

Fog Machine and Smoke Detector Testing

May 11, 2017



Particle Sizes (microns)

Aviator UL Concept Oil 135

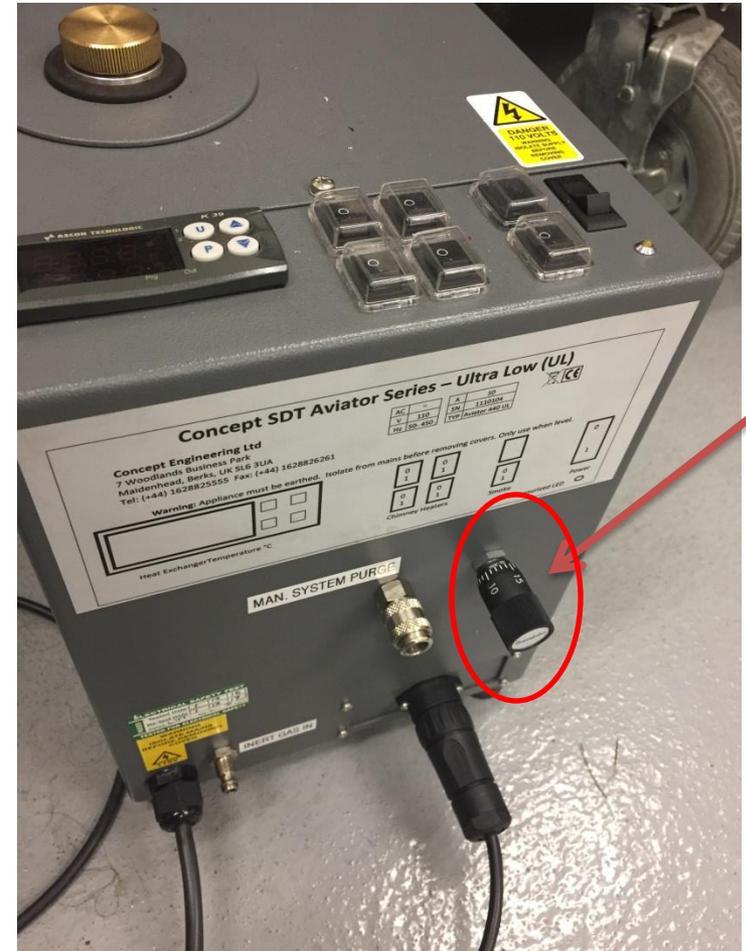
Alarming with Kidde	Alarming with Whittaker
1.5	1.7

Rosco Clear Fog Fluid

Alarming with Kidde	Alarming with Whittaker
3.6	3.5

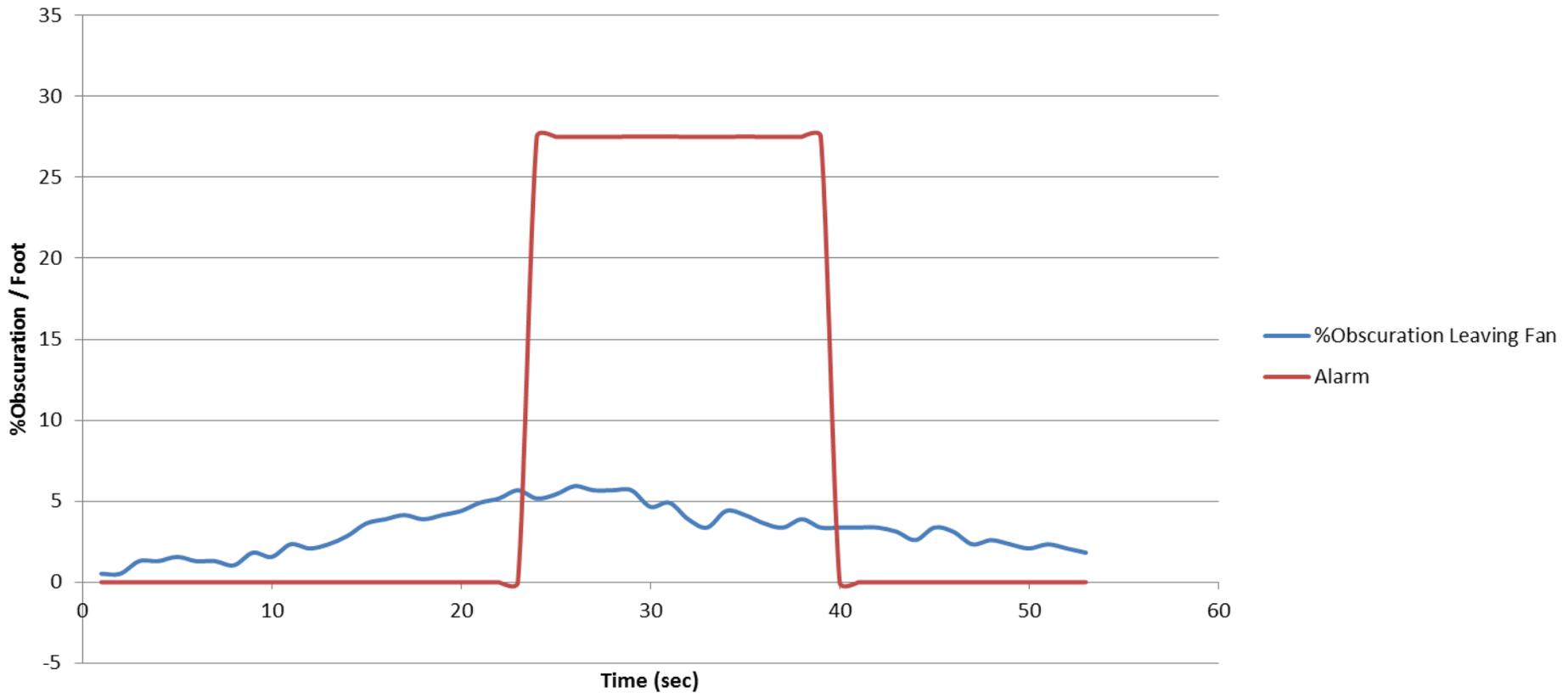
Aviator UL Testing Going Into Alarm

- Smoke needs to be thick enough to alarm detector but not so thick to have it alarm immediately. Looking for a gradual alarm.
- Micrometer 3.5 turns outwards from closed.
- 3 Full turns outwards wouldn't make Whittaker alarm.

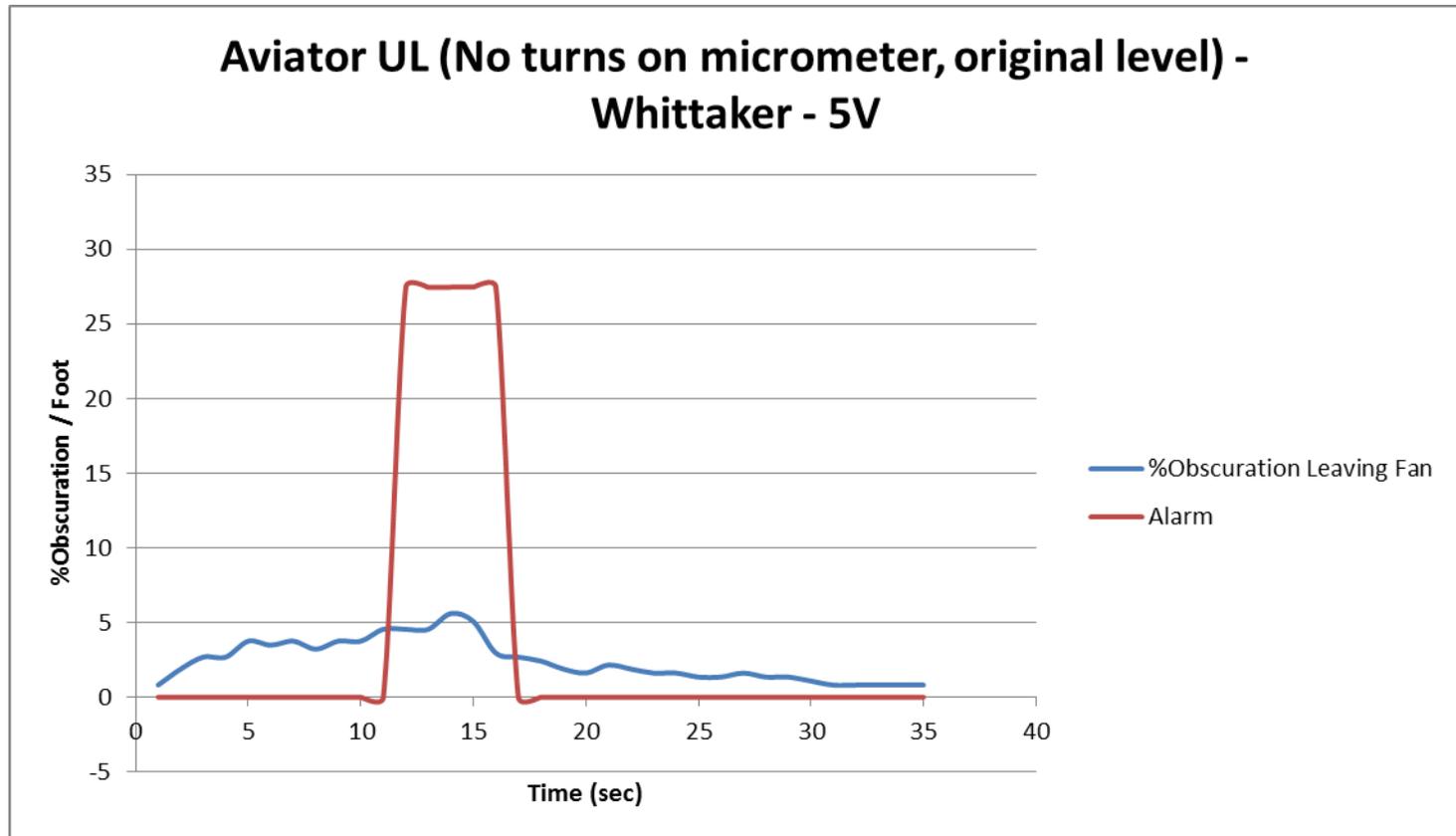


This is one test. Average of three runs for Aviator UL with fan at 2.5V shows 5.9% obscuration per foot going into alarm for **Whittaker**.

Aviator UL (Micrometer valve half a turn IN) - Whittaker - 2.5V Fan

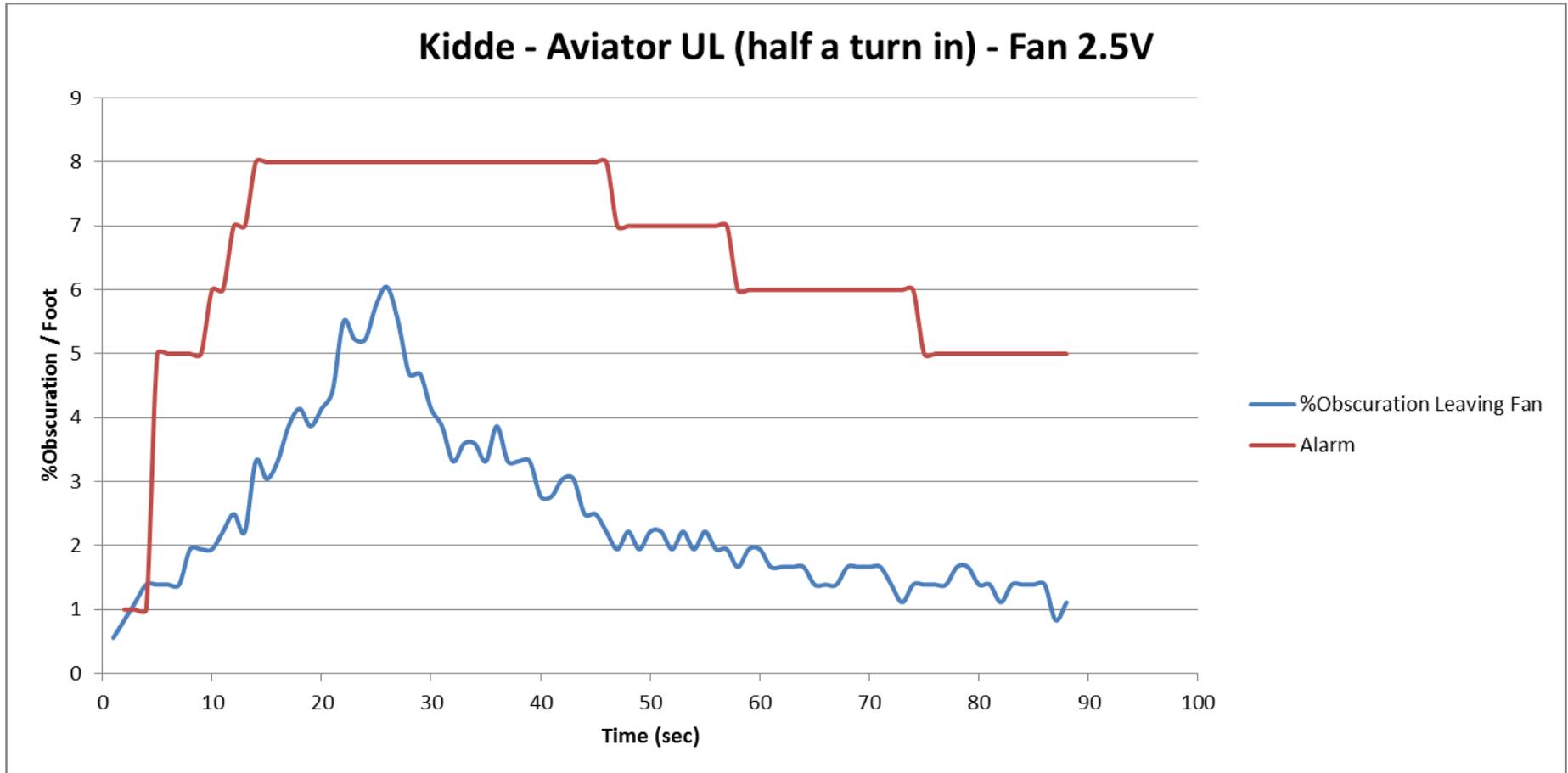


This is one test. Average of three runs for Aviator UL with fan at 5V shows 4.8% obscuration per foot going into alarm for **Whittaker**.



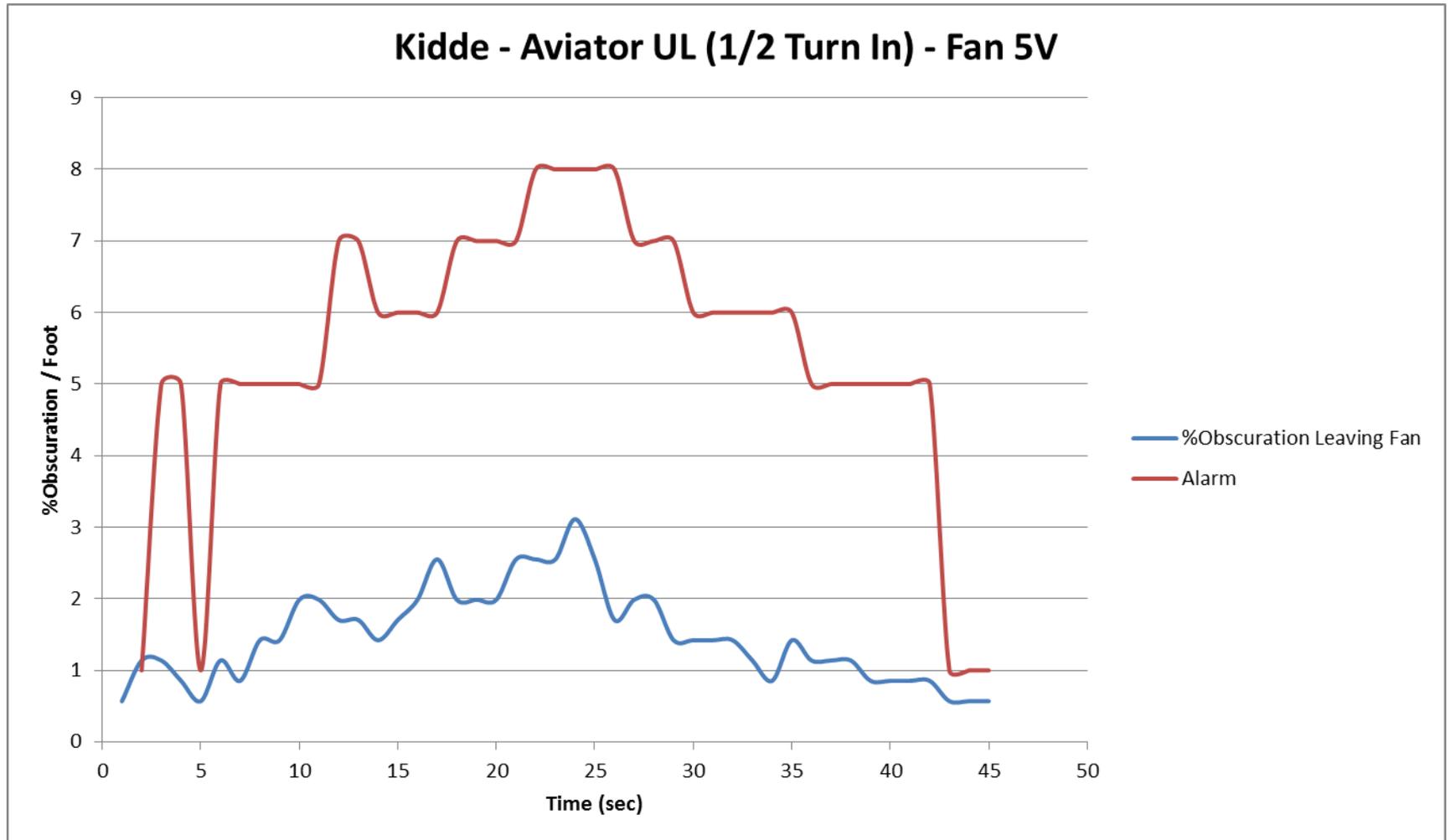
This is one test. Average of three runs for Aviator UL with fan at 2.5V shows 3.3% obscuration per foot going into alarm for **Kidde**.

“Going Into Alarm” Values were chosen at High Alarm Here



This is one test. Average of three runs for Aviator UL with fan at 5V shows 2.4% obscuration per foot going into alarm for **Kidde**.

“Going Into Alarm” Values were chosen at High Alarm Here



Comparing in and out of alarm values

Aviator UL

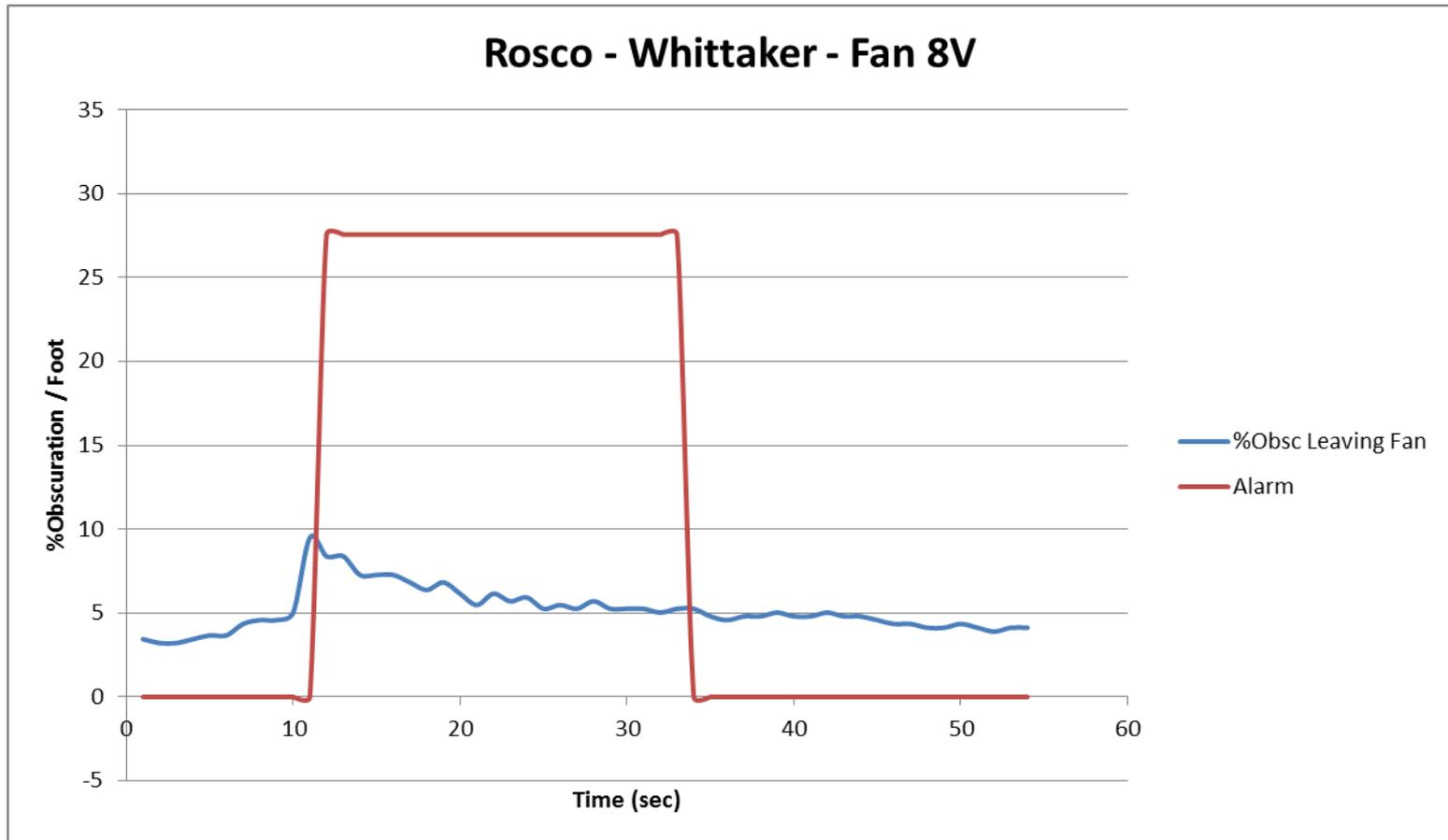
Into Alarm	2.5V	5V
Kidde	3.3%	2.4%
Whittaker	5.9%	4.8%

Out of Alarm	2.5V	5V
Kidde	2.6%	1.7%
Whittaker	1.5%	0.9%

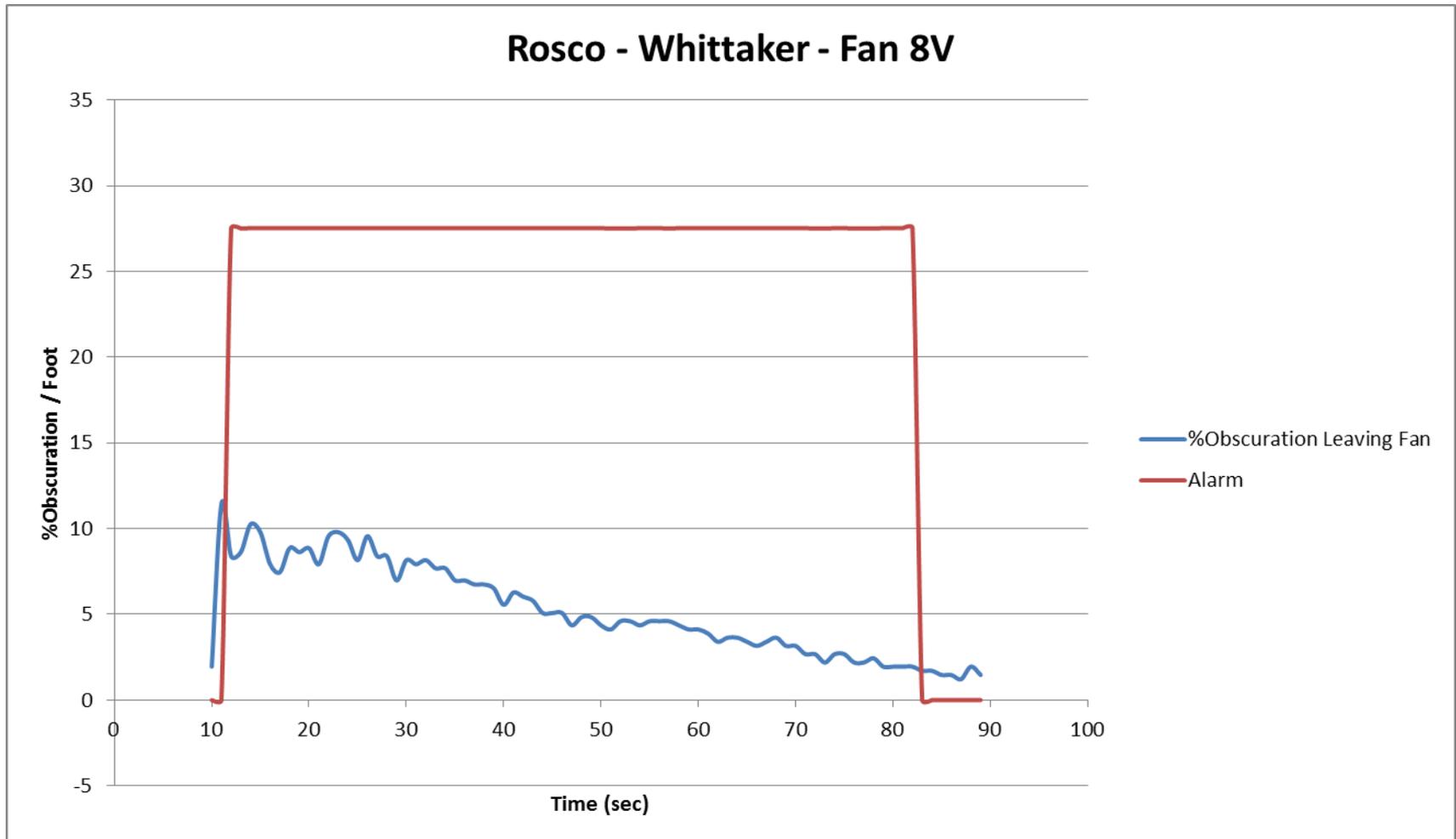
- Doing the same for the Rosco was difficult on its own, a Scotch Pad was fit into the fan to dampen the smoke leaving the container.
- The container was then filled lightly before releasing through the fan.
- The %obscuration recorded at higher values because smoke still came out thick in general.
- Had to run fan at 8V to get a good reading.

	Top Laser	
RUN	Going Into Alarm	
April5 001		8.4
April5 002		5.6
April5 003		8.6
April5 004		5.4
April5 005		6.3
April5 007		8.4
April5 008		6.5
AVERAGE		7.0

Good run: Slowly Peaked into alarm and out

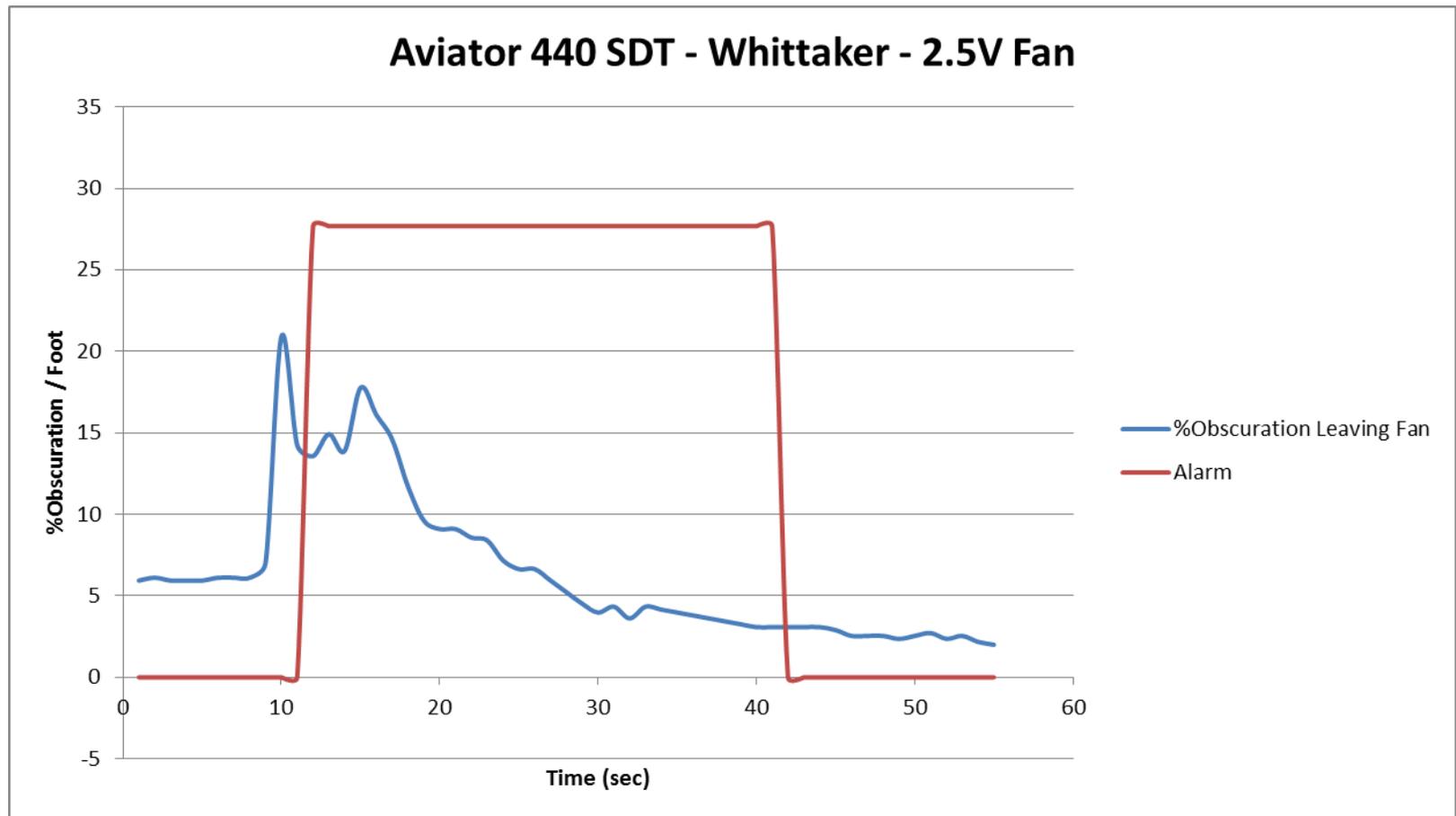


Not so good: Began at immediate high peak into obvious alarm, not sure when the exact value is for minimum here.



Same situations occurred for **older Aviator 440 model** – Unreliable data

Peak occurred before alarm – Doesn't make sense
Will Continue for future testing



Future Testing

- Full scale testing
- Particle size values of older model Aviator 440
- Potentially better data of percent obscuration while into and out of alarm for older Aviator 440