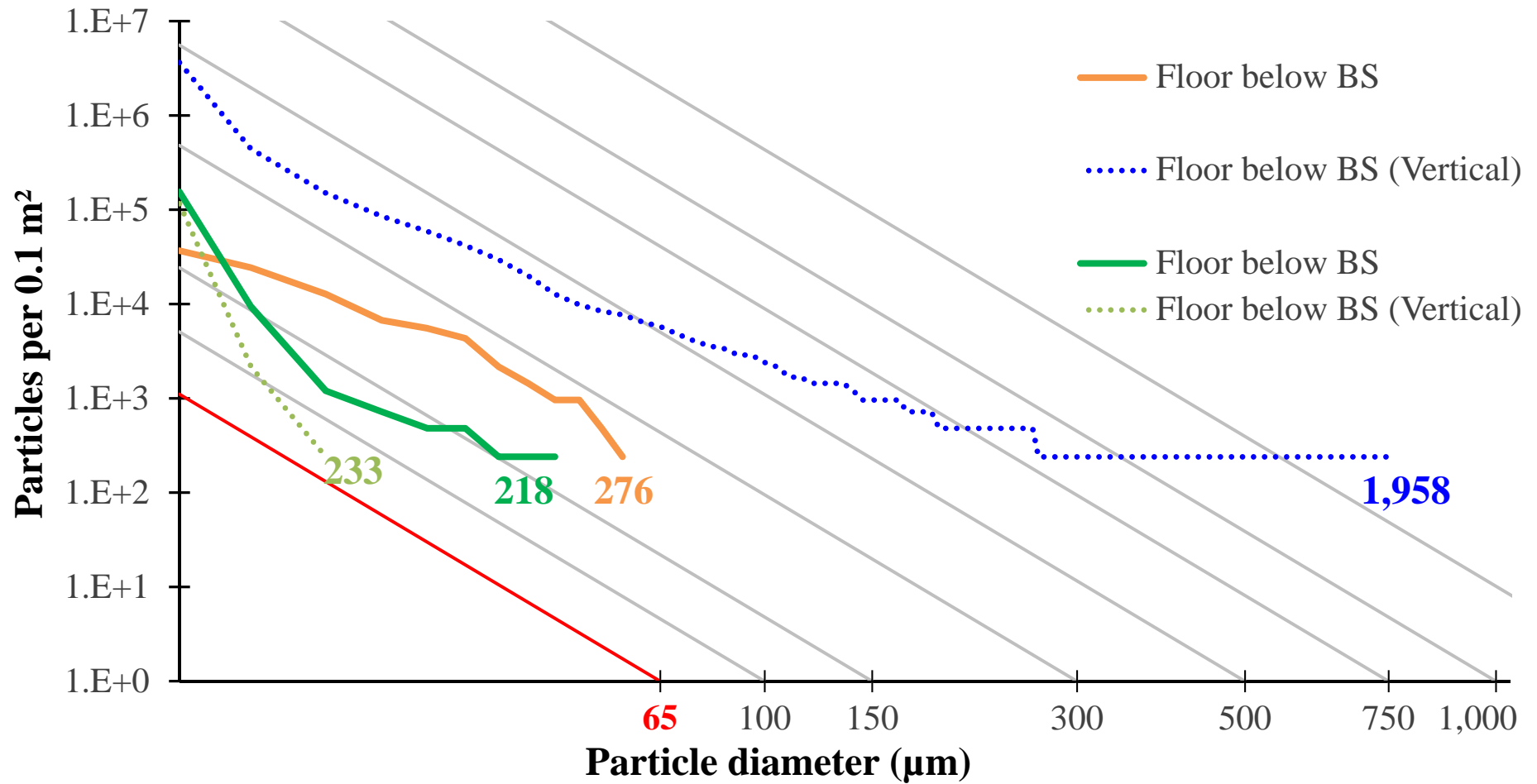


# LBSC2 PCLs

Mar – June 2013  
0 cycles  
Heavy work & foot traffic

June – Sept 2013  
1 cycle  
No work

Sept – Nov 2013  
1 cycle  
\*Work is unknown\*



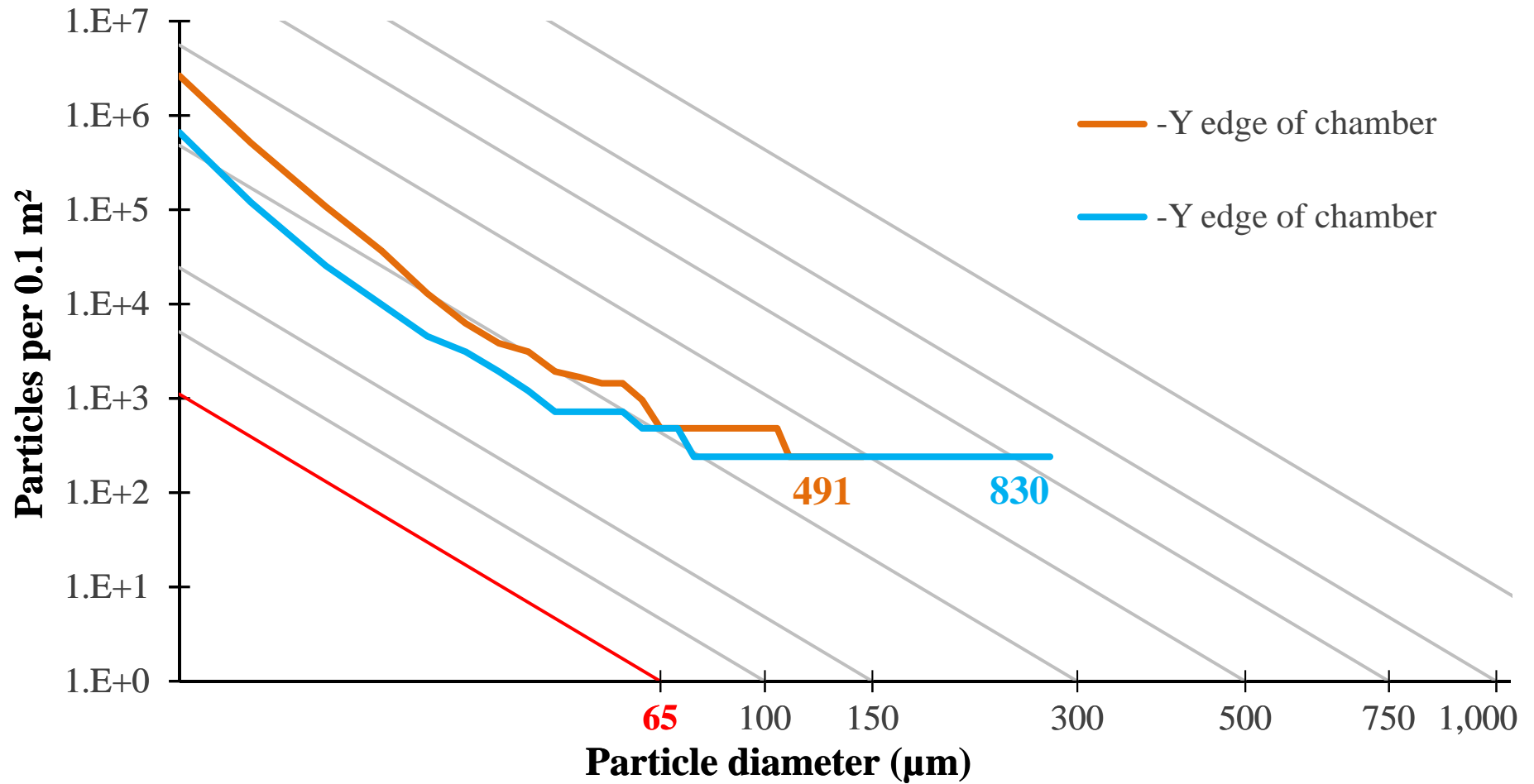


# LBSC2 PCLs

Mar – June 2013  
0 cycles  
Heavy work & foot traffic

June – Sept 2013  
1 cycle  
No work

Sept – Nov 2013  
1 cycle  
\*Work is unknown\*



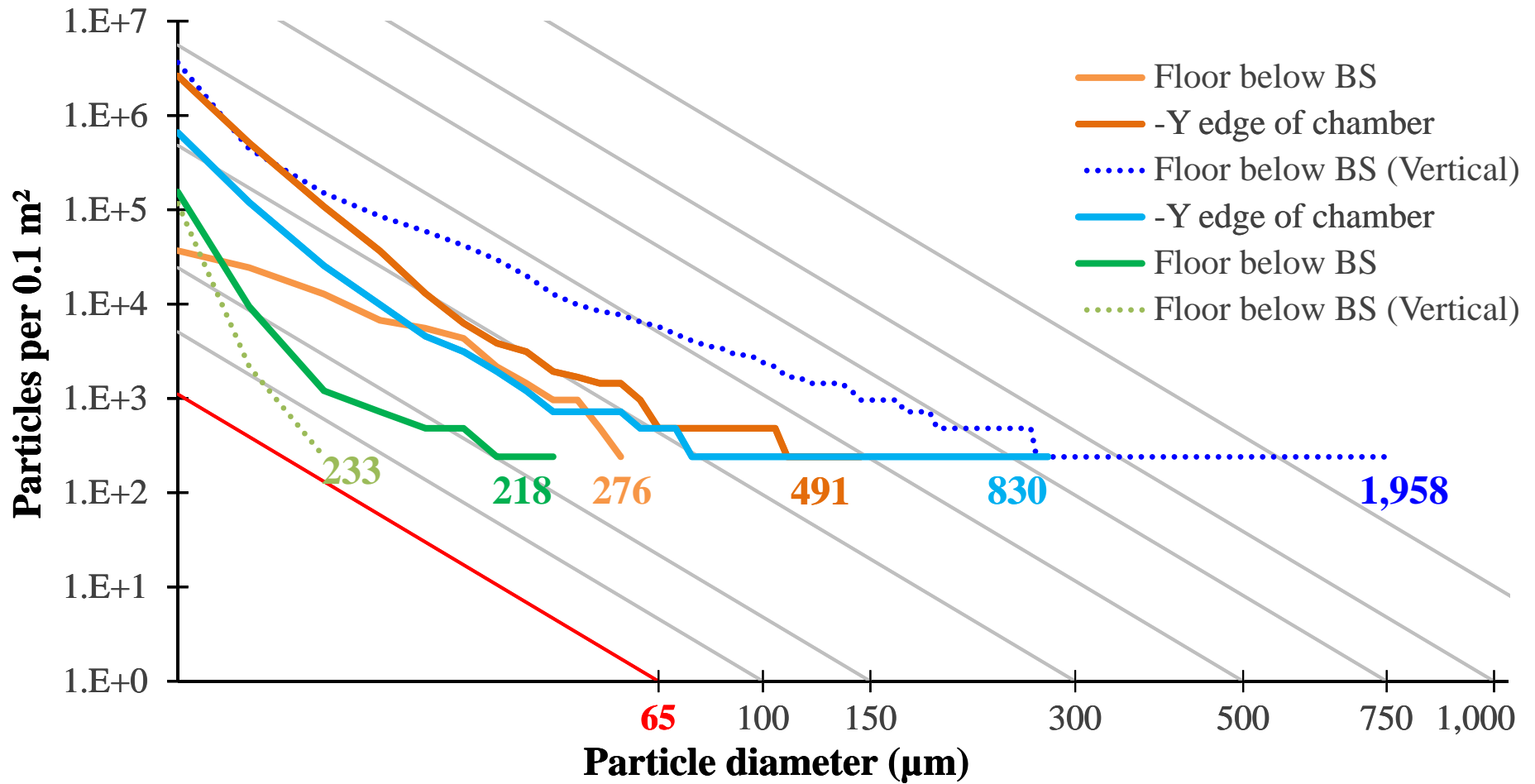


# LBSC2 PCLs

Mar – June 2013  
0 cycles  
Heavy work & foot traffic

June – Sept 2013  
1 cycle  
No work

Sept – Nov 2013  
1 cycle  
\*Work is unknown\*



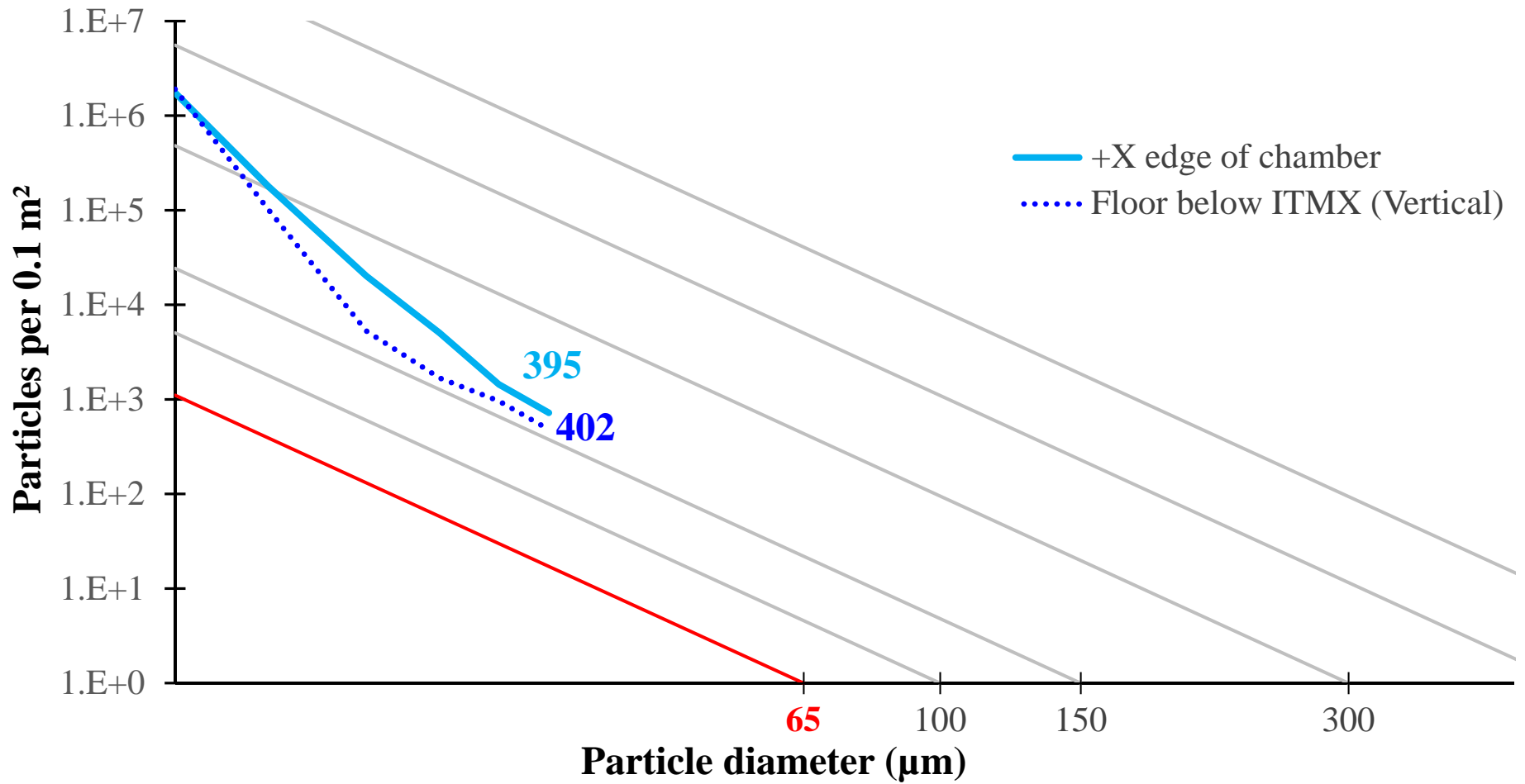




# LBSC3

June – Sept 2013  
1 cycle  
No work

Sept – Nov 2013  
1 cycle  
\*Work is unknown\*

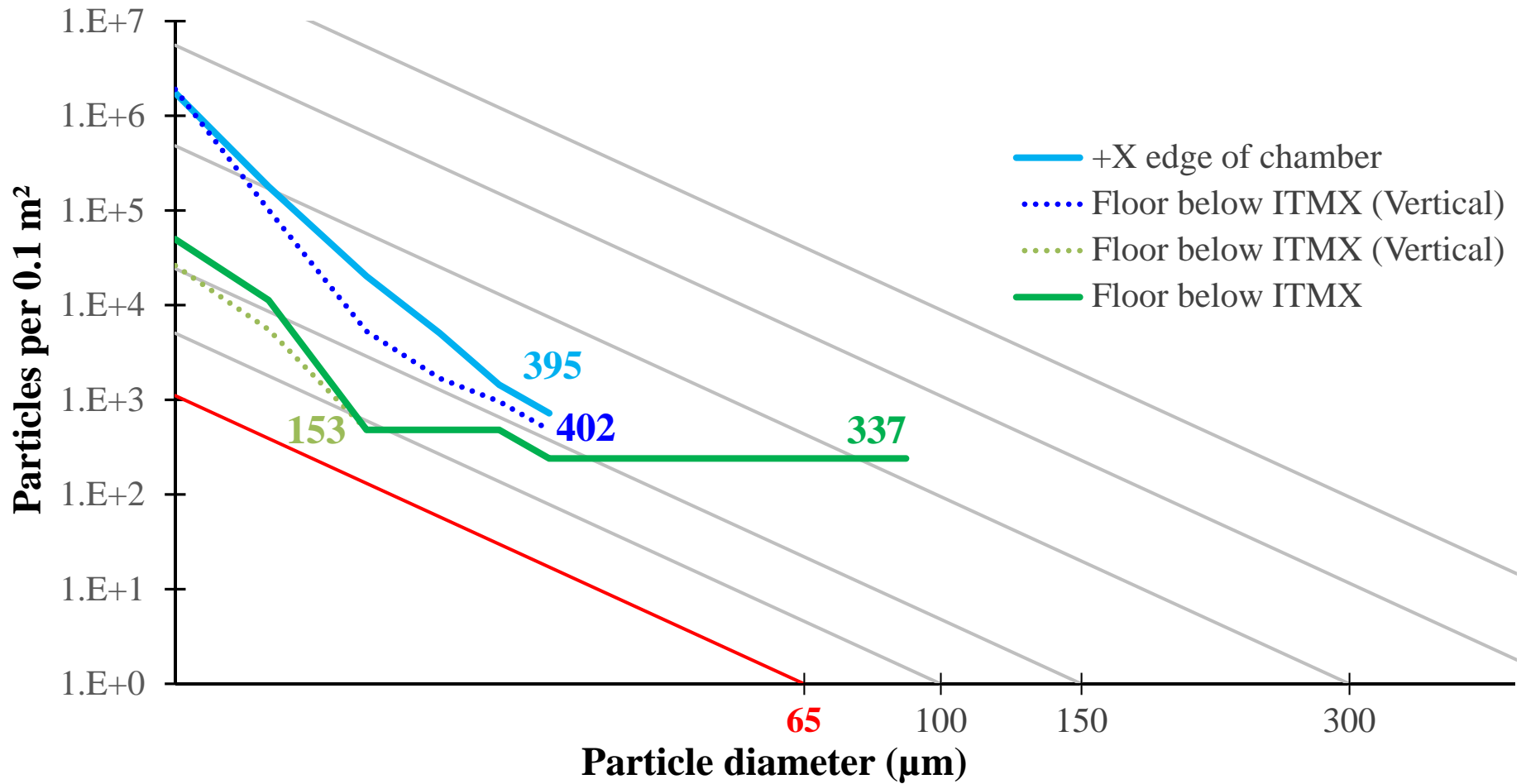




# LBSC3

June – Sept 2013  
1 cycle  
No work

Sept – Nov 2013  
1 cycle  
\*Work is unknown\*



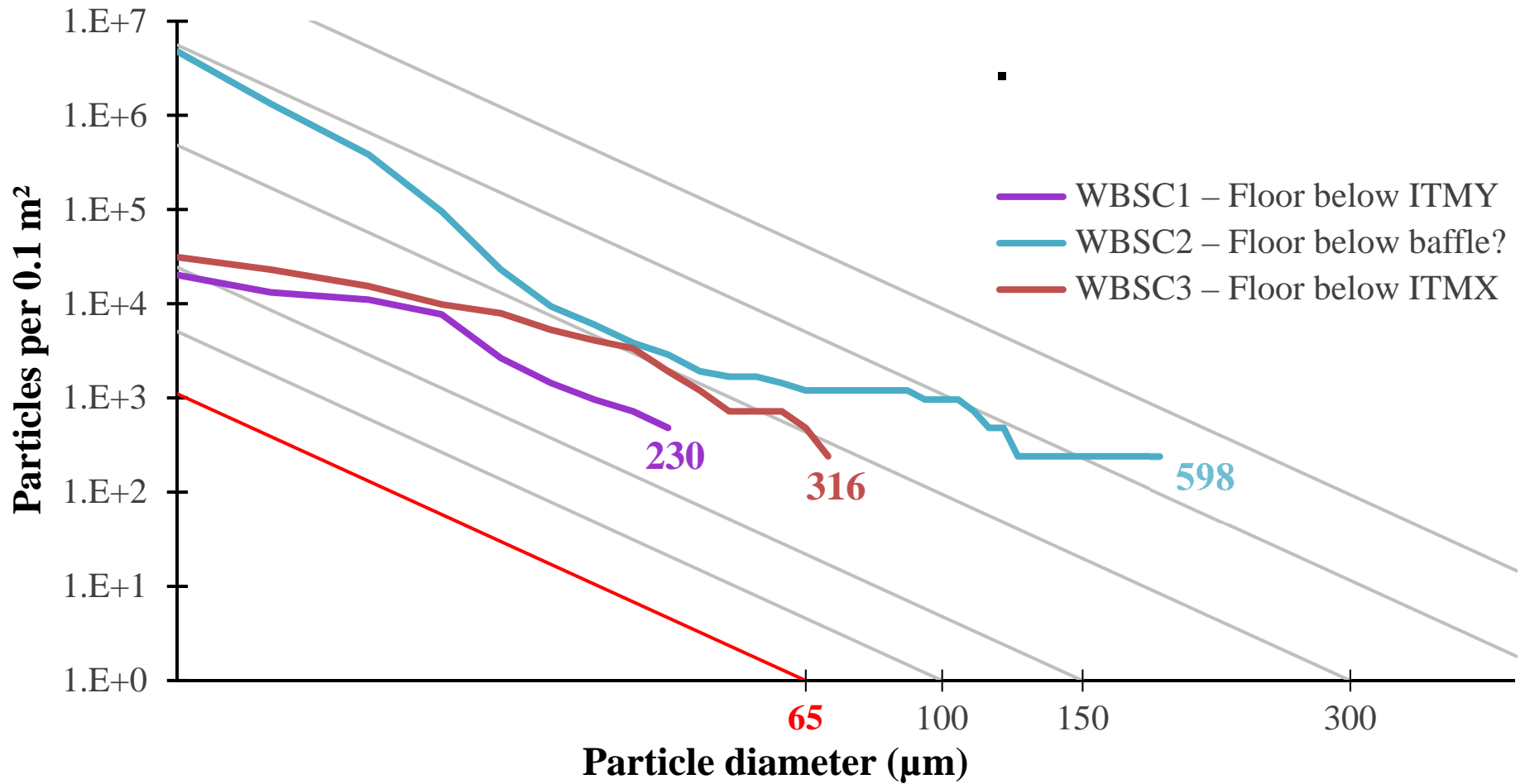


# WBSC Chambers

Feb – Oct 2013  
1 cycle  
Work in adjacent chambers

April – Oct 2013  
1 cycle  
Heavy work over wafer

Oct – Nov 2013  
1 cycle  
No work?



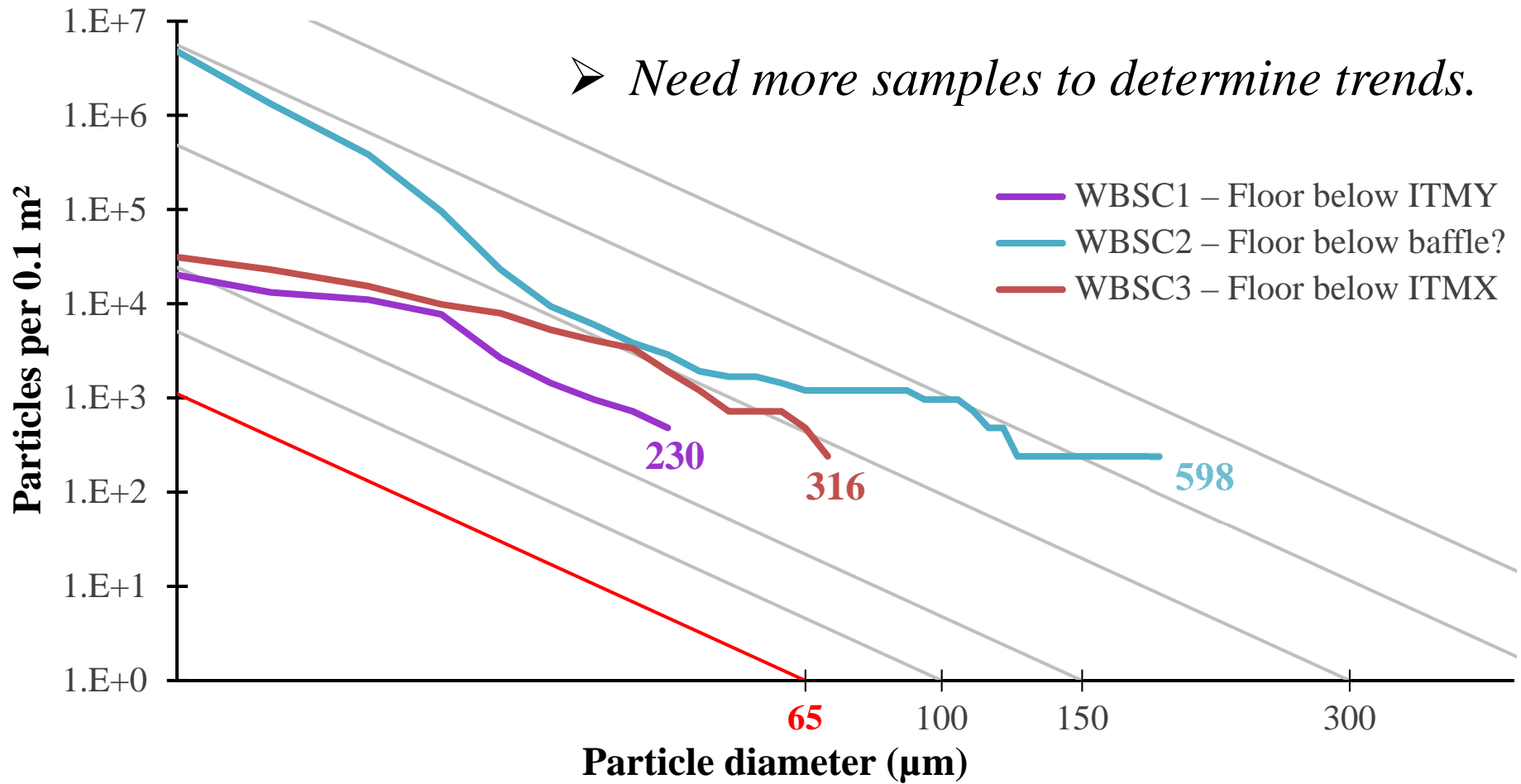


# WBSC Chambers

Feb – Oct 2013  
1 cycle  
Work in adjacent chambers

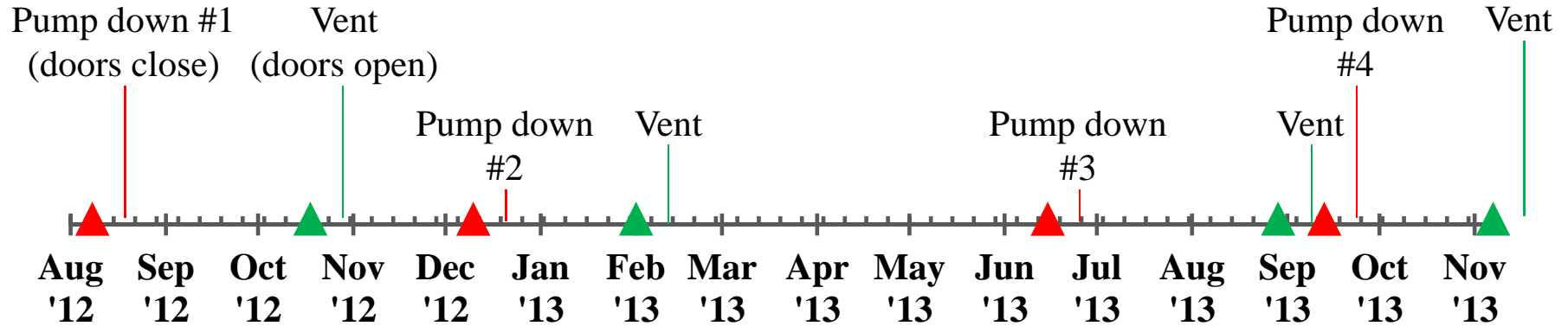
April – Oct 2013  
1 cycle  
Heavy work over wafer

Oct – Nov 2013  
1 cycle  
No work?



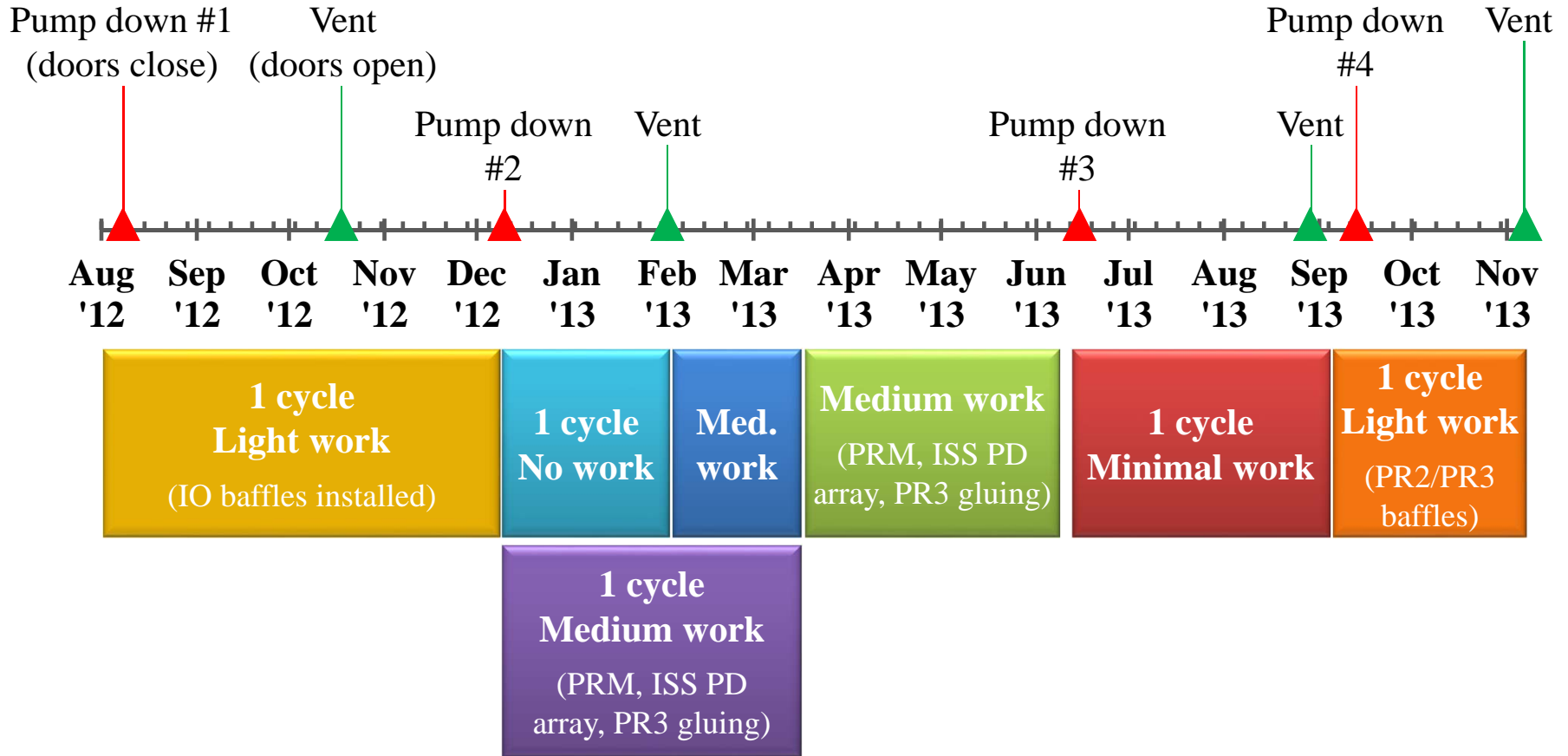


# LHAM2 History





# LHAM2 History





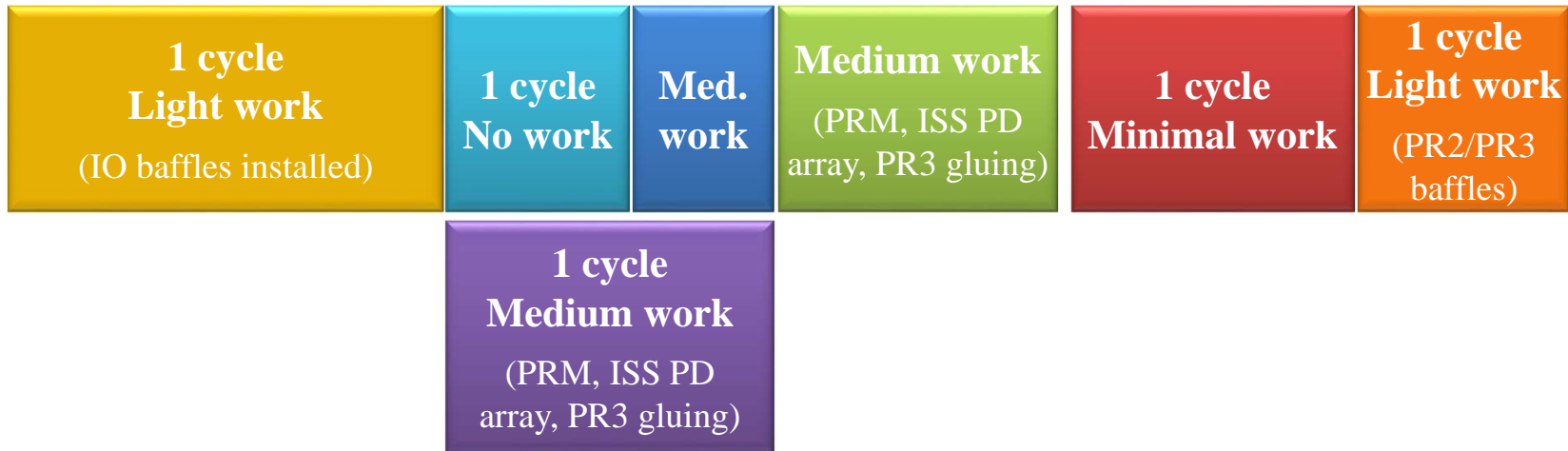
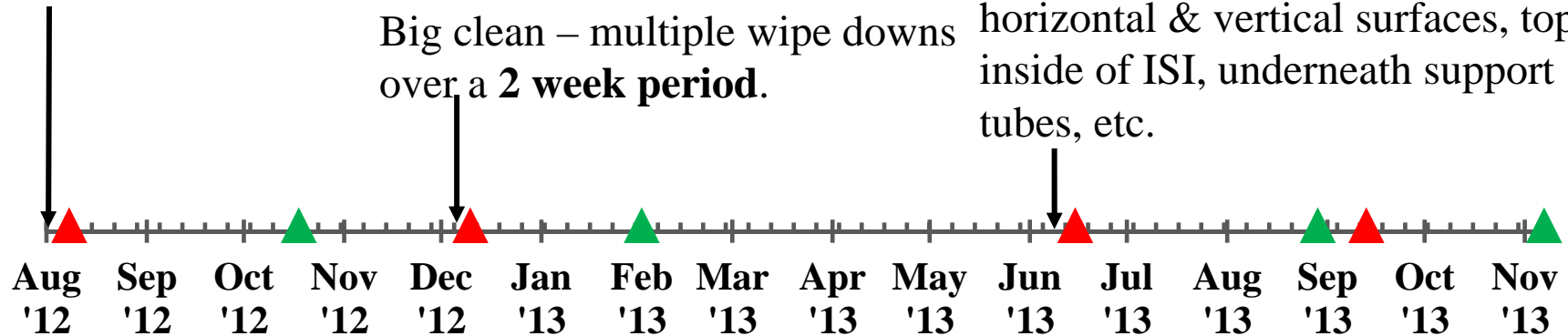
# LHAM2 History

First clean – basic wipe down.

Estimated ~ 1 hour.

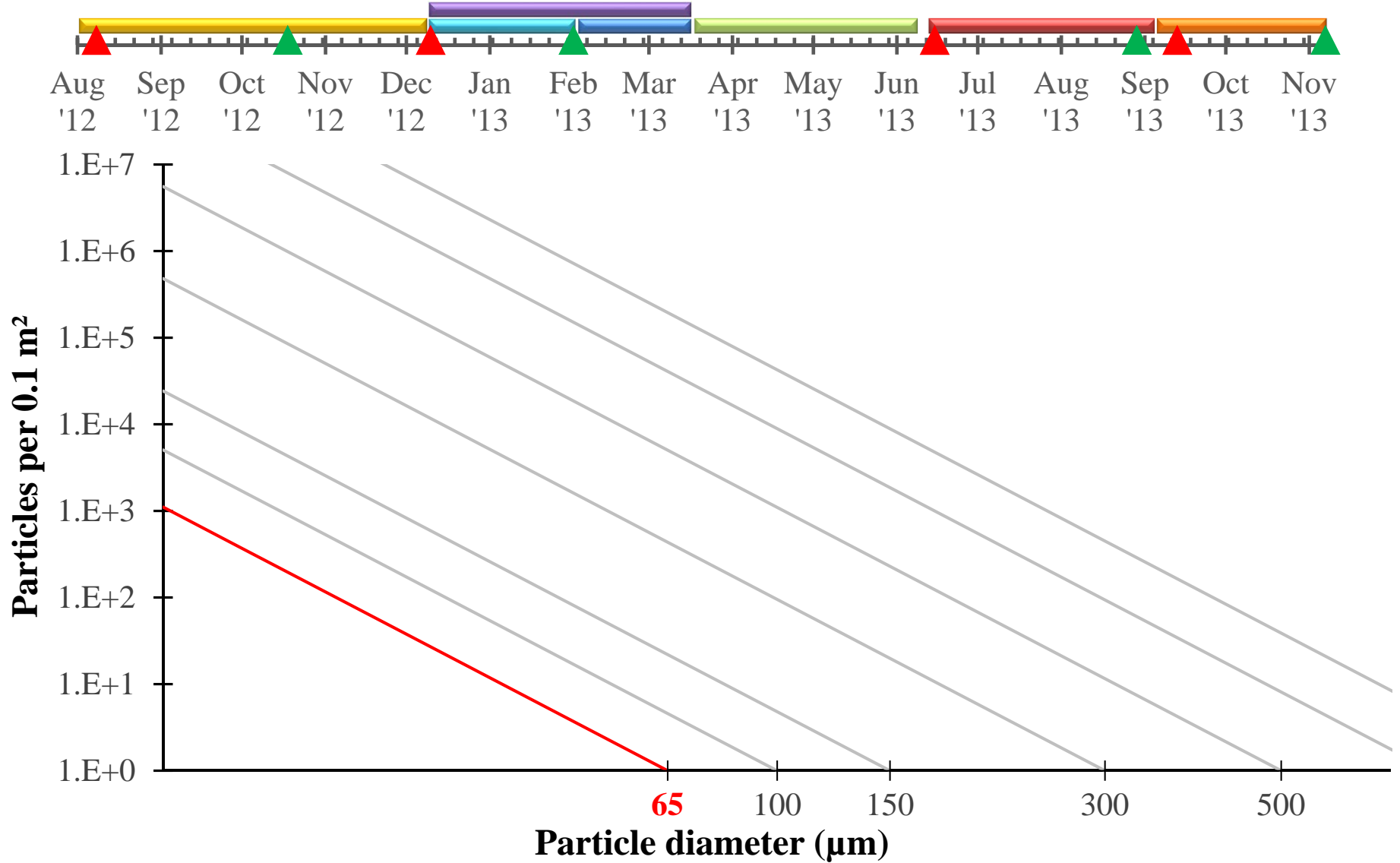
Big clean – multiple wipe downs over a 2 week period.

1-1.5 hrs per chamber. Wiped all horizontal & vertical surfaces, top & inside of ISI, underneath support tubes, etc.





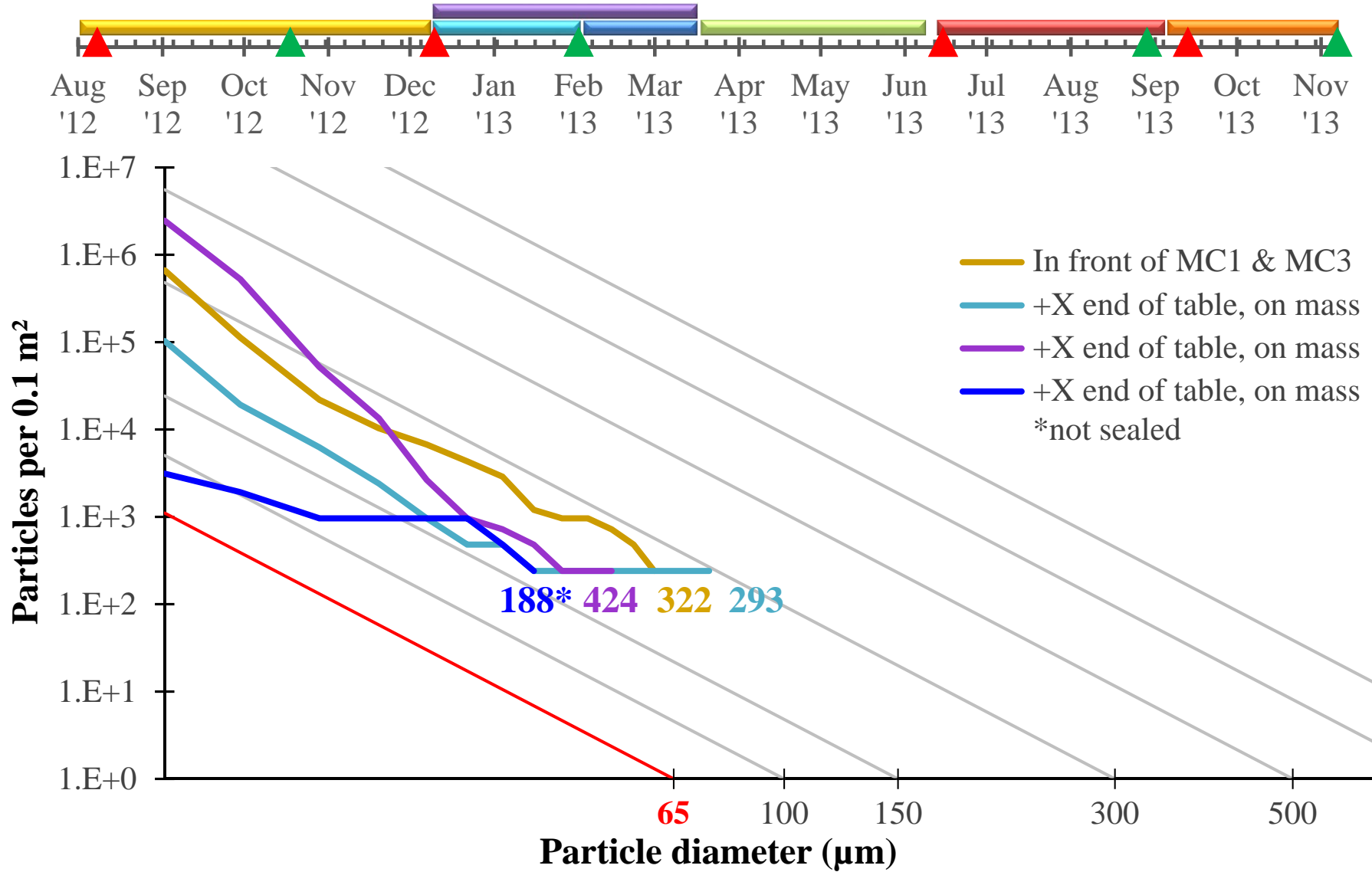
# LHAM2





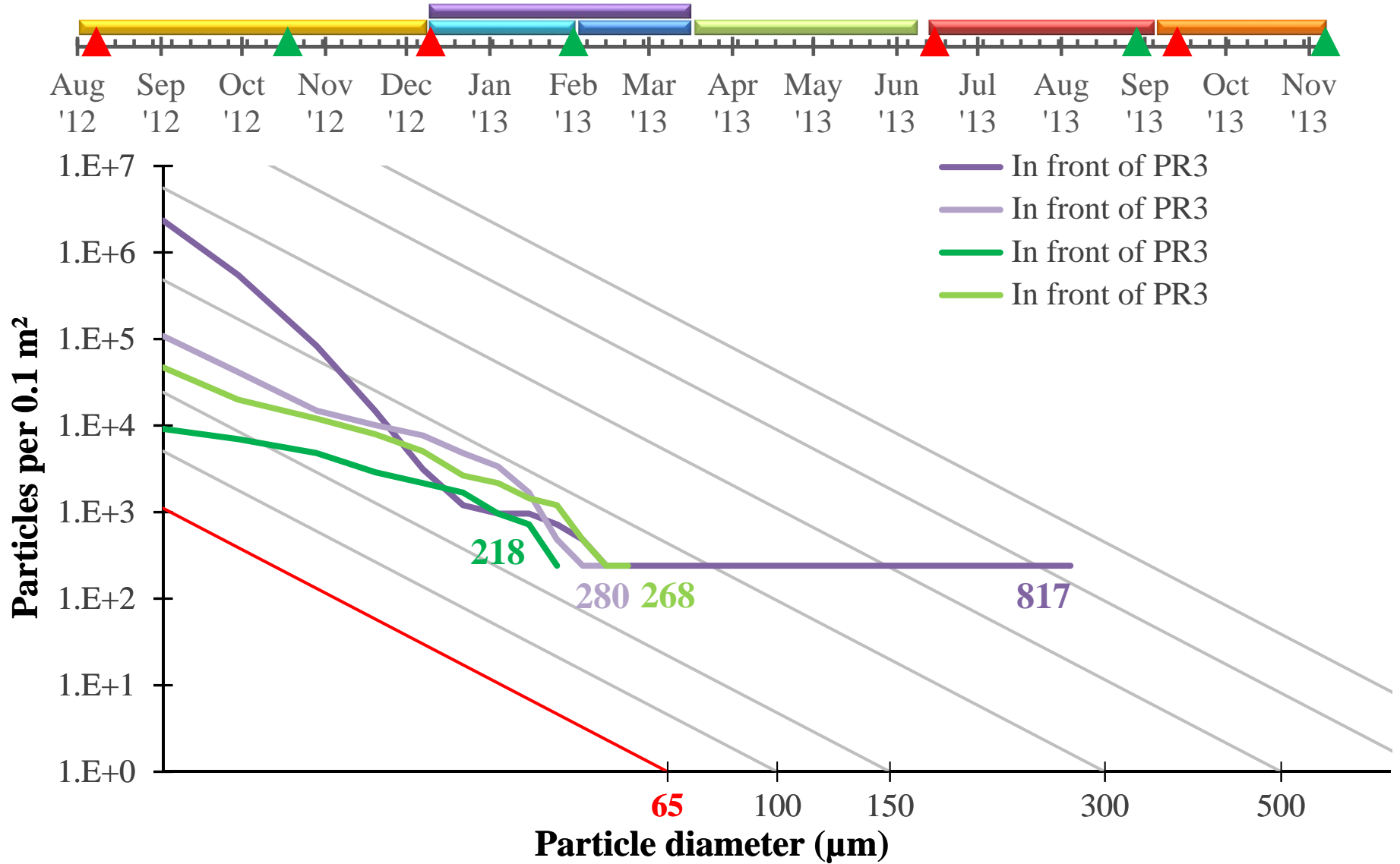


# LHAM2



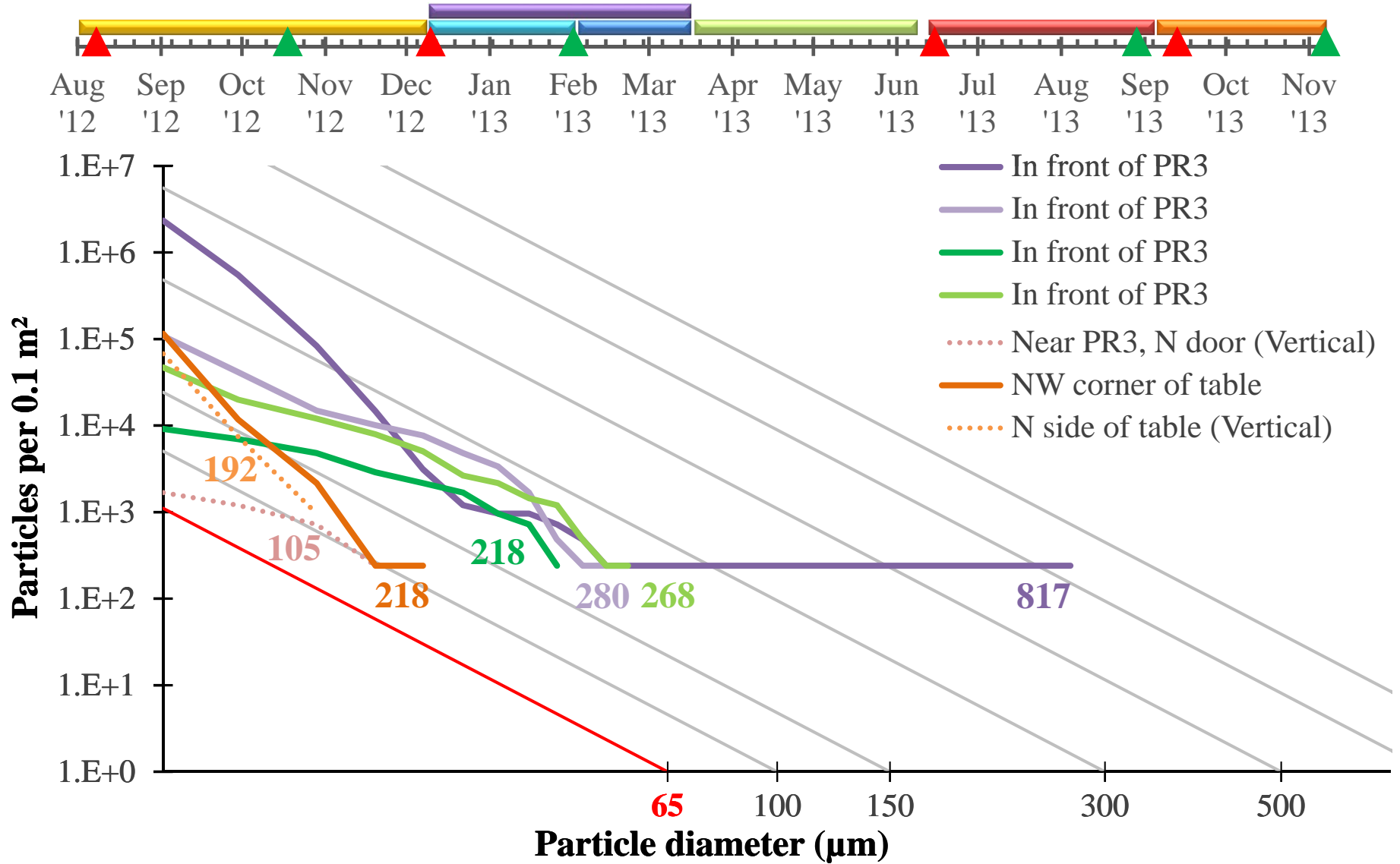


# LHAM2



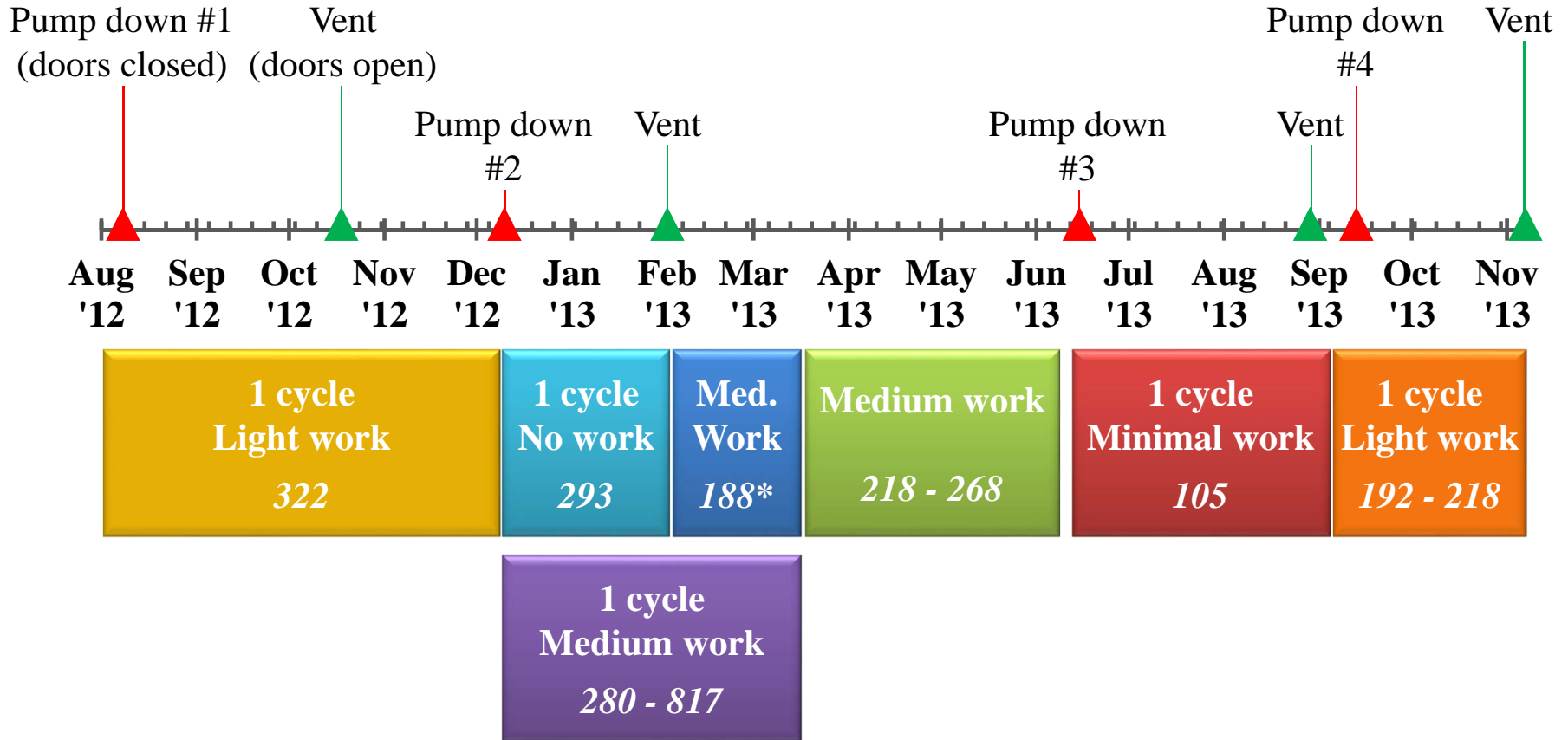


# LHAM2





# LHAM2 Story





# Summary

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- Cleaning as you go works!
  - Refer to [LIGO-G1301249](#)

# Summary

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- Cleaning as you go works!
  - Refer to [LIGO-G1301249](#)
- Upcoming...
  - Compiling WHAM data

# Summary

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- Cleaning as you go works!
  - Refer to [LIGO-G1301249](#)
- Upcoming...
  - Compiling WHAM data
  - 1” optic counts & damage plan

# Summary

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- Cleaning as you go works!
  - Refer to [LIGO-G1301249](#)
- Upcoming...
  - Compiling WHAM data
  - 1” optic counts & damage plan
  - Trips to LHO to continue CC support
  - Opportunity for another round of data when ITM’s open in April at LHO





# Relevant Documents

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- [LIGO-F1200021](#) Advanced LIGO Particulate Sample Form (updated)
- [LIGO-T1300014](#) Aligo, BSC Flooring + HAM ISI, Witness Sample Placement Guidelines
- [LIGO-E1201096](#) Contamination Sample Handling – How to receive, use, send, buy, and store samples