

Model Performance in Community Risk Reduction

Successfully Reducing the Incidence Rate of Nuisance Alarms from Microwave Ovens

Captain Matthew Hull, Athens Ohio

Athens City Fire Department (AFD) in partnership with Ohio University's Environmental Health & Safety Department (OU)



Problem: A Typical University Tale



- Sadly, many students can't cook
- 100's of nuisance runs per year
- Most caused by burnt cooking events in microwave ovens
- All dorm rooms have a microwave
- Here is our story...



Formative Evaluation

Shared Problem(s): AFD & OU

Microwave smoke events result in significant \$ costs to both, PLUS:



Athens Fire Department:

- Firefighters & students at risk
- Inefficient use of resources

Ohio University:

- Student alarm apathy
- Student productivity

OU Student Testimonial

***“When I hear the alarm go off,
I tend to shrug it off,
because it’s almost never real.”***

- Ohio University Sophomore student

AFD & OU Worked Together

Incident Data from 2007-2010:

- AFD responded to 50+ microwave incidents at OU each year
- Total cost per nuisance alarm approx. \$2,000

Solution: OU/AFD applied for a FEMA FP&S grant

1. Engineering solution to prevent nuisance alarms
2. Provide cooking education to students

Engineering Solution



Safe-T-sensor (STS):

- Prevents alarm activations
- Engineered to interrupt power to microwave at first sign of smoke
- **SmartMicro** is the STS 2.0

Easy to install

- Plug SmartMicro into the wall
- Plug microwave into SmartMicro
- Attach sensor above exhaust vent





Process Evaluation

Implementation

- OU purchased 4,630 Safe-T-sensors
- In 2010/11 all university microwaves were equipped
- Educational presentations to all staff & students
- Cooking safety handouts to all residents
- This was repeated on an annual basis



Impact Evaluation

Short Term Results

Immediate impact:

- First 14 weeks of 2011 = 92% decrease in nuisance alarms

It was determined from the data & results:

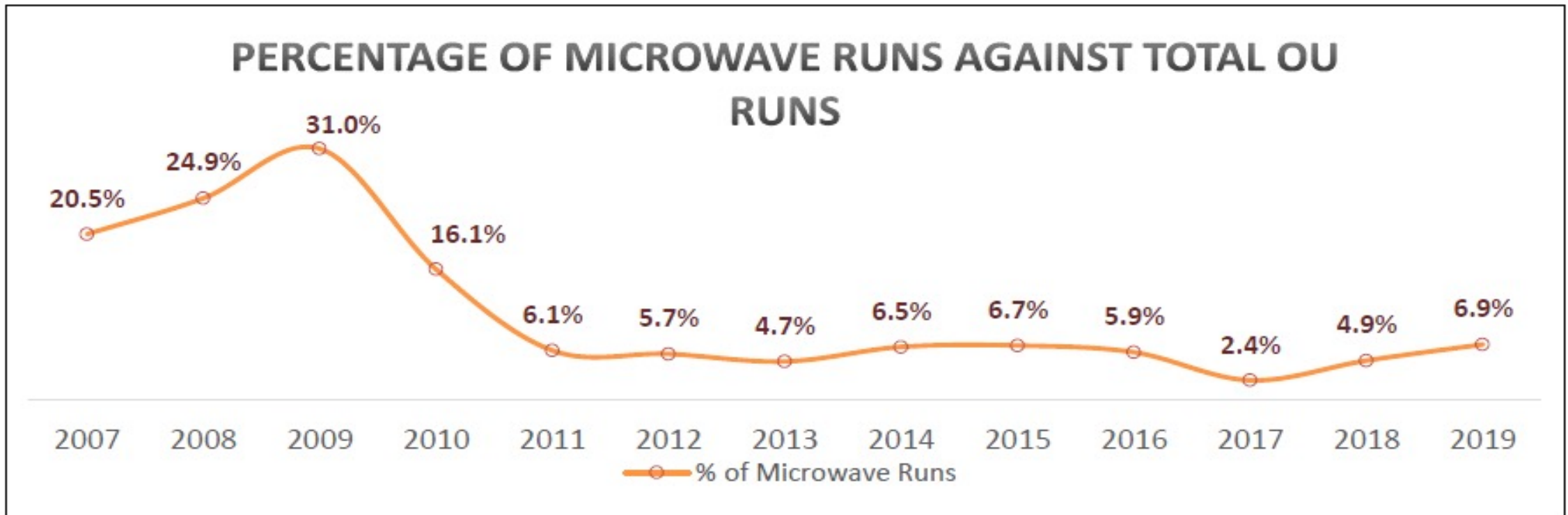
- Could realize a savings of \$75K - \$100K+ annually
- Decrease in alarms and evacuations
- AFD free to focus on serious emergencies



Outcome Evaluation

Long Term Results (2009 – 2019)

Significant downward trend in AFD/OU incident data



Return on Investment

From 2010 to 2019 a significant downward trend & ROI

Return on Investment	
Sensors purchased	4,630
Total Cost	\$185,154
Total \$ Saved	\$664,000
ROI	\$478,846

Intangibles:

- 66% decrease in AFD nuisance runs
- 82% decrease in microwave incidents
- Safer, more productive students
- More efficient use of resources

The program enables student cooking education each school year.



Recommendations

Relevance to CRR

Fire Departments & Communities, working together, can deliver meaningful, mutually beneficial outcomes.

Regarding SmartMicro: this product has proven to us that it helps prevent nuisance alarms and building evacuations that result in dangerous situations, costs and put all of us at risk.

Here are some other areas where this technology is having success:

Facility Type	Relevance
Senior's Facilities	• Alarms & evacuations are frightening/dangerous
Hospitals	• Evacuations create health/life threatening situations
Office Towers	• Significant loss of opportunity \$ cost



Contributors/Other Information

Contributors:

- Athens (Ohio) City Fire Department
- Ohio University's Environmental Health & Safety Department
- Pioneering Technology

Other:

- White Paper & more information materials
- Other proven cooking fire prevention solutions

Please Visit Booth #14



Presenter Contact Information



Matthew (Matt) Hull
Captain

Athens City Fire Department

mhull@ci.athens.oh.us