

Preventative maintenance with test program to secure performance during lifecycle

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- **Benefits** for customers and strategic view for the fire protection companies
- What are **preventative maintenance** best practices with testing
- Conclusions

Preventative Maintenance Benefits: for *Customer – in brief*

- **“Peace of Mind”**

Everything works long term – No disruptions

- **Lowest costs** in long run

- Lowest building running rate
- Steady OPEX - easy budgeting of facility operating costs
- CAPEX investment with longest lifespan

- **Meet the requirements** of the standards & Insurance

Preventative Maintenance Benefits: for *fire protection companies*

Market perception as **mature** fire suppression technology?

- **Trust:** Well established technology from well established companies – **Lifecycle partners.**
- **Quality:** Lifecycle quality secured via preventative maintenance
- **Additional Sales** stream vs. more volatile new project business
- Gate to additional **new projects** via repeated customer touchpoints

What works as Preventative Maintenance?

Discovered during decades



- Basic cycle of customer's and certified technician's inspections and operations
- **Customer's weekly & monthly** checks & **certified technician** recurring visits from quarterly to 10-year cycle
- Cycle based on the time and conditions of operating environment
- **Sprinkler and water on-site quality assurance:** inspections & testing **adjust dynamically the cycle** of maintenance activities – Awareness of corrosion risk and corrosion management

Sprinkler on-site quality assurance?

- Visual inspection of sprinklers
- Functional testing of sprinklers (system stand-by pressure)
- Replacement of contaminated sprinklers
- Spare part sprinkler inventory check (customer's on-site stock)

Testing in Preventative Maintenance

Relevant & commercially feasible

- **Operating environment & corrosion** play a role in all water-based suppression systems during the lifecycle
- **Transparency to system's readiness to function** is important due to these varying factors.
- In Testing look for **early indicators** and **evidence of “actual operation”**:
 - Indications of operating environment's corrosion risk: **Water quality tests**
 - Evidence of WM system to releasing water from sprinklers: **Sprinkler* RELEASE tests**

Testing best practices

Sprinkler* RELEASE testing captures the most essential:

Will system release water when triggered?

Testing **kept simple** and **enabled run on-site by technician**:

- Often enough
- Enough samples
- Minimal delay from the removal of wet sprinkler
- Commercially feasible

SIMPLE TEST EXECUTED OFTEN & WIDELY enough.

Testing Benchmark

- Marine fire suppression applications regulated by IMO standard
- **Annual sprinkler* release testing** (by certified technician on-site) is already been in operation for over a decade
- Countries of **UNITED NATIONS (UN) are committed** to the testing of all active fire suppression systems in Marine applications.
- Land applications use same WM solutions as in Marine.

Testing evolution drafting in WM standards:

- EN 14972-1 / EN-12259-1 standard change proposal for moving laboratory sprinkler* test to be run more seldom
- Already the current recurrence of Laboratory tests reason to split testing to Annual release test by technician vs. comprehensive laboratory test
- On-site release test COMPLEMENTS the time gap between the laboratory tests in current 5-year cycle.
- Potential change of laboratory test cycle to more seldom than 5 years (even 12-year cycle) raises further the need to split the release testing to be completed annually by technician

Future of testing and monitoring

- Future solutions, like connected fire suppression systems with sensors, increase customer fire safety:
 - Close to real time status of system health
 - Measure critical components and water quality
 - Customer's inspection process digitized and harmonized (weekly / monthly)
 - Remote troubleshooting and more effective service planning to fix all needs in 1 visit
- Key considerations
 - Remote access to alter system parameters or operate functions & system testing?
 - Preparation work to detail “remote access actions” scope in water mist standards

Conclusion

- Preventative maintenance helps water mist technology and industry companies to be seen as mature & well-established option
- Annual testing by certified technicians is practical and affordable way to secure water mist systems' health broadly

• Acknowledgement & contact information

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