

THM-100-FP™

THM Formation Potential Determined with an Accelerated Online Process



The problem

THM remediation technologies are typically managed based on THM readings taken from the treatment plant or at critical points in the distribution network. Whereas THM levels can be low at the exit of the WTP, they often increase dramatically in the distribution network. Ideally, timely measurements of the THM formation potential (THM-FP) would enable predictions of network THM levels, but standard analytical methods to determine THM-FP can take up to 7 days to provide results making it difficult to implement effective and efficient THM process remediation changes.

Our unique solution

Utilities already using the THM-100™ online analyzer to measure THM values at WTPs can now purchase a service package upgrade to the THM-100-FP™ that implements an accelerated THM-FP method and measurements. When coupled with additional information from an in-network THM-100 monitor, network-modeling algorithms can be developed to afford real-time predictions of future THM levels in the distribution network based on THM-FP measurements of the water quality at the treatment plant.

Over several months the THM-100-FP operational parameters are customized to match either network THM levels, or alternatively a maximum THM-FP level. Development of THM-FP methods or models can be impacted by changes from raw of water quality, water treatment processes or network activities. As a result, we work closely with utilities to develop and optimize THM-FP parameters.

Benefits of the THM-100-FP™ Service Package

- Offers early characterization of the THM-FP of water quality leaving the WTP
- Affords early prediction of future THM levels at critical points in the distribution system
- Helps to better manage water treatment process
- Mitigates compliance risk

THM-100-FP™ Online Analyzer Features

- 6 online samples daily (combined TTHM and THM-FP)
- Optional 'Predicted Network THM' level calculation
- THM-FP method is only 60 minutes longer than the TTHM method
- Separate SCADA outputs for TTHM, THM-FP and 'Predicted Network THM' levels
- Offered with an annual service contract inclusive of a 5 year warranty



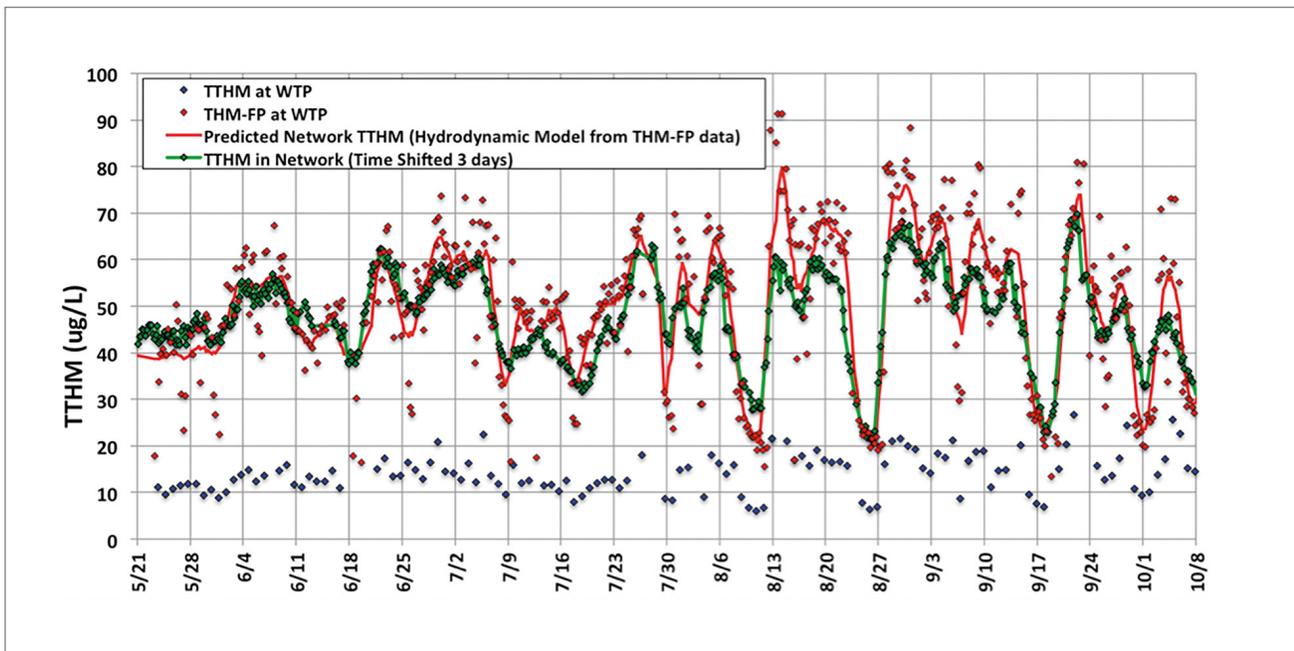
THM-100-FP™ Case Study

THM-100-FP™ located at the exit of the WTP

- Two source waters: THM-FP was high with surface water but low with ground water
- Expensive RO treatment of the water blend
- 6 samples/day: 5 online THM-FP and 1 online TTHM measurements
- Low online TTHM levels (<20 ug/L) but high THM-FP levels (up to 90 ug/L)

THM-100™ at a tank in the distribution network

- Average water age (network residence time) approximately 3 days from the WTP



THM-FP levels at this WTP are highly variable, changing rapidly depending on the source water blend and extent of RO and conventional THM mitigation treatments. However, the TTHM levels of the WTP effluent are reasonably low and difficult to correlate with the higher in-network THM levels.

Within the distribution network, TTHM levels fluctuated less dramatically than the THM-FP values at the WTP. Therefore, an empirically derived model was developed to better correlate effluent THM-FP values with network TTHM levels. The model employs time-weighted averaging of THM-FP measurements to simulate hydrodynamic mixing of water age in the network, resulting in a calculation method of 'Predicted Network TTHM'. The 'Predicted Network TTHM' calculation method was then implemented on the THM-100-FP monitor, complete with SCADA output, to provide an estimate of THM levels in the network several days in advance.

Aqua Metrology Systems reserves the right to change the specifications as necessary.