Smart Fire Protection Systems

Non-Invasive IoT Upgrade



- Detect Faults, Ensure Readiness
- Save Labor Costs
- Distance Monitoring
- Automated Inspection and Testing

CYPRESS ENVIROSYSTEMS™

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What the the problem we are addressing?









Manual Valves, Pumps, Indicators with limited or no monitoring

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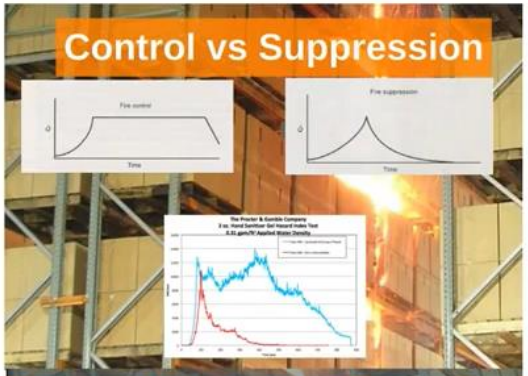
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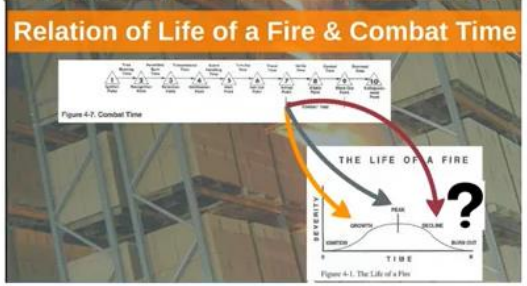
Want to Digitize Existing Facilities….

SFPE Engineering A Fire Safe World ®

Premium Series

- "Digital approach" started 6+ years ago
- Industry loss of fully sprinklered building
- Started with incident command
  - Tried to answer some basic questions:
    - How to give real data to responding fire department?
    - Can we monitor waterflow during an incident to show "control"?





SFPE

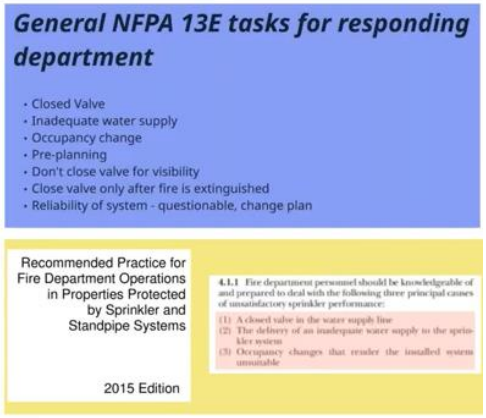
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…but don't change anything code related

SFPE Engineering A Fire Safe World®

Premium Series

- Compliant to code
  - Ideally don't "change" anything code related
- Simplification of ITM
  - What really matters?
    - Open valves and adequate/reliable water supply.
    - *Majority of major losses occur when either the control valve is closed or water supply fails.*
    - *The abnormal condition of either control valves and/or water supply can change the NLE (normal loss expectancy) to either the PML (probable maximum loss) or MFL (maximum foreseeable loss).*
- Improve "Smart Fire Fighting"



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Non-Invasive Wireless Gauge Reader (WGR)



Compatible with most dial gauges, hour meters, panel meters:



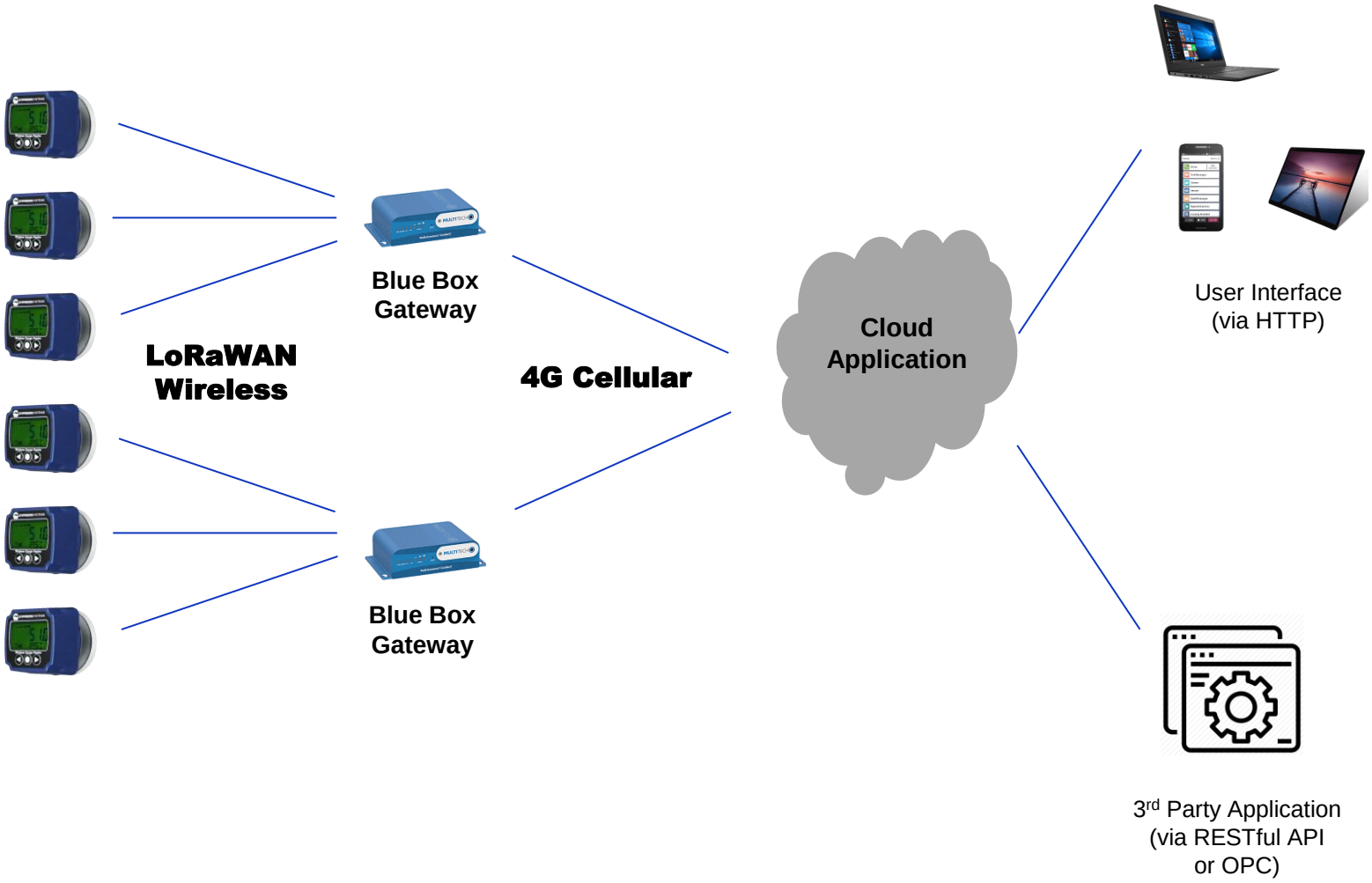
- “Electronic Eyeball” reads gauges and transmits readings wirelessly
- Non-invasive, clamp-on to existing gauges in minutes
- No downtime, no leak check, no wiring, no drawings
- Battery life of 3+ years at 15 minute sample rate
- IP56/NEMA 4 rated for outdoor use
- Various size and types of mounting adapters to fit most existing gauges
- Reads dial gauges, hour meters, LED/LCD displays

Wireless Transducer Reader (WTR)



- Enables wireless remote monitoring of virtually any analog transducer or instrument with the following outputs: 4-20mA, 0-5V, or 0-10V, RS-232, RS-485, thermocouple, thermistor
- Compatible with most existing flow meters, current meters, particle counters, thermocouples, weigh scales, etc.
- Battery life of 3+ years at 15 minute sample rate
- Optional enclosures for NEMA 6, IP 67 protection
- Enables data logging to enable trend analysis, notification, or statistical process control

Deployment Architecture – P&G



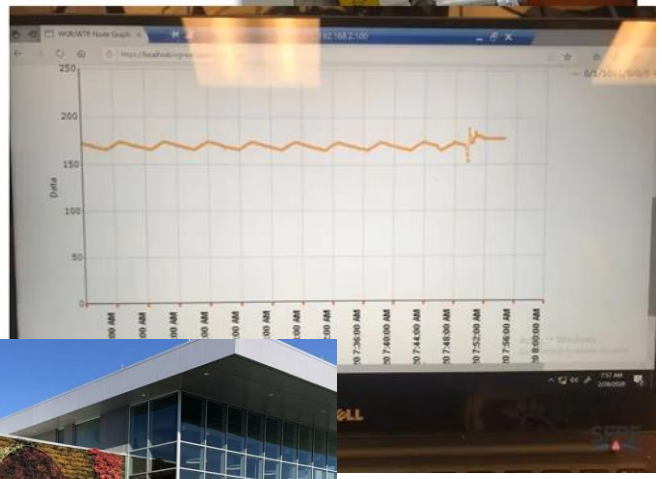
Deployment at P&G Facilities – Spring 2020

SFPE
Engineering A Fire Safe World ®

Premium Series

- Riser pressure monitoring
  - Optical wireless gauge reader installed on existing gauge *(Cypress Envirosystems)*
  - Detect drop-in pressure, closed or obstructed system valve
  - Text/email notification when off-normal







- Future application – optical reader on PIV window to monitor OPEN/SHUT



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NFPA – Evolution to Smart Fire Protection Systems

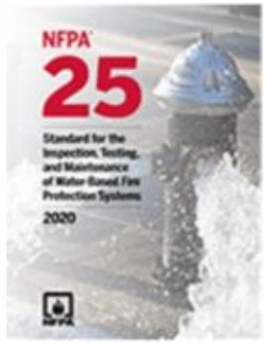
NFPA 25, 2020

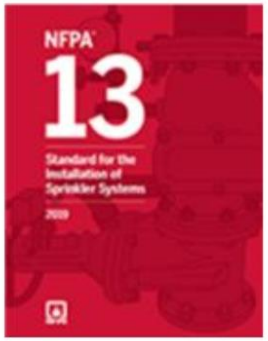
- **3.3.3 Automated Inspection and Testing.** The performance of inspections and tests at a distance from the system or component being inspected or tested through the use of electronic devices or equipment installed for the purpose.

NFPA 13, 2019

- **3.3.55 Distance Monitoring.** The monitoring of various conditions of a system or component from a location distant…..

- **3.3.9 Automated Inspection and Testing.** The performance of inspections and tests at a distance from the system or…





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Benefits

- **Reduced Labor for Inspection/Monitoring**
- **Improved Fault Detection**
- **Enhanced First Responder planning**
- **Reduced Insurance Premiums**