

# *Installing Electronic Radon Devices as Post-Mitigation Active-Alert Monitors*

Dallas Jones  
VP Ecosense

## SGM-SF Description of Terms

### **Operation, Maintenance and Monitoring plan (OM&M):**

A document that includes information on the operation and maintenance of installed system(s) and guidance for monitoring the effectiveness of the system in the future.

# SGM-SF Section 10.2.1 a)2b

2. Maintenance and monitoring instructions applicable to the *mitigation* purpose, to include:

- b) A recommendation to verify continued system effectiveness over time, such as either:
  - a recommendation to conduct a radon test at least every 2 years and to check system monitors quarterly to ensure the system is still functioning;** or
  - other monitoring procedures.....

# Active Notification Monitors

All mitigation systems that incorporate a fan shall also include a **monitoring mechanism that actively alerts occupants or other responsible individuals in the event of fan or other mechanical failure**. The alert mechanism shall include one or more of the following warning signals:

- a) audible notification that is clear and distinct; or
- b) visual light notification that is vividly observable; or
- c) notification by telemetric means, such as by email or electronic communication.

- Battery operated components shall not be used unless equipped with a low-power warning feature;
- Components that require electricity for indication of system failure shall be on non-switched circuits and designed to reset automatically .....

# Two Types of Digital Radon Monitors for Homeowners

## Electronic Integrating Device (EID)

- Sensitivity: less than 2 cph/pCi/L (*typically 1 cph/pCi/L*)
- Provides rolling 24-hour average
  - Combines counts for the hour with those from the last 23 hours
- 1<sup>st</sup> reading in 24-48 hours
- See week, month and year avg and trend charts
- Recommendation to expose 30 days before reading is actionable

## Continuous Radon Monitor (CRM)

- Sensitivity: more than 2 cph/pCi/L (*typically 18-30 cph/pCi/L*)
- Provides individual 1-hour readings
- 1<sup>st</sup> reliable reading in 1 hour
- See day, week, month and year avg and trend charts
- Reading is actionable in 48 hours



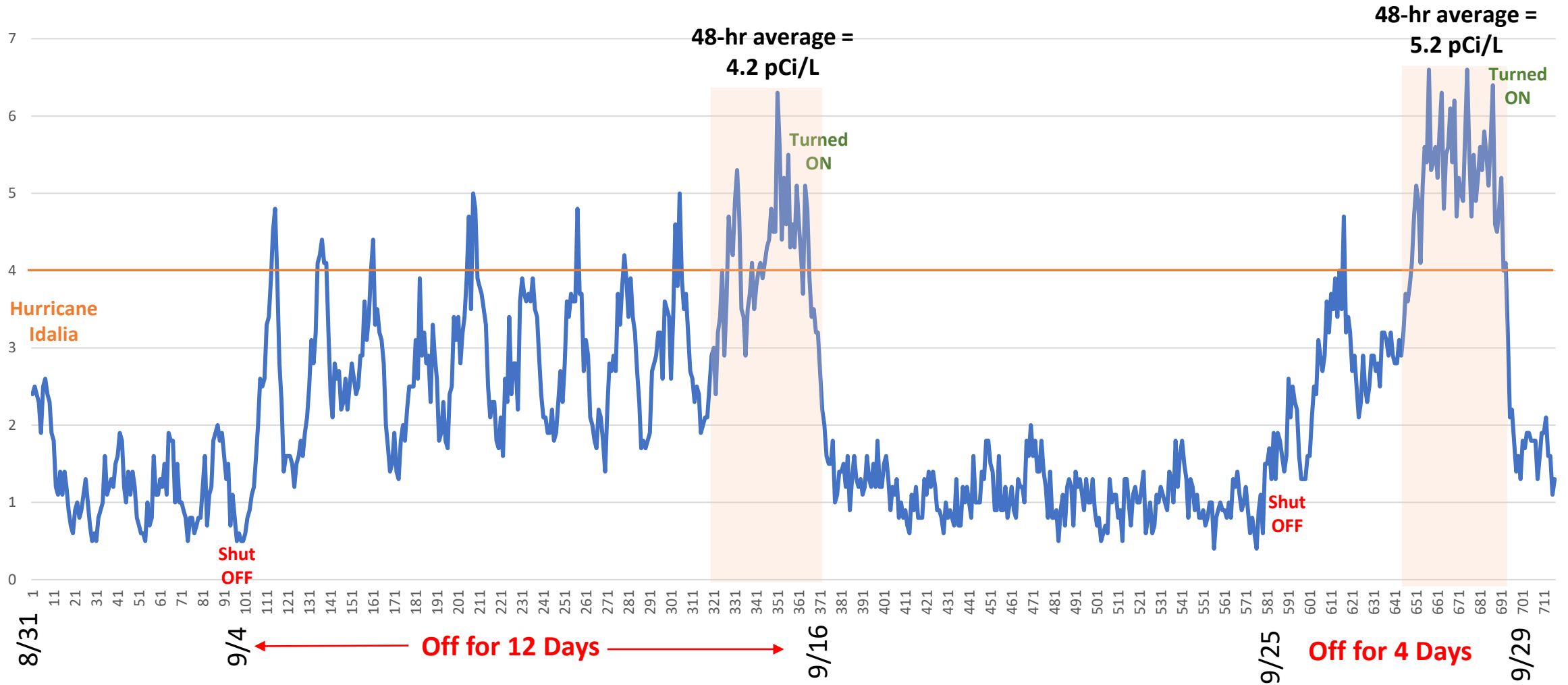
Can an installed home radon monitor with an alert work as well or better than a fan pressure alert?

Could it be a more effective way to monitor *“the effectiveness of the system in the future?”*

# Stone House Smyrna, GA

Pre-Mitigation Test = 5.1 pCi/L

Mitigator: Mitchell Stein

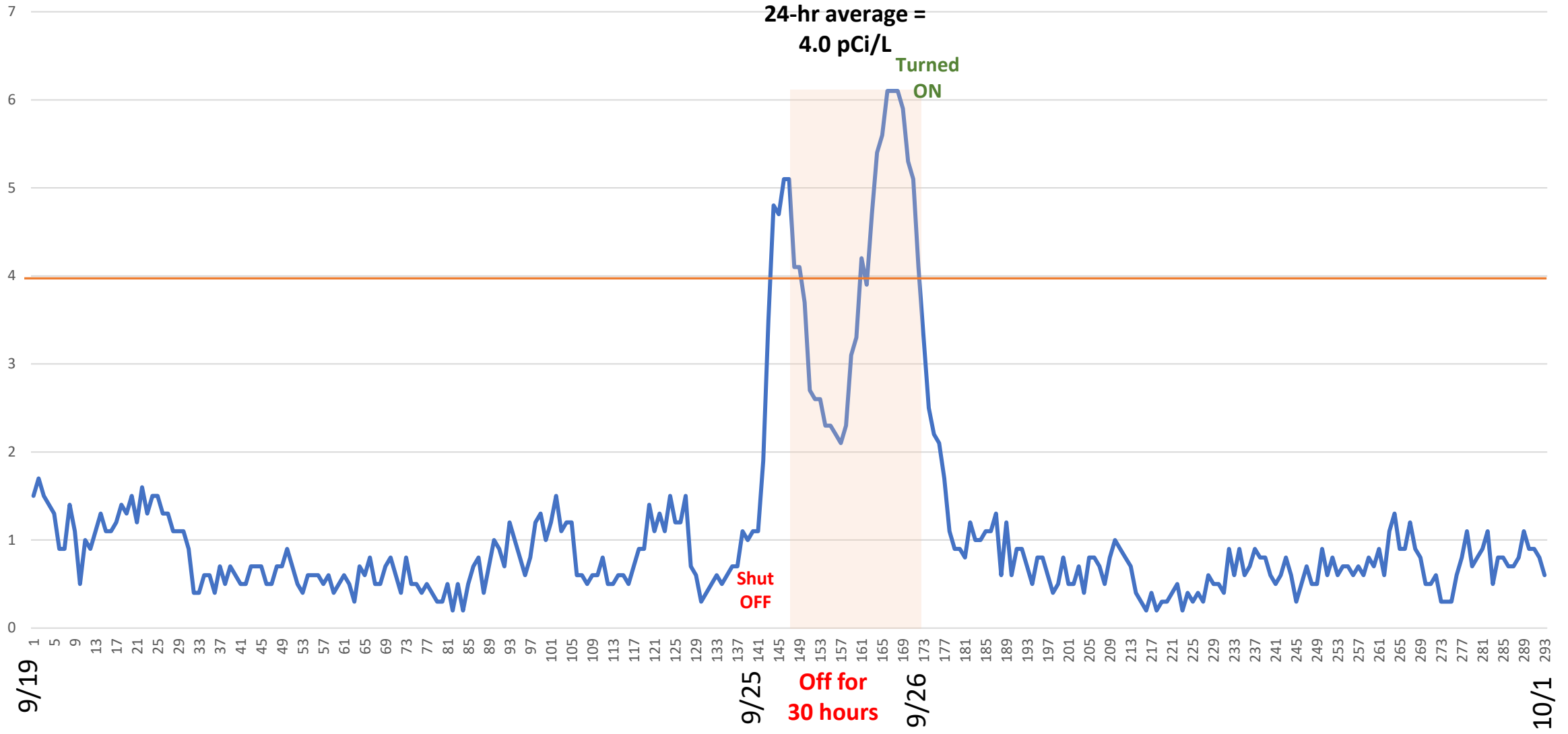


# Brown House

Brookhaven, GA

Pre-Mitigation Test = 5.8 pCi/Ln

Mitigator: Matt Koch





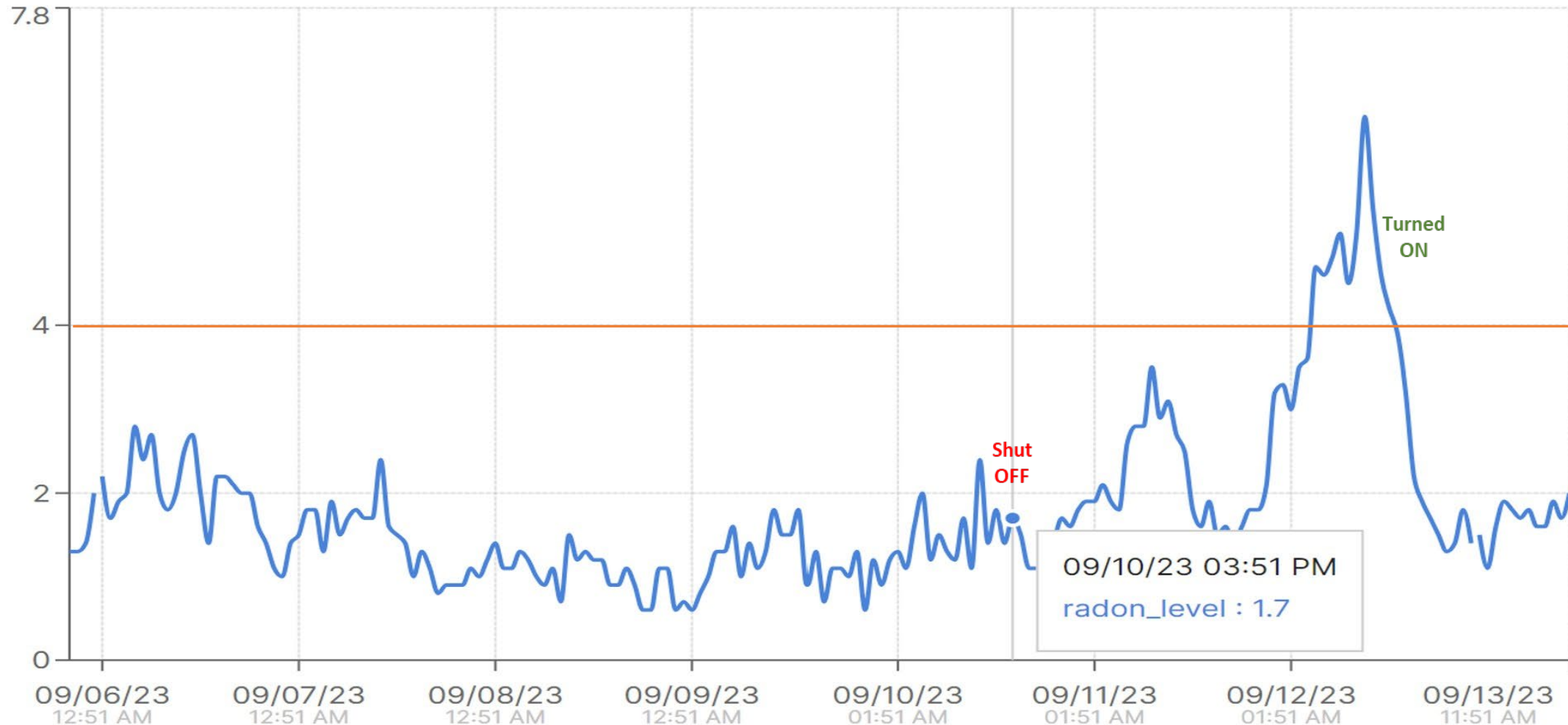
# Rocky Top House

Knoxville, TN

Pre-Mitigation Test: 8.7 pCi/L

Mitigator: David Coffey

## Radon Trends



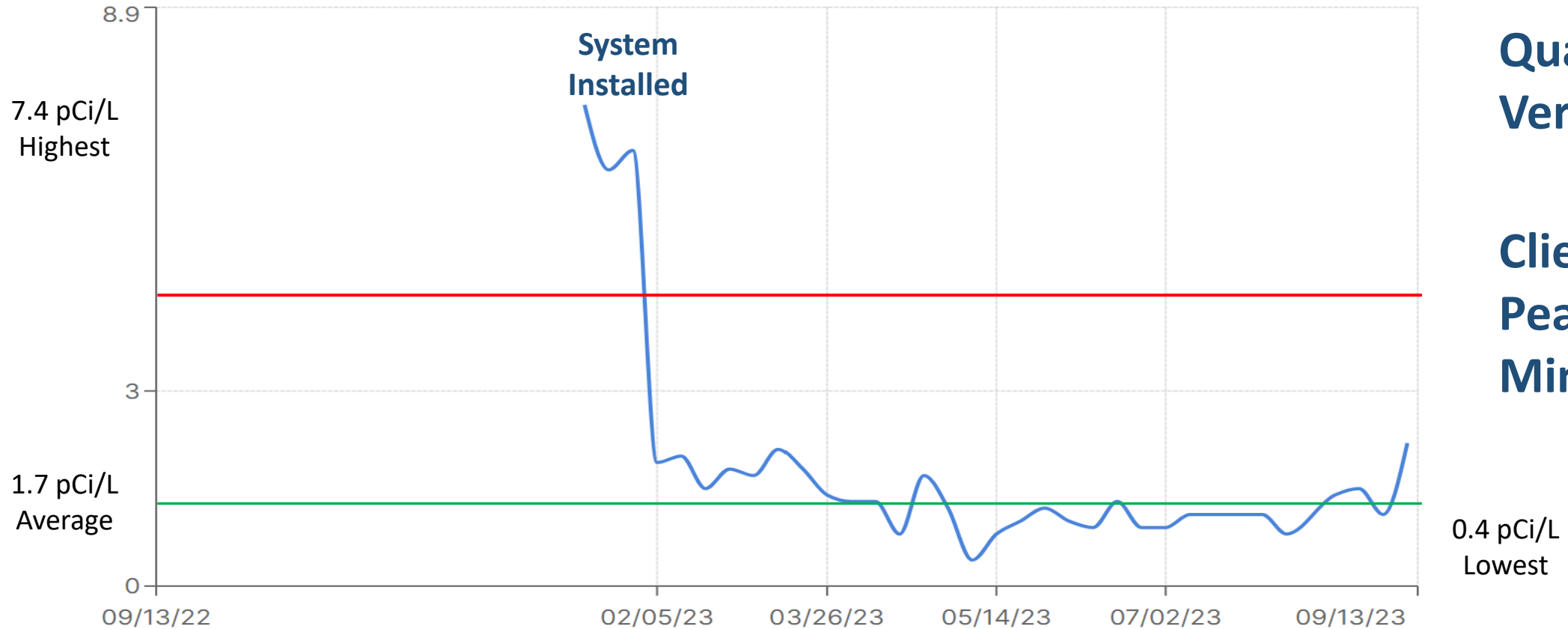
# Rocky Top House

Knoxville, TN

Pre-Mitigation Test: 8.7 pCi/L

Mitigator: David Coffey

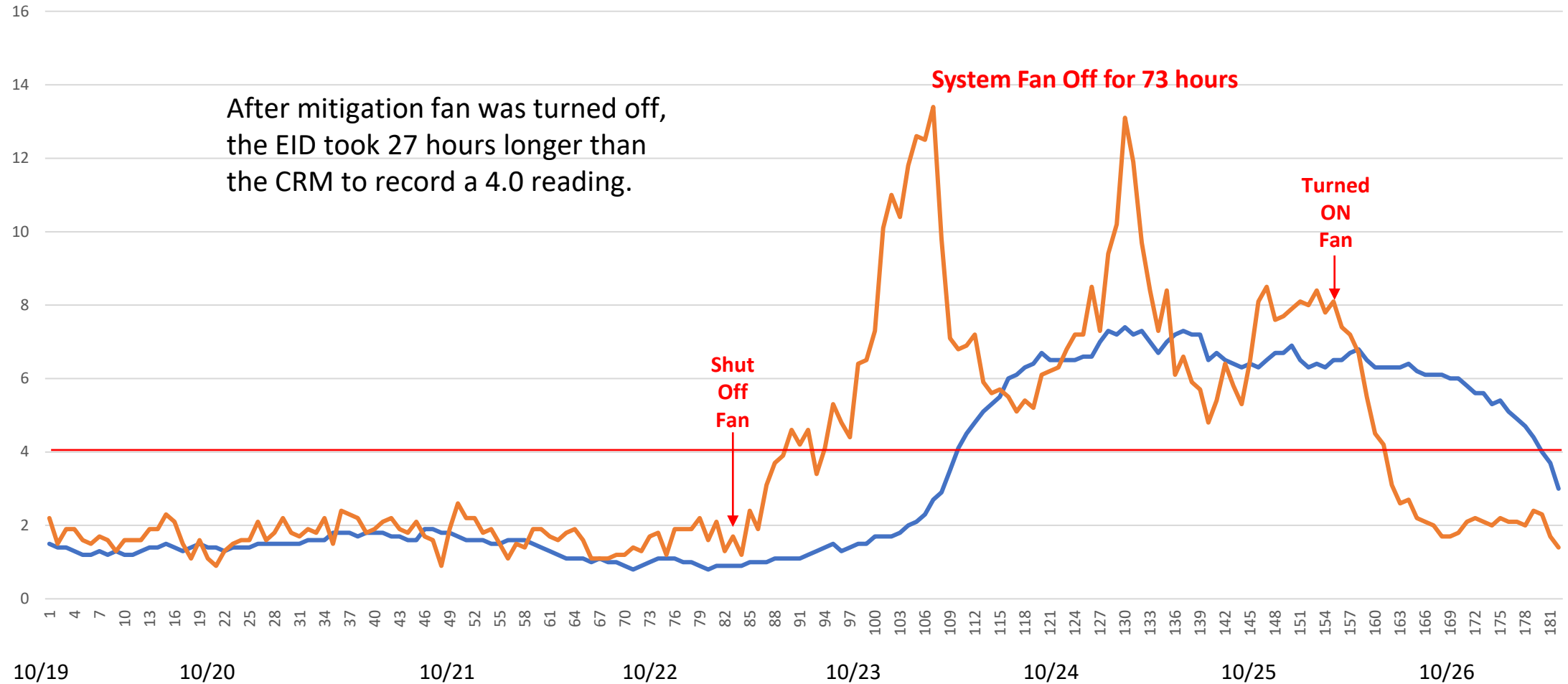
## Radon Trends for the year



**Quality  
Verification**

**Client  
Peace of  
Mind**

# Brown House – In-Home CRM & EID Comparison



# What condition should trigger the alert?

- A **Watch Notice** at 24-hours at/or above the chosen action level?
- An **Action Alert** at 48-hours at/or above the chosen action level?
- Both of the above?



# Who gets the alert? And, who sees the data?

- The mitigator
- The homeowner
- The mitigator AND the homeowner



Unlike an initial radon test, the purpose of monitoring a mitigation system isn't to make a mitigation decision.

The purpose of monitoring is **QUALITY ASSURANCE**

So - should the same protocol apply?

For example, since the standard says,

*“Test again at least every 2 years to ensure that the system remains effective,”*

would a system monitor need to be calibrated annually?

Is it reasonable to expect a homeowner to absorb the cost of annual calibration?

Let's assume these installed mitigation monitors can be individually calibrated & come with a calibration certificate.

What if they can meet the ANSI-AARST MS-QA requirements for a CRM and be listed on the NRPP device list?



# IF every two years the service provider either:

- Crosschecks the monitor by performing a 48-hour test with an in-calibration device
- Replaces the monitor with a new device, or
- Replaces the monitor with another one that's been returned and recalibrated...

Wouldn't we have an optimal mitigation  
Quality Assurance component?

In other words...

What if mitigators could  
routinely add the “monitoring”  
to their OM&M Plan?

COMMENTS?

QUESTIONS?